

PhD Position at the University of Strasbourg, France

Biomimetic redox-active catalysts for synthetic challenges and sustainable chemistry

About the project:

The design of sustainable transformations through bioinspired catalysis provides great promises for the development of new catalytic systems. Metalloproteins rely on redox relays to facilitate electron transmission, storage and release. A related strategy can be used in homogeneous catalysis and involves the use of redox-active ligands and complexes. This alternative approach using bio-inspired tools is a major area of synthetic development of electron transfer catalysts with environmentally benign metals.

Job Summary:

The goal of this PhD project is to design and study new redox-active systems and their reactivity in electronic transfers and relevant synthetic reactions. This will involve synthesis of redox-active ligands and earth-abundant metal complexes, as well as their spectroscopic characterization and reactivity studies. This project will benefit from established multidisciplinary collaborations.

We seek a highly motivated and dedicated PhD researcher for this research project that spans the fields of ligand design and synthesis, organometallic and coordination chemistry, homogeneous and redox catalysis, redox systems and spectroscopy. The characterization of the complexes will rely on different techniques such as electron paramagnetic resonance (EPR), UV-visible, electrochemistry etc.

Related references:

- Ren, Y.; Cheaib, K.; Jacquet, J.; Vezin, H.; Fensterbank, L.; Orio, M.; Blanchard, S.; Desage-El Murr, M. *Chem. Eur. J.* **2018**, *24*, 5086-5090.
- Jacquet, J.; Cheaib, K.; Ren, Y.; Vezin, H.; Orio, M.; Blanchard, S.; Fensterbank, L.; Desage-El Murr, M.; *Chem. Eur. J.* **2017**, *23*, 15030–15034.
- Jacquet, J.; Chaumont, P.; Gontard, G.; Orio, M.; Vezin, H.; Blanchard, S.; Desage-El Murr, M.; Fensterbank, L. *Angew. Chem. Int. Ed.* **2016**, *55*, 10712–10716.
- Jacquet, J.; Blanchard, S.; Derat, E.; Desage-El Murr, M.; Fensterbank, L. *Chem. Sci.* **2016**, *7*, 2030–2036.
- L. J. Esdaile, L. Rintoul, M. See Goh, K. Merahi, N. Parizel, R. M. Wellard, S. Choua, D. P. Arnold. *Chem. Eur. J.*, **2016**, *22*, 3430-3446.

How to apply:

The position starts in october 2019. Applicants should have a Master's degree (or equivalent) in chemistry. To apply, please send results transcripts, cover letter and CV including names and details of two references as pdf files by email to desageelmurr@unistra.fr and sylvie.choua@unistra.fr.

For further information, please contact:

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- Pr Marine DESAGE-EL MURR, OMECA Lab, desageelmurr@unistra.fr
<http://institut-chimie.unistra.fr/equipes-de-recherche/omeca-objets-metaux-et-catalyse/>

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