



With more than 6,300 employees in research, teaching and administration and its unique profile, TU Dortmund University shapes prospects for the future: The cooperation between engineering and natural sciences as well as social and cultural studies pro-motes both technological innovations and progress in knowledge and methodology. And it is not only the more than 34,300 students who benefit from that.

Doctorate position

Faculty of Mathematics at TU Dortmund invites an application for the position of a

Doctoral Research Associate

(part time 0.75 FTE, salary level TV-L E13, 1st year netto ~2K €, afterwards 2.2K €).

The position is available for the duration of three years and is expected to start around **Fall 2023**. The position is in Peter Bella's research group and is part of a DFG-funded research project (jointly held with Benedikt Wirth's group at WWU Münster) in the DFG Priority Program 2256 "Variational Methods for Predicting Complex Phenomena in Engineering Structures and Materials". It focuses on mathematical research in the calculus of variations, or more specifically, the variational analysis of pattern formation in shape optimization. The research will be suitable for a PhD thesis topic.

Research tasks in the project will include:

- rigorous analysis of energy-minimizing patterns in shape optimization
- derivation of corresponding "energy scaling laws" (lower and upper energy bounds) and bounds on the effective properties

- construction of near-optimal patterns, needed in the proofs of upper bounds and more refined pattern characterizations
- stochastic homogenization motivated by uncertainty in the data

Requirement profile:

- a master's degree in mathematics
- good skills in analysis (in particular calculus of variations, PDEs and/or stoch. homogenization)
- interests in rigorous mathematical analysis and the mathematics of mechanics
- ability to work independently and in a team
- a high level of motivation and enjoyment in scientific work
- good English communication skills

Among other **we offer**:

- being part of a young research group
- flexible working times
- Family support (e.g. on-campus daycare)
- sufficient travel funds for math meetings (Conferences, Summer Schools, Workshops)

TU Dortmund is an equal opportunity employer and is committed to increasing the proportion of women academics. Consequently, we actively encourage applications by women. Female candidates with equivalent qualifications and academic achievements will be preferentially considered within the framework of the legal possibilities. We also welcome applications from candidates with severe disabilities. Disabled candidates with equivalent qualifications will be preferentially considered.

Please submit your application electronically as a single pdf-file (including the usual documents such as CV including 2 possible references, Bc and Ms certificates) with Subject "**PhD position**" to peter.bella@udo.edu by **July 20, 2023**. Applications will be reviewed on a rolling basis.

For further information, please do not hesitate to contact:

Prof. Dr. Peter Bella, peter.bella@udo.edu