

The beginning of each universe: the Big-Bang

First a brief explanation of the concepts cosmos and universe. In Webster's Dictionary these concepts are explained misunderstood. Therefore, first a brief analysis followed by logical definitions will be given. As I look at these words, there is a difference between the meaning of both words. In my mind the word cosmos represents “Everything that always exists, i.e. always is present”, or everything that is possible on mathematical grounds. The second word universe is only a unique completely independent logical physical part, i.e. representation, of the complete cosmos. In this light, it appears easy to talk about multiple universes, or of a so-called “multi-verse”, present in the only possible cosmos. This multiverse has universes that can also move through each other without noticing one-another because they cannot interact with one-another. And even though all these different universes can only be analyzed with mathematically analyzable 4D-spacetime, and therefore all possess the same (complete non-reducible) $U(1) \times SU(2) \times SU(3)$ gauge-symmetry, different universes all possess different light-speeds and as a result of that they can NOT interact. In other words, different universes can move through each other without noticing one-another. And despite this fact, all universes must be built from spin1 photon and spin2 graviton bosons as only two massless force particles, the same leptons and hadrons and identical $SU(2)$ weak-nuclear forces. All characteristic constants always vary for all these possible different universes and the constant number of fermion families may also be different.

Our universe is just like any other possible universe emerged from a Big Bang. In mathematical logical analysis a Big Bang arises from a Black-hole singularity in another universe. A black-hole present in another universe will finally have collected so much mass/energy that the contractile forces are so great that all elementary particles are squeezed into an infinitely small point. This is the so-called singularity. As this energy is forced into the singularity drawn at great speeds, this momentum is conserved after passing through the singularity. Therefore, all the energy (elementary particles) will move away from the Big-Bang with very high speeds. At the Big-Bang, all occurring new physical constants, such as the maximum “light”-speed, the constants of Planck, the gravitational constant G_N , the size of the fundamental electrical “electron”-charge, are completely determined from the collected parameters of the Black-hole at the time of the mathematical singularity. Depending on the new physical constants a new number of fermion-families will come to life at the very beginning of the Big-Bang. Because the variables collected just before the singularity are undetermined, no universe will be able to interact with any other universe. So, different universes also take, mostly partly, the same only-possible 4D-spacetime without noticing one-another.

Only if two different universes have exactly the same speed-of-light they could, and also must necessary, interact with one-another. However, the statistical probability of the same speed of light of two different universes is of-course really 0.0 %.

The number of different elementary particles is, of course, only determined by the amount of different fermion families n :

$$\sum(\text{elementary particles}) = 5 + 7 \cdot n \quad (1)$$

One must always keep in mind, that all constants of different universes are always different. The reason is that all Big-Bangs are unique, because their sources are always different Black-holes. And, of-course, all occurring Black-holes are unique on statistical grounds.

Therefore I see the cosmos as an infinite lasting reality in which multiple universes all have their own live-spans determined by their creating terminating Black-holes at the moment of singularity.

Energy is a conserved quantity for every closed, i.e. without external force-fields, interacting analyzed system/model. This mathematical logic property also holds for our cosmos, i.e. the fundamental basis for everything that is possible. As a result the total energy of our cosmos is conserved. And this means that our stable cosmos has no starting point, nor ending point, but just is ALWAYS present! However, our “cosmos” is, of-course, not our three fermion-families universe with all elementary particles gradually moving apart accelerated. In principle this implies that our universe won't collapse, but that the interaction between elementary particles will gradually become less. Luckily, this change is so gradual that we living people won't notice this extremely slow change of our universe.

