Magnetism (E/A) - Magnetism

Degree - M.Sc. in Physics (PO von 2014)

Module	**Elective Advanced Lectures: BCGS Courses**
Module No.	physics70d

Course	**Magnetism (E/A)**
Course No.	Magnetism

Category	**Type**	**Language**	**Teaching hours**	**CP**	**Semester**
Elective	Lecture	English	2	3	WT

Requirements for Participation:

Preparation: Basic knowledge in condensed matter physics

Form of Testing and Examination: Oral examination

Length of Course: 1 semester

Aims of the Course: Understanding of magnetism in condensed matter systems

Contents of the Course:

The lecture introduces to the magnetism in condensed matter systems. Starting from basic concepts of the magnetic properties of free atoms it is aimed to illustrate the extremely rich field of collective magnetism that arises from the mutual interaction of an extremely large number of interacting particles.

Topics covered are

Magnetism of free atoms

Magnetism of ions in the crystal electric field

Magnetic interactions and ordering phenomena

Magnetic ground states and excitations

Itinerant magnetism

Magnetic frustration and low dimensionality

Magnetic order vs. competing ordering phenomena

Recommended Literature:

Skriptum (available during the course)

S. Blundell, Magnetism in Condensed Matter

Ashcroft/Mermin, Solid State Physics

Kittel, Festkörperphysik