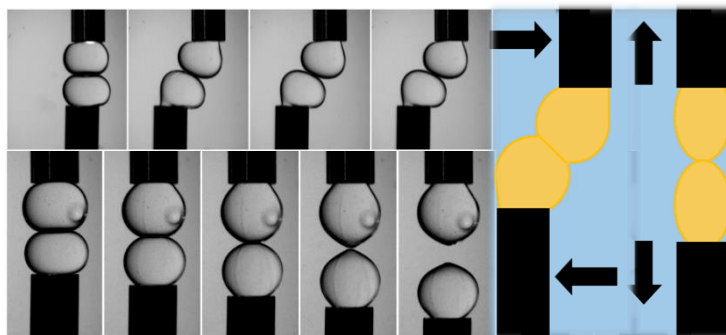


Engineer for the instrumentation of characterisation devices

Contract type/duration: CDD IE/3 years **Beginning of contract:** February 2020

Salary: 2080-2300 Euros gross salary depending on experience

Mission: The main mission of the engineer will be to develop a Labview-controlled experimental device capable of measuring the interactions between two bubbles or two drops using a piezoelectric micromanipulator, image analysis techniques and pressure measurements. A prototype already exists in the laboratory. From this project, a second prototype will be made to improve the design, to integrate a PID system for the volume of bubbles/drops and a synchronous image acquisition between two cameras to measure the deformation of asymmetric bubbles/drops. Reliable measurements of the bubble/drop pressure will be decisive. Part of the project time will therefore be affected to defining the best system for measuring the pressure in the gas/liquid phase inside bubbles/drops. The development will be carried out in interaction with other members of the international team and the data treatment process will be developed conjointly with other European laboratories, hence the need for a good level of English to participate in the meetings. In parallel, a range of smaller projects will be conducted to improve or adapt existing experimental devices to the current needs of the team.



Tasks:

- Design an instrument (controlled by LABVIEW and associated hardware) "Double Bubble" (see mission)
- Perform calculations on dimensioning and performance to design the "Double Bubble" apparatus
- Work with the rest of the team on punctual developments (1/4 of the time)
- Plan the specialists' interventions from different domains of technology if necessary
- Consult suppliers to drive the choice of materials and processes, prepare purchase requisitions
- Develop the metrological qualification of the instrument, perform validation tests and calibrations (accuracy, errors, uncertainties), write the procedures for use
- Write the associated technical documentation
- Present, spread and promote the developments, technologies and innovations of the laboratory

Required skills:

- Engineering sciences [Mechanical design: CAD (Inventor); Electronics: programming of microcontrollers, technological choice and integration of actuators and sensors, signal processing and interfacing; Image analysis: acquisition and processing of images, choice of optics, PID control]
- Physical sciences
- Development of experimental devices under Labview
- English: B1 to B2 (Common European Framework of Reference for Languages)

Environment: The engineer will be member of the team "Mechanics of Interfaces and Multiphase Systems" (MIM), which brings together 10 permanent and 15 non-permanent researchers and engineers. More specifically, the engineer will be recruited in the context of the European project (ERC), which aims to develop new types of foams and new tools to characterize them. As part of his/her mission, the engineer will work under the responsibility of the team characterization engineer (Leandro Jacomine), interacting with two instrumentation engineers and several researchers.



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Candidature: Portail emploi of the CNRS <http://bit.ly/2qGbPm5>