The question now is, if every universe is created by a singularity of a black-hole in another universe, how did the first universe come into existence? The total energy of the cosmos is a constant. So, without any present unique universe, what is the cosmos made of? From a complete non-reducible symmetries analysis of the only possible 4D-spacetime it is at once evident that also the cosmos possesses the same amount given by (1) and kind of elementary particles as any universe. In other words, the mathematical representation of the cosmos and any possible universe is exactly the same. The only difference between the cosmos and a universe, before a universe is created, is that at this stage the cosmos possesses elementary particles with masses and charges which do not experience expanding speeds away from one-another. So at this stage the average speed of all particles is zero and as a result of this fact the massless spin2 gravitational-field will finally draw energy/mass together into a black-hole. After some time this black-hole reaches its singularity state and this part of all elementary particles in the “pre-universe” cosmos explodes with a Big Bang into a new universe. The remaining elementary particles will later on create other independent universes. And at that time the cosmos is in its present state.

In any case, our cosmos, the source of all possible universes, is a closed system with conserved total energy. But, realize that all possible different universes are of-course only part of our total cosmos.

Each from the singularity of a Black-hole created Big-Bang results into a new universe, which can't interact with anything outside this universe. So, also for each universe there is conservation of energy. However, the part of the universe that is lost by sucking Black-holes results in gradual energy loss. Besides this very small loss conservation of energy is also approximately valid for every possible universe. This is the main difference between the cosmos and any arbitrary existing universe. The cosmos is nothing else than just the specific, i.e. first-universe, from which all other universes come to life.

Accurate analysis of the data of the [Wilkinson Microwave Anisotropy Probe](#) in march 2003 showed that the constituents of our universe has the following approximate densities: 71.4% is dark energy. Only about 4.6% is taken by [baryons](#) and [leptons](#) “matter”, i.e. fermions, and the remaining 24% is explained by [dark matter](#), that is, non EM-interacting elementary particles. [Dark energy](#) is assumed to be responsible for accelerated expansion of our universe, but cosmologists have no explanation for this strange dark energy and their consequences yet.

On logical mathematical grounds the gravitational field must carry energy proportional to a frequency, just like the EM-field presented by mathematical analyzed spin1 photons. Photons, must just like all other possible elementary particles be described mathematically as harmonic oscillating waves in the 2D-plane orthogonal to the direction of motion. The only difference is that the energy of the spin2 graviton is not visible using the spin1 (linear) EM-field, i.e. must be the source of “invisible” dark energy.

This invisible energy allows planets and suns to travel their stable orbits and paths. This is why this energy must be very dominant, more dominant than the energy of the spin1 EM-field. On logical grounds the spin2 gravitational field is the only source of [Dark energy](#). This only attractive energy cannot explain accelerated expansion of our universe. [Dark matter](#) can on logical grounds only exist out of uncharged elementary neutrino's, because all composite baryons are build from electrical charged quarks, so within the whole of several quarks the electric charge will never be zero everywhere. This fact implies that neutrino's must explain about 24% of all mass in our universe.

Realize that neutrino's were produced during the first rapid expansion of the universe just after the Big-Bang and send into free space with almost the light-speed in *extreme* huge amounts. As a result of their high speeds and uncharged character they interact only very rarely with other particles with a result that now still about 24% of all matter still consists out of these very light, so very “speedy” neutrino's. In all processes with interacting neutrino's summed together, the creation-rate is exactly equal to the annihilation-rate, so the percentage of [dark matter](#) must be a constant for any universe. No human undertaken experiment will ever be able to disprove this SIMPLE MATHEMATICAL fact!

In this mathematical analysis the following mathematical problem arose: The simple fact that every possible universe must be created by a Black-Hole in another “universe” with an ALWAYS different light-speed! But when realizing that also our complete everything including cosmos can only be described mathematically as any other universe or a set of more universes at a later stage (after at least a Big-Bang) it is shown that the mathematical analysis is completely self-consistent!

And this closes the circle about the analysis of any possible “universe” completely and also shows that our 100% CERTAIN analyzed mathematical reality ALSO explains our ONLY POSSIBLE Theory Of Everything completely!

Best greeting from:

Ir. M.T. De Hoop
Bouwensputseweg 6
4471 RC Wolphaertsdijk, Zeeland
The Netherlands
E-mail: tomdehoop@solcon.nl
Homepage: <http://quantumuniverse.eu>