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Retrieving plasmonic phase shifts and electric-field enhancements from streaked photoemission spectra of gold nanospheres[1] JIANXIONG LI, UWE THUMM, Kansas State University — We numerically investigated time-resolved photoemission from gold nanospheres using a quantum-mechanical approach, including the plasmonic near-field-enhancement of the streaking field at the surface of the nanosphere. Our simulated streaked photoelectron spectra reveal a near-field plasmonic amplitude enhancement and phase shift in compared with calculations that exclude the induced plasmonic field. The plasmonic phase shifts we retrieved from the photoelectron spectra agree with the phase shifts near the surface of nanospheres calculated within Mie theory. This suggests the use of streaked photoelectron spectroscopy for retrieving the plasmonic fields near nano particles.

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