

Experimental methods in solid state physics

Organisation

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Homepage II. Physik -> Lehre -> Vorlesungen & Skripte -> Experimental Methods

Script: User name: Experimental, password: Methods

Examination? Please ask

Motivation

The principle of science, the definition almost, is the following: 'The test of all knowledge is experiment'. Experiment is the sole judge of scientific 'truth.' . . . Experiment itself. . Gives us hints. . But also needed is 'imagination' to create from these hints the great generalizations - to guess at the wonderful, simple, but very strange patterns beneath them all. And then to experiment to check again, whether we have made the right guess.

Richard Feynman, Lectures on Physics

Aber:

Wer misst, misst Mist.

Outline

- 1. Structure of solids (crystal structure)**
- 2. Electronic structure (band structure, core levels)**
- 3. Magnetism (individual mag. moments, magnetic structure, mag. dynamics)**
- 4. extreme conditions: high pressure, low temperature, high magnetic fields, ultra high vacuum**

Ewald-Konstruktion



