UNIVERSITÄT BERN

Astronomisches Institut, Sidlerstrasse 5, CH-3012 Bern

Philosophisch-naturwissenschaftliche Fakultät

Astronomisches Institut

Bern, 10. July 2019

Open Position at the Astronomical Institute of the University of Bern

The Astronomical Institute of the University of Bern (AIUB) has successfully concluded the grant preparation phase with the European Commission for the project

Unifying the three pillars of geodesy using space ties (SPACE TIE)

in response to the European Research Council (ERC) Consolidator Grant Call 2018 of the Horizon 2020 European Union Framework Programme for Research and Innovation. In the frame of the SPACE TIE project funding is available for a

Ph.D. CANDIDATE (Position No. 2)

SPACE TIE shall pave the way to unify the “three pillars” of Geodesy in future realizations of the terrestrial reference frame by connecting satellite geodetic techniques, in particular Global Navigation Satellite Systems (GNSS) and Satellite Laser Ranging (SLR), by co-location sites in space. These so-called space ties shall be realized on satellites of the currently existing space infrastructure, as well as on satellites due for launch in the near future. This includes the Medium Earth Orbits (MEO) of the GNSS satellites and, in particular, satellites in Low Earth Orbits (LEO) with GNSS and SLR co-located on-board. To maximize the sensitivity to the Earth’s gravity field, the ultra-precise inter-satellite ranging between LEO satellites of dedicated gravity missions shall be added as a third satellite geodetic technique.

LEO satellites will be the key to access the Earth’s time-variable gravity field in the overall SPACE TIE objectives. The tasks of the Ph.D. Candidate will focus on a rigorous GNSS processing to determine geodetic parameters from both, terrestrial and spaceborne, GNSS data in one and the same parameter estimation process. Significant effort shall be devoted to assess the impact of undifferenced carrier phase ambiguity resolution techniques and antenna calibration techniques for GNSS transmitter and spaceborne receiver antennas of dedicated gravity, altimetry, and further constellations of Earth observation satellites. The activities will be performed in collaboration with the Center for Orbit Determination in Europe (CODE), one of the global analysis centers of the International GNSS Service (IGS).

Education:

The candidate is expected to have successfully completed a master thesis (diploma/“Lizentiat”) in astronomy, geodesy, physics, mathematics, or a related topic. Experience in GNSS data processing or using the Bernese GNSS Software package, and in computer science (coding in Fortran90, C++, Python, or Perl) are not a requirement, but an advantage. The candidate should speak and write English fluently.

The candidate should start working in Bern on January 03, 2020.

The Ph.D. project is scheduled for four years. The salary follows the guidelines of the Swiss National Science Foundation for Ph.D. positions.

Application:

Applications (including CV, university diploma copies, record of study, possible references) should be received no later than September 10, 2019 at the following (first) address:

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Informal inquiries may be obtained at both of the above addresses.

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