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**Correlation between Raman scattering and conductance in a molecular junction** TAE-HO PARK, MICHAEL GALPERIN, Department of Chemistry and Biochemistry, University of California at San Diego — Raman spectroscopy of molecular junctions is a promising diagnostic and control tool. We present a model for non-resonant Raman spectroscopy, generalizing previous considerations to strong laser pulses of arbitrary time dependence. The model paves a way to realistic simulations of Raman spectroscopy experiments in molecular conduction junctions. We demonstrate within the model that the optical properties of molecular conduction junctions are strongly correlated with the electron transport properties. Feynman diagrams responsible for such similarity are analyzed for both processes, and possible explanation for observed (anti-)correlated behavior of Stokes signal and conductance is proposed.

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