



OPEN POSITION

IMDEA Materials Institute is a non-profit research organization, promoted by the Regional Government of Madrid, Spain, to carry out research activities in Materials Science and Engineering. More information can be found at www.materials.imdea.org

The research group of Multiscale Materials Modeling at IMDEA Materials is seeking two

PhD candidates - Multiscale modeling of lattice materials fabricated by Additive Manufacturing

(Ref: MOAMMM)

to carry out a PhD in Computational Mechanics and Materials Science. The candidates will develop computational models to study the mechanical response polymer-based lattice structures fabricated by additive manufacturing (AM). The PhD will be done in the framework of the European FET-Open project MOAMM (Multi-scale Optimization for Additive Manufacturing of fatigue resistant shock-absorbing MetaMaterials). The PhDs will be focused on (1) the development of **constitutive equations** for the non-linear mechanical response of the AM-fabricated polymers (2) Computational homogenization of the response of the lattice materials using both **finite elements and FFT based homogenization** (3) **The uncertainty quantification** of the geometrical and material parameters in the behavior at the microscale (4) **Topological optimization** at two scales: lattice and final part microstructures.

The PhD candidates will work in collaboration with IMDEA-Materials Institute (Spain), University of Liege (Belgium) and Catholique University of Louvain (Belgium) and positions will imply research stages between the different institutions.

The candidate will learn advanced concepts in materials modeling, nonlinear computational mechanics, fracture and fatigue of polymers, finite elements, FFT solvers, optimization, etc, and gain hands-on experience in scientific programming for multi-scale modeling. The student will get experience in a technological field with high employability

Starting date: as soon as possible

Requirements: The optimum candidate should have a Master in Mechanical engineering, Applied Mathematics, in Materials science, Physics or similar or finish it this academic year.

High level of English is mandatory.

In addition, knowledge of some of the following fields will be positive

- Continuum Mechanics, finite elements
- Programming skills (python, C++, fortran)
- Materials science

Conditions: - Starting date: Available immediately; open until filled.

- Full time contract including social security coverage.
- Enrolment in an academic PhD program.

Contact: Interested candidates please send your CV **indicating the job reference, reference letters, and your academic grades**, to:

<http://jobs.materials.imdea.org>