

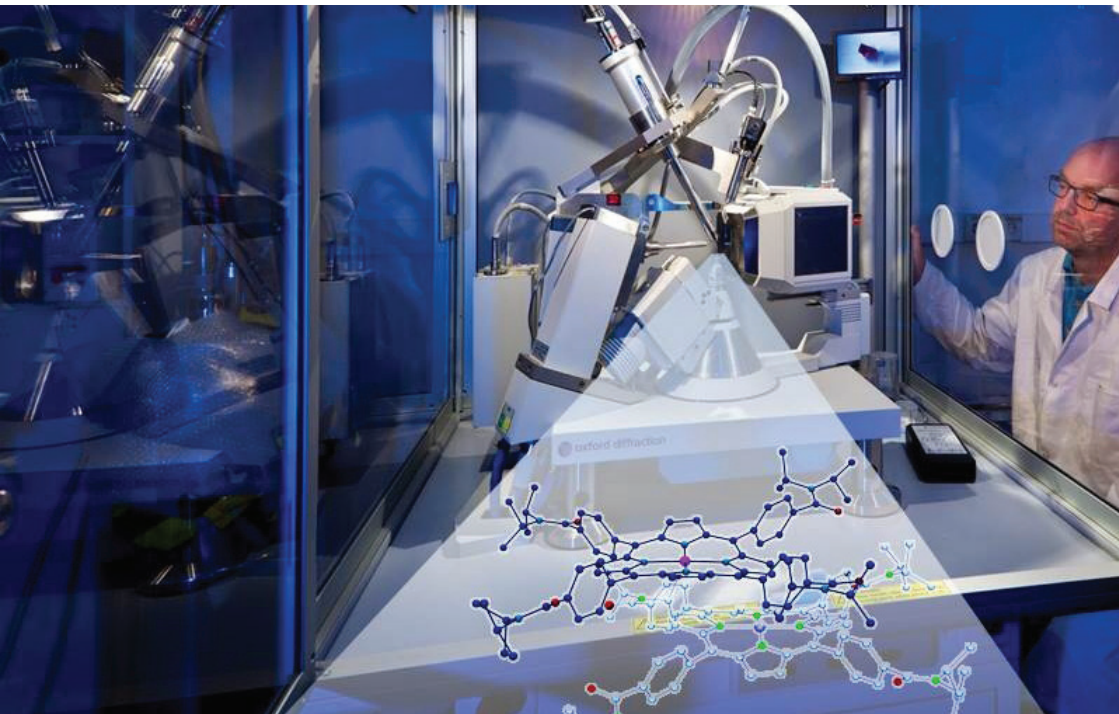


TECHNISCHE UNIVERSITÄT
CHEMNITZ

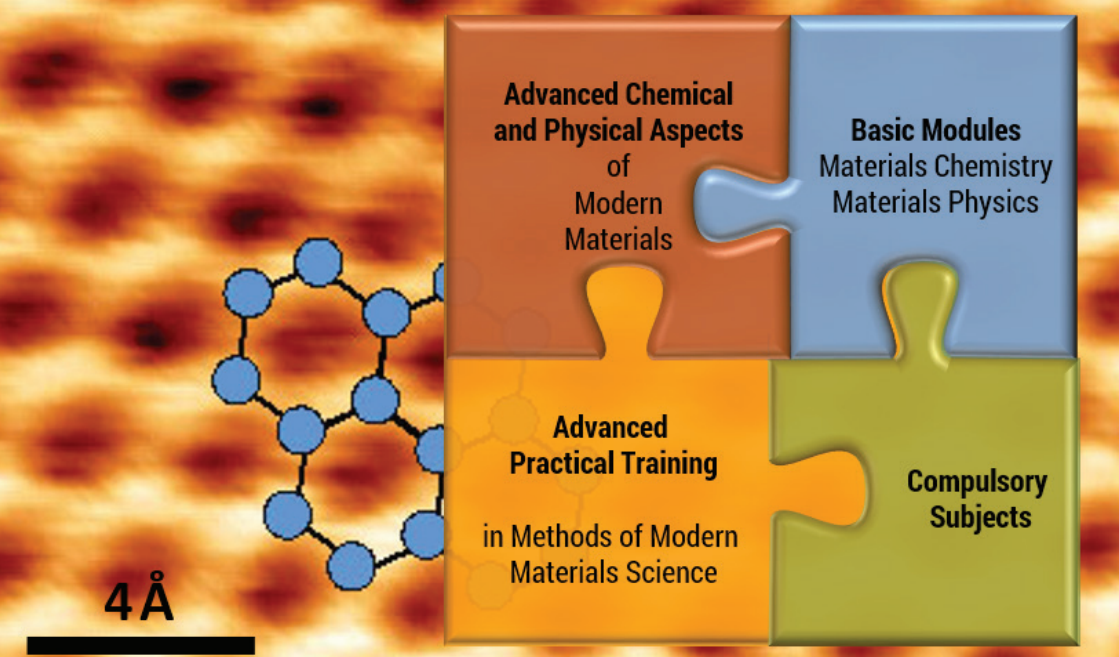
Advanced Functional Materials

Faculty of Natural Sciences

Master degree program



Research and development of modern, innovative, and functional materials with pronounced potentials for profound applications in science and technology.



What characterizes the Master degree program Advanced Functional Materials?

The advanced chemical and physical aspects of modern materials and the transfer of skills in synthesis, development, analysis and manufacturing of functional materials are the key issues of the program Advanced Functional Materials. The research oriented extension and intensification of physical and chemical knowledge is based on advanced practical training in actual research fields in a modern laboratory environment.



„Graphene, an atomically thin sheet of carbon, is a good example for an advanced functional material. It combines mechanical strength with extraordinary flexibility, is highly transparent for light but impermeable for gases, has high electrical and thermal conductivity. These properties render graphene in combination with other advanced materials useful for a large number of prospective applications in sensors, displays, flexible and printed electronics, lightweight composites, and so on. „

Prof. Dr. Thomas Seyller, Speaker of the university's focus area „Intelligent Systems and Materials“ and of the DFG priority program 1459 „Graphene“.

Degree Structure

The entire program Advanced Functional Materials can be studied in English language. Compulsory subjects are also offered in German language. Modules for a profound language training enhance the capability of an unrestricted communication in international research communities.

Basic Modules (1st–3rd semester)

taught in English language

Materials Chemistry

- Synthetic Methods in Chemistry
- Analytical Methods
- Sustainable Production Technologies

Materials Physics

- Advanced Surfaces, Thin Films and Interfaces
- Semiconductor Physics – Nanostructures
- Photovoltaics with Nanotechnology

Advanced Functional Materials

- Facets of Materials Science

Research Project (3rd Semester)

Module Master Thesis (4th Semester)

Compulsory Modules (1st–3rd semester)

taught either in English or German language, exemplary:

- Kolloide
- Polymermaterialien
