

Clean room process engineer/researcher for development of volume and surface acoustic wave devices

Domain: microfabrication, clean room, acoustic wave devices

Laboratory FEMTO-ST, SUPMICROTECH-ENSMM
Département Temps-Fréquence / CoSyMA
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Project context

The FEMTO-ST institute (Franche-Comté Electronic Mechanical Thermal and Optical – Sciences and Technologies, UMR 6174), is a mixed research unit, placed under the main supervision of the National Center for Scientific Research (CNRS) and the Bourgogne Franche-Comté University (UBFC) as well as the University of Franche-Comté (UFC), the École Nationale Supérieure de Mécanique et des Microtechniques (SUPMICROTECH-ENSMM) and the Belfort-Montbéliard University of Technology (UTBM). The Institute's strategy is to develop scientific research of excellence with a socio-academic and socio-economic impact based on a collective and responsible dynamic. Today it has more than 750 members, common services and seven departments, including the Time-Frequency department. Within the Time-Frequency department, the Micro-Acoustic Components and Systems (CoSyMA) team focuses its research on applications around frequency sources, filters and elastic volume and surface wave sensors. The candidate will work in close partnership with scientists from the FEMTO-ST Institute and will benefit from the facilities and expertise of the MIMENTO technology center.

Job subject

Passive devices with acoustic waves guided or confined in volume or surface microstructures are widely used for the stabilization of oscillators in the radio frequency (RF) domain and low-loss band filtering for telecommunications. Technological developments and possibilities now make it possible to consider new devices with increased performance to meet different applications. As part of the SMART-POI (Nano2025) and HOMERIT (RAPID) research projects, the aim is to develop new technological sectors. The concrete development of passive Radio Frequency components involves the association of detailed studies and simulations with numerous technological developments within the MIMENTO clean room. The work will be carried out within the CoSyMA team of FEMTO-ST in collaboration with a team (PhD, engineer ...)

Job objective

The mission aims to develop the technology of frequency sources based on High Bulk Acoustic Resonator type volume wave resonators and surface wave resonators on composite substrate. This involves developing technological sectors and their sustainability to produce resonators with low sensitivity to the effects of temperature and vibrations. The encapsulation of these resonators will be addressed with a “wafer level packaging” approach and/or integration into a ceramic package. The characterizations necessary for the functional demonstration will be carried out by the candidate. A valorization of the work is requested either by filing a patent or publication in rank A journals.

Dates: early 2024, duration 1 to 3 years

Salary Following experience

Selection process

Interested candidates are invited to apply, by email (email subject: Application *Last name First name* job offer micro manufacturing of acoustic wave components), attaching a CV and a cover letter to Thomas Baron:

thomas.baron@femto-st.fr