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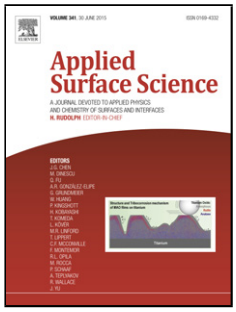

Title: Sub-nanometer resolution XPS depth profiling: Sensing of atoms

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Sub-nanometer resolution XPS depth profiling: Sensing of atoms

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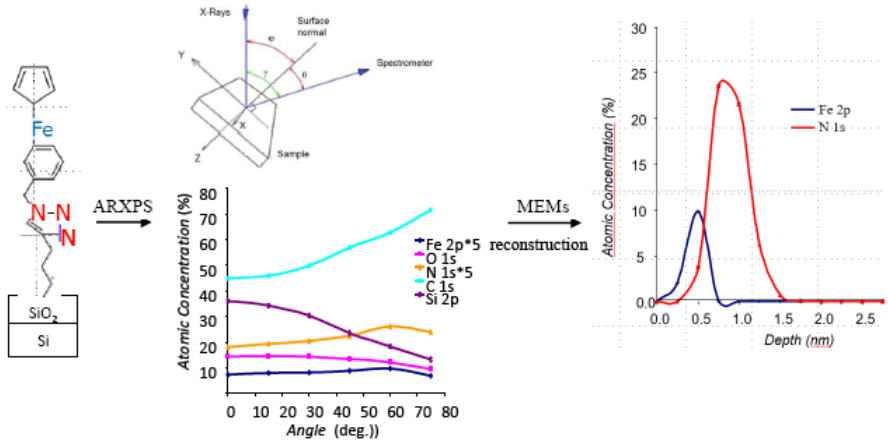

Highlights

- Angle resolved photoelectron depth profiling of nano thin films.
- Sensing atomic position in SAM films.
- Detection of direction position of adsorbed molecules.

Abstract

The development of a method capable of distinguishing a single atom in a single molecule is important in many fields. The results reported herein demonstrate sub-nanometer resolution for angularly resolved X-ray photoelectron spectroscopy (ARXPS). This is made possible by the incorporation of a Maximum Entropy Method (MEM) model, which utilize density corrected electronic emission factors to the X-ray photoelectron spectroscopy (XPS) experimental results.

In this paper we report on the comparison between experimental ARXPS results and reconstructed for both inorganic and organic thin film samples. Unexpected deviations between experimental data and calculated points are explained by the inaccuracy of the