

Abstract Submitted
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Nanorice: a new hybrid nanostructure P. NORDLANDER, D. BRANDL, F. LE, H. WANG, N.J. HALAS, Rice University — The plasmon hybridization method [1] is applied to nanorice, a new metallic nanostructure which combines the properties of two popular tunable plasmonic nanoparticle geometries: nanorods and nanoshells. The particle consists of a prolate spheroidal dielectric core and a thin metallic shell, bearing a remarkable resemblance to a rice grain. The nanorice particle shows far greater geometric tunability of the optical resonance, larger local field intensity enhancements and far greater sensitivity as a surface plasmon resonance (SPR) nanosensor than any previously reported dielectric-metal nanostructure. The tunability of the nanorice particle arises from the interaction of primitive plasmons associated with the inner and outer surfaces of the shell. The results from plasmon hybridization are compared to FDTD simulations.

[1] E. Prodan and P. Nordlander, J. Chem. Phys. 120(2004)5444-5454

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