The role of the Office of External Activities (OEA)in Latin America and the Caribbean:

An Abdus Salam ICTP 25-year pathway for progress of science in the emerging world



A 5-year Report (2007-2011)



Foreword

The year 2010 was a significant date for the Abdus Salam International Centre for Theoretical Physics (ICTP). Firstly, that year was the 25 anniversary of the creation of the Office of External Activities (OEA), one of the major efforts of this Centre for sponsoring the progress of science in the emerging nations. Secondly, the ICTP started the Strategic Plan 2010-2014 ("*Science and Development for a Changing World*"). This forward-looking instrument for guiding the pathway that the ICTP is to follow in the near future intended to provide a vision and to identify clear goals, in order to move forward from the considerable and laudable achievements of OEA during its first 25 years.

We have organized this report along this line of action, stressing the achievements of the OEA during its first quarter of a century. For this purpose we have drawn a series of 11 diagrams and charts with the most significant year, namely, 2010, the data for which is available in the OEA files. This compilation of data is intended to serve as a basis for subsequent appreciation of the progress in years 2010-2014, beginning with a complete set of data in a large set of tables for the years 2007-2011. The initial step taken in this Report, uses the information received by the OEA, which is now complete and is fully incorporated in the present work.

In the appendices we have provided the set of 39 tables including the new 2011 data. (Subsequently, the same updating will be done for the remaining years covered by the ICTP Strategic Plan, namely the years 2012, 2013 and 2014.

To review the work of the OEA was a singular privilege, as well as a daunting challenge that in July 2010 the author gladly and eagerly undertook by the kind invitation of the ICTP Director Professor Fernando Quevedo.

There was no precedent for such a task, in spite of the considerable amount of excellent and significant work that the OEA—a cornerstone of ICTP influence in the emerging countries—had done for over a quarter of a century. In view of the considerable size of the OEA archives, it seemed reasonable to restrict our attention only to a brief and significant recent period for which the data available was complete and rapidly increasing due to the recent acceleration provided by the current ICTP Strategic Plan.

This report has been constrained to the period 2007-2011. Besides the present Report, three additional Regional Reports are in preparation for Africa, Asia and Latin American/Caribbean regions. They will also be focused on the same 5-year period as the present work.

We hope that this Report will help to fully appreciate the high priority that this Office has recently been granted within the well-focused ICTP Strategic Plan for the period 2010-2014.

Professor Julian Chela-Flores http://www.ictp.it/~chelaf/ Adjunct to the OEA Staff Associate ICTP 1 December 2012

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Last, but certainly not least, thanks are due to the Head of the OEA Office, Dr. George Thompson, for his continued relevant, critical and constructive advice with timely suggestions since July 2010.



Introduction

The Office of External Activities (OEA) was established in 1985 and is currently headed by Professor George Thompson, research scientist of the High Energy, Cosmology and Astroparticle Physics Scientific Section, who joined the OEA in 2005. For a brief history of the Office we refer to Appendix 1.

The objective of OEA is mainly to help the research and training activities of physicists and mathematicians living and working in developing countries. OEA provides assistance to scientists in their home countries. Such support complements the training and research provided to scientists from developing countries at the Abdus Salam ICTP. The OEA programmes provide funds for student grants, fellowships for young researchers, visits of research collaborators and other activities.

The OEA actions are aimed at providing a backup to individuals, groups or institutes in the developing countries to accelerate their promotion to an international level (North-South collaboration) and to stimulate networking of scientists in the developing regions to reach a critical mass of researchers (South-South collaboration).

The present administration of the ICTP has undertaken a Strategic Plan for the period 2010-2014 "Science and Development for a Changing World". In this document it is ratified that the ICTP has a dual mission: to pursue high quality research and to nurture science in the developing world. In order to achieve these goals, the ICTP intends to enhance substantially the role of OEA by a complementary set of activities:

- Affiliated Centres
- Projects
- Networks
- Visiting Scholars/Consultants
- Scientific Meetings

with a new major activity focusing on the creation of ICTP branch institutes.

The purpose of the present report is to assess what the OEA has done regionally over a period of 5 years. The academic activities are illustrated with graphics and images. The emphasis has been placed on the turning point of the renewed efforts of the ICTP. The graphics show the OEA work for the first year of the ICTP Strategic Plan for the period 2010-2014, while the data for the period 2007-2011 has been reported in the appendices.

