

THE UNIVERSITY OF MANCHESTER
PARTICULARS OF APPOINTMENT
FACULTY OF SCIENCE & ENGINEERING
SCHOOL OF CHEMISTRY

RESEARCH ASSOCIATE IN THE USE OF 2D CRYSTAL-BASED INKS IN THERMOELECTRICS
S&E-10095

Salary:	Grade 6 £31,076 to £38,183 per annum according to relevant experience
Hours:	Full time
Duration:	Fixed term from July 2017 until 30 June 2019
Location:	Oxford Road, Manchester

Enquiries about the vacancy, shortlisting and interviews:

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BACKGROUND

Prof Casiraghi Group, based in the School of Chemistry, at The University of Manchester, invites applications for one postdoctoral research position to work on a number of projects investigating the use of 2D materials formulations in thermoelectrics.

Overall Purpose of the Job

You will join a large and dynamic graphene research group in Manchester.

<http://www.graphene.manchester.ac.uk/>

Working in a team, you will require good communication skills, exchanging technical information with scientists from different disciplines. You will need to possess relevant computer skills (word processing / spreadsheets / e-mail) and have strong analytical and problem-solving abilities. The role requires a well-organised, yet flexible, approach to working.

The projects will focus on synthesis of 2D materials inks, their characterization, deposition and their use as thermoelectrics, in collaboration with Prof Novoselov (School of Physics) and Dr Kretinin (School of Materials). It is expected the project will lead to high impact scientific publications and technological development of 2D materials in the thermoelectric sector.

Key Responsibilities, Accountabilities or Duties

The range of duties will include:

- Involvement in the assessment of student knowledge and supervision of projects.
- Assist in the development of student research skills.
- Develop research objectives and proposals for own or joint research, with the assistance of a mentor if required.
- Conduct individual and collaborative research projects.
- Write up research work for publication.
- Continually update knowledge and understanding in field or specialism.
- Translate knowledge of advances in the subject area into research activity.
- Deal with routine communication using a range of media.
- Communicate complex information, orally, in writing and electronically.
- Prepare proposals and applications to external bodies, e.g. for funding and contractual purposes.
- Communicate material of a specialist or highly technical nature.
- Liaise with colleagues and students.
- Build internal contacts and participate in internal networks for the exchange of information and to form relationships for future collaboration.
- Join external networks to share information and identify potential sources of funds.
- Work with colleagues on joint projects, as required
- Collaborate with academic colleagues on areas of shared research interest.
- Attend and contribute to relevant meetings.
- Use creativity to analyse and interpret research data and draw conclusions on the outcomes.
- Use research resources, laboratories and workshops as appropriate.
- Plan and manage own research activity in collaboration with others.

- Be aware of the risks in the work environment and their potential impact on their own work and that of others.

PERSON SPECIFICATION

Essential;

- A PhD, or postdoctoral experience, in Chemistry, Material Science, Physics or related subjects.
- **Strong publication record** in internationally peer-reviewed journals in the area of 2D-crystal formulations.
- **Strong experience** in preparation of 2D crystal inks, in particular by wet-chemical exfoliation (e.g. liquid phase exfoliation).
- **Strong Experience** in at least one of the following area:
 - **Inkjet printing of 2D-crystal based formulations**
 - **Thermoelectric measurements (thermal conductivity, etc)**
- Excellent communication and interpersonal skills
- Excellent time management and organisational skills
- Ability to work independently and as part of a team
- Ability to liaise confidently and effectively with a range of individuals
- Flexible approach to dealing with research problems as they arise
- Willingness to learn and develop
- Ability to present in both written and oral publications
- Ability to meet deadlines
- Strong journal publication record.
- The ability to evaluate complex data
- Ability to contribute to broader management and administrative processes.
- Ability to assess and organise resources
- Understand equal opportunity issues as they may impact on areas of research content.

Desirable Knowledge, Skills and Experience:

- Characterization measurements: Raman spectroscopy, AFM, electrical measurements
- Fabrication and characterization of printed devices made of 2D materials