Intelligent Control of GaN and SiC Power Electronic Devices

**Type of award** PhD Research Studentship

**Department** Electrical and Electronic Engineering

**Scholarship Details** The scholarship covers full UK/EU (EU applicants who have been resident in the UK for 3 years prior to the 1st day of the PhD) PhD tuition fees and a tax-free stipend at the current RCUK rate (2019 RCUK rate £15,009 which is the pre-tax equivalent of £20,450) enhanced by an additional £1,000 per year industrial top-up, subject to contracts.

Non-resident in UK may also apply but will only qualify for PhD tuition fees. Allowance for conference travel and consumables is also provided.

**Duration** 4 years

**Eligibility** Home/EU applicants only

**Start Date:** October 2019

**PhD Topic Background/Description**

This is a prestigious EPSRC iCASE studentship with additional support from Toshiba, who develop state-of-the-art power electronics.

Innovative semi-conductor materials, GaN and SiC, offer significant design and performance-based benefits over silicon and are a real competitive advantage. Reducing CO2 and renewable energy are reliant on enhanced and efficient technology. This power electronics PhD seeks to do just that.

Would you like to address the challenges of reducing carbon dioxide emissions by enhancing energy efficiency in vehicles, or by making equipment more compact and lightweight? Are you interested in renewable energy and the technology that turns a variable supply of electricity into the reliable flow of power that users require? A step-change in technology from silicon to GaN and SiC is looming, where the core of power management equipment is going to drastically shrink and become more efficient. International companies need experts in this emerging field of power electronic engineering.

This PhD will work with the world’s fastest and most efficient power electronics, which uses GaN and SiC transistors. It will also involve a novel active gatedriving technology, and a unique GHz current sensing technology which have been developed in the Bristol Electrical Energy Management (EEMG) research group. The EEMG at the University of Bristol is a multi-disciplinary team of PhD students, post-doctoral researchers and academics who have developed some of the world’s fastest GaN circuits, gate drivers, and lowest-power electronic sensors. Together, we develop new applications
and techniques to help companies adopt these emerging power electronic technologies, and make energy use more efficient.

**Candidate Requirements**
Ideally a 1st or 2:1 BSc/MSc degree in Electrical or Electronic Engineering or a related discipline, with knowledge of Power Electronics or Electronic Devices.

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Candidates can check the eligibility criteria for the award at [https://www.epsrc.ac.uk/skills/students/help/eligibility/](https://www.epsrc.ac.uk/skills/students/help/eligibility/)

**Informal enquiries**
Please email Prof Bernard Stark ([Bernard.stark@bristol.ac.uk](mailto:Bernard.stark@bristol.ac.uk)) please cc [energy-management@bristol.ac.uk](mailto:energy-management@bristol.ac.uk)
For general enquiries, please email [sceem-pgr-admissions@bristol.ac.uk](mailto:sceem-pgr-admissions@bristol.ac.uk)

**Application Details**
To apply for this studentship submit a PhD application using our [online application system](http://www.bristol.ac.uk/study/postgraduate/apply/)

Please ensure that in the Funding section you tick “I would like to be considered for an iCASE funding award from the Electrical and Electronic Engineering Department” and specify the title of the scholarship in the “other” box below with the name of the supervisor.

Interested candidates should apply as soon as possible.