

Developing Green Catalysis for Reductive Amination

Available to UK applicants, this fully funded PhD studentship aims to develop innovative catalysts for fast, productive, economic and eco-benign synthesis of amines via reductive amination of ketones. Amines are key molecules for pharmaceutical, agrochemical, fine chemical and materials synthesis. Reductive amination is a best way for accessing amines and a key green chemistry research area according to the American Chemical Society Pharmaceutical Roundtable. We have recently discovered catalysts that allow for efficient reductive amination, some of which have already found applications in industrial production.¹⁻³

In this project, you will design, synthesise and study new metal complexes, in the hope to provide a catalyst for large-scale commercial reductive amination. The project will make use of organic chemistry, organometallic chemistry and mechanistic studies, and involve collaboration with the pharmaceutical giant AstraZeneca. You will be co-supervised by scientists from and have opportunities to work at AstraZeneca during your study. If you are interested, have a sound background in organic and organometallic chemistry, and are hard-working, please contact Professor J. Xiao at j.xiao@liv.ac.uk or 0151 7942937.

The position is fully funded, including fees and excellent stipend, and is open to UK students only, requiring at least a 2:1 honours degree in chemistry or a closely related subject.

References

1. C. Wang, A. Pettman, J. Basca, J. Xiao, *Angew. Chem. Int. Ed.* **2010**, *49*, 7548-7552.
2. C. Wang, C. Li, X. Wu, J. Xiao, *Angew. Chem. Int. Ed.* **2009**, *48*, 6524-6528.
3. C. Li, B. Villa-Marcos, J. Xiao, *J. Am. Chem. Soc.* **2009**, *131*, 6967-6969.
4. C. Li, C. Wang, B. Villa-Marcos, J. Xiao, *J. Am. Chem. Soc.* **2008**, *130*, 14450-14451.