

## E8 symmetry universe theory: a step-by-step history

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Abstract: A cycling-universe theory based on cycles of E8 and E8 x U(1) symmetry is proposed. Non-quantum fermibosonic matter entities play a critical role. Three new gauge bosons are also used, for a total of 8 (the 8-fold symmetry of life). Unobservable particles of negative intrinsic energy ( $-mc^2$ ) play roles of dark energy (spin 0) and dark matter (spin 1).

The theory begins with the end of the last E8 x U(1) old inhomogeneous universe (time was still functioning). There was a phase change of nature and the symmetry became E8, i.e. unbroken. Space-time separated but matter still came together gravitationally, eventually at higher velocity than  $c$  and the previous universe rapidly collapsed. The now hot matter became particles of either positive (fermionic) or negative (bosonic) intrinsic energy ( $-mc^2$ ) in the unbroken symmetry then prevailing. The particles came together and formed fermibosonic entities of zero net mass. Two new gauge bosons produced the forces that were responsible for this. The small, hot, isotropic universe rapidly became entirely all of massless fermibosonic matter. This was not gravitationally attractable and the universe could collapse no further. Next, the E8 symmetry was broken again by nature. We call this event the big bang. The fermibosonic entities now of the new universe began to split (see later) and the new universe started to grow. The growing new universe maintained its flatness because it was completely made up of either massless fermibosonic entities of spin 0 bosons (negative energy Higgs particles), together with  $\frac{1}{2}$  spin fermions or spin 1 bosons (negative energy Z particles), together with  $\frac{1}{2}$  spin fermions. The latter entities formed early huge black holes, which later acted upon the former entities gravitationally to split them, in what we observe as spiral galaxy formation. The spin 0 negative energy boson matter remaining we call dark energy. The spin 1 negative energy boson matter remaining we call dark matter. As the fermibosonic matter from the previous universe became more and more split in the new universe the universe growth slowed and eventually stopped after many billions of years. That is nearly where we are now. Finally, the unbroken E8 symmetry will be restored by nature again and the cycle will repeat.

The history of our universe is summarized in the above paragraph. However, to carry out the big bang as described requires three new forces and thus three new gauge bosons, making 8 instead of the now-known 5. The 5 are the photon, the 2 W particles, the one Z particle, and the graviton. The additional particles I propose be called the bangeton (for its role in the big bang symmetry breaking event-see later), the flateton 0 (for its role in spin 0 fermiboson generation), and the flateton 1 (for its role in spin 1 fermiboson generation). The 8 gauge bosons follow the 8-fold way, which is the way of nature and life and is to be expected.

This theory thus brings several new ideas into physics:

1. The idea of negative  $mc^2$  for particles.
2. Negative energy particles can only form if the symmetry is unbroken (and probably of type E8).
3. Negative energy particles already formed are not lost when the symmetry is broken, but the particles become unobservable.
4. Fermibosonic entities can form only if the symmetry is unbroken and the particles are subject to the force produced by one of the flateton gauge bosons.
5. Three new gauge bosons exist, for 8 in all. The number 8 indicates the involvement of the 8-fold symmetry of life (SU(3)).

In addition to matter arising at the centers of galaxies, nearly equal amounts of antimatter arise, to be annihilated away in the galaxy bar and bulge regions. Negative energy antimatter probably can also exist.

The big bang event relating to the bangeton gauge boson requires further clarification. This boson generates a force pulling the opposite-polarity W particles present in the collapsed, isotropic, pre-big bang universe together so that the particles annihilate when they are allowed to by the symmetry-breaking big bang event. This event of nature occurred everywhere in the minimum-sized, isotropic universe at the same time, producing the microwave background we now observe.