

SCHOLARSHIP

MATERIALS SCIENCE

MSI SCHOLARSHIP

Are you looking to further your academic career in an international environment while gaining valuable research experience?

This scholarship offers an excellent opportunity for highly motivated international students who wish to benefit from comprehensive academic and research support at Otto von Guericke University Magdeburg.

As part of the program, students with good to excellent academic performance will receive **financial and academic support** to help them advance in their studies and research. You will have the chance to come to Germany, actively contribute to ongoing research projects, and develop your academic skills in a modern and application-oriented setting. In addition to close academic supervision, you will benefit from state-of-the-art facilities, a **vibrant international community**, and an engaging campus life in Magdeburg.

Take this opportunity to boost your career – and become part of a dynamic research network.

TARGET GROUP

This scholarship is aimed at highly motivated students with a strong interest in scientific research and a particular focus on **materials science**. Ideal candidates are those who are curious, committed, and enthusiastic to actively engage in research-related activities.

Applicants should be open to **international collaboration** and enthusiastic about becoming part of a diverse academic community. In addition to the scientific goals, the program encourages **cultural exchange** and offers the chance to broaden **language skills** and intercultural experience during the stay in Germany.

RESEARCH ENVIRONMENT

COMPUTATIONAL MECHANICS

The field of computational mechanics deals with the investigation and development of numerical, computer-oriented methods as well as the associated algorithms and calculation software for solving engineering problems whose physical behavior can be described by adequate mathematical models. The main research interests are material modelling of elastomers, finite element techniques and transient dynamics.

- Material modelling with physical-based neuronal networks
- Numerical mass lumping approaches
- Numerical analysis of biomechanical applications
- Modelling elastomers in multibody simulations

METAL MATERIALS

The research focus at the Chair of Metallic Materials is relatively broad. One main area is metallurgy and heat treatment, which includes the development of new heat treatment concepts, the investigation of underlying mechanisms, and the optimization of heat treatment processes.

Another key focus is the application of materials in medical technology, particularly the characterization and development of biomaterials for endoprosthesis use. This involves optimizing biomedical alloy systems through thermomechanical treatment and surface modification.

Material modelling also plays an important role at the chair. Specifically, this involves predicting the structure, stability, and properties of materials across different time and length scales.

- Sustainable aluminium alloys, phase formation
- Casting and solidification, solidification condition, melt conditioning
- Biomechanics, medical engineering
- Material simulation (physical), material modelling

CERAMICS

The Chair of Ceramics deals with innovative processing, characterization and testing of novel functional and multifunctional materials, especially non-metal materials. With that, fundamental approaches of the material development are focused.

- Cellular and porous ceramics, manufacturing and modification of cellular ceramics
- Processing of ceramics from preceramic polymers by heat treatment
- Ceramic coatings for oxidation protection, coating techniques, characterization
- Phase evolution in complex ceramic materials, microstructural control

HIGH-TEMPERATURE MATERIALS

The fields of research within the Chair of High Temperature Materials are the development of refractory-metal based alloys for high-performance or aerospace applications. The material design and the understanding of the structure-property relationship plays an important role.

- Oxidation-resistant alloys
- Refractory metal-based alloys for aerospace applications
- Microstructure-property relationship of high-performance materials
- High-performance for high-temperature alloys

DURATION & TIMELINE

The duration of the scholarship is generally **12 months**. In cases where preparatory measures such as language courses are required, the scholarship period may be **extended accordingly**. The maximum scholarship period corresponds to the standard duration of the study program. The specific time to call for the scholarship application will be announced in November followed by the application close and applicant interview within December.

ELIGIBILITY REQUIREMENTS

- Currently enrolled in the Materials Science program
- Strong interest in scientific research, particularly in the field of materials science
- Good to excellent academic performance in their studies
- Good to excellent foreign language skills, especially in English
- Optional: social or cultural engagement will be considered a plus

SCHOLARSHIP BENEFITS

- Gain experience in transnational and international research collaboration
- Engage in cultural exchange and broaden your global perspective
- Global networking between students and researchers around the world
- Opportunity to learn new languages or improve existing language skills in an immersive environment
- Cultural and personal growth, learning to manage challenges, becoming more independent

APPLICATION PROCESS

Interested applicants must submit their complete application. The application should include all required documents, such as a motivation letter, CV, transcripts and any other relevant documents. Applications must be submitted via email. the contact information is provided at the end of the scholarship brochure.

CONTACT & FURTHER INFORMATION

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