Research Topic: Multiscale Characterization of Structural Fibre Reinforced Composites

We are seeking a highly motivated PhD student to be part of a team to characterize the mechanical behaviour of structural fibre reinforced composites. Focus will be on pultruded structural elements, which can be reinforced by means of either synthetic or natural fibres.

Description:
Fibre reinforced structural elements can represent an attractive alternative to traditional construction methods, provided that a deeper understanding of their mechanics is developed. Characterization of the complex behaviour of the material requires a blend of experimental and numerical investigations to be carried out at multiple time and length scales.

The Ph.D. project will focus on two aspects: 1) the characterization of pultruded glass-fibre reinforced polymers (GFRP) by means of both destructive and non-destructive testing, 2) the multiscale modelling of GFRP structures to identify current design gaps and limitations in the implementation of such material in structural engineering.

This work will be part of an ongoing project involving a collaboration between the University of Waikato and a New Zealand based company. As part of the team, the PhD candidate will meet regularly with both the supervisors and industrial partners to discuss research ideas and developments. This project will provide industrial exposure as well as the opportunity to work in a vibrant research environment.

Required Skills:
The successful candidate is expected to have previous experience with composite materials testing and characterization, as well as proven proficiency in non-linear finite element analysis.

Preferred Skills:
Proven skills in one or more modern object-oriented programming is a plus.

Eligibility criteria:
Level: Postgraduate (PhD)
Time: Full-time
Eligibility: The position is open to both domestic and international applicants, with a preference for students with prior research experience (Master by research or equivalent)

Value and Tenure:
Scholarship Value: $22,000 pa + domestic tuition fees for 3 years
Preferred Start Date: dependant on enrolment and immigration status

Application Procedure:
- A recent Curriculum Vitae
- A cover letter discussing the applicant’s background, research interests and how they fit the position description
- Names and contact information for at least 2 academic references

Contact and email address for applications:
Dr. Alessandro Fascetti (alessandro.fascetti@waikato.ac.nz)
Dr. Rachael Tighe (rachael.tighe@waikato.ac.nz)

Timeline:
Review of the applications will begin immediately and will close when a suitable applicant is selected.