

POST-doctoral position

Starting date: 01/04/2021

Title: 3D microscopy of energy materials by THzAtom Probe Tomography

Responsible of the project: Angela Vella

Collaboration: GPM – UMR 6634 / CORIA – UMR 6614

Team: Angela Vella (GPM), Jonathan Houard (GPM), Ammar Hideur (CORIA), Thomas Godin (CORIA)

This research will be developed at the Groupe de Physique des Matériaux (GPM) in collaboration with the department of Optics & Lasers of CORIA at the University of Rouen FRANCE.

Description of the project:

Activities at the GPM laboratory are focused on investigating the link between material properties and their features at the nanometer scale. One of the laboratory's teams is the "advanced instrumentation team" (ERIS) where the Tomographic Atom Probe was developed in the 1990s. Today, ERIS is one of the world's leading teams in the development of laser-assisted 3D atom probes, in particular concerning field evaporation processes and laser matter interaction at nanoscale.

The recent development of laser-assisted atom probe tomography (ATP) opened the instrument to the analysis of semi-conductors and insulators. However, light absorption leads to strong thermal effects which are seriously prejudicial to the performance of the instrument. To overcome these limitations, we have developed a novel ATP instrument using low-energy photon THz pulses instead of ultraviolet lasers. The objective of this position is to evaluate the performances of the new instrument on energy materials.

Qualifications and experience:

The applicant will work to the optimization of the ultrafast THz source as well as to the analysis of different energy materials (semi-conductors multilayers, quantum wells, quantum dots,..) in order to prove the capabilities of the new illumination conditions.

The ideal applicant for this post-doc position should hold a PhD thesis in the fields of ultrafast optics, THz science, field emission and/or would have already worked with atom probe. He/She should be able to work independently and in team. His work will take place at GPM laboratory in collaboration with the Optics&Laser team of CORIA.

Contact : *Please submit your application (including a cover letter and a detailed CV) by e-mail.*

Pr Angela Vella and Dr. Jonathan Houard

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