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## OPERANDO PHOTOEMISSION SPECTROSCOPIES FOR UNDERSTANDING ELECTROCATALYTIC MATERIALS

Mercredi 17 janvier 2018 à 11h00  
Salle D2

### Biography

Elena Savinova received her M. Sci. in Chemistry (Honor diploma) from the Department of Natural Sciences, Novosibirsk State University, Russia, in 1981, and her PhD (Candidate of Science) from the Boreskov Institute of Catalysis of the Russian Academy of Sciences (BIC SB RAS) in 1988, the title of Associate Professor (docent) from the Novosibirsk State University in 1995, and the title of Doctor of Sciences from the BIC SB RAS in 2006. She has worked as a senior research fellow at BIC SB RAS (Novosibirsk, Russia) and at Technische Universität München (Garching, Germany), as a visiting researcher at Fritz-Haber-Institut der MPG (Berlin, Germany), and as associate professor at Novosibirsk State University. Since 2006 she has been invited professor, and since 2007 full professor (PREX since 2014) at the European School of Chemistry, Materials and Polymers (ECPM) at the University of Strasbourg. She is head of the group «Electrochemistry and Energy Conversion» at ICPEES UMR 7515. In 2006 she was awarded Chair of Excellence in chemistry from the National Research Agency (Agence Nationale de la Recherche, France) and in 2014 became Fellow of the International Society of Electrochemistry (ISE).

### Abstract

Engineering of functional materials relies heavily on the understanding of structure-function relationships. Synchrotron-based Near-Ambient Pressure X-ray Photoelectron Spectroscopy (NAP-XPS) has recently emerged as a powerful tool for in situ and operando studies of energy-related materials (e.g. batteries, fuel and electrolysis cells). It allows one probing the interfacial polarization, detect reaction intermediates, follow red-ox transformations of species located either at the electrode or electrolyte site of the electrified interface, and observe segregation/dissolution phenomena.

We will start with a short introduction into electrocatalysis, and discuss challenges and opportunities for operando studies of electrocatalytic materials with photomission spectroscopies. We will then discuss some case studies [1-4] illustrating capabilities of NAPXPS and NEXAFS for the investigation of electrocatalytic materials for fuel and electrolysis cells during dynamic operation conditions.

### Acknowledgements

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### References

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