

Auger Electron Spectroscopy and its Applications

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Abstract

Auger electron spectroscopy (AES) relies on the Auger process discovered by Lisa Meitner and Pierre Auger in 1920s. This spectroscopy is used to probe the elemental composition of the outermost layers of material surfaces. All elements can be identified with the exception of H and He. Auger spectra can be obtained irradiating the sample with a very well-focused electron beam allowing the chemical analysis of small surfaces features such as nanoparticles and nanostructured materials. Information on the chemical state of the elements can also be obtained from the examination of the peak shape and peak energy. It is also possible to determine the lateral and in depth distribution of the elements recording elemental maps and in combination with ion sputtering the concentration versus depth profiles. It is especially useful for the investigation of conducting samples.

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