The Mass of the Higgs Boson and an Unstable Vacuum in the Context of the GEM Unification theory JOHN BRANDENBURG, Morningstar Applied Physics LLC — The Higgs Boson at m_{Higgs} =126GeV , it has been said, leads to the potential for 'cosmic catastrophe.' However, in the context of the GEM unification theory (1) the Higgs Boson mass can be seen as part of a system of particle masses that creates a Big Bang fireball of hydrogen in its later stages(2). In this talk the GEM theory will be discussed with the Higgs Boson in its role as the manifestation of a compact Kaluza-Klein 5th dimension. In the GEM context , compactification of a 5th dimension leads to the Big Bang (2) and afterward leads to merely a gentle "eternal inflation' with $\Omega \cong 1$ and a vacuum unstable to production of proton-electron pairs (3). The unstable vacuum fluctuations of quantum masses associated with a hidden dimension size leads to an approximate Dirac Condition: $T_H \cong (9\ m_{Higgs}/m_p)^{1/3}\ (\pi/2)\ (e^2/Gm_pm_e)\ r_e\ /c = 12$ Gyr (in cgs) where m_p and m_e are the proton and electron masses respectively, e is the electron charge, T_H is the Hubble time and r_e is the electron classical radius, and G is the Gravitation constant and c is the speed of light. (1) J.E. Brandenburg (2012) "An Extension of the GEM Unification Theory to Include Strong and Weak Nuclear Forces and an Estimate of the Higgs Boson Mass STAIF II Conference Albq. NM (2012) also Jou. Space Expl. Vol 1, issue 1. (2) J.E. Brandenburg (2013) 27th Texas Symposium on Relativistic Astrophysics, Dallas TX. (3)J.E. Brandenburg (1995) "A Model Cosmology Based on Gravity Electro-Magnetism Unification", Astrophysics and Space Science, Vol 277, p133-144

John Brandenburg
Morningstar Applied Physics LLC

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