The Sir Lawrence Wackett Aerospace Centre along with the Aerospace Division of the Defence Science and Technology Organisation (DSTO) are collaborating to develop and validate advanced cyclic plasticity models for fatigue analysis of Australian Defence Force (ADF) aircraft structures. The objective of this project is to develop improved constitutive models to better quantify fatigue damage in selected aluminium alloy structures subjected to a relatively benign load spectrum with millions of cycles interspersed with a small number of severe cycles. The outcome of the research will contribute directly to the life assessment of ADF fighter, trainer and other aircraft types.

At DSTO, a Windows-based program, CGAP (Crack Growth Analysis Program), has been developed for routine fatigue life and crack growth analysis for life assessment of ADF aircraft. CGAP provides a native solution module which has the advanced capability for crack growth analysis in notch-affected zone and probabilistic crack growth. This project intends to enhance the efficiency of CGAP by incorporating advanced modelling of cyclic plasticity phenomena impacting fatigue crack grown and damage accumulation.

Value and duration

The scholarship is valued at $20,000 per annum for three (3) years. A top-up scholarship may be offered in addition, subject to student’s performance.

Additional funds are available to support research dissemination activities, such as presentation of research papers at reputable international conferences, delivery of research seminars, journal paper publication fees, etc.

Eligibility

The School of Aerospace, Mechanical and Manufacturing Engineering, through the Sir Lawrence Wackett Aerospace Research Centre, is inviting applications from exceptional research candidates covering the following minimum requirements:

- Be an Australian Citizen (due to project’s security restrictions);
- Have completed a 4-year Bachelor (honours) degree in Aerospace or Mechanical Engineering;
- Have a solid background in theoretical aspects (constitutive modelling) and numerical implementation of cyclic plasticity;
- Have background in fatigue calculation methodologies (preferably in an aerospace context);
- Have experience in computer programming;
- Be able to commence research as soon as possible;
- Enrol in a postgraduate research (PhD) degree as full time student;

Preference will be given to candidates holding a Master’s degree in a relevant area and/or having previous research experience in fields aligning with the requirements of the research project.
School of Aerospace, Mechanical and Manufacturing Engineering  
Sir Lawrence Wackett Aerospace Centre

How to apply

Please send your application via email to:
Dr Kyriakos I. Kourousis, Research Project Chief Investigator
kyriakos.kourousis@rmit.edu.au

Your application should include:
- A cover letter highlighting any relevant experience and your interest in pursuing a PhD;
- An up to date Curriculum Vitae, including a list of any scholarly publications;
- A transcript of your academic degree(s) results.

Open date

Applications now open.

Close date

Applications close 30 May 2014 17:00 AEST.

Terms and condition

Selection is based primarily upon academic merit and interest in undertaking PhD studies at RMIT University. Successful candidates will be notified within two weeks of the close of applications, and are required to confirm their acceptance of the offer in writing within two weeks. All applicants will be contacted regarding the success or otherwise of their application.

During the course of the PhD research program the successful candidate is expected to collaborate actively with DSTO researchers and engineers working at DSTO Fishermans Bend site in Melbourne.

Contact us

Dr Kyriakos I. Kourousis
School of Aerospace, Mechanical and Manufacturing Engineering
RMIT University
Email: kyriakos.kourousis@rmit.edu.au
www.rmit.edu.au/staff/kyriakos-kourousis