

Imperial College London
Department of Aeronautics
3 year funded PhD studentship

Structural Integrity and Health Monitoring

Overview: The structural integrity group in the Aeronautics department (<http://www.imperial.ac.uk/structural-integrity-health-monitoring/>) is dedicated to improving integrity of engineering components and structures used in aerospace and other safety-critical industries. The focus of the group is on developing mathematical and computational models supported through laboratory testing to improve performance, durability and safety of operations. Structural Health Monitoring (SHM) has been identified as a key technology in damage tolerance design for the next generation of composite aircraft. Furthermore, we consider structural integrity assessment as an important part of robustness, reliability and economics of operation of structures.

The group have pioneered methodologies for modelling material degradation, cracking and failure of both metallic and composite materials. More recently, the group's work on an advanced form of Non-destructive inspection commonly referred to as Structural Health Monitoring has resulted in several innovative [technologies](#) and [methodologies](#).

The PhD studentship will contribute to the ongoing research and will have access to a highly equipped laboratory dedicated to research. The students will be sponsored by an EU project with the main focus of Diagnosis, Prognosis, Life Extension and Predictive Maintenance of Complex Aircraft parts. One of the aims is to develop novel methodologies that will allow the characterization of uncertainty and conditional probabilities to be determined in terms of what is known about the structure from the model and what is measured during the inspection. The range of topics on offer include:

- [Structural health monitoring](#)
- [Structural Integrity and failure analysis](#)
- [Computational mechanics](#)
- [Structural reliability and Optimization](#)

Prerequisites: Only the very best students will be considered for this position. Candidates should have (or expect to obtain) a good upper class or first class honours degree (or equivalent) in aeronautics or similar engineering disciplines.

Funding is available only to UK citizens and EU citizens. The studentship is for 3 years and will provide full coverage of tuition fees and an annual tax-free stipend of approximately £20,000.

Apply: There are two studentships available. Interested applicants should make initial informal enquiries via email to **Professor M.H. Aliabadi** (m.h.aliabadi@imperial.ac.uk) or Dr Zahra Sharif Khodaei (z.sharif-khodaei@imperial.a.uk) and then follow the standard College online application procedure (<http://www3.imperial.ac.uk/pgprospectus/howtoapply>).

For queries regarding the application process, please contact Ms Lisa Kelly by email to: l.kelly@imperial.ac.uk or phone on +44(0)20 7594 5056.

Committed to equality and valuing diversity. We are also an Athena Bronze SWAN Award winner, a Stonewall Diversity Champion and a Two Tick Employer.