The ICTP Experience: Diploma and STEP Students

Copyright © 2007 by the Abdus Salam International Centre for Theoretical Physics (ICTP)

Condition of use:

All rights reserved.

No part of this document may be reproduced in any form without prior written permission or without the acknowledgment of the source.

A single copy can be saved or printed for personal use only. The copyright notice and disclaimer must not be removed from the document.
THE ICTP EXPERIENCE:
DIPLOMA STEP AND STUDENTS

Trieste
Italy
2007
THE ICTP EXPERIENCE:
DIPLOMA AND STEP STUDENTS
Among the projects on capacity building that ICTP has undertaken over time is the so-called Diploma Program. The Program, begun in 1991, consists of a rigorous, one-year long, pre-doctoral course work, with a small part devoted to independent projects. The Program initially had three streams: High Energy Physics, Condensed Matter Physics and Mathematics. We have recently added a new stream on Earth System Physics and will be starting in the Fall of 2007 an additional Program in Basic Physics without specialization. Our goal in these programs is to take good students from the least developed countries generally – and for the Basic Physics Program students from only sub-Saharan Africa – and educate them so they can compete favorably for graduate studies in any centre of learning in the world. I should note that ICTP is not permitted to offer degrees formally, and the students that we prepare cannot continue for Ph.D. at ICTP. In this sense, like much else that ICTP does, there is a strong element of altruism built into the Program.

We have learnt by experience that this task is both rewarding and challenging. It is challenging because the students generally come to the Diploma Program with several handicaps. Almost none of them has been taught by an active researcher at any time previously; the standards of course work in many of the places from which they come are not up to the mark; the students have often not absorbed or understood deeply what they have studied; some of them have language difficulties and have never faced an audience. It is thus clear that their experience and accomplishment at this stage would not earn them admission into a serious Ph.D. Program. Yet the students are bright and capable of hard work in the right environment. To transform students who are essentially “green” to competitive researchers, primarily through their own efforts under the watchful eyes and gentle guiding hands, is the part that is highly rewarding.

Some statistics follow. Since inception in 1991, the Diploma Program has “graduated” some 450 students, roughly 20% of whom are female. About 43% have returned home and begun teaching in colleges and
schools, and joined other avenues of workforce; about 41% have earned their Ph.D. degrees (15% from the US, 16% from Western Europe, and 10% from elsewhere); some 16% of the students have lost contact with us. The geographic distribution of students admitted is: Africa, 38%; Asia, 41%; Latin America 15%; Eastern Europe 4%; Oceania 2%. Some students have earned their Ph.D. degrees at prestigious institutions such as Harvard, Princeton and Oxford; most others in various respectable research universities. We at ICTP are uniformly proud of their success. What is more, as you will see momentarily, the students are proud of their association with ICTP.

ICTP has invented another mechanism to support graduate work. This is the so-called SANDWICH Program. Here, a student registered for a Ph.D. in a University or Program in a developing country is chosen for three visits to ICTP for a total of about 18 months (this being somewhat flexible), having usually a co-advisor in ICTP or an ICTP-affiliated institution. The students receive their Ph.D. from their home institutions. The hope is that this mechanism will keep the students at their home universities, yet allow them access to international community and first-class research facilities through ICTP. This relatively new program, started in 2002, has about 70 students currently registered in it. Already, 16 students (10 from Africa, 3 from Asia and 3 from Eastern Europe, 5 being female) have graduated, and more will soon follow. This is the place to thank our parent organizations, IAEA and UNESCO, which have evinced keen interest in this Program. The IAEA has been promoting the idea in domains of interest to its own programs, while the Director-General of UNESCO, Mr. Koichiro Matsuura, was personally responsible for procuring the support of the Mori Foundation for fellowships to African students from the sub-Saharan region.

I should point out one important feature of both these programs: they are labor intensive. One has to pay individual attention to the students, without which the results will at best be indifferent. This is one reason why we admit a relatively small number of students each year in the Diploma Program (30 in the past, 50 from 2007 onwards), and have only 70 students in the SANDWICH Program. This is more or less the limit to our capacity presently. In addition to the scientists of ICTP involved in teaching and guiding them, also taking part are the faculties from SISSA, the University of Trieste, as well as members of other research institutions nearby. I am struck by their enthusiasm and dedication, and thank them for their efforts.

The essays in front of you are written by the Diploma students (about 125 responded to my request), and the SANDWICH students (about 25
responded). The response rate is not unreasonable, considering how connections become exponentially weaker in time. These articles clearly show how enormously successful these students have been, and how strongly they feel that ICTP was behind that success. Their gratitude is strong because they realize that ICTP was the necessary stepping stone for their success. You will see many mentors mentioned by name. I am at once proud, pleased and grateful for it all. I can only hope that the successful students don’t forget ICTP’s philosophy, which is to share one’s good fortunes with those less well endowed.

I should now like to ask, despite the vivid documentation of success in front of you, whether ICTP has achieved its goal through these Programs. Recall that our goal is to increase the number of scientifically qualified people in the poorer segments of the world, so there is enough capacity to make sensible decisions with respect to education, research, resource utilization, and general economic development of peoples in their countries. If more than half the Diploma students have built careers – albeit successfully – outside of their home countries, have we not aided the very brain drain which we have been trying to alleviate? First, let’s look at the alternative. As you will see from the essays below, most of the students would have not made it to a graduate school without the Diploma Program; putting into the orbit of science some competent students who would otherwise not have reached it is, in itself, a laudable effort. Second, as is also clear from the essays, most of the students have inculcated a certain sense of altruism while they studied at ICTP, and are eager to be part of its enterprise. I am certain that, as they become increasingly successful, the students will get better connected to the countries they left behind. This can be extremely beneficial. Third, nearly half the students have indeed ended up teaching in their colleges and schools. As the world bills itself as the habitat for knowledge-based societies, the greatest shortage is for people who will educate the youth. What is more worthwhile today than teaching young people to make something out of their raw talent?

There are several ways in which we can improve the Diploma Program. The first of them is, obviously, to assign to each student a faculty mentor immediately after the student arrives at ICTP. This will enable the progress of each student to be monitored more carefully. The second is to make better use of the multimedia presentations, so the students have the opportunity to review their lessons in precisely the environment in which the lectures were delivered. Once the multimedia efforts are under way, there is no reason why the resulting material cannot be distributed to other needy places as supplementary material for teachers. Our Science Dissemination Unit has already made substantial progress in this direction.
Accommodations for the Diploma students have always been a bit of a problem, and need attention.

It is my hope that you, the reader, will feel as inspired by the essays to follow as I was, and engage yourself in the enormous task of raising the number and quality of scientifically qualified people in developing countries. I keep saying that science is an enterprise that should hold humanity together, not split us apart. Of course, it does not mean that I am oblivious to the possibility that science will be abused by tyrants, war mongers and profiteers of human misery – which is why the universality of science is more meaningful when it is practiced concurrently with deep respect of human rights and human dignity, and with openness. I see enormous difficulties if segments of societies close up – which is all the more the reason why we have to work hard to keep our institutions open to all. This is ICTP’s mission.

* * * *

The Diploma Program and the SANDWICH Program are the result of the efforts of the scientific staff at ICTP, its consultants and advisors as well as the administrative staff. You will see their names mentioned several times in the essays, and I will not repeat them here. I should, however, especially thank Professor S. Randjbar-Daemi who coordinates the Diploma Program and Professor G. Denardo who coordinates the SANDWICH Program. The Section coordinators of the Diploma Program need special mention as well. The help of Ms. S. Alimanovic, Ms. D. Calligaro, Ms. A. Gatti, Mr. E. Fratnik and Ms. P. Passarella were essential for the preparation of this volume. I owe them my thanks as well.
# TABLE OF CONTENTS

PREFACE........................................................................................................... i

TABLE OF CONTENTS ................................................................................. v

DIPLOMA STUDENTS, LIST OF CONTRIBUTORS .............................................. x

STEP STUDENTS, LIST OF CONTRIBUTORS .................................................. xix

<table>
<thead>
<tr>
<th>Muhammad Adnan Abid</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danda Pani Acharya</td>
<td>2</td>
</tr>
<tr>
<td>Lotty Ackerman</td>
<td>3</td>
</tr>
<tr>
<td>Girma Woldesenbet Addishiwot</td>
<td>4</td>
</tr>
<tr>
<td>Adetayo Victor Adedeji</td>
<td>7</td>
</tr>
<tr>
<td>Dhruba R. Adhikari</td>
<td>9</td>
</tr>
<tr>
<td>Narayan Adhikari</td>
<td>10</td>
</tr>
<tr>
<td>Atika Ahmed</td>
<td>11</td>
</tr>
<tr>
<td>Akande Akinlolu</td>
<td>13</td>
</tr>
<tr>
<td>Earnest Akofor</td>
<td>14</td>
</tr>
<tr>
<td>Kadeer Alimujiang</td>
<td>16</td>
</tr>
<tr>
<td>Kheira Ameur</td>
<td>17</td>
</tr>
<tr>
<td>Yaser Roodgar Amoli</td>
<td>19</td>
</tr>
<tr>
<td>Gokarna Raj Aryal</td>
<td>20</td>
</tr>
<tr>
<td>Maher Attal</td>
<td>21</td>
</tr>
<tr>
<td>Adel Awad</td>
<td>23</td>
</tr>
<tr>
<td>Abdel Bachri</td>
<td>25</td>
</tr>
<tr>
<td>Mohamed Bakr</td>
<td>26</td>
</tr>
<tr>
<td>Fouzia Bano</td>
<td>27</td>
</tr>
<tr>
<td>Rondrotiana Barimalala</td>
<td>28</td>
</tr>
<tr>
<td>Nana Geraldine Cabo Bizet</td>
<td>29</td>
</tr>
<tr>
<td>Marius Boamfa</td>
<td>30</td>
</tr>
<tr>
<td>Name</td>
<td>Page</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Jamila Bashir Butt</td>
<td>32</td>
</tr>
<tr>
<td>Freddy Cachazo</td>
<td>33</td>
</tr>
<tr>
<td>Miguel Cardenas</td>
<td>35</td>
</tr>
<tr>
<td>Juan Carraquilla</td>
<td>36</td>
</tr>
<tr>
<td>Maria Eugenia Cabrera Catalan</td>
<td>37</td>
</tr>
<tr>
<td>Ngo Lam Xuan Chau</td>
<td>39</td>
</tr>
<tr>
<td>Axel Velasco Chávez</td>
<td>40</td>
</tr>
<tr>
<td>Ashenafi Dadi</td>
<td>41</td>
</tr>
<tr>
<td>Guy Degla</td>
<td>42</td>
</tr>
<tr>
<td>Dou Djamel</td>
<td>43</td>
</tr>
<tr>
<td>Ignacio Franco</td>
<td>45</td>
</tr>
<tr>
<td>Alexis Omar Garcia</td>
<td>47</td>
</tr>
<tr>
<td>Erdal Gul</td>
<td>48</td>
</tr>
<tr>
<td>Mansour Haghighat</td>
<td>49</td>
</tr>
<tr>
<td>Habtu Zegeye Hailu</td>
<td>50</td>
</tr>
<tr>
<td>Kamrul Hassan</td>
<td>51</td>
</tr>
<tr>
<td>Boubakari Ibrahimou</td>
<td>52</td>
</tr>
<tr>
<td>S. Akbar Jafari</td>
<td>53</td>
</tr>
<tr>
<td>Josephat Kalezhi</td>
<td>55</td>
</tr>
<tr>
<td>Ayse Kara</td>
<td>56</td>
</tr>
<tr>
<td>Bijaya Bahadur Karki</td>
<td>57</td>
</tr>
<tr>
<td>Parinya Karndumri</td>
<td>58</td>
</tr>
<tr>
<td>Hektor Kashuri</td>
<td>59</td>
</tr>
<tr>
<td>Atabey Kaygun</td>
<td>60</td>
</tr>
<tr>
<td>Hae-Young Kee</td>
<td>61</td>
</tr>
<tr>
<td>Hamid Khalesifard</td>
<td>62</td>
</tr>
<tr>
<td>Sadia Khalil</td>
<td>64</td>
</tr>
<tr>
<td>Saiful I. Khondaker</td>
<td>65</td>
</tr>
<tr>
<td>Hoang anh Tuan Kiet</td>
<td>66</td>
</tr>
</tbody>
</table>
Manungu Joseph Kiveni ................................................................. 67
Margarita Kuqali ........................................................................ 68
John K. Kutor ............................................................................. 69
Olivier Heubo Kwenga ............................................................... 71
Samir Lamara ............................................................................ 72
Elsayed Ibrahim Lashin ............................................................... 73
Juan López ................................................................................ 75
Muhammad Aziz Majdi ................................................................ 76
Percy Makita ............................................................................. 77
Mamat Mamatishat ................................................................. 79
Leopold Matamba ..................................................................... 80
Alejandra Melfo ......................................................................... 81
Lucero Alvarez Miño .................................................................. 83
Phan Thanh Nam ...................................................................... 84
Tsogbadrakh Namsrai ............................................................... 85
Salah Nasri ............................................................................... 86
Lan Nguyen ............................................................................. 88
Nga Thi-Thuy Nguyen .............................................................. 89
George Kofi Nkrumah-Buandoh ............................................... 90
Agashi Nwogbaga ..................................................................... 92
Mourice Ouma Otieno † ............................................................ 93
Lara Kelleyane-Özharar ............................................................ 94
Thirunavukkarasu Pathmathas .................................................... 95
Moustapha N. Pemy .................................................................. 96
Serge Phanzu ............................................................................ 97
Aureliano Skirzewski Prieto ...................................................... 98
Faiza Nebia-Rahal ................................................................... 99
Njinasoa Randriamampiry ....................................................... 100
N.P. Rapapa ............................................................................ 101
The ICTP experience: DIPLOMA and STEP students

<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbas Rastegar</td>
<td>102</td>
</tr>
<tr>
<td>John Realpe</td>
<td>103</td>
</tr>
<tr>
<td>Armelle Reca C. Remedio</td>
<td>105</td>
</tr>
<tr>
<td>Reinabelle Reyes</td>
<td>108</td>
</tr>
<tr>
<td>Ganiyu Saheed</td>
<td>109</td>
</tr>
<tr>
<td>Adriana Sanchez</td>
<td>111</td>
</tr>
<tr>
<td>Alberto Sanoja</td>
<td>112</td>
</tr>
<tr>
<td>Khim Raj Shrestha</td>
<td>113</td>
</tr>
<tr>
<td>Jose Oliverio Alvarez Sierra</td>
<td>114</td>
</tr>
<tr>
<td>Masoud Sohaili</td>
<td>115</td>
</tr>
<tr>
<td>Iwan Sugihartono</td>
<td>116</td>
</tr>
<tr>
<td>Hasan Tatlipinar</td>
<td>117</td>
</tr>
<tr>
<td>Driba D. Tolla</td>
<td>118</td>
</tr>
<tr>
<td>Mesfin Tsige</td>
<td>120</td>
</tr>
<tr>
<td>William J. Ugalde</td>
<td>122</td>
</tr>
<tr>
<td>Martin Vollmann</td>
<td>123</td>
</tr>
<tr>
<td>Shelly Watts</td>
<td>124</td>
</tr>
<tr>
<td>Hoernisa Iminniyaz (Wuernisha Yimingniyazi)</td>
<td>126</td>
</tr>
<tr>
<td>Efta Yudiarsah</td>
<td>127</td>
</tr>
<tr>
<td>Muhammad Ali Yusuf</td>
<td>128</td>
</tr>
<tr>
<td>Bashir Ali</td>
<td>131</td>
</tr>
<tr>
<td>Paulina Ekua Amponsah</td>
<td>133</td>
</tr>
<tr>
<td>Brice Rodrigue Malonda Boungou</td>
<td>135</td>
</tr>
<tr>
<td>Nana Ama Kum Browne</td>
<td>137</td>
</tr>
<tr>
<td>Aliaksandr Danilchyk</td>
<td>139</td>
</tr>
<tr>
<td>Oluwayomi Peace Faromika</td>
<td>141</td>
</tr>
<tr>
<td>Almamy Konté</td>
<td>143</td>
</tr>
<tr>
<td>Alexandru Marmureanu</td>
<td>145</td>
</tr>
<tr>
<td>Folasade Mayowa Olajuyigbe</td>
<td>146</td>
</tr>
</tbody>
</table>
Merlin Ngachin ........................................................................................................ 148
Kanstantsin Osipov ............................................................................................. 150
A.T. Raji .................................................................................................................. 151
Elena Robu .............................................................................................................. 152
Ali-Reza Moradi ..................................................................................................... 155
Mohamed Tahani Salaheldin .................................................................................. 158
Sule Ola Salawu ...................................................................................................... 160
Mohammed Khalil Saeed Salih ............................................................................. 163
Amna Sirelkhatim ..................................................................................................... 165
Andriy Sizov ........................................................................................................... 166
Uguette F. Ndommoou Taffoti ............................................................................... 168
Yolong Vicky Yolande Taffoti ............................................................................... 170
Suzana Topuzoski .................................................................................................... 172
Jiafeng Zhao ........................................................................................................... 174
Vitaly Zub ................................................................................................................ 177
The ICTP experience: DIPLOMA and STEP students

**DIPLOMA STUDENTS, LIST OF CONTRIBUTORS**

Muhammad Adnan Abid  
c/o ICTP  
e-mail: mabid@ictp.it

Danda Pani Acharya  
Clippenger Research laboratory  
Ohio University  
Room # 251B  
Athens, Ohio, 45701  
USA  
Tel: 740-593-2971 (Office)  
Fax: 740-593-0433  
e-mail: da330902@ohio.edu, dpacharya2004@yahoo.com

Lotty Ackerman  
California Institute of Technology (CALTECH)  
MC 103-33  
1200 E. California Blvd  
Pasadena, CA 91125  
USA  
e-mail: lottyackerman@yahoo.com

Girma Woldesenbet Addishiwot  
c/o ICTP  
e-mail: agirma_w@ictp.it

Adetayo Victor Adedeji  
Georgia Southern University  
Statesboro, GA  
USA  
e-mail: avadedeji@georgiasouthern.edu  
OR  
1022 Crestwood Drive  
Auburn, AL 36830  
USA  
Tel: 334-524-9994

Dhruva R. Adhikari  
Department of Mathematics  
University of South Florida  
4202 E. Fowler Ave, PHY114  
Tampa, FL 33620-5700  
USA  
Fax: (813) 974 2700  
e-mail: dadhikar@chuma1.cas.usf.edu

Narayan Adhikari  
Central Department of Physics  
Tribhuvan University  
Kirtipur, Kathmandu  
Nepal  
e-mail: npadhikari@gmail.com

Atika Ahmed  
Faculty of Mathematical Sciences  
University of Khartoum  
P.O. Box 321  
Khartoum, Sudan.  
Tel: +249 1222 76498  
e-mail: atikamahdi@yahoo.com

Earnest Akofor  
Syracuse University  
Syracuse, NY 13244  
USA  
e-mail: eakofor@syr.edu

Akande Akinlolu  
School of Physics  
Trinity College Dublin  
Dublin 2  
Ireland  
e-mail: akandea@tcd.ie

Kadeer Alimujiang  
Institute for Physics, THEP  
55099 Mainz  
Germany  
e-mail: alkadeer@yahoo.com

Kheira Ameur  
University of South Florida  
4202 E. Fowler Ave  
Tampa FL 33620  
USA  
e-mail: kameur@gmail.com

The Abdus Salam International Centre for Theoretical Physics
Yaser Roodgar Amoli  
Plaque 33  
Darya 25  
Taleb Amoli St.  
Amoli  
Iran  
e-mail: yroodgar@gmail.com

Gokarna Raj Aryal  
Assistant Professor of Statistics  
Department of Mathematics, Computer Science and Statistics  
Purdue University Calumet  
2200 169th Street CLO 360  
Hammond, IN 46323  
USA  
Tel: 001-219-989-2701  
e-mail: aryalg@calumet.purdue.edu

Maher Attal  
Accelerator Physicist  
SESAME, C/O UNESCO Amman Office  
P.O. Box 2270, Amman 11181  
Jordan  
Tel: +962 6 5514234-ext.1124  
Fax: +962 6 5525543  
e-mail: m.attal@unesco.org.jo, attalma@hotmail.com

Adel Awad  
Permanent address:  
Assistant Professor  
Ain Shams University  
Cairo  
Egypt  
e-mail: awad.adel@gmail.com  
Current address:  
Physics and Astronomy Department  
University of Kentucky  
Kentucky  
USA

Abdel Bachri  
Department of Physics  
Oklahoma State University  
145 Physical Sciences Building  
Stillwater, OK 74078-3072  
USA  
Tel: 405-744-5796  
Fax: 405-744-6811

e-mail: bachri@okstate.edu

Mohamed Bakr  
Technische Universität Darmstadt  
FB Material- und Geowissenschaften  
Fachgebiet Strukturforschung  
Petersenstr. 23  
D-64287 Darmstadt  
Germany  
e-mail: bakr_moh_mahl@yahoo.com

Fouzia Bano  
SISSA  
Via Beirut n. 2-4  
34014 Trieste  
Italy  
e-mail: bano@sissa.it

Rondrotiana Barimalala  
c/o ICTP  
e-mail: rbarimal@ictp.it

Nana Geraldine Cabo Bizet  
c/o ICTP  
e-mail: ncabo_bi@ictp.it

Marius I. Boamfa  
Senior Researcher, Biomedical Photonics Group  
Philips Research Europe - Eindhoven  
High Tech Campus 34, WB 2035  
5656 AA Eindhoven  
The Netherlands  
e-mail: marius.boamfa@philips.com

Jamila Bashir Butt  
Jamila Bashir Butt  
National Centre for Physics  
Quaid-i-Azam University Campus  
Islamabad, 44000  
Pakistan  
e-mail: jbutt@physics.syr.edu
The ICTP experience: DIPLOMA and STEP students

Freddy Cachazo  
Faculty Member  
Perimeter Institute for Theoretical Physics  
31 Caroline St. N. Waterloo  
Ontario  
Canada  
e-mail: fcachazo@perimeterinstitute.ca

Miguel Cardenas  
Scuola Normale Superiore  
Pisa  
Italy  
e-mail: carden60@yahoo.com

Juan Carrasquilla  
SISSA  
Via Beirut n. 2-4  
34014 Trieste  
Italy  
e-mail: juanfelipe.carrasquilla@gmail.com, carrasqu@sissa.it

Maria Eugenia Cabrera Catalan  
c/o ICTP  
e-mail: mcabrera@ictp.it

Guy Degla  
Assistant Professor  
IMSP (Institut de Mathématiques et de Sciences Physiques (IMSP)  
Porto-Novo  
Benin  
e-mail: gdegla@imsp-uac.org

Dou Djamel  
Department of Physics  
College of Science  
King Saud University  
Saudi Arabia  
e-mail: djsdou@yahoo.com

Ignacio Franco  
Chemical Physics Theory Group  
Department of Chemistry  
University of Toronto  
80 St. George Street  
Toronto, Canada M5S 3H6  
Tel: +1-416-9784422 (O)  
+1-647-2959645 (C)  
e-mail: ifranco@chem.utoronto.ca

Alexis Omar García  
Universidade Estadual de Campinas - Unicamp  
Cidade Universitária "Zeferino Vaz"  
Barão Geraldo - Campinas  
São Paulo  
Brazil Cep: 13083-970  
e-mail: alexis_omar@yahoo.com, alexis@ifi.unicamp.br

Ashenafi Dadi  
Northeastern University  
110 Forsyth St.  
111 Dana Research Center  
02115, Boston, MA  
USA  
e-mail: ashenafify@yahoo.com, dadi.a@neu.edu

Axel Velasco Chávez  
Universidad Autonoma Metropolitana  
Mexico City  
Mexico  
e-mail: vechaxel@yahoo.com.mx

Erdal Gül  
Department of Mathematics  
Faculty of Arts and Science  
Yıldız Technical University  
34210, Davutpasa  
İstanbul  
Turkey  
Fax: (+90) 212 4491814  
e-mail: gul@yildiz.edu.tr
Mansour Haghighat  
Associate Professor
Department of Physics
Isfahan University of Technology
Isfahan
Iran  
e-mail: mansour@cc.iut.ac.ir

Habtu Zegeye Hailu  
Bahir Dar University
Bahir Dar
Ethiopia  
e-mail: habtuzh@yahoo.com

Kamrul Hassan  
Associate Professor
Department of Physics
University of Dhaka
Dhaka
Bangladesh  
e-mail: khassan_du@yahoo.co.uk

Boubakari Ibrahimou  
Department of Mathematics
University of South Florida
4202 E. Fowler Avenue, PHY 114
Tampa, FL 33620
USA  
e-mail: bibrahim@mail.usf.edu

S. Akbar Jafari  
Assistant Professor of Physics
Isfahan University of Technology
Isfahan 84156
Iran  
e-mail: sa.jafari@cc.iut.ac.ir

Josephat Kalezhi  
Computer Science Department
School of Technology
Copperbelt University
P.O. Box 21692
Jambo Drive
Riverside
Kitwe, Zambia  
Tel: +260 2 230597
Cell: +260 97 878451
Fax: +260 2 221278
e-mail: kalezhi@cbu.ac.zm

Ayse Kara  
Associate Professor and Director of the Topology Unit, Mathematics Department
Vice Dean of the Faculty of Arts & Science
Yildiz Technical University
Istanbul
Turkey  
e-mail: aysekara66@hotmail.com

Bijaya Bahadur Karki  
Assistant Professor
Department of Computer Science
Louisiana State University
283 Coates Hall, Baton Rouge LA 70803
USA  
Tel: 225-578-3197
Fax: 225-578-1465
e-mail: karki@csc.lsu.edu

Parinya Karndumri  
c/o ICTP  
e-mail: pkarndum@ictp.it

Hektor Kashuri  
Department of Physics
Northeastern University
Boston MA
USA  
e-mail: kashuri@yahoo.com

Atabey Kaygun  
Department of Mathematics
University of Western Ontario
London, Ontario
N6A 5B7
Canada  
e-mail: akaygun@uwo.ca

Hae-Young Kee  
Associate Professor
Department of Physics
University of Toronto
Ontario M5S 1A7
Canada  
e-mail: hykee@physics.utoronto.ca
The ICTP experience: DIPLOMA and STEP students

Hamid Khalesifard
Permanent address:
Department of Physics
Institute for Advanced Studies in Basic Sciences
Gava Zang
P. O. Box 45195-1159, Zanjan
Iran
Tel: +98 241 415-2123
Fax: +98 241 415-2104
e-mail: khalesi@iasbs.ac.ir

Current address:
Deutsches Zentrum für Luft-und Raumfahrt
Institute of Atmospheric Physics
Oberpfaffenhofen
82234 Wessling
Germany
e-mail: Hamid.Khalesi@dir.de

Sadia Khalil
Experimental High Energy Physics Group
Physics Department
Syracuse University
Syracuse, NY
USA
e-mail: sadia_khalil@yahoo.com

Saiful I. Khondaker
Assistant Professor
Nanoscience technology Center & Department of Physics
University of Central Florida
12424 Research Parkway Ste 400
Orlando, FL 32826
USA
Tel: (407) 882-2844
Fax: (407) 882-2819
e-mail: saiful@mail.ucf.edu

Hoang anh Tuan Kiet
Sung Kyun Kwan University
Department of Physics
300 Chunchun Dong Changan Gu Kyunggi Do
440 746 Suwon
Republic of Korea

e-mail: hatkiet@yahoo.com,
hatkiet@iop.vast.ac.vn

Manungu Joseph Kiveni
Physics Department
Graduate student (TA)
Department of Physics
Syracuse University
Syracuse, NY 13244 USA
USA
e-mail: mkiveni@physics.syr.edu

Margarita Kuqali
Polytechnic University of Tirana
Tirana
Albania
e-mail: mkuqali@yahoo.com

John K. Kutor
Department of Biomedical Engineering
The University of Ghana
Legon
Ghana
e-mail: jkutor@ug.edu.gh

Olivier A. Heubo Kwegna
New Mexico State University
Department of Mathematical Sciences
P.O. Box 30001
Department 3MB
Las Cruces, New Mexico 88003-8001
Office phone:(001) 505 646 4047
Home phone: (001) 505 532 1299
e-mail: oheubo@nmsu.edu

Samir Lamara
c/o ICTP
e-mail: slamara@ictp.it

Elsayed Ibrahim Lashin
Permanent Institution:
Assistant Professor of Physics
Ain Shams University
Faculty of Science
Department of Physics
Abassia
Cairo
Egypt
e-mail: e_lashin@hotmail.com
The ICTP experience: DIPLOMA and STEP students

Present Institution:
King Saud University
College of Science
Department of Physics and Astronomy
Riyadh
Saudi Arabia

Juan López Linares
USP-FZEA, D. de Ciências Básicas
Av. Duque de Caxias - Norte, 225
Pirassununga, SP, 13635-900
Brazil
e-mail: jlopez@fzea.usp.br

Muhammad Aziz Majdi
Postdoctoral Research Associate
Physics Department
University of North Dakota
101 Cornell St. Stop 7129
Grand Forks, ND 58202-7129
USA
Phone: (701) 777-3517
Fax: (701)777-3523
e-mail: muhammad.majdi@und.nodak.edu

Percy Makita
Max-Planck-Institute for Mathematics in the Sciences
Inselstrasse 22
04103 Leipzig
Germany
e-mail: percymakfr@yahoo.fr

Mamat Mamatrishat
Physics Department
Xinjiang University
Urumqi, Xinjiang
P.R.China
e-mail: mmrishat@yahoo.com

Leopold Matamba
The University of Georgia
Athens, GA 30602
USA
e-mail: lmatamba@gmail.com

Alejandra Melfo
Universidad de Los Andes
Merida
Venezuela
e-mail: melfo@ula.ve

Lucero Alvarez Miño
Universidad Nacional de Colombia
Sede Manizales
Bogota
Colombia
e-mail: lalvarezm@unal.edu.co

Phan Thanh Nam
Department of Mathematics
Quynhon University
170 An Duong Vuong Street
Quynhon
Binhdinh
Vietnam
Tel: +84 56 846824 (office)
Fax: + 84 56 846089
e-mail: pthnam@yahoo.com

Tsogbadrakh Namsrai
Department of Physics
School of Physics and Electronics
National University of Mongolia
P.O. Box - 50, Central Post Office,
Ulaanbaatar - 13
Mongolia
Tel.: + 976 - 11 - 327330 (office)
Fax: + 976 - 11 - 329993
e-mail: Tsogbadrakh_n@yahoo.com or
Tsogbadrakh@num.edu.mn

Salah Nasri
Institute of Fundamental Theory
Department of Physics
University of Florida
Gainesville, FL, 32608
USA
e-mail: snasri@phys.ufl.edu

