



Preface:

The JNSPE2022 conference was the first national event of the CNRS (National Center for Scientific Research) “Photoemission Spectroscopies” Research Federation (FR SPE N° 2050 - <https://fr-spe.cnrs>). The objective of the Federation is to structure the scientific community around photoemission and related spectroscopies by sharing the diverse expertise present in laboratories on the national territory. This research structure project in the various fields covered by the Photoemission Spectroscopies is the result of a broad upstream reflection initiated by the CNRS Institute of Chemistry (INC@CNRS) in 2019 and was officially created in 2020. Since then, the Federation organizes and coordinates visible and ambitious actions, with the constant concern to promote interdisciplinarity among its staff belonging to 48 CNRS laboratories. They are part of the Institutes of Chemistry (INC), Physics (INP) and Engineering and Systems Sciences (INSIS) as well as a CEA (French Alternative Energies and Atomic Energy Commission) laboratory (PFNC) and IFPEN (IFP Innovative Energies). A total of 340 researchers, university professors, engineers and technicians from a multitude of backgrounds are part of this open structure. The Federation works on identified scientific challenges, creating very strong thematic synergies between teams and even laboratories. It also invests in training activities adapted to the different needs of the scientific community. It is an ideal place to reflect on the structuring of the laboratory spectrometer network community, as well as on the establishment of open platforms.

The JNSPE2022 conference drew on the achievements of the two national congresses ELSPEC (2004-2018) and JSE (2017-2021) to bring together the national and French-speaking community of specialists and users of photoemission spectroscopy in the broad sense around a single annual event. This national event is also an opportunity to open up to researchers and engineers who may envisage using photoemission techniques.

The aim of the meeting is to present the latest developments in Photoemission Spectroscopies, both for the understanding of phenomena related to the physics and chemistry of surfaces and interfaces and for the analytical aspect in the broad sense of these techniques. The French-speaking community of photoemission spectroscopies is in fact largely involved in many themes, such as (non-exhaustive list): energy storage and conversion, micro- and nanotechnologies, metal alloys and corrosion, functional oxides, catalysis, electrochemistry, nanomaterials, thin layers and growth phenomena, biomaterials and interface engineering, surface functionalization, synthesis of organic hybrids...

These themes constitute the core skill of the 48 research CNRS laboratories of the federation and will be addressed in the light of the scientific challenges identified by the spectroscopic community for the next five years. Over five half-days (June 16-18, 2022) punctuated by invited conferences of general interest, participants of the JNSPE 2022 (Dijon) shared their latest research on:

- The environmental XPS approach
- The problem of buried interfaces
- Aspects of operando experiences
- Measurement reliability and quantification
- Photoemission in its time dimension
- Experimental and theoretical approaches in photoemission for the study of electronic structures

120 participants and 8 specialist equipment manufacturers discussed the latest advances in the field over 2.5 days via 41 oral communications, 25 posters. More, five internationally recognized guest speakers were able to introduce the different sessions and provide relevant insights on the major issues facing our scientific community:

Virginia PÉREZ-DIESTE (Synchrotron ALBA, Spain): Operando characterization of model and real catalysts by APXPS.

Thierry CONARD (IMEC, Belgium): Photoemission in microelectronics: When technological developments allow to address new questions in the laboratory.

Mario EL KAZZI (PSI, Switzerland): LiCoO₂ interface electrochemical and electronic properties – Li₃PS₄ reviewed by operando XPS in all-solid battery.

Mathieu G. SILLY (Synchrotron Soleil, Saint-Aubin): Study of the relaxation dynamics of photoexcited loads by time-resolved photoemission spectroscopy.

Marc SIMON (LCPMR, Paris): Gas phase photoemission study.

The present conference proceedings provide a representative overview of the diversity of the scientific contributions as well as papers from each of the guest speakers for this first edition of the JNSPE.

Hervé Martinez
Director of the FR SPE