Intelligent Control of GaN and SiC Power Electronic Devices

**Type of award**  
PhD Research Studentship

**Department**  
Electrical and Electronic Engineering

**Scholarship Details**  
Minimum £15,009 p.a. for 4 years subject to confirmation and eligibility status plus an industrial top-up of circa £1,000 p.a. subject to contracts

**Duration**  
4 years

**Eligibility**  
Home/EU applicants only

**Deadline**  
October 2019

**PhD Topic Background/Description**

This is a prestigious EPSRC iCASE studentship co-funded by Toshiba.

Applications are invited for a PhD candidate to join the Electrical Energy Management Group within the Faculty of Engineering. The Group's research explores the challenges of high efficiency electrical energy conversion systems for applications in renewable power generation, electric vehicles, and aircraft. Much of this research involves theoretical predictions combined with physical concept demonstration and test.

You will join the internationally leading team that developed the world’s fastest active gate driver for GaN power devices. Emerging GaN power devices are poised to dramatically reduce the size and weight of the power management equipment in electric vehicles and renewable generation. You will investigate how to practically achieve the theoretically predicted improvements in power efficiency whilst reducing electromagnetic emissions. The system may need to adapt the shape of gate signals to changing power throughput, current and temperature. This will involve building GaN power electronics in the kW range, developing expertise in high-bandwidth current and temperature sensing, and using cutting-edge commercial drivers and high-resolution custom driver-chips designed by the Bristol team.

You will develop the skills needed to help industry migrate from Silicon to more efficient power conversion technologies such as SiC and GaN, whilst also developing your research skills.

The project is sponsored by EPSRC and Toshiba, which will provide the opportunity to collaborate with a world-leading industry research team. Further Particulars

**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.
Scholarship Details
The scholarship covers full UK/EU (EU applicants who have been resident in the UK for 3 years prior to 1 September 2019) PhD tuition fees and a tax-free stipend at the current RCUK rate (£15,009 in 2019/20). EU nationals resident in the EU may also apply, but will only qualify for PhD tuition fees.

Informal enquiries
Please email Prof Bernard Stark (Bernard.stark@bristol.ac.uk)
For general enquiries, please email 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.