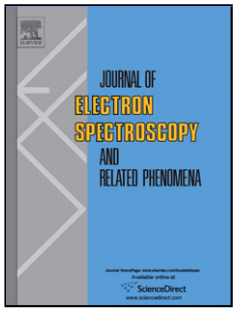

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Capabilities of Angle Resolved Time of Flight electron spectroscopy with the 60° wide angle acceptance lens

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Highlights:

- Characterization of an ARTOF electron spectrometer with an advanced lens system
- High transmission due to 60° full cone acceptance
- High angle and energy resolution in the soft X-Ray regime
- Different lens modes available for user-specific demands

Abstract:

The simultaneous detection of energy, momentum and temporal information in electron spectroscopy is the key aspect to enhance the detection efficiency in order to broaden the range of scientific applications. Employing a novel 60° wide angle acceptance lens system, based on an additional accelerating electron optical element, leads to a significant enhancement in transmission over the previously employed 30° electron lenses. Due to the performance gain, optimized capabilities for time resolved electron spectroscopy and other high transmission applications with pulsed ionizing radiation have been obtained. The energy resolution and transmission have been determined experimentally utilizing BESSY II as a photon source. Four different and complementary lens modes have been characterized.

Key words:

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