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Magnetic Dipolar Interactions in Nanoparticle Assemblies MANABENDRA CHANDRA, KENNETH KNAPPENBERGER, Florida State University — I will present evidence of a magnetic dipolar contribution to the nonlinear optical (NLO) response of colloidal metal nanostructures. Second-order NLO responses from several small assemblies of solid gold nanospheres (SGN) were examined using polarization-resolved second harmonic generation (SHG) spectroscopy at the single-particle level. Unambiguous circular dichroism in the SH signal was observed for many of the nanostructures, indicating that the plasmon field located within the interparticle gap was chiral. Detailed analysis of the polarization line shapes of the SH intensities obtained by continuous polarization variation suggested that the effect resulted from strong magnetic-dipole contributions to the nanostructure's optical properties.

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