

PhD position in Computational Mechanics at [Laboratoire Sols, Solides, Structures – Risques \(3S-R\)](#), [Université Joseph Fourier](#), Grenoble, France

## **Multi-scale modeling of failure: from distributed damage to macroscopic fracture**

### **Key words**

Multi-scale, homogenization, damage, fracture, discontinuities, gfem, xfem, geomaterials (concrete, rocks, soils)

### **Job description**

A fully funded PhD position is immediately available in the area of multi-scale modeling of geomaterials within the research project *Failure of cohesive geomaterials: bridging the scales - GEOBRIDGE* at [Laboratoire Sols, Solides, Structures – Risques \(3S-R\)](#), [Université Joseph Fourier](#), Grenoble, France. The aim of this project is to define micromechanically-informed models for macroscopic fracture characterization. This will be done by identifying suitable constitutive laws that represent characteristic failure modes in geomaterials at the microlevel employing analytical and computational homogenization techniques. The student will work under the supervision of [Professor Cristian Dascalu](#) (Université Joseph Fourier, France) and [Dr Angelo Simone](#) (Delft University of Technology, the Netherlands). The work will be conducted for most of the time in France with periods in the Netherlands.

### **Requirements**

We seek candidates with a master degree in engineering, physics, geophysics, applied mathematics, or a related field. Desirable applicants should also possess the following qualifications: good oral and written communication skills, knowledge of continuum mechanics and fracture mechanics, knowledge of the finite element method, good computational background in a scientific programming language.

### **Conditions of employment**

Estimated salary per month (after taxes): EUR 1.440

Employment duration: 3 years

Employment commencement date: no later than September 1st (Wed), 2010

Location: Laboratoire Sols, Solides, Structures - Risques (3S-R), Grenoble, France and Computational Mechanics Group, Faculty of Civil Engineering and Geosciences, Delft University of Technology, Delft, the Netherlands

### **How to apply**

Inquiries and applications (the latter as a single pdf-file) should be sent by email to [a.simone@tudelft.nl](mailto:a.simone@tudelft.nl) or [Cristian.Dascalu@hmg.inpg.fr](mailto:Cristian.Dascalu@hmg.inpg.fr). The application file will include a one-page cover letter describing interests and qualifications for the position, a complete curriculum vitae, the contact information of at least two referees, and a scan of official academic transcripts with an official translation into English if necessary.