DEPARTAMENTO DE CIENCIA DE MATERIALES
UNIVERSIDAD POLITÉCNICA DE MADRID
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ANNOUNCEMENT OF A PhD SCHOLARSHIP FPI

Please find the following information for a PhD Scholarship FPI within a research project.

Project: Development of an experimental method for the obtention of a cohesive model for the simulation of fracture of ultra-high performance fibre- reinforced concrete
Reference: PID2021-125553NB-I00
Main researchers: Beatriz Sanz, David Cendón
Institution: Universidad Politécnica de Madrid
Centre: ETSI Caminos, Canales y Puertos
Address: C/ Profesor Aranguren 3, 28040 Madrid, Spain

Doctoral program: *Doctorado en Ingeniería de las Estructuras, Cimentaciones y Materiales*, Structural Materials
PhD Supervisors: Beatriz Sanz, David Cendón
Thesis subject: The main focus of the project is to generate solid knowledge about the fracture behaviour of ultra-high performance fibre-reinforced concrete (UHPFRC), focussing on its experimental characterisation and numerical modelling. A traction separation law and a cohesive model are sought with enough precision, especially the initial part of the curve which controls the initiation of cracking and separation of the cracks, for the simulation of the behaviour of UHPFRC. The research involves experimental and numerical work, both in static and dynamic conditions, particularly the design of Brazilian tests and three-point bending tests with the adequate instrumentation, execution of tests, programming of models, simulation and analysis of results.
Formative program: (1) Studying and training, according to the Academic Commission of the Doctorate Program, and study of bibliography. (2) Training on experimental techniques in static and dynamic regime, programming in C++ and calculation in finite element programs. (3) Fabrication of specimens, design of experimental devices, conduction of experiments and simulation of the tests. (4) Possibility of a collaborative research in other centres and participation in conferences. (5) Document of thesis and defence of PhD.
Scholarship duration: Maximum 4 years
Salary (approximated): 1st year 17222€, 2nd year 18452€, 3rd and 4th year 23065€ (taxed included, to be discounted monthly). Possibility of research stages in other universities or research centres and participation in conferences.

Applicants: Civil Engineers or Materials Engineers* with a master's degree, fulfilling the requirements for admittance in a PhD programme at Universidad Politécnica de Madrid on summer 2023. *Engineers from other fields or Physicians with a solid background on Continuum Mechanics and material modelling please contact the main researchers to verify if their expertise is adequate

Date for application: From 12 to 23 January 2023 at 14h.00 Spanish Time

All interested candidates should contact Beatriz Sanz (E-mail: beatriz.sanz@upm.es, Phone: +34 910674310) or David Cendón (E-mail: david.cendon.franco@upm.es, Phone: +34 910674302) no later than 23 January. The following information must be provided:
Documents: cv, student record