



POSTDOCTORAL OPENINGS IN THREE AREAS

- ◆ **Functional Nanocomposites & Wearable Electronics**
- ◆ **Experimental Mechanics of Composites**
- ◆ **Computational Fracture & Damage mechanics**

Institution

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)**

Benefits

In addition to a competitive salary, the successful candidate will enjoy a generous benefits package and access to state of the art equipment



FIELD OF STUDY

Functional Nanocomposites with applications to epidermal electronics and wearable electronics. This project is related to the development of a new family of distributed and wearable sensors for applications in both human body and structural health monitoring. Additional details will be provided to relevant applicants

Experimental Mechanics of Composites with applications to bonded joints in composite structures. This project aims at optimizing the performance of patterned bonded joints to make them a viable technology for critical composite applications.

Computational Mechanics with applications to integrity of composite materials. The objective is to develop the theoretical and computational tools needed for the prediction of damage response of composite in specific configurations. A strong computational and damage mechanics background is required.

SPECIFIC QUALIFICATIONS

A strong background in nanocomposites, functional materials, wearable electronics, wireless communications, techniques for epidermal electronics, experimental solid mechanics, polymeric materials, material science, material synthesis, carbon nanoparticles based sensors, and conductive polymers

A strong background in damage mechanics, fracture mechanics, experimental testing of composites, fabrication of composites, experimental solid mechanics, polymeric materials, and mechanical testing

A strong background in damage mechanics, fracture mechanics, simulation of heterogeneous materials and adhesive/cohesive failure, implementation of user development in Abaqus, experimental solid mechanics, polymeric materials, homogenization and microstructure generation

GENERAL QUALIFICATIONS

The successful candidate must hold a Ph.D. in Mechanical Engineering, Material Science, Applied Mathematics, Chemistry or other relevant discipline. 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 further developing the facilities in the laboratory. The candidate will also be in charge of delivering regular reports related to the associated grant

Appointment

One 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

Application Requirements

Only applications providing all application requirements will be further considered. These requirements should be numbered and attached to the application following this 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 are applying for, and a description of your vision and 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 will be a key element for 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

Applicants interested in the position 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, according to the area you are applying to, use this label as the subject of your email: Post Doc COHMAS18 – Functional Nanocomposites | or Post Doc COHMAS18 – Experimental Mechanics | or Post Doc COHMAS18 – Computational Mechanics

About Us

The COHMAS lab in KAUST 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 computed 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

