



Universität Hamburg

DER FORSCHUNG | DER LEHRE | DER BILDUNG

CHAMPP

CENTER IN HAMBURG FOR
ASTRO-, MATHEMATICAL AND
PARTICLE PHYSICS

LECTURE COURSE IN THE QUANTUM UNIVERSE RESEARCH SCHOOL

Winter Term 2019/2020

Introduction to Supersymmetry

P. Liendo, E. Pomoni

Course Description:

Supersymmetry is a symmetry between bosonic and fermionic degrees of freedom which today is one of the central topics in High-Energy Physics. It also has growing applications in Mathematics and other branches of Physics. The lecture course offers an introduction to supersymmetry and supergravity and some of its applications, emphasising depth over width.

Specifically the following topics are covered:

- the supersymmetry algebra and its representation theory,
- supersymmetric Lagrangians,
- supersymmetric gauge theories theories,
- extended and higher dimensional supersymmetry,
- the superconformal algebra and its representation theory,
- non-renormalisation theorems,
- non-perturbative effects, holomorphy and Seiberg duality,
- supergravity.

Prerequisites:

Basic knowledge in General Relativity and Quantum Field Theory

Date and Place: Mon, 11:30–13:00, SR 2, Building 2a, Bahrenfeld
Wed, 12:30–13:15, SR 2, Building 2a, Bahrenfeld

Problem Classes: Wed, 13:15–14:00, SR 2, Building 2a, Bahrenfeld

Starting on: 14 October 2019
