



Research Engineer opening in Wireless Sensor System for Structural Health Monitoring (SHM)

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 Mechanics of Composites for Energy and Mobility Lab. (MCEM, <https://composites.kaust.edu.sa>).

Field of study:

We are seeking a highly motivated Research Engineer to join our research lab and contribute to the development of wireless sensor systems for Structural Health Monitoring (SHM) applications. The role focuses on mechatronic system development, with strong emphasis on electronics, embedded systems, and experimental validation.

The successful candidate will work closely with researchers to design, fabricate, test, and deploy wireless sensing platforms for monitoring the condition of engineering structures.

Key responsibilities:

- Design and develop wireless sensor systems for SHM applications
- Perform circuit design, simulation, and testing
- Design, fabricate, and assemble printed circuit boards (PCBs)
- Develop embedded systems (firmware for microcontrollers and wireless modules)
- Interface sensors (strain, vibration, temperature, etc.) with data acquisition systems
- Conduct experimental testing, calibration, and performance validation
- Integrate sensors with mechanical structures and laboratory test setups
- Analyze experimental data and document results
- Contribute to technical reports, research papers, and project documentation
- Support lab activities and collaborate with multidisciplinary research teams

Qualifications

- Bachelor's or Master's degree in Mechatronics Engineering, Mechanical Engineering, Electrical Engineering, or a related field.

- Strong hands-on experience in:
 - Analog and digital circuit design and testing
 - PCB design and fabrication
 - Embedded systems and microcontrollers (e.g., Arduino, STM32, ESP32, or similar)
 - Sensor interfacing and data acquisition
- Solid background in mechatronic systems and experimental hardware development
- Experience with laboratory instrumentation and testing procedures
- Proficient English language skills (written and spoken)

Preferred Qualifications

- Experience with wireless communication protocols (BLE, LoRa, Zigbee, Wi-Fi, etc.)
- Familiarity with SHM concepts (strain, vibration, modal analysis, damage detection)
- Experience with CAD tools for PCB design (Altium, KiCad, Eagle, etc.)
- Basic knowledge of signal processing and data analysis
- Prior experience in research labs or R&D environments
- Experience with RF design (e.g., antennas, impedance matching, RF front-end circuits)

Appointment

One year renewable 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 benefits package, details can be provided by Human Resources

Application Requirements

Only applications providing all requirements will be considered further.

Applicant requirements are as below. They should be numbered and attached to the application in the following order:

1. Applicant requirements are as below. They should be numbered and attached to the application in the following order:
2. Detailed CV.
3. Cover Letter.
4. Names and contact information of three referees.

Interested applicants should send their complete application package to Prof. Gilles Lubineau (gilles.lubineau@kaust.edu.sa) (With a systematic cc to hassan.mahmoud@kaust.edu.sa and rizwan.bajwa@kaust.edu.sa).

PLEASE USE this as the subject of your email: Research Engineer – MCEM - Sensor.

Note: Applicant will be evaluated on a rolling basis and closed as soon as the position is filled.



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 in-volute 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



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.

