Department Name:

Electrical Engineering and Electronics

Supervisor(s) and their email address (2 max):

Dr K McKay and Prof. J. W. Bradley (k.mckay@liverpool.ac.uk, j.w.bradley@liverpool.ac.uk)

Funding Status (select from below drop down menu):

Directly Funded Project (Students Worldwide)

Application Deadline:

Project Title:

Self-organisation in magnetised plasmas
Highly ionised plasmas (such as those produced in fusion reactors) are commonly susceptible to oscillations and instabilities. Understanding these phenomena is important as they can have both desirable and undesirable effects. Oscillations and instabilities such as coherent rotating spokes have been observed in a number of magnetised plasma discharges and while some work has been done to investigate the properties of these spokes, little is known about how their occurrence affects the discharge condition.

Using a range of diagnostic techniques the PhD student will study the effect of self-organisation on the plasma properties. Techniques to be used will include energy-resolved mass spectrometry, optical emission spectroscopy, fast ICCD imaging, Langmuir probes, retarding field analysers and Hall probes.

The PhD will take place at The University of Liverpool under the supervision of Dr K McKay and Prof J W Bradley. There will be opportunities for international travel and for collaboration with the Cockcroft Institute at Daresbury.

This project is part of the EPSRC Centre for Doctoral Training in the Science and Technology of Fusion Energy. If you are accepted onto our programme, you will benefit from a series of training courses with full funding provided. For more information on the benefits of being part of a CDT please see http://www.fusion-cdt.ac.uk/
This is a 4 year PhD and funding is available for UK/EU students

Name and email address to direct enquiries to:

Dr K McKay (k.mckay@liverpool.ac.uk)

Application Web Page:

https://www.liverpool.ac.uk/study/postgraduate-taught/applying/
List of subject areas (please select the appropriate subject areas the project applies to):

**Engineering**
- [ ] Acoustics
- [ ] Aeronautical Engineering
- [ ] Biomedical Engineering
- [ ] Chemical Engineering
- [ ] Civil & Structural Engineering
- [x] Electrical & Electronic
- [x] Energy
- [ ] Manufacturing
- [x] Materials Science
- [ ] Mechanical Engineering
- [ ] Nanotechnology
- [x] Nuclear Engineering
- [ ] Semiconductors
- [ ] Software Engineering
- [ ] Telecommunications

**Maths & Computing**
- [ ] Applied Mathematics
- [ ] Bioinformatics
- [ ] Computational Chemistry
- [ ] Computer Science & IT
- [ ] Data Analysis
- [ ] Information Science
- [ ] Mathematics
- [ ] Operational Research
- [ ] Software Engineering
- [ ] Statistics

**Humanities**
- [ ] American Studies
- [ ] Anthropology
- [ ] Archaeology
- [ ] Architecture & the Built Environment
- [ ] Asian Studies
- [ ] Classics & Ancient History
- [ ] Communication, Cultural & Media Studies
- [ ] European Studies
- [ ] Geography
- [ ] History
- [ ] Middle East & African Studies
- [ ] Modern Languages & Linguistics
Biological & Medical Sciences

- Agricultural Sciences
- Biochemistry
- Bioinformatics
- Biomedical Engineering
- Biophysics
- Biotechnology
- Botany / Plant Science
- Cancer / Oncology
- Cell Biology / Development
- Dentistry
- Ecology & Conservation
- Endocrinology
- Evolution
- Food Science / Nutrition
- Genetics
- Immunology
- Marine Biology
- Medical / Biomedical Physics
- Medical / Clinical Science
- Microbiology
- Molecular Biology
- Neuroscience / Neurology
- Obstetrics, Gynaecology & Reproduction
- Parasitology
- Pathology
- Pharmacology / Toxicology
- Physiology & Sports Science
- Psychology & Psychiatry
- Public Health & Epidemiology
- Structural Biology
- Veterinary Medicine
- Virology
- Zoology / Animal Science

Chemical Sciences

- Agricultural Chemistry
- Analytical Chemistry
- Biochemistry
- Chemical Engineering
- Chemical Toxicology
- Computational Chemistry
Electrochemistry
Environmental Chemistry
Food Chemistry
Geochemistry
Inorganic Chemistry
Macromolecular Chemistry
Materials Science
Organic Chemistry
Pharmaceutical Chemistry
Physical Chemistry
Synthetic Chemistry

Physical Sciences
- Applied Physics
- Astrophysics
- Atmospheric Physics
- Atomic Physics
- Biophysics
- Condensed Matter Physics
- Fluid Dynamics
- Geophysics
- Low-temperature Physics
- Materials Science
- Medical / Biomedical Physics
- Metrology
- Nuclear Physics
- Optical Physics
- Particle Physics
- Plasma Physics
- Radiation
- Semiconductors
- Theoretical Physics

Earth Sciences
- Agronomy & Soil Science
- Atmospheric Physics
- Climatology & Climate Change
- Ecology & Conservation
- Ecotoxicology & Pollution
- Environmental Chemistry
- Environmental Science
- Geochemistry
- Geography
- Geology
- Geophysics
- Hydrology
- Meteorology
- Oceanography