



Nanoscale functional toolbox for materials in renewable energy

L. TETARD,

NanoScience Technology Center, University of Central Florida, Orlando, FL, USA

E-mail : laurene.tetard@ucf.edu

Abstract:

Catalytic activation drives a substantial number of processes in materials for renewable energy. Exploring the local behaviour of catalysts in a heterogeneous system remains scarce due to the strenuous requirements in sensitivity and spatial resolution for direct measurements at the molecular or at the defect level. In addition, the dynamic nature of the reactions implies that chemical information should be collected over time.

In this presentation, we will discuss the state-of-the-art developments of nanoscale functional imaging and spectroscopy taking place to study catalytic traits of new materials including 2D materials and nanoparticles. The presentation will span from methods capable of probing mechanical properties to new advances in nanoscale infrared spectroscopy. Beyond the technological advances, we will highlight applications in new materials such as hybrid 2D material for catalytic reactions and we will present the effect of catalytic reaction in biofuel production.

Contribution:

Invited