Primary Area of Specialization:
General Theory of Relativity / Quantum Field Theory

Module No.: MN-P-SP-GR-QFT

Course: Geometry in Physics

Lecturers: Alexander Altland
Email: alexal@thp.uni-koeln.de

Requirements

Preparation:
Training in theoretical physics at the B.Sc. level

Form of Testing and Examination:
written or oral examination

Length of Course:
1 semester

Aims of the course: The course introduces the background in differential geometry necessary to understand the geometrically oriented languages of modern theoretical physics. Applications include the coordinate invariant formulation of electrodynamics, phase space and symplectic mechanics, and a brief introduction to the foundations of general relativity.

Contents of the course:
- exterior calculus
- manifolds
- Lie groups
- fibre bundles