

Abstract Submitted  
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**Plasmonic Circular Dichroism Effect in Nanomaterials<sup>1</sup>**

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By employing a numerical solution of Maxwell's equations beyond the dipole limit, we studied the circular dichroism (CD) signal of a chiral molecule in the presence of a gold nanoparticle (NP) dimer. The CD signals come from two parts: The first one is Coulomb interaction within the molecule-dimer complex giving rise to the plasmon peak in the CD spectrum, while the other one is the plasmonic enhancement of the absorption process in a chiral molecule. Typically, the CD signals of chiral molecules are very weak in the visible range, but are strong in the UV range. In the presence of gold dimer, however, we found a strong CD signal emerges in the visible range of photon energies, where the plasmon effect makes the main contribution to CD signal at the plasmon frequency. Furthermore, we propose that, by using the plasmon-induced CD signals, one can design optical sensors to study chirality of biomolecules.

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