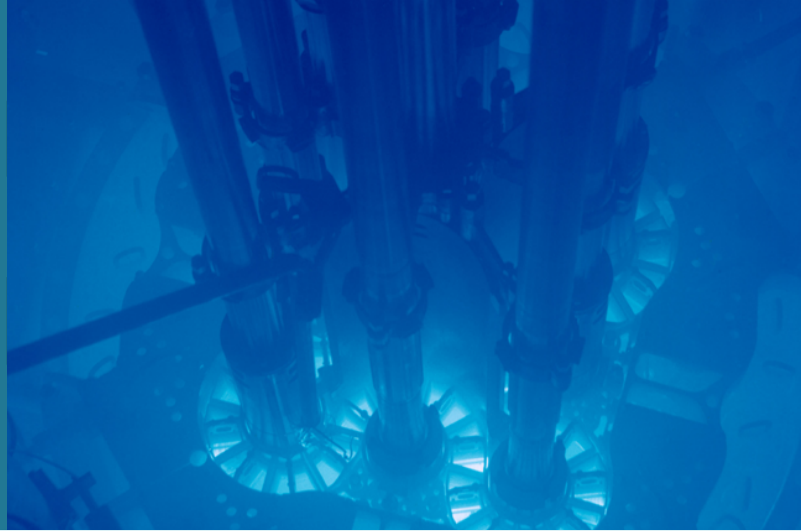# FICHE PROJET

LIFOLA

Spatial and temporal liquid flow characterization using laser diagnostics.

Inspiration

The LIFOLA project is about using lasers, which are intense, coherent light beams in a specific arrangement, in order to perform accurate diagnostics on liquid flows. Such liquid flows can be the ones found in the blood, in the channels with which nutrients are carried in trees and flowers, the flows found in microfluidic devices (used in biology and/or nanotechnology), or even the flow around a boat in the see or a lake. Studying these flows and their characteristics, enables us to understand them better and ultimately to make them better. For example, if we better understand how the water flows around a ship, then we can design the ship to sail more smoothly, ultimately making it more fuel efficient and thus limiting its environmental impact. The current state-of-the-art in tools that help measure, and thus quantify such flows, is perturbative in nature (in other words it perturbs the species it is supposed to measure) or limiting in capabilities (for example it only has limited resolution).

Innovation

LIFOLA aims to develop, for the first time to our knowledge, a novel, laser based diagnostic, non-intrusive and with high spatial resolution (on the order of 10's of micrometers). Upon successful completion, LIFOLA will deliver a one-of-a-kind diagnostic tool, that will enable substantial new knowledge to be obtained in a variety of fields, ranging from medicine and biology to nanotechnology and the maritime industry.

Impact

This will allow for very accurate diagnostics for liquid flows to better understand flow development under different conditions both spatially and temporally.

Partenaires

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