A Revolution in Cosmology Is Coming

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Abstract: As the cosmic Dark Ages shrink to zero, the mainstream Big Bang will end up in the dustbin of history.

The diagram of evolution of the observable part of the Universe suggests that the cosmic Dark Ages lasted around 200 to 500 million years from 375,000 years after the Big Bang. At some point, which is still researched, in the very inaccurately defined Dark Ages, a "smooth field" composed of the earliest generations of stars should appear, and only then should protogalaxies and quasars appear.

We know that the most distant galaxy GN-z11 is placed in light travel distance equal to 13.39 Gly i.e. about 400 million years from the Big Bang, while the most distant quasar ULAS J1342+0928 in distance 13.1 Gly. But that doesn't mean we won't discover galaxies and quasars in light travel distance less than 100 million years from the Big Bang in the near future. Note that as time goes on, the cosmic Dark Ages are shrinking, causing great frustration among cosmologists who set the standards of today's cosmology. And it will get even worse – the Universe simply did not have time to create protogalaxies and quasars containing massive central black holes.

The cosmology described within the Scale-Symmetric Theory (SST) shows that the expansion of the Universe started 21.6 Giga-years ago and that we cannot see the initial period 7.75 Giga-years of evolution of galaxies and quasars [1]. Moreover, SST shows that protogalaxies were created before the expansion of the Universe which was separated in time from the SST inflation.

We see that the SST cosmology suggests that we will never see a "smooth" star field. Moreover, we should see galaxies and quasars in the entire region defined today as the cosmic Dark Ages.

A large-scale revolution in cosmology is fast approaching. The shrinking of the cosmic Dark Ages will make the SST cosmology more credible. It will be easier to accept dark matter as loops made of neutrino-antineutrino pairs with spins tangent to the loop, and particles made of such loops. It will be easier to accept dark energy as open such loops or such loops divided into more parts, so the additional single neutrino-antineutrino pairs in the spacetime also behave as dark energy i.e. dark energy increases dynamic pressure in spacetime.

The main conclusions of the SST cosmology are as follows.

1.

The time distances to the galaxies calculated from redshift and using the General Theory of Relativity (GR) are incorrect. In fact, the Universe for redshift less than ~1 is more stretched

and above ~1 is significantly flattened. Over time, such flattening of the distant Universe *relatively* increases.

2.
It is true that farthest galaxies we will able to observe are at a time distance of ~13.8 Giga-years but their spatial distance is much shorter.

3.
The massive outermost galaxies we observe have evolved at least 7.75 Giga-years (we cannot observe this period) and have evolved from protogalaxies built of neutron black holes. Such protogalaxies arose before the expansion of the Universe. Dwarf galaxies are younger because they are the result of the evolution of massive galaxies.

4.
When we count the time from the beginning of the expansion of the Universe, our galaxy and the nearest massive galaxies are about 21-22 Giga-years old. Coincidently, at the beginning of the expansion of the Universe, these galaxies ended up close to the centre of the Universe.

5.
The image of the most distant Universe from observation should look like this. There should be no “smooth field” of primary stars and no intermediate stages between such field and galaxy clusters. The large-scale structure of the Universe arose before it began to expand. Simply the darkness of spacetime should suddenly pass into massive galaxies (some should be surrounded by dwarf galaxies), quasars, and galaxy clusters all 7.75 Giga-years old.

6.
The fact that the speed of photons in “vacuum” is equal to ~300,000 km/s only in relation to the objects to which they are connected by superluminal entanglement, makes us observe the CMB [1].

7.
Cosmic Dark Ages should end up in a “smooth field” composed of primordial stars, so the absence of such a “smooth field” means that the Big Bang theory is partially wrong and the Dark Ages are scientific fiction unless we call “Dark Ages” the period mentioned here lasting 7.75 Giga-years when the evolution of protogalaxies and their clusters cannot be observed. But a more appropriate name for the period of the invisible evolution of galaxies is “cosmic Invisible Initial Ages” (~8 Gyr), and that is what we will be using.

8.
The protuberances from the surface of the early Universe caused some closely spaced protogalaxies to have significantly different redshifts, so the measurements of the time distances of galaxies from the Earth from redshift are not always correct.

References

[1] Sylwester Kornowski (14 February 2019). “Foundations of the Scale-Symmetric Physics (Main Article No 2: Cosmology)”
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