



## Post-Doc position

### Ionic conduction under 1D confinement

The Laboratoire Léon Brillouin (LLB), the French neutron facility located in Saclay (30 km south of Paris, France), invites applications for a post-doc position in Physical Chemistry.

The successful candidate will be a driving force in a global attempt to finely bridge and understand the hierarchy of structural and dynamical events induced by 1D nanometric confinement of a molecular electrolyte over macroscopic distances. Our primary goal is to develop a multi-scale approach to bridge the broad (height order of magnitudes) time and spatial scales relevant to the high-mobility-in-tight-1D-spaces we are seeking.

We will focus on the structure and dynamics of Ionic Liquids (IL) in bulk, then under 1D nanometric confinement. A central part of the work on the bulk liquid will be to exploit/develop a promising Dynamic Light Scattering (DLS) strategy to characterize and probe the transient self-organized nanometric structures that, due to a lack of contrast, are not detectable by Small Angle Neutron Scattering (SANS) or Small Angle X-ray Scattering (SAXS).

The reduction of dimensionality will be obtained by confinement of the IL within the porous structure of a material showing both nanometric porosity and macroscopic orientation: Anodic Aluminum Oxide (AAO) membranes.

The candidate will be in charge of preparing the samples and defining/optimizing the instrumental conditions for a full suite of spectroscopic technique (neutron, NMR, DLS, ionic conductivity, voltage clamp). The successful candidate will be an experimentalist having expertise and/or research accomplishments in one of these spectroscopies. Capabilities in developing ad-hoc data treatment routines (Matlab, IDL, C++...) will be appreciated.

**Keywords:** Nanometric, confinement, ionic liquid, ionic conductivity, neutron scattering, DLS, NMR relaxometry, PFG-NMR, voltage clamp.

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**Location:** Saclay, France

**Start Date:** October 2011

**Duration:** 12 months

**Please submit:** CV and brief (1 page) statement of interest.