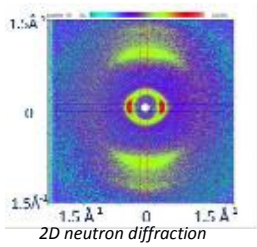
H2020 MSCA - ITN - 2017 - 766007

MaMi

Magnetics and Microhydrodynamics, from guided transport to delivery

ESR 5 From nano to macro-scales: identifying hidden properties of liquids

Research project	Extremely spread on the Earth, fundamental in the chain of life, the liquid state is however the least understood. Because the puzzling liquid properties are the more visible at the microfluidic scale, microfluidics does also open the route to identify the underneath mechanisms. At the Laboratoire Léon Brillouin, we have developed an experimental protocol to make possible to access a property so far neglected at the microfluidic scale: the "static" shear elasticity [1]. This discovery indicates that liquid molecules might be long range correlated and makes possible the identification of new effects such as cooling under flow. New improved micro-rheological, interfacial techniques and Large Facilities Instruments will be used in the frame of the PhD thesis "Solid-like Correlations in Liquids and Role of Interfacial Interactions" to identify the liquid/solid boundary parameters and characterize these new liquid properties from molecular up to macroscopic scales.  *2D neutron diffraction* *Exclusive license agreement* [1] Identification of a low-frequency elastic behaviour in liquid water, J. of Phys: Cond. Mat. 24:372101, 2012.
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Required profile	MS degree candidates with strong skills in liquid physics, physico-chemistry or materials, a motivation for experimental work and for the use of Large Facilities and, having not in the past 12 months studied in France. The successful candidate will benefit of a multidisciplinary network and of a competitive salary according to the Marie Curie regulations.