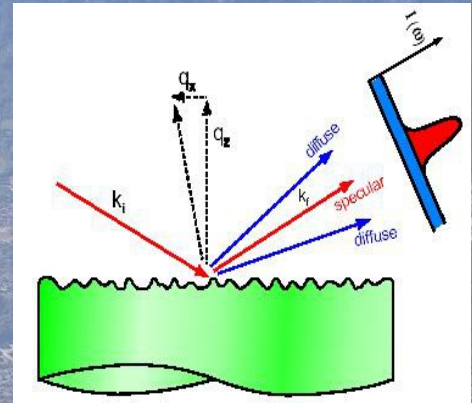


Introduction to Modern Scattering Techniques: Light, X-rays, and Neutrons

zu Wahlpflichtfach "Kondensierte Materie"
(Modul "Condensed Matter") (Diplom or Bachelor/Master)

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Dr. Fajun Zhang
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Every Wednesday 15:15 in C7P22 – First lecture 25.04.2012

The language of the course will be in English, but where necessary a translation to German will be given.

From the contents:

1. General concepts and the scattering process
2. Interaction cross-section
3. General scattering law $S(q, \omega)$ and correlations $G(r, t)$
4. Elastic and inelastic scattering
5. Dynamical scattering
6. Experimental methods
 - laboratory-based techniques
 - synchrotron sources and X-ray lasers
 - neutronen sources
7. Selected systems and examples
 - solids, liquids, thin film, nanoparticles
 - static structures, dynamics, time-resolved studies

After the lecture course we offer a practical course on X-ray and light scattering. An excursion to a large-scale facility (Grenoble, Hamburg, Munich, Berlin) will be discussed.

Further information:

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Literature: The handouts (Skript from the homepage) will be the basis. There are also many textbooks on the subject; see, e.g., Als-Nielsen / McMorro, Elements of Modern X-Ray Physics (Wiley, 2001). The course can be used to obtain the corresponding ECTS credit points.