

Abstract Submitted
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Retrieving plasmonic field information from metallic nanospheres using attosecond photoelectron streaking spectroscopy¹ JIANXIONG LI, ERFAN SAYDANZAD, UWE THUMM, Kansas State University — Streaked photoemission by attosecond extreme ultraviolet (XUV) pulses into an infrared (IR) or visible streaking pulse, holds promise for imaging with sub-fs time resolution the dielectric plasmonic response of metallic nanoparticles to the IR or visible streaking pulse. We calculated the plasmonic field induced by streaking pulses for 10 to 200 nm diameter Au, Ag, and Cu nanospheres and obtained streaked photoelectron spectra by employing our quantum-mechanical model [1]. Our simulated spectra show significant oscillation-amplitude enhancements and phase shifts for all three metals (relative to spectra that are calculated without including the induced plasmonic field) and allow the reconstruction of the plasmonic field enhancements and phase shifts for each material. [1] J. Li, E. Saydanzad, and Uwe Thumm, Phys. Rev. A 94, 051401(R) (2016).

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Uwe Thumm
Kansas State University

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