Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Atomic Stability as Result of Electrodynamic Stability Condition

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— According to [1] an electron e^- is formed of an oscillatory massless charge $-e$ in general also traveling at velocity v, and the resulting electromagnetic waves of angular frequency ω^j, $j = \dagger$ and $\ddagger$ for generated in $+v$ and $-v$ directions. The wave energy $\hbar\sqrt{\omega^\dagger \omega^\ddagger}$ equals the charge oscillation energy ε_q (with the $v = 0$ portion) endowed at the charge's creation; ε_q/c^2 gives the electron mass m_e, c the wave speed. For an atomic orbiting electron, the charge's v motion is along a circular (or projected-elliptic) orbit ℓ of radius r; so are its waves. (a) The waves meet in each loop with the charge, are absorbed a portion by it and reemitted, repeatedly, and thereby retained to it; the vacuum, having no lower energy levels for the charge to decay to except in a pair annihilation, is essentially a non-dissipative medium. (b) The two waves, being Doppler-differentiated for the moving source, meet each other over the loops and superpose into a beat, or de Broglie phase wave Ψ. $\Psi = Ce^{i(k_d \ell - \omega T)}$ is a maximum if $2\pi r_n = n\lambda_{dn}$, n integer, $\lambda_d = \frac{2\pi}{k_d} = (\frac{c}{v})\lambda$ the de Broglie wavelength and $\lambda = \frac{2\pi c}{\omega}$, and accordingly yields a stable state. The corresponding overall eigen solutions are exactly equivalent with the QM results. The classical electrodynamic stability conditions (a)-(b) entail the stability of the atomic system.

[1] JX Zheng-Johansson & P-I Johansson, *Unification of Classical, Quantum and Relativistic Mechanics and the Four Forces*, Fwd Prof R Lundin, Nova Science, NY, 2005; see also B40.00003, this meeting.

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Date submitted: 13 Jan 2006 Electronic form version 1.4