

POST-DOC Project EIPHI GS DETECTBIOMAIR_H2

Job title	Development of surface acoustic wave sensors for the detection of low concentration of carbon monoxide in hydrogen for a fuel cell application and of biomarkers in patient's breath in the framework of the DETECTBIOMAIR_H2 project.
Job type (PhD, Post-doc, Engineer)	Post doc
Contract duration (months)	12
Qualifications (Master, Ph.D ...)	PhD
Employer	UBFC Université Bourgogne Franche-Comté
Financing Institutions	Région Bourgogne Franche-Comté & Graduate School EIPHI
Host Laboratory	FEMTO-ST Institute, Times and frequency Department, COSYMA Team
URL Host Laboratory	https://www.femto-st.fr/fr
Address Host Laboratory	ENSMM, 26 chemin de l'Épitaphe
Job description	His/her work will mainly consist of technological developments in order to improve the sensitivity of the sensors with respect to the targeted gases. He/she will also ensure the theoretical development of the acoustic components with the help of adapted software. The latter have been created within the COSYMA team and continue to be developed regularly. The sensors must be functionalized to be sensitive specifically to CO and biomarkers present in the breath, an important work will consist in realizing these deposits and finding the best conditions to make them selective and efficient for the two targeted applications. The selectivity and sensitivity being the challenge of this project. It will also be necessary to adapt the current measuring cells used in the laboratory to hydrogen pipes in the case of the "energy" application and to pockets containing patient's breath in the case of the "health" application. During the course of this project, the IR will naturally be led to write reports and technical publications in order to valorize the results obtained during this study.
Supervisor(s)	
Candidate profile	General knowledge in physics, electronics, surface functionalization and gas injection. Knowledge of micro-fabrication processes (photolithography, vacuum deposition...). Knowledge of engineering techniques in measurement and characterization. Ability to work independently and research new solutions in relation to the literature. Mastery of scientific and technical English in the field in writing and speaking. The expected sensitivity (only a few ppb) is within the physical and theoretical limits of the SAW sensor, two areas of expertise are required: that of the theory and design of the sensors and that of their functionalization.
Keywords	SAW sensors, CO and biomarker detection,
Application deadline	1 janvier 2023
Application Depending on the type of position	Please send the following documents (all in one PDF file) by e-mail to virginie.blondeau@femto-st.fr :

1) For EU candidates: Copy of your national ID card or of your passport page where your photo is printed.
For non-EU candidates: Copy of your passport page where your photo is printed.

2) Curriculum Vitae (may include hyperlinks to your ResearchID, Research Gate, Google Scholar accounts).

3) Detailed list of publications (may include hyperlinks to DOI of publications).

4) Letter of motivation relatively to the position (Cover Letter) (maximum 1 page)

5) Copy of your PhD degree if already available.

6) Coordinates of reference persons (maximum 3):
Title, Name, organization, e-mail.

If you have questions regarding the application, you can contact the supervisor.