INTERNSHIP OFFER (for 2nd year of master degree)

- ## Information related to the host laboratory:

Laboratory: Laboratoire Lorrain de Chimie Moléculaire (L2CM) - UMR7053

Website: http://www.l2cm.univ-lorraine.fr/l2cm/

Address: Université de Lorraine - Boulevard des Aiguillettes B.P. 70239 - 54506 Vandoeuvre les Nancy Cedex France

Description: The L2CM is a mixed research unit (UMR7053) between CNRS and University of Lorraine, which integrates around 70 members geographically distributed between Nancy (Faculté des Sciences et Technologies, Campus Brabois Santé) and Metz (Institut de Chimie, Physique et Matériaux). The objectives of the laboratory are to explore and develop synthetic methods for innovative molecules and molecular materials for applications in various domains towards chemistry (drug design, catalysis), physics (energy, materials) and biology (drug delivery, imaging, therapy). These research activities are conducted within two teams (HeMaf and MolSybiO) and are supported by numerous synthesis and characterization technics integrated into internal platforms (SynBion, Photons, MassLor) and partnership.

- ## Information related to the supervisors:

Supervisor:

Dr Nadia Canilho (MCF)

Email: nadia.canilho@univ-lorraine.fr

- ## Research topic of the internship:

Title: Synthesis of free noble metal catalysts for the hydrodeoxygenation reaction of lignin derivatives

Period: 5-6 months

Topic : Biomass valorisation is an important topic to mitigate climate change. Biofuels and green chemicals can be produced from lignocellulosic biomass such as wood. Lignin is the second most abundant macromolecule on earth (after cellulose). Thus, the lignin refining could produce aromatic compounds which are important building blocks currently obtained from crude oil. But, according to literature, the challenge remains in the develop of stable and selective catalysts to desoxygenate lignin.

The goal of the M2 project, is to pursue the development of low cost, not toxic and selective catalysts free of noble metals such as iron, copper, nickel and cobalt. Here, metal supported catalysts will be synthesized from metallo-surfactant templating. This route, investigated in our laboratory, affords to prepare porous silica catalysts with well dispersed nanometric metallic clusters in the silica walls. Moreover, the combination of two different metallo-surfactants for the synthesis of the silica porous catalyst will be studied to aim the enhancement of the catalytic activity in the deoxygenation reaction (heterogeneous catalysis). After synthesis, the catalysts will be characterized in terms of texture, morphology, and metals content.

Requirements:
We are looking for a highly motivated candidate with experience in chemistry and/or inorganic chemistry. Knowledge in the characterization of colloidal systems and porous material will be appreciate. A good English level will be a plus for international candidates. She/he must demonstrate its ability to work in pluridisciplinary environments.

To apply, send a cover letter, CV and grades obtained in master's degree to Nadia CANILHO (nadia.canilho@univ-lorraine.fr).