

## Fully funded 3 year PhD Studentship

Project Title: Nanoporous Materials for Sensors and Catalytic Applications

Research Supervisors: V. Zholobenko and A. Radu

### **The project commences in October 2018 and will be carried out at Keele University**

The aim of this project is to develop nanostructured materials based on zeolites and MOFs as catalysts and sensors for environmental applications. In this project, we will identify and synthesize micro- and meso-porous materials with defined porous structures and binding sites suitable for selective electrochemical sensor devices, or specific recognition sites with coupled chromophores or fluorophores for colourimetric sensing. In addition, zeolite based micro- and meso-porous materials will be designed and utilised in catalytic transformations of bulky molecules for environmental applications. Depending on your interests and the project requirements, the research work could also be focused on the development of new approaches and methodologies for the characterisation of zeolite-based sensors and catalysts. The project will give you an opportunity to achieve a professional level in the preparation and characterisation of nanostructured materials and their applications.

**Research Environment:** The research group specialises in several aspects of catalysis and materials science including (1) catalysis on zeolites, (2) characterisation of microporous materials using in situ spectroscopic studies, and (3) the application of nanostructured materials in catalysis, separation and sensors.

Keele offers a very dynamic research environment and well-equipped chemical and analytical laboratories with a wide range of facilities available, including XRD, SEM-EDX, XPS, BET, TGA, Raman, FTIR, UV-Vis and fluorescence spectroscopy, 400 MHz (MAS)NMR, ICP-OES, ICP-MS, LC-MS, GC-MS, and a number of in situ cells such as DRUV-Vis, ATR-IR, DRIFTS and in situ XRD. There are also opportunities to access central facilities, such as the Diamond Synchrotron source, and to gain experience working abroad in the laboratories of our collaborators overseas.

Applications are invited from candidates who have attained a good 1st or upper 2nd Class Honours degree or an MSc in Chemistry or related disciplines, e.g. Chemical Engineering or Materials Science. The successful candidate should possess excellent background knowledge in zeolites, inorganic chemistry, physical chemistry or materials chemistry. Applicants must be UK or EU nationals to be eligible for the studentship. The studentship will cover the University tuition fees and provide a stipend of £14,777 per annum for the tuition fees.

For further details about the project please contact Dr. Vladimir Zholobenko (Tel: 44 (0)1782 734352; e-mail: [v.l.zholobenko@keele.ac.uk](mailto:v.l.zholobenko@keele.ac.uk)).

In the first instance applicants should email a full CV, including details of all University course grades to date and the details of two academic references, and a short statement or covering letter outlining their motivation and suitability for the PhD programme and research interests.

Closing date: 1st of September 2018 in the first instance, with the interviews planned for mid-September 2018. If no suitable candidate is identified following this deadline, then further applications will be considered until the post is filled.

This studentship consists of full UK/EU tuition fees, as well as a Doctoral Stipend matching UK Research Council National Minimum (£14,777 p.a. for 2018-2019, updated each year). One studentship is available.

Research studentships are offered to students wishing to undertake a PhD programme. All studentships are highly competitive and you should ensure (and demonstrate) that there is a good match between your own qualifications and interests and those being sought for the particular studentship.

Research Centre where studentship will be held	Chemical Sciences. Faculty of Natural Sciences, Keele University.
Studentship reference	FNS GS 2018-05
Web link to any further information (e.g. Research Institute)	Faculty Research Office - <a href="http://www.keele.ac.uk/fnsro/">http://www.keele.ac.uk/fnsro/</a>
Research topic or field - title	<u>Nanoporous Materials for Sensors and Catalytic Applications</u>
Research topic or field – full description	See below
Available from (date)	October 2018
Funding support available – Fees, stipend, duration	Funding support is provided as follows: 100% UK/EU tuition fees for 3 years commencing Academic year 2018/2019 . Stipend support for three years at Research Council rates (2018/9 stipend £14,777 per annum). Funding for consumables and conference attendance is available.
Source of funding	Keele University, Faculty of Natural Sciences
Eligibility criteria	Applicants must be UK or EU nationals to be eligible for the studentship. Minimum 1st or upper 2nd Class Honours degree or an MSc in Chemistry or related disciplines, e.g. Chemical Engineering or Materials Science.
Terms and conditions of studentship	As per the University Code of Practice
Number of studentships available	1
Application details	go to <a href="http://www.keele.ac.uk/pgresearch/studentships/">http://www.keele.ac.uk/pgresearch/studentships/</a> and click on the "Apply online here" button in this studentship.
Closing date for applications	1st of September 2018 in the first instance, with the interviews planned for mid-September 2018. If no suitable candidate is identified following this deadline, then further applications will be considered until the post is filled.
Contact for further information and to whom applications will be sent	Informal enquiries about the project should be made to the Project Lead, Dr. Vladimir Zholobenko (Tel: 44 (0)1782 734352; e-mail: <a href="mailto:v.l.zholobenko@keele.ac.uk">v.l.zholobenko@keele.ac.uk</a> ) Full applications to: <a href="http://www.keele.ac.uk/pgresearch/studentships/">http://www.keele.ac.uk/pgresearch/studentships/</a>

## Candidate profile

	Essential	Desirable
<b>Qualifications, Experience and Skills</b>	<ul style="list-style-type: none"> <li>• Minimum 1st or upper 2nd Class Honours degree or an MSc in Chemistry or related disciplines, e.g. Chemical Engineering or Materials Science.</li> <li>• Excellent background in zeolites, inorganic chemistry, physical chemistry or materials chemistry.</li> <li>• Ability to carry out experimental lab work related to heterogeneous catalysis and materials characterisation.</li> </ul>	<ul style="list-style-type: none"> <li>• Master's degree in a relevant discipline</li> <li>• Evidence of ability to undertake laboratory work in the area of catalysis and zeolite science.</li> </ul>
<b>Attitude and Personality</b>	<ul style="list-style-type: none"> <li>• Ability, willingness and motivation to undertake advanced research study at PhD level.</li> <li>• Excellent communication, interpersonal and organizational skills.</li> <li>• Willingness to learn new theoretical and practical science skills and commitment to ongoing personal training.</li> <li>• Ability to work both independently and as part of a team</li> </ul>	<ul style="list-style-type: none"> <li>• Evidence of organizational and time management skills</li> <li>• Skills in planning experimental work.</li> <li>• Enthusiasm and motivation</li> </ul>