

**DIRECT CHARACTERIZATION OF ENHANCED ELECTROMAGNETIC FIELDS ON SINGLE AG NANOSTRUCTURE.** Wei David Wei, Department of Chemistry and Center for Nanostructured Electronic Materials, University of Florida, Gainesville, FL 32611

Using two-photon photoemission electron microscopy (2P-PEEM) we have directly explored the optical fields on a single Ag nanostructure and quantitatively measured the field enhancement factor (FEF). The 2PPE intensity from the Ag nanostructure is enhanced by 2 orders of magnitude with respect to the 2PPE intensity from a smooth and homogeneous Ag thin film. This enhancement is attributed to a localized plasmon excitation and resonance of the local field, and the FEF is determined to be around 4. The capability of directly correlating the field enhancement with nanostructures makes 2P-PEEM a promising tool to investigate the fundamental surface optical properties of nanomaterials.