

<u>Information on Postgraduate Research Scholarship –</u> <u>Ref: FES-SCI-01-25</u>			
Faculty:	Faculty of Engineering and Science	Department:	School of Science
Lead Supervisor:	Prof Peter Griffiths		
Project Title:	Behaviour of biodegradable particles in complex systems		
Project Description:	<p>Consumer products contain delivery systems (solid-liquid particles) which are used to deposit high value components to desired interface. The delivery vehicles themselves are intricate in nature, but their complexity is further enhanced when added into multi-component surfactant formulations. We wish to explore the interaction of the delivery vehicle with that complex surfactant system, to understand how the selection of materials used for- and the composition within- the continuous phase will enhance or interfere with delivery of these high value components. A better understanding of these systems will improve performance and efficient utilisation of ingredients, resulting in both targeted formulation knowledge, as well as impact and value for the consumer. Ultimately, this should result in the seamless transition from non-biodegradable to biodegradable delivery vehicle selection. There is currently a rather limited understanding of these new systems, a key aspect we would like to enhance.</p> <p>The performance of a consumer product is shaped by the interactions between the materials that comprise it. Molecular level interactions often conspire to lead to beneficial, frequently unpredictable properties, and it is these interactions this work will quantify. We will start with simple binary interactions with the delivery component, before increasing complexity towards ternary mixtures or varying composition. So-called Structure-Activity-Performance relationships will be created for these formulated systems, and to identify efficient surfactant space from which to operate.</p> <p>We will impose further structuring within the system by adding agnostic and interacting polymers to the formulation, and interrogate the response to understand any polymer selectivity expressed by the surfactants or delivery vehicle. Ultimately, understanding and controlling these interactions will allow the optimization of the mechanisms for deposition, and therefore efficiency.</p> <p>The student will quantify the molecular level interactions using NMR and correlate this insight with macroscopic behaviour such as viscosity, clarity, stability and deposition. NMR is the only viable technique to determine direct molecule interactions for these concentrated formulations and</p>		

	<p>through a dilution phase which represents consumer use. This project therefore embodies the opportunity for the student to encounter a real world challenge.</p> <p>The project is co-funded with Unilever and will involve regular reporting to Unilever colleagues. A period of work placement within Unilever is anticipated, timed to yield most benefit to the project.</p>
Duration:	3 years, Full-Time Study or 6 years, Part-Time Study
<p>Bursary available (subject to satisfactory performance): Year 1: £20,780.00 (FT) Year 2: In line with UKRI rate Year 3: In line with UKRI rate</p> <p>In addition, the successful candidate will receive a contribution to tuition fees equivalent to the university's Home rate, currently £5,006 (FT) or pro-rata (PT), for the duration of their scholarship. International applicants will need to pay the remainder tuition fee for the duration of their scholarship.</p> <p>This fee is subject to an annual increase.</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 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, if your programme falls within the faculty of Engineering and Science a language proficiency score of at least IELTS 6.5 overall with a minimum of 6.0 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 master's dissertation) 	E
<ul style="list-style-type: none"> • Good numeracy skills, (programming skills would be an advantage) 	E
<ul style="list-style-type: none"> • Experience with NMR (structure elucidation, etc) 	D
<ul style="list-style-type: none"> • Understanding the basis of Colloidal chemistry / polymer chemistry 	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"> • The scholarship must commence • before 1st September 2026 	E
Closing date for applications:	midnight UTC on 13th April 2026
For further information contact:	Prof Peter Griffiths (p.griffiths@gre.ac.uk)
<p>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.</p> <p>All applications must include the following information. Applications not containing these documents will not be considered.</p> <ul style="list-style-type: none"> • Scholarship Reference Number - included in the personal statement section together with your personal statement as to why you are applying • 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 on the details above.