

University of Minho

CALL FOR AWARDING A RESEARCH GRANT WITHIN R & D INSTITUTIONS

Title: Research grant for candidates with master's degree

A research grant is open for research under the project endure – European network for durable reinforcement and rehabilitation solutions, Grant agreement no. 607851, co-financed by Seventh Framework Programme.

Field of study: Civil Engineering

Admission Criteria: 1) **Qualifications and experience:** Educational background relevant for the chosen Individual Research Project (IRP); An MSc (or equivalent experience) in Civil and Structural Engineering or a subject closely related to the chosen IRP; Experience in the field of advanced composites in reinforced concrete structures. 2) **Management skills:** Research planning and project management skills. 3) **Communication skills:** Effective communication skills in English, both written and verbal, report writing skills and experience of delivering presentations. 4) **Team working:** Ability to work as part of a multidisciplinary research team, show enthusiasm, initiative and possess good interpersonal skills. 5) **Project management:** Ability to assess and organise resources, and plan and progress work activities.

In respect to requirement 1) it will be given preference to candidates with analytical, numerical and experimental research experience on fibre reinforced cement based materials and fibre reinforced polymer based materials for the structural rehabilitation and/or innovative structures.

Job description: Title: Use of NSM FRP for the strengthening of continuous and tubular RC Structures.

Objectives: 1) develop an NSM-based flexural strengthening technique to increase the load carrying capacity of statically indeterminate RC structures without affecting the moment redistribution and ductility performance; 2) Explore the use of NSM-FRP to increase the torsional resistance of tubular type RC structures. **Tasks and methodology:** This project will investigate the use of linear-elastic FRP laminates for the strengthening of continuous elements and will focus on examining the effect on their moment redistribution capacity. The influence of various parameters will be assessed, including ratio of existing internal steel longitudinal reinforcement, interaction between longitudinal steel bars and laminates, spacing between external NSM laminates, thickness of the adhesive layer and its properties. The possibility of using cement based adhesives of enhanced resistance to fire will be also explored. Particular attention will also be paid to the design of the strengthening solution to be used in shear critical areas. NSM-FRP systems will be also explored for the increase of the torsional stiffness and resistance of tubular type RC structures composed of thin walls. **Expected results:** Practical execution rules for on-site strengthening of continuous elements and tubular type structures; design guidelines for the flexural strengthening of statically indeterminate RC elements and for the torsional strengthening of tubular type elements by using NSM FRP systems.

Legislation and regulations: In accordance to Marie Curie Fellowship rules

Workplace: The work will be developed in the Department of Civil Engineering, at the research unit ISISE-School of Engineering, University of Minho, under the scientific guidance of Professor Joaquim António Oliveira Barros.

Grant period: The grant will have the duration of 36 months.

Remuneration: In accordance to Marie Curie Fellowship rules. In addition to competitive pay, the researcher will benefit from a mobility allowance and contribution for participating in networking, training and knowledge transfer activities.

Methods of selection: The selection method follows the classifications obtained in the admission criteria adopting the following weights: 70% for 1) **Qualifications and experience**; 10% for 2) **Management skills**; 10% for 3) **Communication skills**; 5% for 4) **Team working**; 5% for 5) **Project management**.

For the criterion 1) the following process of evaluation will be followed: 20% for Final ranking in the degree; 60% for Publications (6 points for publications in ISI journals, 3 points for publication in a non ISI journal, 2 points for national magazines and international conferences; 1 point for national conferences; 0.5 points to scientific technical report); 20% participation in research projects (10 points per project, with a bonus of 5 points if the project is related to the theme of this project).

Jury Selection:

Joaquim António Oliveira de Barros, Professor of DEC (Jury President)

José Manuel Sena Cruz, Associate Professor of DEC (Director effective)

Salvador José Esteves Dias, Professor Auxiliar do DEC (Director effective)

Maria Isabel Brito Valente, Assistant Professor of DEC (alternate member)

Form of advertising / notification of results: The final evaluation results will be publicized through the ordered list of *final rankings of all candidates* posted in a visible and public place of the Department of Civil Engineering, School of Engineering, University of Minho, being the candidate (a) approved (a) notified via *email*.

Deadline for the submission of applications: The call is open from 21 May to 20 July 2014.

Applications must be formalized, necessarily, by sending a letter of application accompanied by the following documents: *Curriculum Vitae, qualification certificate and other documents considered relevant, in line with the selection methods described above.*

Applications must be delivered personally during the period from 9: 00 to 17h: 00 at the address below, or sent by mail to Prof. Joaquim António Oliveira de Barros, Department of Civil Engineering, School of Engineering, University of Minho, 4800-058, Guimarães, Portugal. The documents may also be sent in digital format to the following email address: barros@civil.uminho.pt, or to the following fax number: +351253510217.



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