

Job Description

Post Title and Post Number	Research Fellow 47610
Organisation Advertising Description	School of Geography, Earth and Environmental Sciences
Post Number	47610
Full Time/Part Time	Full Time
Number of hours / weeks to be worked	100%
Duration of post	36 months
Post is open to:	Internal and External Candidates
Grade	7
Salary	Starting salary in the range of £27,854 to £36,298 with potential progression to £38,522 once in post.
Additional Information	Informal enquiries should be directed to: Professor Eva Valsami-Jones via Tel: 0121 414 5537 or Email: e.valsamijones@bham.ac.uk
Terms and Conditions	<u>Research and Analogous Staff (non-clinical)</u>
Closing Date	7 June 2013

Job Summary

NanoMILE is a large project funded by the European Commission, involving 28 research partners; the project is coordinated by the University of Birmingham. The focus of NanoMILE is to establish a fundamental understanding of the mechanisms of nanomaterial interactions with living systems and the environment, across the entire life cycle of nanomaterials and in a wide range of target species. The project will identify critical properties (physico-chemical descriptors) that confer the ability to induce harm in biological systems. This is key to allowing these features to be avoided in nanomaterial production ("safety by design").

The overarching objective of NanoMILE is thus to formulate an intelligent and powerful paradigm for the mode(s) of interaction between manufactured Nanomaterials (MNMs) and organisms or the environment to allow the development of a single framework for the classification of nanomaterial safety and the creation of a universally applicable framework for nanosafety.

A wide range of manufactured MNMs will be sourced and characterized throughout their life cycle. Using a high throughput screening process, a streamlined testing and selection platform will be developed and applied to refine the MNMs selection. The selected MNMs will undergo focused testing relative to their mechanism(s) of effects on living systems and the environment. An iterative experimental / modeling process will integrate the data obtained into quantitative structure or properties / effects relationships.

The project requires a research fellow to be based at the University of Birmingham, and to work on the synthesis and characterisation of well-controlled nanomaterials to be used in (eco)toxicological studies. The work will primarily focus on metal and metal oxides and will also involve stable isotope labelling of some of these particles. Some method development work will be expected, particularly towards the production of nanomaterial libraries with systematic variation of physicochemical properties of the nanomaterials. The post holder will be required to work on specific methodology development in this area and also to quantify nanoparticle characteristics (size, size distribution, aggregation, surface properties, morphology, solubility) in dry form and within complex media, such as environmental samples. The project will use electron, force and optical microscopy, a range of spectroscopy techniques and other methods for nanoparticle analysis.

The position is integrated with the research group led by Professor Éva Valsami-Jones, which has a number of postdoctoral workers and PhD students working on nanosafety aspects and hosts the NERC funded UK Facility on Environmental Nanoparticle Analysis and Characterisation. The research group is investigating various aspects of environmental nanoscience, including both natural and manufactured nanomaterials and their interactions and effects on other pollutants. The research fellow appointed will be expected to work within this group, with other University of Birmingham colleagues and other NanoMILE partner teams.

Job Summary

To create and contribute to the creation of knowledge by undertaking a specified range of activities within an established research programme and/or specific research project.

Main Duties

- To plan, develop and implement research contributions to the subject area, using methodologies, critical evaluations, interpretations, analyses and other appropriate techniques.
- To develop research objectives and proposals for own or joint research, with assistance of a mentor if required
- To contribute to writing bids for research funding
- To analyse and interpret data
- To prepare papers for project meetings and conference calls and to participate in such events
- To apply knowledge in a way which develops new intellectual understanding
- To disseminate research findings for publication, research seminars etc
- To supervise students on research related work and provide guidance to PhD students where appropriate to the discipline
- To contribute to developing new models, techniques and methods in collaboration with other team/project members
- To undertake management/administration arising from research
- To contribute to Departmental/School research-related activities and research-related administration
- To collect research data; this may be through a variety of research methods, such as scientific experimentation, literature reviews, and research interviews *
- To present research outputs, including drafting academic publications or parts thereof, for example at seminars and as posters *
- To provide guidance, as required, to support staff and any students who may be assisting with the research *
- To deal with problems that may affect the achievement of research objectives and deadlines*
- To maintain the group's position as a world-class player in environmental nanoscience

Skills and Experience

- First degree in natural sciences and Masters level specialisation in nanoscience High level analytical capability
- A specialised research interest in environmental nanoscience, including nanoparticle synthesis and characterisation
- Sufficient familiarity with the discipline and relevant research methods
- Ability to communicate complex information clearly, including good written and verbal communication skills
- Fluency in relevant models, techniques or methods and ability to contribute to developing new ones
- Ability to assess resource requirements and use resources effectively
- Understanding of and ability to contribute to broader management/administration processes

Scope of the Role

- Work within specified research grants and projects and contribute to writing bids
- Operate within area of specialism
- Analyse and interpret research findings and results

Planning and Organising

- Contribute to the planning and organising of the research programme and/or specific research project
- Co-ordinate own work with others to avoid conflict or duplication of effort

Decision Making

- Decide in consultation with the principal investigator as appropriate, on the most appropriate way of undertaking the specified research activities
- Decide in consultation with the principal investigator as appropriate how to analyse and interpret the data from the specified research activities
- Decide in consultation with the principal investigator as appropriate what knowledge to draw on and how to apply it to develop new intellectual understanding
- Contribute to deciding what information to include in a bid for research funding and how to present the bid to maximise the likelihood of securing the funding
- Decide in collaboration with co-authors which aspects of the research findings to include in a presentation or a publication and how to convey the findings
- Give guidance, support and advice to students on research related work including PhD students and decide the most appropriate method of providing this supervision.
- Make tactical decisions during lab work and consult Prof Valsami-Jones over major (strategic) decisions.

Internal/External Relationships

- Liaise with research staff and support staff on research-related matters
- Liaise with research staff and support staff within the research group and in other project partner teams on technical matters.
- Liaise with external collaborators on the research, where appropriate
- Give presentations and/or contribute to presentations at national and/or international conferences
- Referee articles for peer-reviewed academic journals
- Maintain contact with (including membership of) appropriate professional bodies
- Liaise with the relevant external research community via seminars and conferences