

[http://www.hypothesis-of-universe.com/docs/eng/eng\\_078.pdf](http://www.hypothesis-of-universe.com/docs/eng/eng_078.pdf)

## String theory and dark matter | Lee Smolin, Sabine Hossenfelder and Tara Shears

<https://www.youtube.com/watch?v=-2ngmVwXteE>

( my comment, something like a public letter to Sabina )

I saw your video-debate (Sabine, Lee, Tara) about the creation of matter and anti-matter. You say and believe according to the "findings" of physicists, that after the big-bang, almost the same amount (pieces) of particles and anti-particles were created, i.e.  $1,000,000,000 - 999,999,999 = 1$ , which annihilated a...and the "one", what remained, that then presents all the matter of this universe (there was no anti-matter left). Etc., etc. And the world of matter, that it then developed through genetic changes, fusion, and other developmental transformations like (?), we already know that... in this world, not in the anti-world.

### I would change and improve this scenario:

Before the big-bang, there was only a state of space-time without matter, i.e. space-time 3+3D dimensional absolutely Euclidean flat, infinite "inertial", without passage of time, without expansion, without matter. The big-bang occurred as a "jump change of state", i.e. from a totally flat space-time infinite to a totally curved space-time finite = singular. Both extremes took turns, both marginal possibilities. After the big-bang, there is a singularity (locality) of "foamy space-time" on the scene, a locality of "boiling" dimensions of space-time. It is a chaotic state of "twisted, twisted" 3+3 dimensions of space-time (Why I state that even time has three dimensions, I have an interpretation and explanation about that elsewhere.). That is, this location = singularity "our universe" is a state of only 3+3 space-time dimensions, in which there is no matter at the first moment of existence. The matter!! in this "foam" of n+n dimensions, extremely densely curved dimensions, they will be "born" - realized. In the chaotic "boiling foam" of dimensions, jump changes will occur again, i.e. mini-local stop-states of frozen frozen dimensions = packages, balls, geons, which will no longer "boil" by themselves, but will be a "frozen" state of some topology, some geometrical formation (Similarly to what stringers describe as "quantum loops from strings". Here they are "topological loops from the dimensions of the Time quantity and the quantity "Length" ) For string theorists, strings are twisted "from nothing" into loops, for me in HDV they are "loops = packages , geons, balls" still "floating" in that initial chaotic foam of dimensions, they are constructed=made directly from the dimensions of space-time itself, not demonic strings created by God. (\*). And these balls, frozen "stop-states", in a simple topological design, are already the matter elements (quarks, gluons, leptons, bosons, etc.). These "clones" do not change forever the shape or the number of dimensions from which they were modeled into the topological formation... , thus their characteristics remain unchanged = properties such as mass, spin, charge, and quantum numbers. The elements are still "floating" ( are embedded ) in the starting "foam" = plasma. Foam of chaotic dimensions is mathematically linear. The foam will begin to expand. Actually, not "Ghutoovsky, Hubbleovsky" inflationary expansion, but it starts to unpack. (!) [http://www.hypothesis-of-universe.com/docs/c/c\\_223.jpg](http://www.hypothesis-of-universe.com/docs/c/c_223.jpg) . From

the beginning, after the big bang, the universe does not expand inflationarily, but expands. Space-time unfolds at every point of that space-time, not just "from one point-singularity". Not. Even today, it expands space-time from every point of the vacuum, on Planckian scales, like this [http://www.hypothesis-of-universe.com/docs/c/c\\_223.jpg](http://www.hypothesis-of-universe.com/docs/c/c_223.jpg) and this then creates the structure of the homogeneous universe, and the structure of the relict visual "undulation-stratification". So the universe not only expands into global expanses, but also collapses "at the same time" into complex material structures - after the big bang, when elementary particles merge into atoms, etc. Even today, new matter, at least unknown matter, is born in a vacuum on Planck scales unexplored dark energy. Even space and time unfold at a "different pace" since Třesk. Why not? Time did not run before the big bang.  $c = 1$  ( $c^3 = c^3$ ). [http://www.hypothesis-of-universe.com/docs/c/c\\_043.jpg](http://www.hypothesis-of-universe.com/docs/c/c_043.jpg) After the big bang, time "starts" and begins to flow, precisely because there is an asymmetric unfolding of foam dimensions, spatial dimensions and time dimensions.  $v < c$ ; ( $v_1 \cdot v_2 \cdot v_3 < c^3$ ).

