



THE UNIVERSITY
OF AUCKLAND

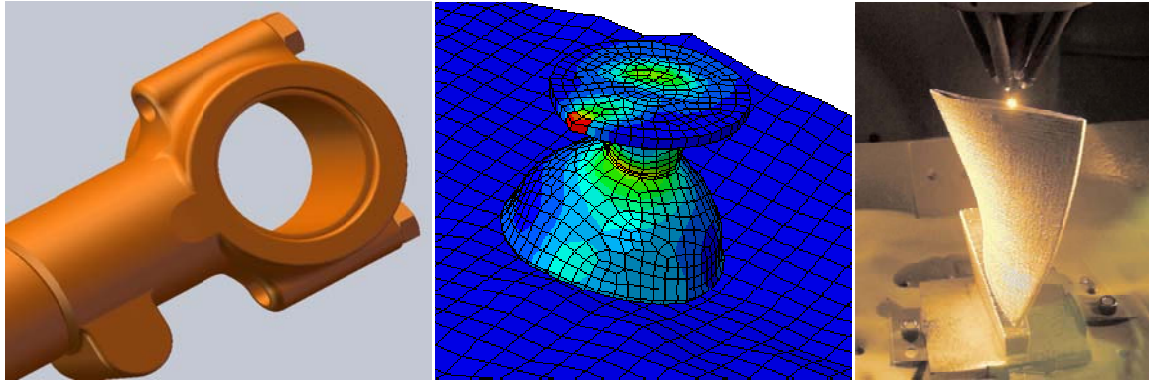
NEW ZEALAND

Te Whare Wānanga o Tāmaki Makaurau

Transformational Research,
Science & Technology (TRST)

PhD Scholarship

Understanding Statistical Variability for Advanced Material Models



We invite applications for a PhD Scholarship from students who meet University of Auckland eligibility requirements for PhD registration.

Research Question

How can the statistical variability of advanced material models be quantified and used in numerical simulations to produce accurate representations of material performance?

Research Objectives

- **Computational Mechanics and Database Development:** Collection of experimental traction-separation data for interfaces between nonlinear elastic, viscoelastic, and viscoplastic materials and stress-strain data for the bulk materials. Identification and fitting of advanced material models to the data. Validation of models with nonlinear finite element and material point method simulations with cohesive zones. Quantification of the effect of model parameter variability on predicted outcomes. Population of databases with the information gathered at each stage.
- **System Framework and System Implementation.** Development of a system framework that allows the database to be accessible from a mobile device. The system framework defines the governing architecture and overarching structure of the system in which materials databases sit and function. A functional user interface is part of it that helps populate, manage, update, and implement the materials data in the databases. Attention is given to the interconnection among the sub-databases and user-friendliness of the system.

Selection criteria

- Experience in finite element analysis, code development in C++, and database and user interface development.
- Experience in computational mechanics, statistics and/ or multi-material modelling
- Sound communication skills

Stipend

The base Scholarship includes Tuition Fees (~\$5,000 pa) plus a stipend of \$25,000 pa, for three years. These may be extended to a fourth year subject to a review of the research progress.

Interested?

Complete and submit an online Expression of Interest (EOI): <http://www.postgrad.auckland.ac.nz/doctoral/interest/>

Enquiries and Questions?

Please contact one of the following people:

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An alliance between