Lan Nguyen
Purdue University
Department of Mathematics
Purdue University 150 N. University Street
West Lafayette, IN 47907-2067
USA
Tel: (765) 494-1901
FAX: (765) 494-0548
e-mail: lpnguyen@math.purdue.edu
Nga Thi-Thuy Nguyen
Departement Fysica
Universiteit Antwerpen
Groenenborgerlaan 171
B-2020 Antwerpen
Belgium

Permanent-official address:
Department of Physics
Hanoi University of Education
136 Xuan Thuy street, Cau giay district
Hanoi
Vietnam
e-mail: ntnga@iop.vast.ac.vn,
nga.thithuynguyen@gmail.com

George Kofi Nkrumah-Buandoh
Department of Physics
University of Ghana
Legon
Ghana
e-mail: geon@ug.edu.gh

Agashi Nwogbaga
Associate Professor of Mathematics
Mathematics Department
Wesley College
120 N. State Street
Dover, DE 19904
USA
e-mail: nwogbaag@wesley.edu

Mourice Ouma Otieno†
School of Mathematics
University of Nairobi
Kenya
e-mail: oouma@hotmail.com

Lara Kelleyane-Özharar
Biomedical Engineering Department
Faculty of Engineering Sciences
PMB University of Ghana
Legon
Ghana
e-mail: kelleyane@yahoo.com

Thirunavukkarasu Pathmathas
18, Thirumagal Road
Ariyalai
Jaffna
Sri Lanka
e-mail: t_pathmathas@yahoo.com

Moustapha N. Pemy
Towson University
8000 York Road
Towson, Maryland 21252-0001
USA
Tel: 410-704-2000
e-mail: mpemy@towson.edu

Serge Phanzu
c/o ICTP
e-mail: sphanzu@ictp.it

Aureliano Skirzewski Prieto
Departamento de Física
Fac. de Ciencias
ULA, La Hechicera
Merida
Venezuela
e-mail: skirz@aei.mpg.de

Faiza Nebia-Rahal
Etudiante au Doctorat
Groupe de Physique des Particules
Université de Montréal
C.P. 6128, Succ. Centre-ville
Montréal, Qc Canada
H3C 3J7
Tel: (514) 343 6111 poste 0768
Fax: (514) 343-7357
e-mail: faizanr@lps.umontreal.ca

Njinasoa Randriamipiry
Department of Mathematics
Austin 218
East Carolina University
Greenville, NC 27858
USA
Tel: (252) 737 1555
e-mail: rnjina@math.ksu.edu

N.P. Rapapa
Head
Physics Department
National University of Lesotho
Lesotho
South Africa
e-mail: np.rapapa@nul.ls
The ICTP experience: DIPLOMA and STEP students

Abbas Rastegar
Member of Technical Staff
Advanced Mask Cleaning
SEMATECH, MBDC
255 Fuller Road
Albany, NY 12203
USA
Tel: +1 518.956. 7106
Fax:+1 518.956. 7101
Abbas.Rastegar@sematech.org

John Realpe
CTP
e-mail: jrealpe@ictp.it

Armelle Reca C. Remedio
CTP
e-mail: aremedio@ictp.it

Reinabelle Reyes
Department of Astrophysics
Princeton University
Peyton Hall
Ivy Lane
Princeton, NJ 08544
USA
e-mail: reinabellereyes@gmail.com

Ganiyu Saheed
CTP
e-mail: sganiyu@ictp.it

Adriana Sanchez
Schluterstr 13
01277 Dresden
Germany
e-mail: adriana.sanchez@qimonda.com

Alberto Sanoja
IFT/UNESP
São Paulo
Brazil
e-mail: asanojaулave@yahoo.com

Khim Raj Shrestha
CTP
Jose Olivero Alvarez Sierra
ExxonMobil

5959 Las Colinas Boulevard
Irving, TX  75039-2298
USA
e-mail: oliverioa@hotmail.com

Masoud Sohaili
Bahnhofste. 23
D-74072 Heilbronn
Germany
e-mail: Masoud.sohaili@googlemail.com

Iwan Sugiharto
School of Electrical and Electronical Engineering
Nanyang Technical University
Singapore
e-mail: ion06@yahoo.com

Hasan Tatlipinar
Physics Department
Yildiz Technical University
Davutpasa Campus
34010 İstanbul
Turkey
e-mail: httatlipinar@gmail.com

Driba D. Tolla
Sogang University
Center for Quantum Space Time
South Korea
e-mail: dribadm@yahoo.com

Mesfin Tsige
Assistant Professor
Department of Physics
Southern Illinois University
Carbondale, Illinois 62901
USA
e-mail: mtsige@physics.siu.edu

William J. Ugalde
Department of Mathematics
University of Costa Rica
Apartado 2060, San Jose
Costa Rica
e-mail: wugalde@cariari.ucr.ac.cr

Martin Vollmann
CTP
e-mail: mvollman@ictp.it
Shelly Watts
Physics Department
University of Maryland Baltimore County
1000 Hilltop Circle
Baltimore, MD 21250
USA
410-455-1984
e-mail: swatts3@umbc.edu

Hoernisa Iminniyaz (Wuernisha Yimingniyazi)
Institute of Physics
University of Bonn
Germany
e-mail: hoernisa@th.physik.uni-bonn.de

Efta Yudiarsah
Department of Physics and Astronomy
College of Arts and Science
Clippinger Labs 251B, Athens, OH 45701
USA
Tel: 740-593-1718
Fax: 740-593-0433 Ohio University
e-mail: yudiaarsah@yahoo.com

Muhammad Ali Yusuf
Robotics, Automation and Educational Technology
Research Group
Engineering Division
Instituto Tecnológico y de Estudios Superiores de
Monterrey
Santa Fe Campus
Avenida Carlos Lazo 100, Colonia Santa Fe
Delegación Álvaro Obregón, CP 01389
Mexico City, Mexico
e-mail: maliyusuf@yahoo.com
The ICTP experience: DIPLOMA and STEP students

**STEP STUDENTS, LIST OF CONTRIBUTORS**

**Bashir Ali**  
Mathematics Department  
Bayero University  
P.M.B. 3011  
Kano  
Nigeria  
e-mail: bashiralik@yahoo.com

**Paulina Ekua Amponsah**  
Department of Geology  
University of Ghana  
Legon  
Accra  
Ghana  
e-mail: pekua2@yahoo.co

**Brice Rodrigue Malonda Boungou**  
Groupe de Simulations Numériques en Magnétisme et Catalyse (GSMC)  
Département de Physique  
Faculté des Sciences  
Université Marien Ngouabi  
BP 69, Brazzaville, Rép. du Congo  
Tel.: +242 572 54 35  
Fax: +242 81 01 41  
e-mail: malonda_brice@yahoo.fr,  
bmalonda@ictp.it

**Nana Ama Kum Browne**  
Department of Physics  
Faculty of Science  
University of Cape Coast  
Cape Coast  
Ghana  
e-mail: amabro23@yahoo.com

**Aliaksandr Danilchyk**  
Stepanov Institute of Physics of NAS  
Belarus  
Nezaležnasti Ave. 68  
220072 Minsk  
Belarus  
e-mail: tantal@mail15.com,  
tantal_@mail.ru

**Oluwayomi Peace Faromika**  
Department of Physics  
The Federal University of Technology  
P.M.B. 704 Akure  
Nigeria  
Tel. No.: 234 803 5303819  
e-mail: oluyomifaro@yahoo.com

**Almamy Konté**  
Director of Technological Research  
Ministry of Scientific Research  
Senegal

**Alexandru Marmureanu**  
National Institute for Earth Physics  
12 Calugăreni Str.  
P.O. Box MG-2  
077125 Magurele - Bucharest  
Romania  
e-mail: marmur@infp.ro

**Ali-Reza Moradi**  
Institute for Advanced Studies in Basic Sciences (IASBS)  
Gava Zang  
P.O. Box 45195-159  
45195 Zanjan  
Iran  
e-mail: ar_moradi@yahoo.com

**Merlin Ngachin**  
Centre for Atomic Molecular Physics and Quantum Optics (CEPAMOQ)  
University of Douala, P.O. Box: 8580  
Douala, Cameroon  
Tel.: +237 969 95 44  
Fax: +237 342 67 10  
e-mail: mngachin@yahoo.com
The ICTP experience: DIPLOMA and STEP students

Folasade Mayowa Olajuyigbe
Department of Physics
The Federal University of Technology
P.M.B. 704 Akure
Nigeria
e-mail: sadeolaj@yahoo.com

Kanstantsin Osipov
Stepanov Institute of Physics of NAS
Belarus
Nezalezhnosti Ave.
P.O. Box 68
220072 Minsk
Belarus
e-mail: osipov_k_a@mail.ru

A.T. Raji
Solid State and Material Physics Group
Department of Physics, University of
Cape Town
Cape Town
South Africa
e-mail: abdulrafiuraji@yahoo.com

Elena Robu
Department of Nuclear Applied Physics
Faculty of Physics
Bucharest University
Atomistilor Str. No. 405 CP
MG-11
Bucharest-Magurele, RO - 76900
Romania
e-mail: eulenuta@yahoo.com

Mohamed Tahani Salaheldin
University of Khartoum
P.O. Box 321-19
Postal Code 11115
Khartoum, Sudan
Tel: +2499 1261 4425
e-mail: tahanism@yahoo.com

Sule Ola Salawu
The Federal University of Technology
Department of Biochemistry
P.M.B. 704 Akure
Nigeria
Tel.: 234 8069712856
e-mail: sosalawu@yahoo.com,
olosalawu@hotmail.com

Mohammed Khalil Saeed Salih
Sudan University for Science and Technology (SUST)
P. O. Box 846
Khartoum
Sudan
e-mail: mohamedrick@yahoo.com

Amna Sirelkhatim
Department of Physics
Faculty of Science
University of Khartoum
P.O. Box 321
Khartoum
Sudan
e-mail: amnasirelkhatim@yahoo.co.uk

Andriy Sizov
Institute for Safety Problems of Nuclear Power Plants
36 a, Kirova Street
Chernobyl
Ukraine
e-mail: asizov@gmail.com

Uguette F. Ndongmouo Taffoti
Institut de Mathématiques et de Sciences Physiques (IMSP)
P.O. Box 613
Porto-Novo
Benin
e-mail: uguette@yahoo.com

Yolong Vicky Yolande Taffoti
Faculty of Science
University of Yaoundé I
P.O. Box 812
Yaoundé
Cameroon
e-mail: vickytaff@yahoo.fr
Suzana Topuzoski
Institute of Physics
Faculty of Natural Sciences and Mathematics
University "Sts. Cyril and Methodius"
Skopje
R. Macedonia
Tel.: 389 2 3117 055 (ext. 309)
e-mail: suzanat@iunona.pmf.ukim.edu.mk,
suzana_topuzoski@yahoo.com

Zhao Jiafeng
Physics Department, Fudan University
Room 210, Advanced Material Building
220 Handan Road, Yangpu District
Shanghai
P. R. China
e-mail: JFZhao@fudan.edu.cn
Tel: 86-21-55664482
Fax: 86-21-65643486

Vitaly Zubialevich
Institute of Physics of NAS Belarus
F. Skaryna Ave.
P.O. Box 68
220072 Minsk
Belarus
e-mail: zubiel@dragon.bas-net.by
MUHAMMAD ADNAN ABID

PAKISTAN

I am a student in the Earth System Physics (ESP) Diploma programme. I did my M.Phil. in Computational Condensed Matter Physics in March 2006, and, during that period, joined the Global Change Impact Studies Center (GCSIC), Islamabad, Pakistan, as a research fellow in the field of climate research. I was working on the development of climate change scenarios using the regional climate model RegCM3 in my institution before coming to the diploma programme. The Earth System Physics diploma programme is helping me to learn the basics of Earth system physics, particularly of atmospheric physics in which I am interested to build my career as a researcher. This diploma would be helpful for me and for my country as I can contribute to atmospheric sciences research work in Pakistan. The teaching staff is really helpful. Their teaching style is very good which helps you to think in a scientific manner about the subject. The administrative staff is helpful and everyone is very kind. The atmosphere here in ICTP is excellent for studies and research work and all people are cooperative. The facilities for work are really good.
I am pleased to write about the ICTP Diploma programme. I participated in the Condensed Matter Diploma Programme in the year 2000-2001. I am currently a Ph.D. student at Ohio University, USA, specialising in nanoscience using low temperature STM.

The diploma programme was very useful for the students especially from the least and underdeveloped countries. In my understanding we cannot find an institution like ICTP in the world which is helping young scientists all over the world especially from poor countries. The diploma programme was very useful especially to fill the gaps existing between countries.

Moreover, ICTP was like our home. Everybody was very friendly and very helpful. I did not feel lonely or bored during my stay at ICTP. I found good harmonious relations among the people. Apart from academic achievements we also had very good opportunities to know about different cultures and religions.

Being alumni, we are always ready to help ICTP achieve its goal in future.
I am currently pursuing a Ph.D. in physics at Caltech. I had the great opportunity to participate in the ICTP high energy physics diploma programme in 2000-2001. The diploma course has been one of the most rewarding experiences I have had. The lectures were very interesting, well prepared and taught. The professors were very knowledgeable and always available to help. The topics taught are not available at the university where I did my undergraduate studies so the lectures were very enriching.

At ICTP I had the opportunity to interact with people from very different cultures that come to the diploma programme and to the Centre, in general. This is one of the reasons that my time spent at the Centre was one of personal growth. At the ICTP, I encountered an incredibly supportive academic and administrative staff. The resources available to us were beyond those to which I was used. All this made my learning experience more pleasant and efficient.

The professors in the high energy group were great mentors not only in teaching me physics but also in helping me continue my scientific education. I am completely certain that, since I don't come from a country that is very well known in science, without their great support and encouragement I wouldn't have been able to access the range of opportunities that I had after completing the diploma course. I am truly in debt to them and always remember them very kindly.
Frankly speaking, I did not know much about the quality of education here at ICTP even a few days before my application for the diploma programme. Well, after gaining some information about the institution from my instructors back home and some past students of ICTP from my country, I started thinking that it may be a good place for me to pursue my education. And now after having had the experience, I could say that was the right thought.

So far at ICTP, I have learnt what learning itself really is. I appreciate the way the programme is carefully designed, the timings the courses are given so that the knowledge we gained from one lays a foundation for the other and that helps us gain the maximum from each course. I believe at the end of the programme we will have a very strong theoretical background in the field we are engaged in, which, of course, will play a great role in the future contribution we can make to the scientific world.

The biggest drawback in the universities from where most of us come is not lack of professionals who can design a good curriculum but rather insufficient or, sometimes, no resources, human power in the field, books, information access through Internet and the like, which are very fundamental for the implementation of ideas. Here at ICTP, for someone who is really in quest of knowledge, everything is at his disposal: the right people to talk to and share ideas with, information and sources of knowledge in all forms. The politeness and the will to serve from the heart are what I always expect from any professional and it is nothing less that I encounter with all my instructors here in ICTP. I am also learning from them that to serve and be supportive for all those around me is one of the principles to be a successful scientist. They are good symbols and I always enjoy seeing my future through them. All in all, I could say that ICTP is an ideal place that has created a stimulating environment for me to learn.

The other aspect of ICTP that impresses me the most is that all the people around are trying their best to provide the best service in what they are engaged in, making us feel at home. We have diploma secretaries, Patrizia and Sandra, who are both so loving and caring not only in things related to our academic affairs but very deeply in making sure that we are comfortable in every respect. I could say both of them go beyond what is normally expected of them, with a very strong feeling of
responsibility in making sure that we are not encountering any problems even in our personal life. I appreciate their kindness. In addition, all the people in the library and other service providing areas are always accomplishing their job immediately and with a beautiful smile. With all the things I mentioned above the diploma programme is the best exposure for big opportunities for my future. It is helping me identify which area I want to be engaged in which has always been a big problem for me.

In addition, socially, I am experiencing and enjoying the diversified cultures which are brought together under the name of science, though sometimes it is hard to bear some cultural differences, which I still think has its own benefit in teaching us how to live in a new environment.

Perhaps now let me mention the things that I have encountered as a challenge from the time I came to ICTP. Being in this science stimulating environment we think of the future so much more than anytime, where to go what to do next, and how to do it. After all, this is just the beginning. Perhaps one thing to mention is planning for Ph.D., which I found to be something that really requires attention, energy, money and time but which of course is something worth investing in. It was quite difficult for me to budget my attention to the diploma programme, to the application process and to writing other required exams. It was hard for me to fulfill my basic needs and think of my future with the resources I have at hand. Many students who have a keen interest to make the applications, and to be on the right track to achieve their academic goals they started here in ICTP, were unable to do so just because they could not afford it. And timewise, the application period coincides with the exam periods. It might sound crazy, but I do not want to pass without mentioning that once it crossed my mind that if only the programme had started in August, things would have gone perfectly.

ICTP contributes tremendously to the scientific world by creating opportunities for those who lacked it so that they in turn will play their part. And in my opinion the contribution could even be enhanced by creating more chances in many more fields for those in the developing countries who could have brought a big change in science if given the opportunity and resources. So far we are getting a great deal from the programme, both academically and socially. In my opinion, since always the best is yet to come, I believe with some adjustment on the timing and with the salary, the life and the opportunities for the future will be upgraded.

More than anything, even more than being grateful, I would rather say I appreciate those behind this institution, who are working from their heart because I believe that they are responsible enough to do so. And they are
inculcating the sense of responsibility for those who wish to observe it.

Thank you very much for the chance to say what I feel about ICTP.
ADETAYO VICTOR ADEDEJI
NIGERIA

I was fortunate to be part of the 1993/94 diploma class in condensed matter physics (CMP) at ICTP. I wish to make the following comments as regards to my experience at ICTP:

The diploma programme, the faculties and staff at ICTP have significantly influenced the academic successes I have enjoyed and my life in general. It is impossible to adequately quantify what I have benefited from ICTP.

The diploma programme was intense and for the first time in my career, I was challenged and motivated at the same time. Challenged by how little I really knew about the subject matter I was about to claim to be expert on but motivated by the readiness of the experts in the fields to teach and encourage us. The quality of teaching and interaction (socially too) was breathtaking. I learnt from general courses and specialized courses that later contributed to the successful pursuit of a doctoral degree in the USA.

After the diploma programme, I went back to Nigeria and I was employed to teach physics at Obafemi Awolowo University, one of the highly reputed higher institutions in the country. I taught a course in electromagnetic theory and a specialized course that included in the syllabus, superconductivity, quantum mechanics with a little second quantization formalism, phonons, etc. It would have been absolutely impossible to teach these courses and other courses effectively, and with the excitement and zeal I put into it, if not for the training at ICTP. It was nice to influence younger students in my class during that period.

I came to USA for a doctoral degree in physics in the fall semester of 2000. The study habit and intensity learnt at ICTP during my diploma programme helped me to go through the course work and pass the doctoral exam about 2 years later.

I am presently an assistant professor at Georgia Southern University in the USA. I teach undergraduate physics and do research in the field of harsh environment electronic and photovoltaic solar cells. I love teaching physics and influencing the lives of future generations, this I owe to the kind of background I got from ICTP and the people that served as good
examples to me. I hope to return to Nigeria in the near future to teach physics and carry out research in my field.

I hope these few comments and those of my ICTP diploma friends will be sufficient to illustrate that ICTP is achieving its aims and objectives towards the developing countries.

Thank you.
DHRUBA R. ADHIKARI
Nepal

I was a Diploma student of Mathematics at ICTP in 2001/2002.

Undoubtedly, I gained a lot from ICTP in my mathematical career and am currently a graduate student of mathematics at the University of South Florida trying to finish my Ph.D. this year. The environment, staff, professors, diverse visitors really impressed me and they have made the ICTP a successful institution. As the diploma programme focuses on the developing countries, it is an indispensable contribution to the financially-lagging bright students from those countries. I am just thankful and grateful to the institution.

I wish the best for the institution and hope to visit it again in my career.
I participated in the ICTP diploma programme in 1997-98 in Condensed Matter Physics. It was very helpful for me since it provided very high quality of lectures and for the first time in my life I had the opportunity to attend such lectures. To tell you frankly, I did not have any problems with the staff, and all the people working in ICTP with whom I talked about my work were really nice people.

After my Diploma, I finished with my Ph.D. from Martin-Luther University, Halle, Germany, and did postdoctoral research in US. Finally, I am working in my own country. To date, I am the only one who came back to Nepal after finishing with the ICTP diploma programme.

I am trying to set up a computational physics laboratory in our Physics Department and asked some help from TWAS/ICTP last year. However, I really could not get it and am waiting for the final results till May 2007. Right now, I have about ten Masters students who are doing research under my supervision in Condensed Matter Physics.
I participated in both the ICTP Modelling and Simulation Programme 2003-04 and the ICTP Mathematics Diploma 2004-05. Since September 2005, I am working as a lecturer at the University of Khartoum, Sudan. In Khartoum, lecturers are holders of M.Sc. degree or equivalent, and are entitled and requested to teach when there is a shortage of senior staff. I was promoted to the position of 'Lecturer' as a result of earning the ICTP Diploma in Mathematics (I was a Teaching Assistant before), and I have taught Combinatorics and Linear Algebra since then. I am teaching Combinatorics again the coming semester. My philosophy and practice of teaching is the ultimate result of my studying at ICTP. The student-centered approach of my ICTP professors, their absolute concern about every misconception from our side and their extreme kindness in correcting us is just what I practice here with my students.

In most courses at ICTP, we had weekly assignments to be graded and commented on by the professor. This process has been inexpressibly useful in advancing our mathematical maturity. I have often been 100% sure that my submission was 100% correct, and received a shock at the outcome! The professors were very keen to detect any misunderstanding we had because this allowed them to give us extended clarification of why particular assumptions we made were unjustified, show us detailed counter examples of false arguments we made and make their explanation even clearer.

I had a strong background in some courses based on my education in Khartoum, and in others not. In some of the courses we had at ICTP, I was impressed from the first lecture as we were presented with what the whole subject was about, the motivation behind it and how it differed from other close subjects. One of my friends once said: "We were like someone looking at a big picture with his eyes one millimeter apart from it and he is staring at one part at a time. It is only now that we are able to see the picture before looking at its details". I couldn't state it better!

Most of us came from institutions where mathematical research is barely present, if at all. It was, therefore, an invaluable experience to be
taught by international professors and researchers. This gave us an opportunity to be equipped with the necessary base for any further academic progress, as well as receive advanced-level training in particular areas. Some courses were hard and fast-paced for me but some were OK. Those that were OK for me were fast-paced for some of my colleagues and very slow for others. I think the wonderful idea of bringing students from such diverse backgrounds, correcting and filling in as much as possible any gaps in their readiness for further academic studies and adding to their mathematical knowledge as much as possible in a year’s time couldn’t be better implemented.

I enjoyed the whole academic and social experience of studying at the ICTP, particularly, the wonderful friends from so many different countries I have today. I didn’t particularly like part of the review courses running in the first month of the Mathematics Programme, and thought it would have been better if they had run simultaneously with the first semester courses. For example, we had been asked whether particular topological spaces were simply connected in a review course when my first formal introduction to simple connectedness came afterwards, in the topology course.

The administrative staff was more than helpful. I left the last month’s salary because I thought we were being paid at the beginning of each month when it was the end, and they made a great effort to reach me and send me the money. The Health Services people were great. I befriended them in the last few months as a result of successive health troubles. Both my professors in the Modelling and Simulation and in the Mathematics Programmes had their doors always open for us. They didn’t even have office hours which made us dare go to them the exact moment we faced a problem, or for further discussions in the subjects that interested us. And, we were always welcomed!
The ICTP experience: DIPLOMA and STEP students

AKANDE AKINLOLU
NIGERIA

No doubt the impact of ICTP in the enhancement of science in the developing countries has been enormous. I was admitted into the Diploma course of the Condensed Matter Physics for the 2004/2005 session. Although I had a Bachelor of Science (B.Sc.) and a Master of Science (M.Sc.) in Physics from my home country, Nigeria, the quality of the scientific teachings I received from the ICTP diploma programme cannot be underestimated. I thought I knew some fundamentals of Physics until I attended to the programme where more light was shed on Physics. The hospitality received from the administrative staff was great. This was shown in their willingness to help sort out many things outside the Center due to the language barrier.

The aspect I really loved most in the programme was the attitude of the lecturers and postdocs towards the students. Given the gap that exists between the science studied in developing countries and the one being taught in the western countries, they carefully and conscientiously taught us well in order to bridge the gap. With diligence and purposefulness we acquired skills to learn and understand science, which obviously was not optional because if one does not do well he or she will be sent back home.

I am presently a Ph.D. student at the Department of Physics, Trinity College, Dublin, Ireland. Needless to say, the ICTP helped me in being here right now. The coordinator of the Condensed Matter group and most members of academic staff gave us good advice in choosing the field we wanted and they also gave us recommendations based on our academic performances. The scientific knowledge received there has proven, and is still proving, to be very useful in my present research. Also, the exposure to people from different countries and backgrounds has given me a broad perspective on life for which I will always be grateful to ICTP. Indeed ICTP has played a vital role in my academic career now and in the future.

Thanks to the Director, the funding bodies and to all the staff, both academic and administrative.
I was a student in the High Energy Physics Diploma Programme in 2002-2003. I will try to write the response in point form.

Quality of teaching: very good though some practical work could have helped.

Helpfulness of the teaching and administrative staff: Excellent; I was encouraged by them and I also learned from them that I could also be of help to many people. I did not believe in myself but they believed in me and that was all that mattered.

What I enjoyed most:
1. I enjoyed meeting lots of persons from all over the world and realizing that they were not very different from my own people at home except in language.
2. I also liked the fact that the lecturers were available and I could talk to them and learn from them directly.
3. The availability of almost all kinds of study material was also amazing to me.

Difficulties I encountered:
1. I was stressed out in the beginning of the programme because I was afraid of asking for help from the people around and so I put in a lot of effort to do simple tasks that I could have done easily with a little help from someone else.
2. While feeling more at home on campus, I didn't feel at home in the city as I couldn't speak Italian and also, there weren't too many black persons around.
3. In academics, I faced difficulties due to my inadequate educational background and although I was not very happy about it, I did learn the lesson that one could face a challenge of that magnitude.

Present activity: Graduate student, Physics Department, Syracuse University since August 2004.

The role of the diploma programme: I believe that I am here mainly...
because of the diploma programme. Also, the challenges, both academic and otherwise, I've faced since the diploma programme have been somewhat less demanding thanks to the experience from the diploma programme.

Talking of gainful activities, I am a Ph.D. student and a graduate assistant. I like research and teaching. However, I do not yet understand how I can help in the development of Africa and the rest of the underdeveloped world. I hope this will change after I obtain the Ph.D.
KADEER ALIMUJIANG

CHINA

I am from the Xinjiang Uighur Autonomous Region of China. I studied as an ICTP Diploma Student (High Energy Physics, 2001-2002). Then I studied for my Ph.D. from 2003-2006 in the Institute for Physics at the University of Mainz, Germany. Now I am a postdoc in the same institute. I will return to my native Xinjiang University after finishing my postdoc position.

During the ICTP Diploma Programme I received a very high quality education which built the foundation for my future learning and career. Receiving a Ph.D. degree in a renowned university in Germany has been possible for me only because of the ICTP Diploma Programme.

I still remember the one year in ICTP like a wonderful dream. The whole arrangement, from courses to the tutorials, the library, housing office, travel office---everything was wonderful. People there were wonderful. In my heart ICTP is not only a respectable research institute, it is also a place of hope and humanity.

My deepest gratitude to ICTP.

P.S. My native name is Alimjan Kadeer.
I participated in the Mathematics Diploma programme in 2000-2001. I can say that I was very lucky to be selected to participate in it. It was really the happiest thing that had ever happened in my life. I have enjoyed my stay in the ICTP. It was my happy year; if you ask me to come back there now I will come back running. The teaching there was excellent; whatever I have learned there was very helpful. I can give an example. When I came here to the US for the Ph.D. programme I took two qualifying exams, one in Analysis and one in Topology. Usually to take these exams you need to complete the sequence in both courses which means you need to take Analysis I and II and Topology I and II. But in my case, when I sat in these classes, I realized that I didn't need to take them all, because I had already learnt all that in ICTP, so I just took Analysis I and Topology II and I passed both exams with an A grade. I have finished my Ph.D. programme here at the University of South Florida with the G.P.A of 4.0.

I still remember what I have learnt from Professors like Gottsche, Dal Maso, Vidossich, and Ambrosetti. I still keep my notes from ICTP, which I have always found very useful.

The administrative staff was also very nice and helpful. Concetta Mosca and Rosanna did a lot for us. The life was going good, not stressful like here in the US; we did not have to do anything except study. They gave us everything--- coupons for the food and even the notebooks and pencils. Here in the US it is very stressful. We have to teach, work like 20 hrs, and at the same time take courses or work in dissertation. I really don't see any better place than ICTP. Another good thing about ICTP is that we could meet scientists from all over the world. I remember that I met E.C. Zeeman, and I talked with him. He also gave me a copy of one of his papers, and I took a picture with him. Where would I meet such a famous mathematician if I did not come to ICTP?

In any case, yes, the diploma was the reason for my academic success. I am very proud to be part of it and very grateful to ICTP for giving me a chance to improve my academic career. I am also grateful for all the
professors there and all the staff in ICTP for all the help they provided during my stay there.

I just have the following suggestions:

1. It would be useful if you can make other countries recognize the diploma as equivalent to a masters degree, so that it will be easier for other students to get admission in other universities. I remember it was hard for me to get admission at the University of Montreal because they did not think it was equivalent to masters degree and they were telling me that if I went to Algeria to defend my thesis, they would admit me.

2. Please advise students a lot that when they will be applying for Ph.D in other schools about which school they should go, so that you make sure that ICTP students go to good places and learn more and improve in their academic career. Many students coming from developing countries will not know about ranking of schools. If they go to places lower than the ICTP, then whatever they learnt in ICTP will be destroyed.

I have the following question:

Why are you not giving many chances to people from my country, Algeria, to participate in the diploma programme?

After me, I know many friends who have applied, but they never got admission. My sister also applied and she was not admitted. But we see some countries being selected more, like Nepal, Ethiopia and Vietnam, Cameroon who are present in every diploma selection. I am just wondering about the reason. There are so many good students in my country that need to be given the chance.

All the best for ICTP and the diploma.
Yaser Roodgar Amoli

Iran

I passed the Diploma Programme last year (2005-06) and for me it was so useful since I didn't have courses with such quality in my own country. This enabled the students that knew almost all the courses to review the most important courses in B.Sc. and M.Sc. degrees in a short time and after this review, complete the topics with deeper understanding. For Math students, this is perfect. I passed some new courses in the Diploma, since in the second term I chose Analysis but my branch was Geometry in M.Sc. in Iran.

