Gravity As We Know it is a Phenomenon of an Epoch of E8 x U(1) Broken Symmetry Which Began with the Big Bang

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Abstract: The theory of the universe following the 8-fold SU(3) symmetry of life (see viXra 1310.0261) requires that before the big bang when the arrow of time was inactive E8 symmetry was an unbroken symmetry and the concept of negative intrinsic ($-mc^2$) energy was viable. The graviton was Inactive hence there was no gravity but in its place were three new gauge bosons and associated forces which led to fermibosonic matter entity production and the big bang phenomenon. The big bang was a universe-wide U(1) electromagnetic event which broke the perfect E8 symmetry previously existing and caused our universe with its familiar gravity to begin.

A theory of the universe based on the 8-fold SU(3) Symmetry of life leads to a single universe of cycling time character[1] in which an epoch without an arrow of time is followed by an epoch with an arrow, etc, ad infinitum. The epochs without an arrow were epochs in which E8 symmetry[2] (a single-member group of the highest possible symmetry) is unbroken and the graviton was inactive while the epochs with arrows are epochs in which E8 Symmetry is broken by U(1) and the graviton is active. In the epochs with arrows (our present epoch for example) all intrinsic energies are positive while in the epochs without arrows of time (perfect E8 symmetry) intrinsic energies can be either negative or positive. This makes possible zero-mass entities (not quantum particles) of unbroken E8 symmetry containing equal amounts of positive and negative intrinsic matter. In nature it appears that hadrons and leptons (both spin odd 1\2) are all of positive intrinsic mass, while bosons (integer spin) are all of potentially negative intrinsic mass[3].

The positive-negative intrinsic mass feature of unbroken E8 symmetry makes possible transfer of the 8 fundamental matter stable fermionic particles (neutrinos, up and down quarks, electrons and their antiparticles) as well as the stable weak-matter bosonic W+, W- and Wo particles from one universe to the next without violating flatness requirements. This means that all matter can be carried intact to the new universe without change (in fact, the matter being transferred may be immortal). For bosonic matter of negative intrinsic mass being transferred, when it is established in the new (our) universe after the big bang (and its E8 symmetry has been broken and the arrow of time re-established) its negative intrinsic mass becomes observable as dark energy if the mass is of zero spin or as dark matter if the spin is one. For fermionic matter of positive intrinsic mass being transferred its matter is observable as ordinary matter of spin 1\2 with a graviton. Note that the graviton is not involved with dark matter – dark matter is a new type of matter altogether!

As I have pointed out in a previous letter (viXra 1310.0261) the realization that three new forces of nature (and associated gauge bosons) exist together with 3 known weak force gauge bosons and 2 known leptonic gauge bosons for a total of 8 gauge bosons in all, leads to the big bang itself as a universe-wide annihilation of massive particle-antiparticle weak particle pairs. In the previous letter I did not think that dark matter could exist at all without a graviton - I have since changed my mind. If a particle is a spin 1 boson it will enter the next universe as negative intrinsic energy dark matter in any case. The SU(2) x U(1) electroweak symmetry breaking occurred prior to the beginning of the cyclic universe action and was producing spin 1 massive bosons of potentially negative intrinsic energy in that epoch.. Spin 0 massive bosons (Higgs bosons) of also potentially negative intrinsic energy were likewise active. The existence of dark matter means the E8 was followed in time by the electroweak symmetry breaking.

1. Roger Penrose, “Cycles of Time”, Alfred A. Knopf (2011)

2. A. Garrett Lisi and James Owen Weatherall, “A Geometric Theory of Everything”, pp. 54-61, Scientific American, Dec. (2010)

3. Dan Hooper, “Dark Cosmos”, p. 91, Collins, (2006)