- Werkstoffkunde
- Funktionsmaterialien
- Praktikum zu Oberflächen- und Kolloidanalytik
- Spectroelectrochemistry
- Challenges for Future Energy Concepts
- Crystallography
- Nanophysics - Physics of Mesoscopic Systems
- Polymerphysik
- Microscopy and spectroscopy on the atomic and molecular scale
- Theoretische Festkörperphysik
- Surface and Interface Engineering
- Materials in Micro- and Nanotechnologies
- Elektrochemisches Beschichten
- Innovative Materials Engineering

Career Opportunities

Current trends on the labor market indicate an increasing demand for graduates, who understand the processes in natural sciences on their transdisciplinary origin. Hence fields of work are for instance:

- Automotive Manufacturer
- Aerospace Industry
- Research Institutes
- Semiconductor Industry
- Chemical Industry
- Pharmaceutical Companies
- Energy Sector
- Life Science Sector

The Master degree provides in addition the opportunity for doctoral studies (Ph. D.) at an university or research center, such as Max-Planck Institute or Fraunhofer Gesellschaft.

General Information

Admission requirements: in general vocationally-qualifying university bachelor's degree in Physics or Chemistry or equivalent degree program with regard to content, English language proficiency at Level B2 according to the CEFR

Standard period of study: 4 semesters

Degree: Master of Science (M.Sc.)

Start of the degree program: usually in the winter semester

Language of tuition: English, German language proficiency at level A2 during the degree program

For information concerning all aspects of studies please access:

www.tu-chemnitz.de/studentenservice/index.php.en

Online application for German students:

www.tu-chemnitz.de/studienbewerbung

Online application for international students:

www.uni-assist.de

Further information:

Technische Universität Chemnitz

Student Service Point

Straße der Nationen 62, room 043

09111 Chemnitz

+49 371 531-33333

studentensekretariat@tu-chemnitz.de

Academic Course Guidance

For an overview of all academic counsellors including contact details please access:

www.tu-chemnitz.de/studienberater

Central Course Guidance Service

Technische Universität Chemnitz

Central Course Guidance Service

Straße der Nationen 62, room 046

09111 Chemnitz

+49 371 531-55555

studienberatung@tu-chemnitz.de



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