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**Einstein's Photoelectric Relation Must Also Include Rotation and Vibration Kinetic Energies As Well As Linear Kinetic Energies of the Ejected Electron** STEWART BREKKE, Northeastern Illinois University (former grad student) — Every material body has no motion, linear, rotational and/or vibrational motion singly or in some combination. In Einstein's proposed analysis of the Photoelectric Effect through collisions in the material all linear kinetic energy is lost and only the energy from the impacting photon affects the ejected electron. However, the electron is also rotating and vibrating in the material and these kinetic energies may also be lost through collisions with other electrons in the material. Therefore, the ejected electron may have rotational and vibrational motion as well as linear motion resulting from the transferred energy of the incident photon. Therefore, the current values of the work functions may have to be slightly adjusted. Also, the current formula for the Photoelectric Effect must be modified to include the possibility of rotational and vibrational as well as linear motion in the resulting ejected electron. Therefore, relation for the Photoelectric Effect must be  $hf = (1/2mv^2 + 1/2I\omega^2 + 1/2kx^2)max + \phi$ .

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