

Abstract Submitted  
for the MAR10 Meeting of  
The American Physical Society

**Dynamic modifications of polarizability for large metallic spheroidal nanoshells** HUNG-YI CHUNG, National Taiwan University, PUI-TAK LEUNG, Portland State University, DIN-PING TSAI, National Taiwan University — We present an approach alternative to the hybridization model for the treatment of the coupled interfacial plasmon modes in spheroidal metallic nanoshells. We adopt an effective medium approach together with the uniqueness of the solutions to electromagnetic boundary value problem, from which the polarizability of the shells can then be systematically and efficiently derived; and the resonance frequencies for the coupled modes can be obtained from the poles in the polarizability. This approach can treat confocal nanoshells with different geometries for the spheroidal cavity and external surface; and allows for a natural extension to incorporate corrections from the finiteness of the optical wavelength which are important for nanoparticles of larger sizes.

Hung-Yi Chung  
National Taiwan University

Date submitted: 16 Nov 2009

Electronic form version 1.4