Research Fellow(s) in Power Electronics

WMG

£29,799 - £38,833 pa

Fixed Term Contract for 2 years

You will join the world renowned WMG at the University of Warwick to work on power electronics projects funded by Innovate UK and the High Value Manufacturing Catapult in collaboration with a range of industrial partners. This is an excellent opportunity to develop your professional reputation within a leading research environment at the forefront of technology.

Working within the Advanced Propulsion Systems Group, you will assist the delivery of research work in the field of power electronics. The emphasis will be on the design, construction and deployment of high efficiency power conversion for wind power and battery energy storage systems at power levels of 1 kW up to 100 kW. There is an expectation that the converters will be based on new wide band gap semiconductors.

You will have proven research experience and well developed communication and collaboration skills to provide the interface between industry, academic partners and the project management team, and will assist the project team and external collaborators in the successful execution of the projects.

You will be educated to MSc level and ideally have relevant industrial experience, and also possess a PhD in an engineering related discipline.

If you have not yet been awarded your PhD but are near submission or have recently submitted your PhD, any offers of employment will be made as Research Assistant on level 5 of the University grade structure (£28,936). Upon successful award of your PhD and evidence of this fact, you will be promoted to Research Fellow on the first point of the level 6 of the University grade structure (£29,799).

In return we will provide you with a great range of benefits which include an attractive pension scheme, 30 days holiday plus Christmas closure, some fantastic savings on a wide range of products and services, and excellent learning and development opportunities.

This role will be advertised shortly on the University of Warwick Job Search pages. If you would like to be considered for this role, please forward your CV to WMGrecruitment@warwick.ac.uk clearly stating the job title that you are interested in, and we will make contact with you when it is advertised. You can also set up job alerts on the University of Warwick Job Search page, so you can be made aware of vacancies that may be suitable when they become available.
JOB DESCRIPTION

Job Purpose

There are currently multiple posts available across a range of projects including “affordable, future proof rapid charging infrastructure for electric freight vehicles” (funded by Innovate UK), “High efficiency power” (funded by HVM Catapult) and “reducing the levelised cost of energy in offshore wind through a disruptive silicon carbide converter technology – Sictronic” (funded by Innovate UK).

You will assist the Project Director and Project Collaborators in the successful execution of the project. There is some flexibility in the areas of specialism sought from the successful candidate within the field of Power Electronics. Particularly valuable would be the ability to contribute to:

1. Designing, building and testing converter circuits
2. Developing WMG’s expertise in the practical use of wide bandgap semiconductor devices, especially SiC
3. Specifying and implementing suitable test-rigs
4. Working with the industrial partners to implement and monitor battery energy storage systems.

DUTIES AND RESPONSIBILITIES:

Research

1. To establish a sound research base within the Department in order to pursue individual and collaborative research of high quality consistent with making a full active research contribution to the Department in line with its research strategy.

2. To secure, in collaboration with colleagues as appropriate, external funding through research grants or contracts to support a developing research agenda.

3. To manage research projects within the University, which includes supervising post-doctoral research assistants, research students, and technical and other support staff engaged in research.

4. To consider the value of research achievements within their potential commercial context and where appropriate and with the assistance of the Research Support Services, take appropriate action to protect such research results by patent application or copyright to the potential benefit of the University.

5. Where appropriate and expedient, to secure contract work to the benefit of (your) research activity and to provide resources to underpin this activity.

6. To publish research outcomes in appropriate journals of international standing and to publish and disseminate the result of research and scholarship in other reputable outlets.
7. To identify and explore with the Department and the University any entrepreneurial opportunities which may arise and to ensure that intellectual property rights are protected for the benefit of the University and the researcher.

8. To attend and present research findings and papers at academic and professional conferences, and to contribute to the external visibility of the department.

9. To contribute to the research plans developed by the Department, including providing such information as may be required by the Department to monitor the progress of each member of staff’s research programme and to support the Department fully in the preparation of material required for the REF or similar activities.

10. To help draft research reports for the Principle Investigator.

**Administration and Other Activities**

11. To undertake such specific departmental roles and management functions as may be reasonably required by the Head of Department.

12. To attend departmental meetings and to participate (where necessary) in other committees and working groups within the department, the faculty and the University.

13. To participate in relevant professional activities.

14. To engage in continuous professional development.

15. To undertake external commitments, which reflects well and enhances the reputation of the University.

16. To ensure compliance with health and safety in all aspects of work.

17. To prepare project deliverable reports for the Project Manager.

The duties and responsibilities outlined are not intended to be an exhaustive list but provide guidance on the main aspects of the job. The post holder will be required to be flexible in their duties.
**PERSON SPECIFICATION**

**POST TITLE:** Research Fellow (Power Electronics)  
**DEPARTMENT:** WMG

The Person Specification focuses on the knowledge, skills, experience and qualifications required to undertake the role effectively.

### REQUIREMENTS

The postholder must be able to demonstrate:

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- **Honours degree, 2.1 or above in a relevant field**  
  - **MEASURED BY:** a

- **Possession of a PhD in a relevant discipline**  
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- **Knowledge of and practical experience in power electronics, ideally in the kilowatt range**  
  - **MEASURED BY:** a, c, d

- **Ability or potential to publish excellent work in relevant fields**  
  - **MEASURED BY:** a, c

- **Good effective communication (oral and written) skills, presentation and training skills**  
  - **MEASURED BY:** a, c, d

- **Good interpersonal skills**  
  - **MEASURED BY:** a, c

- **Ability to work independently and as part of a team on research programmes**  
  - **MEASURED BY:** a, c, d

- **Ability to initiate, plan organise, implement and deliver programmes of work to tight deadlines**  
  - **MEASURED BY:** a, c, d

- **Competency in IT and familiarity with a computerised environment**  
  - **MEASURED BY:** a, c

- **A range of Quantitative and/or Qualitative research skills**  
  - **MEASURED BY:** a, c

- **Evidence of quality research output from experienced candidates or strong research potential from less experienced candidates**  
  - **MEASURED BY:** a, c

- **Proven experience in Higher Education**  
  - **MEASURED BY:** a, c

- **Ability to initiate, develop and deliver high quality research and to publish in peer reviewed journals**  
  - **MEASURED BY:** a, c

- **A developing track record in producing high quality academic publications**  
  - **MEASURED BY:** a, c

- **Ability or potential to generate external funding (grants, contracts etc.) to support research projects**  
  - **MEASURED BY:** a, c

- **Ability to write research reports and papers in styles accessible to both academic and policy audiences**  
  - **MEASURED BY:** a, c

### Further Particulars

For information about WMG, please visit our website  
[https://www2.warwick.ac.uk/fac/sci/wmg/](https://www2.warwick.ac.uk/fac/sci/wmg/)

This role is based within the Advanced Propulsion Systems Group. Full details of the group, its work and facilities can be found via the following link:  
[https://www2.warwick.ac.uk/fac/sci/wmg/research/advanced_propulsion_systems/](https://www2.warwick.ac.uk/fac/sci/wmg/research/advanced_propulsion_systems/)