UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in in Particle Aerosol Deposition of High Temperature Dielectrics, Faculty of Engineering & Physical Sciences

Salary: Grade 7 (£33,797 – £40,322 p.a.)

Reference: EPSPE1000

Closing date: 08 October 2019

Fixed-term for 24 Months

We will consider flexible working arrangements

Research Fellow in in Particle Aerosol Deposition of High Temperature Dielectrics, School of Chemical and Process Engineering

Are you an ambitious researcher interested in working at the interface of science and engineering? Do you have an established research background in physical sciences or engineering? Do you wish to work within a multidisciplinary research team developing new dielectric materials by an innovative ceramic manufacturing technique? Do you wish to further your career at one of the UK's leading research intensive universities?

The main goal of the project is to advance particle aerosol deposition (AD) as a product development and manufacturing tool for a new generation of capacitors based on alkaline earth niobate dielectric ceramics. You will design and demonstrate new dielectric charge storage materials and investigate how they may be consolidated into dense coatings at ambient temperature using a particle aerosol deposition technique.

You will achieve these goals by first understanding the complex inter-relationships between crystal structure, microstructure and dielectric properties in selected tungsten bronze niobates. By a combination of compositional refinement, control of particle properties during powder synthesis, manipulation of coating conditions and control of defect structures you will manufacture a new generation of dielectrics suited to emerging capacitor applications in power and harsh environment electronics. The best materials will be fabricated into prototype high voltage, high temperature capacitors in association with collaborators at University of Manchester and industrial project partners in the US and UK, with whom you will develop personal links.

You will have a PhD (or close to completion) in physics, materials science, engineering, chemistry, or a closely allied discipline, with a strong experimental background in particle manufacture and characterisation, and knowledge of the influence of microstructure and defect chemistry on the properties of ferroelectric ceramics.

What does the role entail?

As a Research Fellow, your main duties will include:

- Liaising with the project leader and other investigators on a weekly basis;

- Producing monthly progress plans and detailed written reports;
- Working to strict deadlines;
- Generating and pursuing independent and original research ideas in the appropriate subject areas;
- 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 techniques used and results obtained, including 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 close to completion) in physics, materials science, engineering, chemistry, or a closely allied discipline;
- A strong experimental background in particle manufacture and characterisation:
- A strong background in process development and scale-up;
- Knowledge of the influence of microstructure and defect chemistry on the properties of ferroelectric ceramics;
- A proven track record of peer-reviewed publications in high quality journals;
- Good time management and planning skills, with the ability to meet tight deadlines and work effectively under pressure;
- Excellent written and verbal communication skills including presentation skills;

- Proven ability to manage competing demands effectively, responsibly and without close support;
- 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 ceramic particle aerosol deposition/ cold consolidation/ or cold spray coating techniques;
- Knowledge of fluid mechanics;
- Experience of working with industry;
- 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:

Steven Milne, Project Leader
Tel: +44 (0)113 3432539
Email: s.j.milne@leeds.ac.uk

Additional information

Faculty and School Information
Further information is available on the research and teaching activities of the School of Chemical and Process Engineering.

A diverse workforce

The Schools in the Faculty of Engineering & Physical Sciences are proud to have been awarded the Athena SWAN Bronze or 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.


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.

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 in our Criminal Records information page.