Candidate Information

Position:	Research Fellow
School/Department:	School of Mathematics and Physics
Reference:	26/113756
Closing Date:	Monday 30 November 2026
Salary:	£42,972 - £51,270 per annum
Anticipated Interview Date:	Friday 11 December 2026
Duration:	36 months

JOB PURPOSE:

To be an active member of the research team assisting in the planning and delivery of the research programme within EPSRC Grant: "Bright Laser Accelerated Ions through Self-focusing Effects: BLAISE." Specifically, this role will include both experimental and computational work associated with laser-driven ion acceleration and subsequent propagation of ion beams through low-density material. The experimental work will include development and characterisation of novel liquid and gas targets, diagnostic development and leading experiments both outside and within the UK, including at QUB. The computational work will include particle-in-cell simulations, radiation hydrodynamics and computational fluid dynamics as well as analysis of simulation and experimental data. In addition, this role will contribute to the research group and School through administrative and outreach activities and assisting in supervision of Masters and PhD students.

MAJOR DUTIES:

1. Plan and undertake experimental research activities employing high power lasers both at QUB and external facilities, including liaising with internal and external collaborators.
2. Plan and undertake a campaign of simulations using particle-in-cell codes, hydrodynamics code and computational fluid dynamics.
3. Carry out analysis, critical evaluation and interpretation of data and literature using methodologies appropriate to the area of research.
4. Present regular progress reports on research to members of the research group and collaborators, or external audiences to disseminate and publicise research findings.
5. Produce high-quality research outputs consistent with project aims. This will include collaborating and co-authoring with other members of the team.
6. Assisting grant holder in the preparation of funding and experimental access proposals, and applications to external bodies.
7. Contributing to the supervision of postgraduate and undergraduate students, and participating in demonstrating/teaching.
8. Carrying out routine administrative tasks associated with the research project, such as organisation of project meetings, documentation and training, preparation of risk assessments for research activities.
9. The above describes the type of work that is typically required of research staff at this level. It is not expected that anyone carries out all the activities mentioned above and some carry out additional duties.

ESSENTIAL CRITERIA:

1. Have or be about to obtain (normally defined as within 3 months of application date) a PhD in high-power laser plasma interactions or related field.
2. Specific research experience relevant to experimental high power laser plasma interactions to include:
   - Experience planning and practically implementing experiments at high power laser facilities.
   - Experience relevant to the setting up and running of computational simulations using particle-in-cell codes.
3. A high-quality publication record in peer reviewed journals commensurate with career stage.
4. Experience performing data analysis including development of new analysis codes.
5. Ability to lead a small team of researchers to complete a programme of work (e.g. experimental campaign).
6. Ability to contribute to broader management and administrative processes of the project.

7. Ability to assess and organise resources.
8. Ability to communicate complex information clearly in English, both in oral and written format.
9. Practical problem-solving skills, independence of thought and initiative.
10. Ability to work effectively with internal and external partners.
11. Willingness to participate in experiments and disseminate the findings of the research at national and international conferences.
12. Willingness to supervise PhD and Masters students.
13. Ability to travel to support experimental facilities access.

DESIRABLE CRITERIA:

1. Have a PhD and/or publications as lead author in high-power laser driven ion acceleration.
2. Specific research experience relevant to experimental high-power laser-driven ion acceleration.
3. Track record of publishing in high impact publications as one of the lead authors.
4. Experience leading the planning and implementation of experiments at high power laser facilities.
5. Experience relevant to the setting up and running of computational simulations using radiation hydrodynamics codes.
6. Experience relevant to the setting up and running of computational simulations using computational fluid dynamics codes.
7. Experience setting up and using OSIRIS or WARPX particle-in-cell codes.
8. Ability to contribute to the school's outreach programme.
9. Experience in applying for science funding or experimental access.
10. Track record of presenting talks at international conferences.
11. Ability to build and sustain collaborative relationships with internal and external researchers/research networks.

ADDITIONAL INFORMATION:

Informal enquiries may be directed to: Dr Matthew Streeter at m.streeter@qub.ac.uk.