Electron spectroscopy – a probe for fundamental properties of isolated species

Catalin Miron
Synchrotron SOLEIL, l'Orme des Merisiers, France

Since many years, electron spectroscopy is an excellent analytical tool to characterize material's chemical composition or degree of oxidation [1]. When performed at ultra-high resolution inner-shell spectroscopies provide an accurate probe of ultrafast (fs) decay dynamics, in particular for isolated species [2]. Completely new scientific opportunities are being offered by the bright and highly monochromatic x-ray beams coupled to state-of-the-art instrumentation available at the newest facilities, such as the PLEIADES [3] beamline at SOLEIL (France), operated as a user facility since March 2010.

Selected examples will be shown from a panel where high-resolution spectroscopies have been employed to investigate fundamental properties of matter, such as the Vibrational Scattering Anisotropy (**VSA**) [4], the Auger-Doppler effect using circularly polarized light [5], or the rotational Doppler broadening of molecular electron spectra [6].

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[3] C. Miron et al., http://www.synchrotron-soleil.fr/Recherche/LignesLumiere/PLEIADES
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