# Spin 0 Boson E8 Supersymmetry at the LHC Has Been Found: Now the Spin 1 Boson ttZ Version remains to be found

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Abstract: Supersymmetry has been found at the LHC with the discovery of the ttH entity. This contains the massive Higgs boson particle of spin 0 together with fermionic matter. The massive weak boson of the spin 1 version is also expected, so we should see a ttZ supersymmetric entity. This form upon disintegration is almost certainly observed as direct-collapse black holes in the early universe.

My letter[1] outlining a cyclic universe of E8 symmetry makes use of 2 supersymmetric fermibosonic entities for bringing matter, both fermionic and bosonic, from the previous universe into the present universe. Unbroken E8 symmetry permits production of spin 0 and spin1 boson fermibosonic entities of supersymmetric type basically needed for the cyclic universe (having negative mc^2). The spin 1 type brings weak massive bosonic matter into the new universe. Note that the W particles are not included: When the E8 symmetry is unbroken, negative mc^2 W particles accompany each W, and the net mass energy is 0 so the combination can pass into the new universe without flatness problems, where the negative energy component becomes dark matter and the positive energy component is observable (e.g. the W is not lost). The W's are converted into radiation energy with the big bang E8 symmetry breaking and this passes directly into the new universe to form the microwave background radiation of very high isotropy.

The supersymmetric fermibosonic entities made in our epoch of broken E8 symmetry cannot be made with negative mc^2, instead, the mc^2 energy is positive (this is what is observed at the LHC): for negative mc^2 we need the unbroken E8 symmetry of the epoch before the big bang. However, negative mc^2 for the bosonic component made before the big bang may still be present in our epoch and may still be detectable.

The ttZ-type entity is a good candidate for forming direct-collapse giant black holes[2] in the early universe. Spin 1 bosonic and spin ½ fermionic matter is left behind in the new universe when the ttZ-type entity splits upon encountering the heat of the big bang, and the fermionic matter could be in the form of hot giant black holes. For the type ttH entity the big bang is not hot enough to split it because the H component is heavier than the Z and needs more energy to split it. The gravitational help of the giant black holes is needed and this can only come at a later date to disrupt the entity and lead to the formation of spiral galaxies from the fermionic constituents.

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

2. Marc Turler,”VLT sees evidence for-first generation stars”, CERN Courier, Jul 22, 2015.