Post-doctoral Fellowship in Electrochemical generation of reactive Nitrido complexes for Nitrogen Atom Transfer

Financial Support : Sorbonne Université - iDREAM
Working contract: 18 months
Starting date: before the end of 2025
Gross Salary: from 2960€/m to 3367€/m (based on experience)
Location: Institut Parisien de Chimie Moléculaire (IPCM) UMR CNRS 8232 Sorbonne Université 4 Place Jussieu, 75005 Paris. https://ipcm.fr/recherche/presentation-equipe-emoca/
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Key words: molecular electrochemistry, nitrogen atom insertion, coordination chemistry, catalysis.
Working environment: The activity of the e-MOCA team at IPCM UMR 8232 is centered on the study of chemical reactivity with electrochemistry as the main investigation tool. The **e-MOCA** team is composed of 6 permanent researchers and professors, 2 research support staffs and an about 20 early-stage researchers (PhD and postdoc). The research activities cover all aspects of *(photo)-electrochemical reactivity of small molecules* (CO_2, O_2, N_2), *supramolecular electrochemistry*, *electrification of organometallic chemistry* and development *new methodology for green electrosynthesis*.
Project description: This project aims to contribute to the activation of small molecules for green synthetic processes, with the goal of electrifying homogeneous catalysis. The main objectives are to develop a new methodology for Nitrogen Atom Transfer (NAT) reactions and to open broad synthetic perspectives. Metal-nitrido compounds will be electrochemically prepared from NH_3 and engaged into NATs. Using electrochemistry combined with *in situ* various spectroscopies, we will decipher the mechanisms and explore the scope of these processes.
Activity: To achieve these objectives the candidate will:
- electrochemically synthesize Mn- or Fe-nitrido species from NH_3 at ambient temperature
- characterize intermediate species by spectroelectrochemical methods
- study their reactivity towards NAT reaction in various substrates.
- Influence in corresponding performances (efficiency and selectivity) of the catalytic system will be quantified and optimized.

In the balance between the reactivity and stability of the M-nitrido compounds, the ligand, the nature of the metal (Mn or Fe) and the solvent are key parameters that we will carefully explore and select according to the target (catalytic) reaction.
Skills:
• PhD-thesis inrganometallic chemistry with strong interest in electrochemistry.
• Knowledge in experiment under air-sensitive conditions is mandatory.
• Experience in using HPLC, UV, IR, NMR, GC-MS/LC-MS and molecular electrochemistry.
• Autonomy in setting up research plans, literature survey and continuous follow-up of key research topics
• Mechanistic understanding
Soft skills:
• Fluent in English is mandatory, knowledge in French is appreciated
• Comfortable with interdisciplinary and inter-team settings
• Good organization and communication skills
• Conscious of confidentiality rules
• Clear reporting ability
• Self-motivation and ability to achieve goals independently as well as to contribute effectively to the group.

We are looking for a candidate with a solid experience in organic/organometallic chemistry and with knowledge in molecular electrochemistry.
Application should include a cover letter, a detailed CV with summary of previous research (max 2 pages).