

# The next stage of the universe, a hypothesis causing the illusion of the expansion of the universe

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Saturday 30<sup>th</sup> July, 2022

## I. ABSTRACT

Given that the universe has multiple stages (age of leptons, age of nucleons, age of nucleosynthesis, age of ions, age of atoms, age of stars and galaxies) we ask and answer with a hypothesis, to the question: "What is the next stage of the universe?". We also explained why the expansion of the universe might just be an illusion, a consequence of gravity.

## II. KEYWORDS

universe, stage, era, galaxy, atom, cloud, accumulation, gravity, orbit, expansion

## III. INTRODUCTION

This paper, which started as a result of one question ("Do orbiting galaxies exist?"), is inspired by the author's understanding that the formation of the first stars, solar systems and galaxies, emerged from an early stage of the universe, when the universe was basically a cloud of atoms (relatively evenly distributed atoms), whereas now, the universe, is a cloud of galaxies, thus this universe might be an endless fractal in this sense, a fractal which still has steps to unfold.

## IV. ONTOLOGY

### A. *The hypothesis*

Taking into account that the universe was once, in a sense, a cloud of atoms, which caused the formation of stars (with the help of gravity), solar systems, and galaxies, and that the universe is, in a sense, a cloud of galaxies, we hypothesize that the next stage of the universe will be about galaxies orbiting other larger galaxies or huge black holes (like planets orbit stars, or like stars orbit black black holes at the center of galaxies).

### B. *Plausibility and Viability*

The plausibility of the hypothesis is proven by the already existing solar systems and galaxies (which were formed from some sort of a cloud of atoms), and the fact that galaxies do collide (it is already known that our Milky Way galaxy is destined to collide and merge with Andromeda galaxy).

The viability is proven by the existence of gravity and black holes (who's lifespan can be  $10^{100}$  years, while the general theory of relativity says that there is no limit to the size of a black hole).

### C. *Consequences*

One obvious consequence of this hypothesis, is the illusion of the expansion of the universe. If we think of stars, which form from an accumulation of gas and dust (cloud of atoms), they are born in this cloud, and as they are born, the distribution of atoms becomes more and more uneven, as atoms accumulate somewhere inside the cloud to create a star, at the point of accumulation. As this accumulation unfolds, atoms not yet accumulated are pulled more by gravity, towards the point of accumulation, the closer they are, which means that atoms closer to the point of accumulation move faster than those which are further (this is somewhat analogous to what we call the expansion of the universe). Maybe the galaxies which we can observe, are just a small part of a hyper cloud (cloud of galaxies), and we are probably surrounded by points of accumulation (accumulation of galaxies), creating the illusion of what we call "the expansion of the universe."

## V. RESULTS

We asked and answered, with a hypothesis, to the question: "What is the next stage of the universe?", and we also explained why the expansion of the universe might just be an illusion.