

Open Position at the Astronomical Institute of the University of Bern

The Astronomical Institute of the University of Bern (AIUB) is currently in the grant preparation phase with the European Commission to launch 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 will be available for a

Ph.D. CANDIDATE (Position No. 3)

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.

SLR data will play a crucial role to exploit co-location platforms in space for reference frame computations. The tasks of the Ph.D. Candidate will focus on the homogenous processing of SLR data to a large variety of spherical, GNSS, and LEO satellites, and to combine the resulting normal equations with results from fully consistent GNSS analyses. Significant effort shall be devoted on the identification and reduction of SLR systematic errors at both station and satellite level. Especially the potential of newly creating SLR normal points from the full-rate data recently released from all stations of the International Laser Ranging Service (ILRS) shall be assessed. For this activity a collaboration with the Swiss Optical Ground Station and Geodynamics Observatory in Zimmerwald, one of the most productive SLR stations worldwide, is foreseen.

Education:

The candidate is expected to have successfully completed a master thesis (diploma/“Lizentiat”) in astronomy, geodesy, physics, mathematics, or a related topic. Experience with Satellite Laser Ranging data 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 May 01, 2019.

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 as soon as possible but no later than February 3, 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.