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Law of Radioactive Decay and Motion of Emitted Decay Particle

STEWART BREKKE, Northeastern Illinois University (former grad student) — All bodies are in a state of no motion, linear, vibratory or rotational motion singly or in some combination. Therefore, if a particle is emitted from a decaying nucleus, it will move linearly, rotate, vibrate or have no motion singly or in some combination. If k is a vibrational force constant, x_0 the amplitude of vibratation, $1/2I\omega^2$ the kinetic energy of rotation and $1/2mv^2$ the linear kinetic energy, P is parent nucleus, D is daughter nucleus and p is the emitted decay particle the equation for this law is $M_Pc^2+1/2M_Pv_P^2+1/2I\omega_P^2+1/2k_Px_{P_0}^2 = M_Dc^2+1/2M_Dv_D^2+1/2I\omega_D^2+1/2k_Dx_{0_D^2}+ m_pc^2+1/2m_pv_p^2+1/2I\omega_p^2+1/2k_p{x_0}_p^2$.

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