



Weierstrass Institute for
Applied Analysis and Stochastics

Important facts

The *Weierstrass Institute* was founded in 1992 as a part of the **Forschungsverbund Berlin e. V.** upon the recommendation of the German Science and Humanities Council. **Prof. Dr. Michael Hintermüller** has been the director of the institute since 2016.

The work at WIAS benefits from recommendations by its **Scientific Advisory Board**. The institute is a **member of the Leibniz Association** and hosts the Secretariat of the **International Mathematical Union (IMU)** and the office of the **German Mathematical Society (DMV)**. Within the Leibniz Association, WIAS coordinates the Leibniz Network **Mathematical Modeling and Simulation (MMS)** including more than 40 Leibniz institutes.

WIAS plays an important role in the dynamic research landscape of Berlin. It closely cooperates with the three Berlin universities (HU, TU and FU) and is one of the five member institutions of the **Cluster of Excellence – Berlin Mathematics Research Center, MATH+**.

The institutional funding is provided in equal parts by the Federal Government and by the Federal States of Germany. In addition, the institute raises third-party funds from national and international science foundations, German federal ministries, and industry.

wias-berlin.de

International exchange

At WIAS, people who are enthusiastic about mathematics are looking for clever solutions to complex problems.

Guest lectures by international researchers and presentations by WIAS scientists all over the world demonstrate the position of the institute in the international research landscape. This intensive exchange proves the importance of its internationally renowned, cutting-edge research.



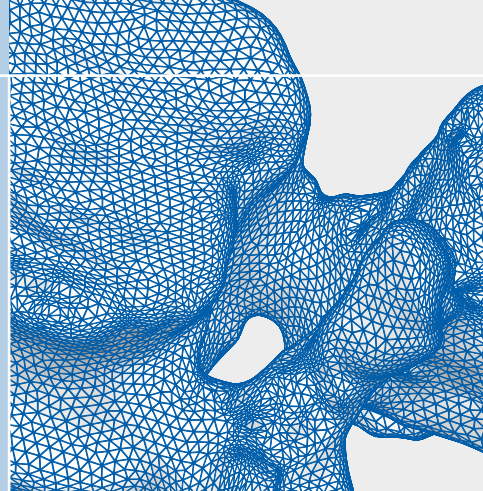
A work full of possibilities

WIAS employs approximately 150 people, the majority of whom work in research.

We encourage our employees in their respective careers, for example, by

- providing a rich and varied scientific environment;
- generating career opportunities in academia, science, and industry or business;
- enabling interdisciplinary research and work on application problems in close cooperation with practitioners;
- making a satisfactory work/life balance including family responsibilities of its employees a management task at WIAS.

The institute is also committed to an equal opportunity policy by, among others, continuously increasing the proportion of women on all levels. **In recognition of its efforts in this direction WIAS has been repeatedly awarded the berufundfamilie (workandfamily) audit certificate.**



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Background graphics: Manuscript Karl Weierstrass, 1882/1883 (Bibliothèques de l'Université de Strasbourg)

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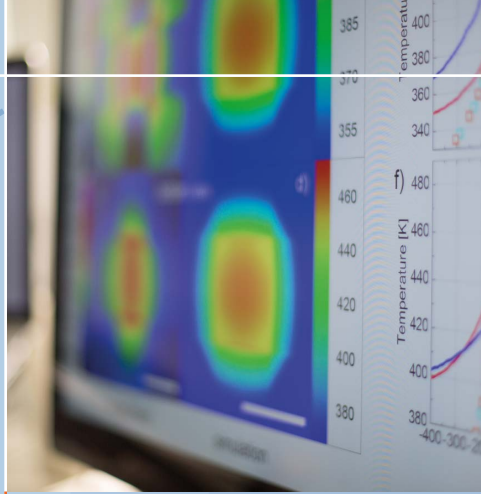
Mathematical

Mathematics decisively contributes to innovation and social change and is of central importance for the development of key technologies.

The Weierstrass Institute for Applied Analysis and Stochastics (WIAS) is a leading European research institute located in the heart of Berlin.

WIAS conducts project-oriented mathematical research for the solution of complex application-driven problems in technology, science and business.

The research of the institute tightly combines analysis and stochastics, and is done in close cooperation with partners from science and industry. This comprehensive approach represents one of the key strengths of the institute.



The institute contributes to solving some of the grand challenges currently faced by our society. These include the optimal and sustainable use of energy, advancing medical technology, identifying of new materials, and fostering technological innovation. This is reflected in the **main areas of application**:

- **Energy: Technology, Markets, Networks**
- **Flow and Transport**
- **Materials Modeling**
- **Quantum- and Optoelectronics**
- **Optimization and Control in Technology and Economy**
- **Quantitative Biomedicine**

Solutions

A universal language

Mathematics is an interdisciplinary cross-sectional science, a universal language in a wide variety of fields.

The combination of methods from *statistics, stochastics, partial differential equations, numerical mathematics and optimization* allows, for example, the extraction of structures from very large unsorted data sets. It also makes possible reliable statements about a process even when the input data is subject to strong uncertainty. It enables the embedding of physics-based information into reconstruction problems in imaging science, and the identification and theoretical study of next generation materials.

Our core competencies

The institute has a strong focus on applied analysis and applied stochastics, on the mathematically consistent modeling of real-world phenomena as well as on the design and implementation of numerical algorithms and the development of scientific software.

Research at WIAS combines all of these areas, in the context of constant awareness of both social and ethical responsibilities.

WIAS is committed to transferring its research results into practice, e.g. through

- **Cooperation and co-creation projects with partners from industry, economy and science**
- **Granting licenses for its research software**
- **Knowledge exchange**

