



UvA-DARE (Digital Academic Repository)

The spectra of supersymmetric states in string theory

Cheng, M.C.N.

Publication date
2008

[Link to publication](#)

Citation for published version (APA):

Cheng, M. C. N. (2008). *The spectra of supersymmetric states in string theory*. [Thesis, fully internal, Universiteit van Amsterdam].

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

Part I

Superstring Theory

In this part of the thesis I will give an introduction of various aspects of superstring theory. The readers who are already familiar with general knowledge of string theory can safely skip this part and go directly to other topics of interests.

Facing such a vast subject as string theory is now, it is absolutely not my intention to give a complete account of the subjects. Rather I will try to compactly introduce the key concepts and important results that will be crucial for our study of the spectra of supersymmetric states, in systems resulting from various compactifications of superstring theory. This is done as part of the effort to present a self-contained PhD thesis accessible to beginning graduate students of the field and should not appeal to all readers.

This part of the thesis is organised as follows. In the first section I will begin with aspects of perturbative superstring theory from a world-sheet viewpoint. The resulting spacetime physics will be introduced in the second section, with a focus on low-energy effective action and the relationship with spacetime coupling constants and the world-sheet fields. In the last section I will turn to the non-perturbative aspects of the “superstring theory”, where fundamental string loses its fundamental status. Topics included in this section are M-theory and S-duality, D-branes and gauge/gravity correspondence.

