



Candidate Information

Position:	Research Fellow (Computational Modelling)
School/Department:	School of Mechanical and Aerospace Engineering
Reference:	24/112190
Closing Date:	Monday 23 September 2024
Salary:	AC2, sp 30 £39,922
Anticipated Interview Date:	Monday 30 September 2024
Duration:	Fixed Term - Full Time, available for 9 months

JOB PURPOSE:

The purpose of this job is to collaborate with the University of St Andrew's to create computational models to aid in the design and development of polymer catheters. The goal of the project is to design Metal Organic Framework (MOF) loaded catheters that can adjust the release rate of Nitric Oxide (NO) for various medical applications.

The post is a critical role, and as such, successful applicants will have responsibilities in independent research, supervision, planning, collaborations and outreach.

MAJOR DUTIES:

1. Develop scripts using MATLAB and Python to automate model creation.
2. Transform micro-CT data into models suitable for multiscale modelling of polymer nanocomposites.
3. Create optimization algorithms using surrogate modelling to determine the optimal MOF loading and tube dimensions for various polymers and applications.
4. Produce high quality research outputs in oral and written format.
5. Produce high quality research outputs consistent with project aims and commensurate with career stage. This will include collaborating and co-authoring with PI and project team (as appropriate) on outputs.
6. In consultation with the project team, promote research milestones and outputs at national and international conferences.
7. Assist grant holder in the preparation of funding proposals and applications to external bodies.
8. Carry out occasional educational supervision, demonstrating or lecturing duties within the post holder's area of expertise and under the direct guidance of a member of academic staff.
9. Undertake supplementary duties relevant to the success of the project including administrative duties and additional training and development activities as required.

ESSENTIAL CRITERIA:

1. Have or about to obtain a PhD in relevant area.
2. Recent experience to include:
 - Computer Aided Engineering
 - A Proven track record of research excellence
3. Ability to contribute to broader management and administrative processes.
4. Contribute to the School's outreach programme by links with industry, community groups, etc.
5. Willingness to undertake additional training in research methods and other related skills as required.
6. Practical problem-solving skills, independence of thought and initiative.
7. Ability to communicate complex information effectively in oral and written format.
8. Ability to build relationships to develop internal and external networks.
9. Ability to assess and organise resources.
10. Willingness to travel to meet the requirements of the research project.

DESIRABLE CRITERIA:

1. Relevant research experience to include:
 - Writing computer programs in Matlab/Python.
 - Relevant technical skills for processing of mesh-based geometry and image-based data (e.g. Micro-CT data).
 - Statistical techniques relevant to surrogate modelling (e.g. Gaussian Process Regression).