The tZ Supersymmetric Fermibosonic Entity was verified in 2009: the Two Required Supersymmetric Entities Have Now Been Identified for the E8-Symmetry Cyclic Universe

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Abstract: To have an E8-symmetry cyclic universe a key requirement is spin 0 and spin1 bosonic fermibosonic matter to transfer matter from the old universe to the new universe starting with the big bang without destroying the universe's flatness. Study indicates this material must be supersymmetric. Both spin types have now been confirmed with the ttH and the tZ and t anti-t Z entities.

An E8-symmetry cyclic universe[1] has 248 different kinds of particles (verified by the author after correction of an error). However, this particle count does not include entities of both fermionic and bosonic nature of which we have two, one of spin 0 and the other of spin 1 bosonic type. For these we must invoke supersymmetry to include them as part of the building blocks of the universe. If we do this, we find that both entities have been observed, the most recent[2] ttH or tH and versions having anti-t's and also older findings[3,4] involving tZ or t anti-t Z .

These recently-observed supersymmetric entities do not have negative intrinsic bosonic-energy components as they would have if they were formed in the unbroken E8 symmetry that existed in the epoch before the big bang. Instead, because in our epoch the symmetry is broken, the energy is positive like the fermionic component. This is a major problem in our experimental methods at present. The negative components are the same as those of dark energy (spin 0) and dark matter (spin 1), so if we can verify the negative energy of these latter entities we can assume the same for the supersymmetric former entities.

The form of fermionic matter passed into the new universe (via spiral galaxies) using the spin 0 fermibosonic entities are the 8 fundamental ordinary particles: neutrinos, up quarks, down quarks, electrons and their antiparticles plus all 240 remaining types of particles.

The form of fermionic matter passed into the new universe (via direct-collapse black holes[5]) using the spin 1 fermibosonic entities are the same as just described: the only difference is the formation of giant black holes instead of spiral galaxies, but these are crucial in later breaking down the spin 0 fermibosonic supersymmetric entities to obtain the fermionic components for the spiral galaxies.

1. George R. Briggs, "E8 symmetry universe theory: a step-by-step history", viXra 1505.0039 (2015).

2. Cern Courier, "Latest ATLAS results on the Higgs boson", Apr 27, 2015

3. M. V. Garzelli, A. Kardos, C. G. Papadopoulos, and Z. Trocsanyi, "t anti-t W and t anti-t Z hadroprodction at NLO accuracy in QCD with parton shower and hadronization effects, JHEP 1211 (2012), arXiv: 1208.2665 (hep-ph).

4. CDF Collaboration, T. Aaltonen et al., "First observation of electroweak single top quark production" Phys. Rev. Lett. 103 (2009), arXiv: 0903.0885 (hep-ex).

5. Cern Courier, "VLT sees evidence for first-generation stars", Jul 22, 2015