The Affiliated Centre Programme

An Affiliated Centre is an Institute or University Department of Physics or Mathematics that carries out a specific long-term research project on a definite subject with well-defined purposes. The Affiliated Centres have a regional character and are strongly supported by the local authorities and the hosting institute. The work corresponding to the period 2007- 2011 can be consulted in Appendix 1. In some more detail in 2011 the OEA supported 7 Affiliated Centres with 1 of them in Africa. In Fig. 1 we show the distribution when the major effort of the OEA began to line up with the current ICTP Strategic Plan:



Fig. 1. Distribution of Affiliated Centres supported by the OEA. (The data refers to the year 2010.) The full data for the period 2007-2011 is shown in Appendix 1.

The Affiliated Centres focus on mathematical sciences and physical sciences. A remarkable success of the African centres is that at present they have continental coverage, while so far in the other three regions they are more restricted to their national area of influence.

THE LATIN AMERICAN AND CARIBBEAN AFFILIATED CENTRE

The Instituto de Matemática y Ciencias Afines (IMCA) is an Affiliated Centre located at Lima, Peru (cf., Fig. 2). In 1989 the Institute began a programme supporting the regional development in mathematics in Peru. Its funds came from the Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy. This programme was based for its scientific organization on the Instituto de Matematica Pura e Aplicada (IMPA), Rio de Janeiro until 1997.

Since that date IMCA took over regional development. This Institute belongs to the Universidad Nacional de Ingenieria (UNI), a polytechnic school that receives the best Peruvian students in sciences and engineering. The initial project was prepared by special request of Professor Abdus Salam who strongly encouraged the establishment high-level mathematical activities in Peru.

From the early support provided by the OEA, IMCA began to set up a library that was a focal point for the whole country. Besides its affiliation with the OEA,

IMCA benefits from associated institutes and universities, such as Pontificia Universidad Catolica del Peru, Universidad Nacional de Ingenieria, Instituto de Matematica Pura e Aplicada (IMPA), Rio de Janeiro, Brazil, Centre International de Mathématiques Pures et Appliquées (CIMPA), Nice, France and Centre de Recerca Matematica, Barcelona, Spain. [*From the IMCA website http://www.imca.edu.pe/sitio/.*]



Fig. 2. Instituto de Matemática y Ciencias Afines (IMCA), Lima, Peru.

Throughout all its Affiliated Centres the OEA has encouraged graduate schools. The distribution of all the graduate students supported by the OEA is shown in Fig. 3:



Fig. 3. In 2010 the Office was supporting a group of 19 PhD (or Troisième Cycle) students with partial, or with full support. The OEA has sponsored other graduate school programmes in Africa and Latin America, including Master, or Diploma courses.

Projects

Given the lack of trained personnel in physics and mathematics at universities in some developing countries and the fact that many students from these countries who pursue their graduate studies in industrialized countries do not return to their countries of origin, the OEA supports specific PhD courses.

The OEA also supports several research projects that do not currently fit the category of Affiliated Centres. In 2011 there were 9 active projects, of which 1 is in Latin America and the Caribbean. The areas of research covered are: Earth Sciences, Mathematical Sciences, Physical Sciences and Space Sciences. Post-doctoral fellows and graduate school students, mainly Ph.D. candidates, are implementing the research projects. In the year 2011 the OEA was supporting altogether 20 Ph.D. students distributed amongst its 9 Projects. The Office is also supporting other graduate students amongst these projects.

In Fig. 4 we show how the situation stood in the year 2010:



Fig. 4. Distribution of projects supported by the OEA in the year 2010.

The areas of research covered are: Earth Sciences, Mathematical Sciences, Physical Sciences and Space Sciences. The majority of these projects are in Africa and Asia with a presence in East Europe and Latin America and the Caribbean. Post-doctoral fellows and graduate school students, mainly PhD candidates with a strong representation from African nations, are implementing the research.

The graduate student distribution for the period 2007-2011 can be consulted in Appendix 2. In detail, by regions the work corresponding to 2010 is shown in Fig. 5:



Fig. 5. The distribution of graduate students supported as part of the Projects Programme.