In plasma = in the chaotically boiling state of 3+3 dimensions of space-time, the flow of time, the passage of time is "omnidirectional", so there is no arrow of time (I agree with Prof. Kulhánek) and therefore there is no "anti-world separated from the world by a wall" yet. That soon changes when the 3+3 dimensional foam starts to unfold. Outside of matter (which contains time) in the world (not the antiworld), time **unfolds**, unpacked, "in one arrow forward". (oppositely in the antiworld.) **Inside the geon**=package=cube = in the material element, time is "packaged" not only "forward", but also "backward", **i.e. inside**, time flows "backward" for a tiny interval and thus ""stiffens"", in topological curvature, forever. The balls are constructed from the time dimension in both directions. Then in the "surrounding space-time" ( $v_1 \cdot v_2 \cdot v_3 < c^3$ ), symbology for dimensions, such an unfolding of dimensions occurs that the Universe is **divided** into two quadrants: the **"world" and the "anti-world"**. In the world, time has an arrow in one direction, and in the anti-world, the arrow of the flow of time is in the opposite direction. This does not mean that after the big bang the universe soon split into two universes, no !! Still one universe. The world and the anti-world were separated (immediately after the big-bang) by an "imaginary wall" **and that wall is still there in every age of the universe, in every era.** We still have the antiworld around us - time runs in the opposite direction and antiparticles are located in it, which sometimes (for reasons known to physicists) "jump" from the antiworld into the world and for a short time, with a short lifetime. We have a microworld around us, a vacuum, in which the "wall - gate" is striking on the Planck scales, and particles and antiparticles live there, jumping from one quadrant to another and vice versa. [http://www.hypothesis-of-universe.com/docs/c/c\\_435.jpg](http://www.hypothesis-of-universe.com/docs/c/c_435.jpg) (also virtual pairs of particles, they are common, but other new particles are no longer born). In the global universe 13.8 billion years since the Big Bang, space-time has already expanded so much that we encounter only one arrow of time, "our arrow to the future". The foam of the vacuum is still between us for the entire existence of the universe, it is symmetric, therefore quantum mechanics is also symmetric. Gravity is non-linear, it is a "parabolic curvature" that results from the unwrapping of that "foam". It is not necessary to connect QM with OTR **by mathematical force, they can live side by side, without merging into a "unified" theory....** The flat universe (3+3D) went by a linear jump to the "boiling" universe = plasma is linear again, but this plasma is transformed in development

a) expanded nonlinear states – gravity,

**b)** in linear **nuclear interactions** of wavepackets=balls, which are not "linear" themselves... until one day "at the end of time" it also unfolds into a flat 3+3D big-crash. (see R. Penrose - multiverse) and space-time will be ready for a new big-bang 2.

