

photoelectron spectroscopy (PES)

Also contains definitions of: ESCA, XPS

A spectroscopic technique which measures the kinetic energy of electrons emitted upon the ionization of a substance by high energy monochromatic photons. A photoelectron spectrum is a plot of the number of electrons emitted versus their kinetic energy. The spectrum consists of bands due to transitions from the ground state of an atom or molecular entity to the ground and excited states of the corresponding radical cation. Approximate interpretations are usually based on 'Koopmans theorem' and yield orbital energies. PES and UPS (UV photoelectron spectroscopy) refer to the spectroscopy using vacuum ultraviolet sources, while ESCA (electron spectroscopy for chemical analysis) and XPS use X-ray sources.

Source:

PAC, 1996, 68, 2223 (*Glossary of terms used in photochemistry (IUPAC Recommendations 1996)*) on page 2261

PAC, 1976, 45, 221 (*Nomenclature and Spectral Presentation in Electron Spectroscopy Resulting from Excitation by Photons*) on page 223

Orange Book, p. 246