Abstract Submitted
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Quantum Gravity of IED Particles J. ZHENG-JOHANSSON — The internally electrodynamic (IED) model[1], developed based on overall experimental observations since 2000, briefly states that *a simple material particle like electron is composed of an oscillatory charge of a characteristic frequency* Ω *and zero rest mass, generally also traveling at velocity* v*, and the resulting Doppler-effected electromagnetic waves* $(\mathbf{E}, \mathbf{B})$*'s*. Based on first principles solutions for the IED processes a range of basic particle equations/properties have become predictable. One prediction is: two IED particles of masses $M_, M_2$ $(= \hbar\Omega_i/c,\ i = 1, 2)$ and charges q_1, q_2 separated at r apart in a dielectric vacuum act always on one another an attractive force $F = \sqrt{F_{12}F_{21}} = \frac{CM_1M_2}{4\pi\epsilon_0 r^2}$, where $\mathbf{F}_{ij} = q_j\mathbf{v}_{pj} \times \mathbf{B}_i$ is the Lorentz or depolarization radiation force on q_j due to the radiation depolarization field $\mathbf{E}_{pi} = -\chi_{0^*}\mathbf{E}_i$ of q_i, electric field $\mathbf{E}_i$, and magnetic field $\mathbf{B}_i$, with $\mathbf{E}_{pi}$ driving q_j into motion at velocity $\mathbf{v}_{pj} = \int \frac{q_j d\mathbf{E}_{pi}}{M_j}$), $i, j = 1, 2$; $C = \frac{\pi\chi_{0^*}e^4}{\epsilon_0^2 h^2 \rho_l}$ with $q_1, q_2 = \pm e$ and e, ϵ_0, h fundamental constants of the usual meaning. F resembles directly Newton's gravitational force. The fields E_i, B_i are by nature quantized at the scale of Planck constant h; consequently E_{pi} and therefore F are each quantized at the scale h. The present work gives a formal quantum electrodynamic re-derivation of this force.

[1]See e.g. a) *arxiv:0812.3951*, b) *J Phys Conf Ser***128**. 012019, 2008.

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