

## PhD Studentship on Accelerating Discovery and Implementation of Effective Porous Liquids for CO<sub>2</sub> removal

### About the Project

A bp-EPSC Industrial CASE PhD studentship on 'Accelerating discovery and implementation of effective porous liquids for CO<sub>2</sub> removal' is available under the supervision of Dr Becky Greenaway ([greenawaylab.com](http://greenawaylab.com), Department of Chemistry) and Prof. Camille Petit (<https://www.imperial.ac.uk/multifunctional-nanomaterials/>, Department of Chemical Engineering) at Imperial College London.

The aim of the project is to use high-throughput automated platforms, combined with insights from process modelling [Environ. Sci. Technol., **2021**, 55, 15, 10619; MSDE, **2020**, 5, 212], to screen and identify effective designer sorbents for gas separations - in particular, this will focus on the removal of CO<sub>2</sub> from different gas mixtures using porous liquids as designer sorbents. Porous liquids are a relatively new class of materials that combine the properties of a microporous sorbent with the processability of a liquid [Nature, **2015**, 527, 216], and high-throughput workflows can accelerate their discovery [Chem. Sci., **2019**, 10, 9454]. The PhD candidate will develop an automated workflow using robotic platforms to both synthesise solid sorbents and process the materials into porous liquids, before characterising the materials and investigating their gas sorption behaviour.

The student will benefit from affiliation with both research groups and the DigiFAB Institute (<https://www.imperial.ac.uk/digital-molecular-design-and-fabrication/>), and have access to the fantastic facilities in both the Departments of Chemistry and Chemical Engineering, but will be predominantly based in ATLAS – a new EPSRC-funded automated high-throughput synthesis facility based in Chemical Engineering. In addition, the project will be undertaken under the bp International Centre for Advanced Materials (bp-ICAM) in collaboration with Dr Sheetal Handa.

Applications are encouraged from highly motivated candidates who have, or expect to have, at least an Upper Second Class degree or equivalent in Chemistry, Chemical Engineering, or related disciplines (e.g. Materials Science). A background in one of the following is desirable, but not essential: supramolecular chemistry, functional materials, porous materials, and/or high-throughput techniques/automation.

Prospective students should send a CV and cover letter to Dr Becky Greenaway ([r.greenaway@imperial.ac.uk](mailto:r.greenaway@imperial.ac.uk)) and Prof. Camille Petit ([camille.petit@imperial.ac.uk](mailto:camille.petit@imperial.ac.uk)). The position will be advertised until a suitable candidate is identified. Informal enquiries are also welcomed and encouraged.

### Funding Notes

The studentship will cover tuition fees (home rate) and a stipend (plus London allowance) for 3.5 years and it is anticipated that the successful candidate will start in October 2022. Applications from candidates meeting the eligibility requirements of the EPSRC are welcome – please refer to the [UKRI website](#) and [College website](#) for eligibility requirements.

### References

More information about the groups' recent work can be found on the group webpages – <https://www.greenawaylab.com/publications> and <https://www.imperial.ac.uk/multifunctional-nanomaterials/>