

Abstract Submitted  
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**Compton Effect Energy Formulas Should Include Vibrational and Spin as well as Linear Kinetic Energies** STEWART BREKKE<sup>1</sup>, Northeastern Illinois University (former grad student) — In Compton scattering the incident photon affects not only the linear, but also the vibrational and spin kinetic energies after impact.  $hc/\lambda_1 + m_0c^2 + 1/2m_0v^2 + 1/2I\omega_{r_1}^2 + (n + 1/2)\hbar\omega_{v_1} = hc/\lambda_2 + m_0c^2 + 1/2mv_2^2 + 1/2I\omega_{2_r} + (n + 1/2)\hbar\omega_{2_v}$ . If the incident photon produces a relativistic speed, the equation should be  $hc/\lambda_1 + m_0c^2 + 1/2m_0v_1^2 + 1/2I\omega_{r_1}^2 + (n + 1/2)\hbar\omega_{v_1} = hc/\lambda_2 + mc^2 + mv_2^2 + 1/2I\omega_v^2 + (n + 1/2)\hbar\omega_{v_2}$ . By including the other kinetic energies a closer reconciliation between theory and experiment will occur.

<sup>1</sup>previous papers presented at earlier APS meetings

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