

**UNIVERSITY of GLASGOW**

**FACULTY OF PHYSICAL SCIENCES**

**DEPARTMENT OF PHYSICS & ASTRONOMY**

**RESEARCH FELLOW in nanomagnetism**

**£36,912 - £42,791 PER ANNUM**

**REF 14251/DPO/A3**

You will conduct research in nanomagnetism, taking a high level of responsibility for the facilities used for this purpose in the University. As well as developing the capability, based around advanced imaging and fabrication techniques, you will play a leading role in training other researchers, raising grant income, liaising with external users and in knowledge transfer. A high level of expertise in magnetic imaging and nanofabrication is required.

For full details see <http://www.gla.ac.uk/jobs/vacancies>.

Applications should be submitted to Lucy Murray, Department of Physics & Astronomy, Kelvin Building, University of Glasgow G12 8QQ.  
Closing date: 30 May 2008.

**UNIVERSITY OF GLASGOW  
JOB DESCRIPTION**



**Ref No: 14251/DPO/A3**

<b>Job Title</b>	Research Fellow
<b>Department/Division</b>	Physics and Astronomy
<b>Faculty/Division of AIMS</b>	Physical Sciences
<b>Reporting To</b>	Dean of the Faculty of Physical Sciences, Head of the Solid State Physics (SSP) Group

<b>Job Purpose</b>
To enable and participate in the pursuit of a world class research programme in nanomagnetism, specifically that concerned with advanced functional structures; to develop and use high resolution magnetic imaging techniques in conjunction with characterisation and fabrication using electron and ion beam techniques; to engage in a modest amount of training in materials physics and to carry out allocated administrative tasks.

<b>Main Duties and Responsibilities</b>
1. Manage the facilities used for nanomagnetism research in the Department of Physics & Astronomy. Ensure efficient use of the equipment. Develop procedures and techniques for magnetic imaging, including collection and analysis of the data. Develop the in-situ experimentation capability, including that for the study of fast dynamic processes. Define, with members of academic staff, the practical and theoretical training in nanomagnetism required by research students, less experienced RAs and others, and take responsibility for its delivery. Play a significant role in the development and funding of nanomagnetism research by identifying, initiating and leading ways forward (in consultation with Professor J N Chapman). Cost the use of the facilities (in consultation with the Head of the Solid State Physics group), keep records of usage and ensure that external users are charged appropriately.
2. Lead aspects of the research group activities and play a significant role in planning the direction of one or more major research projects. Develop active collaborations in magnetism research at the international level with members of the SSP group, the Kelvin NanoCharacterisation Centre (KNC) and other academic and industrial colleagues. Initiate research projects and contribute substantially to funding proposals. Contribute to projects where advanced skills are required to achieve their objectives.
3. Pursue knowledge transfer activities in nanomagnetism outwith the faculty and the university.
4. Present work at project meetings and at seminars within the University of Glasgow and collaborating institutions. Report research results at national/international conferences and workshops (minimum one per year). Document research results through papers in high impact journals (minimum two/year).
5. Supervise post-doctoral researchers, technicians, research students and undergraduate project students working in the nanomagnetism field.
6. Assess the requirements of contract work relating to magnetism for outside users, cost the resources required, decide who will carry out the work and arrange the contract.
7. Contribute to departmental teaching and/or administration in a modest way.
8. Undertake professional development courses.
9. Undertake any other duties of equivalent standing as required by the Dean or Head of the Solid State Group.

## **Knowledge, Qualifications, Skills and Experience**

## **Knowledge/Qualifications**

Essential:

- Ph.D. in the condensed matter or materials area or equivalent experience
- Good academic background in topics related to magnetic imaging and nanofabrication
- Familiarity with high spatial resolution characterisation

Desirable:

Knowledge of focused ion systems and techniques

## **Skills**

Essential:

- Good administrative and project management skills
- Expertise in magnetic imaging, diffraction and nanoanalytical characterisation using electron beam techniques
- Competence in a range of nanofabrication techniques
- Ability to formulate an independent research programme within the overall structure of the SSP group (involving, where appropriate, colleagues in other groups and departments)
- Excellent communication, interpersonal and presentational skills in English
- Effective team working skills both as a team leader and participant
- Flexibility to travel to participate in national and international meetings
- Willingness and ability to spend short periods working at other laboratories, if appropriate
- Willingness to undertake out-of-hours work as the need arises

