



Institute of Technology

Ciência sem Fronteiras / Science Without Borders

Postgraduate Project Template

Institution:	Athlone Insitute of Technology
Title of Postgraduate Opportunity: (include level of study)	PhD in Polymer Science
PI Name & Contact Details:	Dr. Declan Devine Marie Curie Fellow AIT/Harvard University Athlone Institute of Technology, Dublin Road, Athlone, Co. Wesmeath
Department/School:	Research
Research Centre /Group:	Materials Research Institute,
Research Centre/Group website:	www.ait.ie\mri
<p>Brief Summary of PI research / research group /centre activity Dr. Declan Devine, AIT-Harvard University Marie Curie Fellow, (PhD, biomedical polymers). Key Research Focus Areas: ■ Tissue engineering ■ Bioresorbable polymers ■ Preclinical models of bone regeneration ■ Nanomaterials ■ Polymer materials processing ■ Film extrusion. Dr. Devine will is a PI in the field of tissue engineering. Dr. Devine has worked on several industrial funded projects while working at AIT as a Post doctoral Researcher. Subsequently Dr. Devine moved to Switzerland to work at the AO Foundation's Research Institute. The AO Foundation is one of the largest orthopaedic research organisations in the world. At the AO Dr. Devine worked in the preclinical testing department and managed industry funded projects worth approximately €4 million and an NIH funded study worth \$630,000 USD to the AO. Dr. Devine returned to AIT in Janurary 2010 and since then has been involved in obtaining funding worth approximately €1 million. In June 2012, Dr. Devine started a Marie Curie IOF with BIDMC, Harvard University. There he will be trained by world leaders in the field of bone regeneration and he will use this knowledge to steer orthopaedic research at the MRI. Dr. Devine supervises/co-supervises 8 MSc students and is a member of the Orthopaedic Research Society.</p>	
<p>Brief Description of Masters or PhD Project The proposed study will involve the development of novel tissue engineering constructs for use in nerve regeneration. The work will build on expertise developed for use in orthopaedic application and will</p>	

involve the synthesis of an electrically conductive nanocomposite which can be oriented to ensure electric signals travel efficiently along its length. Using the resultant construct, nerve growth factor or nerve progenitor cells can be entrapped into the structure of the nanocomposite and used for the treatment for nerve damage.

Key Attributes of Project for Brazilian Postgraduate Students

Should outline why projects offer something that is not available in Brazil – specific equipment, multi-disciplinarity, aspects of structured programme, links with industry, placements, links with other research groups, etc. Good opportunity for IoTs to emphasise their close working relationships with industry and particularly SMEs and their pivotal role in regional economic development

The study has a clinical mentor who will ensure the clinical applicability of the outcomes of the current study. Research will be conducted under the tutelage of a Marie Curie Fellow who currently is running collaborative studies with Harvard University. In addition, during the current study the student will also have the opportunity to collaborate with research groups in Dalhousie University in Canada.

The MRI host group have extensive links with Industry. Their two main research areas are green polymers and biomedical polymers. In the biomedical polymers field the MRI have links with several major multinational companies such as Medtronic, Boston Scientific, Abbotts and Stryker as well as Irish SME's such as Proxy Biomedical, Creganna, Creagh medical and Steripack.

Name and contact details for project queries, if different from PI named above:

See above

Please indicate graduate disciplines which are eligible for application:

tissue engineering, Biomedical science, Biomaterial science, Material science, Polymer science, cell biology.

Alignment with Science Without Borders Priority Areas:

Please indicate the specific programme priority area under which the proposed postgraduate project fits – choose only one (tick box)

Engineering and other technological areas	
Pure and Natural Sciences (e.g. mathematics, physics, chemistry)	
Health and Biomedical Sciences	x
Information and Communication Technologies (ICTs)	
Aerospace	
Pharmaceuticals	
Sustainable Agricultural Production	
Green Chemistry	
Oil, Gas and Coal	
Renewable Energy	
Minerals	
Biotechnology	
Nanotechnology and New Materials	x
Climate Change	
Biodiversity and Bioprospection	
Marine Sciences	
Productive Inclusion and Social Technologies	
Housing and Sanitation	