

Laboratoire National de Métrologie et d'Essais
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REFERENCE

After a brilliant master degree internship at the Institute of Light and Matter (ILM) where he found several novel structures published in Phys. Rev. B, Mr. Paul Ceria has joined in March 2014 the LNE materials department metrology section to start a PhD thesis on the LNE's metrological atomic force microscope. This thesis is financed by the Joint Research Projects (JRP) IND58 6DoF, and links three national institutes around this thematic: the CEMES which insures the direction of the thesis, the LNE that supervises the research activities and Paul Sabatier doctoral School in which Mr. Ceria is admitted. This thesis explores the development of a numerical AFM (virtual instrument) to establish the uncertainty budget of the LNE's metrological atomic force microscope. The main components of this thesis are to characterize all the contributions (mechanical, optical, interaction) linked to the position measurement system.

The works and results obtained by Mr. Ceria and coworkers have been accepted for a presentation to EUSPEN 2015. It points out the efficiency to fully characterize the metrological atomic force microscope to attribute an uncertainty for the calibration of transfer standards, dedicated to the scanning probe microscope (SPM) and the scanning electron microscope (SEM).

For those reasons, we think the coming of Mr. Ceria to this 15th international conference of the European Society of Precision Engineering and Nanotechnology and his participation to the tutorial represent a great opportunity for him to review the best of world-wide industrial innovation, state-of-the-art research and technology developments. The participation of Mr. Ceria to this leading conference also represents an opportunity for LNE to collect precious information for the development of the LNE's metrological atomic force microscope.

Therefore, I strongly support the application of Paul Ceria for Student Scholarship, which will allow him to attend the EUSPEN conference 2015.

Bruno Hay
Head of Materials Department



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