

Abstract Submitted
for the DAMOP09 Meeting of
The American Physical Society

Time-resolved core-hole decay and sideband structure in laser-assisted photoemission from metal surfaces¹ CHANG-HUA ZHANG, UWE THUMM, Kansas State University — We present a theoretical investigation of sideband structures in laser-assisted photoelectron spectra that result from the illumination of an adsorbate-covered metal surface with an ultra-short soft X-ray and a delayed IR laser pulse. We show how the relaxation dynamics of core level holes in the adsorbate atoms can be deduced from a temporal shift in the intensity of the first sideband peaks of adsorbate-Auger electrons relative to conduction band photoelectrons. Our results also include a characteristic sub-sideband structure in the photoelectron spectra that is due to the interference of core-level electrons which are emitted from different layers in the solid.

¹This work was supported by the NSF and the Division of Chemical Sciences, Office of Basic Energy Sciences, Office of Energy Research, US DOE.

Chang-hua Zhang
Kansas State University

Date submitted: 22 Jan 2009

Electronic form version 1.4