Research Studentship in Computational Fracture Mechanics

3.5-year D.Phil. studentship

Project: Computational Fracture Mechanics

Supervisors: Prof Emilio Martínez-Pañeda

Oxford's Mechanics of Materials Lab is seeking a PhD (DPhil) student to support the ERC Starting Grant project *ResistHfracture*. The project aims to explore innovative high-risk/high-return ideas to develop the first generation of hydrogen-resistant alloys. The PhD student will work under the supervision of Prof. Emilio Martinez-Paneda on developing advanced computational tools to predict the nucleation and growth of cracks. The student will have access to state-of-the-art high-performance computing (HPC) facilities and finite element codes. Project findings could have a notable impact on the deployment of green hydrogen infrastructure, as needed to achieve net-zero carbon ambitions. The student will be integrated into the Mechanics of Materials Lab and will have the opportunity to interact on a daily basis with other PhD students and postdoctoral researchers working on similar topics.

Eligibility & Award Value

This studentship is open to both Home and International students, providing a stipend (tax-free maintenance grant) of c. £20,780 (UKRI Minimum Stipend value) for the first year, and at least this amount for a further two and a half years. However, course fees are only covered at the level set for Home students, c. £10,470 p.a.

Candidate Requirements

Candidates will be judged according to how well they meet the following criteria:

• A first-class honours degree (or equivalent) in Engineering, Materials Science, Mathematics or Physics

• Excellent written and spoken communication skills in English

• Appropriate background knowledge of mechanics or finite element modelling

The following skills are also highly desirable:

• Good understanding of fracture and fatigue mechanics

• Good understanding of finite element analysis and materials modelling

Applicants with a good 2.1 degree are also encouraged to apply if they can demonstrate an excellent background in mechanics and/or modelling.

Application Procedure

Informal enquiries are encouraged and should be addressed to Prof Emilio Martínez-Pañeda (emilio.martinez-paneda@eng.ox.ac.uk).

Candidates must submit a graduate application form and are expected to meet the graduate admissions criteria. Details are available on the course page of the University website.

Please quote **26ENGCL_EM** in all correspondence and in your graduate application.

Application deadline: noon on 3 December 2025 (In line with the University admissions deadline set by the University)

Start date: October 2026