Call for awarding one Research Fellowship

Ref. BI-DOUTOR-MATH2DISLOC

One Research Fellowship is available with **Faculdade de Ciências da Universidade de Lisboa**, in the project "*Mathematical theory of dislocations: geometry, analysis, and modelling (MATH2DISLOC)*", financed by Fundação para a Ciência e a Tecnologia, I.P. (FCT), under the following conditions:

1. **Scientific Area**: Analysis, Geometry and Mathematical Modelling in Mechanics

2. **Requirements for admission**:

   Mandatory: Ph.D in Mathematics, Mechanical Engineering or Physics.

   Preferencial: Research experience/knowledge in Analysis, differential geometry, Calculus of Variations, Elasticity, Defects modelling in Solids (Fracture, dislocations, point defects).

3. **Work Plan:**
   The work must encompass one of the following topics of the research project MATH2DISLOC. Specifically, the study a plasticity model based on strain incompatibility; the study of dislocation singularities in elastic bodies (functional analysis and geometry); the study of the dynamics of a dislocation network (gradient flow, Cahn-Hilliard, thermodynamic forces); the study of a differential geometry formalism for dislocations. Other topic of interest are topological optimization, and variational problems in nonlinear elasticity. A last topic is coding and numerical simulation (finite elements) for bidimensional elasto-plasticity problems.

4. **Legislation framework**: Law No. 40/2004, of August 18th, as amended and republished by Decree-Law No. 202/2012 of August 27th, by Decree-Law No. 233/2012 of October 29th, by Law No. 12/2013, of January 29th, and by Decree-Law No. 89/2013 of July 9th and Lisbon University Fellowships Regulation, published by Order (extract) No. 6977/2015 of June 23th (https://dre.pt/application/file/67564222)

5.   **Place of work**: The work will be developed at CMAF, Department of Mathematics, Faculdade de Ciências da Universidade de Lisboa.

6.   **Scientific supervision:** Nicolas Francesco Van Goethem

7.   **Fellowship duration**: This fellowship is opened for 12 months, not renewable. It is expected to begin in March/April 2017.

8.   **Monthly allowance**: The fellowship amount to € 1.495,00, according to Lisbon University Fellowships Regulation (https://dre.pt/application/file/67564222). It will be paid monthly by bank transfer.

9.   **Selection criteria**: Candidates will be assessed based on their CV and other documentation, as follows:
    - CV (50%)
    - Research project/proposal (50%)

10.   **Selection Committee**: Nicolas Francesco Van Goethem (President), Hugo Ricardo Nabais Tavares (1st Effective Member), Jean-Claude Zambrini (2nd Effective Member), David Masoero (1st Alternate Member), Riccardo Scala (2nd Alternate member).

11.   **Publication/notification of results**: The final results of the evaluation will become public, through a final grade ordered list which will be posted at the entrance hall of Faculdade de Ciências da Universidade de Lisboa, C4 bdg, Campo Grande, 1749-016 Lisboa.
All applicants will be notified of the results of the evaluation to the email address used for sending the respective application, or by post to the applicant's address.

12.   **Deadlines**: This cal for applications is open from January 16th to February 16th 2017.

13.   **Application:** Application may be sent via e-mail to candidaturas@ciencias.ulisboa.pt, with the subject "BI-DOUTOR-MATH2DISLOC", or personally, during office hours (9.00 a.m. to 4.00 p.m.), at the office address of Núcleo de Expediente da Faculdade de Ciências da Universidade de Lisboa, Edifício C5, piso 1, Campo Grande, 1749-016 Lisboa, until the deadline, by attaching the following documents:
    – **In the case of being Portuguese citizen,** copy of identification document (ID or citizen card);

- **In the case of not being Portuguese citizen,** copy of identification document (ID card or passport) as well as residence authorization, permanent residence authorization or long-term resident status, if applicable;
- If you agree to be notified for your post address, please <u>send obligatorily the declaration annexed to this Notice</u>;
- Certificates of qualifications of all obtained academic degrees, with final ranking;
- Curriculum Vitae, detailed and updated, stating obligatorily the full candidate's address;
- <u>Proposal of research project in agreement with at least one of the research topics as detailed in the Work Plan Section</u>;
- Document of employment status, indicating the nature of the bond and functions; this document can be replaced by a declaration under honor commitment if there is any professional activity or the provision of services;
- Cover letter;
- Optionally, letters of recommendation.

DECLARATION

_____ (name of the candidate), declare that if the selection jury chooses to communicate and or notify applicants by e-mail, I agree that such communications and or notifications are made to the email address used for submission of my application.

(Date)

(Signature)