

Abstract Submitted
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Attosecond time-resolved photoemission from Cu(100) and Cu(111) surfaces¹ MARCELO AMBROSIO, UWE THUMM, Kansas State University — Motivated by the striking dependence of the valence electronic structure of transition metal surfaces on their crystallographic orientation, and by very recent experiments [1,2] on laser-assisted extended ultraviolet (XUV) photoemission from solid surfaces, we calculated photoemission spectra from Cu(100) and Cu(111) surfaces as a function of the photoelectron final kinetic energy and the delay between an ionizing attosecond XUV pulse train and assisting infrared (IR) laser pulse [3]. Our numerical simulations predict distinct differences in delay-dependent photoelectron energy distributions and photoemission time delays for Cu(100) and Cu(111) surfaces that can be scrutinized experimentally in a suggested *in situ* comparative RABBITT configuration, by placing the two surfaces on a sliding platform while keeping all optical components and pathlengths fixed. In addition, our numerical results also show that the inclusion of the Fresnel-reflected incident IR pulse at the metal-vacuum interface modifies photoelectron spectra and photoemission time delays in a characteristic way that reveals the degree of spatial location of the initial electronic states. [1] R. Locher *et al.*, *Optica* **2**, 405 (2015). [2] Z. Tao *et al.*, *Science* **353**, 62 (2016). [3] M. J. Ambrosio and U. Thumm, *A* **94**, 063424 (2016).

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