

## On the Absence of Dark Matter in the Galaxy NGC 1277\*

Pavle I. Premović

Laboratory for Geochemistry, Cosmochemistry and Astrochemistry,  
University of Niš, pavleipremovic@yahoo.com, Niš, Serbia

In science, there are two opposing theories on the origin, development and evolution of the Universe. The naturalistic (atheistic) Big Bang theory states that the Universe began with a “singularity” when all mass, energy, and spacetime was contained in an extremely small particle.<sup>1</sup>

After that event, the universe evolved and expanded according to cosmology, reaching the current state.

Another theistic theory is based on the Bible’s belief that God created the Universe and its galaxies, their stars and planets and other cosmic objects. It also states that the Spirit of God as a divine force is directly involved in the development and evolution of the Universe from its beginning until the present time. During this period His Spirit maintained order in the Universe out of disorder.

The current cosmology estimates that only about 5 % of the galaxy is made of ordinary, or baryonic matter. The rest about 95 % is composed of dark matter. This matter cannot be directly observed since it is composed of non-baryonic matter which does not interact with both baryonic matter and light (and other forms of electromagnetic radiation). Dark matter forms a halo around the galaxy but ordinary matter is mainly situated in its central part where the most of stars dwell.

The evidence for dark matter comes mainly from two sources. The first and most often evidence comes from the rotation curve of the galaxy. Indeed, the current cosmology states that all galaxies behave according to Kepler’s laws. According to his third Law, the rotation of the galaxy, meaning stars in the inner part of the galaxy would orbit much faster than the outer ones. However, observations show that the speed of the outer stars is much higher than the speed of the inner stars. The reason appears to be the presence of dark matter associated with galaxies. Its gravitational effect makes the faster-than-expected orbital speeds of outer stars. The second one arises from the relatively rare strong gravitational lensing of a background galaxy by the massive cluster galaxy.

The current cosmology states that during the history of our Universe, dark matter has guided the galaxy’s formation and evolution. It appears that another role of this matter is that these cosmic processes prevent the galaxy’s disintegration due to its rotation and thus the disintegration of its star systems with their planets. Indeed, the gravitational attraction of this matter keeps stars, dust, and gas together in a galaxy. Moreover, without dark matter, the galaxies in galaxy clusters and in the Universe would fly apart. In other words, dark matter maintains the existence of the galaxy and thus the Universe. Simply speaking no dark matter, no Universe.

---

\*I began to write this paper at the beginning of February 2024. On March 15 this year, Gupta [1] published his work claiming that the Universe contains no dark matter.

<sup>1</sup> Anyway, I called it the primeval God’s particle.

It appears that new findings by the research team led by S. Comerón [1] indicate dark matter is absent from the very massive lenticular galaxy NGC 1277.<sup>2</sup> They emphasized that cosmological simulations based on the standard model predict that galaxies with the mass of NGC 1277 should have a dark matter mass fraction of at least 10% and perhaps of up to 70%.

To explain this discrepancy between the observations and the expectation they entertained two possibilities. The first one is that dark matter was stripped by interactions between NGC 1277 and the gravitational field of the cluster of galaxies to which it belongs. The second possibility is that dark matter was expelled from the galaxy when it formed through the merger of small proto-galactic bodies. In their opinion, none of these possibilities is fully acceptable. Comerón and colleagues raised the following intriguing question: how a massive galaxy such as NGC 1277 can form without dark matter? Now other questions arise from this. Is it a more common phenomenon among massive galaxies? If so, are there other massive galaxies in the Universe without dark matter? Is NGC 1277 an exception?

According to Wikipedia „NGC 1277“: „its stars being formed during a 100 million year interval about 12 billion years ago“. Of course, we do not know if it still exists, but considering its mass of 17 billion suns, it is reasonable to assume that it has existed for a few billion years. Now another intriguing question arises: how does this galaxy survive without dark matter for billions of years? The origin of NGC 1277 without dark matter and its existence for at least billions of years are until now a cosmological enigma.

Within the standard cosmology, there are three possible reasonable explanations for the survival issue of NGC 1277. The first is that Kepler's laws are not valid for galaxies.<sup>3</sup> The second is that the astronomical estimate of the mass of the ordinary matter of NGC 1277 is incorrect. The third possibility is: that NGC 1277 can be considered a closed system and for survival, it requires some extra unknown energy or force to offset the gravitational effect of dark matter. The source of any these of two is unknown and could be situated outside or inside a galaxy. We leave further considerations of these three possibilities to future research.

Within biblical teaching, one can hypothesize that the God Spirit maintains the survival of NGC 1277. However, if we accept it as a solution, then we are faced with the possibility of appealing to His spirit for the solution of numerous unsolved scientific mysteries. That would be the end of science in general as we know it and with which scientists have been engaged for centuries. But let's not forget that maybe those mysteries are also part of His magnificent creation.

It is written in the *Letter to Diognetus*: "*God loved men. For their sake, He made the cosmos and subjected everything on earth to them. To them alone He gave understanding and speech, them alone He allowed to look up to heaven, them alone He formed in His image,...*"

## References

[1] R. J. Gupta, *Testing CCC+TL cosmology with observed baryon acoustic oscillation features*. ApJ 55, 964-971 (2024).

[2] S. Comerón, I. Trujillo, M. Cappellari, F. Buitrago, L. E. Garduño, J. Zaragoza-Cardiel, I. A. Zinchenko, M. A. Lara-López, A. Ferré-Mateu, S. Dib, *The massive relic galaxy NGC 1277 is dark matter deficient - From dynamical models of integral-field stellar kinematics out to five effective radii*. A&A, 20, 1-30 (2023).

---

<sup>2</sup> NGC 1277 has mass is several times the mass of the Milky Way and it is an extreme "relic galaxy" or did not interact with any other galaxy.

<sup>3</sup> Of course, these laws are valid for the galaxy stars and their planets.