

Abstract Submitted
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A Theoretical Value for the Newton Gravitation Constant from the GEM Unification Theory of Gravity and Electro-Magnetism JOHN BRANDENBURG, Orbital Technologies Corporation — The GEM(Gravity E&M) theory (Brandenburg 2007) allows the derivation of the Newton Gravitation Constant from first principles, with the two postulates of the GEM theory: 1. that gravity and EM forces, and electrons and protons are unified at the Planck length and split apart with the appearance of a hidden 5th dimension. 2. That Gravity fields are an array of ExB drifts or Poynting cells. The first postulate allows the estimate the size of the new hidden dimension (esu units) $r_o = e^2 / (m_o c^2)$ $m_o = (m_p m_e)^{1/2}$, where m_e and m_p are the electron and proton masses respectively, and arrives at the formula $\ln (r_o / r_p) = (m_p / m_e)^{1/2} = 42.8503$ which, when inverted becomes the formula $G = e^2 / (m_e m_p) \propto \exp(-2(m_p / m_e)^{1/2}) = 6.668 \times 10^{-8} \text{ dyne-cm}^2 / \text{g}^2$ This is contrasted with $G \sim \eta c / m_e^2 (\alpha 2^{1/2})^{-1} \exp(-\pi / (4\alpha))$ proposed by t'Hooft, (1989) using thermal EM fields. The link between these methods is found in the Lenz formula $6\pi^5 \cong m_p / m_e$ which indicates max entropy in the Stefan Boltzmann Constant. Supporting this link is a simple model of protons and electrons as equal sized spheres of 1.4fm with protons being filled with Planckian EM radiation of approximate temperature of the neutral Pi meson rest mass. Brandenburg, J.E. (2007) IEEE Trans Plasma Sci, Vol. 35, No. 4., p845. "t'Hooft, G. (1989), Nuc. Phys. B315, p517.

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