Module: Elective Advanced Lectures: Theoretical Physics

Module No.: physics70c

Course: Superstring Theory (T)

Course No.: physics752

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture with exercises	English	3+2	7	WT

Requirements for Participation:

Preparation:
Quantum Field Theory (physics755)
Group Theory (physics751)
Advanced Theoretical Physics (physics607) / Advanced Quantum Field Theory (physics7501)
Theoretical Particle Physics (physics615)

Form of Testing and Examination:
Requirements for the examination (written): successful work with the

Length of Course:
1 semester

Aims of the Course:
Survey of modern string theory as a candidate of a unified theory in regard to current research

Contents of the Course:
Bosonic String Theory, Elementary Conformal Field Theory
Kaluza-Klein Theory
Crash Course in Supersymmetry
Superstring Theory
Heterotic String Theory
Compactification, Duality, D-Branes
M-Theory

Recommended Literature:
D. Lüst, S. Theisen; Lectures on String Theory (Springer, New York 1989)
S. Förste; Strings, Branes and Extra Dimensions, Fortsch. Phys. 50 (2002) 221, hep-th/0110055
C. Johnson, D-Brane Primer (Cambridge University Press 2003)
M. Green, J. Schwarz, E. Witten; Superstring Theory I & II (Cambridge University Press 1988)
H.P. Nilles, Supersymmetry and phenomenology (Phys. Reps. 110 C (1984) 1)
J. Polchinski; String Theory I & II (Cambridge University Press 2005)