

TEMPS FREQUENCE

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Postdoctoral research assistant

Institute FEMTO-ST/The University of Franche-Comté

The University of Franche-Comté is a multidisciplinary university established in different parts of the region Franche-Comté. FEMTO-ST institute (Besançon, France) is a multidisciplinary research institute made up of six departments covering numerous domains of engineering sciences and including more than 500 scientific, administrative and technical support staff. About 225 PhD students receive a high-level training in scientific research. It is one of the most competitive research institutes in France and is among the leaders in the world on Engineering for micro and nanoscale. The institute is a major actor of the industrial pole "Microtechnics" in the Franche-Comté region. One of the key research topics at FEMTO-ST Institute is the development of devices based on electactive materials with particular emphasis on microelectromechanical systems (MEMS), photonics, electro-optics, phononics, acoustics and robotics. FEMTO-ST institute has a microfabrication technology center with clean room facilities MIMENTO mixing technologies from microelectronics to micromechanics. MIMENTO is a member of the national network of seven largest clean rooms in France (RTB). More details @ www.femto-st.fr

Dr. A. Bartasyte's research group works on the strain and chemical engineering of structural and physical properties of alkaline niobate/tantalate single crystals, films, heterostructures & nanostructures for miniaturized and/or integrated devices with better performance in acoustics, optics and energy harvesting and development of cost-effective synthesis routes/ treatments with scale-up potential viable for industrial applications/mass production of advanced functional materials with designed physical properties. At present, the A. Bartasyte's group is running several national and European projects ANR-PCRE-LiLit (2016), EU MSCN ETN- ENHANCE (2017) and industrial projects (TDK-EPCOS, Qualcomm, Annealsys) dedicated to the integration of LiNbO₃ thin films with the acoustic devices and piezoelectric energy harvesters. More info @ <http://members.femto-st.fr/ausrine-bartasyte/>.

Postdoctoral research assistant position is open in the frame of ANR LiLit project. The LiLit project entitled "Integration of LiNbO₃ films to Silicon technology for ultra-wide band and high-frequency RF filters (LiLit)" focus on the FBAR filters, based on highly coupled LiNbO₃ films, operating at 5-6 GHz and/or with relative bandwidth in excess of 10 %. A cost- and time-effective technology, with up-scaling possibility and compatibility with standard TFBAR processing are developed. The integration of LiNbO₃ films onto silicon technology would be a breakthrough in the information & communication industry (5G mobile phone infrastructures, data treatment, Wi-Fi, etc.). It would permit increasing the telecommunication frequencies from 2-3 GHz to 6 GHz or trade the increased electromechanical coupling factor of resonators for improved temperature compensation, quality factors or even to make them tuneable. This will allow ameliorated communication efficiency through increased and intensified transmission of information and reduced number of components. LiLit links France-leading research groups at academic institutions (FEMTO-ST, CEA-LETI, and INL) and industry to give a combined integrated approach of advanced synthesis/cutting-edge micro-fabrication, characterization, modelling linked to concepts for materials integration in smart devices and systems.



The postdoctoral researcher will work on the simulations and design of BAW devices, the electrical poling of the films and characterization of ferroelectric domain structure, the microfabrication of SAW and BAW devices in the clean room facilities and their characterization.

Requirements for candidates:

- PhD in physics, chemistry, materials science or a related discipline;
- Good English language skills, capacity to do scientific work on an independent basis and to work in a team;
- Expertise in the field of acoustic waves (SAW and/or BAW) and simulation tools is mandatory, knowledge in ferroelectrics, experience in microfabrication/characterization of SAW/BAW devices.

The position is limited to 18 months and starting as soon as possible. Salary will be defined according to French National grids and candidate's experience.

Please, send your application including cover letter, CV, reference letters, list of publications and copies of the relevant degrees to ausrine.bartasyte@univ-fcomte.fr as soon as possible. The position is open until it will be filled. For more information contact ausrine.bartasyte@univ-fcomte.fr.