Professor Chidume was so kind and helpful in advising and assisting the students to achieve the best for their education in the future. Some Professors such as Dal Maso (Real analysis), Zimerman (Topology) were excellent, especially Dal Maso. His course was so interesting and enjoyable. The other professors were ordinary and somewhat inferior. However, I learned so much from those as well.

I worked with Professor Zelenko that was perfect for me and even in a short time (around 2 months) I learned so many things. I am grateful to him. The secretaries Patrizia and Sandra were so helpful; other staff members were kind as well but I don't remember their names. The salary was enough for me to survive, but I think it should be increased because Italy is an expensive country.

It is a good idea that students participate from different countries with different Third World cultures to better understand each other. Because of this, I had good days in ICTP with my friends and faculties and staff, and I want to visit ICTP in future.
I was a Diploma student during the year 2000-2001 in Mathematics. I came to ICTP with a Masters degree in Mathematics from Nepal and this programme helped me to build research motivation and fill the gaps between the standards of education between different countries.

After completing the ICTP Diploma in Mathematics I joined to University of South Florida to pursue my Ph.D. degree. ICTP diploma program helped me a lot during my study in USF. After completing my Ph.D., I joined Purdue University Calumet as an Assistant Professor from Fall 2006.

I think this programme is very useful for the students especially from the least developed and underdeveloped countries. In my understanding we can not find any institution like ICTP in the world which is helping young scientists all over the world especially from poor countries. During my stay I always felt like I am in my home. Everybody was very friendly and very helpful. I did not feel lonely or bored during my stay. Apart from the academic achievements we also had very good opportunities to know about different cultures and religions.

I am so proud to be an alumni of ICTP and feel so glad when someone talks about ICTP. I wish all the best to ICTP to achieve its goal in future.
I am happy to have this opportunity to express my thanks to the ICTP and the organizers of the Diploma course.

I was a student in the High Energy Physics Diploma course in 1998-99. It was the first time I had gone abroad and been away from my family. I didn't imagine that I would find another family, the diploma staff family.

The Diploma course was great from different points of view. From the social point of view, I found kind people who took care of me on different levels. I found professors who, in spite of their high scientific ability and the large scientific distance between them and me, were down to earth and treated me in a way that you can't differentiate between professor and student but by their high understanding of high energy physics. They gave me another taste for science. I can't forget Mrs. Concetta Mosca who always tried to help me and encourage me and assist me in solving my problems. Also, the diploma students were like a family. I can't forget the kindness of ICTP administrative offices (the travel office, the bank, the post office, the medical office, and so forth). They all deal with high transparency. I would like to thank them all.

From the scientific point of view, the Diploma course was of a very high level. The professors were highly qualified and had a good way of explaining the subject without any barriers between them and the students. They taught us how to work hard and how to enjoy science.

The Diploma course is really a great mission. I think it has its nice footprints in several places on the earth.

I am now working in the SESAME project (synchrotron light source for the Middle East), in Jordan, as an accelerator physicist. I heard about SESAME when I was at the ICTP (I would like to thank Professor Denardo for that). I think that my diploma course in high energy physics helped a lot in selecting me for this position in SESAME.

I can't forget the diploma course which was, in spite of its difficulty for me, a light spot in my life.
I would like to thank all those responsible, professors and administrative staff of the Diploma course, mainly my teachers in the high energy physics course (Professors Faheem Hussain, Randjbar-Daemi and others) and Mrs. Concetta Mosca.

Thank you all, I don't think that I can forget you.
Let me first introduce myself. I am Adel Awad, an Egyptian physicist working in the field of Theoretical High Energy Physics. I work as an assistant professor at Ain Shams University in Cairo, Egypt. Now I am a visiting reader in the Physics and Astronomy Department, University of Kentucky in Kentucky, USA.

It is a pleasure to write about ICTP and the influence it had on my career as a postgraduate student in Theoretical High Energy Physics, then later as a researcher in the same field. ICTP is such a unique place when it comes to the amount and variety of scientific training it provided, and still provides, to scientists from the third world countries. Indeed, I do not know another place that provides what ICTP is providing to the third world. I should, however, leave talking about ICTP's general influence on the third world to experts and their statistics, and, instead, talk about here is my own personal experience at ICTP and the boost it gave to my career.

My first experience with ICTP was after a couple of years of my B.Sc. when I applied to attend the summer school in 1992. I thought then I had no chance of going to this summer school because I was still reading some background material and didn't have any publications. Later on, I got accepted to go for the summer school and it was a very nice summer school during which I learned a lot about my field.

After a year I was accepted in the ICTP diploma course in High Energy and spent a year from September 1993 to October 1994. During this year I took ten different courses in High Energy Physics and finished a thesis. It was a great experience for me since I learned enough materials and subjects in my field to start my graduate studies in any respectable international university in the same field. Here I want to stop for a moment to tell you more about my own thoughts. I have never learned this amount of materials (in a year) in my life, either before or after, even in my graduate years at the University of Kentucky. The strong background I built during my Diploma enabled me to become one of the advanced students in the graduate programme of the University of Kentucky. In fact, the ICTP experience is still serving me to this day. There
are objective reasons for that: the diploma courses in general are very well organized; the courses are taught by world class experts in the subjects, who were very enthusiastic about doing science and teaching it as well; they transferred this enthusiasm to us; we were full time students and didn’t have to teach or do any other duty. Another important fact about the Diploma course one should always mention is that the Diploma does not only provide excellent courses to third world students but also a chance for them to pursue their Ph.D.’s in international universities. Many third world universities either do not have researchers working in theoretical physics or they do not have well-known international researchers there. But all the Diploma lecturers are world class experts in their fields, so their recommendation letters are more credible in international universities.

Another extremely useful programme for third world scientists like me is the Associateship programme at ICTP. This programme enables scientists to visit the ICTP for three months a year. They can collaborate with either ICTP scientists or with other associates in various projects.

Yet another important ICTP programme is the affiliated centre programme which supports research groups working in third world countries. Through this programme ICTP supports various types of activities for these groups such as conferences, workshops, international expert visits and providing books or proceedings. As a member of one of these affiliated centres I must say that without the generous support of ICTP, our research group could not survive, simply because in many third world countries very little support is provided by governments and universities.

I think the existence of ICTP is crucial for the survival of thresholds of third world scientists who would like to contribute to the advancement of science and technology in their country and internationally as well.

Thank you for this opportunity to write about ICTP.
I participated in the High Physics Diploma at ICTP in 2000. Ok, where do I start!? There's no expression that would sum up how I really feel and the great gratitude and respect I have for ICTP. Going to ICTP was a turning point in my life. When I was back in Morocco, I hardly knew anything about High Energy Physics. ICTP gave me a hand and pointed me toward a productive and rewarding physics career.

The Diploma Programme helped me secure a Ph.D. assistantship in United States. Not only the programme prepares you for research but ICTP staff, such as Professor Goran Senjanovic, are a major plus for the Diploma. He helped me define my goals and achieve an education that I could only dream of! I had no chance without ICTP's help. I am now within a few weeks of defending my Ph.D. thesis at Oklahoma State University, I feel more confident than ever. Thinking back, this wouldn't have happened without the friendly encounter with ICTP, ICTP staff and Faculty, and the people of Trieste. To this day, I do not know of any other institution that is dedicated to helping scientists from developing countries. This is a very noble goal. I hope one day I can contribute and give something back to the one institution that changed my life.

I intend to keep working in High Energy Physics, and remember that my first encounter with High Energy was when I joined the Diploma Programme at ICTP. I can not say thank you enough. The training we received was broad but right on target; it let you know the possible directions in this field and teach you more than necessary to pursue what you desire. Please say thank you for me to Professors Senjanovic, Smirnov, Randjbar-Daemi, Thompson, the directors, Susan, Concetta and everyone else who was involved in the process. I have not yet seen a friendlier scientific environment and friendly staff.
I was a diploma student in Condensed Matter Physics. I am now in Egypt. I finished my masters degree in physics and I will travel next May to Germany to do my Ph.D. in Material Science Physics at the University of TUD Darmstadt (with funds from the Egyptian Government). The diploma is very useful if and only if there is a plan to help the students to complete their study for a Ph.D. degree after the Diploma.

But anyway the programme is very strong and in my experience when I applied to universities, they respected me a lot as one of ICTP students. Really, the programme is very nice and very, very good.
I was a diploma student in Condensed Matter Physics during the academic year 2004-05.

The Diploma course was the most wonderful period in my academic life. Not only did I learn physics in a different guise but I also came to know people from different nations with their cultures. The course content and quality of teaching is comparable with any top most school or university in the World. The period of the diploma programme helped me a lot to become a maverick (independent in thoughts and behavior) and a responsible person. The environment of ICTP is just amazing and comfortable in all aspects.

Presently, I am a graduate student at SISSA, Italy. I dare say that the last part (three months research) of my diploma programme was actually the beginning of my "dream" and present studies.

I'm once again warmly grateful to all the ICTP members for giving me this opportunity. Their kind considerations and becoming a memorable part of my life.
RONDROTIANA BARIMALALA

MADAGASCAR

I have the opportunity to be one of the Earth System Physics’ Diploma students (ESP).

In this programme, courses are quite intense but we learn a lot of things. We can improve our knowledge in many different fields. In addition, it helps us to have scientist’s intuition.

The very important thing is also that, after this programme, we can continue our Ph.D. and then, proceed to a new field of scientific research in our country. Like the case of Madagascar, we don’t have any current research in oceanography. Or, as an island, this field is very interesting and very helpful for a developing country.

Because of the Earth System Physics Diploma course, I have some knowledge in oceanography and can continue to do some research work in this field which will bring some development to my country.
NANA GERALDINE CABO BIZET
CUBA

I am a student in the High Energy Physics diploma course. I completed my B.Sc. and M.Sc. studies at the Faculty of Physics, Havana University. A career in Physics in Havana has a good level. Our preparation is fundamentally in Condensed Matter Physics. In general, we don't have too many courses devoted to High Energy Physics. So, for me, it is a great opportunity to take part in the ICTP Diploma Course in HEP. I consider that the subjects we are taking are a wonderful preparation to our future work. Our professors teach us with devotion. All the lectures are excellent. The things that make this year unique relative to the learning are the high speed and the quantity of new information we are studying which is huge and fundamental. That is why the diploma requires a big effort from us so that, in the future, we will be very well recompensed. The weekly assignments (despite being hard work) ensure that our learning is a continuous process. What I mean is that this design of the courses guarantees that we can assimilate most of the new information we are receiving quickly. I consider that ICTP is a wonderful place for scientific activity.

The administrative staff is excellent. They are always willing to help. In particular, the help of the secretaries of the diploma programme is fundamental to all the students. The Library has a high quality and we have at our disposal almost all the bibliography that we could need. Also, all the needed facilities (such as the computers, paper, photocopying machines) are at our disposal at any time. All of them together mean that we can make the best of our time. It is also very interesting to be in a Centre with so many people from different cultures.

I think that this year is a very important one, for our future.
My name is Marius Boamfa and I took part in the Condensed Matter ICTP Diploma programme in 1996-97. In 1995 I had graduated in Physics from the Bucharest University in Romania and one year later, in the Summer of 1996, I got an MS degree from the same university in Electronic Physics. I liked Physics and I would have wanted to follow a career in Physics but at that time that was not an easy thing in Romania. It was around this time that I got to hear that ICTP accepted me as a diploma student for the 1996-1997 programme in Condensed Matter, a great help at the time I needed it most. The diploma year at ICTP was very intense and demanding but equally rewarding. My passion for Physics was fed by excellent teachers and there was much more than only Physics. I had 10 colleagues from 10 different countries and together with them I got to know the beautiful international aspects of scientific research. If one grows with it, one might take it for granted, but for me---someone that was educated under a communist regime with closed borders and filtered information---it was a delight to see science from all over the world meeting at ICTP.

We were also given a clear perspective about what it takes to pursue a scientific career. We were taught how to apply for Ph.D. positions, how to prepare for an interview and many more useful things.

During my stay at ICTP the administrative staff was very helpful and took me seamlessly through all logistic problems that I had. I particularly remember the intricate hurdles that I had to undergo to be able to attend a Ph.D. position interview in the Netherlands (leaving from Italy with a Romanian passport). It took the collaborative efforts of many administrative services of ICTP but in the end I made it.

What I received during the diploma year was a broad and solid scientific background which I used extensively through the years to come.

The interview went fine and I decided to pursue a Ph.D. at the High Magnetic Field Laboratory in Nijmegen, the Netherlands, from 1998 to 2002. A Post-Doctoral researcher position at the University of Nijmegen followed and, since August 2003. I am a physics researcher at Philips

Looking back I would like to say that ICTP gave me the means to pursue a life in Physics and I am deeply grateful for it.
JAMILA BASHIR BUTT

PAKISTAN

I attended the diploma course in High Energy Physics from ICTP. The course work offered in this programme was very helpful in building the basis for my further studies. I have completed my Ph.D. in experimental high energy physics in May 2006. I am a postdoctoral fellow at the National Centre for Physics in Islamabad, Pakistan.

The syllabus of the diploma programme is very much condensed but with competent teachers we covered all of it in one year. The important point is not covering the whole syllabus but making us understand it and all of the professors were successful in achieving this goal. I would like to use this opportunity to thank all my professors, Faheem Hussain, Seifallah Randjbar-Daemi, George Thompson, Goran Senjanovic, Alexei Smirnov, Kumar S. Narain, Mathias Blau and Antonio Masiero (with whom I did my dissertation).

ICTP served as a bridge in my journey from Masters in Pakistan to a Ph.D. in USA. If it were not for ICTP, it may have been difficult for me to apply for a Ph.D. and may have been even more difficult to have enough finance to travel there. The ICTP staff was very friendly and kind. It was the first time that I stayed away from my family. Sometimes it made me sad but the love and kindness of ICTP staff as well as our professors helped me to recover from homesickness. I would like to say thanks to everybody by name but I am afraid that I may not remember the name of everybody. So I would say special thanks to the library staff, cafeteria staff, computer administration, reception staff and secretaries. Sorry for being prejudiced but I remember the name of a bunch of people: Paula Altarelli (who taught us Italian), Concetta Mosca (secretary of the Diploma Course), Christiana Winter (my land lady) and Mr. Bruno (the gatekeeper at the ICTP main building).

I enjoyed studying in the library with my class fellows for homework, standing in line of the cafeteria to get my food, running after the bus to reach ICTP or to go back home. That was really a very nice period. I liked the fruit trees at ICTP; plums, cherries, figs and walnuts: The bright sunshine in summer and the nice view of the Adriatico.

Thank you for being such a nice host.
I was a Diploma student in the high energy programme that started in the fall of 1996. In the spring of 1998 I went to Harvard University as a research assistant and in the fall of the same year I started a Ph.D. programme. My Ph.D. advisor was Cumrun Vafa. In 2002, I graduated from Harvard and, in the fall, became a postdoctoral member at the Institute for Advanced Study in Princeton. In 2005, I had junior faculty position offers from several places, including Fermilab, Cornell University, and Perimeter Institute for Theoretical Physics. In the summer of 2005, I joined Perimeter Institute as a junior faculty member which is my current position.

In order to describe the importance that the ICTP had, and still has, on my career I should add a few words about me before joining the Diploma course. I am Venezuelan. I completed my undergraduate studies in Caracas at Simon Bolivar University in the summer of 1996. In 1995, it was clear to me that I wanted to pursue graduate studies in high energy physics. Ideally, I wanted to join a strong research group in the United States. I started to prepare for TOEFL and took a sample test. My score was very possibly the lowest in the recorded history of this examination. This language barrier would have been enough to stop any possibilities of completing my plans. To make things worse, the political and economical situation of Venezuela started a degradation process which seems to continue now with too much inertia to be stopped.

I still recall how happy I was when I received the acceptance letter from the ICTP. After a great effort, I had been able to demonstrate that my English was enough to "survive".

What I did not know at the time was that joining the Diploma programme at the ICTP would allow me not only to learn a great deal of Physics (and English), but also to have the opportunity to learn from and interact with first rate physicists. The very intense year-long Diploma programme provided me with enough tools to go and start a research project with Cumrun Vafa as a research assistant even before having
The ICTP experience: DIPLOMA and STEP students

started my Ph.D. It also gave me a head start on the degree of maturity, independence and knowledge from my fellow graduate students at Harvard.

I could write many pages describing the crucial and positive impact that the Diploma programme has had on my career but it should be enough to say that I am convinced that the first paragraph of this short note would have been very different if the Diploma programme had not existed.

Finally, one of the things that were stressed to us, as Diploma students, was the importance of supporting science in developing countries. One of the reasons why I joined Perimeter Institute is that I believe it has the flexibility and the resources to become a world class leading research center and that my presence here as the only faculty member originally from a developing country would make an impact on the way the institute supports science in our countries.
I was a student at the first version (1991-1992) of the Condensed Matter Physics Diploma Course.

When I started the Diploma Programme, I had already attended a series of very good courses at my home university in Santiago. In spite of this fact, I was greatly impressed by the vast variety of new topics covered during the lectures I was attending at the Diploma. Needless to say, the teachers there were just excellent. I feel tempted to mention the teachers whose lectures I enjoyed the most; they are Professor Mario Tosi, Professor Narendra Kumar and Professor Giorgio Benedek.

You asked us to mention the difficulties we found at the Diploma. Well, I think the intensity of the subject is too high. However, I am aware that this is an intrinsic difficulty in the sense that it is the only way to cover such an amount of topics.

Other difficulties resulted from time to time from human relations but were efficiently solved with the always opportune assistance of the unforgettable secretary of the Diploma, Concetta Mosca. We feel very indebted to her.

After completing the Diploma, I obtained a Ph.D. position at the Scuola Normale Superiore di Pisa. My supervisor there was Professor Mario Tosi. Since I completed my Ph.D., I have had several brief positions and have carried out some research on different but connected areas.

At present, I am starting a job as a researcher at a laboratory of thermonuclear plasmas based in Santiago, Chile. I am very pleased with this position which will eventually be permanent. My duties here consist of some simulations in parallel with experiments that are performed at the Z-Pinch device. This is a totally new subject for me but I find it fascinating.

I am convinced that this opportunity, as well as the rest of my career, was born at the Diploma.
The Diploma course of ICTP, which started in 1991, is one of the most fruitful activities. Developing science and technology in third-world countries is a hard task. As a scientist in a developing country, in my specific case Colombia, I have been lucky to have gotten the support from ICTP through the Diploma Programme in Condensed Matter Physics. This was a very good opportunity for me to know how science is done to the highest level. The Diploma Programme has been essential and provided me with basic and advanced courses on condensed matter physics in order to continue my goals as a scientist in that field. Nowadays, I am a Ph.D. student and I would say that without the diploma it would have been hard to get the position.

The quality of the training received at ICTP was the top, with highly qualified professors and researchers. This was very exemplary since I had not been in such an atmosphere of science. Independent thought and self-organization were the main ingredients in my training, especially during the preparation of my final dissertation. Probably these are the main valuable tools I got there at ICTP. Furthermore, the administrative staff and personnel in the library were very helpful during all the processes going from my initial application to the Programme until my trip back home.

I would also like to take the opportunity to thank ICTP and its Director for their hospitality and academic support during my stay in Trieste.
I just finished my BS before I came to ICTP. I am a High Energy Physics diploma student.

In my country the authorities think that Physics is not important; they think that it is not something that a country like mine should do. In Guatemala we don't do research, so, after the BS if you want to stay there the only choice is to work as a professor in the university where almost all the professors have only a BS degree.

When I received the e-mail from ICTP saying that I would be accepted as a diploma student, I just could not believe it. I was so excited. I was really happy. When I arrived in Venice, my flight was delayed and my luggage was lost. I lost the last train from Venice to Trieste. I was scared. It was the first time that I had travelled alone, but in the end I arrived to Trieste.

When the lectures started, I started to study very hard, since in the beginning it was difficult for me. I was afraid to speak with the professors because perhaps they would be upset, or disappointed if the question was trivial. The professors were very nice people, but I was afraid, and I was trying to solve all the things alone.

At the end of the first month, we had a lot of work and I started to feel that it was too much for me, because I started to have problems to follow the classes. That was the first time when I felt that I needed to change something. I started to ask for help from my colleagues. They are really nice people. With a little help I started to use my time in a better way. After that I found good friends, and we continue working together.

Now that we have almost finished the first term, I start to think about all the things that I have done here. I have learned a lot of things, and am so grateful to ICTP. Now I really understand that I am here to learn and that the people here want to help me. That's why I really like ICTP, because they give us an opportunity to change, to get better. This is an amazing place.
And it is very interesting to know and live together with people from different countries of the world; the cultural exchange is very interesting. It permits us to see the world from a different point of view and make good friends. I am very happy to be here in ICTP.
I am a Diploma student in Mathematics 2006-2007. I was told about the ICTP Diploma Programme by my teachers. They have been here and recommended me to apply to this programme. My colleagues have also participated in this programme in previous years. They have now succeeded in their Ph.D. in various countries.

I am very pleased to participate in the Diploma Programme at ICTP. First, every staff member is full of zeal for us. I have learned from them not only the knowledge of sciences but also the styles of working.

I have studied some basic courses. From my point of view, it is enough for the students who are from developing countries. I have to submit the assignments of exercises after each of lectures. Thus, I can understand deeply what I have studied. Whenever I have some questions about lectures, the staff can help me to answer.

After the Diploma course, I think that I can go on to do a Ph.D. programme in Mathematics in any country because I have a good background in mathematics.

I hope this programme will continue in the future so that other students are happy like me.

Thank you very much.
I participated in the Diploma Programme in Condensed Matter Physics from August 2005 to February 2006. I did not get the diploma. I consider myself as a very good student with a strong potential. I received a special mention from the University from which I graduated in Engineering Physics in March 2005, Universidad Autonoma Metropolitana in Mexico City. This Mexican University is recognized by the University of Texas (United States) for its quality.

I actually work as a scientist at the Universidad Autonoma Metropolitana.

When I attended the Diploma programme in ICTP, I found many problems for extending my background. The reason I could not complete the diploma is because of the bad quality of professors in condensed matter physics. They should take some courses on how to teach students at any level in order to avoid that students fail in their examinations.

The staff in ICTP consists in general of friendly people. Services at the library, cafeteria and guesthouses are very good.

I thank you for taking my opinion into account.
ASHENAFI DADI

ETHIOPIA

I was a diploma student in the Condensed Matter Physics in the 2003/2004 academic year. I am currently a second year graduate student in Northeastern University, Boston, MA, USA.

Although it is unquestionable that ICTP is an institute devoted to enhancing science in developing countries, I have the following to say on what I gained by attending the Diploma programme. First, the Diploma programme is my first experience to attend classes as an international student and the fact that all of us came from developing countries made me feel that ICTP and Trieste are my home—my real home. I really appreciate the readiness of the staff, administrative and academic, to welcome and guide us; their cooperation on solving whatever problem we went to them with; the love and affection they showed me throughout the year.

The courses I took are advanced and basic. They covered almost all the currently active research areas in condensed matter and statistical physics and for a student who is at the early stage of graduate study, and especially for one like me who came from institutes where research is limited to specific areas due to lack of facilities and human power, and countries where science is not given much attention, these courses tell him how vast physics is, and that there is more in physics than “physics”. I think that is the remarkable point about ICTP. I took the first course in Computational Physics. I didn’t take any course, both as a programming language and as a method for computing physical problems earlier. In addition, in my one year stay at ICTP I was able to gain a working knowledge of many software applications both in Windows and Linux (about which I had no previous hint) operating systems.

Finally, the cooperation of the professors to help us find institutions to continue our Ph.D. is the other thing to mention. ICTP is the hope for the development of science in developing countries and I would like to thank the staff, faculty, UNESCO, IAEA, the Government of Italy, and all governmental and non-governmental organizations who contribute in any way, financially or otherwise, to the advancement of the centre.
It is my real pleasure to acknowledge the crucial contribution of my training at ICTP within the 1996-1997 Mathematics Diploma Programme to the completion of my higher studies. This training, conducted by a well-organized and very nice staff, had a threefold feature:

— Firstly, it exposed me to a completely international and scientific framework in which, on the one hand, my classmates coming from diverse countries (Bangladesh, Cuba, Ethiopia, Turkey, Pakistan, Nepal, Nigeria and Kenya) were very competitive, and on the other hand, my teachers being great and renowned scientific researchers working in prestigious institutes or universities in Europe, USA, Asia, were not only willing to provide us with solid mathematics, but also were very challenging.

— Secondly, ICTP provided us with high quality facilities (library, computers, etc) ideal for full-time studies and research initiatives. Furthermore, ICTP strengthened our vision of mathematics through its conferences, workshops and schools which took place during our stay.

— Thirdly, ICTP had somehow secured us academic openings for doctoral studies. Concerning my case, I should indeed acknowledge that ICTP gave me the opportunity to prepare efficiently, and eventually pass, the very selective SISSA entrance exam to the Sector of Functional Analysis and Applications.

After successfully defending my Ph.D. thesis at SISSA in 2001, I have performed my post-doctoral researches successively at SISSA, ICTP and more recently, during 2005-2006, at AMSS-CAS (Academy of Mathematics and Systems Sciences of the Chinese Academy of Sciences) with a TWAS-CAS Award. Currently I am affiliated to IMSP (Institut de mathematiques et de Sciences Physiques, Porto-Novo, Benin) as Assistant Professor.
DOU DJAMEL

ALGERIA

My first experience with ICTP was as Diploma course student in High Energy Physics. I joined the diploma programme in August 1994 and got my diploma in August 1995. It is really hard to find words to explain the impact of the Diploma programme on my scientific career and life. Perhaps I can say that my arrival to ICTP was a turning point in my life. In Algeria I was struggling to find a way to go to Europe (France especially) to pursue my advanced studies in theoretical physics, but at that time the mission was impossible. While I was a masters degree student in Constantine University I received the application form for the diploma course from one of our professors who was aware of the programme. I applied with two colleagues but without taking the story seriously. In April 1994, I received the offer from ICTP. I was the first Algerian student to participate in the Diploma programme since its creation. The first challenge for me was English, I did not have the slightest knowledge of this language and I had to find a way to learn it before joining the Diploma. With great efforts I was able to speak, write and read by the end July. So the first thing that ICTP offered me was this international language!

As an Algerian I did not find it difficult to follow the courses of the diploma programme, because we had been given a good boost during the B.Sc. programme in theoretical physics in Constantine University and our background was good enough. During the diploma year I was gaining more depth and learning elementary particle physics from masters of the subject (Strathdee, Furlan, Narain, Randjbar and others). By the end of the Diploma and after the dissertation my view on theoretical physics had changed once and forever.

After finishing the Diploma, the first question that faces most students is: What next? Here ICTP again interfered and offered me the chance to participate in the SISSA Ph.D. entrance exam of that year. ICTP supported me financially to stay two months at ICTP to attend the SISSA exam which took place in October. Surprisingly I passed the SISSA exam and got a Ph.D. scholarship. In October 1999 I defended and got my Ph.D. in Elementary Particle Physics under the supervision of Professors R. Sorkin and R. Percacci.
Looking at the sequence of the events, one can easily see the role of ICTP in my scientific career.

Directly after finishing my Ph.D., I went back to Algeria and joined Ouargla University. From 2000 to 2003 I made a series of short-term visits to ICTP and could publish one paper.

In 2004 I became a Junior Associate of ICTP. The impact of the associate scheme is becoming increasingly important on my research, I made two visits using the associate scheme and the output is two papers.

To sum up, I find the Diploma programme one of the most fruitful programmes of ICTP if not the most fruitful. As far as I can see, more than 80% of the diploma students during the last 14 years succeeded in getting their Ph.D. and many of them from very prestigious universities. Some of them have become pioneers in their fields. However, there is a point I must say here, as far as I can see from my visits to ICTP and my discussions with the students, the diploma level is not as it used to be, specially the quality of the teaching staff (here I refer only to HEP diploma).

In the end, I can say that ICTP has succeeded where most or perhaps all the humanitarian organizations have failed. ICTP is a place where races, colour, religions and political attitudes evaporate or make little difference and only the scientific interests remain or can make difference.
I was a 2001/02 Diploma Student in the Condensed Matter Physics Section. Now I am doing a Ph.D. in Theoretical Chemical Physics in the University of Toronto. I am about to finish and right now I am looking for a postdoctoral position with the idea of continuing in academia.

I would like to take this opportunity to present you my view of the Diploma Programme at the ICTP and what it has meant for me. My case was special in the sense that my undergraduate training was in Chemistry and, to my fortune, Professor Shenoy decided to accept me into the Condensed Matter Physics programme even when he was fully aware that my training in Physics was very limited.

The Diploma, within a year, trained me basically from scratch. After eight months I was in pretty decent shape to tackle problems of my own. In that time, my physical intuition, calculation skills and computational literacy increased very fast. Looking back, it is very rewarding to see how much I learnt in that year in Trieste. In my present research I use many of the methodologies that I learnt in Trieste and, very often, I find myself looking back into the diploma lecture notes for inspiration.

Also, because the ICTP is a conference place, during my stay some 40-odd conferences or schools were held at the centre. That is very impressive if you think that normally a Physics Department will hold 2 or 3 conferences per year. So I had the opportunity to listen to and, on occasion, meet experts in a wide variety of subjects, from around the globe.

After the Diploma, my chances to enter into a good school were very high and the graduate school application process was very easy. Trieste has a very good reputation for physics and thus the diploma opened many doors for all of us. Also, the scientific and administrative staff in the centre was very supportive on my application process. Professor Shenoy, the coordinator of the CMP Diploma at that time, really made sure as much as he could that everyone had something interesting to do after the diploma. I still keep contact with him; he celebrates my achievements and keeps encouraging me.

On a more personal note, the centre and my time in Italy proved to be
The ICTP experience: DIPLOMA and STEP students

very rewarding. First of all, the centre is very multicultural and I had the chance to make friends from all over the world. For example, my diploma peers were from Vietnam, Indonesia, Nigeria, Congo, Cuba, Peru, Venezuela, Pakistan, Usbekistan, Bangladesh, Ethiopia and Italy, just to name a few. I still keep contact with many of them. Sharing with people with so different backgrounds and beliefs taught me lots of things not only about other cultures but about myself and my own culture. To a certain degree, it gave me a citizen-of-the-world urbanity that has definitively helped me along my career. Also, living in Italy, which is a beautiful country with a millenary (what is this?) culture and incredible food, just added to the environment.