THE LATIN AMERICAN AND CARIBBEAN PROJECT

The Diploma Programme is a project that is based at the Instituto Balseiro, Bariloche, Argentina (cf., Fig. 6). The Institute was founded in 1955 but was named in honour of physicist Dr. José Antonio Balseiro in 1962. Dr. Balseiro (1919 – 1962) was director of the physics department of the Facultad de Ciencias Exactas y Naturales of the Universidad de Buenos Aires. The Institute admits students who have completed two years of university studies (either in Physics or Engineering) and have implemented a careful admission procedure since 1958. The collaboration with the OEA involves a Diploma Programme, leading to a Master Degree. The Diploma/Master Programme started in the year 2003 as a one-year programme.

From the year 2006 it became a full Diploma/Master Programme with two possible orientations "Particles and Field Theory", including astrophysics, cosmology field theories and string theory.

The second orientation is in "Condensed Matter", which includes strongly correlated electrons, superconductivity, semiconductors, low dimensional systems and magnetism [*From the Report on the Evolution of the Diploma/Master Programme, Bariloche, October 25, 2006.*]



Fig. 6. Instituto Balseiro, Bariloche, Argentina.

The Network Programme

A Network is a system of research groups in an entire region, or among different regions, that pursue a common scientific project over an extended period. The OEA supports networks because they are an efficient approach to overcoming the problem of isolation and counteracting the brain drain. The ICTP emphasises South-South collaboration and the sharing of expertise and facilities. At present the Centre supports 11 networks in mathematical and physical sciences. There are 3 networks in Latin America and the Caribbean:

1. The Caribbean Network of Quantum Mechanics, Particles and Fields, based in Cuba.

2. The Centro Latinoamericano de Fisica (CLAF), based in Brazil.

3. The Latin American Network of Ferroelectric Materials, based in Havana, Cuba.

But the area of influence of the Networks is much wider, the Latin America and Caribbean networks cover Argentina, Brazil, Chile, Colombia, Cuba, Mexico and Peru. The related research is leading to 39 doctoral theses spread over the abovementioned three regions, as well as by 19 other graduate school students.

In Fig. 7 we show how the situation stood in the year 2010:



Fig. 7. Distribution of Networks supported by the OEA in the year 2010.

The regional distribution for the year 2010 is shown in the Fig. 8:



Fig. 8. The distribution of graduate students supported as part of the Network Programme.

THE LATIN AMERICAN AND CARIBBEAN NETWORKS

The Caribbean Network of Quantum Mechanics, Particles and Fields is based in Cuba. It began its association with the ICTP in 1998. It has been responsible for a large number of publications and its influence has gone beyond its national boundaries. This network enjoys a fruitful collaboration with Mexican and Brazilian academic centres (cf., Fig. 9):



Fig. 9. Aerial view of the University of Sao Paolo, Brazil that takes part in the Network collaboration.

The groups forming this Network are focused on four areas of expertise:

Firstly, electronic and optical properties of molecular and semiconductor nanosystems arising from a collaboration between the Centre of Applications and Nuclear Development (CEDEAN) and the Faculty of Chemistry of Havana University. Secondly, astroparticle physics and cosmology coordinated at Instituto de Cibernetica, Matematica y Fisica (ICIMAF), Havana, Cuba (cf., Fig. 10) with a collaboration extending from ICN of Universidad Autonoma de Mexico to the University of Porto Alegre in Brazil.



Fig. 10. The ICIMAF building where the Departments of Mathematics and Theoretical Physics are located.

Thirdly, external fields in quantum field theory. This node of the Network is coordinated once again from ICIMAF and its collaborations extend to Centro Brasileiro de Pesquisas Fisicas (CNPF) and University of Sao Paulo, Brazil.

Finally, quantum field theory and its applications in high energy physics and condensed matter physics, coordinated from ICIMAF and extensive collaborations ranging from Universities of Sao Paulo and Para, both in Brazil; Pontificia Universidad Catolica de Chile, Santiago and Universidad Catolica del Norte, Antofagasta, Chile.

Centro Latinoamericano de Fisica (CLAF) is based in Brazil at Centro Brasileiro de Pesquisas Físicas (CBPF), in Rio de Janeiro with continental influence and a long history of stimulating various countries of that region (cf., Fig. 11).

CLAF was founded two years before the Abdus Salam ICTP. Since then it has been a robust promoter of South-South Cooperation. An early Cooperative PhD Programme has been maintained to the present, in which the origin of the students was from a wide range of countries, including Argentina (at the Universidad de la Republica de Montevideo), Cuba and Paraguay (at the Centro Atomico, Bariloche, Argentina), Bolivia, Mexico and Peru (at the Centro Brasileiro de Pesquisas Fisicas).



