

Post Doctoral Openings, COHMAS Laboratory, KAUST

Computed Tomography based techniques for multi scale testing and identification

<http://cohmas.kaust.edu.sa>

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

Field of study

This postdoctoral fellowship aims at improving today practices towards a better usage of X Ray Computed Tomography for multi scale testing of hierarchical materials and composites. The candidates will be in charge of developing new concepts at all levels: instrumentation, testing technique, image analysis and post processing to provide innovative results on materials/structures of interest (will be disclosed latter, part of a special program).

The candidate will have full and unlimited access to COHMAS CT testing facilities (SkyScan 1172, Metris XT225H) that include in situ testing capabilities. This is then a clear opportunity for a Post Doctoral fellow who wants to establish himself by developing some unprecedented works in X Ray CT.

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, full-field measurements.

The successful candidate must have a demonstrated experience in XRay tomography and in in-situ testing. A candidate with high computational skills especially in post treatment algorithms, reconstruction, filtering will be seriously considered.

We remind that, for any position, an in-depth knowledge of theoretical solid mechanics is a firm requirement.

A high level of self-motivation, strong publication record, professional competence and a good command of oral and written English, PC skills, 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 required to deliver 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. The deadline for the submission of applications is the **31st of July 2015**, but the position can be closed earlier if a suitable candidate is found.

Benefits

The successful candidate will enjoy an internationally highly competitive salary and a state of the art benefit package including medical/dental insurance, on-campus free housing, K-12 schools, 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 (please use as subject for your email: Post Doc Application – COHMAS 2015):

- 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 highly 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: xianhou.nie@kaust.edu.sa)

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:

- Integrity of composite materials and structures: isotropic and anisotropic damage theories, fracture mechanics, homogenization techniques bridging micro-mechanical models to meso/macro- scale models.
- Durability of composite materials and structures: modeling of aging for polymer-based CFRPs under various environments, development of multiphysics-related models (experimental, modeling and computational work).
- Inverse problems for the identification of constitutive parameters: digital image correlation- based identification techniques, identification techniques for interfaces in joints and laminates.
- Multi scale coupling techniques: coupling between molecular models, non-local continuum and local continuum models.

COHMAS develops and validates techniques to achieve the better design of composite materials based structures. Most of this research is done in tight cooperation with major industrial partners ensuring a high level applied research based on advanced theoretical concepts.