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**Expressions ForTotal Energy And Relativistic Kinetic Energy At Low Speeds In Special Relativity Must Include Rotational And Vibrational As Well As Linear Kinetic Energies** STEWART BREKKE, Northeastern Illinois University (former grad student) — Einstein calculated the total energy at low speeds in the Special Theory of Relativity to be $E_{total} = m_0c^2 + 1/2m_0v^2$. However, the total energy must include the rotational and vibrational kinetic energies as well as the linear kinetic energies. If $1/2I\omega^2$ is the expression for the rotational kinetic energy of mass and $1/2kx_0^2$ is the vibrational kinetic energy expression of a typical mass, the expression for the total energy of a mass at low speeds must be $E_{total} = m_0c^2 + 1/2m_0v^2 + 1/2I\omega^2 + 1/2kx_0^2$. If this expression is correct, the relativistic kinetic energy of a mass. at low speeds must include the rotational and vibrational kinetic energies as well as the linear kinetic energies since according to Einstein $K = (m - m_0)c^2$ and therefore, $K = 1/2m_0v^2 + 1/2I\omega^2 + 1/2kx_0^2$.

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