Join our Lab

Mechanics of Composites for Energy and Mobility

Post-Doctoral Fellow in AI for Composite Modelling

We seek a highly motivated Post-Doctoral Fellow to join **MCEM (Mechanics of Composites for Energy and Mobility)**. As a key member of our organization, you will play a pivotal role in developing AI-inspired approaches for modeling, designing, and predicting the response of composite systems.

Responsibilities:

• Develop AI approaches for predictive multi-physics response of composites in Energy Environment exposed to high pressure / high temperature / mechanical and environmental loading.
• Develop accelerated multiscale approaches using AI-based scale transition and homogenization.
• Develop AI-based predictors and interpreters for maps of damage and/or other fields, ensuring physics-based predictive maintenance.
• Plan and execute research tasks, analyzing data, publishing findings in peer-reviewed journals, and presenting research at scientific conferences.
• May participate in the development of patent applications.

Qualifications:

• Ph.D. with experience in AI/ML applied to Solid Mechanics constitutive modeling.
• Experience in materials for Energy, Oil & Gas, and/or Hydrogen is a must.
• Strong publications record in Q1 journals.
• Strong analytical and problem-solving skills.
• Effective communication skills.
• Proficiency in the preparation of research project proposals, the execution of research projects, and the project budget and schedule management.
• Proficiency in spoken and written English.

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King Abdullah University of Science and Technology

composites.kaust.edu.sa

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Application Requirements:

• Detailed CV.
• Cover letter.
• List of publications.
• Slides from a recent presentation in a conference or seminar.
• Three or more PDFs of recent publications considered by the candidate as being representative of his research work.
• List of three referees with complete contact information, including full details of last employer.

Interested applicants should send their complete application package to Prof. Gilles Lubineau (gilles.lubineau@kaust.edu.sa) (With a systematic cc to khathijah.osman@kaust.edu.sa). PLEASE USE this as the subject of your email: **MCEM_PD_OPE#1.**

Only applications providing all requirements will be considered further.

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About MCEM laboratory

The Mechanics of Composites for Energy and Mobility Laboratory (Composites Lab) is located at King Abdullah University of Science and Technology and is part of the Physical Science and Engineering Division. The Composites Lab started at KAUST in 2009 and is an integrated environment for composite science, combining modeling and experimental expertise in a single working environment.

OUR MISSION: Support Energy transition by providing innovative composite solutions or optimizing the usage of existing solutions in demanding Energy and Mobility applications.

Our laboratory expertise incorporates three main areas:

• **Design of materials in representative environments of energy applications:** In-situ testing facilities and characterization techniques (Generation of unique databases on well-identified frames), validated models in operational conditions (New models based on real in-situ observations and mechanism).

• **Microstructure manipulation for tailoring macroscopic response:** Toughing mechanism using surface on involume spatial variations.

• **Structural health monitoring (SHM) and smart structures for composite infrastructures:** Wireless surface gauges and integrated sensors, SHM/NDT/Inline/Online.

The Composites Lab develops and authenticates techniques to achieve better designs of composite material-based structures. Much of this research is done in close cooperation with major industrial partners. This ensures a high level of applied research based on advanced theoretical concepts.

Prof. Gilles Lubineau
Principal Investigator of Mechanics of Composites for Energy and Mobility
Professor of Mechanical Engineering

Mechanics of Composites for Energy and Mobility

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About King Abdullah University of Science and Technology (KAUST)

Established in 2009, King Abdullah University of Science and Technology (KAUST) is a graduate research university devoted to finding solutions for some of the most pressing scientific and technological challenges in the world as well as Saudi Arabia in the areas of food and health, water, energy, environment and the digital domain. KAUST is a curiosity-driven, interdisciplinary problem-solving environment, with state-of-the-art labs, distinguished faculty and talented students.

KAUST brings together the best minds from around the world to advance research. More than 120 different nationalities live, work and study on campus. KAUST is also a catalyst for innovation, economic development and social prosperity, with research resulting in novel patents and products, enterprising startups, regional and global initiatives, and collaboration with other academic institutions, industries and Saudi agencies.

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