

Abstract Submitted  
for the 4CF15 Meeting of  
The American Physical Society

**Interpreting plasmonic response of epitaxial Ag/Si(100) island ensembles**<sup>1</sup> DEXIN KONG, Arizona State University, LIYING JIANG, IBM, JEFF DRUCKER, Arizona State University, DR. DRUCKER RESEARCH GROUP TEAM, DR. MENENDEZE RESEARCH GROUP COLLABORATION — Associating features in the experimentally measured optical response of epitaxial Ag islands grown on Si(100) with the localized surface plasmon resonances (LSPR) hosted by the Ag islands is challenging due to the variation of the Si dielectric function over the energy range under consideration. However, it is possible to conclusively identify features in the experimental spectra with LSPR modes oscillating both // and  $\perp$  to the epitaxial interface by simulating the optical response. Using the Abeles matrix method and modeling the Ag islands using the thin island film model developed by Bedeaux and Vlioger that incorporates island morphology parameters determined by quantitative analysis of electron micrographs faithfully reproduces the main features of the experimental spectra. Individually zeroing the dipoles associated with the LSPR modes enables conclusive identification of their contribution to the optical response of the composite system.

<sup>1</sup>We want to thank Professor David Smith for transmission electron microscopy measurement, and we also thank the National Science Foundation for financial support under grant DMR 1005958.

Dexin Kong  
Arizona State University

Date submitted: 09 Sep 2015

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