

Abstract Submitted  
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**Revisiting the Issue of an Imaginary Energy Quantity That Appears in Near-Dirac Equations** WEN-TAI LIN, Retired — The result of minimal coupling with electromagnetic field would yield a real energy term attributed to the interface of a Dirac particle with an external magnetic field (via an inherent magnetic moment). Another term appears as an imaginary “electric dipole moment” coupled to an external electric field. The imaginary term, which also showed in Dirac’s 1928 paper, has been purposefully removed via Hamiltonian transformations that are non-unitary in nature. The issue is revisited here because: (1) similar issue also appears in photon equations; and (2) there may be better interpretations/implications for it. It is asserted that an imaginary energy term in a quantum mechanical system is meant to be maintained as zero in system’s stationary states, but imaginary energy could arise above zero in transient modes. Under certain circumstances, tachyon-type of communication mode allows for higher than the speed-of-light entangled events to occur. For example, in a multi-electron system, the imaginary energy term may serve as a means for forming electron pairs (or entangled particles) such that the aforementioned “electric dipole moments” are summed to zero.

Wen-Tai Lin  
Retired

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