Fig. 11. The Mario de Almeida Pavilion is the venue of the CLAF offices. This Centre was founded on 26 March 1962, in a joint meeting between UNESCO and the Brazilian Government, in Rio de Janeiro, with the participation of 20 Latin American countries.

In subsequent years the Graduate Schools of the Latin America and the Caribbean Region proceeded along the same lines producing a large number of scholars that graduated at the PhD level due to this fruitful Network. The areas that are being stimulated includ astroparticle physics, statistical mechanics, nanomaterials, general relativity and medical physics. [From: 40 Years of CLAF, A Faheem Hussein monograph, 2002; Report of Luis Masperi, 1999].

The Latin American Network of Ferroelectric Materials is based in Cuba with its main node at La Havana University, but with fruitful exchanges with Brazilian institutes (cf. Fig. 12).



Fig. 12. The University of La Havana, where the Latin American Network of Ferroelectric Materials has its main node.

Since its inception in 2000 with 7 member institutions the Network has doubled in size. It has consistently contributed to linking the national community in ferroelectric materials with other countries in Latin America.

In recent activities a special effort has been made in the relevant area of the wider use of experimental techniques, including scanning and transmission electron microscopy observations (SEM and TEM), dynamic recrystallization (DRX) and extended X-ray absorption fine structure (EXAFS).

Visiting Scholars/Consultants

This programme promotes collaboration between scientists working in institutions in the developing countries and leading scientists throughout the world. The Visiting Scholar/Consultant is required to make at least two research visits over three years, each lasting at least a month. The Visiting Scholar/Consultant carries out joint research with his counterpart and lectures students in his or her field of expertise. This is another effective way to counteract the isolation of scientists and to allow them to maintain contacts and collaborate with leading experts from other countries. There are currently 21 active Visiting Scholars of which 8 are from Latin America and the Caribbean.

In detail the programme of Visiting Scholars is being implemented in 2011 by a system of 21 grants that are distributed in the following areas: Earth, Life, Mathematical and Physical Sciences. In Latin America and the Caribbean the countries involved in the programme are: Argentina, Brazil, Cuba and Perú.

The programme of Visiting Scholars implemented earlier, in 2010, was by a system of 24 grant distributions in the areas according to Fig. 13.



Fig. 13. Distribution of Visiting Scholars supported by the OEA.

In 2010 there were 24 active Visiting Scholars, of which 1 was awarded in the course of that year to visit an institute in Brazil.

Regional encouragement

We would like to emphasize two aspects of the regional encouragement of the OEA: South-South and North-South cooperation. The active programme of Visiting Scholars for the emerging countries that we are supporting are, in a good proportion, scientists from the South itself—a fact that we are pleased to highlight. For the year 2011 these programmes included 5 South-South cooperation agreements that OEA has been sponsoring. While the Visiting Scientists from Europe, North America and Oceania are distributed among 11 nations (Australia, Austria, Belgium, Canada, Denmark, France, Italy, Poland, Spain, United Kingdom and the United States) those coming from Latin America and the Caribbean, are from two nations: Brazil and Cuba.

Besides, in Latin America and the Caribbean 2 South-South collaborations have been established: Argentina-China and Brazil-Cuba.

On the other hand, the OEA has 16 North-South cooperation agreements of which Latin America and the Caribbean have 6 active collaborations: Argentina-Spain, Brazil-France, Brazil-UK, Cuba-Belgium, Cuba-Italy and Peru-Denmark.

For comparison purpose, in Fig. 14 for the year 2010 we show the world distribution of South-South cooperation:



Fig. 14. Worldwide distribution of South-South cooperation supported by the OEA.² Colour code: Nation of origin of the Visiting Scholar (red), host country (green). The insets: (centre) comparison of the regional cooperation that has encouraged by the OEA; (left) relative distribution of the regional collaborations that have been encouraged by the OEA.³

On the other hand, in that year the OEA North-South cooperation agreements were distributed, as shown in Fig. 15.



Fig. 15. Worldwide distribution in 2010 of North (red)-South (green) cooperation supported by the OEA.³

Scientific Meetings

The OEA encourages the organization of international and regional scientific meetings in developing countries by offering financial assistance to the organizers of conferences, workshops, and schools.

