Imperial College London

Department of Mechanical Engineering

PhD Studentship in Computational Nonlinear Vibration

Applications are invited for a research studentship in the field of Dynamics leading to the award of a PhD degree. The post is supported by a bursary and fees (at the UK/EU student rate) provided by an iCase award, which is co-funded by EPSRC and Rolls-Royce plc. Candidates must fulfil the eligibility criteria for the EPSRC award. Applications that do not meet the EPSRC eligibility criteria will not be considered. Please check your suitability at the following weblink:
http://www.epsrc.ac.uk/skills/students/help/Pages/eligibility.aspx

The topic of this research is to enable Harmonic Balance Methods to be applied for distributed material and geometrical nonlinearities in structural dynamics. Multi-Harmonic Balance methods have been utilised for the steady state nonlinear dynamic solution of reduced order models, such as whole engine wind-milling and forced response of aeromechanics structures. Distributed nonlinearities will become increasingly important due to the drive to improve propulsion efficiencies with larger aircraft engines through the use of lighter materials and the reduction of component numbers. The objective is to investigate the possible options available to generate reduced order models capturing the effects of distributed nonlinearities, like localised modes, and to ensure that nonlinear response can be calculated via the Harmonic Balance Method. You will be part of the Dynamics Group, you will work closely with computational analysts and experimental vibration researchers, as well as Rolls-Royce plc, the industrial sponsor of the project.

You will be an enthusiastic and self-motivated person who meets the academic requirements for enrolment for the PhD degree at Imperial College London. You will have a 1st class honours degree in Mechanical or Aeronautical Engineering, Physics, Applied Mathematics, Computational Engineering or a related field. You have an enquiring and rigorous approach to research, together with a strong intellect and disciplined work habits. You must have a strong interest and proven skills in numerical methods and software code development in computational mechanics. Good team-working and communication skills are essential.

To find out more about research at Imperial College London in this area, go to:
http://www3.imperial.ac.uk/mechanicalengineering

For information on how to apply, go to:
http://www3.imperial.ac.uk/mechanicalengineering/study/pgresearch/opportunities

For further details of the post contact Professor Norbert Hoffmann n.hoffmann@imperial.ac.uk +44 (0)20 7594 1458. Interested applicants should send an up-to-date curriculum vitae to Professor Norbert Hoffmann. Suitable candidates will be required to complete an electronic application form at Imperial College London in order for their qualifications to be addressed by College Registry.

Closing date: until post filled

Imperial Managers lead by example.

Committed to equality and valuing diversity. We are also an Athena SWAN Silver Award winner, a Stonewall Diversity Champion, a Two Ticks Employer, and are working in partnership with GIRES to promote respect for trans people