I have a great appreciation for the Centre and the Diploma programme. I sincerely hope that the programme continues boosting the careers of young scientists in developing nations.
ALEXIS OMAR GARCIA
CUBA

I attended the 1996-1997 ICTP Diploma Course in Condensed Matter Physics. I am deeply grateful for that opportunity. I consider it as one of the most beautiful happenings in my life. I particularly enjoyed the ICTP library and the whole place, which is wonderful.

I found that, with very few exceptions, the quality of teaching was very good and the administrative staff was excellent.

I found it somehow difficult to know the right way to study for exams. Lecture notes were not enough and it was hard to know the right book(s) to solve problems to properly prepare for exams. Time was too short for really absorbing the knowledge taught.

As I said before, I am deeply grateful to ICTP, forever.

At present I am doing my Ph.D. in Physics at State University of Campinas in Brazil. Since the ICTP Diploma Course could be considered close to a Master degree, it helped me to be accepted as a Ph.D. student. It was helpful also while I attended the required Ph.D. courses.

I sincerely hope this can help you.
Thank you very much for your interest in ICTP's family. It is very kind of you to write to us. I was a diploma student in 1994-95.

I used in all my research life the background notes and experience which I earned from the diploma course. I am working as an associate professor in the mathematics department of Yildiz Technical University. I am studying the spectral theory of differential operators in functional analysis. I am especially interested in the regularized trace of differential operators such as Sturm-Liouville. In addition to being of mathematical value, this subject is very useful in mathematical physics as boundary value problems besides mathematics.

I came once again to ICTP in 2001 for the summer school in mathematical control theory. I always consider myself as a scientist (or student) of the ICTP family.

I would like to come again to ICTP in the near future. I will apply to ICTP for this reason in a few days.

Best wishes for 2007.
MANSOUR HAGHIGHAT

IRAN

It is my pleasure to write about my experiences at ICTP within the Diploma programme.

I have participated in the first Diploma programme (1991-92) when I was a first year Ph.D. student. Although the period was short for the many courses offered, these courses made the basis of my knowledge on particle physics especially QFT, SM, group theory and GUT. I have no doubt that without this one year of rigorous courses, completing my Ph.D. thesis in particle physics would have been impossible at that time in Shiraz University. Now I am teaching advanced courses in particle physics at Isfahan University of Technology. I am an Associate Professor of Physics and have graduated 10 M.Sc. students. I have 2 Ph.D. students in particle physics who are very much interested in this area of physics and are hard working. I wish they could also benefit from ICTP.

I am indebted to ICTP and its supporters for all of the success.
I was a 1995/96 Diploma Participant at ICTP in the Section of Mathematics.

It was a great pleasure for me to attend the Diploma programme. I was taught by well-known mathematicians and I studied and understood basic courses of Mathematics. I appreciate ICTP for the following reasons:

1. I and others like me got the chance of studying in the Diploma programme;
2. I used the good library facilities of the Centre;
3. I attended international workshops in the field of my interest;
4. I met well-known professors who guided me to start research and helped me to continue the Ph.D. programme.

I am thankful for the assistance I got that opened my eyes to pursue my study. My special thanks go to Professor Chidume, Mathematics Diploma Coordinator of ICTP. Under his supervision, I was given a chance to continue my Ph.D. at the University of Nigeria, Nigeria. I published a number of papers in international journals during my Ph.D study.

After completing my study, I was appointed at ICTP as a postdoc fellow for two years. Currently, I am in my country, Ethiopia. I am now at Bahir Dar University teaching undergraduate and graduate courses. I am also appointed as Programs Officer of the University. Moreover, in collaboration with my colleagues, I am publishing a number of papers.

Thanks again to ICTP for enabling me to be in a position to enhance science and assist my society here in Ethiopia.
I happen to be one of the twenty lucky Diploma students of the first batch. I still remember vividly the first day I arrived in Italy and the first time I met Professor Abdus Salam. (I was lucky because I had the opportunity to listen to him. He sat with us for a long session, talked to us of his dream about the Diploma and explained why he wanted it.) The first day we attended the class. The Diploma has shaped my life. Perhaps I would be a different person without it. It has broadened my horizon in many ways. We were exposed to many frontiers of physics which we did not know before. We were taught by a group of very enlightened and knowledgeable professors who had solid authority in the subject. We had the opportunity to have a class of ten students in each group (CMP and HEP) and almost each of us from different countries which helped us to learn different cultures and how to socialize.

In many places in the world except perhaps in USA or Canada, one can do a Ph.D. without extensive advanced course work. For instance I did my Ph.D. in the UK where course work is not at all required but I definitely felt how useful it was. It is thanks to the Diploma course that, while I was doing my Ph.D., I was also teaching third year level undergraduate students to supplement my living expenses. If I did not have this Diploma degree, I would not have been offered the job to teach Solid State Physics at the undergraduate level. All in all I think the fact that I came to ICTP for the Diploma Programme is one of the best things that happened in my life; when I speak to other class-mates they say the same. They think that they all benefited. If you do a survey, you will find almost all the ex-Diploma students are doing extremely well in their respective positions.

I am now associate professor in the Department of Physics, the University of Dhaka, Bangladesh. I always encourage my best students to apply for the Diploma course and ask them to definitely try for it prior to applying for Ph.D. The experience from Diploma helps one to choose the right field of research that he wants to pursue in the future. Studying in an institute in a first world country (for many of us that was our first visit) like Italy has definitely been a great opportunity and many of us have made the best out of it.
BOUBAKARI IBRAHIMOU
CAMEROON

I have participated in the 2001 ICTP Diploma Programme in Mathematics. I am very thankful to the program that took me where I am now.

Presently I am at the University of South Florida, Tampa, Florida, in the US pursuing my Ph.D. degree in Mathematics and I am expecting to graduate by the end of this academic year.

The ICTP diploma programme is a rich, high level training programme that provides an adequate level of competency for all of its graduates. I was fortunate to be part of this programme that not only gave me the opportunity to join the western universities but also gave me the level of confidence to compete successfully with the best trained students in those universities. A particular case that made a huge difference in my future is, for example, the functional analysis class taught by Dr. Chidume. Before joining the programme, I had a functional analysis class but I never fully understood its objectives and goals until I took that course in ICTP. From that point I developed a huge interest in the area and I am actually writing my dissertation on Nonlinear Functional Analysis.

The academic environment is not the only positive contribution of ICTP. Although we seem to minimize it, I can say without any doubt in my mind that the cultural training provided in ICTP is one of the most unique that can be found in the world. In my apartment I lived with four roommates, from China, Senegal, Sudan and Indonesia. I learned a lot from them. I learned their culture, their attitude, their behavior. In summary, I learned how different human beings can be and how those differences might be used to overcome our difficulties.

I am very thankful to the programme founder, to everyone that is contributing to the success of the programme and strongly support the idea that the programme should be given full consideration.
I belong to the 2001-2 diploma programme in condensed matter. When I attended the ICTP diploma programme I was already registered as a second year Ph.D. student at Sharif University of Technology, Tehran, Iran. The quality of the courses I had passed in Sharif University was very poor compared to the ICTP diploma programme since, at that time, there was no active condensed matter theorist there.

After spending a year of wonderful course work, I was easily able to get into a new research field after attending a workshop held in summer 2002 (the same year I was completing my diploma). Before the ICTP diploma, I had already attended a workshop in ICTP as a first year Ph.D. student. But to be honest, before acquiring the ICTP background knowledge, I was not able to follow even 1% of the lectures in the seminars and workshops.

After the ICTP diploma, I resumed my Ph.D. research with the new techniques and concepts I learned during my diploma which helped me complete my Ph.D. in the following two years back home (Iran). Afterwards I received a two years prestigious JSPS post doctoral fellowship from the Government of Japan, and, now a month ago, I am back to Iran, working as assistant professor of physics at Isfahan University of Technology.

The ICTP diploma was a turning point in my career, in that it taught me the language of doing science as a result of interaction with many researchers from all over the world visiting ICTP during the year. Many people helped me and other diploma students during their stay in Trieste, including the coordinator of the CMP diploma, Professor S.R. Shenoy and the secretaries, especially C. Mosca. They were always available when I needed them. Thanks to them again and forever.

ICTP still continues to help me in my career as one among its hundreds of associate members.

Right now I am quite happy with my research work and achievements.
But there is still a lot of room for improvement. To briefly mention my achievements in research and education:

1. I have published 6 papers;
2. I have translated two textbooks from English to Persian (one published, one in process);
3. I am also coauthoring a book in English with Professor G. Baskaran of the Institute of Mathematical Sciences, India.

I am sure without a year of the ICTP programme, it would have taken much longer for me to achieve the little items mentioned above.

I hope some day I can pay back ICTP.
JOSEPHAT KALEZHI

ZAMBIA

I belonged to the 2002-2003 Diploma Programme in Condensed Matter Physics. ICTP is one of the places I will never forget in my life.

As regards the quality of teaching, I believe it was world class. In fact, despite being intensive, I learnt a lot and was impressed with the majority of courses, though I faced a few difficulties in closing the gap as I enrolled in the programme with a Bachelor of Science degree background.

Most lecturers were helpful and the secretaries play a pivotal role in advising on social issues. I believe there is no place, not even a university, that compares to ICTP where the students are treated like kings. I enjoyed most the second term of the programme and the visits by the most distinguished scientists (Nobel Laureates). I experienced a number of difficulties in the first term in coping with the new environment; the language barrier with local people also posed some difficulties as did the cold weather.

I am currently a lecturer at Copperbelt University here in Zambia teaching Physics and Computer Science courses. Without the diploma programme, this would not have happened.
AYSE KARA

TURKEY

I belonged to the Diploma Course in Mathematics 1993/94. After the Diploma Course I continued to work with my thesis Supervisor for my Ph.D. thesis and finished my Ph.D. in March 1996. I am grateful to ICTP for helping my progress. After the Diploma course I returned to ICTP for short term and long term visits.

Until coming to the Diploma Course at ICTP, I had considered myself as knowing many things in Math. But, I understood at the very beginning of the Diploma Course that what I knew then was not enough. The quality of teaching was excellent. I was working very hard and learnt a lot. I believe the Diploma Course is very important to complete a good background if one needs. I have gotten a good habit of a working programme for my research work.

The part I enjoyed most was the period of preparation of my Diploma thesis where I was doing more research.

The administrative staff was wonderful. The Diploma course clerk at that time was Concetta. She was like a family member.

I am still in Mathematics researching in Mathematical Control Theory. I am now an Associate Professor, and the Director of the Topology Unit of the Mathematics Department and the Vice Dean of the Faculty of Arts & Science of Yildiz Technical University in Istanbul.

I try to carry the mission of ICTP everywhere.

I have participated in several activities of ICTP since 1992.

I may say that the Diploma course changed everything in my life, in a good sense. And, I believe that the ICTP Diploma course is very necessary to help the young physicists and mathematicians from developing countries at the beginning of their academic career, and therefore science in developing countries. I am thankful to ICTP for my scientific progress.
I participated in the 1993/94 Diploma Programme in Condensed Matter Physics. I completed this programme with Honors and seven "E" grades and an "A" grade. I strongly feel that it is this Diploma programme which helped me to dramatically improve my knowledge and skill in condensed matter physics. The set of the courses offered and the quality of teaching by selected professors from around the world were simply super. The courses represented the mixture of core topics in physics as well as very highly specialized areas. Finally, the research project carried out in the last three months of the programme was very important as it exposed me to the concept and methodology of scientific research. Besides attending our regular classes, we had the opportunity of attending seminars from great researchers and to communicate with them. In summary, the education and training I was offered through the diploma programme truly formed a firm foundation for my scientific career.

Based on my outstanding performance in the Diploma programme, I was awarded a Premier Studentship by the University of Edinburgh for my Ph.D. study. My strong background in condensed matter physics helped me to complete my Ph.D. thesis within three years. I have studied the structure and elastic properties of major silicate and oxide minerals of Earth's lower mantle using the first-principles computational methods based on density functional theory. I have published eight papers based on my Ph.D. work. After my Ph.D., I moved to the US to do a postdoctoral research in computational mineral studies. I have also had a unique opportunity to collaborate with Professors at SISSA, S. Baroni and S. de Gironcoli, with whom I have coauthored five papers including a Science paper.

Now, I am Assistant Professor in the department of computer science, Louisiana State University, Baton Rouge, USA. I am leading the scientific computing and visualization group of the department. I am using the parallel simulation and visualization methods to investigate the fundamental problems related to Earth materials. My recent interests include rheological and liquid properties of silicates and liquids at high pressures and high temperatures of Earth's deep interior. I have published about 35 journal papers and 15 conference proceeding papers.
PARINYA KARNDUMRI

THAILAND

I am happy to give you the information about the Diploma programme. I am studying in the high energy physics course. It is a very good programme, and I get a lot of experience from it. I gained a lot of new knowledge that I never knew before. All the professors lecture very well. The part I enjoy most is the courses themselves. I very much like theoretical physics. ICTP and the programme give me the invaluable opportunity to study this field.

The difficulty I encountered was the problem of the apartment. I suggest that the Centre should manage the accommodation for diploma students because each year there are a lot of students. Sometimes, some of my friends have to be sent back because they cannot study for many reasons. This leaves other people with the problem of the rent and other problems. I also have this problem, now. My friend went away without saying anything. I have to look for another person to replace him. If I cannot find anyone, I have to change the apartment. This is a very big problem for us because this time all of us have exams. Furthermore, we have some difficulties with the contracts. All of them are in Italian. We cannot understand. Of course, we can follow the Italian course, but it is almost impossible to follow the contractual language. The programme is very intensive. We do not have much of time. So, I hope it will be better for the students if the Centre prepares some places for us to live during the programme.

Thank you very much for asking me to give this information.
HEKTOR KASHURI

REPUBLIC OF ALBANIA

I was a Diploma student in the section of Condensed Matter Physics, during the academic year 2000-01. I am writing to say how useful this experience was for me. Currently I am about to receive Ph.D. degree from the Physics Department of Northeastern University, Boston, MA, USA. First of all, my participation in the ICTP Diploma Programme helped me a lot in extending my knowledge in theoretical physics. It made it easier for me to be accepted here. I personally found Numerical Methods lectures very useful. I did have very little experience in programming, but learned a lot after attending the course offered by the Diploma Programme. Part of my current research needs computational skills. My skills in English were not good when I started the programme. I never had a chance to practice it. After being there for a year I improved a lot. As a result of that, I passed the TOEFL exam, which is mandatory to be accepted in American Universities.

I have nothing to complain about. Keep up the good work.

Thank you.
I participated in the diploma programme in Mathematics from September 1995 to September 1996. I can confidently say that the experience I had within that year gave me not only a very strong mathematical background, but also provided me a very unique perspective of collaboration among people coming from very different backgrounds.

The value of the Diploma programme lies not only in the education it provides to its participants but also in its unique character in bringing a very wide range of people with different backgrounds, experiences, nationalities together even if they do not share similar interests academically. This provides a very fruitful atmosphere where a mathematician can learn about mathematical intricacies of high energy physics or computational difficulties in mathematical modelling involved in condensed matter physics. This experience provided me a very strong academic background and widened my perspective of mathematics in ways I could not have even imagined.

In the years following my participation in the Diploma programme, I tried to follow the news from ICTP, especially the Diploma programme, at their web site and witnessed their development. I find it very exciting that the programme has been extended to include Earth System Physics. Had this programme been a part of the Diploma programme back in 1995, I would have liked to interact with their students and lecturers. The exact combination of these programmes will give an extraordinarily strong background to someone who would go into any applied area, be it physics, mathematics or atmospheric sciences.
I was a Diploma student from 1991-1992 in the condensed matter physics group. This is the year when the diploma programme first started, as I understand.

In 1991, I started the graduate programme at the Seoul National University in Korea (South). At that time, I was not sure whether I wanted to continue my career in physics, so I decided to apply for the ICTP programme just to challenge myself and to find a goal in my professional life. I joined the ICTP programme in September of 1991.

For the first quarter (first 3 months) of the programme, we had full-day classes covering statistical mechanics, condensed matter physics, and many-body theory. The quality of lecturers was very high. They were all very enthusiastic. The second quarter was also quite useful, since we moved to more advanced topics such as renormalization groups, superconductivity, 1-D system, magnetic systems, and so on. I think that the lectures were amazing. During the third quarter, we were free to attend any summer conferences at the ICTP, and it was a great opportunity, since I met several important physicists who advised me to continue my career in physics. The most important figure was Patrik Fazekas, who was a lecturer in the Magnetism course, and became my research supervisor during the last quarter. I still remember many conversations that I had with him to resolve the problems, and we finally published three papers together at that time. My experience at the ICTP eventually made me continue my career in Physics.

I thank all the lecturers and administrative staff during that time, who helped us get together and cope with all unexpected difficulties. Without them, it could have been quite difficult, since I found Italy was not a particularly friendly country for foreigners (who were living there, not just visiting) compared to USA or Canada (where one can find more mixtures of people from all around the world). The staff members at the ICTP understood various difficulties that young students from other countries may encounter, and helped us in many different ways. I hope that this atmosphere is still there.
HAMID KHALESIFARD

IRAN

I was unable to finish the Diploma programme so I am afraid this may affect my answers.

I participated in the High Energy Physics Diploma programme during the academic year 1990-91 when I had just been accepted as a Ph.D. student in the Physics Department, Shiraz University, Shiraz.

I enjoyed the courses that were presented by J. Strathdee (QED), K.S. Narain (Lie Group), Bilenky (Standard Model), A. Masiero (QCD) and G. Ellis (General Relativity). All of them were very experienced teachers with efficient teaching techniques.

Unfortunately, I was unable to pass the dissertation and so did not receive the Diploma. Of course, this was unfortunate but I do not believe that I did not have the required abilities to finish the programme. A few different things caused it.

When I returned to my university, I decided not to work any more on theoretical physics and, even though at that time it was very difficult to do experiments at the Ph.D. level in Iran, I decided to switch to experimental optics. So I started to establish an Optics Lab at the Institute for Advanced Studies in Basic Sciences, Zanjan-Iran (IASBS). I finished my Ph.D. in that Lab and after that I joined the IASBS Department of Physics as a faculty member.

Most of my works are concerned with the interaction of light and matter. For the moment we have established a LiDAR station in IASBS and I am working on applications of LiDAR in Atmospheric Physics. As you can see, what I am doing is very far from High Energy Physics. But I have to mention this does not mean I did not use the Diploma programme. I enjoyed from many parts of it but, of course, not its end! In short I can say:

1. The teaching skills of the peoples that I have mentioned above were great, especially Masiero and Bilenky and, as a teacher, I have often tried to use them but I do not say that I was successful.
2. Lots of subjects were covered in the programme and I believe that it was too much for one year.

3. I enjoyed the ICTP atmosphere and the people who were working there, especially Concetta Mosca, the program secretary, who cared about all of the students.

4. Finally, I believe that living and working in another society can be a great experience.

In the end I have to add what you and the people in ICTP are doing is great and I have a lot of respect for this organization.

Lots of thanks for your attention and consideration.
I was a diploma student in the High Energy Physics-Cosmology group from 2004-2005.

My experience at ICTP was unforgettable. I had the most wonderful time there. I experienced the best teachers, especially in quantum field theory, group theory and phenomenology. I used to have these courses back in my country, but it was the first time that I really understood the subject in detail. In my opinion, the major reason for this is the environment. I met many great scientists from around the world there and they always gave me a motivation towards Physics. The library is really unique and the best in the world. The only problem was that the opening times were very limited. I experienced the culture and language of many countries of the Third World and I am still in contact with all my friends there.

The best part of ICTP is that it is in Trieste, which is a wonderful city---full of culture, good transportation system and most of all very safe.

Currently I am doing a Ph.D. from Syracuse University, Syracuse, NY, USA and no doubt I got this chance because of having the opportunity to go to ICTP.

Being a Pakistani, I am always proud that I have experienced studies from an institute which was founded by a Pakistani Nobel Laureate, Abdus Salam.

Keep up the good work.
I joined the ICTP Diploma programme in condensed matter physics during the Fall of 1992. Prior to my joining, I finished 3 years of bachelor and one year of MS in physics, from the University of Dhaka, Bangladesh. I believe we were the second batch of students to enroll in the diploma programme. This programme made a lot of difference in my life and career. We went through a very intensive course of study. I cannot say that I learnt everything that was taught. However, what I can say is that I learnt how to learn. My learning was not only limited to the formal class room. In fact, I took full advantage of getting to know other famous scientists that were around or visiting, several of them were Nobel Laureates. I had the opportunity to listen to their lectures and ask them questions. This opportunity of getting to know so many people in one place is very unique to ICTP, and shaped my personality in a very positive way. I became very ambitious and decided to go to Cambridge for my Ph.D. Because of persistent effort (something I learnt at ICTP), I got into Cambridge and successfully completed my Ph.D. from Cavendish Laboratory under the supervision of Professor Mike Pepper, FRS.

My initial stay at ICTP was a little bit tough because of the language barrier and cultural differences. However, our secretary, Concetta Mosca, was instrumental in fusing the whole group as a family, arranged many parties, and helped us in learning Italian. This has helped me tremendously. The CMP Director Yu Lu and the Diploma Coordinator Vijay Kumar always encouraged me to achieve and gave me confidence in doing what I am doing now.

After completing my Ph.D. in 1998, I went back to Dhaka University, Bangladesh, and became Assistant Professor and later Associate Professor. In 2001, I took a postdoctoral position at the Nanocenter of the University of Texas at Austin. During 2003-2005, I served as an Assistant Director of the Nanocenter at UT, Austin. In 2005, I came to the University of Central Florida to take a tenure track faculty position. In many ways, I feel proud of my attachment with ICTP. Thank you, ICTP!
I was a diploma student in the High Energy Physics section in 2002-2003. I was lucky to attend the diploma course in ICTP. I felt more confidence after the time I had been in ICTP for the Diploma. The courses helped me a lot to build up a solid background. All the professors were very kind and patient and not only helped students understand the lectures but also answered our questions in the classroom, or in their office, whenever we wanted. Also the quality of lectures was of high because of the teaching skills of the professors in the HEP section, so I could understand without difficulties.
I was a student in the Diploma Programme in High Energy Physics during the period 2004-05. I am currently doing my Ph.D. programme at Syracuse University, USA.

My message is not only a testimony, but also a thankful message for what ICTP is doing for young and promising fellows and researchers from developing countries, of which Africa in general, and particularly DRC, my homeland, is a part.

Anyone who has participated in any of the programmes offered by ICTP can confirm that he/she has learned a lot. As far as the Diploma programme is concerned, I can say that the students are highly trained. The Diploma is devoted to training the students and this task is well done because most of us, who were diploma students, are performing well wherever we are working in many places around the world.

Talking about the influence of ICTP in enhancing development in developing countries, I am pretty convinced that developing countries can overcome numerous problems they are facing as far as science is concerned. But in my humble opinion, this can only be done efficiently with a profound commitment of their governments. The developing country governments must learn that investing in technology, sciences and fundamental researches is the key without which those countries can never hope for real development. Although, through its efforts, ICTP is trying to meet these needs, it is not easy to hope for a sudden change. The battle is big and many tasks must be tackled. This is what explains, in part, the substantial result evoked in the Director’s message.
MARGARITA KUQALI

ALBANIA

I was a Diploma student for the period 2002-2003. I studied Condensed Matter Physics. My decision to be a Diploma student has been one of the best I ever made and I would like to thank ICTP for giving me this opportunity. Being a Diploma student has enhanced my knowledge in CMP and has helped me a lot to progress in my academic career. After I finished the Diploma programme I returned to my country. I started to teach Physics at the Polytechnic University of Tirana and, at the same time, started to do my Ph.D. Two years ago I applied for the STEP programme at ICTP. Professor Sreenivasan and Professor Niemela, who have been my supervisors in the Diploma programme, helped me a lot to be part of STEP. I have been at ICTP in the framework of STEP twice.

I would like to say a few words about the Diploma programme. Of course, being a Diploma student, especially in the beginning, is very challenging, but if someone works hard, ICTP has all the resources to help in order to makes things easier. If someone studies at ICTP what he needs is only the desire to do it because ICTP provides everything—very good professors and administrative staff, a wonderful library, computers and a very friendly environment. I am very glad I had the opportunity to be a Diploma student and spend one year at ICTP. Sometimes I really miss this period and people I had the opportunity to know, because at ICTP someone can really meet a lot of people and make friends from all over the world.

At the end, I would like to say that I feel very lucky for being part of ICTP and I am grateful to ICTP professors and administrative staff for everything.
JOHN K. KUTOR

GHANA

It’s a great pleasure to write about the ICTP Diploma programme.

I participated in the programme in 1992-1993 in Condensed Matter Physics. I had started the M.Sc. degree in Physics when I was offered admission into the programme. I had the permission from my University, University of Cape-Coast, to pursue the programme. I entered the programme with a Bachelor of Science (B.Sc.) degree in Physics. We were made to understand that the programme was designed to prepare young scientists, especially from developing countries for a Ph.D. programme in their various countries; therefore it was an opportunity to expose us to the study of physics. The curriculum for the programme, the high caliber of lecturers and the facilities at the Centre were such that, after the one year programme, one was indeed prepared, as far as it concerned the courses taught, for a Ph.D. programme in Physics.

During my one year stay at the Centre, I developed a very strong interest in the study of physics and its applications particularly in the area of medicine. On my return to Ghana in 1994, I had the opportunity to present a paper on "Laser Induced Thermoelectric Effect" at the third international workshop on Physics and Modern Application of Lasers held at the University of Cape-Coast. The presentation was described as excellent and many people said, "No wonder--- you were just coming from ICTP". The courses that I took during the ICTP Diploma programme made me understand many concepts and also made me appreciate the study of Physics. Perhaps it is also important to mention that most of the reading materials (journals, articles, books, etc.), that I used in writing the M.Sc. thesis were from the ICTP library. It was therefore no wonder that my M.Sc. thesis was considered one of the best in my University (University of Cape-Coast) at that time. The ICTP Diploma programme was so exciting that it has been my dream to be affiliated to the ICTP in future, hence my decision to be in the academia.

On my completion of the M.Sc. programme, I got a job as a lecturer in one of the leading Polytechnics in my country in 1995. In 1999, I got a
The ICTP experience: DIPLOMA and STEP students

scholarship to pursue a Ph.D. degree in Biomedical Engineering in the People’s Republic of China. I completed the Ph.D. programme successfully in 2004 and returned to Ghana in 2005. On my return, I got my present job as a lecturer in the Department of Biomedical Engineering in my country’s premier University, the University of Ghana. Apart from the high standard of tuition that I got during the ICTP Diploma programme, it has also given me the opportunity to interact with high class scientists from different parts of the world. I still remember scientists like Professor G. Morandi, Professor P. Fazeakas and Professor N. Kumar who taught me Statistical Mechanics and Phase Transitions, Lattice Vibrations and the Theory of Complex Systems, respectively. The programme also gave me the opportunity to attend many seminars, conferences and workshops. I also interacted with some of the renowned scientists who visited the Centre during my stay.

To me the ICTP diploma programme was inspiring and "an eye-opener" in my career as an academic. It is therefore a great pleasure to be invited to participate in a Workshop on Biomedical Applications in High Ion Energy Beams, to be held at the ICTP (12-16 February 2007). I’m also looking forward to participating in other ICTP programmes in future.

Long live the ICTP Diploma programme, long live ICTP.
I am a former Diploma student in Mathematics. What I really enjoyed in the programme was the new mathematics vision that the professors gave me. Before being a student there, I certainly learnt great things about mathematics in my home country but, with the ICTP Diploma programme, I learnt why we are studying such things and where we are heading.

The thing I want to emphasize is also the solid broad background the programme provided us by studying almost all branches (Algebra, Analysis, Geometry, Differential Equations and Complex Analysis). The programme helped me to face the Ph.D. Comprehensive Exam, which I passed after one year with honors. Thanks to ICTP.

I can't forget the available and nice professors and staff we had during my training. I must say that ICTP is one of the best places that any student coming from a developing country would have a chance to learn, to experience science and to have opportunities in a research career in his lifetime.

Thank you again for all you did for us.

When I came last September to ICTP, I had already an idea about the quality of the studies in the developed countries through the year that I spent in France. However, I must admit that the quality of the teaching that I found at ICTP exceeds by far all my hopes and all that I had seen before.

Thus, from the teaching point of view, it is clear that the teachers chosen at the ICTP present great teaching aptitudes: all the teachers work within the framework of research and have a long experience in teaching at this high level. Adding to the very high level courses, the participation in the conferences organized at the ICTP allows the students to discover the world of scientific research and facilitates the contacts between scientists from all over the world. I must note also the quantity and the great quality of books available at ICTP’s library.

On another side, the various services at the ICTP facilitate the arrival and the stay at Trieste: between the VISA Office, Housing Office, Operations Office---everything is done so that the student can focus on his studies only.

In my opinion, the only weak point at the ICTP is the accompaniment of the students in the search for a Ph.D. thesis after the Diploma. I think that it would be really interesting if conferences can be organized to inform the students on all the possibilities in order to be admitted for a Ph.D. The accompaniment of the students for the search for Ph.D.’s financing and the launching of Ph.D. programmes at ICTP, would, in my opinion be a logical continuation for all the investment given by ICTP to the diploma programme.

Thank you very much for all the effort that you make.
The ICTP experience: DIPLOMA and STEP students

ELSAYED IBRAHIM LASHIN
EGYPT

The Diploma course of ICTP which was started in the year 1991 is one of the most fruitful activities carried out by ICTP. As a measure of its success, one can find almost 80% of the Diploma students have gotten Ph.D.'s from good universities and institutes in Europe and USA. Some of them now became pioneers in their fields. ICTP since its inception in 1964 by the great late Abdus Salam played a very important role in serving and promoting science in the Third World. Perhaps, ICTP can be considered as the most successful organization working under the umbrella of the United Nations. Thanks to the generous support of Italy, ICTP is still capable of conveying its message.

Regarding my personal experience about the Diploma course, I feel that it was an enjoyable and a fruitful one. I have been a Diploma student in 1992 in the field of particle physics with little background about the field. I enjoyed the lectures given by master professors like S. Randjbar-Daemi, J. Strathdee, G. Furlan, K.S. Narain. Although it was a time of hard work and a lot of pressure to do homework and to pass exams successfully, I remember those days with great pleasure.

It is difficult to describe in a few words the vital role of ICTP in my scientific career. However to summarize:

- My first visit to ICTP was to attend the summer school on high energy physics (1992) during which I had the chance to make an interview with HEP staff and to get acceptance for HEP Diploma. This was the second generation Diploma.
- Succeeding in finishing Diploma course (92-93) was very essential and helpful for passing the SISSA Ph.D. entrance examination. The background from Diploma courses was very fruitful.
- I finished my Ph.D. in 1996 under the supervision of S. Bertolini and M. Fabbrichesi.
- Getting a postdoc fellowship from the National Italian Institute
The ICTP experience: DIPLOMA and STEP students

for Nuclear Physics (INFN), Section of Trieste (1996-1998).

