1079-81-135   **George A. Hagedorn*** (`hagedorn@math.vt.edu`), Department of Mathematics, 460 McBryde Hall, Virginia Tech, Blacksburg, VA 24061-0123. *A Simple Model for Molecular Resonance Raman Scattering.*

Molecular Raman scattering is an inelastic light scattering process. One shines laser light of a specific frequency on a molecule and looks for emitted light of a different frequency. The total energy is conserved by the molecule changing its energy level. We present a very simple time–dependent model for predicting transition amplitudes for molecular Raman scattering associated with a laser pulse when the frequency of the incident light is resonant with an electronic transition. Our model leads to remarkably simple expressions for the transition amplitudes to leading order in both the intensity μ of the incident laser pulse and the Born–Oppenheimer parameter ϵ for the molecule. (Received January 07, 2012)