



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Atmospheric Chemistry, School of Chemistry



Salary: Grade 7 (£33,199 – £39,609 p.a.)

Due to external funding restrictions, appointments will only be made up to £34,189.

Reference: MAPCH1105

Closing date: 16 December 2018

Fixed-term for 24 months, from 1 January 2019

We will consider job share/flexible working applications

Research Fellow in Atmospheric Chemistry

School of Chemistry, Faculty of Mathematics and Physical Sciences

Are you an ambitious researcher looking for your next challenge? Do you have an established background in atmospheric chemistry? Do you want to further your career in one of the UK's leading research intensive universities?

We are looking for an exceptional researcher to work on our [EXHALE project](#) (Exploiting new understanding of Heterogeneous production of reactive species from AIRPRO: Links to haze and human health Effects)". EXHALE is funded by the NERC/Newton Fund Atmospheric Pollution & Human Health in a Developing Megacity China programme. The project consists of an interdisciplinary UK/Chinese team with complementary expertise and capabilities in both experimental and modelling aspects of atmospheric chemistry, from the Schools of Chemistry and Earth & Environment at the University of Leeds, and Chinese partners from Peking University, Nanjing University and Shanghai Jiao Tong University.

You will perform laboratory experiments and run state-of-the-art numerical models, in collaboration with a team of atmospheric scientists at the University of Leeds and the Chinese partner universities. As part of the project, you will participate and help organise workshops and a Summer School in China. You will also have opportunities for training in science and people management, science communication, and grant application writing, with the aim to develop a personal, independent career track.

You will have a PhD in Chemistry, Physics, Atmospheric Science or a closely aligned discipline, together with experience in laboratory studies of aerosol/gas-phase processes and/or in running atmospheric models. You will also have excellent communication skills and the ability to work under pressure and meet deadlines.

What does the role entail?

As a Research Fellow your main duties will include:

- Designing, planning and conducting a programme of investigation, in consultation with Professor Dwayne Heard and other investigators on the project (Dr Lisa Whalley, Dr Stephen Arnold, Professor Dominick Spracklen);
- Generating and pursuing original research ideas and methods in the



quantification of the production of HONO and other reactive species from aerosol surfaces, and assessing the wider-scale impact of these processes across China on a range of scales using a variety of numerical models;

- Developing research objectives and proposals and contributing to setting the direction of the research project and team including preparing proposals for funding in collaboration with colleagues;
- Evaluating methods and techniques used and results obtained by other researchers and to relate such evaluations appropriately to your own work;
- Preparing papers for publication in leading international journals and disseminating research results through other recognised forms of output;
- Working both independently and also as part of a larger team of researchers, engaging in knowledge-transfer activities where appropriate and feasible;
- Maintaining your own continuing professional development and acting as a mentor to less experienced colleagues as appropriate;
- Contributing to the training of both undergraduate and postgraduate students, including assisting with the supervision of projects in areas relevant to the project.

These duties provide a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.

What will you bring to the role?

As a Research Fellow you will have:

- A PhD (or have submitted your thesis before taking up the role) in Chemistry, Physics, Atmospheric Science or a closely allied discipline;
- Experience in laboratory or atmospheric field studies of aerosol and gas phase chemistry, and/or experience in the operation of atmospheric models;
- Good time management and planning skills, with the ability to meet tight deadlines, manage competing demands and work effectively under pressure without close support;
- A proven track record of peer reviewed publications in high impact factor journals;
- Excellent written and verbal communication skills including presentation skills;
- A proven ability to work well both individually and in a team;
- A strong commitment to your own continuous professional development.



You may also have:

- Experience in experimental studies of aerosol science, either performed in the laboratory or as part of fieldwork;
- Experience in data acquisition and instrument control;
- Practical experience in the generation, characterisation and detection of aerosols, and in the study of the kinetics of aerosol processes;
- Experience in using lasers and specifically laser flash-photolysis and laser induced fluorescence spectroscopy;
- Experience in the operation of atmospheric computer models, for example box models using the Master Chemical Mechanism or larger-scale models using WRF-Chem or other frameworks;
- Experience of handling large data-sets;
- Experience of linking spatial-temporal fields of pollutants with human exposure;
- Experience of pursuing external funding to support research.

How to apply

You can apply for this role online; more guidance can be found on our [How to Apply](#) information page. Applications should be submitted by **23.59** (UK time) on the advertised closing date.

Contact information

To explore the post further or for any queries you may have, please contact:

[Dwayne Heard](#), Professor of Atmospheric Chemistry

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Additional information

About the EXHALE project

Recent fieldwork in central Beijing in 2016/17 found that pollutant chemistry is more complex than expected, particularly during haze events when loadings of particulate matter were high and large concentrations of the hydroxyl radical (OH) were observed. Nitrous acid (HONO) was found to be the dominant OH precursor in Beijing, however detailed models are unable to fully account for levels of HONO, OH and other radicals, especially during the polluted haze events. EXHALE will quantify heterogeneous sources of nitrous acid (HONO) and other reactive species from aerosol surfaces using particulate matter (PM) collected on filters from Beijing ambient aerosol, and using model aerosols. The filter samples will be analysed off-line by a variety of analytical methods to determine the composition of the PM, and an extract used to generate aerosols in the laboratory in Leeds, with HONO and radical production rates determined using an illuminated aerosol flow-tube apparatus equipped with sensitive detectors. The production rates will be determined as a function of atmospheric variables and parameterisations used in a box model with the detailed Master Chemical Mechanism and in a large-scale regional model using WRF-Chem for Beijing and other mega-cities across China. The large scale implications of heterogeneous processes towards regional episodes of ozone and secondary organic aerosol will be quantified.

Our research

Further information about our research can be found by clicking on any of our names above, and at the websites for the [Atmospheric and Planetary Chemistry](#) research group in the School of Chemistry, the [Atmospheric Chemistry and Aerosols](#) group within the [Institute for Climate and Atmospheric Science](#), and the [Centre of Excellence for Modelling the Atmosphere and Climate](#).

Working at Leeds

Find out more about the benefits of working at the University and what it is like to live and work in the Leeds area on our [Working at Leeds](#) information page.



A diverse workforce

The Faculty of Mathematics and Physical Sciences is proud to have been awarded the [Athena SWAN Bronze Award](#) from the Equality Challenge Unit, the national body that promotes equality in the higher education sector. Our [equality and inclusion webpage](#) provides more information.

Candidates with disabilities

Information for candidates with disabilities, impairments or health conditions, including requesting alternative formats, can be found on our [Accessibility](#) information page or by getting in touch with us at disclosure@leeds.ac.uk.

Criminal record information

Rehabilitation of Offenders Act 1974

A criminal record check is not required for this position. However, all applicants will be required to declare if they have any 'unspent' criminal offences, including those pending.

Any offer of appointment will be in accordance with our Criminal Records policy. You can find out more about required checks and declarations on our [Criminal Records](#) information page.

