LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

LEHRSTUHL FÜR GEOPHYSIK
DEPARTMENT FÜR GEO- UND UMWELTWISSENSCHAFTEN

PhD Position

In the last two years a new and very powerful numerical method based on a Discontinuous Galerkin approach has been introduced for the simulation of the propagation of seismic waves for geometrically and rheologically complex domains. For the first time a numerical scheme has been developed, that achieves arbitrary high approximation order in time and space on unstructured meshes. The further development of the numerical scheme and the large-scale application to realistic earthquake scenarios or reservoir monitoring in the exploration industry are the main goals of future research. Therefore, a new research group is funded through the *Emmy Noether-Programme "High Resolution Simulation of Seismic Wave Propagation in Realistic Media with Complex Geometry"* of the German Research Foundation (DFG).

To enforce our team, we are offering a PhD position for 3 years (E 13) with a special focus on:

Large-Scale Simulation of Seismic Wave Propagation and Strong-Motion Modelling in Realistic Media

The first part of the work will involve the application of the simulation software SEISSOL to investigate it's functionality for large-scale modelling of realistic earthquake scenarios and relevant applications in exploration seismology. Hereby, model building using 3-D Mesh-Generators is an important issue. In close collaboration with the other team members the further development of SEISSOL will be guided by the specific needs. Strong-motion modelling will require an intensive study of the effects of the rupture process. The creation of high-resolution synthetic data sets for real earthquakes involves the collaboration with the Supercomputing-Center in Munich, which will also support the task of visualizing such large data sets. Applications will be part of the High-Performance Computing project EU-Quake. The publication of results in respected journals and their presentations on international conferences is strongly supported through individual travel funds. Furthermore, there is the possibility to raise the salary through the acceptance in the International Graduate School THESIS.

Requirements:

- graduated in geophysics or physics or related subject
- experience in programming
- basic knowledge of seismology or wave propagation phenomena
- good written and spoken English
- motivation to work in an international and interdisciplinary team

Please sent your complete application (cover letter, CV, summary of thesis, 2 references) preferably in PDF format to:

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