



THE UNIVERSITY OF  
WESTERN AUSTRALIA

**RESEARCH ASSOCIATE (REF: 1686)**  
**SCHOOL OF MATHEMATICS AND STATISTICS**

- 3 year appointment
- Salary Range: Level A \$46,576 - \$63,207 p.a. - minimum starting salary for appointee with PhD will be \$58,883 p.a.
- In addition to salary the University contributes 17% superannuation and salary packaging is available
- Closing date: Friday, 2 March 2007

The School of Mathematics and Statistics at The University of Western Australia is conducting cutting edge research into the mechanics of hybrid materials with internally engineered architecture, in particular materials with elements possessing negative Poisson's ratio or negative stiffness. Such materials have outstanding engineering properties not achievable by conventional means, including increased effective stiffness, reduced thermal stress and extreme damping. Further progress in the design of these materials requires a proper theoretical basis. The project will develop experimentally verified theoretical and computer models capitalising on our success in theoretical prediction, confirmed experimentally, of new structures with negative Poisson's ratio, a discovery of negative stiffness in interlocking assemblies and new concepts explaining its mechanism. The models will be used for designing hybrid materials and explaining mechanical behaviour of some natural materials.

The appointee will develop analytical and computational models to analyse the mechanics of materials with elements possessing negative Poisson's ratio or negative stiffness, undertake computer simulations and verify them against laboratory experimental data. Academics with strong theoretical background in mechanics of solids, modelling of wave propagation and related analytical and numerical techniques are invited to apply. Applicants must have a PhD in applied mathematics, mechanics of solids or a relevant field of physics, materials science and engineering.

**For further information regarding the position please contact** Associate Professor Les Jennings on +61 8 6488 3361 or fax +61 8 6488 1028 or email [hod@maths.uwa.edu.au](mailto:hod@maths.uwa.edu.au). For project details please contact Dr Elena Pasternak on +61 8 6488 3460 or email [elena@maths.uwa.edu.au](mailto:elena@maths.uwa.edu.au).

**APPLICATION DETAILS:** The position description follows. Applicants must address the [selection criteria](#). Written applications quoting the reference number, personal contact details, qualifications and experience, along with contact details of three referees should be sent to Director, Human Resources, The University of Western Australia, M350, 35 Stirling Highway, Crawley WA 6009 or emailed to [jobs@uwa.edu.au](mailto:jobs@uwa.edu.au) by the closing date.

THE UNIVERSITY OF WESTERN AUSTRALIA

**POSITION DESCRIPTION**

**POSITION IDENTIFICATION**

<b>Faculty:</b>	<b>Engineering Computing and Mathematics</b>
<b>School/Admin Department:</b>	<b>School of Mathematics and Statistics</b>
<b>Centre:</b>	
<b>Section:</b>	
<b>Position Number:</b>	<b>306192</b>
<b>Position Title:</b>	<b>Research Associate</b>
<b>Position Classification:</b>	<b>Level A</b>
<b>Supervisor Title:</b>	<b>A/Prof Les Jennings</b>
<b>Supervisor Position Number:</b>	

**ROLE STATEMENT**

To undertake research within a project 'Negative Poisson's ratio and negative stiffness: rational approach to hybrid materials with internally engineered architecture'
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**KEY RESPONSIBILITIES**

**Research**

Developing analytical and numerical models of mechanical behaviour of systems with negative Poisson's ratio and negative stiffness

Conducting computer simulations

Conducting experiments on systems with negative Poisson's ratio and negative stiffness

Publishing scholarly papers and reports

Other duties as directed

**Teaching**

Undertake minor teaching and student supervision (up to 15% of time)

THE UNIVERSITY OF WESTERN AUSTRALIA

**POSITION DESCRIPTION**

**POSITION IDENTIFICATION**

<b>Faculty:</b>	<b>Engineering Computing and Mathematics</b>
<b>School/Admin Department:</b>	<b>School of Civil &amp; Resource Engineering</b>
<b>Centre:</b>	
<b>Section:</b>	
<b>Position Number:</b>	<b>306192</b>
<b>Position Title:</b>	<b>Research Associate</b>
<b>Position Classification:</b>	<b>A</b>
<b>Supervisor Title:</b>	<b>A/Prof Les Jennings</b>
<b>Supervisor Position Number:</b>	

Please address the Prerequisite Selection Criteria and Additional Selection Criteria in your application.

**PREREQUISITE SELECTION CRITERIA:** (Minimum requirements fundamental and indispensable to the duties, e.g. Certificate of Secondary Education).

- Applicants who fail to meet prerequisite requirements **WILL NOT** be interviewed.

A PhD or equivalent in Applied Mathematics, Mechanics of Solids or a relevant field of Physics, Materials Science and Engineering

Expertise, confirmed by refereed publications, in solving problems in mechanics of solids and mathematical modelling of elastic wave propagation

Proficiency in the corresponding analytical and numerical techniques

Understanding of the relevant experimental techniques

Good publication track record

Potential to attract research funding

Willingness to supervise postgraduate and honours research projects

**ADDITIONAL SELECTION CRITERIA:** (Including additional qualifications, training, abilities, knowledge, personal attributes, skills and/or experience that would make highly effective performance of the job more probable)

Ability to work independently

Good communication skills

Positions directly supervised: 0

Number of positions for which responsible: 0



Please complete and submit with your application.

## **PRIVACY AUTHORISATION**

I \_\_\_\_\_ hereby authorise The University of Western Australia to contact the referees nominated by me below for the purpose of confirming my employment history, work skills and abilities and other information to assist in the assessment of my application for employment.

\_\_\_\_\_  
Signed

\_\_\_\_\_  
Date

### Nominated Referees

Referee Name: \_\_\_\_\_  
Position: \_\_\_\_\_  
Company: \_\_\_\_\_  
Telephone No: \_\_\_\_\_  
Email Address: \_\_\_\_\_

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Telephone No: \_\_\_\_\_  
Email Address: \_\_\_\_\_

The University of Western Australia will treat all information obtained in a strictly confidential manner and will not release any information to any other party unless authorisation to do so has been obtained from the applicant.