**Repetition:** In the foam (chaos of the linear) boiling state of dimensions (plasma), "balls", "wave packages", geons, packages will appear which will be matter, material elements, **particles and anti-particles** for the subsequent reality. After the big bang, the original **two-dimensional universe** "x", "t" becomes a "three-dimensional" universe "x", "t", "m" if we assign matter to physical quantities. The rest of the foam remains a "boiling environment" of dimensions in which these frozen clones-packages-balls "swim", which will present themselves as elementary particles in physical fields during interactions [http://www.hypothesis-of-universe.com/docs/c/c\\_387.jpg](http://www.hypothesis-of-universe.com/docs/c/c_387.jpg) ; [http://www.hypothesis-of-universe.com/docs/c/c\\_388.gif](http://www.hypothesis-of-universe.com/docs/c/c_388.gif) ( abstract ideas of some wave packets : [http://www.hypothesis-of-universe.com/docs/c/c\\_025.jpg](http://www.hypothesis-of-universe.com/docs/c/c_025.jpg) ) ; those basic elements certainly have much simpler geometric ball shapes. The "surrounding" foam will begin to expand or unwrap. Clones-packages are not. The geometry-topology of the pack-clone dimensions is unchangeable, forever, unless it is "broken" into jets or other shards by collisions in accelerators. (in genesis, conglomerates of elements such as atoms, molecules, chemical compounds, etc., can of course be split into simpler fragments, by collisions and chemically) And these packages made from the dimensions of two super-basic quantities (3+3D) will present themselves as elementary particles and anti-particles.

*Of course, be careful!!!* After the big-bang, the world (that is, space-time in our quadrant) will begin to develop in a "dual behavior" in terms of the flow=passing of time, **a)** the **pace** of time and **b)** the **direction** of time. In the World, time flows in one direction, (it unfolds "from the foam" in one direction), and in the anti-world, time will unfold, flow, in the opposite direction. Thus: The initial foam of 3+3 dimensions of space-time will be "split" into two sectors, into two quadrants = **a)** world and **b)** anti-world, where in the world time will have an arrow of time "in one direction" (we call it the future) and in antiworld "in the opposite direction". It is similar in those packages = balls inside **matter and anti-matter**. In an elementary particle, time = time dimension "**to the right**" is "wrapped"..., and in an antiparticle, time = time dimension "**to the left**" is "wrapped" They are symmetric in spin rotation.

And yet another clarification of the interpretation (**I am still at the level of hypotheses, at the level of my visions, without claiming that everything is as I think and as I describe here**): From the very beginning, the Universe has existed in two quadrants (the quadrant of the world and the quadrant of the anti-world ), which are separated from each other by a "gate - wall", which is not "smooth", it is not a theoretically-geometrically precise "section". It is the interface-area, the interface where the two quadrants "blend" into each other. One can also talk about the fact that these two worlds, these two quadrants are "mirror" symmetrical, (perhaps not one hundred percent, who knows) ... above all, symmetrical in the sense of the flow of time. And here it happens (during interactions) that the "anti-particle ball" jumps "from its quadrant" to "our" quadrant, and vice versa. That is why it "seems" to us, i.e. physicists, **that the asymmetry of matter and antimatter arose after the creation of the universe**. Both species live "in their quadrants." In our quadrant, time unfolds "to the right" in the antiworld, time unfolds in the opposite direction, to the left. Even this phenomenon is identical to the production of elementary particles and antiparticles. In the package-particle, the dimension of time is curved, tangled, "**right-handed**", and in the anti-particle, the

dimension of time is tangled in the opposite way, i.e. "***left-handed***". Now I will develop this thought even further: The anti-world is-it exists all around us, the anti-world is best demonstrated on Planckian scales, even in a vacuum, all around us, people and things, there is a "boiling vacuum", a boiling means not at a boiling temperature, but that 3+3 dimensional space-time is "foaming" just like it was after the big-bang. In the foaming vacuum (foaming space-time dimension), pairs of particles and antiparticles are created as they "jump" out of their quadrants into a neighboring quadrant and annihilate there. The vacuum that "boils" actually represents the reality of "dark energy". Yes, that's the so-so explanation of that energy: **everything that "warps" in the universe has the form of matter** (or antimatter). **The bending of dimensions is a matter-creating phenomenon, the bending of dimensions is a way of genesis of matter...** Matter is not born "from Nothing", (as in the case of the string stringers), but is born by the bending of space-time dimensions into "ball-geons". (in the ball, the time dimension is also "tangled", balled up, once to the left, at the anti-right) (and then they merge into atoms, molecules, compounds, etc. that's a different story...chemistry and biology). **The essence of the creation of matter + anti-matter is the bending of dimensions.**

I have further development of thoughts on my website

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