

Abstract Submitted
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Chiral Molecular Optical Response to Nano-Shaped Light¹ PRA-SOON SAURABH, Univ of California - Irvine, VLADIMIR CHERNYAK, Wayne State University, JEREMY ROUXEL, SHAUL MUKAMEL, Univ of California - Irvine — Chiral linear optical signals are an important spectroscopic tool for biomolecules and chemical sensing applications. Exact expressions are derived which express these signals as a convolution of a non-local linear susceptibility of matter with a non-local intrinsic property of the electric field. The chiral response can be enhanced and optimized using nano-optical fields with strong spatial variation. The approach is based on a gauge invariant calculation using the minimal coupling Hamiltonian. The multipolar expansion is avoided and all multipoles are naturally incorporated. We apply these expression to achiral (planar) and chiral (dihedral angle of 45°) bi-phenyl as a physically intuitive illustration.

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