

Abstract Submitted  
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**Imaging plasmonic fields near gold nanospheres in attosecond time-resolved streaked photoelectron spectra**<sup>1</sup> JIANXIONG LI, UWE THUMM, Kansas State University — To study time-resolved photoemission from gold nanospheres, we introduce a quantum-mechanical approach, including the plasmonic near-field-enhancement of the streaking field at the surface of the nanosphere. We use Mie theory to calculate the plasmonically enhanced fields near 10 to 200 nm gold nanospheres, driven by incident near infrared (NIR) or visible laser pulses. We model the gold conduction band in terms of a spherical square well potential. Our simulated streaked photoelectron spectra reveal a plasmonic amplitude enhancement and phase shift related to calculations that exclude the induced plasmonic field. The phase shift is due to the plasma resonance. This suggests the use of streaked photoelectron spectroscopy for imaging the dielectric response and plasmonic field near nanoparticles.

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