- Appointed Junior Associate of ICTP for a 6 year period beginning from 1 January 2000 until 31 December 2005.
- Appointed Regular Associate of ICTP for the period beginning from 2006 till 2011.
- All my visits to ICTP were fruitful in producing scientific papers and making collaborations.

At the end, I can stamp myself by the phrase "made in ICTP".
Regarding the ICTP-Diploma I should say that it was extremely helpful to me. It was hard, we had to study a lot and, even so, we rarely did extremely well. But it was really positive. After ICTP-Diploma I am no longer afraid of any physics subject!

I am very thankful to all the professors and staff of the Condensed Matter Diploma course for this.

ICTP-Diploma courses are highly considered in Brazil. I did not have to go through much of my Ph.D. courses because I had passed the ICTP-Diploma courses. Nowadays, I am working as a professor in one of the best universities in Brazil in part thanks to the ICTP-Diploma. From the social point of view, it was also really nice. We learned to appreciate and respect the diversity of very different countries. Now when I look to a world atlas I remember my friends from the Diploma course.

Thank you again, ICTP.
MUHAMMAD AZIZ MAJDI

INDONESIA

I was a Condensed Matter Physics diploma student in the class of 1997-1998. I got my Ph.D. last year from the University of Cincinnati, OH, USA. My current position is a postdoc at UND, North Dakota, USA. Here, I am doing computational research on Dilute Magnetic Semiconductors and Heavy Fermion systems. I will probably go back to my home country, Indonesia, by mid-2008. I will be working as a lecturer and a researcher at the Physics Department of the University of Indonesia.
I attended the 2005-2006 Diploma programme in Mathematics. I am presently enrolled in a Ph.D. programme in Germany, more precisely, in a joint programme between the University of Leipzig and the Max Planck Institute for Mathematics in the Sciences.

The Diploma Programme, at least more than fifty per cent, was adapted to my initial background, although some lectures, in my opinion, were of undergraduate level. I enjoyed and learned lots of things in the second trimester. I think I really learned some new tricks when I was working on my Diploma project. I also liked the way my supervisor was guiding me.

One of my goals when I applied for the Diploma programme was to pursue a Ph.D. degree. I think my stay at ICTP did help me in the sense that it gave me a chance to improve my "English", thus it was not so hard to give a talk in English when I was interviewed for the Ph.D. programme. Also, I had a letter of recommendation from a Diploma programme's lecturer, which was part of my application for this very programme. Finally, my Diploma project equipped me with some basic notions that are needed for my present studies.

Among those things that I did not enjoy during my stay at the ICTP I would like to mention the following:

- some preliminary courses in which I did not learn anything; I had the impression of attending undergraduate lectures;
- on the one hand, some lecturers did teach things that are not even mentioned in the syllabus; on the other hand, others lecturers covered too many things in a very short period of time;
- the difficulty to study in the Diploma Room which was always noisy;
- the lack of helpfulness of the Housing Office in really assisting people to find convenient flats. Indeed, we were obliged to find a flat on our own because all flats suggested by the Housing Office were expensive;
- I have the impression that the Medical Service was helping me to spend my money rather than caring about my health. In
effect, the amount of money I used to pay for a medical consultation in Italy, although I had a recommendation from the Medical Service, was big compared to what I am used to paying here in Germany.

As I have mentioned previously, some preliminary lectures were of undergraduate level and therefore very boring for me, and I could not understand why such lectures are given in what is supposed to be a pre-doctoral programme. So, either the Programme should be designed for Bachelor holders, in which case the Programme must last more than a year, or it should be considered as designed for Masters holders.
MAMAT MAMATRISHAT

CHINA

I was a Condensed Matter Physics Diploma student during the period 2004-2005. I came from Xinjiang, western part of China. After finishing my Diploma programme, I returned to my home town, and I am now teaching in the Physics department of Xinjiang University.

During my one year of Diploma studying, I got very important professional as well as social knowledge which would play a most important key role in my future life. Below I mention them in detail:

Personally, I found that the people in ICTP and also in Trieste are very friendly. Scientists from all over world, other staff of ICTP, and Trieste citizens are very enthusiastic. In other words, it is a nice place with nice people.

Professionally, even though the Diploma programme is only for one year, I think my physics greatly benefited with the help of all ICTP Professors and my classmates. The professors taught us in a very kind way. I would like to name three in particular: Professor Subodh R. Shenoy, our group coordinator, who organized group meetings every Friday afternoon. I learned more about physics from my classmates' presentations. Professor Alexander A. Nersesyan, who taught us the elementary excitation course. He taught us in a very earnest way, revised our assignments in great detail, and gave us extra lessons; and Professor Sandro Scandolo, who taught us courses on Symmetries, Electron Bands and Phonons. He taught us with his heart and soul.

From my experience at ICTP, I better understood the meaning of Mobility of Knowledge and I made new friends from all over world. At first we did not know each other. At ICTP we became close friends and we learned more about other countries.

In conclusion, I sincerely treasure ICTP.
I participated in the ICTP Diploma programme 2005-2006 in Mathematics. Having completed my master studies in my home country, I was sidetracked from my initial goal---getting a Ph.D. Degree---by my job as a High School teacher for two years until the opportunity of attending the Diploma course arose. My participation in the Diploma programme was valuable to me for many reasons. We had the opportunity to be taught by renowned mathematicians such as Gianni Dal Maso and Antonio Ambrosetti, to name two. I enjoyed their teaching and could not hope to have better than that in my lifetime. I must also praise the present Director of ICTP for giving us the opportunity to express our concerns in the scientific committee held during our stay at ICTP. Everything has been given to us freely. The visa office has facilitated my visa paperwork and the housing office assisted us in finding a long term accommodation. All aspects of our stay were thought through and planned carefully beforehand by the Diploma office. By the time we arrived in Trieste, all we had to do was to confirm the good the selection committee had detected in each of us.

With all the facilities provided to me at the ICTP, I resumed with success and today I am taking Ph.D. studies at the University of Georgia in USA. I must say that if it hadn't been for ICTP, I would never have succeeded in getting into a graduate school in America. The main reason is that most of our lecturers in our home country are not active researchers and are extremely reluctant in writing recommendation letters in English. I was able to obtain those letters from well known scientists, which proved very important for my admission. My admission to the graduate school at the University of Georgia is also due to the performance of the former Diploma students who have studied there before me.

My participation in the Diploma has been a turning point in my life. I got back to my first dream and can now hope for a better life upon completion of my Ph.D. degree. I do not have anything to complain about on my stay at ICTP. It has been totally positive and I wish long life to ICTP and the Diploma programme. Developing countries abound in brilliant individuals. Most of them being extremely poor cannot express their full potential. They need initiatives like the ICTP to emerge and take control of their future and that of their respective countries.
ALEJANDRA MELFO
VENEZUELA

I was a High Energy Physics Diploma student during the academic year 1992-1993. The Diploma course was one of the best experiences in my life, both academically and personally. I was one of the first students, since I went for the Diploma in High Energy when it was only in its second year, and I was the first to come from my country, Venezuela. Based on the first year's experience, teachers and academic staff were already well adjusted to the students' needs, so all went smoothly for us, from accommodation to the actual teaching.

Two things made the experience most valuable: learning new physics and the contact with fellow students from around the world.

The first one made me a different physicist altogether: I completely changed the subject of my research because of the Diploma, since in my home country particle physics is very uncommon, and phenomenology is almost unheard of in my home University at Merida. The level of some of the teachers was impressive. We were taught by true experts in the field, internationally acclaimed in most cases, and that was a powerful experience. ICTP stages meetings that many of the world top physicists attend, and being close to such high-level physics was a totally new experience for me. Needless to say, the Diploma course was very hard work, I had to struggle to get to the level, but always found teachers and postdocs willing to help. Being in the Diploma also allowed me to successfully apply for a Ph.D. fellowship in SISSA which, for me, as for many others, was a spring-board. Back home, the Diploma and subsequent Ph.D. training has proven instrumental for my career. And I have kept coming back to ICTP since then as an Associate. The continued link with ICTP has been very productive for me.

Then there was the human aspect, and for that I can say ICTP Diploma is truly unique in the world. The word "international" meant for me, as for many people, an environment made up from people from Europe and the States, maybe from my own continent. Suddenly I found myself surrounded by Nigerians, Nepalis, Bangladeshis, Iranians, even citizens from countries whose existence I was beginning to doubt, like Albania. The contact with young people from those countries, all engaged in a common
The ICTP experience: DIPLOMA and STEP students

goal (to pass the same exams!), but with so much cultural diversity, was a source of joy for me. I truly believe there is no other place in the world where you can find citizens of Ghana, Paraguay, Mongolia and Papua New Guinea talking in a friendly way over a cup of capuccino, not even in the UN. And this is not just because ICTP is an international place, but because the policy of Diploma is to take students precisely from those usually forgotten countries. The Diploma experience has changed my map of the world forever.

Lastly, I have continued to benefit from the Diploma programme through my students. Whenever I have an exceptionally good student here, I advise him to follow my experience. This way, the "second generation" of Venezuelans from Merida in the Diploma programme has emerged. Already three of my students have successfully completed it. Two of them, Oscar Castillo and Alberto Sanoja, are in a Ph.D. programme now. The oldest, Aureliano Skirzewski, is already a doctor and has come back to his country; he is now about to begin working as my colleague here at Merida. I hope in no time his students start going for Diploma themselves, for then I will become the first Diploma grandmother.
LUCERO ALVAREZ MIÑO
COLOMBIA

I attended the Diploma Course in 1997-1998 for which I got permission from my job. That is why my story is different from most former participants in your programme since I didn’t get enrolled in a Ph.D. programme immediately after the Diploma course. In fact, I don’t yet have such a degree mainly for personal reasons, some of them have to do with my job.

I consider that the courses during the programme were very good, especially because I learned about developments in science in the second half of XX century in areas such as Thermodynamics, Solid State Physics, Chaos, and many others. I still keep my notes and the course notes from each professor as very good bibliographic references. I also noticed that being already in the Diploma Course it was easier for the participants to send the applications and to actually win fellowships. Even I got such a possibility but had to return to Colombia because of my job.

What I liked most was that I myself looked for a place where to write the tesina and I did it at the Università degli Studi di Palermo. I have heard, however, that this is not possible anymore. I was happy because at that time Professor S. Shenoy supported my initiative of writing my tesina in Palermo. There I found wonderful people in the group of Professor Li Vigni, such as my colleague Aurelio Agliolo Gallito. Moreover, Professor Shenoy helped me and Juan Linares (from Cuba) to attend the School of Physics Leonardo Da Vinci in 1998, in Bologna. The Diploma course year was indeed a nice experience for me. Not only did I take very good courses but I also attended a conference (the school in Bologna) and I worked with colleagues in the South of Italy and together we published a paper.

I have to confess I am worried about how many of the former participants of the Diploma programme have come back home. I guess I don’ t have the statistics, but guess that to be very few. I know it is not your fault. Young highly qualified people don’t find the proper job at home. But I wonder what the proper job is. It might be that the scientific problems our societies need to solve are not always the same as the ones in the societies in Europe. Maybe for the future some topics could be included related to the reality in Africa, Asia and Latin America without missing the global ingredient that any Science has.
I think that most ICTP diploma students had a B.Sc. and had studied in a subject before they came to ICTP. Therefore, if it is possible, when the course begins, every student should have a supervisor who can help him study in his subject. Maybe he will have a paper when the course finishes. This will help him for other positions as well as study his subject more easily.

I am taking a Ph.D. programme at the Institute of Mathematics in Vietnam. My work is good and I will finish my programme in 2008. The knowledge that I have from ICTP is very useful for my work.
Last year I passed my Ph.D. degree in the University of Salford, UK. Now I am working in my own country. The area of my research is theoretical and computational condensed matter physics. The title of my Ph.D. thesis was the Computational Studies of the Structure and Dynamic Properties of Normal and Defected Ice. I am also looking for a position of Postdoc anywhere.
I was a Diploma Course student in High Energy Physics during the period 1997-98. I arrived with a little background of quantum mechanics, special relativity and vague notions on field theory. In the first semester, we had courses on relativistic quantum mechanics (with a brief review of special relativity), introduction to quantum field theory (QFT) and elementary particle physics. It was really a pleasure to take these lectures. I was extremely happy with the way the courses were taught. I started to see and appreciate the deep physics behind the equations and ask the key and fundamental questions.

In the second semester we had more advanced courses such as standard model, supersymmetry, which allowed us to start doing research. In addition to the pedagogical lectures (and lecture notes) we had full access to the library and we were encouraged to interact with postdocs and some of the leading physicists who were visiting the centre during a workshop or spring school.

I still remember the wonderful lectures of Seif Randjbar-Daemi (QFT), E. Akhmedov (Elementary Particles), Alex Yuri Smirnov (Standard Model), Goran Senjanovic (Beyond Standard Model), Edi Gava (Group Theory), George Thompson (QED), Georgi Dvali (Supersymmetry).

In fact, those courses were very useful for me when I came to the United States. I took the qualifier exam upon my arrival and passed it with excellent marks thanks to the good knowledge that we were given at ICTP. This allowed me to start doing original research in my first year.


I received the following awards:

2. "Kavli-CERCA Fellowship" from the Centre for Education and Research in Cosmology and Astrophysics (CERCA) at Case Western Reserve University, October 2003.

From 2003-2006 I was a postdoc in the particle physics group at the University of Maryland. In September 2006, I joined the Institute of Fundamental Theory (IFT) at the University of Florida as research associate.
I am now a second year graduate student in Mathematics Ph.D. Programme in Purdue, USA. I was in the Mathematics Diploma Programme 2004-2005.

The quality of teaching: Perfect, especially, Professor Ramadas, Professor Gottsche, Professor Chidume, Professor Dal Maso, Professor Repovs, Professor Zimmermann. It provided exactly what we needed to pursue the Ph.D. programme in the US.

Facilities in ICTP: the best I’ve ever met.

All the staff members are so friendly but the man in the mail office in the main floor in the Main Building (in my year) was sometimes not. I don't know why, maybe he had some difficult problems at that time (?).

I loved the Coffee Bar in the second floor, I loved enjoying meals in the Adriatico Guest House; the food and the staff are perfect. I loved the ICTP Library, especially the Diploma room. I loved to play football with the ICTP team (you might find my name in the ball that we, as ICTP football team, presented to Mr. Johannessen for his support. It should be in some room in the Enrico Fermi Building). And I cannot forget that I love Trieste, the sea, the parks and the plazas.

My suggestion is that ICTP should provide funds to ex-diploma students so that we can attend conferences in ICTP or hosted by ICTP somewhere else. I know that although I am from a developing country, but since I am studying in the US it's hard for us to receive some funds. However, for me, even if I receive just some partial fund for conferences in ICTP, I am willing to pay the rest by myself to come back to ICTP. Some of my friends also have the same ideas.

If there is something I can help you, just email me. I owe ICTP a lot.
NGA THI-THUY NGUYEN
VIETNAM

I graduated from the Diploma in Condensed Matter Physics in 2004. For me, the quality of the programme is quite good in the sense that it tends to guide students to some fields that are specialized. The courses I enjoyed most were: Superconductivity (Professor S. Shenoy), Elementary Excitations (Professor A. Nersesyan), Statistical Mechanics (Professor S. Shenoy and Professor E. Jagla), Electrons, Bands and Phonons (Professor S. Scandolo), and Many-body physics (Professor B. Narozhny). I enjoyed one person in particular, Professor O. Yevtushenko.

I also had some difficulties that I would like to tell you. Some professors took the preference of showing in the class the most important thing. That could be disadvantageous for some shy students even though they did very well in the written exams. Some teachers did not finish the schedule they had introduced at the beginning of the course and there was even one teacher who did not give more than 4 lectures in the class but still organized an exam.

I am doing my Ph.D. in Belgium and to be honest I really appreciate the time I had in the Centre in Trieste. It has helped me quite a lot, particularly some courses: statistical mechanics, superconductivity, numerical methods, etc. I wish that our Diploma would grow even more and the label of the Diploma in Trieste would be the label to ensure quality.

I wish you all the best and please extend my regards to the Director. I thank him for giving me an opportunity to study there. I wish that in the future I would have the chance to visit the Centre again.
I was admitted to the ICTP Diploma programme (Condensed Matter Physics) in 1998/99 academic year. Then, I was known as George Nkrumah. Presently I am a Physics lecturer at the Department of Physics, University of Ghana.

Generally, the ICTP Diploma programme has been very useful and helpful to me, despite the fact that I had to struggle to understand very difficult stuff in a very short period of time. What made the programme difficult for me was that some of the teachers could not impart knowledge efficiently. However, other teachers like Professor G. Pastore, Professor S. Shenoy, Professor A.A. Nersesyan and Professor V. Kravstov were able to help me to understand many fundamental concepts in Condensed Matter Physics. In fact, there is no way I could have afforded the full cost of the quality of tuition I had during the Diploma programme.

The administration staff was very supportive. For instance, Mrs. C. Mosca, the then Secretary for Diploma programme was very caring and accommodating. In fact, she was like a mother to me and all my colleagues. The staff of the library was also helpful. They made it easy for scientists (including Diploma students) to find books, journal articles and any other documents in the library or elsewhere. It was a delight studying in the library.

During the programme, students used to give seminars every week under the moderation of Professor Shenoy. Those seminars were very interesting and informative. I learnt about many new developments in Condensed Matter Physics at these seminars.

After the Diploma, I returned to Ghana to teach in the Department of Physics, University of Ghana, and at the same time enrolled in a part-time Ph.D. programme in Physics at the Department of Physics. I have completed my Ph.D. thesis and I hope to defend my thesis very soon. The knowledge and experience I acquired during the Diploma programme played a vital role in my Ph.D. research work.

Though my class mates consisted of students from Albania, Algeria, Bulgaria, Ethiopia, Iran, Morocco, Nigeria, and Vietnam, we got on very well with each other. Living and studying with people from these countries
all over the world enabled me to understand and get on well with all manner of people that I meet whenever I travel abroad.

I am very happy to say that ICTP Diploma prepared me very well for my present position in the Department of Physics, University of Ghana. My responsibilities involve teaching undergraduate physics and supervising students’ practical physics. In addition to teaching, I carry out theoretical research in thermal and electrical properties of carbon nanotubes. I am therefore grateful to ICTP, UNESCO and the IAEA for their financial support and hospitality during the Diploma programme.

My prayer is that the Diploma programme will continue to receive financial assistance, so that young scientists from African countries and other Third World countries could take advantage of it.
AGASHI NWOBAGA

NIGERIA

I participated in the ICTP Diploma programme in Mathematics in 1993-1994 as a student from Nigeria in West Africa. The quality of teaching my ICTP Diploma group received was exceptional. The helpfulness of both the teaching and administrative staff was truly remarkable.

When I look back, I remember that many people at ICTP went out of their way to make our stay at Trieste (ICTP) highly productive. For instance, Professor Charles Chidume (who was then in charge of the ICTP Math program) and Ms. Concetta Mosca (then Secretary of the Diploma program) were inarguably extraordinary. The rigorous nature of our training in the ICTP Diploma program equipped me with lifelong skills that have continued to help in just about every success I have achieved since earning my ICTP Diploma in 1994. For instance, after my ICTP Diploma, I started and earned my doctorate degree in Mathematics in the United States of America, and the ICTP training was tremendously helpful in my doctoral work. Today, I am a tenured associate professor of Mathematics in USA and I credit my training in ICTP with a huge part of my successes in life ever since I earned my ICTP Diploma. I consider myself blessed for being associated with ICTP. The work of ICTP in enhancing science and scientists in developing countries is not just substantial; it is tremendously impressive and praiseworthy. The mere conception of the idea of ICTP is ingenious; its actual works are truly magnificent and exemplary. The ICTP Diploma is not an ordinary diploma; it is Diploma Extraordinaire. ICTP is indeed a paradise of opportunities for scientists from developing countries. It provides unbeatable quality and quantity of resources—both human and material resources. Furthermore, it provides exceptional opportunity to interact with the greatest number of high caliber and enterprising scientists that otherwise would not be available together in one place in both the developing and developed countries. Our network of scientific friends from ICTP cuts across cultural, religious and geographical differences. World peace would be readily attainable if there were many such ICTP networks of friends all over the globe.
I was an ICTP Diploma Student during the academic year 1999/2000. After the ICTP Diploma programme, I was able to complete my Ph.D. in 2002 at the University of Nairobi. I had a lot of exposure and interaction that made it possible to achieve this. From then I was employed at the University of Nairobi as a lecturer, a job I am doing up to date.

The ICTP Diploma was very good with good teaching and exercises. The lecturers were very cooperative and friendly. The difficult part was that one of the lecturers was very arrogant with little respect for others. I was very much impressed with the secretary of the ICTP diploma programme. She was friendly, always available for consultation and advice.

In 2004/2005, I went for a postdoctoral fellowship in Lund University, Sweden. Since 2004, I have been the coordinator and Founder of The Eastern Africa Network on Algebra, Analysis and Geometry (EANAAG) together with Professor Claudio Procesi, Vice President of the International Mathematical Union, and Professor Ramadas Ramakrishnan of ICTP. I also have many other responsibilities within the School of Mathematics. I must admit that all these are due to experiences and teaching I had from ICTP.
I attended the High Energy Physics course of the ICTP Diploma Programme during the academic year 2002-2003. At that time I was a graduate student of theoretical physics from Istanbul Technical University. My knowledge of physics was very limited and somewhat molded by the traditional education system of the university. However, I believed I could have managed the ICTP course with a lot of work. The intense and comprehensive content of the ICTP course made me really anxious from the very beginning. The scientific environment and the serious approach to knowledge I witnessed there opened a new scope for me in my career. Teachers were so experienced and deeply learned. I received great motivation and exhortation from them to finish the course successfully. I needed to study really hard for the exams for the first time in my life which made me aware of the demands on being a real scientist. My knowledge and self-confidence drastically increased during the course acquiring great scientific insight.

On the other hand, I really had a good time with friends from all around the world. I also learned about their physics background and compared them with myself. Especially as a center which unites scientists, I have found ICTP so competitive and colourful. I had opportunities to discuss with them. The administrative staff was also kind and always very helpful to students. The building in general was superb and useful.

As a result, after the ICTP diploma programme I really felt like I stepped up a bit higher in my understanding of physics generally. Now I am about to finish my Ph.D. thesis. Today I owe ICTP my motivation to proceed further in my career of physics hoping to study there one day.
THIRUNAVUKKARASU PATHMATHAS

SRI LANKA

I participated in the High Energy Diploma Programme.

**Quality of Teaching I obtained from ICTP:** Actually the teaching of ICTP staff was best at that time.

**Helpfulness from teaching staff:** The helpfulness of the teaching staff was also at a high level.

**Helpfulness from non-teaching (administrative) staff:** The helpfulness of the administrative staff was also at a high level. Some were not helpful, particularly in the Main Building Cafeteria staff. Most of the administrative staff were friendly with us, particularly the staff from the Operations Office.

**The part I enjoyed:** I have received good knowledge in Physics. Also I enjoyed using the Library.

**Difficulties:** I had to pay a lot of money for private accommodation. Please try to make a hostel for the diploma students.

**Present position:** Displaced from my home town due to ethnic war in north part of Sri Lanka and looking for a postgraduate course in Europe (including Italy) in a branch of Physics.

**Present address:** In mid part of Sri Lanka (Kandy).
I was a student in the Diploma Programme in Mathematics in 2000-2001. I really enjoyed myself during that year; it was definitely one of the most fruitful years, both academically and personally.

After the diploma I got a Ph.D. at the University of Georgia in Athens, USA, in 2005, and right now I am assistant professor in Mathematics at Towson University in Maryland, USA. My year at ICTP has been instrumental in helping me go smoothly in my Ph.D. programme. The courses taken at ICTP really prepared me for the Ph.D. Moreover, the ICTP administrative staff was really supportive and helped me throughout the programme with every administrative issue.

I seize this opportunity to extend my gratitude to the faculty and staff of the ICTP for that great year we spent together.
Serge Phanzu

Democratic Republic of Congo

I am happy to provide you with some considerations about ICTP. ICTP for me is a source of inspiration and I am very, very glad about my selection to ICTP.

All the staff in ICTP are doing well for my sake because they always act to make things easier for the different visitors to the Centre. ICTP inspired me a lot because I can see the difference in the way they try to make people understand about real Science around the world. I am very flattered about the organization that I found in ICTP. I do like and truly be sure that you are the Best!

About the Diploma programme, the administration is perfect without fault especially the secretariat of the Diploma programme which is one of the best I have seen. Administration is excellent and they are working as supermen.

I didn’t encounter any problems with the programme. The teaching is very good and I am among professors with a very high level of knowledge. But I would also like you to consider that we come from different regions of learning. In order to help students to better understand the lectures, perhaps you should also think of dedicating some hours for a basic course in Mathematics taking into account the importance of the subject. For the more important subjects, the lecturer should devote more time to facilitate the understanding and have discussions with the students. He cannot do this if he does not have enough time.

Thanks for selecting me and I am very, very happy to be taking part in the Diploma programme.
AURELIANO SKIRZEWSKI PRIETO
VENEZUELA

I have received your request and have written these few lines in order to express my gratitude toward the Institute.

As you have expressed in your request, it is unnecessary to say that ICTP’s work has had a great place in supporting and seeding science in developing countries. My experience, as a Venezuelan Diploma student in HEP in the ICTP, was most enriching. During the year it took, I obtained a comprehensive view of the basis of modern physics at high energies, which in my specialization, would not have been possible in any of the universities in Venezuela---whose high quality researchers are mostly spread throughout the world.

In the HEP Diploma I received enough background to proceed to a Ph.D. which I completed in topics related to Loop Quantum Gravity in the Max Planck Institute for Gravitational Physics-Albert Einstein Institute in Potsdam, Germany, under the supervision of Martin Bojowald. I obtained this Degree in three years after concluding the Diploma. During that time I used the knowledge I acquired in the Diploma, and my experience tells me that the teaching I received there was of excellent quality.

At present I have returned to Venezuela and have plans to join the university where I obtained my first degree in physics. Among other things, I have several research projects running and it would be a pleasure for me to pay my debts to the University by teaching therein.

Regarding the issue of whether I benefitted from the Diploma or not, I have to say that it defined me as a physicist, and so more than recommend to keep the ICTP working at that capacity, I wish that the experience could spread worldwide and, in this sense, it could be considered the creation of several other institutions of this magnitude.

My most sincere wishes of success to ICTP.
I was a diploma course student in HEP during the academic year 1998-99. I am very happy to write these lines to speak about my experience in ICTP.

First of all, I am grateful to ICTP, UNESCO and IAEA for the unique opportunity they gave me to join the Diploma programme. Then, I want to say that our professors, level of courses, level of teaching, our secretary Concetta Mosca, our coordinator Faheem Hussain, the relationship with the other students---every thing---was very good and satisfactory, and even more than my waitings!

I learnt during this year the basics of high energy physics. After that, conferences and summer schools at ICTP were also very helpful for me. I also want to say that most of our professors, especially, F. Hussain, G. Thompson, M. Blau and A. Masiero helped me a lot to find a Ph.D. opportunity after my Diploma programme.

As a consequence, now I am doing my Ph.D. thesis with the High Energy Physics Group in the physics department of the Université de Montréal, Montréal (Quebec), Canada. I was admitted in the Fall of 2003 and I am still learning and working on high energy physics.

To all of you, thousands of thanks, and hope to meet you again in the future.
In the academic year 1999-2000, I was a Diploma programme student in mathematics at ICTP. This was and still is the best thing that happened to my academic career. I will never forget the time I spent at ICTP; it was my first stay out of my home country and the first time I had full access to sophisticated computer equipment and an outstanding library. I enjoyed every part of my experience at ICTP and the helpfulness of the whole staff even made it flawless. I especially appreciate Ms. Concetta Mosca who treated us like one of her own family and Professor Charles Chidume for his invaluable advice and encouragement.

Other than my academic work, which was not fun but very fruitful, I really enjoyed meeting scientists that came to Trieste from all over the world. It was like traveling around the globe because you got to meet someone new almost every month and it opened your horizon---it’s priceless.

After my diploma programme, I was successfully admitted to a graduate programme in mathematics at Kansas State University (KSU), Kansas, USA, and there is no question in my mind that this was possible mainly because of the reputation of ICTP and its staff.

I graduated from KSU last year and joined East Carolina University (ECU), North Carolina, USA, as an assistant professor in mathematics. I can’t tell you how much my ties with ICTP helped me get this position, not to mention the connection I created when I was in Trieste.

Last but not least, I am really grateful to the whole community of ICTP, especially to the Government of Italy, the United Nations Educational, Scientific and Cultural Organization, and the International Atomic Energy Agency. I am where I am right now because of your support, and I will make sure my home country will benefit from my success.
This is a response to highlight the significance of the ICTP Diploma Programme, the Associate programme and other programmes such as scientific workshops, schools and conferences. This I will highlight by outlining the experiences and successes I have acquired over the years since being associated with ICTP.

My Profile: I am Senior Lecturer and Head of the Physics Department at National University of Lesotho, Lesotho (in Southern Africa).

1. I did the Diploma in Condensed Matter at ICTP in 1994-95. Of course, the diploma was much more difficult than I anticipated but with world-class lecturers I did manage to grasp the fundamentals quite quickly and enjoyed the programme. The programme helped in securing admission for a Ph.D. in Manchester University in 1996 which I completed successfully in 1999. Without the Diploma from ICTP, I would not have been able to get admission for Ph.D. as I only had B.Sc. before doing the Diploma programme.

2. Having completed the Diploma, I had opportunities to attend different schools, workshops and conferences relevant to my research field with Statistical Physics. The attendance at these workshops helped me to know the forefront of research in my research field and increased my teaching potentials.

3. Since 2001, I have been on the Junior Associateship scheme. Within this scheme I have been able to publish three papers in scientific journals and that resulted in the promotion from Lecturer to Senior Lecturer. I have no doubt that, without the Associateship scheme, I would not have been able to publish such scientific papers. I am quite confident that my association with ICTP will for sure assist me in my research so that at a later stage I will be promoted to Professorship which is the ultimate goal in my career.

ICTP with its different programmes helps people like me in the developing countries to get in touch with other colleagues in the developed countries and it also alleviates the brain drain which is a problem in developing countries. In a few words: ICTP has no doubt contributed a lot in my career as a Physicist.

