

**Project Title:** Mathematical Modelling of Bone Fracture

**Summary of the project:**

This is an interdisciplinary project developing tools from mathematics, physics, vibration analysis and biomedical engineering to answer questions fundamental to orthopaedic research and bone fracture.

The Biomedical Engineering Research Group at IT Sligo has a vacancy for a funded postgraduate student. This is an interdisciplinary mathematical modeling and biomedical engineering project. IT Sligo Biomedical Engineering Research Group has developed expertise in the experimental study of bone. This project proposes to pursue a theoretical approach, which will complement IT Sligo's existing strengths in experimental Biomedical Engineering. The successful applicant will provide theoretical explanations for the experimental results on bone fracture achieved by other members of the Research Group. This may involve mathematical or stochastic modelling, computer simulation (including Finite Element Analysis), and analysis of signals (e.g. acoustic, vibrational, thermal). Research may also be done to suggest the need for future experiments. The student will be a key member of the Biomedical Engineering research team, able to quickly predict results which will complement experimental work being done at IT Sligo.

**Profile of a suitable candidate:**

Suitable candidates will have an honours degree in mathematics, physics, engineering or a similar discipline. In addition to strong analytical skills, the successful applicant must work well as a member of the research team in collaboration with colleagues and external researchers.