Title: **PhD Studentship in Secure Wireless Agile Networks (SWAN)**

Type of award: PhD Research Studentship

Department: Electrical and Electronic Engineering

Scholarship details: Scholarship covers full PhD tuition fees and a **tax-free** stipend at the current RCUK rate (£15,609 in 2021/22) subject to eligibility status and confirmation of award.

Duration: 4 years

Eligibility: Home/EU/Overseas

Closing date for applications: **10th December 2021**

Starting date: 31st January 2022 at the latest

PhD topic background/description

PhD applications are sought for immediate start in the Communication Systems & Networks (CSN) research group, part of the wider activity delivered by the Smart Internet Lab, at the University of Bristol. The studentship will be funded through our EPSRC Prosperity Partnership in the field of Secure Wireless Agile Networks (SWAN). The SWAN partnership includes Toshiba Research Europe Limited (Bristol Research & Innovation Laboratory), Roke Manor Research Limited and Government Communications Headquarters (GCHQ).

Wireless access is essential to the networks that underpin modern life, but many networks which rely on radio frequency (RF) interfaces are especially vulnerable to cyber-attacks or other failures. In this five-year joint research programme, the partnership will identify vulnerabilities in the RF interfaces so techniques can be developed to detect and mitigate against the effects of cyber-attacks.

We are seeking to enrich our team with PhD students addressing the following project topics in applied machine learning (ML) in wireless networks and secure antenna design. These topics would be suitable for candidates with a background in Mathematics, Computer Science (with a focus on algorithms), or Electrical and Electronic Engineering. There is also an option for candidates to propose a topic of their choosing that aligns with the SWAN Research Challenges:

- Cyber Intrusion Detection in IoT Sensor Networks through ML/DL/AI
- RF Fingerprinting for Cyber Intrusion Detection

- Secure PHY Layer Techniques for Wireless Connectivity
- Cascaded Neural Network Design for the Detection of RF Cyber Attacks
- Physical Layer Security Techniques for the Detection of RF Cyber Attacks
- A topic of the candidate's choice that aligns with the SWAN Research Challenges

Further details of the above topics are available on the SWAN website.

Candidate requirements

From AY 2021/22, UKRI will be opening up UKRI studentships to international students. All students will receive a full award, to include a stipend and fees at the home level. All UKRI new studentship placements are open to both home and international students. EU and EEA students who are recruited and start from AY 2021/22 onwards, will become international students. See UKRI guidance on PhD studentships.

Candidates must also comply with the entry requirements of the PhD programme they wish to be considered for. Please see the Admissions Statement for Electrical and Electronic Engineering, PhD which is for entry in the 2020/21 academic year.

Informal enquiries

Informal enquiries welcomed FAO Professor Mark Beach via swan-programme@bristol.ac.uk.

Application details

Applications should be made using our online application system:
https://www.bristol.ac.uk/study/postgraduate/apply/

Applicants should select "PhD in Electrical & Electronic Engineering" as their programme, include a short statement on one of the topics above, and clearly indicate "SWAN Prosperity Partnership Studentship" as their funding source in the Funding section.