I was born in a middle class family in Iran. I did my B.SC. in Applied Physics and M.Sc. in Solid State Physics in Mashhad University in Mashhad, Iran. When I graduated from school, it was a very difficult time in Iran. There was practically no opportunity to do research in basic sciences inside Iran. Fortunately, I was one of the ten candidates among 640 world-wide applicants who got admitted to the ICTP Diploma programme. That is the day I call the second day of my life, when I suddenly had access to the resourceful knowledge bases of ICTP. I greatly enjoyed the programme and had the opportunity to meet many first class world scientists and listened to the lectures of many of them, including four Nobel Prize winners.

After finishing my Diploma, I got a fellowship in a shared programme between ICTP and the University of Ljubljana to do my Ph.D. in Physics. After doing my Ph.D., I got a European fellowship to do a postdoctorate in the Netherlands. After two years I formed my own research group in Macromolecules and Surface Physics in the Solid State Physics Department of the University of Nijmegen in the Netherlands. After about 6 years of university research, I joined a R&D group in Philips Semiconductor where, two years later, I was assigned to another research position in USA in International SEMATECH which is a consortium of the 10 main semiconductor manufacturers. In 2004, I moved from Philips to SEMATECH where I am still working.

Currently I am leading an R&D group of about 9 engineers and postdocs on cleaning of masks for extreme Ultra Violet Lithography. I consider myself a successful person in life and believe that ICTP has contributed greatly to my success in life and career. I will not forget this and I will always do as much as I can to help the survival of this noble organization and realization of Professor Salam's ideas to educate developing countries.
JOHN REALPE

COLOMBIA

I am involved in the ICTP Condensed Matter Physics Diploma. Before coming here, I was doing my M.Sc. in Physics in Cali, Colombia.

In general, I have encountered here very high quality teaching, offered by people that, in my opinion, understand deeply the subject in which they are involved, and know how to transmit their knowledge in a very understandable and pleasant way. This has been helpful for me to get a clearer picture of physics. Furthermore, these people are also working at the frontier of science, which makes things even better since they turn into a source of inspiration that encourages me to do my best in my career. Here I have had the great opportunity to learn from and interact with people that are participating in the development of science from whom I have got advice and support for the construction of my career.

As a general rule, I have encountered ICTP staff always willing to help me in the different matters that have arisen along my stay here and they have been a valuable support both socially and academically.

Apart from the academic impact this experience has had in my career, it has also offered me the opportunity to enrich my cultural life by allowing me to interact with people from very different cultures around the world with very different perspectives on life. This has made me reflect a lot about my own perspective and its compatibility with others, gaining a better understanding of myself in the process.

On the other hand, adapting to a new life style, a new economy, a new language, have created some difficulties I have met here. People in the city have different customs that sometimes go against mine, somehow frustrating me. It is a city which is too calm and too quiet. Sometimes you cannot talk or laugh even in your own home; you cannot be young. Managing a different economy with a different currency is also something I have had a little bit of trouble adapting to. I have to take care of each financial movement I do to keep my economy safe while living here. Finally, although my mother tongue, Spanish, is quite similar to Italian, I have been somewhat frustrated when trying to express myself in the city, which in turn makes it more difficult to adapt to the culture. Of course, these are only minor details that are overwhelmingly surpassed by all the
positive experiences one lives here.

At present, besides starting my second semester in the diploma, I am also applying for a Ph.D. position to continue my career. I have already applied to Oxford University with the help of ICTP staff who have provided me with letters of recommendation and the guidance to write the necessary stuff. Moreover, I have also received suggestions on where to apply, including SISSA.

In summary, I regard ICTP diploma as a boost to my scientific adventure that has facilitated the development of my skills towards a successful scientific career. The first semester has been full of rich experiences that have made me grow up in many respects and I expect quite a lot from my remaining time here.
ARMELLE RECA C. REMEDIO
PHILIPPINES

Background
A few years ago, I graduated in a Jesuit-run Philippine University, the Ateneo de Manila University, with a degree of BS Physics with Computer Engineering. Armed with the MAGIS-spirit inculcated by the Jesuits, I was striving to find my passion and niche in this world, where I could reach my fullest potential.

I found my passion while working in the Regional Climate Systems Project at the Manila Observatory. Having research supervisors such as Dr. Mariano A. Estoque, who is very passionate about atmospheric researches such as our country’s climate variability, Fr. Jose Ramon T. Villarin SJ and Fr. Daniel McNamara SJ, Jesuit scientists who are very much active in the campaign of climate change and science for humanity, encouraged me to do research in two fields that I am very much involved with, atmospheric phenomena and computers.

After three years of working on computer models to understand the variability of climate and effects of local phenomena such as typhoons and air pollution, the experiences have enhanced my capabilities. But I felt that I needed to develop an in-depth knowledge of my research field; I desired to have a formal education but, due to financial reasons, I was unable to do so. Fortunately, the year 2006 was a great year for me. It was the year where I was given the second opportunity to participate in the ICTP Workshop on Regional Climate Models. I was given the opportunity to interact with very passionate scientists who are experts in my research interests, and on a wider, global scale. It was also the year where I was given the opportunity to enhance and further my education because I was accepted in the first Earth System Physics Diploma Programme.

Our country is visited frequently by typhoons leaving devastating effects such as floods and landslides, but having education in this field is not top priority. As evidence of this, only one university all over the country offers a Masters Degree in Meteorology. It is essential and necessary nowadays that we become more focused on natural disaster management to prevent calamities such as landslides from recurring. It is fortunate and timely that the ICTP started the Diploma in Earth System
Physics

The ESP Diploma programme is a great venue for widening my views and horizons where we are given the opportunity to learn that not only do we need to study the atmosphere but also the solid earth and the oceans. It is crucial to realize that the interactions between the land, air and oceans are very much interconnected and that it is necessary to understand the basics of each discipline.

**Life in ICTP**

I am constantly amazed at how the coordinators and the professors are very interactive with the students. It is evident that they desire to help us learn and become experts in our chosen field so that we become well-informed and in the future, become responsible leaders in our country. They impart their expertise with infectious enthusiasm that encourages us to reason and think beyond our preexisting notions and prejudices. The saying by Isaac Newton, "I can see further because I am standing on the shoulders of the giants", is indeed true here in ICTP. We are among the giants of our field, and we can see a better, bigger, clearer picture of the whole story because we are taught in such a disciplined yet inspiring manner.

It is a great wonder how the administrative staff, especially our diploma secretariats, are very much concerned with the welfare of each student. From the time we left our countries till we set foot in this foreign country and until present, the staff has been helpful in every aspect from personal to academic needs. I am very much grateful for the care given to us and for treating us as family and helping us adjust and adapt to our new environment. The facilities like the diploma room, the computer labs and especially the library are havens for budding scientists like us. The accessibility of these facilities such as computers and even the simplest ones---blackboards---have encouraged scientific discussions anywhere and anytime. To encourage relationships and alliances, several activities are also organized for the students such as field trips, Christian fellowships and even sport activities.

The positive camaraderie of the diploma students is enriching and endearing. It is remarkable how students from different walks of life, different religions and cultures are setting aside political issues and biases to work together, help each other in understanding the courses. Knowing and sharing similar challenges of different students inspires us to strive more and study harder so we are able to achieve our goals and our passions and will help us in understanding the needs of our country. It is a great idea that the ESP students have different disciplines (geophysics and
atmospheric background) to enable us to interact with each other, contribute our strengths and support us in our weak points. This strengthens our relationship with each other and hopefully, will be a good foundation for future collaborations.

The mission of ICTP in bringing science to the South, to the developing nations, is really a great and noble action. The Centre is a great venue not only for scientific growth but for personal growth as well. Being part of this very dynamic Diploma programme is a great achievement already. It is fulfilling to belong to the ICTP family where people from different races, from different walks of life, from different cultures and faiths are working hand in hand, aiming towards a better future not only for ourselves but for each country and humanity.

Suggestions:

1. We can make a handbook for Ph.D. application---basic guidelines, references or a handbook for diploma students which includes the steps for Ph.D. application;

2. Additional funding or an emergency fund (like taking an advance, similar to the 1st advance but specifically for those who are taking GRE, application fees and similar exams);

3. It would be great if we could make a yearbook for every batch---for future references. Students can work on it (while working hard on the thesis) in the third semester (before we leave);

4. ID---picture and barcode, diploma student course.
I am part of the most recent batch of diploma programme graduates in High Energy Physics (2006). While at ICTP, I was offered a fellowship to attend the Ph.D. programme in Astrophysics at Princeton University. I have no doubt that my participation at ICTP, and in particular, the support I received from my thesis supervisor (Uros Seljak) and diploma professors, was instrumental in my acceptance to this excellent programme.

This semester, in addition to fulfilling coursework, I am working on two research projects. The first involves studying the properties of Type II quasars found in the Sloan Digital Sky Survey (SDSS)---the most extensive optical survey to date---with Professor Michael Strauss and Nadia Zakamska (IAS). We have obtained some preliminary results for the luminosity function of these objects, and intend to submit the final results for publication. The second is with Professor Paul Steinhardt (Physics Department) to study the spectra of primordial density perturbations in ekpyrotic models in cosmology---currently, the most viable alternative to inflation.

On hindsight, I am happy to say that my education at ICTP---from the diploma lectures, HEP seminars and the Summer School, discussions with classmates, professors, postdoctors, and fellows, and perhaps most importantly, from dissertation work---had prepared me well for my current undertakings of independent study and collaborative research. Needless to say, the Centre played a pivotal role in nurturing my early scientific career. It provided resources not available in my home country---a rich library collection, access to journals, high-speed Internet connection, and the world's best espresso! Most importantly, the Centre gave me my first experience of belonging to an active scientific community. I learned as much from my professors as from my peers. In meeting associates and visitors, I gained role models for being a mature scientist in a developing country. (They have done it, so can I!) After I left, it became more evident to me how unique ICTP is as a world-class institute fostering Science where it is needed most, how fortunate I and my classmates were for being its beneficiaries, and more personally, how much I would like to be part of it again---hopefully with a more active role in the future.
GANIYU SAHEED
NIGERIA

I am a condensed matter diploma student. From my own perspective, this Diploma programme is not an easy one. It requires a lot of sacrifices in so many areas on the part of the students. I have a B.Sc in Physics. During the first term lectures, I was at a loss in every lecture I attended for the first three months. This is because everything was strange to me. I realised that all topics on quantum mechanics, statistical mechanics and solid state physics which I learnt during my B.Sc. were covered in about two lectures here. In fact all my knowledge on these subjects can be compared to elementary ones. I can say with clarity that it seems that what I laboured to learn for four years at my university was covered within some weeks at ICTP. It went to the extent that at one stage during the first term, I was thinking of returning to my country. This is because I couldn't answer any questions posed to us in the class during that term. Every course taught here for the Diploma programme is an advanced one and all teachers are up to the tasks. I also realised that a good and solid background in all courses for each programme is required for good performance. If one wants to measure my background with the levels of what they are teaching us here, I can say that my own background is weak. I also have in mind that whenever I find it possible to go to my university, I will tell those in authority in my department to make sure that competent hands will be taking these courses.

I want to use this opportunity to praise the initiative of launching the diploma course in basic science. I know that it will help a lot those of us who come from Africa. I would like to tell you that I had a first contact with the full use of computers here. This is because, in my country, it is only teachers that have computers in their offices and there are no separate computers for students. This affected me a lot in numerical methods as I had to start from scratch in learning how to type and how to write Fortran, but I am very happy to tell you that the teacher for that course, together with the tutorial master, helped me a lot by always carrying me along during lectures since they knew my deficiency. Anyway, I passed the course. I will be very happy if all teachers can help those of us with a weak background in carrying us along and not assuming that we should know everything since students have diverse backgrounds.

The services rendered by the academic staff are very encouraging
especially their open-door approach to help students. It is not always like this in my country between students and teachers. The services rendered by library and other administrative sections are not below standard. I enjoy all their services. This is all I can say for now. Thanks.
I was a Diploma student in the Condensed Matter programme at ICTP during the period September 1999 to September 2000. Today, after all these years I still think that my diploma at ICTP was the key that opened the door of opportunities. I was able to get an education at European level and this gave me the chance to study for a Ph.D. in Germany, which I finished successfully in July 2005.

But it was not only in academics that I gained something. I was also able to meet people from the entire world and this gave me the chance to learn about other cultures and to be open and tolerant to them. This helps me to continue my studies in a country very different to my home country. I am very thankful to the ICTP people, teachers and administrative staff because during my stay they helped me a lot with the academic, administrative and problems of everyday life and they made me feel at home.

Now after all my studies I am working in a German semiconductors company in the research and development department doing electrical characterization in DRAM. I am working here since November 2005.
Alberto Sanoja

Venezuela

I participated in the diploma course in High Energy Physics in 2004-2005. Teaching in the diploma course was good, very direct and pragmatic. It also supplied lots of skills in the work, due to the great quantity of homework that was given in the courses.

The helpfulness of professors, supervisors, and assistants was obvious, due to the friendly relationship which they established with the students. With respect to the administrative staff, they were always ready to resolve any problem at the ICTP and outside.

At this moment, I am studying for the Ph.D. at the Instituto de Física Teórica of the Universidade Estadual Paulista, in Sao Paulo, Brazil.

Definitely, the diploma course eliminated lots of shortcomings and cleared up lots of doubts for me, supplying me a much stronger background. The diploma I earned has been very important in my subsequent success and above all to get my Ph.D.
I am a student in the Mathematics Diploma Programme. ICTP in the real sense is offering us a great opportunity. In developing countries many students have the dream of doing research in these fields but they cannot afford it. One has to break his steps from furthering his study up to the research level. ICTP opens the door for such talents to reach their destination. If someone judges ICTP on the basis of what it offers to an individual that will be a misjudgement and then a great injustice to it. Actually it is contributing to the developing countries as a whole and not just to individuals.

Excellent teaching, a comfortable environment to study and encouragement for furthering study---these are what I have to appreciate from heart. Obviously, all participants may not have the same background. Some of us may not have as strong a background as is needed for research work. Before one goes for research, he should prepare himself to compete with those from developed countries. This is how ICTP helps.

Talking about the facilities, well, facilities are never enough. It is selfish human nature to be dissatisfied with the available facilities. But I should say that ICTP has provided us enough facilities so that a student can think of his study only and nothing else. That is what a student needs in order to succeed.

Finally, THANK YOU ICTP!!!
JOSE OLIVERIO ALVAREZ SIERRA

GUATEMALA

I was an ICTP Diploma Student in Mathematics (1998-1999). I earned my Ph.D. in Applied Mathematics from the University of Arizona in 2005 and I am currently a senior researcher for ExxonMobil.

The Diploma helped me in many ways---among them I can enumerate a few:

1. to fill all possible gaps that I had in my bachelor’s degree from home;
2. to interact with other cultures and great professors;
3. to realize what I wanted to do with my professional life (switched from pure to applied mathematics);
4. to get into a great Ph.D. Programme (Applied Mathematics) at the University of Arizona, and
5. to make good friends.

The Diploma is a great experience; it puts you in the rhythm of study of a Ph.D. programme and it helps you decide what to do in the future. I was very fortunate to have great professors in the topics of my interest and friends that helped me all the way.
MASOUD SOHAILI

IRAN

I participated in the ICTP Diploma Programme in the field of Condensed Matter Physics in 1998-1999. In many respects the time at ICTP was a great chance for me and full of valuable experiences. The quality of the lectures was in general very good and the lecturers were also very nice and serious persons. I enjoyed very much the courses in superconductivity and superfluidity. Superfluidity, later on, became the basis of my next few years of research. At this point I should mention that at least one or two of the lectures given were not at the same level as others so I had to repeat the stuff which I had known before.

At the moment I am working in the Semiconductor Industry. Definitely, ICTP Diploma has been very gainful and instrumental in finding future academic positions. Indeed, it was the Diploma programme which drew my attention to the new fields of modern physics.

Directly after the Diploma programme I moved to the University of Konstanz, Germany, where I did my Ph.D. in the field of Experimental Low Temperature Physics. In Konstanz, for many years, I was doing research on the problem of wetting properties of hydrogen isotopes. After finishing my Ph.D., I moved to the Max-Plank-Institute in Göttingen, Germany, for my Postdoc. There I continued my research on quantum paste (Granulate wetted by liquid Helium). In October 2006 I got a job in the semiconductor industry where I am now. Here I use my physics to develop new technologies and to introduce high quality products.

To sum up, I believe my one year of stay in ICTP has been a milestone in my future career. Since then I have once visited ICTP and hope the staff of ICTP will continue their great job in helping the students from developing countries to improve their understanding of physics. I wish you all the best.
Iwan Sugihartono
Indonesia

I was a student in the Condensed Matter Diploma Programme during the period 2004-2005. I had many amazing experiences. I could improve my knowledge especially in Physics (Condensed Matter) and also improve my English. There I could meet friends from all over the world with different culture, religion, language and basic education, but we could live together harmoniously. It was making me peaceful and happy. It was also very far away from the political conditions that make me pessimistic.

I think all the administrative services were good. I was never disappointed with their service. So, I can say ICTP is one of the best places that I ever visited.
I was a 1991-92 diploma course student (first one) in condensed matter physics. The Diploma programme helped me to improve my condensed matter background. During the course I have worked with Professor M.P. Tosi on liquid state physics. That work later became the basis of my Ph.D. thesis. After the Diploma programme, I attend condensed matter workshops at ICTP several times and collaborated with Professor M.P. Tosi and Professor G. Pastore. Right now, I am full Professor at the Physics Department of Yildiz Technical University in Istanbul, Turkey. I thank ICTP because it was the main scientific environment of my academic career.
DRIBA D. TOLLA

ETHIOPIA

First of all I would like to thank you for giving me this opportunity to say something about ICTP. Actually, I have got a lot to say about ICTP. However, here I would just like to say something about my experience during my Diploma course as that is what you asked me to do. I came to know about the Diploma programme in 2000 from a friend who was selected for the diploma course in Mathematics during the period 2000/2001. He told me that there was also a Diploma course in high energy physics and advised me to apply for it for the next academic year. I got the email address of the secretary from him and sent an email to send me the application form, which I received in a week's time. I completed the form and sent it to ICTP with two recommendation letters and then got selected for the Diploma in high energy physics for the year 2001/2002. Very simple process, right? This might sound pointless for someone who doesn't know how difficult it is to get a higher education position in the developed world, for someone who did his undergraduate study in developing countries like my country, Ethiopia.

Now I got selected, the next step was to make myself ready to face the process of getting my travel documents. Again in a developing country getting a visa to move to Europe or US is like winning a lottery, whether you have the right papers to ask for a visa or not. Still, ICTP is there to make it simple, by contacting the Italian Embassy directly. I got the visa in a single day. My problem didn't end there. I just graduated from a university, I didn't have a job, so I didn't have the money to buy the plane ticket. I had to look for someone to lend me the money, but a friend told me that I might contact ICTP if they had a way to help. Yes, they did, and I got a two way ticket in a week or two.

After arriving in ICTP, the help I was getting from the administrative staff, my professors, even from people working in the cafeteria was beyond words but I would just like to say something about the academic things. When I arrived, being selected for the high energy diploma course, I didn't even know what the word quark meant as I hadn't done any
The ICTP experience: DIPLOMA and STEP students

course on high energy physics before that, not because I didn't have an interest but it was not available at my university. Actually, I didn't face any problem as the programme was designed for a student like me, and the professors were doing everything from scratch. At the end of the day, I was one of the top students in my programme and turned out to be a very competent candidate for Ph.D. in any university.

After the diploma programme, I joined SISSA as a Ph.D. student in the elementary particle sector which I completed successfully in September 2006. During my first year in SISSA, the courses I did in the Diploma programme helped me to compete well with other students in the class, who were mostly from very good Italian Universities and had a very good background on each and every topic of high energy physics. The only new topic which I was introduced to during my first year in SISSA, and was not in the Diploma programme courses, was string theory, and hence I would like to take this chance to suggest if it is possible to include an introductory course on string theory in the list of the Diploma courses, at least as an elective course. Currently, I am a postdoc at Sogang University, Center for Quantum Space Time, South Korea.
MESFIN TSIGE
ETHIOPIA

It is with great pleasure that I am writing this e-mail to express my personal view about the ICTP Diploma programme.

I am originally from Ethiopia, but right now I live in the United States. I attended the 1994/95 Diploma programme, Condensed Matter section. What a great experience it was both academically and socially! In this e-mail I specifically focus on the academic part, but in short I would say I enjoyed very much the social life as well—the interaction I had with students and scientists around the globe (especially from developing countries) was a rare experience to me.

I feel very proud and privileged to have gone through the ICTP Diploma programme. Where I am today (an Assistant Professor at a Ph. D. granting institution in the US) is mostly the result of the experience and confidence I got through the Diploma programme. The courses offered are great and intensive, and I found it to be much better and advanced than the courses I took here in the US as a graduate student. Actually, I was exempted from some of the graduate courses since the ICTP courses I took were equivalent to most of the advanced graduate courses offered here. I wonder where I would be if I hadn't had a chance to participate in the ICTP programme. One thing is clear—I wouldn't be as successful as I am today!

In short, the programme helps students from developing countries to have an equal footing in theoretical physics with those students from developed countries. More than that, the quality of the courses offered is actually comparable to the courses offered at the best schools in the developed countries. As a result, students with the ICTP Diploma are usually successful and better prepared when they continue for their graduate study in the developed countries.

Last but not least, I am very disappointed that such a great programme is still limited to 10 students per section. I know there is always the budget issue, but taking into account how the programme can actually change the destiny of gifted but unfortunate students from a developed country, I expect the programme to open its doors to more (at least 15 then 20 per section) under-privileged but promising students from the developing countries. A quick help to those who open their eyes to this
programme from a very far distance is to give them online access to the lecture notes and homework problems, and if possible solutions to the homework problems.

Thank you, ICTP, there is always a special place for you in my heart!
WILLIAM J. UGALDE

COSTA RICA

I participated in the Diploma Programme in Mathematics during the period 1997-1998. It was my first opportunity to be in touch with first level leading research in my area and as such it profoundly marked my future career as a mathematician.

It is certain that here in Costa Rica we have a very good undergraduate programme, but there is an important difference between study and research, and that is what I learned at ICTP. I learned the discipline I did not have at that time.

After ICTP, I went to The University of Iowa, thanks to the contacts made during my time at Trieste. I graduated with my Ph.D. in Mathematics in 2003. Right after that, I took a Research Assistant Professor position at Purdue University for 3 years. Nowadays, I am back home at the Universidad de Costa Rica, hoping to obtain what will be the equivalent of Tenure Track on August 2008, after a 2 year position as Visiting Professor.

The quality of the people and the work they do at the ICTP cannot be over estimated. At all times, both professors and administrative staff offered me only the best and timely support. Not only during my time in Italy when both culture and language where completely new for me, but also after I left ICTP when I had the need for both academic orientation from the professors there, and documents from the administration.

Due to my own experience, I can say that the Diploma programme at ICTP builds an important bridge between the research we hope for in our developing countries and the research that takes place in other areas of the world.

Thanks for the opportunity to show my support to your beloved institution and to the dream of Abdus Salam.
I come from Venezuela and I am currently taking part in the High Energy Physics Diploma Programme. The four months’ experience I have had was enough to judge properly about the programme: first of all, being in a foreign country has enriched several personal affairs, such as the ones that have to do with culture. To this should be added the daily interchange with people coming from countries all over the world.

Concerning education, I take it as very important the availability of the professors (including those who were not giving lectures to us) to answer questions of any type, as well as their ease in giving explanations on deep concepts in physics. The contents of the courses are very wide but they are taught in such a way that the learning process becomes very effective.

Being at ICTP allows one to share with very important people who are engaged in very ambitious projects of scientific relevance. This fact allows the student to create bridges with other places with high levels of scientific activity and, in particular, the possibility to find a good doctoral position in the near future.

A little anecdote that impressed me much as we were starting the programme was that Professor Randjbar-Daemi asked us about any complaints that we may have at that time. I said that there were some chairs broken in Lecture Room C, but actually this fact was not bothering any of us. I was really surprised two weeks later as everything was fixed. Subtle details like that are really appreciated by me; it makes me feel that I am listened to. The only suggestion I have has to do with the monthly stipend we receive. It would be a lie to say that it is not sufficient but I think it could be better comparing it with other graduate students in ICTP (and SISSA). Moreover, the prices of certain services such as transport increase with time.

I am very grateful for the opportunity that ICTP gave me and hope that my future career reflects this gratitude in a successful sense.
I was a Diploma Student in last year's group of 2005-2006. I was part of the Condensed Matter Physics group which consisted initially of 8 students.

Prior to ICTP I had education at both the undergraduate levels and a little of graduate education in the areas of Physics and Mathematics. I would describe this previous education as average when compared to the others in the group.

The first few months of the programme were somewhat challenging since I was accustomed to a totally different society, system and level of education. But within a few weeks I was reassured by the ever so present skilful scientists that I interacted with at the Centre.

The lecturers were very open to comments and very competent in helping us understand the material taught. I must highlight one person in particular, Dr. Sam Carr, who was a great help and inspirational figure in all of our learning. Dr. Carr aided in our progress academically as well as being a mentor and a real support for us in times of need. Not merely Dr. Carr, but there are others: Prof. Scandolo, Francesca who has left and Dr. Nersesyan. Also the CMP group has a wonderful programme of "Friday presentations" which helps one advance oneself in presenting scientific material which is one of a scientist's much needed qualities.

Also the Centre is a place where you can meet with other scientists within the areas of work interested and one can see first hand the kinds of research done. This was useful as it aided in my decision of a future career and thesis choice.

Apart from academic interests the Centre is manned by fine staff. The Diploma office has wonderful office assistants, Patrizia and Sandra. They were always helpful and always gave warm and encouraging support.

Lastly, we were swamped with wonderful food and fun from the friendly cafeteria staff, Sandro and his wife.

The problems faced at ICTP were ones that were personal, like having to deal with being away from loved ones for a year, and being here with no one who has similar upbringings as I had. Also there were minor
problems in adjusting to the new work and the course load. But once we started to intermingle with fellow students who I think were going through the exact same problem, I was able to feel happy and build a wonderful family life at ICTP, so much so that we still communicate with each other at least weekly.

Presently, I am at the University of Maryland, Baltimore, USA, where I am pursuing a Ph.D. degree in Applied Physics. ICTP has really prepared me for this in both academic and personal ways. At ICTP we have been introduced to and completed the courses that we encounter here for the 2 years. So definitely here is just a revision stage, or tying up loose ends.

Thank you, ICTP, for giving me such a wonderful opportunity to advance in science and overall advancement of self.
HOERNISA IMINNIYAZ (WUERNISHA YIMINGNIYAZI)

CHINA

I was a high energy physics Diploma student from September 2003 to August 2004. I am from China, from Urumqi, Xinjiang (the western part of China), which is an underdeveloped region. I got my bachelor and masters degree from the University of Xinjiang, which is located in Urumqi. My background was very weak due to the poor education system in my region.

Thank God there is ICTP for the Third-World country people. ICTP gave me a good chance to improve my poor background in high energy physics. Even though I got my masters degree in theoretical physics in my university before I came to ICTP, I later realised I didn’t have much basic knowledge in high energy physics. In the beginning, it was very hard to follow the course because of the language problem. There were new lectures and too much homework almost every day. But I worked very hard like most of the diploma students, and then I could follow the lectures day by day and finally I could follow everything even though there was too much work.

There were enough tutors for every lecture and they helped us. So I could follow everything to the end of the semester and finished my diploma successfully in August in 2004. The professors were kind; this made us feel very warm. Their method of teaching was also very efficient. The study environment in ICTP is wonderful in my opinion. It is unique in the world. The administrative staff was also very good. I couldn't find this kind of warmth in other places in the world. This means I will never forget ICTP.

Now I am in Germany. I am doing my Ph.D. in theoretical astroparticle physics in the Physics Institute of the University of Bonn. I can do my Ph.D. work because I had one year knowledge from the Diploma course in ICTP. I am going to finish my Ph.D. at the end of this year.

I am very grateful to ICTP for one year's teaching. I thank all the professors and administrative staff for giving us such a good environment to learn physics. They led us into the field of science.
EFTA YUDIARSAH
INDONESIA

I was a student in the Condensed Matter Diploma programme in 2001/2002. The teaching was good and I enjoyed numerical methods the most as well as the superconductor class course. The administrative staff in general is nice and really helpful. I remember the encouragement given by Ms. Mosca (diploma staff) in every Diploma programme meeting. The nurse in the medical office was really nice; she treated me well when I was sick in the difficult period in ICTP (December 2001-February 2002). It was difficult because we were facing the first term exam. It was cold but there was no heating during the New Year break and no cafeteria for several weeks. I enjoyed attending several schools at the time (partially).

Now I am working on my Ph.D. project at the Department of Physics and Astronomy, Ohio University. I hope to finish it soon, so I can try to have the opportunity to join ICTP as an associate.

Thanks, ICTP, for giving me the opportunity to attend the programme.
MUHAMMAD ALI YUSUF

PAKISTAN


Quality of teaching: Most of the professors were excellent. Some of them were “the best” in their respective fields and probably some of the finest (and professional) teachers I have ever met. I had problems with one professor (I would not like to mention the name) because he was “too brilliant” for a mediocre person like me and I had difficulty understanding things from his point of view. The same professor, though, taught me how to be considerate towards mediocre students, listen to their problems, help them and teach them how to become independent thinkers. What a wonderful person he was!

Helpfulness of the teaching staff: That was the key to our success. Low qualified professors (common in countries like Pakistan) are bound in their own inferiority complexes and are not open to critical discussions. That was not the case with ICTP faculty. I had enjoyed a lot my discussions with Balram Ray (postdoc and my thesis supervisor) and Professors Narain, Senjanovic and Hussain.

Helpfulness of the administrative staff: I would consider it to be one of the most important factors in our success in the program. All of us, at that time, were very young and far away from our homes. Our knowledge of Italian was limited to a few words and our only interaction, besides class fellows, was with the ICTP administrative staff. I remember Concetta Mosca (Diploma course secretary at that time) as an extraordinary person: friend, guide, and helper – almost everything for us. I lost contact with her a few years back. And she was not the only one. ALL the administrative staff was very considerate with us. It would be surprising for you, but I took my first lesson in “work ethics” from them.

The part of the diploma programme I enjoyed most: The multi-cultural, multi-lingual environment conducive of liberal thinking and hard work.

The difficulties encountered: I had no problem with the teachers, administrative staff or the diploma course in general. However, one minor problem was food (very different from Pakistani food). Another major
difficulty was our limited knowledge of Italian and hence a slow penetration into the local cultural events. I consider these to be a vital part of one's outlook and grooming.

What am I doing now? I no longer do research in theoretical physics. My current research is in the area of mechatronic design, robotics, and engineering education (including physics education for engineers). I am very satisfied and happy with my life and wish to (and dream of) returning to ICTP some day.

