

Evidence from Observations Points to the Existence of a Parallel Universe

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ABSTRACT: Astrophysical observations of various kinds showed the existence of a preferred direction in our universe. Observations in a wide range of frequencies demonstrated the alignment of various preferred directions in different data sets. Moreover, the observed Cosmic Microwave Background (CMB) dipole, the CMB quadrupole, CMB octopole, radio and optical polarizations from distant sources also indicate the same preferred direction. While this hints at a gravitational pull from the “outside”, the observational data from the Planck satellite showed that the bulk flow velocity was relatively small: much smaller than it was initially thought. In the present paper we propose a configuration where two three-dimensional universes (one of which is ours) are embedded in a four-dimensional space and rotate about their barycenter in such a way that the centrifugal force nearly (but not exactly) compensate their mutual gravitational pull. This would explain not only the existence of a preferred direction with each of the three-dimensional universes (the direction to the other universe), but also the fact that the bulk flow velocity, observed in our universe, is relatively small. We point out that this configuration could explain also the perplexing features of the Unidentified Flying Objects (UFOs) recorded by various detection systems – the features presented in the latest official report by the US Office of the Director of National Intelligence. Thus, the proposed configuration of the two rotating parallel three-dimensional universes seems to explain both the variety of the astrophysical observation and (perhaps) also the observed features of the UFOs.

Keywords: parallel universes; multiverse; preferred direction in the universe; bulk flow; four spatial dimensions

1. INTRODUCTION

Astrophysicists discussed arguments pro and contra concerning the existence of a parallel universe or universes (in the latter case called multiverse) – see, e.g., works [1-6] and references therein. The main argument against this hypothesis was the presumed absence of the observational evidence. The proponents of this hypothesis suggested (at different times) that the following two kinds of observations might constitute such evidence.

One theory was based on an early observations of “bulk flow” (i.e., a stream of galaxy clusters moving in the same direction), where the bulk flow velocity was found to be > 4000 km/s [7]. These observations could be interpreted as an evidence of the existence of a parallel universe. However, later, more precise observations (from the Planck satellite) revealed that the average clusters velocity are “compatible with zero”, being at the level of 120-160 km/s [8]. The authors of paper [8] wrote that this “constitutes an unprecedented and valuable confirmation of a prediction of the standard cosmological scenario”, so that this proposed evidence of the existence of a parallel universe should be discarded.

Another theory was that the observed cold spot in the Cosmic Microwave Background (CMB) radiation (nested in the constellation Eridanus) is the remnant of a collision between our universe and another “bubble” universe during an early inflationary phase – see, e.g., review [9] and references therein. Another version [10] was that the cold spot could be the imprint of another universe beyond our own, caused by quantum entanglement between universes before they were separated by cosmic inflation. However, a more thorough analysis of data from the WMAP (Wilkinson Microwave Anisotropy Probe) and from the Planck satellite, which has a resolution three times higher than

WMAP, did not reveal any statistically significant evidence of such a bubble universe collision [11-13].

In the present paper we show that the existing astrophysical and other observations actually can constitute a proof the existence of a parallel universe.

2. POSSIBLE OBSERVATIONAL EVIDENCE

Lots of totally different kinds of astrophysical observations demonstrated that in our universe there exists a preferred direction (called “axis of evil” in paper [14]) – see, e.g., the review [15] and references therein. In particular, the author of the review [15] wrote:

“A very curious feature of SI [Statistical Isotropy] violations is the alignment of various preferred directions in different data sets. Several observations at wide range of frequencies suggest a preferred direction pointing roughly towards the Virgo supercluster, which is close to the direction of the observed CMB dipole. ... Furthermore, the observed CMB quadrupole, CMB octopole, radio and optical polarizations from distant sources also indicate a preferred direction pointing roughly towards Virgo. ... Statistical isotropy would imply that these are independent of one another as well of other multipoles, such as the dipole. However the preferred axis of both these multipoles points approximately in the direction of the CMB dipole. ... This is rather surprising!”