Desirable:

- Successful operation of the type of equipment in the KNC and James Watt Nanocharacterisation Centre

## **Experience**

Essential:

- Experience of multiuser magnetic imaging and measurement equipment along with advanced lithography for fabricating nanostructures
- Experience of training people to use such equipment
- At least six years research experience in research relating to nanomagnetism
- Successful track record in writing research papers and publishing in high profile research journals, commensurate with number of years of research experience and research area
- Significant contributions to research proposals

Desirable:

- Experience of running advanced multiuser equipment
- Experience of multidisciplinary research in magnetism involving successful collaboration between two or more groups
- Experience of using the type of equipment in the KNC and James Watt Nanocharacterisation Centre
- Successful record of arranging and carrying out contract work

## **Dimensions**

Carry out high quality research at the international level  
Manage and develop the facilities for nanomagnetism research  
Present work in public at least once per year; publish at least two papers per year  
Make a significant contribution to the development and funding of the SSP group  
Contribute to departmental teaching and/or administration in a modest way

### **Job Features**

**Planning and Organising**

Plan, organise and manage research and administrative tasks related to your own and the nanomagnetism research programme of the SSP group  
Bring issues to the attention of the relevant managers on behalf of self and others  
Act on outcomes as necessary, in terms of faculty policy and provision  
React to research student needs which vary on a day-to-day basis

**Decision Making**

Run the equipment used for nanomagnetism research, consulting the dean and users where appropriate  
Prioritise your own work  
Lead decisions within the magnetism team about enhancing fabrication capabilities and, where appropriate, publication of results

**Internal/External Relationships**

Frequent liaison with external collaborators, local collaborators, academic staff and students for the exchange of information as part of the research process  
Liaise with a range of staff, from within the University and from other institutions, regarding research issues

**Problem Solving**

Research including problem solving and development of novel ideas  
Deal with requests from academic, other University staff and research colleagues as well as external collaborators on any aspect of research for which you are responsible

**Other**

The post is based in Glasgow with appropriate visits to other laboratories and collaborators.  
Working times must be flexible to maximise the use of the instrumentation in the laboratory.  
It is a requirement of the post that the person appointed sign any confidentiality or other agreements entered into by the University in respect of the work undertaken.

**Additional Department/Faculty Information****The Post**

This is a University funded post that has been made available whilst Professor J N Chapman is Dean of the Faculty of Physical Sciences. The person appointed will be expected to recover ~40% of their salary by gaining research and contract funding.

**The Solid State Physics Group, Department of Physics and Astronomy, University of Glasgow**

The Solid State Physics Group is in the Department of Physics and Astronomy, which was graded 5 in the last RAE. The group develops and applies a range of characterisation techniques, principally electron microscope based, but including magneto-electrical characterisation down to liquid helium temperatures. We have an excellent range of equipment with top class facilities for nanoanalytical electron microscopy in the Kelvin Nanocharacterisation Centre. We have access to the facilities of the newly opened James Watt Nanofabrication Centre. We are one of the partners in the SuperSTEM project, giving access to aberration corrected instruments. Current projects include the study of oxides on semiconductors, magnetic multilayers, precipitation in steel, magnetic nanoparticles and nanowires. Further details can be found at

<http://www.ssp.gla.ac.uk/>

Solid State Physics Group

<http://www.knc.gla.ac.uk/index.htm>

Kelvin Nanocharacterisation Centre

<http://www.jwnc.gla.ac.uk/>

James Watt Nanofabrication Centre

<http://www.physics.gla.ac.uk/>  
<http://www.gla.ac.uk/>  
<http://www.superstem.dl.ac.uk/>

Department of Physics and Astronomy  
The University of Glasgow  
SuperSTEM Laboratory

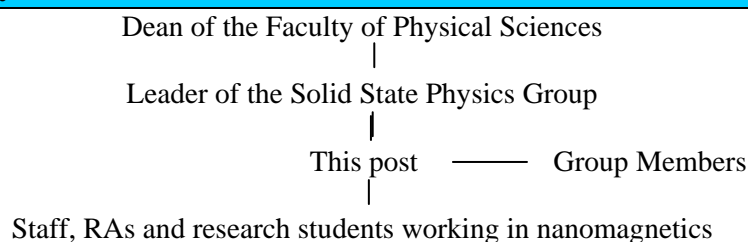
### **The Kelvin Nanocharacterisation Centre**

