Weierstrass Institute for Applied Analysis and Stochastics

Zertifikat seit 2013
audit berufundfamilie

The WIAS is an institute of the Forschungsverbund Berlin e.V. (FVB). The FVB comprises eight non-university natural science research institutes in Berlin, which are funded by the federal and state governments. The research institutes are members of the Leibniz Association.

Employment advertisement

WIAS invites applications for a

PhD Student Position (f/m/d)

(Ref. 19/07)

in the Research Group

"Nonsmooth Variational Problems and Operator Equations"

(Head: Prof. Michael Hintermüller) within the European Innovative Training Network

Reduced Order Modelling, Simulation and Optimization of Coupled systems (ROMSOC)

starting on **April 1, 2019.**

ROMSOC is a Marie Skłodowska-Curie Innovative Training Network funded by the EU, where cutting-edge research is combined with a structured doctoral training programme. The ROMSOC network implements a partnership of high profile universities, research institutions, and non-academic organisations. Applications are open to enthusiastic young mathematicians, who enjoy to work on challenging problems in an international group at WIAS, and who would like to enhance their career perspectives in both the academic and non-academic sectors through international, interdisciplinary and inter-sectoral mobility combined with the innovation-oriented mind-set.

Within the ROMSOC network we offer a PhD position in the project

Optimal Shape Design of Air Ducts in Combustion Engines.

For performance optimization of combustion engines, in particular in the automobile industry, the optimal shape design of several components of the engine, such as airducts, is crucial. This project aims to provide constrained free form shape optimization techniques for computer based rapid prototyping. The PhD candidate shall develop a numerical solution method that utilizes a shape-gradient-related descent scheme. The work includes the analysis and implementation of a finite volume or finite element based optimization tool, and which involves a flow system, that is equipped with a proper turbulence model, and an associated adjoint scheme. The solver has to be tested for industry relevant use cases. The PhD candidate will spend secondments for technical and scientific training at Math.Tec (Austria). The PhD degree will be awarded by Humboldt-Universität zu Berlin, Germany.

We offer:

- An international team of open-minded, competent and motivated researchers at WIAS and within the ROMSOC network;
- An ambitious research task in mathematics, with exciting applications;
- The possibility to achieve a PhD within an innovative European training programme;
- An attractive salary, a workplace in the center of Berlin, and the chance to travel in Europe and meet ROMSOC colleagues from all over the world.

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Required

- Master's degree (or equivalent) in Mathematics, achieved no longer than four years ago; No doctoral degree awarded during these four years;
- Strong interest in international, interdisciplinary and inter-sectoral scientific work;
- Ability to work independently and as part of a team;
- Excellent grades, research talent (as proven by the master thesis) and personal ambition;
- Fluent English, together with good academic writing and presentation skills;
- The candidate must not have resided or carried out her/his main activity (work, studies, etc.) in Germany for more than 12 months in the 3 years immediately prior to the recruitment date. Time spent as part of a procedure for obtaining refugee status under the Geneva Convention are not taken into account.

Desirable

- Background in applied functional analysis, partial differential equations, mathematical modeling, optimization, numerical analysis;
- Experience in scientific computing, optimization with engineering applications, numerical solution methods for partial differential equations and continuous optimization problems;
- Background in computational fluid dynamics, shape optimization, finite element/finite volume methods;
- Programming skills in object oriented languages, CFD software packages, as well as Python/Matlab.

Starting Date:	1st of April 2019
Contract:	Full-time contract until August 31, 2021, extension is possible
Host institution:	Weierstrass Institute for Applied Analysis and Stochastics, Berlin, Germany
Salary:	The Marie Skłodowska-Curie programme offers highly competitive and attractive salaries. Gross and net amounts are subject to countryspecific deductions as well as individual factors and will be confirmed upon appointment.
Information/Contact:	Prof. Dr. Michael Hintermüller (Primary Supervisor) Email: hintermueller@wias-berlin.de
Application:	Please upload your complete application documents (motivation letter, detailed CV, certificates, list of MSc courses and grades, copy of the master thesis, reference letter, etc.) via our online job- application facility (https://www.wias-berlin.de/jobs/index.jsp?lang=1) using the button "Apply online".

DEADLINE 20.03.2019

To ensure the equality of opportunities we strongly encourage women with the appropriate qualifications to apply. If equally qualified, handicapped applicants will be preferred.

We are looking forward to your application!