Module: Specialization: Advanced Theoretical Physics

Module No.: physics62c

Course: Advanced Theoretical Particle Physics

Course No.: physics636

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

Requirements for Participation:

Preparation:
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 methods of theoretical high energy physics beyond the standard model, in particular supersymmetry and extra dimensions in regard to current research

Contents of the Course:
Introduction to supersymmetry and supergravity,
Supersymmetric extension of the electroweak standard model,
Supersymmetric grand unification,
Theories of higher dimensional space-time,
Unification in extra dimensions

Recommended Literature:
J. Wess; J. Bagger; Supersymmetry and supergravity (Princeton University Press 1992)
H. P. Nilles, Supersymmetry, Supergravity and Particle Physics, Physics Reports 110 C (1984) 1
D. Bailin; A. Love; Supersymmetric Gauge Field Theory and String Theory (IOP Publishing Ltd. 1994)
M. F. Sohnius; Introducing supersymmtry, (Phys.Res. 128 C (1985) 39)
P. Freund; Introduction to Supersymmetry (Cambridge University Press 1995)