In 2011 the OEA distributed 67 grants in five areas of knowledge: climate, education, mathematical sciences, physical sciences and space sciences. The grants assigned to the meetings in Latin America and the Caribbean were for 17 events in the following countries: Argentina (4), Bolivia, Brazil (2), Chile, Colombia (3), Cuba (2), El Salvador (2), Honduras and Mexico.

For comparison purposes the distribution of grants for scientific meetings supported by the OEA regionally in the year 2010 are shown in Fig. 16 (23 were for Latin America and the Caribbean).



Fig. 16. Worldwide distribution of grants supported by the OEA for scientific meetings.⁴ Inset: Distribution of grants for scientific meetings supported by the OEA.

APPENDIX 1: Affiliated Centres (2007-2011)

In the tables below we list those students that were supported with ICTP funds. Research papers are listed as published or submitted. Those submitted in one year are most probably part of those that are accepted in the following year.

Instituto de Matematica y Ciencias Afines (IMCA), Lima, Peru

Because of the type of courses that are followed (2 types of Master programme) and the split of the academic year the numbers below refer to an average over students. The first PhD student from the institute was awarded in 2006. Three students received their Master degrees in that year. (Their academic activity (publications) is mainly implemented by means of a substantial number of book publications.)

Year	Fellow	ships	Obtained		Gender	Resear	rch papers
	PhD	MSc	PhD	MSc		Published	Submitted
2007	5	14	1	3			
2008	4	11	1	1	_	_	—
2009	4	15	_	1	—	2	—
2010	3	15	1	2			_
2011	3	14		5			—

APPENDIX 2: Projects (2007-2011)

Diploma Programme based at Bariloche, Argentina

Year	MSc	Obtained (MSc)	Research Papers				
			Published	Submitted			
2007	3	1	—	—			
2008	4	3	—	—			
2009	5	1	—	—			
2010	2	2	—	—			
2011	3	_	—	—			

APPENDIX 3: Networks (2007-2011)

Caribbean Network of Quantum Mechanics, Particles and Fields, based in Cuba

Year	Ph.D/Troisieme Cycle	MSc	Research Papers		
			Published	Submitted (or in ArXiv)	
2007	2	2	12	3	
2008	—	—	8	5	
2009	4	4	—	—	
2010	4	1	15	3	
2011	4	3	13	2	

In addition, there has been support for post-doctoral fellows; several events wereorganized.

CLAF (Centro Latinoamericano de Fisica) based in Brazil with continental influence (especially Brazil, Cuba, Mexico and Peru)

Year	Ph.D/Troisieme Cycle	PhD (approved)	Research Papers	
			Published	Submitted
2007	9 PhDs:	_	2	_
	2 Cubans in Brazil.			
	3 Cubans in Mexico.			
	1 Bolivian in Brazil.			
	1 Colombian in Mexico.			
	2 Peruvians in Mexico.			
2008	5 PhDs:	_	3	_
	1 Peruvian in Mexico (female).			
	1 Peruvian in Mexico.			
	1 Colombian in Mexico.			
	2 Cubans in Mexico.			
2009	3 PhDs:	_	_	_
	1 Cuban in Mexico.			
	1 Colombian in Brazil.			
	1 Cuban in Brazil.			
2010	11 PhDs:	_	3	1
	1 Peruvian in Mexico.			
	1 Colombian in Mexico.			
	1 Cuban in Mexico			
	(completed the degree).			
	1 Cuban in Cuba (female).			
	7 others.			
2011	5 PhDs (Cuba).	2	7	3
	3 PhDs (Brazil).			
	2 PhDs (Mexico).			

Year	Support for training, fellowships and field work	Other	activities	Publications	
		Conference organization	Travel Support	Published	Submitted
2007	5 students	 Course on electron paramagnetic resonance. Course on crystal growth and polarized light microscopy 	 1 lecturer at the EPR course. The head of the Network visited the University of Puebla, Mexico. 	13	1
2008	2 Mexican students 1 Colombian student	• Course on piezoelectricity and piezoelectric materials	1 Mexican lecturer (F) 6 students: from Mexico (3), Colombia and Brazil (2).	15	6
2009	1 Cuban to Mexico 1 Cuban to Colombia 2 Mexicans and 1 Brazilian for the TF course	 Course on ferroelectric materials. Course on thin films. 	 The head of the Network visited the University of Guadalajara for research activities. 1 Mexican lecturer. 1 Brazilian lecturer. 	7	10
2010	2 PhD students planning their theses (1 F)	• Course on impedance spectroscopy	•For 2 graduate students •Travel grants for 2 scientists	11 (and 2 chapters in books).	5
2011	2 PhD students planning their theses (1 F)	• First Meeting of Young Network Researchers (at ICIMAF, Cuba)	 Travelling support for 2 PhD Cuban students to visit Brazil. Travel grant for Network scientists to visit Brazil. 	9 (and 5 additional ones in proceedings).	4

