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## Frontiers in Catalysis Science and Engineering Seminar Series

# Operando Methodology, a Tool to Understand Catalysts at Work and Functional Materials: Applications for Catalysis and Hydrogen Storage



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Madrid, Spain

**March 30, 2017**

**1:30 pm**

**EMSL Auditorium**

Vibrational spectroscopy, Raman and infrared, provides valuable insight on the states and transformation of working catalytic and functional materials. The study of surface structure and interface phenomena is at the core of the catalytic act. Understanding the structure-property relationships at the molecular level provides rational basis for the development of catalysts with improved performance and stability. The transversal operando approach places it at the junction between fundamental catalytic chemistry and applied chemical engineering.

We will present our research on operando methodology to understand structure-property relationships on supported oxide catalysts, both in powder and in conformed (monolith) state for environmental and oxidative dehydrogenation catalysis. We will also present progress in understanding ammonia borane based materials for hydrogen release, and the role of functionalization and nanoconfinement.