A Natural Mass Unit Hidden in the Planck Action Quantum

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Abstract

0.138% above the neutron and 0.276% above the proton baryon mass a natural mass unit μ can be identified by extrapolating dimensionless Planck units h=c=1 to the System of Units (SI). Similar to quantum measurements that determine h it is only necessary to relate the unit kinetic particle energy to the quantum energy of a photon having a unit wavelength. Connecting both energies and shifting the units, the inverse ratio of length units evolves proportional to the square of velocity units since both are proportional to the energy unit. With this connection the measurement of h becomes an indirect light velocity measurement and measurement of μ and shows that nonzero action and mass quanta corresponds to a finite light velocity c. As already shown, these sequential baryon mass differences (typical mass deficits of strong interaction) including the electron mass can be recovered within measurement error (some ppm) by simple relations obtained from bosonizing a massive Dirac equation.

Keywords:	baryon, quantum, Compton, Dirac, topological, fundamental, particle, spin, proton, electron, neutron, bosonization, modes, nonlinear, soliton, breather, nonpertubative, phase, berry, sine-Gordon, fine structure, iteration, iterative, exact
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