

2013/2014 POSTDOCTORAL CALL FOR APPLICATIONS
Department of Engineering - University of Rome "Roma Tre"

1 POST-DOC Position in FP7 large-collaborative project.

In the framework of the FP7 large project ISTRESS (<http://www.stm.uniroma3.it/iSTRESS>), entitled "Pre-standardization of incremental FIB micro-milling for intrinsic stress evaluation at the sub-micron scale", one **postdoctoral** scholar position is available in the Department of Engineering at the University of Rome, Roma Tre (Material Science group).

The title of the POST-DOC project is

The project aims at developing innovative high resolution and automated procedures for the measurement of micro- and nano-scale residual stresses in amorphous materials and thin films.

The Scholarship salary, health insurance and duration

The yearly gross salary can be anywhere between € 22820 and € 46000 depending on the research experience and results. The health insurance is covered by the social security system.

Starting date and duration:

January 1st, 2014

Duration 1 year, renewable up to 3 years

Scholarship description:

The main concept of this project iSTRESS is to develop and promote pre-standardization of an innovative, highly reproducible and automated family of protocols for the measurement and analysis of residual stress at the sub-micron-scale, which affect the properties and lifetime of a wide range of micro/nanostructured and amorphous materials, thin films, MEMS devices and engineering coatings. Despite these urgent industry requirements, the assessment of the residual stress in sub-micron volumes is still an extremely challenging task, especially in the case of nano-crystalline, strongly textured, complex multiphase or amorphous materials and thin films.

The methodology will be based on incremental focused ion beam (FIB) micro-milling, combined with high-resolution in situ Scanning Electron Microscope (SEM) imaging, a full field strain analysis by digital image correlation (DIC) and analytical/numerical models for residual stress calculation. The use of in-situ and ex-situ nanoindentation will be also required for the assessment of elastic properties and/or the direct measurement of residual stress. Focus will be also given to the analysis of the Poisson's ratio of the materials under investigation.

The main activities of the Post-DOC research assistant will be focused on the implementation of automated milling procedures for the execution of the FIB experiments, with advanced applications on Bulk Metallic Glasses and multi-layered thin films.

Eligible candidates must preferably have a strong background. in at least one of the following fields: materials science, physics, mechanical engineering, structural engineering, bio-engineering, process engineering.

Significant Experience in focused ion beam (FIB) microscopy and/or nanomechanical testing of advanced materials is required.

Application deadline: December, 2013

How to apply:

For pre-selection and additional information: send your motivation letter + detailed CV + 2-3 names of referees (name, email) to the Principal Investigator and coordinator of the iSTRESS project dr. Marco Sebastiani: seba@stm.uniroma3.it