Thus, the existence of the preferred direction (or axis) in our universe is undisputable. This hints at a gravitational pull from the “outside”. However, the observational data from the Plank satellite showed (according to paper [8]) that the bulk flow velocity was no more than 160 km/s, i.e., much smaller than the previous observational result of > 4000 km/s, so that the actual gravitational pull from the outside was much smaller than it was initially thought.

Here is a possible way to reconcile the undisputable existence of the preferred direction in our universe with the relative smallness of the gravitational pull from the outside. Let us consider two three-dimensional universes (one of which is ours) embedded in a four-dimensional space. (Here and below we mean only spatial dimensions.) The two universes rotate about their barycenter in such a way that the centrifugal force nearly (though not exactly) compensates their mutual gravitational pull. In this configuration, within each of the three-dimensional universes there would be a preferred direction: the direction to the other universe. Also, in this configuration, the bulk flow velocity (in each of the universes) would be relatively small because the centrifugal force nearly compensates the gravitational force.

This scenario seems to explain all corresponding astrophysical observations. So, it seems to be self-sufficient. Nevertheless, it should be mentioned that there could be also a non-astrophysical evidence for this scenario, as presented below.

In paper [16] the author focused at the following three perplexing features of unidentified flying objects (UFOs) from the latest official report by the US Office of the Director of National Intelligence, where out of 144 relatively recent observations of UFOs by the US military, recorded by various detection systems, 143 remained unexplained. First, some UFOs demonstrated accelerations (measured by detection systems) of about 700 g. Humans, even the astronauts, can stand the acceleration of no more than about 10 g. Second, UFOs can appear suddenly, almost instantaneously and disappear suddenly, almost instantaneously, what is impossible for man-made crafts. Third, these observed UFOs were capable to travel in air and water, back and forth, without any significant change of the dynamics, what is impossible for man-made crafts.

For a more visual presentation of his main idea, the author of paper [16] first discussed the following. If an experimentalist would shine a laser beam on a distant surface (e.g., on the surface of the Moon) and rotate the laser with some angular velocity, the bright spot can travel across the distant surface with a very large linear velocity – even exceeding the speed of light. (No physical law would be violated because it is the information that cannot be transmitted faster than the speed of light, while the bright spot cannot transmit any information from one place on the surface to another.)

If the experimentalist would sharply change the direction of the motion of the laser, the bright spot on a distant surface would exhibit an extremely sharp turn. If a hypothetical two-dimensional observer residing on this surface

would calculate the “acceleration” of this “object” during the extremely sharp turn, the observer would get a really huge number for this “acceleration” – the number far exceeding the technological capabilities of the observer’s community.

If the experimentalist (on the Earth) would initially shine the laser beam parallel to a distant surface and then abruptly changed the direction of the beam to hit the surface, the two-dimensional observer on this surface would register a sudden appearance of the bright spot. If later on, the experimentalist would abruptly change the direction of the laser beam to be parallel to the surface, that observer would register a sudden disappearance of the bright spot. In both cases the observer would qualify this as being beyond the technological capabilities of the observer’s community.

Further, let us picture that on that surface there are dry regions (the “air”) and wet regions (the “water”). The bright spot can move through the “air”, then through the “water”, then again through the “air” without any change of its velocity – the velocity controlled by the motion of the laser in the third dimension). The two-dimensional observer on that surface would again qualify this as being beyond the technological capabilities of the observer’s community.

At this point, the author of paper [16] wrote the following.

“Now let us add an extra spatial dimension both to the “surface” and to the space, from which the light is shined. Now the “surface” becomes our three-dimensional world, into which the light is incoming from the fourth spatial dimension. In our world we see a three-dimensional “bright spot”. This “bright spot” is the projection of the light coming from the four-dimensional world on the three-dimensional “screen”, the “screen” being our three-dimensional world.”

