

Abstract Submitted
for the DNP07 Meeting of
The American Physical Society

**Radioactive Decay Energy Reactions Should Include Vibrational
and Rotational Kinetic Energies** STEWART BREKKE, Northeastern Illinois

University (fmr grad student) — In order to reconcile theory with experimental results energy relations of unstable nuclei should include vibrational and rotational kinetic energies. For alpha decay: $M_P c^2 + 1/2 I \omega_r^2 + (n + 1/2) \hbar \omega_v + 1/2 M_P v^2 = M_D c^2 + 1/2 I \omega_r^2 + (n + 1/2) \hbar \omega_v + 1/2 M_D v^2 + M_\alpha c^2 + 1/2 I \omega_r^2 + (n + 1/2) \hbar \omega_v + 1/2 M_\alpha v^2$. For beta decay: $M_P c^2 + 1/2 I \omega_r^2 + (n + 1/2) \hbar \omega_v + 1/2 M_P v^2 = M_D c^2 + 1/2 I \omega_r^2 + (n + 1/2) \hbar \omega_v + 1/2 M_D v^2 + M_e c^2 + 1/2 I \omega_r^2 + (n + 1/2) \hbar \omega_v + 1/2 M_e v^2$. $1/2 I \omega_r$ is the rotational kinetic energy and $(n + 1/2) \hbar \omega_v$ is the vibrational kinetic energy.

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Date submitted: 16 May 2007

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