Research Topic: 3D printing of bio-derived materials

We are seeking a highly motivated PhD student to be part of a team to develop bio-derived materials for 3D printing, including responsive (4D) materials. Focus will be on biomaterials which could be produced within NZ from sustainably grown resources, including plant-based materials such as cellulose/nanocellulose-based materials and possibly proteins.

Description:
3D printing is a rapidly growing technology of international interest. It represents a range of different techniques offering the ability to directly print structures that have not previously been possible and tailored products for individual use. One of the main limitations of this technology is the materials available for printing. Of great interest is the ability to print with sustainable materials to enable direct printing of products that will have limited impact on the environment. New Zealand has a wealth of forestry/agricultural and marine natural resources with potential for use in such application.

The PhD project would involve developing bio-derived polymers and polymer-matrix composites, investigating material/structural responses to stimuli and possibly modelling.

This work forms part of an ongoing project involving a collaboration of universities and research institutions. You will be part of a team, meeting with them regularly to share and discuss research developments. Responses demonstrated to date include shape memory triggered with increases in temperature and moisture levels. Funding is also available to support relevant professional development during the PhD.

The successful applicants should be eligible to enrol at the University of Waikato.

Eligibility criteria:
Level: Postgraduate (PhD)
Full-time
Domestic, International, and PR students are eligible to apply

Qualifications:
- A good first degree (at least 2:1 or a GPA 8), preferably with a strong materials/polymers/chemistry/textiles component
- Demonstrate an interest in natural materials/biomimetics
- Have a good grounding in experimental research methods in materials characterization/testing, statistical and writing skills, good team and communication skills

Value and Tenure:
Start date:
$35,000/pa + domestic tuition fees for three years

Application documents required:
- Research proposal about the topic
- CV
- 1 x Academic Reference

Contact and email address for applications:
Name: Professor Kim Pickering
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Closing date: 31 October 2019