Latin American Network of Ferroelectric Materials based in Cuba (influencing Colombia and Brazil)

Seismic microzoning of Latin American Cities (SMLAC), based in Havana, Cuba

Year	Support for training, fellowships and field work	Other activities (Travel Support)	Public	cations
			Published	Submitted
2007	1 Meeting in Jamaica. 1 Meeting in Caracas.	1 Cuban scientist for each of the two meetings.	1	_
2008	1 Meeting in Caracas.	1 Jamaican scientist (female). 1 Cuban scientist.	_	_

Latin American Network on Slow Dynamics of Complex Systems, based in Havana, Cuba (influencing Argentina and Brazil)

Year	Support for training, fellowships and field work	Ot	her activities	Publica	ations
		Conference Travel Support organization		Published	Submitted
2007	—			—	—
2008	—	_	_	—	
2009	_	_	 Cuban to Argentina. Cuban to Brazil. Brazilian to Cuba. Brazilians to Argentina. Argentinians to Brazil. 	16 were reported for the period 2007- 2008	_

APPENDIX 4: Visiting Scientists (2007-2011)

COUNTRY	2007	2008	2009	2010	2011
Argentina	—	1	1	_	1
Brazil	2	—	—	2	2
Cuba	1	—	1	_	2
Peru	—	—	—		1
TOTAL	3	1	2	2	6

APPENDIX 5: Scientific Meetings (2007-2011)

COUNTRY	2007	2008	2009	2010	2011
Argentina	4	6	10	5	4
Bolivia	1	—	_	_	1
Brazil	3	2	5	6	2
Chile	—	2	2	5	1
Colombia	4	1	1	1	3
Cuba	1	2	—	1	2
El Salvador	—	1	—	—	2
Guatemala	—	—	1	1	—
Honduras	—	—	—	—	1
Mexico	3	—	1	2	1
Nicaragua	1	—	—	_	—
Peru	—	1	—	1	—
Puerto Rico	—	—	—	1	—
Trinidad & Tobago	1	1	—	_	—
Uruguay	1	2	1	1	—
TOTAL	19	18	21	24	17

Footnotes

1. All data in the diagrams refers to the year 2010. The data reported in the Appendices covers the period 2007-2010.

2. We write our data as host country—country of origin of the Visiting Scientist. The OEA sponsored the following South-South collaborations in relation with Latin America and the Caribbean: Morocco-Brazil, Argentina-P. R. China and two between Brazil-Cuba (2).

3. In Latin America and the Caribbean 6 collaborations took place: Argentina-Spain, Brazil-France, Brazil-UK, Cuba-Belgium, Perú-Denmark, Republica Bolivariana de Venezuela-Belgium.

4. In Latin America and the Caribbean 23 events were supported: Argentina (5), Brazil (6), Chile (5), Colombia, Cuba, Guatemala, Mexico (2), Peru and Uruguay.

Photographic credits

Affiliated Centres

Fig. 2. Instituto de Matematica y Ciencias Afines (IMCA), Lima, Peru. Credit: http://www.imca.edu.pe/sitio/index.php

Projects

Fig. 6. One of the Classroom Buildings at the Instituto Balseiro. Credit Wikipedia: http://en.wikipedia.org/wiki/Balseiro_Institute.

Networks

Fig. 9. Aerial view of the University of Sao Paolo, Brazil. Credit Wikipedia: http://en.wikipedia.org/wiki/University of São Paulo

Fig. 10. The ICIMAF building of the Departments of Mathematics and Theoretical Physics. Courtesy of Professor Hugo Perez Rojas.

Fig. 11. The Mario de Almeida Pavilion, the venue of the CLAF offices. Credit: http://www.claffisica.org/index.php?r=site/sobre_claf

Fig. 12. The University of La Havana, where the Latin American Network of Ferroelectric Materials has its main node Credit: Ismael Clark Arxer, UNESCO Science Report 2010.