

PhD candidate for numerical simulations in compressible turbulence

The Fluid Mechanics Group in the Department of Mechanical Engineering at TU Ilmenau opens a position for a PhD candidate. The research project, which is funded by the German Research Foundation (DFG) within the priority program CoScaRa (<https://www.spp2410.uni-stuttgart.de>), is on the dynamics and small-scale statistical properties of compressible turbulence. The kinetic energy dissipation rate plays a central role and its Reynolds number dependence is related to the dissipative anomaly. The project is conducted jointly with a research group at the Max Planck Institute for Mathematics in the Sciences in Leipzig. Studies in Ilmenau focus to direct numerical simulations of compressible flows at high Reynolds and Mach numbers in combination with an analysis of the statistical and geometric properties of the kinetic energy dissipation rate. The interdisciplinary research in the project is at the interface of fluid mechanics, applied mathematics, and machine learning.

The PhD candidate position is offered for an initial period of 3 years (1st year 75%, 2nd and 3rd year 100%) with a possibility of extension. The **project should start in January 2027**. We are looking for highly motivated young researchers with excellent communication skills who want to join our group. Further information on our research and international research team can be found at

<https://www.tu-ilmenau.de/tsm>

The successful candidate should have a Master or Diploma university degree in either Mechanical or Aerospace Engineering, Computer Science, Applied Mathematics, or Physics

One of the following competences are required:

- Excellent scientific background in one or more of the following research disciplines: fluid mechanics (in particular turbulence), statistical physics, applied mathematics (in particular partial differential equations)
- Experience in scientific programming and/or machine learning, such as Fortran90, Python and related libraries, MPI, OpenMP, or OpenACC.

Please provide a cover letter describing your personal qualifications and motivation, a CV, a list of publications (if applicable), an evidence of the qualifications required for the position by corresponding certificates and transcripts, and 1 or 2 references with contact information. The **deadline** for applications is **October 31st, 2026**. Applications should be sent to Prof. Jörg Schumacher **by email only**:

joerg.schumacher@tu-ilmenau.de

