

# SUPERSTRINGS AND SUPERSYMMETRY

[Igor Bandos]

BOSONIC STRING model vs quantum field theory. SUPERSYMMETRY, Superspace, Super-Yang-Mills (SYM), Supergravity (SG). EXTRA DIMENSIONS, D=10 SYM and D=11 SG. SUPERSTRING, Superparticles, p-branes, Dp-branes. Dualities. M-THEORY. Applications (\*in case we still have some time\*): AdS/CFT correspondence, String Landscape, 'Swampland conjectures' and other recent developments.

## Bibliography

- B. Zwiebach, *A First Course in String Theory*, Cambridge University Press, 2004.
- J. Wess and J. Bagger, *Supersymmetry and Supergravity*, Princeton Univ. Press 1992.
- P. C. West, *Introduction to supersymmetry and supergravity*, World Scientific 1986.
- R. Blumenhagen, D. Lust, and S. Theisen, *Basic concepts of string theory*, 2013.
- C. Johnson, *D-branes*, Cambridge University Press, 2003.
- M. Green, J. H. Schwarz, E. Witten, *Superstring Theory*, V1,2. Cambridge University Press, 1987 (2012).
- K. Becker, M. Becker, J. H. Schwarz, *String theory and M-theory: a modern introduction*, CUP 2007.
- L. E Ibanez, A. Uranga, *String Theory and Particle Physics an Introduction to String Phenomenology*, 2012.
- H. Nastase, *Introduction to the AdS/CFT correspondence*, Cambridge University Press, 2015.

The students will be provided with slides in PDF format.

Assessment by **continuous evaluation/homework**.