

Post-doctoral positions: Development of miniature atomic sensors

Starting date: December 2021.

Duration: 12 months.

Location: IEMN Central laboratory, Villeneuve d'Ascq, France.

Funding: Centrale Lille Institut and Région Hauts-de-France.

Keywords: Metrology, microfabrication, microfluidics, atomic physics, spectroscopy.

The Centrale Lille Institut offers two post-doctoral positions in the field of miniature atomic sensors. The successful candidate will join the AIMAN-FILMS group at the Institute of Electronics, Microelectronics and Nanotechnology (IEMN) in Villeneuve d'Ascq, France.

This project aims at developing a novel type of sensor that relies on atoms to sense and image electromagnetic fields with an extreme sensitivity in a compact and practical form-factor.

For decades, the interrogation of atoms with lasers has allowed the development of ever-improving laboratory instruments such as atomic clocks, magnetometers and RF field sensors. However, interrogating and confining atoms in an ideal way still requires complex and bulky setups preventing their deployment in many field applications.

By joining our team, you will contribute to the development of a new generation of integrated atomic devices that fully benefits from the advances in microfabrication techniques to implement atom interrogation schemes that still remain out of reach in current miniature devices. The resulting gain in sensitivity and portability will be beneficial in multiple applications ranging from telecommunications to neuroscience.

Preferred skills and profile:

- PhD in engineering or physics (atomic, molecular and optical physics in particular).
- Autonomous, DIY enthusiast, curious about the subject.
- Experienced in at least one of the following topics: microfabrication processes, microfluidics, laser spectroscopy of atoms or molecules, vacuum apparatus.
- Preferably familiar with CAD (e.g. Inventor), photomask designs (e.g. Klayout), Python programming, electronics and instrumentation.

Ideally, the first profile would revolve around microfabrication, microfluidics and vacuum systems while the second profile would cover optics, lasers and spectroscopy.

Candidates with the relevant skills who do not have a PhD are still encouraged to apply.

To apply or for additional information, please reach out to:

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