



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Material Science (Biophotonics and Biosensors)

Faculty of Medicine and Health



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

Reference: MHLCM1206

Closing date: 6 November 2019

Fixed-term for 36 months.

Research Fellow in Material Science (Biophotonics and Biosensors)

Faculty of Medicine and Health Leeds Institute of Cardiovascular & Metabolic Medicine

Are you an ambitious researcher looking for your next challenge?

Do you have a background in biosensor and bioimaging research?

Do you want to further your career in one of the UK's leading research-intensive Universities?

The project aims to engineer dual functional (optical and magnetic) Upconversion Nano Particles by using various chemical methodologies, conjugate them with Affimers, antibodies to enable rapid and simultaneous detection of biomarkers related to cardiovascular diseases (CVDs) including acute myocardial infarction and stroke *in vitro* and, targeted detection and imaging of atherosclerotic plaque at the pre-clinical level.

The post-holder will be expected to play a full role in the conjugation of up-conversion nanoparticles with rare-earth ions with biomolecules (e.g., antibodies, DNA, RNA, protein, Affimer), biosensing, bioimaging, medical device fabrication, monitoring regulatory aspects and ethics, management of the biological aspects of sensor development and preclinical/clinical investigation of optical sensors.

The post-holder will be working mainly in the cardiovascular grouping within the Leeds Institute of Cardiovascular and Metabolic Medicine (LICAMM) and contribute to research and reflecting the collaborative work undertaken by Dr Sikha Saha, Professor Gin Jose and other researchers in the LICAMM, School of Biomedical Sciences, Astbury Centre, School of Chemical and Process Engineering and the NHS. The research group comprising biologists, biochemists, engineers and clinicians and focuses on developing diagnostic and therapeutic tools for combating CVDs.

What does the role entail?

As Research Fellow your main duties will include:



- Working with and in support of an EPSRC funded research grant to ensure the project is successfully completed;
- Generating and pursuing original research ideas in the biomarkers, biophotonics and bioimaging for cardiovascular diseases;
- Developing research objectives and proposals and contributing to setting the direction of the research project and team including, where appropriate 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 work;
- Communicating or presenting research results through publication or other recognised forms of output;
- Preparing papers for publication in leading international journals and independently writing reports;
- Working both independently and as part of a larger team of researchers, engaging in intellectual property/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 research culture of the School, where appropriate;
- Contributing to the training of both undergraduate and postgraduate students, where appropriate, 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.

You will report to Dr Sikha Saha, Associate Professor of Cardiovascular and Cerebrovascular Medicine

What will you bring to the role?

As Research Fellow you will have:

- A first degree and PhD (or passed PhD with minor corrections at the point of application) in Material Science (Biophotonics and Biosensors) or a closely allied discipline;
- A strong background in nanomaterial engineering including chemical



functionalisation of nanoparticle thin films, Affimer/ antibody- nanoparticles conjugation, surface chemistry and their characterisation techniques and optical spectroscopic measurements.

- Experience in UV-VIS-NIR, Fluorescence and fluorescence lifetime spectroscopy and the use of lasers (including Class 4 lasers) in spectroscopy and bioimaging;
- Experience in the study of toxicity of nanoparticles and functional surfaces;
- Experience in cell culture (including 3D cell culture/ co-culture), *in vitro* and *in vivo* murine models, working with clinical samples, confocal, electron and atomic force microscopy, surface plasmon resonance;
- A track record of successful publications on fluorescence lifetime, photoluminescence based optical sensing, cell imaging and biomarker analysis.
- Demonstrated experience in conducting research and sensor development requiring ethical approvals and regulatory processes and preparing and presenting application for ethics committee and regulatory bodies;
- Experience in working on collaborative research projects involving biologist, biochemist, engineers, industrial partners and clinicians;
- Proven ability to write to the standard required for research reports/international publications;
- 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 and the ability to communicate effectively with a wide range of stakeholders;
- 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;
- Excellent presentational skills with experience of presenting reasoned arguments.

You may also have:

- An interest in the field of CVDs and optical sensors.

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:

Dr Sikha Saha, Associate Professor of Cardiovascular Medicine

Tel: +44 (0)113 343 4817

Email: s.saha@leeds.ac.uk

Or

Professor Gin Jose, School of Chemical and Process Engineering

Tel: +44 (0) 113 343 2536

Email, G.Jose@leeds.ac.uk

Additional 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.

Appointment to this post will be subject to appropriate security checks being carried out with your permission by a third party company.

Criminal record information

«Rehabilitation of Offenders Act 1974 (Exceptions) Order 1975

This post requires a basic criminal record check from the Disclosure and Barring Service (DBS), and any equivalent overseas authorities where relevant. The successful candidate will be required to give consent for the University to check their



criminal record status. All applicants are required to make a self-declaration where applicable.

Any offer of appointment will be subject to the University being satisfied with the outcome of these checks, in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our [Criminal Records](#) information page.

