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**UNIVERSITÄT  
BERN**

Astronomisches Institut, Sidlerstrasse 5, CH-3012 Bern

Philosophisch-  
naturwissenschaftliche Fakultät

**Astronomisches Institut**

Bern, 01. November 2024

## **Open PhD Positions at the Astronomical Institute of the University of Bern**

The Satellite geodesy research group of the Astronomical Institute of the University of Bern (AIUB) offers two positions for

### **PhD CANDIDATES.**

The reliable and stable realization of the terrestrial reference frame is an essential task in the global geodesy because it forms the basis for monitoring the system Earth. In a new joint project between Deutsches Geodätisches Forschungsinstitut of the Technical University of Munich (DGFI-TUM) and AIUB we are targeting to improve in particular the scale realization in future ITRF solutions. This is in particular important for many applications, like the measurement of the sea level rise.

One of the PhD candidates will focus on the scale in the GNSS solution. The disclosure of the pre-launch satellite antenna calibration for the Galileo and GPS Block IIIA satellites allowed for the first time to obtain a scale contributions for the ITRF from GNSS technique. Nevertheless, there remain a number of questions, e.g., how orbit modelling deficiencies map into the scale or why there are discrepancies between the GNSS-, VLBI-, and SLR-derived scale realization.

The other PhD candidate will assess different solutions for the ITRF – starting from the most recent solutions for the ITRF2020 by the three IERS combination centers. With the progress of the project new ITRF solutions become available generated by the DFGI-TUM partner that should be included as well. Finally the influence of different ITRF solutions on orbits from altimeter satellites will be derived allowing even the use of altimeter measurements for a quality control.

Both PhD topics are currently subject of working groups established by the International Association of Geodesy (IAG). It demonstrates on one hand the importance of this work. On the other hand, the working groups will allow an international exchange of the PhD candidates supported by the supervisors.

**Education:**

The candidate is expected to have successfully completed the master thesis (diploma / “Lizentiat”) preferred in astronomy, geodesy, physics, or a related topic. Experience in GNSS data processing or in using the Bernese GNSS Software package, and in computer science (coding in modern Fortran, C++, Perl, and/or Python) are not a requirement, but an advantage. The candidate should be able to speak and write English fluently.

The candidate should start working in Bern as soon as possible.

The position is scheduled for four years. The salary follows the guidelines of the University of Bern and depends on the qualification of the successful candidate.

**Application:**

Applications (including CV, university diploma copies, record of study, possible references; the motivation letter should express a preference for one or the other PhD topic with an explanatory statement) should be received as soon as possible but no later than December 20, 2024 at the following address:

Prof Dr. Rolf Dach  
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Informal enquiries may be obtained at the above address as well.

The University of Bern is an equal opportunity employer and encourages in particular women to apply for open positions.