The Cyclic Universe E8 Symmetry Theory Updated: the Critical Role of the tH, ttH, tZ, and ttZ Fermibosonic Entities Seen at the LHC

George R. Briggs

Abstract: It has been almost a year since I updated the cyclic universe E8 symmetry theory. The best starting point is the big bang. At this point our universe was the smallest it could be because gravity was active but all matter was in the special-entity form of fermibosons, which had effectively zero mass, and no big crunch could take place. Instead, the universe grew until it reached its present gigantic size and the fermibosons mostly disintegrated back into fermions and negative mc^2 dark matter. The dark matter eventually annihilated, producing 40 GEV gamma radiation and simple expansion of space. Someday the expansion will end: there will be a contraction (not a crunch) of the universe and the cycle will repeat.

E8 symmetry enters the story mainly in making possible the generation of negative energy bosons[1] during the epoch prior to the big bang and using these to shield ordinary fermions of matter to form fermibosons[2]: a lesser role for E8 symmetry is the generation of 248[3] different hadrons which make possible a wide variety of matter substances. Equally important is the 8-fold symmetry of life, or SU(3): This symmetry permits an expansion from 5 to 8 in the number of types of bosons, 4 massive, and 4 gauge 0 mass type. The 4 massive bosons are unchanged - the Higgs, and the three weak: +W, -W, and the Z. The 4 zero mass gauge bosons are 2 unchanged (graviton and photon) and 2 new gauge bosons, which I have called the flataton and bigbangaton, responsible for 2 new forces of nature, spin 0/1 fermibosonic and big bang.

Thus overall we live with 2 new forces requiring 2 new zero-mass gauge bosons. Actually we need 3 forces, if one considers the

spin 0/1 fermibosonic force as 2 separate forces but nature (E8 symmetry) is satisfied to make do with a single gauge boson for 2 forces just as she is happy with a similar arrangement for electromagnetism: in this case the two flataton forces are the spin 0 force of the Higgs boson and the spin 1 force of the Z weak particle, also a heavy boson.

The bigbangaton uses one new gauge boson. This new force provides a simultaneous big bang force throughout the universe. This caused the extraordinarily uniform temperature of the flash we see today. The energy for the flash came from annihilation of the two massive W+ and W- boson particles. The last two 0 mass type bosons are the photon and graviton: these are unchanged in the new theory.

Finally, the 8-fold symmetry of life also made possible the strong force and the 8 primitive fermions: the neutron, up and down quark, the electron and their antiparticles.

The next part of the story came rather late in my work: the annihilation of dark matter[4]. If nature did not have some way of doing this and allowed dark matter it to accumulate as the universe cycled, she would soon be overwhelmed. Nature utilizes galaxies to gather up the used dark matter in the massive central black holes. She then utilizes the dark matter particle proximity to each other to initiate its annihilation. This is done in this case with the aid of the different spins of the H and Z bosons. Again, this is similar to what nature does with W+ and W- bosons, except that it is electric charge that is annihilated in that case. Apparently, the H and Z dark bosons are annihilated in H, Z pairs which are of unequal mass: this insures that the result shall have spin ½ and have no remaining boson-like properties; this means that the expanding material is purely fermionic and can be considered a form of dark energy which could be used for life support if need be. Actually, nature appears to use

expansion of the universe as the method of minimizing energy loss from the universe. Universe expansion reduces the frequency of the remnant of the big bang that reaches to the edge of the universe and hence reduces its energy content.

The next part of the story is the remarkable discovery Of 4 fermibosons at the LHC[5], starting with the tH entity, and by the observation, first by the author that these same type of fermibosons grew the universe starting with the big bang, except the bosons were of negative instead of positive mc^2 energy. We know this because the dark energy/dark matter ratio of the universe measured by astronomers checks within 2% with that caculated[6] using the latest LHC values for H, Z, and t masses and this would almost certainly not be true if the same 4 types of fermiboson were not under consideration, albeit of negative energy.

For example, the Z boson is familiar to us as a positive mc^2 heavy particle constituent of stars. E8 symmetry has used it again, but only when generated in the epoch when she was an unbroken symmetry before the big bang, in this case as a negative mc^2 particle. This 2nd use is allowed in our epoch, but the negative energy use is hidden from us, hence the connotation “dark”. It is noted that no new negative mc^2 matter can be generated in our epoch.

1. Dan Hooper, “Dark Cosmos”, p. 177, Collins, (2006)

2. A. Garrett Lisi and James Owen Weatherall, “A geometric theory of everything”, Scientific American, pp. 54-61 December, (2010)

3. Ditto, pp. 60-61

4. Dan Hooper, Francis Reddy, “Fermi telescope data tantalize with new clues to dark matter”, Uchicago, (2014/04/03)

5. Cern Courier, Apr 27and Sep 25, (2015)

6. George R. Briggs, ViXra , 1604.0010, (2016)