

Abstract Submitted
for the DAMOP19 Meeting of
The American Physical Society

Characterization of the plasmonic response of Au(111) surfaces by attosecond angular streaking.¹ MARCELO AMBROSIO, UWE THUMM, Kansas State University — The attosecond streaking applies a short XUV pulse followed by a time-delayed IR pulse, to map information on the time-dependent electronic substrate response into a pulse-delay- and energy dependent photoelectron spectrum [1,2]. We calculated streaked photoemission spectra from Au(111) surfaces and investigated the substrate's response to the IR streaking pulse, employing the classical Fresnel's equations to evaluate the surface-reflected IR field [3]. We retrieve the induced plasmonic-phase and -amplitude enhancement from the streaked spectra and are able to distinguish between the plasmonic-IR phase shift and the electronic-transport time-delay contribution to the streaking phases. This indicates that streaking spectroscopy allows the characterization of the substrate dielectric response at the nm length scale. [1] J. Li et al., 2016, Phys. Rev. A 94, 051401(R). [2] E. Saydanzad et al., 2018, Phys. Rev. A 98, 063422. [3] M. J. Ambrosio et al., 2018, Phys. Rev. A 97, 043431.

¹Supported by the NSF and the Division of Chemical Sciences, Office of the Basic Energy Sciences, Office of Energy Research, US DoE.

Uwe Thumm
Kansas State University

Date submitted: 29 Jan 2019

Electronic form version 1.4