

## Candidate Information

<b>Position:</b>	Research Fellow - Spectroscopy of Spin-Crossover (SCO) Materials
<b>School/Department:</b>	Chemistry and Chemical Engineering
<b>Reference:</b>	21/109399
<b>Closing Date:</b>	Friday 10 December 2021
<b>Salary:</b>	£34,304 per annum
<b>Anticipated Interview Date:</b>	Wednesday 22 December 2021
<b>Duration:</b>	Available until 28/02/2024

### JOB PURPOSE:

To be an active member of the research team working in the area of self-assembled spin-crossover materials, carrying out research on nano/micro-material preparation and testing, supervising junior members of the team, preparing research papers and grant proposals.

### MAJOR DUTIES:

1. Undertake research as a member of a research team working on the properties of spin crossover (SCO) compounds.
2. Characterisation of SCO compounds in different spin states using Raman spectroscopy.
3. Development of methods for tracking SCO dynamics in crystals.
4. Carry out research on the preparation of self-assembled SCO nanomaterials, primarily at the liquid-liquid interface, and their subsequent conjugation with metal nanoparticles.
5. Testing of the SCO properties of the mesoscale materials prepared by self-assembly.
6. Present regular progress reports on research to members of the QUB research group and the project collaborators on the proposal as well as external audiences, to disseminate and publicise research findings.
7. Prepare material for publication in international journals and presentations at national and international conferences.
8. Assist grant holder in the preparation of funding proposals and applications to external bodies.
9. Carry out routine administrative tasks associated with the research project/s to ensure that project/s are completed on time and within budget. These might include organisation of project meetings and documentation, financial control, risk assessment of research activities.
10. Carry out occasional undergraduate supervision, demonstrating or lecturing duties within the post holder's area of expertise and under the direct guidance of a member of academic staff.
11. Read academic papers, journals and textbooks to keep abreast of developments in own specialism and related disciplines.

### Planning and Organising:

1. Plan for specific aspects of research programmes. Timescales range from 1-6 months in advance and contribute to research group planning.
2. Plan for the use of research resources, laboratories and workshops where appropriate.
3. Plan own day-to-day activity within framework of the agreed research programme.
4. Plan up to a year in advance to meet deadlines for journal publications and to prepare presentations and papers for conferences.
5. Coordinate and liaise with other members of the research group over work progress.

### Resource Management Responsibilities:

1. Ensure research resources are used in an effective and efficient manner.
2. Provide guidance as required to support staff and any students who may be assisting with research.

### Internal and External Relationships:

1. Liaise on a regular basis with colleagues and students.

2. Build internal contacts and participate in internal networks for the exchange of information and to form relationships for future collaboration.
3. Join external networks to share information and ideas. Travel to partner laboratories as required.

**ESSENTIAL CRITERIA:**

1. Have or be about to obtain a PhD in Chemistry.
2. At least 3 years relevant research experience in preparation and analysis of nanoparticles.
3. Expertise in preparation of materials using interfacial assembly of nanoparticles.
4. Extensive practical experience in operation of Raman spectrometers and electron microscopes.
5. Experience of supervising undergraduate or postgraduate project students in a research laboratory.
6. Ability to contribute to broader management and administrative processes.
7. Sufficient breadth and depth of specialist knowledge in the discipline and of research methods and techniques to work within established research programmes.
8. Ability to communicate complex information clearly.
9. Ability to build contacts and participate in internal and external networks.
10. Track record of presenting papers at national or international conferences.
11. Track record of publishing in high-quality journals.
12. Ability to assess and organise resources.
13. Ability to work effectively in a diverse and multi-disciplinary research group.
14. Willingness to travel to partner laboratories in Ireland and the USA

**DESIRABLE CRITERIA:**

1. Experience in preparing and characterising materials for surface-enhanced Raman spectroscopy.
2. Experience in operating combined atomic force microscope/Raman microscopes.
3. Good working knowledge of scanning electron microscopy.
4. Experience of day-to-day supervision and support of postgraduate students in the laboratory.
5. Ability to draft research papers suitable for publication in international journals.