

Abstract Submitted
for the DAMOP17 Meeting of
The American Physical Society

Theoretical study of imaging the plasmonic field enhancement on the surface of the gold nanosphere by using attosecond streaking spectroscopy¹ ERFAN SAYDANZAD, JIANXIONG LI, UWE THUMM, Kansas State University

— Attosecond time-resolved spectroscopy has been shown to be a powerful method for investigating the electronic dynamics in atoms, and this technique is now being transferred to the investigation of electronic excitations, electron propagation, and collective electronic (plasmonic) effects in near solid surfaces [1,2] and nanoparticles [1,3]. By sampling over classical photoelectron trajectories, we simulated IR-streaked XUV-photoemission spectra for gold nanospheres of 5 and 50 nm radius. Based on our numerical results, we show how spatio-temporal information of the sub-infrared-cycle plasmonic and electronic dynamics is embedded in streaked spectra. [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).

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

Uwe Thumm
Kansas State University

Date submitted: 02 Feb 2017

Electronic form version 1.4