



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Atmospheric Chemistry,
Faculty of Engineering and Physical Sciences



Salary: Grade 7 (£39,105 – £46,485 p.a.) Due to funding restrictions, an appointment will not be made higher than £39,105 p.a

Reference: EPSCH1120

Closing date: Sunday 16th March 2025

Fixed-term for 4 months

We are open to discussing flexible working arrangements

Research Fellow in Atmospheric Chemistry, School of Chemistry.

Are you an ambitious researcher looking for your next challenge? Do you have a background or interest in atmospheric chemistry? Do you want to further your career in one of the UKs leading research-intensive Universities?

We are looking for an exceptional researcher to work on the ALPACA-UK project (Aerosol heterogeneous Processing as a source of oxidants in Cold winter Atmospheres: application to Alaska and UK) which was funded by the Natural Environment Research Council (NERC). The ALPACA-UK project brings together leading expertise in experimental atmospheric photochemistry and in tropospheric chemical modelling from the [School of Chemistry](#) and the [School of Earth and Environment](#) at the University of Leeds, together with international partners in field measurements, multi-phase chemistry, and in emissions modelling.

Air pollution is the leading environmental risk to human health. Wintertime pollution events lead to violations of air quality standards for particulate pollution in many regions of the world. Nitrous acid (HONO) is an important source of the chief atmospheric oxidant, OH, in polluted atmospheres. There is growing evidence that HONO produced via heterogeneous aerosol chemistry occurring on particle surfaces is important in wintertime conditions. The ALPACA-UK project will use aerosol filter samples and in situ data collected during the international [ALPACA field experiment](#), which took place in January and February 2022 in Fairbanks, Alaska.

The overall aim of ALPACA-UK is to characterise the source of heterogeneous aerosol production of HONO in cold, low light conditions in a polluted urban atmosphere and to quantify the impact of this source on radical and oxidant budgets in wintertime polluted environments. The project will deliver new parameterisations and capabilities for including a heterogeneous HONO source in air quality models, including dependencies on aerosol composition. Outcomes will enable improved understanding and forecasting of wintertime air pollution across many regions of the world, where cold, low sunlight conditions occur in wintertime.

There are collaborations with Project Partners who include [The University of Alaska at Fairbanks](#); [The Max Planck Institute for Chemistry Mainz](#); [The UK Centre for Ecology and Hydrology](#), [The University of California, Los Angeles](#); [Georgia Institute of Technology, Atlanta](#), and [LATMOS-CNRS, Paris](#) and other members of the [IGAC](#)



[PACES](#) initiative. The successful candidate will have the opportunity to visit Project Partner institutions and will be expected to attend international ALPACA workshops.

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.

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 at the University of Leeds (Dr Lisa Whalley and Professor Steve Arnold);
- Leading experiments with an aerosol flow tube apparatus incorporating the laser-flash photolysis and laser-induced fluorescence method to measure heterogeneous HONO production from aerosol samples collected during the ALPACA winter field campaign in Fairbanks, Alaska, and also from candidate model aerosol samples (e.g. soot, sulphate, organic aerosol) as a function of aerosol surface area, NO₂, temperature and relative humidity, illuminated under varying levels of actinic tropospheric radiation;
- Working with other members of the team on the development and implementation of new HONO source parameterisations in both local box-model and regional model frameworks;
- Generating and pursuing independent and original research ideas in the appropriate subject area;
- 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 research;
- Making a significant contribution to the dissemination of research results by publication in leading peer-reviewed journals and by presentation at national and international meetings;
- Working independently and as part of a larger team of researchers, both internally and externally, to develop new research links and collaborations and engage in knowledge transfer activities where appropriate;



- 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;
- A strong background in laboratory or atmospheric field studies of gas-phase or aerosol chemical processes;
- Experience in the use of laser systems for either laboratory or field measurement of molecules;
- Experience in data acquisition and instrument control systems;
- Good time management and planning skills, with the ability to meet tight deadlines and manage competing demands effectively without close support;
- A developing track record of peer-reviewed publications in international journals;
- Excellent communication skills both written and verbal, and the ability to communicate your research at national and international conferences;
- 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 of pursuing external funding to support research;
- Experience in the study of the chemical kinetics of elementary reactions either in the gas-phase, at interfaces or within the condensed phase;
- Experience in computer modelling, for example of atmospheric processes.



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:

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

Tel: +44 (0)113 343 6471

Email: D.E.Heard@leeds.ac.uk

OR

[Dr Lisa Whalley](#), Senior Research Fellow, National Centre for Atmospheric Science

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OR

[Professor Steve Arnold](#), Professor of Atmospheric Composition

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Additional information

Faculty and School Information

Further information is available on the research and teaching activities of the [Faculty of Engineering & Physical Sciences](#), and the [School of Chemistry](#).



Working at Leeds

We are a campus-based community and regular interaction with campus is an expectation of all roles in line with academic and service needs and the requirements of the role. We are also open to discussing flexible working arrangements. To find out more about the benefits of working at the University and what it is like to live and work in the Leeds area visit our [Working at Leeds](#) information page.

A diverse workforce

As an international research-intensive university, we welcome students and staff from all walks of life and from across the world. We foster an inclusive environment where all can flourish and prosper, and we are proud of our strong commitment to student education. Within the Faculty of Engineering and Physical Sciences we are dedicated to diversifying our community and we welcome the unique contributions that individuals can bring, and particularly encourage applications from, but not limited to Black, Asian and ethnically diverse people; people who identify as LGBT+; and people with disabilities. Candidates will always be selected based on merit and ability.

The Faculty of Engineering and Physical Sciences are proud to have been awarded the Athena SWAN [Silver](#) 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.

Information for disabled candidates

Information for disabled candidates, impairments or health conditions, including requesting alternative formats, can be found under the 'Accessibility' heading on our [How to Apply](#) information page or by getting in touch by emailing HR via hr@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 in our [Criminal Records](#) information page.



Salary Requirements of the Skilled Worker Visa Route

Please note that this post may be suitable for sponsorship under the Skilled Worker visa route but first-time applicants might need to qualify for salary concessions. For more information, please visit [the Government's Skilled Worker visa page](#).

For research and academic posts, we will consider eligibility under the Global Talent visa. For more information, please visit [the Government's page, Apply for the Global Talent visa](#).

