March. 31st, 2021

Post-doctorate position in multi-physical non-destructive testing and post-processing for the imaging of materials defects.

ORGANISATION: Univ. of Bordeaux, Talence
LOCATION: Univ. of Bordeaux, Talence Campus, FRANCE
CALENDAR: 18-month full time beginning in October 2021 and onward.
SALARY: 31,150 € to 34,410 € per annum depending of qualification.

SUBJECT: Applications are invited for an 18-month full time post-doctorate position at the University of Bordeaux. The goal is to develop and to test a multi-instrumented non-destructive testing (NDT) system at the Innovation Centre for Non-Destructive Evaluation (ICNDE) of Bordeaux, France. This centre aims in creating a bridge between the academic developments in non-destructive evaluation techniques (ultrasounds, thermal, terahertz and X-ray) and the industrial needs. More specifically, two big companies of the aeronautic field, Dassault Aviation and ArianeGroup, are involved in the project. They will provide material samples (e.g. metallic, composite, adhesively-bonded components) and specific requirements for the non-destructive inspection of these materials.

The post-doctorate's tasks will consist to use, test and improve a new non-destructive inspection tool (the development of which started during another current post-doctorate) for the detection, localization, imaging and analysis of defects in materials and structures to be diagnosed. This system is an instrumented robot with multi-physical sources and detectors, and suitable software to drive robot scanning, signal acquisition and processing, image analysis, data storage, etc…. The recruited doctor will be in charge of the achievement of signal acquisition, data processing and image analysis, and should be able to suggest and to implement specific measurement strategies or processing, in order to enlarge the capabilities of the NDT prototype. He/she will also be in charge of testing the various material samples provided by the industrial partners, and to proceed with a full characterization of the robotized NDT system, *i.e.* to define its potentialities and its limits, but also to push these limits forwards. One of the objectives will consist in the combination of ultrasonic and electromagnetic data, in order to achieve optimum spatial resolution and to improve detectability of material defects, as well as NDT reliability. Candidates should be confident with (or at least open to) the use of various types of physical data / systems. Applications in the non-destructive characterization of material properties will also be of interest, for example the measurement of thermal resistivity, mechanical stiffness or material thickness, so developments in this purpose will be possible depending on the progress of the project.

Candidates should have:

- A PhD in applied physics or mechanics, engineering.
- Expertise in experimental data acquisition and data processing / imaging.
- Experience in non-destructive testing, material characterization.
- Experience in ultrasounds, thermal and/or terahertz.
- Good programming skills (Python or Matlab).

Application: Candidates are requested to submit a single pdf file containing:

- A letter motivating the application;
- A detailed CV;
- Reference letters or referent names.

to michel.castaings@u-bordeaux.fr

Selection will be based on merit and potential, measured in terms of academic records and personal achievements. Creativity, proactivity and capacity for teamwork will also be taken into account.