KNC has excellent facilities for the characterisation of functional and structural materials on the sub-nanometre scale using electron and ion beam techniques including HRTEM, STEM, EELS, ELNES, EDX and FIB. The instrumentation available includes an FEI Tecnai F20 (S)TEM equipped with a Gatan ENFINA electron spectrometer, an FEI Tenai T20 equipped with a Gatan GIF energy filter, a Philips CM20 FEG (S)TEM optimised for magnetic studies and an FEI Nova 200 Dualbeam FIB system with the sidewinder ion column and an EDX detector. Funds are currently being sought to replace the CM20 with a world leading instrument for both magnetic and nanoanalytical electron microscopy. In addition, there are good specimen preparation facilities and a suite of powerful computers for data processing and modelling. The work of the Centre is supported by experienced technicians.

### **Informal Enquiries**

Informal enquiries can be made to Professor John Chapman ([j.chapman@physics.gla.ac.uk](mailto:j.chapman@physics.gla.ac.uk)).

### **Organisation Chart**



### **Terms & Conditions**

The salary will be on the Research and Teaching grade, level 8, £36,912 - £42,791 per annum.

The post has funding for up to 4 years, starting on 1 August 2008 and is to provide support for research led by Professor John Chapman during his period as Dean of the Faculty of Physical Sciences.

The successful applicant (if aged under 60) will be eligible to join the Universities' Superannuation Scheme. Further information regarding the scheme is available from the Superannuation Officer, who is also prepared to advise on questions relating to the transfer of Superannuation benefits.

All research and related activities, including grants, donations, clinical trials, contract research, consultancy and commercialisation are required to be managed through the University's relevant processes (e.g. contractual and financial), in accordance with the University Court's policies.

### **Disclosure Scotland**

The post for which you are applying is considered to be a child care position in terms of The Protection of Children (Scotland) Act 2003. It requires the successful applicant to undergo a satisfactory Disclosure check through Disclosure Scotland prior to appointment. This check is necessary to ensure that the University of Glasgow fulfils its legal duties under the Act.

If you are successful in your application, the offer of employment will be subject to a satisfactory Disclosure Report. The University will make a Disclosure application to Disclosure Scotland which will reveal any past criminal convictions (spent or unspent) or inclusion on the Disqualified From Working with Children List. Any non-conviction information held locally by the police may also be disclosed should this be considered relevant to the position.

Please note it is a criminal offence to apply for a child care position if you are on the Disqualified From Working with Children List.

### **Method of Application**

Applications should be submitted to Lucy Murray, Department of Physics & Astronomy, University of Glasgow, G12 8QQ.

Closing date: 30 May 2008

Each application should consist of four copies (one in the case applicants from overseas) of the following:

1. A fully collated and stapled curriculum vitae including list of publications and names and addresses of three referees; bound copies are not necessary.
2. A covering letter explaining why you wish to be considered for this position, including:
  - (i) a statement of how you meet the essential and, where applicable, the desirable criteria as stipulated in the job description (please address each individual point):
  - (ii) an explanation of how your knowledge, skills and experiences can help advance the understanding and application of nanomagnetism, together with a short description of the research programme you intend to lead:
  - (iii) a brief statement on the state of your health
3. Equal Opportunities Monitoring Form (in a sealed envelope addressed to Equal Opportunities, Human Resources Department).
4. Guaranteed Interview Scheme (applicable for applicants with a disability who meet the published essential criteria for the job).

#### **Notes**

- (i) **Candidates called for interview and/or subsequently appointed may be required to provide proof of qualifications.**
- (ii) **The information provided in your application will be sent to the prospective Dean of the Faculty of Physical Sciences and consequently distributed to the members of the appointing committee for consideration.**
- (iii) **For shortlisted candidates, references will be taken up prior to interview unless there is a specific request not to do so.**
- (iv) **The University is committed to equality of opportunity in employment.**

**WHEN REPLYING, PLEASE QUOTE THE REFERENCE NUMBER**