How did ICTP help me? The education at ICTP helped me a lot in increasing the quality of my doctoral work, which in turn helped me in launching myself into the job market, and so on and so forth. Ultimately I am where I am, very far from theoretical physics but the route started from ICTP and would not have started without it. My colleagues who could not get the opportunity of such an exposure, failed to launch themselves into the brave new world of academics and went down to college level teaching and could never leave the country for conferences, workshops or work in general. I was lucky to get this opportunity at the right time.

Was the diploma program instrumental in my success? Since I no longer work in the area of physics, it would be unfair to say ICTP was “instrumental” in my success. However, it would be equally unfair to say I would have reached where I am now, without the help of ICTP. The exposure to a world class and multi-national research environment was truly instrumental in shaping my views and work styles.

Suggestions: Well, how can I give suggestions to the place which taught me how to live in this academic world? Also, I don't know about the current state of affairs at ICTP (I left in 1991). So I would not like to give comments or suggestions.
I first heard about ICTP through one of my lecturers Dr. A.O. Musa of the Physics Department, Bayero University, Kano, in Nigeria. He gave me a form for the Diploma programme in Mathematics and asked me to fill it up. After filling the form, I was selected as an alternate. None of the applicants dropped out that year (2003/2004). The coordinator of the diploma programme in Mathematics, Professor Chidume, was one of the coordinators of another programme for sub-Saharan Africa in Senegal, entitled West African Training School (WATS) also organized by ICTP. He then selected me as one of the participants in that programme.

The WATS programme was organized and ran for three consecutive years (2003-2005) each year for a period of two months at the University of Gaston Berger, St. Louis, Senegal. The programme actually was very successful, because the participants in my opinion were given enough foundations to start research in various areas of Mathematical Analysis.

During the last year of the programme, Professor Chidume informed the participants about the Mori Fellowships at ICTP. Some of us applied for that fellowship that year. I was successful and got the fellowship to visit ICTP for six month each year for two years. I registered for my Ph.D. programme at the University of Nigeria, Nsukka, Nigeria, in 2004 starting in the 2004/2005 session. The topic of my research is: "Approximation of common fixed points for finite families of nonlinear mappings in Banach spaces".

Last year (2006) I was at ICTP for six months from 2 February to 30 July as a SANDWICH student under the Mori Fellowship. During this period of my stay at ICTP, I made good use of the facilities (current library materials and electronic journal articles, printing and photocopying machines, etc., and most importantly, other mathematicians who are always ready and available to help at any time) which are excellently conducive for research and which are not readily available back home in Nigeria. I must sincerely commend the ICTP workers. They are always positively responding to our needs.

I had the opportunity to interact directly with my ICTP supervisor Professor Chidume who is always available and ready to attend to me with guidance. In fact, I have been working together with Professor Chidume
freely as if we are friends. I also had the opportunity to interact with some visiting scientists working in the same area as me. We interacted with people like Professors I. Beg from Pakistan, C.H. Morales from USA, Drs. A. Mujahid also from Pakistan, A. Udomene from Nigeria and a host of others. During this stay we were able to get the following research results:


In each of these articles we acknowledge the support of the Mori fellowship at ICTP, Trieste, Italy.

This year (2007) I arrived at ICTP on 8 February for the second and the last phase of my fellowship and will be going back to Nigeria on 7 August.

At this point, I would like to make the following suggestion. There are some other applicants for the Mori fellowship (particularly I know some from Mauritania) but due to lack of connection between the candidates and scientists living around Trieste who are willing to supervise students for Ph.D. from sub-Saharan Africa, they fail to get the fellowship. I suggest that ICTP should establish such a link.

Finally, I would like to send my sincere gratitude and appreciation to the sponsors of the Mori fellowship and ICTP for giving me this unique opportunity.
The ICTP experience: DIPLOMA and STEP students

PAULINA EKUA AMPONSAH
GHANA

I was awarded the STEP fellowship in 2006 and paid my first visit in September 2006. I reported to my host supervisor, Professor G.F. Panza, at the Department of Earth Sciences of the University of Trieste, Italy, and started my research in earnest.

The objectives of my research work are as follows:

— To identify and map out areas of earthquake risk in Accra, the capital city of Ghana;
— To develop a parametric earthquake catalogue for Ghana;
— To prepare a seismicity map for Ghana using historical and recent seismic data;
— To develop an earthquake hazard and seismic microzoning map of Accra;
— To bring to bear the importance of the knowledge of a detailed seismic hazard in the planning of Accra and its implementation in the building code.

My first visit under the STEP programme was very successful. I had access to Mac machines at the Department of Earth Sciences to do my 1D and 2D computations. I was able to come out with a model of the ground motion of Accra which I had planned to do during my visit. This would not have been possible had it not been for the invaluable help from my host supervisor and his keen interest in my research. He has indeed contributed immensely to the achievement made so far.

I contacted a lot of experts in my field of expertise at ICTP during my visit. Last year I sent a paper to the Journal of African Earth Sciences for publication. While in Trieste I had the opportunity to participate in scientific workshops organized at ICTP that were very relevant to my research work.

The availability of research facilities such as computers, the libraries at both ICTP and at the Earth Sciences Department of the University of Trieste facilitated my research work. These indeed helped me make tremendous progress in my research.

The Abdus Salam International Centre for Theoretical Physics 133
Although I still have more work to do in my research, I am sure with the funding from the STEP programme I will be able to complete my work on time.

The STEP fellowship has given me a unique opportunity to develop my thesis. That has made me more confident in my Ph.D. research work. My interaction with experts in my field of research, the availability of research facilities such as computers, well-equipped laboratories, the libraries at both ICTP and at the Earth Sciences Department of the University of Trieste, facilitated my research work. These indeed helped me make tremendous progress in my research.

I am very grateful to the UNESCO/MORI Fellowship Scheme for the financial support without which I could not have done any meaningful research. I extend my sincere gratitude to ICTP for awarding me the STEP fellowship. I am grateful to my host supervisor Professor G.F Panza, for all the assistance he gave me. He indeed met with me anytime I called on him for guidance. My first STEP visit was very successful with the help of Professor G. Denardo and Ms. Dory Calligaro. To them I say a big thank you. I thank Mr. Johannes Grassberger of the computer section of ICTP for the immense assistance he gave me when I was doing my computations.
BRICE RODRIGUE MALONDA BOUNGOU

REPUBLIC OF CONGO

I was a STEP student four different times at ICTP (February 17, 2004 - May 31, 2004, March 04, 2005 - September 01, 2005, February 16, 2006 - June 16, 2006, February 04, 2007 - June 03, 2007). We have performed density functional calculations on the magnetic map of Mn thin films and MnNi ordered surface alloys on Ni/Cu (001), (011) and (111) oriented substrate, by using Pwscf code. We have understood the microscopic mechanisms governing relaxation of surface atom (bucking) and how they influence the magnetic properties of the surface.

We have also investigated magnetic structure of FeMn thin film ordered alloys across Cu spacer, by using TB-LMTO code. We have emphasized the oscillatory behavior of the exchange coupling between the FeMn thin films across Cu spacer as function of FeMn and Cu thickness.

I will surely defend before the end of the year 2007. Whenever I am at ICTP, I take advantage of the availability of library; computational resources facilities, opportunity to make new scientific contacts; participation in seminars, summer schools, conferences, etc, in addition to its good working conditions. My advisor provided by ICTP was responsive to my needs.

Publication resulting from my work:

In Books

in the (001) and (111) crystallographic faces".

ICTP-Preprints available at http://www.ictp.it

- B.R. Malonda-Boungou, B. M'Passi-Mabiala, S. Meza-Aguilar, C. Demangeat, *ICTP preprint*, IC/2005/022, "The magnetic map of NiMn alloy thin films on Co(001) and Co(111)"

- B. M'Passi-Mabiala, B.R. Malonda-Boungou, L. Mouketo, C. Demangeat, *ICTP preprint*, IC/2006/100, "The magnetic structure of FeMn layers across Cu spacers in the (001) and (111) crystallographic faces".

International Journals


May 27th, 2006, was the beginning of my first visit to ICTP under the Sandwich Training Educational Programme (STEP). The sandwich programme is geared towards strengthening scientific capabilities of young scientists from developing countries. Topic of Thesis: Developing and Evaluating Ensembles for Seasonal Prediction

During my first visit, I was exposed to relevant technological facilities, qualified expertise, and up-to-date information, which are lacking in my institution. This exposure helped me lay the foundation of my research, acquire relevant knowledge especially in Information Technology, make a number of contacts which will help me in future collaborations, and broaden my research base.

My major accomplishments for the four month training have been improvement in mastery and proficiency in the use of GRADS and Scripting Languages, the software which are very relevant to advancement in my field of research. During the first two weeks of my visit, I attended a workshop on Regional Climate Modeling and Impacts (29th May to 9th of June 2006). The workshop introduced me to the field of Climate Modeling generally and the various researches going on in the area and also to the RegCM3 model of the Physics of Weather and Climate (PWC) group of ICTP. I got myself introduced to Linux and GRADS, which I am mostly using for my work. At the end of June, I had enough knowledge in Linux and Scripting Languages.

All through, I did sensitivity studies of the climate for wet and dry years in West Africa using the latest RegCM3 model. This will help me choose the extreme dry and wet years I will use this for my ensemble forecast project for my Ph.D. work. I performed a number of simulations for two Convective Schemes (Grell (Fritsch-Chappell) and Emmanuel) and at different resolutions to see which one works well for Precipitation and Temperature in West Africa. The results demonstrated the importance of Cumulus Schemes and provided realistic simulation of the West Africa Precipitation and Temperature.

During each simulation, I set time aside to read about the physical parameterizations, and other basic understanding of the Atmosphere. There was also much to read about the RegCM3. I still read and practiced...
more into graphical interpolation software like GRADS and Ferret as well.

I had a second training workshop from 7-18 of August on Seasonal Prediction–Targeted Training Activity. It introduced me to various global models and data and how to work with them. With full participation and consultations during the workshop, and some practice during August, I am now able to downscale global data to regional level. I developed a diverse range of skills and knowledge, which is helping me with a project with Dr. Abdul Latif, an Associate from Egypt on the MultiModel Ensemble performance of rainfall over Africa.

My gratitude goes to the UNESCO/MORI Fellowship Scheme and the ICTP-IAEA Programme. This visit gave me a big opportunity to get quintessence of an ultra-modern academic environment where I have very good indication that I will achieve most of my goals by the end of my visits. I hope to finish as one of the best to contribute my quota to the development of my continent, Africa, in general. I feel the help and guidance that can be provided to me by the distinguished ICTP will be invaluable.

I acknowledge the PWC group for their assistance and especially my supervisor, Filippo Giorgi, for his arrangement and supervision. Final recognition goes to Prof. F. K. A. Allotey of IMS, Accra, Ghana, for his recommendations.
The ICTP experience: DIPLOMA and STEP students

**ALIAKSANDR DANILCHYK**

**BELARUS**

The topic of my research work is: "Semiconductor Lasers and Light Emitting Diodes based on InGaN/GaN heterostructures, grown on Silicon substrate."

During my first visit to ICTP, I have got to know experimental facilities of the Laboratory for Lasers and Optical Fibres of ICTP, Elettra Synchrotron, which could be applied to the time resolved photoluminescence (TRPL) spectroscopy measurements of InGaN/GaN heterostructures grown on silicon and sapphire substrates. The main aim of my training was to understand and learn different techniques of TRPL measurements, such as pump & probe and gate luminescence (or up-conversion) experimental methods. Literature related to the ultra-fast lasers, registration methods and schemes as well as works where ps-scale resolution TRPL spectroscopy was applied to study of GaN, InGaN/GaN and AlInN/GaN structures.

The laboratory owns the equipment by means of which there is an opportunity to carry out time resolved experiments of various physical processes, such as a photoluminescence, amplification of a photoluminescence and lasing in InGaN/GaN heterostructures with QW (quantum well) grown on substrates of silicon and sapphire. It includes the mode-locked Ti:Al$_2$O$_3$ laser with pulse duration $\tau_p = 100$ fs, first ($\lambda \sim 400$ nm), and second ($\lambda \sim 400$ nm) and third ($\lambda \sim 266$ nm) harmonics of radiation. Also, there are necessary recording devices, such as monochromator (200 – 1100 nm) with CCD array, hamamatsu photosensor module (rise time 0.78 ns) and avalanche diode. All necessary components for exact adjustment pump & probe and gate luminescence experiments, such as mechanical motions for samples and the fully-automated delay lines are also available. It is of great importance for my researches as our laboratory (Lab of Physics and Techniques, NAS Belarus) has no similar opportunities.

Thus, during the first visit I have studied in detail the literature on carrying out pump & probe and gate luminescence experiments, and also have collected the circuit for carrying out such experiments.

The majority of modern devices have the complete set of delivery
libraries function for LabView, so studying of this package became rather useful at automation of experiments. Thus, studying language LabView for creation of concrete soft maintenance for automation and synchronization of work of the various devices used in my experiments was required. So the old programme for new laser beam time delay has been modified and used in different experiments.

It would be desirable to thank our advisor for granting the equipment and help in the organization and preparation of all experiments.

I hope for further cooperation within the framework of the project and on realization of new ideas and carrying out of researches.
I am registered for my Ph.D. in my home Institute since November 2004. The subject of my thesis is: “Mathematical Modeling and Simulation of Bloch NMR Equations for blood flow analysis.” It is very difficult to have access to the needed materials in the form of books, internet facilities as well as interactions with scientists in my area of research. This prevented me from making the needed progress since I registered. I came for my first visit to ICTP under the STEP Programme supported by the Mori Fellowship, between 1 September 2006 and 30 December, 2006. My four months visit to ICTP under the STEP fellowship was very rewarding, and the visit to ICTP under the STEP programme afforded me the opportunity to correct these features.

My host, Professor Sreenivasan, was so concerned about my progress and despite his busy schedule as ICTP director, found time to attend to my needs. He also arranged for me to get assistance from Professor Pedrizzetti at the University of Trieste who is also in a related field. Professor Pedrizzetti was also of great assistance.

My host supervisor gave me kind advice from his wealth of experience that is going to improve the quality of my research tremendously. I am very grateful for this as it is an important achievement of the visit.

There were many more benefits I derived from this visit that I cannot relate in this report among which is the exposure, getting to see that those that are making tremendous breakthrough in science are everyday people, including women like myself, and that I can do the same. I also met with fellow scientists from other parts of the world with whom I was able to make connections that will help me in my career.

In particular, I carried out the following activities:

- Bibliographic research
- An in-depth theoretical exploration of the fundamental Bloch NMR equation
- Exploration of NMR fields in the presence of flowing tissues to improve the ability of velocity field evaluation from the analysis of magnetic resonance fields in blood vessels with changing
The ICTP experience: DIPLOMA and STEP students

cross section

- Exploration of the analytical solution of the time-dependent Bloch NMR flow equations (translational mechanical analysis)
- Investigation of numerical method suitable for solving the Bloch NMR equation.
- Participation in some ICTP activities related to the research

After the completion of the part of the research to be carried out in my home institute, I am earnestly looking forward to the approval of my next visit during which I plan to carry out the following:

Numerical solution of the Bloch equation in the presence of blood flow velocity managed in conjunction with fluid dynamical solution of increasing complexity station from one dimensional straight vessel models, axially symmetrical models and more complex models as may be applicable for flow examinations using velocity term from the solution of the Navier-Stokes equations. More in-depth exploration into the behaviour of these various solutions in the presence of velocity values in blood vessels with changing cross section.

My four-month visit on STEP fellowship was a successful one in that a large part of my reason for applying for the fellowship, namely, to have access to books, journals and computational facilities which are not available in my home institute, was fulfilled. However, I am looking forward to being able to have more interactions with scientists working in my area of research during my next visit.

I wish to appreciate my thanks to the financial support from the UNESCO/MORI Fellowship Scheme to the Abdus Salem International Centre for Theoretical Physics (ICTP) for the STEP programme and also to the ICTP for awarding me the STEP fellowship.

I thank my home institute supervisors, Prof. (Mrs.) I.A. Fuwape and Dr. O.B Awojoyogbe, for giving me the support, and the management of my home institute, Federal University of Technology, Akure, Nigeria, for granting me the permission to utilize the STEP fellowship for my Ph.D. research and training. I also thank professor Pedrizzetti of the University of Trieste who was always ready to give me his time and attention. I thank Professor G. Denardo, Ms. Dory Calligaro and all the staff of ICTP for making my STEP visit an encouraging one. Finally, I am grateful to my host supervisor, the Director of ICTP, Professor K. R. Sreenivasan, who, despite his busy schedule, agreed to supervise my work and was very concerned about my progress.
I did three training programmes at the Abdus Salam International Centre for Theoretical Physics under the supervision of Prof. Gallieno Denardo. The first training was done in 1997 from September to November, the second in 1998 from May to August and the last training in February 1999 to August 1999. During these three sandwich programmes at ICTP, I worked on the theoretical calculations of doubly excited $^1S^e$ states of helium-like ions below the $N = 2, 3$ and 4 hydrogenic thresholds by using the stabilization method.

I defended my Ph.D. thesis in October 2000 at the Physics Department of the Faculty of Science and Techniques of the University Cheikh Anta of Dakar. This work has been done under the supervision of Professor Ahmadou Wagué, Head of the Atom Laser Laboratory which is an Affiliated Centre of ICTP. I am an active member of this laboratory. And since 2001 I am an associate of ICTP and take this opportunity to do my research work.

Professionally, I got a position in May 2000 as assistant professor at the Department of Computer Science of the University Gaston Berger of Saint-Louis in Senegal. From 2001 to 2005, I was the head of this Department. Since May 2006, I am the Director of Technological Research of the Ministry of Scientific Research of Senegal.

In summary, my ICTP experience was very positive. All my research works have been improved since my first visit as participant in the Winter College at ICTP in 1997. ICTP helped me to be what I am today.

Here are the publications I did since I started the sandwich programme.

- "Energies and interelectronic angle in doubly excited $^1S^e$ states of helium-like ions below the $N = 2, 3$ and 4 hydrogenic thresholds, A. Konté, A. S. Ndao, M. Biaye and A. Wagué, Physica Scripta 74 (2006), 605-613"
- "Analysis of Chlorophyll Fluorescence Spectra in Some Tropical Plants"

- "High-lying ¹,³Po resonance states of He (N = 4) and H- (N = 5)", A. S. Ndao, A. Wagué, N. A. B. Faye and A. Konte, The European Physical Journal D 5, 327-334 (1999)
ALEXANDRU MARMUREANU
BUCHAREST

My topic of research is seismology, seismic hazard. My experience concerning the ICTP step programme is very good. It helped me a lot taking into account the resources to which I have access. I have not received my Ph.D, but this will happen soon.

Based on the work I have done at ICTP, I wrote a paper called "Deterministic earthquake scenarios for Bucharest", Carmen Ortanza Cioflan, Alexandru Marmureanu, Giuliano Francesco Panza, to be presented at ISSRR 2007 Conference, which is going to be published in "Romanian Journal of Physics".
I wish to make a brief assessment of the STEP programme. It is based on my first STEP visit which was from 31 March to 31 July 2006.

The title of my current Ph.D. research work is "Drug Resistant Mutants of HIV Protease and New Inhibitors". This thesis was designed to apply the co-crystallization strategy in conjunction with synchrotron radiation and cryogenic techniques to obtain high-resolution structures that permit the discovery of the most potent inhibitor for drug resistant mutants of HIV protease by self selection, using mixtures of newly synthesized peptidomimetic protease inhibitors and available commercial drugs.

The project involves the following steps:

- Purification of expressed HIV-1 protease
- Refolding of purified protease
- Crystallization of refolded HIV protease
- Co-crystallization of HIV protease and inhibitors
- X-ray diffraction of crystal and data collection with synchrotron sources
- Structure determination
- Modeling
- Enzyme assays

During the period of my visit, I expressed HIV protease (wild type) in *Escherichia coli* (BL21-Gold (DE3)pLysS) and purified the expressed protease using chromatography and Electrophoresis techniques. I worked on different refolding protocols for the refolding of the purified unfolded HIV protease wild type. The refolded protease complexed with a cocktail of protease inhibitors was crystallized by vapour diffusion using Hanging drop method. The X-ray diffraction with data collection was done on a rotating anode at 1.75Å. This could not be done at the Synchrotron Lab because the Lab had earlier used its allotted time at Elettra for the year.

The co-crystallization with newly synthesized inhibitors could not be
done because the inhibitors were currently being characterized and would be available for my research as from 1 August, 2006 when I would have returned to my home institute. The outstanding work to be done in Trieste during the 2007 visit is as follows:

- Co-crystallization of the HIV protease wild type with the newly synthesized inhibitors and available commercial drugs.
- X-ray diffraction and data collection with synchrotron sources at Elettra
- Structure determination and modeling.
- All work done on the HIV protease wild type will also be carried out on mutants of HIV protease.

My four-month visit on a STEP fellowship has really been academically challenging and rewarding for my Ph.D. work. The availability of research facilities has enabled me to put some of the theories I have read in literature and learnt during master's studies into practice. Also my knowledge has been enriched in different areas of Biophysics, Structural Biology and Enzymology.

My Trieste supervisor at the University of Trieste, Professor Silvano Geremia, provided by ICTP has been very responsive to my needs towards attaining my academic goals. He did a good supervision of my PhD research work and enriched my visit with lectures on Protein crystallography. I have been awarded a Grad/Postdoc Travel award by the American Society of Biochemistry and Molecular Biology (ASBMB) to make a poster presentation of my preliminary results at the Society Annual meeting in Washington, D.C. between April 28 and May 2, 2007.

I appreciate with gratitude the financial support from UNESCO/MORI Fellowship Scheme to the Abdus Salam International Centre for Theoretical Physics (ICTP) for the STEP programme and to Professor Sreenivasan, ICTP Director, for awarding me the STEP fellowship.

I am also grateful to Professor G. Denardo, Ms. Dory Calligaro and all staff of ICTP for making my STEP visit an encouraging one.

I am thankful to my Trieste supervisor, Professor Silvano Geremia for his guidance and constructive criticism of my work, and my home supervisor, Dr. Joshua O. Ajele, who kept in touch with me during the four-month period to monitor the progress of my work.

Finally, I thank the management of my home institute, the Federal University of Technology Akure, Nigeria for granting me the permission to utilize the STEP fellowship for my Ph.D. research and training.
I am from the Centre for Atomic Molecular Physics and Quantum Optics (CEPAMOQ), University of Douala, Douala, Cameroon. I was a STEP student at ICTP on the following three occasions:

- April 20, – August 20, 2004
- April, 19 – September 19, 2005
- October 16, 2006 – February 16, 2007

During these visits, we performed work on environmental radioactivity, radon and radon daughter behavior inside building. We initiated the establishment of a baseline map of environmental radioactivity in Cameroon. I was trained on Geant4 simulation code used for simulating interaction of high energy particles with matter. We begin the efficiency calculation of hyper purity germanium detector (HPGe) for gamma-ray spectrometry using Monte Carlo N-Particles code.

Being in ICTP, I took advantage of its

- Computational facilities
- Availability of library
- Participating in conferences and workshop
- Making new scientific contacts

I was well followed and I learned enough working with them. Surely all I required was not found there. I would have liked to learn about alpha and beta spectrometry as I mentioned in my application form but it was not possible in ARPA. However for the work I carried out, my supervisor responded to my needs.

I will defend my Ph.D. thesis by the end of the year 2007. The following publications have resulted from my work.

• Ngachin M., Garavaglia M., Giovani C., Kwato Njock M.G., Nourreddine A., Scruzzi E. Environmental radioactivity level and soil radon measurement of a volcanic area in Cameroon. Submitted to *Journal of Environmental Radioactivity*

• Ngachin M., Garavaglia M., Giovani C., Kwato Njock M.G., Nourreddine A., Scruzzi E. Study of natural radioactivity content and radon exhalation rate in different kinds of bricks, tiles and concrete. To be submitted to *Applied Radiation and Isotopes*

• Ngachin M., Garavaglia M., Nourreddine A., Giovani C., Kwato Njock M.G., Scruzzi E. Monte Carlo efficiency simulation of coaxial HPGe detectors used for gamma-ray spectrometry of weak radioactivity (in preparation)
KANSTANTSIN OSIPOV

BELARUS

The topic of my research is: “Optical properties of semiconductor thin films and light emitting heterostructures based on organic materials.”

It was my first three-month visit in Trieste. During my stay in the laboratory, I familiarized myself with the new modern equipment and had an operational experience with powerful laser systems which were used in the experimental measurements.

I have also studied very useful package of programming LabView. By means of a program package LabView, the programme for correction PL spectra on intensity, the programme for measurement of parameter of a laser beam m² with use 2D CCD camera, the programme for control of intensity of a laser beam with use of stepping motor and a polarizer are created. Using the received opportunities, PL spectra of organic thin films have been measured at various levels and wavelength of excitation. Obtained data will help to answer a question of a possibility of use of the given materials as gain medium in semiconductor organic lasers.

We have measured decay kinetics of thin films of semiconductor at excitation by femtosecond pulses with wavelength of excitation 390 and 266 nanometers and registration on the fast photo diode or photomultiplier (using a monochromator). Obtained data will help to define influence of growth rate of organic thin films and temperatures of a substrate on their optical properties. In addition, the possibility of access to many scientific journals is very useful. My Advisor provided help in adjustment of the experimental set-up for measurements and explained specificity of devices for obtaining results of better quality. Owing to participation in given programmes, there were opportunities to carry out additional measurements with use of the equipment provided by ICTP and to plan further researches taking into account use of this equipment. The femtosecond laser with spectroscopic equipment provided by the ICTP laboratory was very useful in my work.

In these directions of work I will be engaged for 3 years.
I was admitted into the STEP fellowship in the last quarter of 2005, and my first visit to ICTP was from September to December, 2006. My doctoral research topic is entitled “Modelling defects and their interactions in ion implanted metals”. My home institute supervisors are Professors D.T Britton and Margit Häring. Both are based in the Physics Department of the University of Cape Town, South Africa, where I am also registered as a doctoral student.

My research is computational in nature and requires a cluster of computers, the type not readily available in my home institute. Thus, the first year of my Ph.D. registration was without any meaningful research output. Being admitted into the STEP fellowship programme immediately gave impetus to my research. Professor Sandro Scandolo of the Condensed Matter and Statistical Physics (CMSP) section of the ICTP, who is also my ICTP supervisor, has been extremely helpful. He has made accessible to me the CINECA supercomputer facility located in Bologna, and has taught me how to remotely make use of this facility from my home institute. While in ICTP, Professor Sandro makes himself available to me at the shortest notice, and would spare no effort in ensuring that I understand concepts and topics that are relevant to my research. At the end of my first visit to ICTP, I am more confident in carrying out my research, and with little supervision. I am presently working on a paper to be submitted for publication. Thus my association with ICTP and Sandro Scandolo has been largely beneficial.

ICTP, through its various organs has been very supportive of STEP fellows. Regular access to computer can be a nightmare in our home institute. ICTP should look into the possibility of helping each interested STEP fellow procure a laptop computer at a subsidized rate. Further ICTP support to STEP fellows could be in the form of financial or logistic support in buying specialised textbooks.
ELENA ROBU

MOLDOVA

Citizen of Moldova, I am a Ph.D. student at Bucharest University, Romania and I was accepted to visit ICTP for three times in three years under the STEP ICTP/IAEA programme. Each visit was established to be four months. My first visit to ICTP was done last year from 20 March till 20 July.

I am studying radiation detectors using the Monte Carlo simulation method. This method is used in assessment of proprieties and response of radiation detector in different conditions. Simulated data could improve assessment of radiation detector response as well as render the assessment of correction factors more accurate. To compare simulated data with real data, I had applied and was accepted to visit ICTP under the STEP Programme. The aim of my STEP programme is to study calibration of radiation detectors. I am studying in special HPGe detectors used as gamma spectrometers and solid state nuclear track detectors type CR39 and LR-115 used in radon monitoring.

Due to an agreement between ICTP and ARPA, Udine, it was possible to study these detectors used in real measurements. Real measurements data which are compared with simulated data were obtained. I developed more practical aspects in data assessment; questions and troubleshoots met in practical work.

For simulation of solid state nuclear track detectors I supposed that the alpha particle range in detector is straight. The ranges of alpha particle in air and in the detector are calculated using an empirical equation (Durany 1987). In this way, the programme running time is much less. The track parameters are simulated in function of energy and angle of incidence, and the influence of etching conditions on track parameters are taken into account. The density of tracks in detectors is influenced by the volume of exposure chamber used. I have used an exposure chamber produced by Rados, Hungary. The exposure chamber was simulated using Monte Carlo method. In this way one number in limits of ionization chamber (homogeneous source) is generated. This point is considered to be the initial alpha particle position. The number of particles which hit the detector and the energy of alpha particle when it enters the detector were assessed. The output of this programme is the number of particles which
The ICTP experience: DIPLOMA and STEP students

rich the detector. The total number of simulations is considered also as the
total number of alpha particles. The energy of alpha particle is input data.
The impact of radon daughter products is established using the equilibrium
equation for radon and its daughter products.

The ideal Radon source has been simulated using Monte Carlo method,
but it is necessary to compare the simulated data with real source data.
This simulated source is generated in well known volume equal to volume
of exposure chamber used in field measurements. The tracks counted in
the detector are referenced to the exposure chamber volume.

To compare simulated data with real data it is necessary to perform
measurements in one calibration laboratory. ARPA Laboratory, Udine,
could not perform all these measurements because calibration radon
sources and a calibration laboratory were missing. I would like to perform
this research during my next visit in one compatible calibration laboratory.

The influence of the age of the detector and the time between etching
and reading were performed at the ARPA Laboratory in Udine. For this
purpose the old field detectors exposed in 2001, 2002, 2003 and 2004
was read. We observed that the number of tracks counted in 2006 was
greater than the number of tracks counted before. These results require a
more accurate investigation. We suppose that this is due to changes in
detector lattice.

The gamma spectrometric measurement techniques are widely used in
field sample measurements, especially for environmental samples. They
have been performed in ARPA Laboratory, Udine. There are three HPGe
detectors with different efficiency: 20%, 30% and 80%. The influence of
particular measurement geometries was performed using a calibration
solution in different geometries (125 ml, 250 ml, 500 ml and 1 l). The
calibration solution was water solution. A variance in efficiencies in
function of source geometry was observed. For my next visit I would like
to study the influence of matrix effect and coincidence summing effect on
the detector response for low level volume sources (environmental
samples).

Obtained data are compared with results of other researchers found in
literature. The ICTP library is very rich and up to date which allows us to
see the present tendency in this field of research.

During this visit I have met other researchers in the field of application
of Monte Carlo simulation methods to solve radiation transport equation
for different specific cases. This involves new collaborations and new
friendships.
The ICTP organized Italian courses for foreigners. Thanks to this I am an average speaker of Italian now.

