

Séminaire SOLEIL

Momentum vector correlation spectroscopy in the tender x-ray region at LUCIA

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Invité par Delphine VANTELON

Lundi 18 mars à 14h00
Salle Libra A2.1.32

Séminaires

We have recently developed at LCPMR a new momentum vector spectrometer, CELIMENE, dedicated to the study of core-level photoionization of gas phase species. This apparatus is designed to provide the full momentum vectors of coincident particles emitted after deep core-level photoexcitation in the "tender" x-ray regime (1 to 10 keV). In this regime, excitation, electronic decay, and fragmentation processes are characterized by short lifetimes, the formation of highly charged species and large kinetic energies. After a brief description of the basic processes and experimental scheme, we will present the first results obtained with this setup on the LUCIA beamline at SOLEIL. Through the unique association of CELIMENE and LUCIA, original results were obtained on an atom, namely Argon, after 1s photoionization (3205 eV) and two molecules, OCS and CS₂, after sulphur 1s core ionization (2475 eV). We will present results on ion recoil momentum measurements induced on the fragment ions by the emission of fast Auger electrons (up to 3000 eV). This information can be used to disentangle the formation mechanisms of highly charged species. Core-hole lifetimes were investigated by the detailed investigation of post-collision distortion of photoelectron spectra recorded in coincidence with ions. In the case of a molecule, momentum correlations between several ionic fragments and a photoelectron can reveal a wealth of information. Molecular frame angular distributions of photoelectrons were measured on OCS and CS₂, as well as 3-body fragmentation dynamics.



Ce séminaire sera suivi d'une pause-Café



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).

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