

Information on Postgraduate Research Scholarship - Ref: VCS-FLAS-05-20

Faculty: Faculty of Liberal Arts & Sciences	Department: Mathematics
Lead Supervisor: Professor Chris Bailey	
Project Title: Advanced Reliability Modelling for Electronic Components and Assemblies	
<p>Project Description:</p> <p>The successful applicant will work on a fully funded PhD programme aimed to research and develop advanced predictive engineering models for reliability assessment of electronic components and assemblies. This PhD position is with the Computational Mechanics and Reliability Group at the University of Greenwich, comprising a multi-disciplinary team focused on developing cutting-edge design, modelling and simulation technologies for the electronics industry and supported through numerous UK-Government, Industry, and International Grants.</p> <p>Electronic chips (semiconductors such as silicon, silicon carbide, gallium nitride, etc) are used in electronic products ranging from smart mobile phones, digital infrastructure (Internet of Things), electric transport to renewable energy. The electronics industry is the world's largest industrial sector, and these chips are packaged into components using materials such as plastics and ceramics to protect the chip from environment conditions such as temperature, moisture, and vibration, and to enable assembly-level integration. But mechanical and thermo-mechanical loads cause degradation and different stress-induced failures of these multi-material electronic packages.</p> <p>Working with our industrial partners, this PhD project will focus on the development of modelling methodologies and methods for simulating the thermo-mechanical behaviour of advanced semiconductor packages and predicting the associated stress-induced electronic material degradation and damage. The programme will target the research and development of methods for fast multi-scale finite element analysis of packaged semiconductors using tools such ANSYS. The developed modelling capabilities will support the virtual design and optimisation of these electronics packages and higher-level electronic systems at the early stages of product development and will enable up-front evaluation of the reliability performance and lifetime. The successful candidate will gain multi-disciplinary knowledge, skills and experience in reliability engineering, finite element modelling and analysis, and numerical techniques for optimisation. Support will</p>	
Duration:	3 years, Full-Time Study
Bursary available (subject to satisfactory performance):	
Year 1: £15,285	Year 2: In line with RCUK rate Year 3: In line with RCUK rate
<p>In addition, the successful candidate will receive a contribution to tuition fees equivalent to the university's Home/EU rate, currently £4,407, for the duration of their scholarship. International applicants will need to pay the remainder tuition fee for the duration of their scholarship. This fee is subject to an</p>	

Person Specification of Essential (E) or Desirable (D) requirements:	
Criteria:	E or D
Education and Training:	
<ul style="list-style-type: none"> 1st Class or 2nd class, First Division (Upper Second Class) Honours Degree or a taught Master's degree with a minimum average of 60% in all areas of assessment (UK or UK equivalent) in a relevant area (Mathematical science and Computing) to the proposed research project 	E
<ul style="list-style-type: none"> For those whose first language is not English and/or if from a country where English is not the majority spoken language (as recognised by the UKBA), a language proficiency score of at least IELTS 6.5 (in all elements of the test) or an equivalent UK VISA and Immigration secure English Language Test is required, unless the degree above was taught in English and obtained in a majority English speaking country, e.g. UK, USA, Australia, New Zealand, etc, as recognised by the UKBA. 	E
Experience & Skills:	
<ul style="list-style-type: none"> Previous experience of undertaking research (e.g. undergraduate or taught masters dissertation) 	E
<ul style="list-style-type: none"> This project involves will involve high level of mathematical content and computations; hence a candidate with good mathematical background is well suited 	E
<ul style="list-style-type: none"> Knowledge of numerical methods related to Finite Element modelling and matrix algebra 	E
<ul style="list-style-type: none"> Knowledge in computational mechanics, and mechanical and/or electronics engineering 	D
<ul style="list-style-type: none"> Good scientific (and algorithmic) programming skills (e.g. in Fortran, Matlab, etc) 	E
<ul style="list-style-type: none"> Good report writing skills 	E
Personal Attributes:	
<ul style="list-style-type: none"> Understands the fundamental differences between a taught degree and a research degree in terms of approach and personal discipline/motivation 	E
<ul style="list-style-type: none"> Able to, under guidance, complete independent work successfully 	E
Other Requirements:	
<ul style="list-style-type: none"> This scholarship may require Academic Technology Approval Scheme approval for the successful candidate if from outside of the EU/EEA 	E
<ul style="list-style-type: none"> A PhD project research proposal that is related to the research area 	E
<ul style="list-style-type: none"> The scholarship must commence before September 2021 	E

Closing date for applications: *midnight UTC on 10th May 2021*

For further information contact:

Professor Chris Bailey **E-mail:** c.bailey@greenwich.ac.uk

Dr Stoyan Stoyanov **E-mail:** s.stoyanov@greenwich.ac.uk

Making an application:

Please read this information before making an application. Information on the application process is available at: <https://www.gre.ac.uk/research/study/apply/application-process>. Applications need to be made online via this link. **No other form of application will be considered.**

All applications **must include** the following information. **Applications not containing these documents will not be considered.**

- **Scholarship Reference Number (Ref)**– included in the personal statement section together with your personal statement as to why you are applying
- **a research proposal related to the subject topic ***
- **a CV including 2 referees ***
- **academic qualification certificates/transcripts and IELTS/English Language certificate if you are an international applicant or if English is not your first language or you are from a country where English is not the majority spoken language as defined by the UK Border Agency ***

**upload to the qualification section of the application form. Attachments must be a PDF format.*

Before submitting your application, you are encouraged to liaise with the Lead Supervisor (Professor Chris Bailey, **E-mail:** c.bailey@greenwich.ac.uk) on the details above. Once you formally submit your application, please email a confirmation to s.stoyanov@gre.ac.uk that you have applied for this PhD position.