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

PhD student position (f/m/d)

(Ref. 23/19)

in the Research Group

"Nonlinear Optimization and Inverse Problems"

(Head: Prof. Dr. D. Hömberg) to be filled **at the earliest possible date**.

The position is associated to the project

"Analysis of energy-variational solutions for hyperbolic conservation laws",

which is part of the SPP 2410 "Hyperbolic Balance Laws in Fluid Mechanics: Complexity, Scales, Randomness". While hyperbolic conservation laws are ubiquitous in the modeling of fluid-dynamical processes, fundamental analytic question remain open until today. In this project, a novel solution concept for such equations, which is founded on energetic considerations and variational methods, is studied. The project aims at the derivation of new existence results, the investigation of selection criteria to single out physically relevant solutions, and the numerical approximation of such solutions.

The position is hosted in Research Group "Nonlinear Optimization and Inverse Problems". The project is a collaboration between Dr. Robert Lasarzik from this group, and Dr. Thomas Eiter from Research Group "Partial Differential Equations". In this team, we are going to approach the above research plan together with the PhD student.

We are looking for: candidates with a master's degree in mathematics or a closely related field with a strong background in at least one of the following fields: analysis of partial differential equations, calculus of variations, functional analysis. Prior knowledge in mathematical fluid mechanics, numerical analysis, or nonlinear optimization is beneficial.

What we offer:
● Close mentorship: the PhD student will receive responsible and careful mentorship by both principal investigators, who emphasize fostering a healthy mentor-mentee relationship.
● WIAS Berlin is a premier research institution known for its strength in partial differential equations, mathematical modeling, nonlinear optimization, and applied mathematics in general.
● A certified (Audit berufundfamilie) family-friendly work environment.
● Berlin is one of the most culture-rich and diverse international cities in the world. It offers endless opportunities to enjoy life outside work, while being very affordable compared to other major cities. Neither the job nor living in Berlin requires German language (although WIAS offers free German courses). We highly welcome international applications. Scientifically, Berlin offers a rich landscape with numerous opportunities for research, as well as job prospects in academia and industry.

Please direct scientific queries to Dr. Robert Lasarzik (robert.lasarzik@wias-berlin.de) and Dr. Thomas Eiter (thomas.eiter@wias-berlin.de).

The appointment is limited to three years. The reduced work schedule is 29.25 hours per week, and the salary is according to the German TVoeD Bund scale.

The Weierstrass Institute is an equal opportunity employer. We explicitly encourage female researchers to apply for the offered position. Among equally qualified applicants, disabled candidates will be given preference.

Please upload your complete application documents (motivation letter, detailed CV, certificates, copy of the master thesis, etc.) via our online [job-application facility](#) until **September 18, 2023** using the button "[Apply online](#)".

We are looking forward to your application!