COST STSM Application Form

To be sent by the applicant as attachment by e-mail together with all the documents he/she would like to submit to support the application (full CV, detailed work plan, motivation, etc.) to the

* Host (who will send his agreement to host the applicant to the MC Chair)
* MC Chair for evaluation and approval

COST Office Science Officer: DR GIUSEPPE LUGANO, giuseppe.lugano@cost.eu
COST MC Chair: PROF. PIERRE PAROT, parot@cea.fr
COST STSM Manager: PIERRE PAROT, pierre.parot@cea.fr

COST STSM Reference Number: COST-STSM-TD1002-13003
Period: 2013-03-04 00:00:00 to 2013-03-22 00:00:00
COST Action: TD1002
STSM type: Regular (from Italy to United Kingdom)

STSM Applicant: Dr Massimiliano Papi,Università Cattolica del Sacro Cuore,Roma(IT) , m.papi@rm.unicatt.it
STSM Topic: Development of the Atomic Force Microscopy for Ophthalmic Diagnosis
Host: Riaz Akhtar,University of Liverpool,Liverpool(UK), R.Akhtar@liverpool.ac.uk

Budget Request: Year-2013

Travel	200 Euro
Subsistence (hotel/meals)	1700 Euro
Total	1900 Euro

Short CV:

30/04/1976

PhD in Biophysics.

Assistant Professor of Physics at the Università Cattolica del Sacro Cuore

Work Plan Summary:

The sclera, also known as the white of the eye, is the opaque, fibrous, protective, outer layer of the eye containing collagen and elastic fiber.

There are considerable evidences that substantial changes occur to this dense, fibrous, viscoelastic connective tissue with eye conditions such as myopia characterized by scleral weakening and posterior elongation.

Recent work on the sclera has presented evidence of considerable macroscopic variations in the biomechanical properties of the sclera across its different regions.However, no attempts have been made to date to characterize the local (micron and sub-micron) structural-mechanical properties within the sclera.

This study will use novel atomic force microscopy (AFM) techniques to provide important information on the regional variation

of biomechanical properties within the sclera and its structure-property relationships with a high spatial resolution (sub-micron). This study will enhance understanding of the micromechanical properties of the sclera and provide the information required for accurate representation of scleral tissue in finite element simulations.

The easy access of a small probe, such as an AFM cantilever, on the external surface of the eye will transform the AFM into a tool for the early diagnosis of the health of the eye. Indeed the analysis of the biomechanical changes, related to diseases of the eye, obtained by force spectroscopy could be easily combined with the classical techniques for the ophthalmic evaluation.

I request the approval of a COST Short Term Scientific Mission as described above

Applicant
Dr Massimiliano Papi 05 Feb 2013