



May 25, 2013

Open position: Post Doc specialist in MM and SUB-MMW technologies (M/F)

EPFL/LPMN and SWISSto12 SA are now opening a position for Research and Development activities focused on Terahertz Technologies. The project funded by CTI/KTI aims at developing a new family of Planar Probes for Dynamic Nuclear Polarization Enhanced Nuclear Magnetic Resonance

Nuclear Magnetic Resonance (NMR) is a widespread tool used for research in Chemistry, Physics and Biology. NMR Spectroscopy performances are greatly enhanced by Dynamic Nuclear Polarization (DNP). This technique involves irradiating samples with terahertz waves in order to excite the electron spin resonance. An innovative DNP-NMR probe based on a planar geometry has been recently patented by EPFL and CNR(I). Among other unprecedented features, this new piece of instrumentation (the probe) will allow the study of biological samples at room temperature.

SWISSto12 is a private start-up company, spin-off of the Swiss Federal Institute of Technology in Lausanne, (EPFL). It aims at becoming a leading supplier of components and systems for Terahertz (THz) signal transmission. SWISSto12 holds exclusive licenses for patent applications owned by the EPFL, of which the company founders are the inventors. These patent applications cover manufacturing techniques that are the first ones to enable the production of efficient THz signal transmission components over the full THz frequency range.

The strategic market position of SWISSto12 can only be developed and sustained through a strong and continuous R&D effort, allowing it to stay in tune with the latest developments. This effort is currently distributed over different projects aiming at reducing production costs, increasing product performances, seeking new solutions for THz signal transmission, as well as developing new products in the domain of Terahertz transmission and probing. Through collaborations with various companies and research institutions around the world SWISSto12 interacts with the key stakeholders for the development of future THz systems and components.

Tasks :

- **Design and Numerical characterization of the probe.**
- **Cold Tests on Sub-Components on a brand-new THz lab at LPMN**
- **Probe Assembly**
- **Experimental Validation.**
- **Gyrotron DNP experiments for benchmark and training with an existing saddle-coil probe**
- **Interface with industrial partners and research institutions for R&D projects and collaborations.**

Profile required for this position:

- **A PhD in physics, electrical engineering or electronics covering research on applied electromagnetism, or demonstrated equivalent experience;**
- **Proven experience in laboratory tests and instrumentation development at a scientific R&D level;**
- **Proven ability to perform high-level analytical calculations and simulations using scientific software applications like Comsol, Matlab, Mathematica or equivalent;**
- **Experience with supporting software applications for equipment design or laboratory tests, e.g. SolidWorks, Labview etc. is considered an advantage;**
- **Innovative approach towards cutting edge R&D in electromagnetism;**
- **Autonomous and proactive working style;**
- **Communicating effectively, excellent relational skills and ability to work in a team;**
- **Languages: Fluent in English and possibly in French,.**
- **Ability to coordinate working groups with different professional and cultural backgrounds.**

Contract : with EPFL/LPMN, can be extended up to 3 years. An application containing a CV, a motivation letter, two reference letters and a copy of your diplomas and grades can be sent by mail at: jean-philippe.ansermet@epfl.ch