


Module: Specialization II

Module No.: physics630


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:**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 supersymmetry, (Phys.Res. 128 C (1985) 39)
 P. Freund; Introduction to Supersymmetry (Cambridge University Press 1995)