



Post Doctoral Openings in Computational Fracture and Damage mechanics

The Division of Physical Sciences and Engineering at King Abdullah University of Science and Technology (KAUST), Saudi Arabia, invites applications for Postdoctoral fellow in Mechanical Engineering at the Composite and Heterogeneous Material Analysis and Simulation Laboratory (COHMAS, <http://cohmas.kaust.edu.sa>).

Field of study

Postdoctoral openings are available in “**Computational Mechanics**” with applications to interfacial mechanics in laminated composites.

The project is related to the optimization of a specific family of patterned interfaces that can be described on demand. The final objective will be the design of optimal morphology leading to superior performances in adhesive bonding.

On top of the below qualifications, a strong background in damage mechanics, fracture mechanics, simulation of heterogeneous materials and adhesive/cohesive failure, implementation of user development in Abaqus is requested.

Qualifications

The successful candidate must hold a Ph.D. in Mechanical Engineering, Applied Mathematics, Material Science or other relevant discipline. He/She must have a strong background in one or more of the following fields: experimental solid mechanics, fracture and damage mechanics, polymeric materials, bio-inspired materials, homogenization and microstructure generation. For any position, an in-depth knowledge of theoretical mechanics is a firm requirement.

A high level of self-motivation, strong publication record and a good command of oral and written English, the ability to work in a team, as well as alone and good organizational skills are essential.

Other duties

The Postdoctoral fellow will be actively engaged in student mentoring (directed research, Masters thesis students). He/She will also be in charge of developing further the facilities of the laboratory. The candidate will also be in charge of delivering regular reports related to the associated grant.

Appointment

1 year, renewable up to three years by mutual agreement. The candidate is expected to join the team as soon as a successful interview has been completed.

Benefits

In addition to a competitive salary, the successful candidate will enjoy a generous benefit package including medical insurance, on-campus free housing, K-12 schools, paid airfare (at start and end of contract) and outstanding recreational facilities.

Application Requirements

Only applications providing all application requirements will be considered further. Applicant requirements are as below. They should be numbered and attached to the application in that order:

- 1- Detailed CV including list of publications, awards, with potential start date.
- 2- Short statement of previous work, title of the post-doc fellowship you apply for, and a description of your vision and of your research plan on that field (the document does not need to be extensive - no more than one A4 page – but should be very high quality. It should clearly highlight a vision of the candidate in the field, a prior understanding of the related literature and the definition of key steps towards innovative results in the field. Special care should be given by the candidate to this document, which is a key element of the decision process towards recruitment).
- 3- Names and contact information of three referees.
- 4- Slides from a recent presentation in a conference or seminar.
- 5- Pdf of a recent publication considered by the candidate as being representative of his research work.

Interested applicants should send their complete application package to Dr. Gilles Lubineau (gilles.lubineau@kaust.edu.sa) (with a systematic cc to xinying.zhang@kaust.edu.sa)

PLEASE USE this as the subject of your email: Post Doc COHMAS18– Computational Mechanics

About KAUST and the COHMAS laboratory

The Composite and Heterogeneous Material Analysis and Simulation Laboratory (COHMAS) is located at King Abdullah University of Science and Technology and forms part of the Physical Science and Engineering Division. It was created in 2009 as an integrated environment for composite science, with the strong desire to combine modeling and experimental expertise in a single working environment.

Our general research activities include:

- ***Developing advanced materials:*** conducting polymer fibers based on conductive nanoparticles or conductive polymers, multifunctional materials for sensing with tailorable piezoresistivity, biomass-based material and bio-inspired interfaces.
- ***Understanding and predicting the integrity of materials and structures:*** tracking the degradation by a variety of characterization techniques (X-ray tomography, full field measurements, high resolution microscopy), non-destructive testing (ultrasounds, acoustic emission) and structural health monitoring (Electrical Impedance Tomography, optical fibers) with applications to several materials ranging from thermoset and thermoplastic laminates to conductive materials for the energy sector
- ***Advancing modeling and computational techniques:*** inverse problems for the identification of material parameters based on full-field measurements, coupling techniques between non-local and local continuum mechanics for simulation of severe crack propagation, multiphysics modeling for aging and integrity of multifunctional materials, simulation techniques for electrically conductive nano materials.