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**Plasmon hybridization in nanoshell dimers** DANIEL BRANDL, CHRIS OUBRE, PETER NORDLANDER, Rice University — The plasmon hybridization method was recently applied to solid nanosphere dimers[1]. In the present work we extend this method to investigate the plasmon modes of metallic nanoshell dimers. The formalism is also generalized to include the effects of dielectric backgrounds and to calculate the optical polarizability of the dimer. It is shown that the presence of dielectrics red shifts the plasmon energies of the individual particles and screens the interaction between the nanoparticles. In total, this results in a redshift of the dimer plasmons compared to the system without dielectrics, and a weaker dependence of the dimer plasmon energies on dimer separation. The results are compared with numerical simulations using the Finite Difference Time Domain (FDTD) method. [1] P. Nordlander, C. Oubre, E. Prodan, K. Li, and M. Stockman, Nano Lett. 4(2004)899

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