

PhD (Early Stage Researcher) position as part of the Marie Curie ITN project CERMAT2 “New ceramic technologies and novel multifunctional ceramic devices and structures”.

ESR2 PhD Title: *Optimal forming and sintering of ceramics compounds*

University of Trento, Italy

The Solid and Structural Mechanics Group at the University of Trento would like to announce the opportunity for a PhD (ESR) position starting on **1st June 2015 (duration 40 months)**.

Applications are being invited for a full-time PhD (ESR) position in the following area of research: *Optimal forming and sintering of ceramics compounds*.

Description of the research activity

The candidate should carry on research in *Optimal forming and sintering of ceramics compounds* with these particular objectives:

- Development of models of sintering in order to be able to predict the final structure of a ceramic component.
- Modelling of crack and damage evolution during sintering.
- Effects of sintering temperature on pre-existing fractures.

Planned secondment

The successful candidate will be seconded for the period of 6 months to the industrial partner VESUVIUS (Belgium) to compare her/his analytical and numerical predictions with the experimental results.

Support

The position is financed by a Marie Curie Fellowship.

Requirements

To be considered for this position, candidates must fulfill the following requirements:

Career Stage Requirement

Early Stage Researchers (ESR) must, at the time of recruitment by the host organisation (1 June 2015), be in the first four years (full-time equivalent research experience¹) of their research careers and not yet have been awarded a doctoral degree.

¹ Full-time equivalent research experience is measured from the date when they obtained the degree which formally entitles them to embark on a doctorate, either in the country in which the degree was obtained or in the country in which the research training is provided, irrespective of whether or not a doctorate was envisaged.

Mobility Requirement

Due to trans-national mobility requirements the Early Stage Researcher **must not have resided or carried out his/her main activity (work, studies, etc.) in Italy for more than 12 months in the 3 years immediately prior to the reference date.** Compulsory national service and/or short stays such as holidays are not taken into account. After the completion of the project, further job opportunities may be available.

Further Requirements

Required Education Level

Degree	Degree which entitles to embark on a doctorate
Degree Field	Engineering, Applied Mathematics or Physics

Required Research Experiences

Research Field	Solid Mechanics, Material Modelling and Computational Mechanics
Years of Research Experience	Maximum 4

Required Languages

Language	English
Language Level	Good

Application

All interested persons fulfilling the above listed requirements are invited to send as soon as possible and not after May 14, 2015 their CV to: irena.jatro@ing.unitn.it with the subject "CERMAT2 ESR2 position".

Host institute: University of Trento

The hosting research team is the Solid & Structural Mechanics Group, see:

<http://www.ing.unitn.it/dims/ssmg/>

The research team is composed of three full professors (D. Bigoni, L. Deseri, N. Pugno), two associate professors (M. Gei, A. Gajo), three assistant professors (F. Dal Corso, A. Piccolroaz and R. Springhetti), one visiting professor, 3 post-docs and six PhD students. The research team manages three laboratories.- Laboratory for Physical Modeling of Structures and Photoelasticity- Laboratory of Bio-Inspired & Graphene Nanomechanics- Computational Solid and Structural Mechanics LabThe final target of the research project is to train young researchers in understanding the modelling of Solid Mechanics problems applied to the process and design of advanced ceramics in a synergic collaboration between academia and industry. The expertise of the research group is in Solid Mechanics, in particular in the field of non-linear theories of mechanics and computational modelling with emphasis on: large strain deformations, nonlinear finite element method and programming, plasticity and constitutive modelling, bifurcation and material instabilities. Beside the University of Trento, the network involves four Academic Institutions (the Rzeszow University of Technology specialized in Computational and Experimental Mechanics and Processing; the University of

Liverpool specialized in Applied Mathematics; the Aberystwyth University specialized in Mathematical Modelling; the University of Belgrade specialized in the application of Inverse Analysis theory to material characterization) and three Technology and Production Units (CEREL, a productive unit of an applied research institute, specialized in developing ceramic materials and manufacture technologies; ENGINSOFT, a SME operating in the field of Computer-Aided- Engineering and Virtual Prototyping; VESUVIUS, manufacturer of ceramics, refractory products and flow control systems).

Benefits

The PhD candidate will be employed on a 29 months contract at a living allowance equivalent to €97890 for the total period supplemented by a monthly mobility allowance of €1066 (candidates with family responsibilities) or €746 (candidates without family responsibilities). These are the amounts per year for the fellow before any deductions: contributions of both employers and employees to social security, pension, taxation, voluntary deductions.

The project includes a generous budget to support the research and career development.