Designing rubber-like metamaterials

University of Adelaide-University of Nottingham Joint PhD in Mathematics

Supervisors

This project is offered jointly by the University of Adelaide and the University of Nottingham and will be supervised by Dr Luke Bennetts (University of Adelaide) and Dr Kostas Soldatos (University of Nottingham)

Project Information

Metamaterials is a catch-all term describing materials manufactured to have properties not found in nature. Rubber-like materials support longitudinal waves similar to fluids, which can be converted into lossy transverse waves by placing inclusions in the rubber. Coating a body with a thin rubber-like metamaterial, using suitably arranged inclusions and subwavelength resonances, can prevent sound loss from the body polluting the outside environment and/or the body being "seen", for example, by sonar. This project will develop semi-analytic methods, based on special functions and asymptotic theories, to advance the design of these rubber-like metamaterials.

Joint PhD Arrangements

Applications are invited to this Joint PhD project in Mathematics between The Universities of Adelaide and Nottingham. The scholarship provides fully funded 3-year PhD studentships. Students will be co-supervised by staff at both universities and will undertake a minimum period of research of 18 months at each institution. The Adelaide-Nottingham Doctoral Scholars will be primarily based on the North Terrace Campus in Adelaide and on the University Park campus in Nottingham. Both campuses are renowned for their world-leading research and their outstanding facilities for research and teaching.

PhD graduates will obtain a jointly awarded degree from the University of Adelaide and the University of Nottingham. The studentships will cover PhD tuition fees, plus a stipend corresponding to the standard research council rate in the UK or the APA rate in Australia. Subject to satisfactory progress, the duration of the stipend will be 3 years including time spent at the partner overseas campus.

Eligibility

Applicants should hold or be about to complete a degree in Mathematics or a closely related subject area. Those with UK qualifications should have, or expect to obtain, a first-class Honours degree and/or a distinction or high merit at MSc level. Under exceptional circumstances a good 2:1 or Merit degree can be considered. Applicants with Australian qualifications should have an Honours degree (Class 1 or 2A) or a Masters degree with a significant research component. Equivalent international qualifications can be considered.

Applicants should have UK or EU status for PhD fees or, alternatively, should be Australian Permanent Residents/ Citizens. Full international applicants can be considered provided they have an alternative means to cover the difference in tuition fees.

The project is available to begin either immediately or in the 2017/2018 academic year.

This studentship is open until filled. Early application is strongly encouraged.

Applications

UK or EU applicants should apply online at: http://www.nottingham.ac.uk/pgstudy/how-to-apply/apply-online.aspx
Please include in your application, a covering letter to indicate your interests and why you are applying to the "Joint Nottingham-Adelaide PhD", and indicate the specific project(s) that you wish to apply for.
Informal enquiries may be addressed to the individual project supervisors or PM-pg-admissions@exmail.nottingham.ac.uk

Australian Permanent Residents/ Citizens should apply online at: http://www.adelaide.edu.au/graduatecentre/admission/
using the domestic or international application as appropriate; please upload a covering letter indicating the specific project that you wish to apply for, your interests and why you are applying together with your CV. Informal enquiries may be addressed to the individual project supervisors or the Postgraduate Coordinator, School of Mathematical Sciences: pgc.maths@adelaide.edu.au.