Re: A 2-Year PostDoctoral Position in Multi-Phase Electrohydrodynamics Flow

There is an open 2-years postdoctoral position in our group on experimental realization and diagnostics of multiphase flow problems. In our project we aim to develop reliable diagnostic tools to help designing efficient removal/mixing systems of an undesired suspended/dispersed phase from another continuous bulk phase, which is a situation frequently encountered in many industrial applications. These procedures have significant importance in industrial operations of chemical (mixing process in deep bed reaction systems), petroleum (oil-water separation systems), and biomedical industries (drug delivery encapsulating system) as well as in environmental processes (waste water treatment in car wash). This project targets in particular emulsion separation/mixing systems based on thermal and electrical treatments. The complete understanding of the physical phenomena at stake and the accurate prediction of such complex multi-phase, multi-physics system is then necessary to optimize the system parameters entirely.

The first step consists in designing and dimensioning the experimental set-up. This step will be jointly performed with the two senior researchers and 2 technicians in CORIA laboratory. In parallel with the development of the experiment, we will be focused on the adaptation of PIV and PLIF optical methods (seeding and dye selection for measurement with E-field, optimal signal filtering) to obtain accurate measurements with and without electric field (velocity, interface topology…) in the vicinity of interface with complex shape. We will design and manufacture fully new experiments that include fluid conduit, reservoir, heaters, electro-electric field generator, *etc.*. A fully “Home-made” experiments with optical accesses in the region of interest will ensure well-defined BCs as well as specific measurements to obtain its accurate quantification.

As such we are looking for a potential candidate with the strong background in developing and performing multiphase experimentation and diagnostics for the advertised position. Interested candidates should already finished his/her PhD or the defense date should not be later than end of Dec. 2025. Engineers with strong background on the subject will be considered for a period of one year with potential extension for the second year. Good communication skills are also pre-requisite. If interested, please send your CV along with 2 letters of recommendations to Dr. Shadloo at msshadloo@coria.fr or Dr. Le Cordier at bertrand.lecordier@coria.fr.