

Beyond the gap of pressure : XPS studies of interfaces at near ambient pressures

Héloïse TISSOT

(Ligne TEMPO, Synchrotron SOLEIL, Gif sur Yvette)

Mardi 23 septembre à 15h00
Grand Amphithéâtre SOLEIL

The Near Ambient Pressure XPS (NAP-XPS) instrument allows to measure XPS spectra at pressures up to 20 mbar. The installation of this experimental setup, the only of its kind in France, at the TEMPO beamline of SOLEIL synchrotron facility makes it a powerful tool for the study of surfaces under ambient conditions.

Two different XPS studies, performed during my PhD, on the NAP-XPS, can illustrate the possibilities offered by this instrument:

The first study deals with the reactivity of tetraethoxysilane (TEOS) on silicon surfaces in order to understand its behavior as a precursor for atomic layer deposition of silicon dioxide (SiO_2) on clean or water covered silicon surfaces. XPS measurements at ambient pressure were completed by XPS in UHV conditions and STM experiments supported by first-principles simulations within the Density Functional Theory aiming at understanding the fragmentation of TEOS on the surface.

The second type of studies that deals with aqueous environments shows the new unconventional fields that XPS can now explore. We first examined the segregation of ions at the vapor/liquid water interface of various saline solutions (NaCl, NaBr, NaI) and measured the energy level scheme of the solution. Second, we examined the solvation of various cations in the confined water layers of a clay, the Hectorite.



Vous êtes cordialement invités au pot qui suivra



Formalités d'entrée : accès libre dans l'amphi du Pavillon d'Accueil. Si la manifestation a lieu dans le Grand Amphi Soleil du Bâtiment Central, merci de vous munir d'une pièce d'identité (à échanger à l'accueil contre un badge d'accès).

SYNCHROTRON SOLEIL

Division Expériences - L'Orme des merisiers - Saint-Aubin - BP 48 - 91192 GIF S/YVETTE Cedex

<http://www.synchrotron-soleil.fr/portal/page/portal/Soleil/ToutesActualites>

Secrétariat Division Expériences : sandrine.vasseur@synchrotron-soleil.fr