The Technical University of Berlin (TUB) is coordinating the Research Group NEROGRAV (New Refined Observations of Climate Change from Spaceborne Gravity Missions), expected to be funded by the German Research Foundation (DFG, final decision early December 2018). NEROGRAV is aiming at improving and better understanding of sensor data, background models, and processing strategies of GRACE (Gravity Recovery and Climate Experiment) and GRACE-FO (Follow-on) satellite data in order to increase resolution, accuracy, and long-term consistency of related mass transport time series.

Within NEROGRAV TUB will be responsible, together with TU Munich (TUM), for the individual project “Optimized space-time parameterization for GRACE and GRACE-FO data analysis (OSTPAG)”. Here we will focus a) on methodology developments for optimized instrument parameterization (accelerometer, K-band ranging, Laser Ranging Interferometer) and optimized spatial-temporal parameterization for tidal and non-tidal signals and b) on a concerted effort of full-scale numerical simulations and GRACE/GRACE-FO real data analysis. For both we need a close cooperation with TUM and additionally with Section 1.2 “Global Geomonitoring and Gravity Field” of the GFZ German Research Centre for Geosciences outer branch in Oberpfaffenhofen (near Munich) as GFZ is operationally running the Earth Parameter and Orbit System software package (EPOS with its core module EPOS-OC) for GRACE and GRACE-FO, which needs also be used for OSTPAG.

We invite applications – under restriction of final funding - for a

**PhD position (m/f)**

**Job Vacancy No. XXXX**

**Your tasks:**

- Derive stochastic and deterministic error characterization for the microwave K-band ranging and Laser Interferometer
- Analysis of instrument parameter correlations from GFZ’s release 06 gravity field time series
- Handling of the Earth Parameter and Orbit System software EPOS-OC and its periphery for GRACE/GRACE-FO simulation and real data analysis
- Implementation and application of improved methods for parametrization of tidal and non-tidal signals (provided by TUM) with EPOS-OC
- Reprocessing of selected months of GRACE and GRACE-FO real mission data using EPOS-OC
- Validation of the implementations (e.g. by simulations)
- Cross-calibration of the GRACE and GRACE-FO missions (instrument level, gravity model level)
- Collaboration in the research group NEROGRAV
- Preparation and presentation of results in project meetings, symposia, and in scientific journals
- Preparation of a PhD thesis

**Your qualifications:**

- Master in Geodesy or adequate
- Expertise in satellite geodesy
- Expertise in least squares adjustment (observation level) and linear algebra (normal equation level)
- Expertise in precise orbit determination
- Expertise in estimation of gravity field parameters and other geodetic parameters from satellite tracking data (high-low GNSS, low-low inter-satellite links, SLR, and others)
- Expertise in data processing under LINUX and shell scripting
- Expertise in FORTRAN
- Ability for independent working
- Ability for and willingness to work in a multidisciplinary team and to communicate with external partners
- Good command of English

**Starting date:** April 1, 2019
**Location:** GFZ outer branch in Oberpfaffenhofen (near Munich)
**Fixed term:** 36 months
full-time (currently 39 h/week)

**Salary:** 100% EG 13 TVÖD-Bund (West)
**Application deadline:** 31.01.2019