**Weierstrass Institute for Applied Analysis and Stochastics**
**Leibniz Institute in Forschungsverbund Berlin e. V.**

The Weierstrass Institute for Applied Analysis and Stochastics (WIAS) is an institute of the Forschungsverbund Berlin e.V. (FVB). The FVB comprises seven non-university research institutes in Berlin which are funded by the federal and state governments. The research institutes belong to the Leibniz Association.

WIAS invites applications for a

# Research Assistant Position (f/m/d)

**(Ref. 26/22)**

in the Research Group **"Nonsmooth Variational Problems and Operator Equations"**

(Head: Prof. Dr. Michael Hintermüller), starting on **January 1, 2027**.

**Field of work:**

The successful candidate will work in the MATH+ project "**DOC-TWIN: Duality-Based Error Control for Optimal Control Problems in Digital-Twin-Based Structural Health Monitoring**". The project aims at developing a convex-duality-based framework for reliable error control in PDE-constrained optimal control problems motivated by digital-twin-based structural health monitoring.

**The Tasks include:**

- Developing and analyzing duality-based a posteriori error identities for PDE-constrained optimal control problems;
- Deriving corresponding discrete a priori error identities and using them for convergence-rate analysis and certified nonlinear solver control;
- Designing, implementing, and numerically validating finite element methods, including adaptive mesh-refinement strategies and suitable post-processing techniques;
- Preparing scientific publications and presenting the results at workshops and conferences.

**We are looking for:**

Applicants with:

- A very good university degree in mathematics, computational science, engineering, or a closely related field;
- A strong interest in numerical analysis, optimization, partial differential equations, or scientific computing;
- A willingness to work on both the mathematical analysis and the implementation of numerical methods for PDE-constrained optimization problems;
- Good communication skills and the ability to work independently as well as collaboratively in an interdisciplinary research environment;
- Good written and spoken English skills.

**Desirable Qualifications:**

Experience in one or more of the following areas is an advantage but not a requirement:

- Finite element methods, adaptive methods, or a posteriori error estimation;
- Convex analysis, nonsmooth optimization, or optimal control;
- PDE-constrained optimization or inverse problems;
- Numerical methods for elasticity, structural mechanics, or related models;
- Implementation of numerical methods in Python, MATLAB, Julia, C/C++, or finite element software.

**What we offer:**

- The opportunity to work at WIAS Berlin, a leading research institution with strengths in partial differential equations, mathematical modeling, nonlinear optimization, and applied mathematics in general;
- The option of mobile working;
- A certified family-friendly work environment (Audit berufundfamilie);
- The opportunity to live and work in Berlin, one of the world's most culturally rich and diverse international cities. Berlin offers a wide range of opportunities to enjoy life outside work while remaining relatively affordable compared with other major cities. Neither the position nor living in Berlin requires knowledge of German, although WIAS offers free German courses. We particularly welcome international applicants. Berlin also offers a rich scientific landscape, with numerous research opportunities and career prospects in both academia and industry;
- Close mentorship from the supervisor and other peers through a dedicated mentorship program.

Please direct scientific queries to Prof Dr. Michael Hintermüller (michael.hintermueller@wias-berlin.de).

The appointment is limited to two years. The position is full-time (39 hours per week), with a salary based on pay grade E 13 of the German TVöD Bund pay scale.

WIAS is committed to fostering diversity and equal opportunities and particularly encourages women to apply. Applicants with disabilities will be given preferential consideration in cases of equal qualification. If you have any questions or want to provide us with information related to diversity, inclusion or disabilities, please feel free to consult our website or contact our Diversity Officer, Sara Krummenacher (sara.krummenacher@wias-berlin.de).

**How to apply:**

Please upload your complete application documents (motivation letter, detailed CV, certificates, copy of the master thesis, etc.) via our applicant portal using the button “Apply online”.

**The application period opens immediately and remains open until the position is filled.**

**We are looking forward to your application!**