Review of: "Bijective analysis of space expansion and comeback of stationary cosmology"

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Cosmology is facing a huge crisis since it cannot explain the problem of the missing dark matter and dark energy that are supposed to constitute 96% of the universe (68% dark energy and 28% dark matter). Given that there is additional 3.5% interstellar dust that does not come into equations, modern cosmology explains only 0.5% of the observable universe. There are additional difficulties such as the Hubble tension, which are the two different values for the expansion rate of the universe based on whether you are considering early universe data or late universe data. Clearly, this state of affairs calls for a reexamination of the assumptions at the basis of the subject. What if the way we are looking at the cosmos is wrong?

This is what the paper titled “Bijective analysis of space expansion and comeback of stationary cosmology” by Amrit Šorli attempts to do by questioning the foundations of the subject. The idea of “bijective analysis” is to insist on a match between primary perception and the corresponding concept in the theory in a manner that is falsifiable. Šorli argues that the expansion of the universal space is an unproven proposition that doesn't pass the bijective test and neither does the concept of the Big Bang at the “beginning” of the universe. He argues for a stationary cosmology and suggests some new tests that can take the idea forward.

The paper raises several fundamental questions on the nature of reality and the pitfalls that may lie in the viewing of it through the prism of one model or the other, and I do hope that it will motivate others to do a further examination of the stationary model. A new work in the same spirit is questioning the important implicit assumption in physics, namely that space is three-dimensional. Optimality from the perspective of information requires that it be e-dimensional, and doing so solves many problems including that of Hubble tension and the need for dark matter and dark energy. Doing so also presents a more aesthetically appealing answer to the ultimate fate of the universe where, in the standard view, the accelerating expansion can only lead ultimately to cold death (BIg Freeze); in the e-dimensional space model, the accelerating expansion will slow down and finally reverse.

Given the state of cosmology theory and the persisting problem of the missing dark matter and dark energy, everything should be on the table and the paper by Šorli is a good start to a vigorous debate on the nature of our current knowledge.