TUS
Technological University of the Shannon:
Midlands Midwest
Ollscoil Teicneolaíochta na Sionainne:
Lár Tíre Iarthar Láir

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POSTGRADUATE RESEARCH OPPORTUNITY

Project Title: Development of novel super-strong lightweight and recyclable polymer nano-composite foam material for Water sports gears

Project Description:

The global water sports gear market was valued at $43.2 billion in 2019 and is projected to reach $55.2 billion by 2027, registering a CAGR of 3.6% from 2020 to 2027 (Research and Markets 2020).

Sport has an unrivalled capacity to motivate and inspire large numbers of people. In Ireland, The marine related activity expenditure on overnight trips, or what might truly be referred to as domestic marine tourism, is estimated to have generated revenue of €381 million with €172 million of this being spent on water-based activities (*Stephen Larkin 2020)*.

The significant increase in people enjoying outdoor water-based activities such as kayaking, surfing, paddle-boarding and open water swimming is expected to continue to grow year on year. To meet this demand, Minister for Tourism Catherine Martin and Fáilte Ireland announced a major new investment scheme worth €19million. The funding will be used to build world-class facility centres at 22 locations across the country where water-based activities are a key visitor attraction (Failte Ireland 2021).

Minister for Tourism Catherine Martin T.D. today said: "Ireland is world-class when it comes to providing water-based activities which are enjoyed by local communities and visitors along our stunning coastline, rivers and lakes. We've seen a significant upward trend in people enjoying outdoor water activities over the last year and we know the appeal of the outdoors will continue to grow post-COVID19"

This project aims to develop a novel super-strong recyclable polymer nano-composite foam material that can be used to feed the Water sports gears increasing the demand for structural materials. The proposed work plan will focus on the modification of thermoplastic polymers using eco-friendly foaming agents along with nanofillers. As a result, the nanocomposite weight will be reduced and conversely, its mechanical performance will be boosted. This nano-composite foam will focus on meeting the market demands of end-users permitting international Water sports gear manufacturing groups. Our Vision: Building A Better World Through Material Research

Duration of Project: 48 months

Funding Agency: TUS Presidents Doctoral Scholarship (for 36 months)

Type of Degree Offered: PhD

Minimum Qualifications/Experience Necessary/Any Other Requirements:

Candidates who will hold a primary degree in the following or aligned fields on or before 1st October 2022:

Applicants should hold a minimum of an honours bachelor's degree at 2:2 level or equivalent in a discipline relevant to the project, such as Science, Engineering/ Materials Science. Excellent first-hand knowledge of characterisation methods.

IELTS [International English Testing System] Applicants must have a minimum of 6.0 with no component score less than 6.0.

Supervisory Panel:

- Dr. Zhi Cao (Technological University of the Shannon, Ireland)
- Professor Clement Higginbotham (Technological University of the Shannon, Ireland)
- Alan Murphy (Technological University of the Shannon, Ireland)

For further information please contact: Dr. Zhi Cao (zhi.cao@tus.ie)

Download Application Form at

https://www.ait.ie/research-and-innovation/postgraduate-research-opportunities

Closing date for receipt of completed application forms is Friday 30th June 2022.

Please submit your completed application: pro@ait.ie