

M/F- Engineer or Post-Doc position on the Development of a radiofrequency instrumentation for application in agriculture

Context. The dielectric spectroscopy is an attractive characterization technique as intrinsically non-destructive and contactless. Consequently, the possible application areas of this technology are diverse, from biology for non-invasive detection of cancer, to agriculture with, for example, the analysis of the moisture content of granular compounds.

Abstract: The Post-Doctoral Fellowship, conducted within a national project, in partnership with industrials of the South-West region of France, is focused on the development of a new radiofrequency (RF – microwave range) dielectric spectroscopy instrumentation dedicated to the *in vivo* analysis of organs on living animals. It consists in continuing the development and optimization of a radiofrequency-based detection device, to be fitted with the object to evaluate, the development of the metrology, followed by the validation of the instrument's operation in laboratory conditions and in real situation.

This project combines interdisciplinary skills in the areas of radiofrequency (microwave electromagnetic modeling), instrumentation (acquisition and processing of signals / RF parameters) and agriculture (biological entities to be analyzed) to develop a functional system. It will be evaluated in lab and also in real condition.

Profile : The candidate should present an electrical engineering or physical background, with a strong interest in interdisciplinary researches. A good expertise in radiofrequencies and microwaves is highly recommended. Due to the implementation and testing of the RF system on animals, the candidate should not present any allergy to animals and constituents.

Location : LAAS-CNRS, MH2F team, Toulouse, France. The High Frequency and Fluidic Micro nanosystems team -MH2F- is located at LAAS in Toulouse, a CNRS laboratory. Its expertise covers the miniaturization of RF systems as well as the operation of RF signals for new biological assay systems from the molecular to the tissue levels. The team is strongly involved in the committee dedicated to "Biological Effect and Medical Applications of RF and Microwave" of IEEE Microwave Theory and Techniques Society. The technical skills of the MH2F team members cover the entire spectrum of RF design, technology to metrology.

Complementary information

Duration: 1 year, start during spring 2021, salary between 2648€ and 3054€ gross monthly depending on experience (after PhD)

Candidates should apply through the website <https://emploi.cnrs.fr> ; offer n°UPR8001-KATGRE-008

For further information, contact Katia Grenier, grenier@laas.fr ; tel. +33 5 61 33 62 91