



UNIVERSITY OF
LINCOLN

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JOB DESCRIPTION

JOB TITLE	Instrument Scientist (Solid State Materials)				
DEPARTMENT	School of Chemistry				
LOCATION	Brayford				
JOB NUMBER	COS199	GRADE	7	DATE	October 2021
REPORTS TO	Head of School of Chemistry				

CONTEXT

Solid state materials science underpins key aspects of University's strategy to intensify its research in STEM subjects. These developments have been primed by major investment in research laboratory infrastructure and instrumentation and these have been incorporated into the Joseph Banks Laboratories (JBL) that form the research environment for its academic Schools of Chemistry, Life Sciences and Pharmacy, and support wider research across the College of Science (including Schools of Geography, Maths and Physics, and Engineering). The role, specialising in one or more advanced solid state methods (e.g. X-Ray Diffraction, Vibrational Spectroscopy, Thermal Analysis), supports users across the constituent Schools of the College of Science to enhance research outputs and offer high-level training and an outstanding student experience for appropriate undergraduate and postgraduate degree programmes. Alongside this, the role supports Lincoln's knowledge transfer agenda through participation in projects within a regional R&D ecosystem for which the ERDF/GLLEP £6.4m-funded centre in advanced materials engineering – The Bridge – represents a step-change opportunity for our work at the university-business interface. Delivery of collaborative projects in this context form an important strand of activity for development of the R&D environment of the University.

The infrastructure at Lincoln includes the following major instrument groups: X-Ray Diffraction (dual-source SCD and multi-modal PXRD), Vibrational Spectroscopy (high-specification FT-IR/FT-Raman/micro-Raman), Thermal Analysis (including hyphenation to MS/FTIR/XRD) and NMR (500MHz including CP-MAS).

We are seeking to recruit a highly skilled research scientist with expertise in advanced operation of one or more of these areas and the potential to manage and develop these resources alongside a highly motivated and dynamic multi-disciplinary academic research community.

JOB PURPOSE

The main focus of the role is the expert deployment of the Joseph Banks Laboratory facilities and this encompassing the following main functions:

- Provision of expertise in the advanced operation of one or more of the instrument groups defined above.
- Project Design and Delivery for commercial and academic collaborators from a range of scientific backgrounds
- Provision of high level training (for undergraduate, postgraduate and commercial scientists) in specialised techniques and instrumentation using a variety of modes.
- Management and supervision of laboratory environment and instrumentation including routine maintenance, troubleshooting and liaison with manufacturing/maintenance companies.

KEY RESPONSIBILITIES

Laboratory Management and Liaison
<ul style="list-style-type: none"> • Manage laboratory environments and specialist instrumentation suites to maintain efficient operation of equipment to appropriate quality standards. • Demonstrate professional levels of knowledge and experience in operation and management of specialist instrumentation. • Supervise Health and Safety management of specialist laboratory environments, including preparation/approval of Risk/CoSHH assessment, laboratory audit and liaison with the University's Health and Safety systems. • Coordinate the operation of user groups to establish effective communication, collaborative working environment and effective exchange of best practice. • Devise and implement training and supervision to ensure efficient and safe operation of facilities across a range of user abilities and backgrounds.
Project and Service Delivery
<ul style="list-style-type: none"> • Devise solutions to complex analytical problems in areas of specialisation. • Take responsibility for the production of project proposals with detailed task-scoping and decision-gate processes. Communicate proposals in multiple formats, as appropriate. • Undertake review through consultation with internal and external stakeholders to develop and improve provision. • Manage relationships with stakeholders ensuring project delivery is achieved to appropriate quality standards and timescales. • Prepare and approve Risk/CoSHH assessment for projects. • Plan and organise the use of resources to deliver projects in a timely and efficient manner in line with client needs and project timelines. • Perform projects to accredited professional standards. • Evaluate and monitor performance of others in the context of Quality Control. • Prepare and deliver project reports through effective oral and written communication in multiple formats e.g. presentations, summary reports and full technical reports. • Deliver experimental work within recognised frameworks of Quality Assurance (e.g. Good Laboratory Practice) and, in response to client needs, devise specific and appropriate adaptations to QA procedures. • Demonstrate advanced operation of research equipment: e.g. CP-MAS NMR, Raman/IR Spectroscopy, Thermal Analysis, X-Ray Diffraction. • Sign-off report documentation and Certificates of Analysis, as appropriate.
Knowledge Transfer
<ul style="list-style-type: none"> • Develop and use high-level methods of data analysis for analytical information: e.g. computational modelling, spectral and image analysis, chemometrics, statistics. • Provide specialist expertise in selected analytical techniques including X-ray diffraction, vibrational spectroscopy and thermal analysis. Where appropriate, contribute to the advancement of these fields through academic outputs. • Initiate and manage the introduction of the new service provision e.g. establish new instrument facilities and/or service offerings to extend the University's portfolio. • Participate in and, where appropriate, initiate academic networks and facilitate users to broaden

expertise and share best practice in specialist techniques.

