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| Data: | FCRY. MA. Nr. 3611 / Examination number: 23002 | Version: 02.02.2018 | Start Year: WiSe 2018 |
| Module Name: | **Fundamentals of Crystallography** | | |
| (English): | | | |
| Responsible: | Gumeniuk, Roman / Prof. | | |
| Lecturer(s): | Gumeniuk, Roman / Prof. | | |
| Institute(s): | Institute of Experimental Physics | | |
| Duration: | 1 Semester(s) | | |
| Competencies: | Students should be able to describe crystal structure, to perform structural analysis and to understand relationships between crystal structure and some physical properties. | | |
| Contents: | Crystal lattice, symmetry elements, pointgroups, infinite symmetry elements, space group, International tables of crystallography<br>Reciprocal lattice, Structural factors, reflection conditions, Single crystal- and powder X-ray diffraction methods.<br>Crystal growth, Tensor properties and transformation, pyro-, piezo-electricity, permittivity, elastic properties etc. | | |
| Literature: | W. Borchardt-Ott: Crystallography: An Introduction, Springer<br>V.K. Pecharsky, P.Y. Zavalij: Fundamentals of Powder Diffraction and structural Characterization of Materials, Springer<br>M. de Graef, M.E. McHenry: Structure of Materials: An Introduction to Crystallography, Diffraction and Symmetry, Cambridge University Press<br>R.E. Newnham: Properties of Materials: Anisotropy, Symmetry, Structure; Oxford University Press | | |
| Types of Teaching: | S1 (WS): Lectures (2 SWS)<br>S1 (WS): Exercises (1 SWS) | | |
| Pre-requisites: | | | |
| Frequency: | yearly in the winter semester | | |
| Requirements for Credit Points: | For the award of credit points it is necessary to pass the module exam.<br>The module exam contains:<br>KA [120 min] | | |
| Credit Points: | 4 | | |
| Grade: | The Grade is generated from the examination result(s) with the following weights (w):<br>KA [w: 1] | | |
| Workload: | The workload is 120h. It is the result of 45h attendance and 75h self-studies. | | |