

# ITI HiFunMat Master Internship Proposal

M 1

M 2

## Novel Recyclable Multifunctional Biporous Materials Based on Poly(Ionic Liquid)s

### Internship supervisor

Name, first name	Grande Daniel
E-mail, Telephone	<a href="mailto:daniel.grande@ics-cnrs.unistra.fr">daniel.grande@ics-cnrs.unistra.fr</a> , 03 88 41 40 16
Laboratory	Institut Charles Sadron (ICS)
Collaboration with a HiFunMat member ( <i>please indicate their name</i> )	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes :

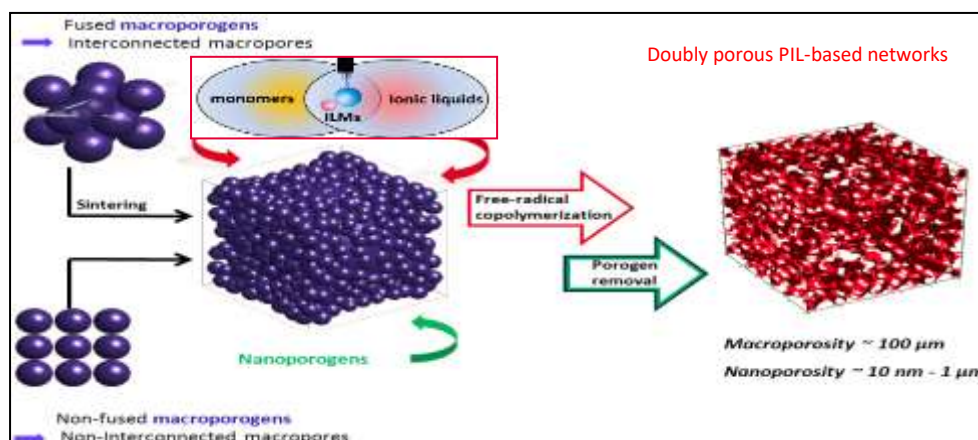
### Student profile looked for

Master program ( <i>more than one box can be ticked</i> )	<input checked="" type="checkbox"/> Material science and engineering <input checked="" type="checkbox"/> Chemistry <input type="checkbox"/> Physics
Other indications if necessary	

### Internship description

This Master 2 internship aims at developing novel recyclable multifunctional biporous materials based on poly(ionic liquid)s (PILs) meant for important environmental issues. First, the double porogen templating approach will be exploited to elaborate biporous PIL networks with controlled pore surface functionality and morphology. Then, such ionic polymer materials will be investigated in CO<sub>2</sub> adsorption and subsequent conversion into fine chemicals, along with their recyclability. Removal of heavy metals or per- and polyfluoroalkyl substances (PFAS) in contaminated water is another potential application of major interest for the tailor-made PIL networks.

The Master student will benefit from unique expertise (molecular chemistry, macromolecular engineering, polymer processing) and state-of-the-art platforms (physico-chemical characterization, electron microscopy, X-ray tomography) available at ICS.



The ICS is an interdisciplinary Institute dedicated to soft matter science, and more particularly self-assembled systems and polymeric materials, at the interface of chemistry, physical chemistry and physics. It is located on the CNRS Cronenbourg campus in Strasbourg. As it is a ZRR (restricted regime zone) laboratory from CNRS, an authorization is required prior to any access to the Institute.