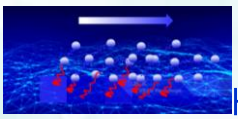
RESEARCH TOPICS:

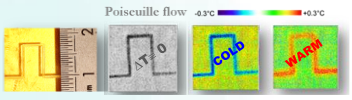
Current research aims at revealing hidden long range effects in confined fluids & at the liquid/solid interface

Low frequency dynamics: Low frequency behavior of fluids: a no man's land indicating that liquids mesoscopic liquids are not so different from solids.

The low frequency shear elasticity is accessible **optimizing the liquid/substrate interface**. Optimizing interfacial forces reveal various dynamic properties like dynamic optical birefringence, indicating that mesoscopic liquids, including ionic liquids, paramagnetic liquids, physiological fluids (blood) are long range elastically correlated.



High frequency dynamics: We investigate liquid-solid interfaces using inelastic scattering (**Large Research Facilities**). We reveal **deep vibrational changes in the phonon dynamics (THz)** occurring when a solid surface is simply licked by a water flow (https://theses.hal.science/tel-05511138). The Phononic approach of the liquid/solid interface is a new and very promising approach.



New property: Thermal waves without heat source: In response to a mechanical stress, we have highlighted that the confined liquids emit a thermal signal (Kume, Baroni, Noirez, Scie. Reports 2020). This opens an avenue to use microflow as a flow induced converter in cold or hot temperatures using green methods and cheap devices (Patent FR2206312 – PCT).