

Scholarship funding for PhD projects in turbulent flows available in 2012

3 Ph.D. scholarships are available within the Discipline of Mechanical Engineering at The University of Newcastle to work on turbulent flows. These are Australian Research Council (ARC) Discovery research projects and will be conducted in collaboration with the University of Rouen (France) and University of Puerto Rico (Puerto Rico).

Project One (1 PhD scholarship): Effect of forcing on the turbulent mixing of a passive scalar

The major aim of the proposal is to develop realistic analytical tools for assessing the manner in which a passive scalar, such as temperature, is transported and mixed in technologically important turbulent flows, for example wall, jet and wake flows. These tools, which will take into account the organization present in each flow, will be tested against experiments and numerical simulations. The results will provide invaluable insight into the physics of mixing over a range of length scales and make a significant contribution to the engineer's ability to assess and predict the mixing characteristics of different types of turbulent flows

Research leaders

Emeritus Prof. Robert A. Antonia (University of Newcastle, Australia)

A/Prof Lyazid Djenidi (lyazid.djenidi@newcastle.edu.au)

Prof Luminita Danaïla (University of Rouen, France)

Project two (2 PhD scholarships): Study of a turbulent boundary layer over 2D and 3D rough walls

The objective of the proposal is to improve our understanding of a turbulent boundary layer over rough surfaces, with the view to

- 1- address the issue of whether the outer region of the wall flow is affected by the roughness and
- 2- document differences between 2D and 3D rough walls.

At present, these unsolved issues hinder significantly our ability to develop predictive models for wall-bounded turbulent flows over rough surfaces. The resolution of these issues will help improve our fundamental knowledge of rough wall flows which, in turn, will increase the engineer's ability to develop appropriate strategies for controlling drag, sedimentation or heat transport.

Research leaders:

A/Prof Lyazid Djenidi (lyazid.djenidi@newcastle.edu.au)

Emeritus Prof. Robert A. Antonia (University of Newcastle, Australia)

A/Prof Stefano Leonardi (University of Puerto Rico)

Qualifications requirements:

Bachelor Degree (honours 1 or equivalent) in Mechanical Engineering.

Each scholarship is worth \$26,000 p.a. for three years and is available for domestic and international candidates. Successful international candidates will also receive a 3 year tuition fee scholarship and their Student Health Cover expenses will be met for the duration of the scholarship. Scholars will be eligible to apply for a 6 months extension; approval will depend on academic progress.

Contact: Forward a copy of you CV and academic transcript to A/Prof Lyazid Djenidi by the 1st April 2012: (lyazid.djenidi@newcastle.edu.au)