



# MECHANICS of Infrastructure MATERIALS LAB

Imperial College  
London

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## PhD post in Computational Fracture Mechanics at Imperial College London, UK

**General Description:** Applications are invited for a PhD scholarship at Imperial College London. The project will involve the development of novel computational tools to unravel engineering challenges across disciplines. Specifically, the student will develop finite element-based methods for modelling degradation, fracture and damage of brittle and ductile materials. Often, the environment will play a fundamental role (chemo-mechanical fracture), and the work will involve modelling the multi-physics nature of material behaviour.

The student will join the Mechanics of Infrastructure Materials Lab, led by Dr Emilio Martínez-Pañeda. The group is part of the new Centre for Infrastructure Materials, created and equipped with £5.4M from EPSRC/UKCRIC. The student will benefit from world-class facilities in an ambitious and competitive environment. The PhD will be based in the Materials Section of the Department of Civil and Environmental Engineering. Besides, the project will build upon existing collaborations with leading academics in the UK and overseas.

### Requirements:

- A good Upper Second or First Class Degree (or International equivalent), in engineering, mathematics, physics, materials science, or other closely-related disciplines.
- Solid and verifiable background in Mechanics of Materials and Finite Element Analysis
- Excellent English writing and communication skills

In addition, a competitive candidate for this role should demonstrate the following desirable (non-essential) qualifications:

- A relevant Masters level degree qualification
- Experience in fracture mechanics and environmentally assisted cracking
- Familiarity with Abaqus, COMSOL, FEniCS or other similar finite element packages.
- Experience in coding with Fortran, Matlab, Python or other programming languages.
- Knowledge of computational fracture mechanics methods, such as phase field fracture, cohesive zone models or the like.
- Related research experience that has led to high-quality outputs (e.g., publications).

A lack of experience in the above non-essential skills could be compensated by evidence of research potential. Appropriate training will be provided.

**Funding and eligibility:** The studentship will provide funding for 3 years including tuition fees and a tax-free stipend at the standard UKRI London rate, £17,009 for the 2019/20 academic year.

Full funding is available to Home (UK) and EU students. The funding can also be used to partly support an international student.

**How to apply:** Applicants wishing to be considered for these opportunities should send the following application documents to Dr Emilio Martínez-Pañeda ([mail@empaneda.com](mailto:mail@empaneda.com))

- CV, including average grades and research experience (if any)
- Cover letter, explaining their motivation and suitability
- Contact details of two academic referees

Application via the Imperial College Registry is not necessary at this stage.

The position will remain open until filled.

For further details, informal discussions and information about the project please contact Dr Emilio Martínez-Pañeda at [mail@empaneda.com](mailto:mail@empaneda.com)