


**Modules:** physics700 **Elective Advanced Lectures**  
physics730 **Theoretical Physics**

**Course:**  **Advanced Topics in String Theory (T)**

**Course No.:** physics763

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

**Requirements:**

**Preparation:**

Quantum Field Theory (physics755)  
Group Theory (physics751)  
Advanced Theoretical Physics (physics607) / Advanced Quantum Field Theory (physics7501)  
Theoretical Particle Physics (physics615)  
Superstring Theory (physics752)

**Form of Testing and Examination:**

active participation in exercises, written examination

**Length of Course:**

1 semester

**Aims of the Course:**

Detailed discussion of modern string theory as a candidate of a unified theory in regard to current research

**Contents of the Course:**

Realistic compactifications  
Interactions  
Effective actions  
Heterotic strings in four dimensions  
Intersecting D-branes

**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. Repts. 110C (1984)1)  
J. Polchinski: String Theory I & II (Cambridge University Press 2005)