- Actively participate in development of the Instrument Scientist and technical groups including transfer of specialist skills and, where appropriate, mentoring others in the development of high-level provision.
- Devise and deliver basic and advanced training provision for research instrumentation for staff and students. Where appropriate, formulate this training into accredited UG/PG-t modules.
- Lead formal taught provision in appropriate areas of specialism for taught courses (Undergraduate and Masters).
- Actively participate in continuing professional development to maintain discipline-leading provision for the University.

In addition to the above, undertake such duties as may reasonably be requested and that are commensurate with the nature and grade of the post.

ADDITIONAL INFORMATION

Scope and dimensions of the role
<ul style="list-style-type: none"> • Responsible for maintenance and development of specialist instrumentation facilities. • Responsible for developing and advising on advanced instrumental methods for academic and business users of specialist facilities for the JBL and The Bridge. • Responsible for managing relationships with PIs/clients to understand requirements and to modify provision to address customer needs. • Responsibility for health and safety management of specialist facilities and co-ordination of users including scheduling. • Responsibility for training users in specialist techniques and identifying training needs in the context of systematic development of skills. • Responsible for devising and delivering training materials as part of accredited modules for undergraduate and postgraduate students.

Key working relationships/networks	
Internal	External
<ul style="list-style-type: none"> • Head of College of Science • Heads of Schools of Chemistry, Life Sciences and Pharmacy • Technical Manager(s) and technical support teams • Academic PIs and researchers in the context of research projects • Academic programme and module leaders in the context of accredited training programmes. • Health and Safety Department • Estates Maintenance and Estates Services 	<ul style="list-style-type: none"> • Academic specialists in areas of chosen expertise • Commercial clients and project commissioners • Instrument manufacturers • Commercial suppliers • Professional bodies including specialist interest groups e.g. RSC, ACA

**UNIVERSITY OF LINCOLN
PERSON SPECIFICATION**



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Selection Criteria	Essential (E) or Desirable (D)	Where Evidenced Application (A) Interview (I) Presentation (P) References (R)
Qualifications:		
Honours degree or equivalent in chemistry or a related subject.	E	A
Successfully completed, a PhD (or equivalent) in chemistry or related subject (or, exceptionally, working towards this qualification) with a substantial component of use of advanced instrumental techniques OR have significant relevant experience within a Research & Development setting with a demonstrable track record in application of advanced instrumental techniques (e.g. through publication or appropriate professional achievement)	E	A/I/R
Teaching qualification	D	A
Experience:		
Advanced operation of instrumentation in one or more of the defined instrument groups	E	A/I
Development of new instrumental methods in one or more areas of required specialisation	D	A/I
Experience in managing delivery of projects with demonstrable academic and/or commercial outputs.	E	A/I
Participation in scientific networks related to area of specialisation	E	A/I
Preparation of reports and/or publications of appropriate scientific rigour for one or more of the defined instrumental techniques.	E	A/I
Preparation of risk assessments for chemical laboratory environments, including CoSHH	E	A/I
Supervision of individuals and/or coordination of scientist teams in the context of research and development projects.	D	A/I
Maintenance and development of instrumentation suites in relevant areas.	D	A/I
Delivery of projects to established QC requirements (e.g. GLP)	D	A/I
Development of training materials to address a range of expertise levels.	D	A/I
Skills and Knowledge:		
Expertise in the implementation of advanced techniques in one or more of the instrumentation suites.	E	A/I
Commitment to developing depth and breadth of subject understanding in areas of instrumental expertise	E	A/I
Ability to support students in the development of their	E	A/I

skills in the implementation of advanced analytical techniques.		
Ability to participate in project teams in multi-disciplinary contexts.	E	A/I
Ability to address potentially conflicting demands of stakeholders.	E	A/I
Good organisation and time management skills.	E	A/I
Competencies and Personal Attributes:		
Commitment to the development of self and others	E	I
Team-working	E	I
Good interpersonal skills	E	I
Flexibility and adaptability	E	I
Ability to work on own initiative	E	I

Essential Requirements are those, without which, a candidate would not be able to do the job. **Desirable Requirements** are those which would be useful for the post holder to possess and will be considered when more than one applicant meets the essential requirements.

Author	IJS	HRBA	HA
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