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The GEMS (Gravity Electro Magnetism Super) unification theory – a theory of the unification of the four forces of nature

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This paper presents recent results of the GEMS (Gravity-Electro-Magnetism Super) unification theory which unifies the L four forces of nature. The GEMS theory was an unexpected development of an effort to unify only the two long-range forces of nature: gravity and electromagnetism (EM). The two long range forces gravity and electro-magnetism are first unified, and out of this unification also proceeds the unification of the short range weak and strong nuclear forces. They are unified under the two postulates that: 1. Gravity fields are an array of electromagnetic Poynting cells and 2. The separate appearance of gravity and EM fields from each other is correlated with the separation of protons and electrons from each other as they emerge from the Planck scale with the appearance of a compact or hidden dimension. In the Standard Model all massive particles are charged and move freely at short distances and even photons spend time as charged particles. The quark-electron split occurs based on the asymmetry in dimensionality between space and time, with 3 quark colors representing space and the electron representing time. The theory can be thought of as presently, a Bohr model of field unification, rudimentary but useful. The theory is primarily geometric, and the classical radii of charged particles plays an unexpected role in physical calculations. The proton, with its three interior quarks is born with the same effective radius as the electron- the electrostatic classical radius, with the gluon-photon separation also occurring. The theory produces the value of G: the Newton gravitation constant, and the proton mass accurately from the Planck scale with no free parameters. The theory produces the values of the masses, charges and spins for the pions of the strong force and the W and Z bosons of the weak force as quantum Mie scatterings off the compact dimension structures associated with the proton and electron masses. The Higgs boson mass follows from similar formalism. The GEM theory extends the Standard Model to include gravitation and a detailed correspondence is shown with electro-weak theory. The theory predicts a short lived, neutral spin 0 particle will be found at rest mass-energy approximately 22 MeV, and that a basic GEMS parameter σ =42.8503, occurs throughout the standard model in ratios of particle masses.

Biography

John E Brandenburg has completed his PhD from University of California at Davis extension campus at Lawrence Livermore National Laboratory and performed extensive research on plasma physics for both fusion energy and space propusition. He has worked at Sandia National Laboratory, the Florida Space Institute and numerous aerospace companies in the United States. He has published extensively on plasma physics, field unification, and space and planetary science. He also writes science fiction under the pen name Victor Norgarde.

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