Abstract Submitted
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Charge, from EM fields only. R.L. COLLINS, U.T. Austin, retired — Purely electromagnetic particle (PEP) models of an electron have until now failed because they do not account for "charge". A model of the electron, built from EM fields only, has been found that generates a **vxB** inverse square field that resembles the electric field **E** we associate with charge. Does this model contain charge? Not really. Gauss' law says yes, but div **vxB** finds no charge density. "Charge" is a mathematical fiction, useful but not fundamental. This model begins with a magnetic flux quantum configured as a magnetic dipole, μ, spinning at $\sqrt{3}$ times the Compton frequency $\nu_C = mc^2/h$. As it decays, energy is transferred to a toroidal displacement current. Oscillation between these configurations proceeds at ν_C. The EM assembly carries angular momentum **L**, spinning about μ. Spinning **B** leads to **vxB**, an electric field that arises everywhere in space from spinning **B** and not from some compact central "charge". Elastic Coulomb scattering must find the electron to be a point particle, without size even though the EM structure itself is huge. μ undulates but does not reverse polarity. Faraday's static **E** field does not exist in nature. The electric field about an electron is **vxB**, inverse square and undulating at $1.24x10^{20}$ Hz.

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