The University of Bonn is an international research university with a wide education and research profile. With a 200-year history, approximately 31,500 students, more than 6,000 staff, and an excellent reputation at home and abroad, the University of Bonn is one of the most important universities in Germany and is recognized as a university of excellence.

The Geodynamics group within the Institute of Earth Science is offering a

PhD position (d/f/m)

in the DFG-funded project DATA2MODEL with a workload of 75% for a period of up to 3 years in accordance with § 2 (1) WissZeitVG. The project is part of the DFG Priority Program SPP 2497 DEFORM, which focuses on quantifying the plate deformation and associated geohazards at the Eastern Margin of the Adriatic plate. The successful candidate will contribute to this goal by:

- Developing the numerical infrastructure to design data-driven geodynamic models based on geophysical, geodetic, geological and geomorphological datasets,
- Quantifying uncertainties in geodynamical model results arising from uncertain subsurface geometries.

The project will be carried out in close collaboration with partners at GFZ Potsdam, the University of Mainz, and the University of Kiel.

Your tasks:

- Further development of the software package GeophysicalModelGenerator.jl and of an existing graphical user interface for data processing and interpretation,
- Development of machine learning techniques, particularly surrogate models, to invert surface observables for subsurface geometry and rheology
- Quantification of uncertainties in geodynamic model results due to uncertain model geometries and rheologies,
- Publishing results in peer reviewed journals and presenting at conferences,
- Cooperation with other projects within the SPP DEFORM

Your profile:

- A Master's degree (or equivalent) in Geophysics, Physics, Applied Mathematics, Computational Science or a related field.
- Familiarity with numerical modelling, inverse problems, and machine learning techniques
- Strong programming skills in Julia and Python
- Good command of English (spoken and written)
- Experience or interest in high-performance computing (HPC) environments
- Ability to work independently and collaboratively in a multidisciplinary and multi-institutional team

We offer:

- An open, stimulating and interdisciplinary working environment
- The opportunity to pursue your PhD
- Opportunities to attend international conferences
- Specialized courses, summer schools, seminars by renown experts
- Salary according to the German Federal pay scale (75% TV-L E13)

The University of Bonn is committed to diversity and equal opportunity. It is certified as a family-friendly university. The University of Bonn seeks to increase female representation in staffing areas where women are underrepresented and provide special career support. It thus expressly encourages qualified women to apply. Applications will be handled in accordance with the NRW State Gender Equality Act (Landesgleichstellungsgesetz, LGG NRW). Applications from qualified candidates with a certified severe disability or from those of equal status are especially welcome.
The position will be mainly located at the University of Bonn but may require visits to the GFZ Helmholtz Centre for Geosciences for collaborative project work.

The starting date of the position is as soon as possible. Applications will be reviewed from February 15, 2026. Please send your application in electronic form with the relevant documentation (including letter of motivation, curriculum vitae, copy of Master's degree certificate and transcript of record, names and contact details of two referees) to Prof. Dr. Marcel Thielmann (E-mail: thielmann@geo.uni-bonn.de) with all documents in a single PDF file.