

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Nanoparticle susceptibilities and the bianisotropic formalism¹

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LIQUID CRYSTAL INSTITUTE TEAM — Since the spatial extent of nanoparticles is not negligible compared to the wavelength of light, non-local effects may be expected in the electric and magnetic response of nanoparticles at optical frequencies. It has been suggested that such spatially non-local response may be taken into account via the bianisotropic formalism for the constitutive equations. We have calculated the susceptibilities of pairs of nanowires as a function of orientation relative to the incident fields using the discrete dipole approximation. We compare the results of our simulations with predictions of the bianisotropic description, and summarize our observations.

¹This work was supported by the AFOSR under MURI grant FA9550-06-1-0337.

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Date submitted: 02 Dec 2006

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