



*Technische Universität Hamburg-Harburg*

The Institute of Geotechnical Engineering and Construction Management of Hamburg University of Technology (TUHH) is looking for a

### **PhD-student in Geotechnical Engineering**

who will work under the supervision of Prof. Jürgen Grabe in the two-year team-project

#### **“Multi-scale modelling of physical processes along the soil-water interface”**

(The possibility to extend the project is given.) The project is focused on the numerical modelling of physical processes at the interface between the saturated soil in seabed and the free water. This includes erosion, transport and sedimentation processes especially in submarine slopes that are disturbed due to surface waves, tidal flow, extraction by suction etc. The project includes computer simulations based on CFD-DEM coupling, i. e. Computational Fluid Dynamics for the movement of free water and pore water of soil, Discrete Element Method for the movement of soil skeleton, and some kind of coupling. Therefore we cooperate with the CFDEM<sup>®</sup> project and use the Open source codes OpenFOAM (CFD) and LIGGGHTS (DEM). Additional small-scale model tests have to be carried out to validate simulation models.

The candidate should have the following qualifications:

- Master-degree (M. Sc.) in Civil Engineering, Mechanical Engineering, Process Engineering, Particle Technology Engineering, Physics or Technical-oriented Mathematics.
- Competence in numerical modelling.
- Knowledge in soil mechanics is advantageous.
- Knowledge in programming language C/C++ as well as in CFD- and DEM-simulations is advantageous.
- Language: German, English with the possibility to learn German.

Deadline of application submission is 2015 December 23<sup>rd</sup>. Please send usual documents to

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or via E-mail to [geschaeftsstellepv32@tu-harburg.hamburg.de](mailto:geschaeftsstellepv32@tu-harburg.hamburg.de). Don't forget to refer to ID No. D-15-160 in your application. Please don't send original documents. Please contact Dr. Hans Hügel ([h.huegel@tuhh.de](mailto:h.huegel@tuhh.de)) for any questions regarding the research project.