Thanks to ICTP support one personal computer notebook was purchased which helped me a lot to carry out my STEP Programme syllabus and to focus on the scope of my Ph.D. thesis.

The STEP ICTP/IAEA programme permitted me to follow my Ph.D. programme and made it possible to finish my thesis in established terms.
The starting point of my Ph.D. course and acceptance for the STEP programme were synchronized. Professor G. Denardo and Dr. M. Danailov were the official supervisor and advisor for my STEP fellowship and in the beginning they helped me in deciding the subject, finding the proper scientific supervisor and place to work. For my Ph.D. project, I joined the optical tweezers group at the ICTP/ELETTRA laser laboratory where the laser tweezers was being developed jointly by LILIT and TASC-INFM under the supervision of Dr. Dan Cojoc and Professor M. T. Tavassoli from my home institute (Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan, Iran). The proposed project for my Ph.D. and STEP is using Diffractive Optics in Optical Trapping set-up.

During the first visit which started from 1 September 2003 for three months, since the topic was far from my previous research topic I was busy with the textbooks and scientific literature introduced and given by Dr. Cojoc (I did research in Nonlinear Optics during my M.Sc.). The materials included diffractive optical element (DOE) design and theoretical basis of optical manipulation.

During the second and third visits the works carried out were on diffractive optical element design and usage of DOEs in optical manipulations, respectively. I learned a lot about Diffractive Optics and DOE design algorithms. In brief, during the second visit I did the following works:

— Comparison of fast Fourier transform based algorithms for free space propagation
— Designing Diffractive Optical Element (DOE) using Wyrowski iterative algorithm

The results of the first one (Comparison of FFT based algorithms) were used in DOE designing (second work).

The first work was published in the SPIE proceedings:

During the third visit the following work was done:

- Designing a new type of DOEs, that generates arbitrary three-dimensional configurations of spots with different intensities.
- Experimentally confirming the performances of the designed DOEs.
- These DOEs enables us to build arbitrary arrays of three dimensional traps with different trapping forces. We checked this as well.

The results were published in the following papers:


Since we have a simpler optical tweezers set-up at IASBS, it was a very good opportunity for me to have a continuous work between two institutes. However, mandatory equipment for implementation of designed DOEs is a Spatial Light Modulator that at present we don’t have in our laboratory. Therefore, during the time that I was not in the Elettra Laboratory I couldn’t continue the experimental parts of my thesis. Instead I started an experimental work on phase step diffraction under the supervision of Professor Tavassoli. This work is in progress.

To defend my Ph.D. thesis I needed one extra visit to the Elettra laboratory. I applied for the TRIL programme of the ICTP as I was informed that an extension of the STEP programme was not possible. The result of my application is not determined yet. I expect to defend my thesis immediately after this extra visit. If I won’t be accepted for the TRIL programme, I would try to insert the results of the current research work (phase step diffraction) in my thesis to make it more valuable.

After finishing my Ph.D., I hope to spend a year as a postdoc in an optical manipulation related group abroad. Afterwards I hope to go ahead on this subject at IASBS. We are trying to have a SLM for our lab but not before finishing my Ph.D. The nature of the subject is such that it is possible to be linked to different applications and sciences. I hope to develop a good technical approach for these applications using DOEs in optical manipulation.

In my opinion the way that STEP works is much better than staying for a long term as a Ph.D. student (3-4 years abroad). Beside the possible
problems due to being far from home, it sometimes happens that the students who graduate abroad find problem to work in Iranian labs. The thing is that they do some works that can not be continued in Iran. In this situation, having the opportunity to be in a laboratory with good facilities for short periods to develop the experiments is great.

In conclusion, the experience for me was great. Carrying out or initializing a research project, being in a very friendly group, the opportunity of meeting scientists from all around the world, participating in different activities especially in the laser laboratory, are some positive respects of my experience.

Finally, I would like to suggest that you find a way to make a stronger communication between the supervisors of the home institute and host institute. This will help the fellow to get more advantages and preserve the continuity of research in a much better situation.
I am happy to have this opportunity to show how the IAEA fellowship helped me in my career.

I am a Sudanese lady, at the University of Khartoum. After I finished my M.Sc. in 1993, I was a lecturer at the same time. I was thinking of starting my Ph.D. but it was difficult in my country because there was not enough staff, low facilities etc. I met Dr. P. Buah-Bassuah in Khartoum when both of us were participating in a workshop on “Lasers and its Applications” in 1996. We talked on many academic issues. Then he invited me to visit their center (LAFOC) at Cape Coast, Ghana. I started the Ph.D. programme in 1997 at Cape Coast with the ICTP sponsoring the programme locally. Then we needed to do experimental work outside so we applied to IAEA to help us on this. I was so happy to be awarded an IAEA fellowship in 1998.

In fact, it is very difficult to mention all details of the way the fellowship helped me. In the first visit in 1999 I was doing a literature review on my research topic which is laser spectroscopy–tissue optics and optical imaging.

ICTP’s library was extremely good to get most of the information. Even if some journals or papers were not in the library, I was able to order them from other libraries inside and outside Italy through the ICTP library staff. Here I have to acknowledge the help of the Library staff; they are so patient, polite and hard working to satisfy our requests.

Internet was so exciting to us and it was useful to log into some journal sites. In Africa, internet at that time was not common, and if available was slow.

I was able on my first visit to work in the laser lab at the Elettra Synchrotron. It was a useful time under the supervision of Professor G. Denardo and M. Danailov.

The second visit was arranged with Professor G. Zaccanti for him to be assigned as external supervisor together with the internal supervisor, P. K. Buah-Bassuah. I was hosted by Professor Zaccanti and his group at the Physics Department, University of Florence, Italy. It was a very precious
time; the group was very helpful. He started with me from the beginning, theoretically and experimentally. During my stay in his lab for 4-5 months, we did a lot of work and produced so much data. When I went back I continued working on the data by analyzing it and we communicated through email and I got his advice.

I am also grateful to the visiting professor programme of the Office of External Activities (OEA) which made it possible for Professor Zaccanti to visit us in Ghana to have time to supervise me. He came to us two times. It was helpful.

On my third visit under the STEP fellowship to ICTP, part of it was also in Florence to continue our work. Every day was very beneficial. We were doing last theoretical stimulations and modeling and finishing the write up of the thesis.

The first year in our Ph.D we took courses, so another credit goes to ICTP for supporting the lecturers financially; some even came from USA, Senegal, Italy and other places.

My knowledge and research skills have improved a lot since I was attached as a student to ICTP. Now I visit ICTP as a Junior Associate and I still gain very much help and scientific support and take it back to my students.

Another important point I have to mention here is our sustained cooperation even after completing my Ph.D. Each year I have the opportunity to visit Italy; the group is willing to host me and I join them in their research work. I hope this cooperation can continue officially with ICTP support so I can receive advice even when we are back home.

I have received my Ph.D. Degree in September 2001. We published a paper from my work in Applied Optics, Vol. 40, Issue 25, pp. 4622-4632.

Currently, I am assistant professor at the University of Khartoum, teaching physics courses, supervising students and doing research in the ICTP affiliated laser laboratory at the University as well as other administrative positions.

Once again, thank you very much for giving me this space to talk about my experience with the IAEA fellowship at ICTP and how I have benefited.
I am from the Department of Biochemistry, Federal University of Technology, Akure, Nigeria and have visited ICTP twice: 2 June-31 November, 2005 and 1 September, 2006-28 February, 2007. I propose my third visit to be between 1 September, 2007 and 28 February, 2008.

My home institute supervisor is Professor Afolabi A. Akindahunsi. My host supervisor is Professor Sabina Passamonti of the University of Trieste, Italy. The field of my research is “Antioxidant potentials of tropical vegetables and spectroscopic studies of lipid peroxidation”. The objective of the research work is

6. Isolation and characterization of phenolic compounds from selected tropical vegetables.
7. Determination of antioxidant potentials of the isolated phenolic compounds using spectroscopic techniques and animal models
8. Assessment of the bioavailability of phenolic compounds in some of the vegetal materials.
9. Assessment of the interaction of purified compounds with bilitranslocase a plasma membrane carrier protein.

The expected contribution to knowledge is:

1. The research work is expected to provide the following information:
   • Antioxidant potentials of some commonly consumed tropical vegetables.
   • Phenolic compounds present in the selected tropical vegetables
   • Effect of the isolated and characterized phenols on lipid peroxidation/oxidation
   • Bioavailability of phenols.
   • The effect of the phenols on lipid peroxidation at the molecular level.
The ICTP experience: DIPLOMA and STEP students

2. The following scientific articles have resulted from my work:
   - Salawu et al., (2007) Flavonoids and cinnamoyl derivatives in four Nigerian green-leafy vegetables and evaluation of their fate after cooking (in preparation: part of work done during the second visit)

3. I expect the following work to be carried out during the next visit between 1 September 2007-28 and February 2008:
   - Antioxidant properties of the isolated fractions obtained from preparative HPLC
   - Characterization of the interaction of some flavones and isolated compounds with bilirubin translocase
   - Assessment of the bioavailability and tissue distribution of one (or more) phenolic compounds following their introduction into the stomach of the anaesthetized rats
   - Thesis write up

I wish to use this medium to thank the management of the Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, for its initiative in bridging a wide gap that exists in the field of science between the developing countries and the western world.

The award of the fellowship was of tremendous help in my research work and has given me the opportunity of working beyond the scope I would have worked as a result of lack of proper funding in the University sector at home which had culminated in a lack of instrumentation for a research that could match up with the latest trends in science across the globe.

However, I would like to make the following
suggestions/recommendations:

— The second and the third visit could be joined together if there is a need. This is because most often the first visit is always used in getting the students acquainted to a new working environment and the works do have a proper shape towards the end of the first visit and the beginning of the second visit but the student will have to stop for a while when the work is becoming very interesting.

— For those of us who have to work in the laboratory, it would be good, if the host laboratory in Italy could be given some support so that some experiments would not be hindered by lack of chemicals and other utilities.

— The management should be willing to give a few weeks extension mostly towards the end of the programme even if not supported so that all the proposed work is carried out.
This is my first visit period between 5 September to 31 December 2006, and it is very well organized. The title of Ph.D. thesis is: Investigation of activation product in medical linear accelerators. The training field of my programme falls under radiation protection in medical physics. The topic of my research is to investigate the activation products in medical linear accelerators and this topic is divided into three parts. The first part needs just some training in Monte Carlo Simulation. But the second and third parts need some measurements at Maggiore Hospital.

During the period from October to December 2006, I did some training in Monte Carlo Simulation "Geant4" at Area Science Park in cooperation with Professor Gianrossano Giannini. At the same time I visited the Maggiore Hospital to collect all the necessary information related to my practical measurements at the radiotherapy and radiation protection departments.

During this visit, I finished the simulation of linear accelerator of Maggiore Hospital "Varian CLINAC 2100C" to produce energy with 6 and 15MV. But up to now I did not finish my analysis of this simulation. Also, I upgraded my knowledge by collecting all necessary papers and books from ICTP and University of Trieste libraries related to my research. According to the heavy workload in the hospital and due to different reasons, my practical measurements were delayed for the next visit under promise from the radiotherapy department, which was represented by Professor Fabio de Guarrini, to complete most of the practical measurements during the next visit. I did arrange with the hospital with the help of my co-supervisor, C. Tuniz, to start my practical measurements in September 2007.

The advisor provided by ICTP is responsive to my needs. But the quality of my work has not improved very well because my association is with ICTP and not with the hospital. In other words, the visit arrangements with those STEP students who have some practical measurements to carry out should be prepared with the institutions before the student's travel to
Italy in order to avoid any delay in the period of the student.

Presently I am trying to finish my simulation before the next visit to complete my measurements.

Finally, I would like to thank ICTP and you for this chance. In our developing countries we have no access to international scientific associations. ICTP has one of the biggest libraries I have seen in my life. In addition, ICTP organizes very well workshops and colleges.
I have applied for the STEP programme but, unfortunately, I have not been selected and am waiting. I was an IAEA fellow at ICTP. Through that fellowship, I gained many experiences from the ICTP Laser Laboratory, the library of the ICTP and the activities which I attended during that time. Afterwards I applied for the STEP for my Ph.D. research project. I take this opportunity for your help regarding this matter.
As you requested, I write to you my opinion about ICTP in general and about the STEP programme in particular. I divided my answer into several parts, as a kind of questionnaire to make it easier for you to understand my opinion.

Please say what your topic of research is?

The main topic of my research is estimation of radiation impacts to the environment. It includes estimation of radioactive releases amount, various radionuclides transport ways, human radiation dose evaluation etc. I try to work in interdisciplinary areas, i.e. to combine several different directions (or sub-directions) of science: nuclear physics, radiation physics, radiobiology, radioecology and others.

Whether your ICTP experience is positive and in what respect?

Of course, my ICTP experience is positive. I mean not only the STEP programme, but also other activities in which I took part. It is an ideal place to work. There are powerful computers with access to main online scientific libraries and other useful Internet services. When I was at ICTP for the first time in 2000, I discovered the scientific world for myself through computer and internet. Conversation with others visitors is also very useful. Also I can not say one bad word about all the other services. All the staff is always very kind to visitors.

I would like to say additional thanks to the STEP programme staff I met. Professor Gallieno Denardo and Ms. Dorotea Calligaro De Carlo help me with all my questions or problems.

Was the advisor provided by ICTP is responsive to your needs?

My advisor is Professor Peter Stegnar from Jozef Stefan Institute, Ljubljana, Slovenia. I am really grateful to ICTP for this choice. As for my opinion, Professor Stegnar is one of the world’s greatest specialists in my field. It is too hard to estimate his help in my work not only during the
STEP visits, but also at my home institute. Moreover, I plan to continue cooperation with him after finishing of the STEP programme.

In what way the quality of your work improved because of your association with ICTP?

The main advantages of my association with ICTP are receiving new scientific information and studying. Everything in ICTP is dedicated to these purposes.

I would be interested to know how far along you are in your work; and, if you have already received your Ph.D. degree, please say what you are doing presently.

I finished my work for Candidate of Sciences degree (Ukrainian analogue of Ph.D. degree). The work is in the process of being reviewed by the special council of our institute (Institute for Safety Problems of Nuclear Power Plants, Ukraine’s NAS).

If you tell us how many scientific papers were written in the STEP period, it would be quite helpful.

My STEP period is 2005-2007. During the period, the following works were prepared: 6 scientific reports, 4 articles in scientific journals, 4 abstracts for international conferences. Also 2 articles are now in the publishing process now. Several of these works (or drafts) were prepared during my studying under the STEP programme.

It would be similarly useful to receive any advice you may have.

I am completely satisfied with the programme and I appreciate very much all the people who helped me during my participation in the programme. It is not the first time I cooperated with ICTP, and everything was great: from services till scientific work. While writing the letter, I was trying to remember something I was not satisfied with, and I found nothing, so unfortunately, I can not advise you on what to improve.
I was a Ph.D. student at the "Institut de Mathématiques et de Sciences Physiques" (IMSP) in Porto-Novo (Benin). I had the opportunity to be a STEP-fellow from 2004 to 2006. My research topic was Mathematical modeling and simulations of crystal growth and diffusion with application to fcc transition metals.

During my first stay from 1 May to 31 July 2004 as STEP-fellow at ICTP, I dealt with the study of the growth of the fcc (110) surfaces of noble and transition metals, taking into account the diffusion of single adatoms and the dynamics of aggregation of small islands using simulation tools, as Classical Molecular Dynamics and Monte Carlo.

I also included a 1-D model for the growth on the (110) reconstructed surfaces of gold, platinum and iridium, confirming the simulation results. I learned and applied the Nudged Elastic Band method to calculate the energy barrier between two minimum configurations and started to write my Ph.D. dissertation.

During my second stay from 1 April to 31 July 2005, I continued to write my Ph.D. dissertation. In particular, exploiting a lot the ICTP library and its Internet connection to the major and important physics journals, I collected successfully the bibliography for my Ph.D. thesis. Moreover, I was approaching to the Car-Parrinello Molecular Dynamics method, in order to complete the panorama of simulation tools, useful to study condensed matter. The first-principle calculations were completely new for me, thus it required a study from the base of the density functional theory up to the details of the “Quantum-Espresso” code, used in ICTP. As an example, I started to study the absorption of a water molecule on the basal surface of the hexagonal ice. After this stay, I came back to IMSP (my affiliation in Porto-Novo/Benin), and discussed and received my Ph.D. in November 2005.

During my last stay from 20 April to 20 July 2006, I started to study the absorption of a hydrogen chloride molecule by water hexamer using the Car-Parrinello Molecular Dynamics method. This is a problem of great
importance in atmospheric chemistry, and the first-principle approach is the only one, since it is very difficult to describe with semi-empirical potentials the interaction between water molecules and with the hydrogen chloride molecule. The goal is to understand whether and under which conditions the water cluster can cause the dissociation of the absorbed molecule. It is a work in progress, due to the long computational time required to do it. The preliminary results seem to be satisfactory, and I would have liked to have had more time to completely finish this work.

During the STEP period, we published:


It was a very good experience, during which I became familiar with a dynamical way to do research; ranging from the easy possibility to get articles and books and up to the good computational facilities. I sincerely appreciated working with Dr. Francesca Baletto and Professor Sandro Scandolo of the Condensed Matter Group of ICTP, who provided me with useful and helpful assistance, in particular in computational problems.

I would like to thank again the ICTP/IAEA-STEP-programme for giving me the opportunity to take advantage of the training and research facilities offered by ICTP.

Presently, I don't have any position. I applied for a lecturer position at universities in my country (Cameroon), but up to now, I don't have any response. I am working on a project started during my last STEP stay, with Prof. Sandro Scandolo, from whom I obtained a one month stay within the Condensed matter short-term visit programme, from 13 November to 11 December 2006.

I would like to take the opportunity to ask if it could be possible that the STEp programme provide us with some recommendation letters which in my opinion could be helpful.
YOLONG VICKY YOLANDE TAFFOTI
CAMEROON

My research topic is entitled "Dynamics of Rings of Nonlinear Electromechanical Systems with Rigid and Flexible Arms". This work is supervised by Professor Paul WOAF0 of the Laboratory of Nonlinear Modeling and Simulation in Engineering and Biological Physics in the Faculty of Sciences of the University of Yaoundé I in Cameroon. My host institute supervisor during my stay in ICTP is Professor Katepalli R. Sreenivasan.

I would like to thank the ICTP/IAEA STEP-programme for this support that has given me the opportunity to take advantage of the training and research facilities offered at ICTP to progress in my Ph.D work.

It is always a good experience for me when I am in ICTP. In ICTP I have the possibility to be familiar with a dynamical way to do research, ranging from the possibility to find easily articles and books for a good bibliography review through the huge computational tools. My advisor in ICTP always finds time for fruitful discussions with me and always gives me useful suggestions. I am indebted to him.

During my first stay at ICTP as a STEP fellow, from 3 April 2005 to 30 July 2005, I have continued my studies on the mathematical modeling and simulation in nonlinear dynamics and its applications in physical and mechanical engineering. I have completed the computational work on the calculation, detection and quantification of chaos in fractals and complex systems. Most of the important elementary concepts and useful results were discussed: fractals dimension, Lyapunov exponent, bifurcation diagram, phase portrait, strange attractors, stability analysis in one or two dimensional maps, and in one, two or three dimensional flow.

After this stay in ICTP, when back at my home institute, one paper was published: "Synchronization in a ring of mutually coupled electromechanical devices" V. Y. Taffoti Yolong and P. Woafo, *Physica Scripta* 74 (2006) 591-598.

During my second stay at ICTP as a STEP fellow, from 30 April to 31 August 2006, the dynamics of electrostatically actuated micro-electro-
mechanical systems (MEMS) have been studied. The field of MEMS is an enabling technology and various investigations have been carried out by both industry and research institutes. In our work, a nonlinear modal analysis approach is applied to decompose the partial differential equation into a set of ordinary differential equations. The stability analysis of the equilibrium points is investigated. The amplitudes of the harmonic oscillatory states in the triple resonant states are obtained and discussed. Chaotic behavior is investigated using the bifurcations diagram and the largest Lyapunov exponent. The dynamics of the MEMS with multiple functions in series is also investigated as well as the transition boundaries for the complete synchronization state in a shift-invariant set of coupled MEMS devices.

During this stay at ICTP, one paper was published as an ICTP preprint: “Dynamics of electrostatically actuated micro-electro-mechanical systems”.

The present work at my home institute is an experimental one. A damped harmonic mechanical oscillator coupled to a chaotic electrical circuit using only resistors, capacitors, electronic multipliers AD 633 JN, inverting and integrating operational amplifiers LF 356 is described. This electromechanical system shows a rich variety of dynamical behavior. The synchronization of two coupled electromechanical devices is also investigated using the coupling strength between them as the control parameter. Experimental results and numerical simulations of the derived mathematical models are included.

This work was supported also by the Academy of Sciences for the Developing World (TWAS) under Research Grant No. 03-322 RG/PHYS/AF/AC.
I have an MSc. in Optics and teaching and am a research assistant at the Institute of Physics, Faculty of Natural Sciences and Mathematics, University “Sts. Cyril and Methodius”, Skopje, R. Macedonia.

I took part in the STEP programme for a period of 10 months between 13.03.2006 and 12.06.2006. I intend to be back for the next visit between 11. 02.2007 and 11. 09. 2007. The proposed title for my Ph.D. thesis is: Diffractive optical elements which generate beams with phase singularities.

My home advisors are Professor Ljiljana Janicijevic (Faculty of Natural Sciences and Mathematics, Skopje, R. Macedonia, tel.00389 2 3224478) and Dr. Dan Cojoc (Lilit group, TASC-INFM, Elettra, Trieste, Italy). The coordinators at ICTP are Professor G. Denardo (ICTP) and Dr. M. Danailov (Laser Lab., Elettra).

The work that I’ve been doing in my country is theoretical and in the field of diffractive optics. For my Ph.D. thesis I am working on generation of phase singularity laser beams and nondiffracting laser beams by means of diffractive optical elements (D.O.E.) with specially designed geometry. In the first period of my STEP programme I learned how to make an experimental characterization of these theoretically treated D.O.E. using a spatial light modulator. It was a valuable, interesting and quite fruitful experience for me to get an experimental knowledge, and thus to broaden my way of researching and thinking through theory and through experiments. I am not able to do experimental work in my country because of the leakage of the instrumentation. I am thankful to have an opportunity to learn not just these experimental techniques, but also some application of the phase singularity beams in optical tweezers, from my supervisor here, Professor D. Cojoc.

During the second period of my STEP programme, which I will start now, I will continue with application of the laser beams with phase singularities in optical manipulation of small particles, proteins---work which is quite modern, interesting and impossible to do in my country.
All the experience I am getting here, in the lab, in contacts with other scientists and during the winter colleges, is very helpful for me, not just as a researcher in optics, but more, as a teaching assistant in optics at my University, in the process of transferring my knowledge and love of optics to my students.
JIAFENG ZHAO

CHINA

I am from the Physics Department, Fudan University, Shanghai, P.R. China. I am now in my third year for my Ph. D. degree (in China it usually takes 5 years for a candidate to get the Ph. D. degree).

My research focuses on growing metal oxide films using ozone assisted MBE (Molecular Beam Epitaxy), and we are building one MBE chamber that would be connected to our current Angular Resolved Photoemission (ARPES) system. As we know, ARPES is very powerful in measuring the electronic structure of materials. However it is quite sensitive to the quality of the single crystal and surface, and this restricts the application of this technique. If we could combine ARPES and MBE together, then we may grow and study some quite unique materials in-situ. Moreover, ozone assisted MBE is a very advanced technique which uses ozone instead of oxygen plasma during the growth and this would reduce the impurity and improve the quality of the films.

For this reason I applied to the STEP programme to work with Dr. Bruce Davidson in TASC-INFM National Laboratory. He is an experienced scientist in this field and is now constructing his own system at Elettra Synchrotron Radiation Facility. Beside the MBE technique, our collaboration also includes measuring samples using Synchrotron Radiation. That means if I have grown some interesting films in China but need to study them using light source more than our helium lamp, I may bring the recipe to Elettra, apply for some beam time, and then grow and measure these films in-situ using his system.

I think the configuration of the STEP programme is very good, especially for my situation. Every year for 3 months I have the chance to work with scientists abroad to learn advanced techniques and theory which I may use during the rest of the year to improve research in China. And I plan to use the first period to study Bruce’s system while designing ours. Then for the next periods we may learn the recipe and grow our own samples.

My first period of the STEP programme was from March 2006 to June
2006. I helped Dr. Bruce with building and calibrating his Oxide-MBE system. Together we installed the shutters, the evaporators, and RHEED and other components and I helped in assembling the manipulator. Please forgive me that I can’t list everything in detail because it is such a big project. But Bruce explained me every single component of the system and taught me how to use it. And finally I am glad to see the system is almost ready for growing and at the same time I have learned a lot about how to build such a system.

Moreover, Bruce taught me not only the technique but also the theory in growing oxide films and many times we discussed about the new materials which would be interesting to study. This is quite helpful because I was a beginner in this field and this technique is so new that in China no one has done this before. Bruce gave me a lot of literature which is really helpful for my learning.

During my stay in Trieste I started to design our own system. Although there exist many differences between Bruce’s system and ours, I have to say the design progressed quite effectively because everyday I was working with one real system and I could clearly see the excellences and the defects. It is then easier for me to make and improve the design. And every time I finished my design, I would show it to Bruce and ask for his suggestions. He was always willing to help and gave a lot of useful suggestions.

After working with Bruce for such a long time, I have to say he is such a nice man that I really appreciate the time I spent learning and discussing with him and I am sure the collaboration will benefit both of us a lot.

Furthermore, I really appreciate the technical service and support in ICTP and TASC-INFM. And I have made friends with many of them. They were very friendly and helped me a lot when I was working there. And I also learned a lot from them.

After returning from Trieste, I discussed with my supervisor in China for the design of the MBE system. We together just made a few corrections to make sure it was compatible with our current system. And then the order was placed to the company, and in 10 weeks the chamber was delivered. And for our own MBE system, I had to prepare other components for the system. Since we have a tight budget, we can not simply buy everything from a commercial company. For some part, for example, the evaporators and the ozone system, we have to make them ourselves. This is not an easy job because it is quite complex. However Bruce helps me a lot by email and telephone. And I think now we together have made some
progress. Now there is still something left to order and to prepare for the whole system. But it is not too much. And I plan to take the second period of my STEP programme from March to June this year. During this time, my goal is to learn to find some recipe and finally gain the capability of running such a system. So when I am back from Trieste, most of the components would be delivered to my home institute and I could start with our own MBE system.
VITALY ZUB

BELARUS

My topic of scientific research is in the field of semiconductor physics. More specifically, I study optical, luminescent and laser properties of epitaxial layer and heterostructures based on wide-band-gap semiconductors such as Ga(In,Al)N and Zn(Cd,Mg)Se(S). The title of my PhD thesis is "Radiative and laser properties of epitaxial layers GaN and heterostructures based on InGaN (grown) on silicon substrates". I have already finished writing the text. After my scientific advisor approves it and weaknesses are eliminated, I will officially defend my thesis. I hope to finish all the formalities before the end of this year.

Yes, I can rate highly the experience gained in the Laser and Fibre Optics Laboratory at Elettra Synchrotron during my STEP programme granted me by ICTP. First of all I got to know the equipment and conventional methods for measurements of fast processes, which I could not to do at my home Institute. I carried out some experiments on time-resolved photoluminescent spectroscopy of samples important for my PhD thesis. Having available the necessary equipment I have developed and realized a new original method of measurement of non-equilibrium carrier lifetime. It permits the determination of the carrier relaxation transients at conditions maximally approximated to those of optical excitation of lasing in epitaxial layers and heterostructures. Carrier lifetimes may be determined in both regimes of stimulated and spontaneous recombinations. Some experiment on selective optical excitation of luminescence and lasing in InGaN/GaN multiple quantum well heterostructures grown on sapphire and silicon were done.

One article containing the results obtained during the STEP programme was published in the Proceedings of Belarusian-Russian Workshop "Semiconductor lasers and systems"–2005. A manuscript of a paper describing the above mentioned new method is being written. During my stays in Trieste I have gained some experience in LabView programming so I was able to create a programme for my experiments. The programme drives quite complicated equipment and greatly improves the speed and accuracy of measurements. It is also pleasant that my programme was found to be useful for purposes not connected with only my experiment but also for other types of measurements being carried out in the Lab.
have already used this experience also in my home Institute and it was appreciated by my scientific supervisors.

Another excellent opportunity provided by my association with ICTP was to study scientific literature from journals basic for my field, available in the ICTP library. During my stays in Trieste I could easily get to know the new main results appearing in the subject of my scientific interest and my Ph.D. thesis. It was the only possibility for me to write high quality review chapters in my Ph.D. thesis, because a vastly limited amount of international journals are available from the Central library of the National Academy of Sciences of Belarus.

The scientists with whom I was associated were responsive to my needs. I had all opportunities to work and met any assistance from the side of my advisor and others. Of course, they had their own work and equipment was not always at my disposal when I wanted it. But this is quite natural.

I have also some advice for the STEP programme. I think that the home scientific advisor should visit the STEP fellow in the middle or end of their first visit (or twice). In my case it was almost at the end of my last stay. During his visit my advisor generated some new ideas but there was no time to realize them. I described to him all the equipment when I returned, but it is better to see with one's own eyes to clearly imagine the real conditions.

It would also be very fine if STEP fellows could be associated with scientists having similar scientific interests. This could assist in establishing international relationships and doing joint publications not only between the STEP fellow and host but also between different STEP fellows.

I should note that the amount of stipend paid to STEP fellows is more than enough for covering living expenses in Italy. In the case of economical money spending to which STEP fellows from poor states are accustomed, quite an essential sum can be saved. This allows young scientists to remain in science and not go into business, commerce etc. which promise higher level of well-being. I think the current amount of fellowship should be kept.

I express my gratitude for the STEP fellowship granted me by ICTP/IAEA, ex STEP fellow, junior scientist of Laboratory of semiconductor physics and technique of Institute of physics of National Academy of Sciences of Belarus, Vitaly Zub
The essays in front of you are written by the Diploma students (about 125 responded to my request), and the SANDWICH students (about 25 responded). The response rate is not unreasonable, considering how connections become exponentially weaker in time. These articles clearly show how enormously successful these students have been, and how strongly they feel that ICTP was behind that success. Their gratitude is strong because they realize that ICTP was the necessary stepping stone for their success. You will see many mentors mentioned by name. I am at once proud, pleased and grateful for it all. I can only hope that the successful students don’t forget ICTP’s philosophy, which is to share one’s good fortunes with those less well endowed.

- from the preface