

Abstract Submitted
for the DAMOP17 Meeting of
The American Physical Society

Characterization of induced nanoplasmonic fields in time-resolved photoemission: a classical trajectory approach applied to gold nanospheres¹ ERFAN SAYDANZAD, JIANXIONG LI, UWE THUMM, Kansas State University — Attosecond time-resolved spectroscopy is being extended from the study of the electronic dynamics in atoms and molecules to the investigation of electron propagation and collective electronic (plasmonic) effects near solid surfaces [1,2] and nanoparticles [1,3]. We simulated streaked photoelectron energy spectra as a function of the time delay between ionizing single attosecond XUV and streaking IR pulses, within a classical-trajectory Monte-Carlo-sampling approach. For the examples of streaked photoemission from 5 and 50 nm radius gold nanospheres, we discuss the imprint of sub-infrared-cycle plasmonic and electronic dynamics on streaked photoelectron spectra [4]. [1] U. Thumm, Q. Liao, E. M. Bothschafter, F. Süßmann, M. F. Kling, and R. Kienberger, p. 387, Handbook of Photonics, Vol. 1, (Wiley 2015) [2] Q. Liao and U. Thumm, Phys. Rev. A 92, 031401(R) (2015). [3] J. Li, E. Saydanzad, and Uwe Thumm, Phys. Rev. A 94, 051401(R) (2016). [4] E. Saydanzad, J. Li, and Uwe Thumm, submitted to Phys. Rev. A.

¹Supported by the NSD-EPSCoR program, US NSF, and US DoE.

Uwe Thumm
Kansas State University

Date submitted: 02 Feb 2017

Electronic form version 1.4