

Introduction

These proceedings contain the lecture notes of the 2002 Trieste Spring School on String Theory, by B. Acharya, N. Berkovits, K. Hori, J. Maldacena, F. Quevedo and B. Zwiebach. The lectures covered essentially all the most interesting latest developments in String Theory around that period.

B. Acharya reviewed the use of G_2 manifolds in obtaining M -theory compactifications with $N = 1$ four-dimensional supersymmetry, N. Berkovits discussed a novel, covariant approach to superstring quantization with manifest spacetime supersymmetry. K. Hori reviewed recent work on the proof and applications of mirror symmetry to D-brane physics, whereas B. Zwiebach explained the use of string field theory techniques in the very interesting problem of tachyon condensation in Open String Theory.

J. Maldacena gave a set of lectures on the Penrose limit in the context of AdS/CFT correspondence, an issue which was subject of much study in the string theory community because it allows to make quantitative duality checks for non-BPS gauge theory operators and corresponding string excited states. Finally, F. Quevedo gave a set of lectures about the phenomenological implications of string theory, in particular he reviewed the use of D-branes in the construction of “realistic” models of particle unification.

K.S. Narain
August, 2003