Obviously, in this situation we would observe and register by detection systems all of the above three perplexing features of the three-dimensional “bright spot” – the features that are far beyond our technological capabilities – and we would call such three-dimensional “bright spots” as UFOs. In other words, within this explanation of all three perplexing features of the observed UFOs, the UFOs are the three-dimensional projections of the light entering our world from the fourth dimension. The author of paper [16] wrote:

“By varying the intensity distribution of the cross-section of the light beam at the source (for example, by using various filters), it would be possible to create any shape and form of the three-dimensional projection that we observe, including the shape of “flying saucers” and so on. By varying color filters or their combinations, it would be possible to make the three-dimensional projection of any color or their combinations.”

Further in paper [16] it was explained that the detailed information on properties of the electromagnetic radiation in four spatial dimension was provided in paper [17]. According to paper [17], the only one difference of the electromagnetic wave in four spatial dimensions from the electromagnetic wave in three spatial dimension is that in the four-dimensional case it is intertwined with a weak oscillatory gravitational field (the gravitational field oscillates in the direction of the propagation of the electromagnetic wave). As for the electric and magnetic components of the four-dimensional electromagnetic wave, they are the same as the three-dimensional world.

In paper [16] it was emphasized that up to this point, no new physical laws was introduced: everything was based on the standard physics. Next the author of paper [16] wrote:

“Next, it might seem that since the light is coming from the world of four spatial dimensions, then the source of light should be controlled by four-dimensional intelligent creatures (this would belong to realm of science fiction). However, this does not have to be the case ... the source of light could be located and controlled in a parallel three-dimensional world by three-dimensional relatively advanced civilization that developed the capability to manipulate the electromagnetic radiation in the way described above. By projecting the light into our three-dimensional world and detecting the reflected light, they monitor our technological capabilities.”

Then in paper [16], the above scenario was compared to the only one existing alternative explanation for 143 unexplained UFOs from the aforementioned official report – namely, that the unexplained UFOs could be drones. The perplexing features of these drones hint to their origin to be extra-terrestrial. There are three shortcomings of

the drone hypothesis compared to the scenario where the UFOs are the three-dimensional projections.

First, since so far our astrophysicists did not detect any extraterrestrial civilization located within hundreds of light years from the Earth, the advanced civilization controlling the extra-terrestrial drones would receive the information only in many hundreds years or even in thousands years. In distinction, in the scenario where the UFOs are the three-dimensional projections, the information carried by the reflected light, could reach the origin of the light in just few years or less – because the parallel three-dimensional world could be just few light years (or less) away from our three-dimensional world across the four-dimensional space. Obviously, it would make much more sense to monitor our technological capabilities with just a few years delay than monitoring them with the delay of hundreds or thousand years.

Second, in the scenario where the observed UFOs are extraterrestrial drones, the extra-terrestrial civilization should be extremely advanced – otherwise it would not be able to make spacecrafts that can withstand the acceleration of 700 g and can interchange the motion in the air and under water without any significant change of the velocity. In distinction, in the scenario of the UFOs being the three-dimensional projections, it would be sufficient for the other civilization to be only slightly advanced – just to be capable of manipulating the electromagnetic radiation in the way described above.

Third, but the most important: the extraterrestrial drones scenario cannot explain the sudden, almost instantaneous appearance of the UFOs and the subsequent sudden, almost instantaneous disappearance of the UFOs. In distinction, in the scenario with the UFOs being the three-dimensional projections, there is no problem to explain this perplexing feature.

Thus, the configuration of two parallel three-dimensional universes embedded in the four-dimensional space (where they rotate about their barycenter) explains not only all relevant astrophysical observations, but perhaps also the mind-boggling features of the observed UFOs (that have no consistent alternative explanation).

3. CONCLUSIONS

We started from the undisputable fact that from various astrophysical observations of very different kinds, it follows that our universe has a preferred direction in space. We proposed a configuration where two three-dimensional universes (one of which is ours) are embedded in a four-dimensional space and rotate about their barycenter in such a way that the centrifugal force nearly (but not exactly) cancels out their mutual gravitational pull. This would explain not only the existence of a preferred direction with each of the three-dimensional universes (the direction to the other universe), but also the fact that the bulk flow velocity, observed in our universe, is relatively small.

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It should be emphasized that just the totality of the astrophysical observations – those proving the existence of the preferred direction in our universe, as well as astrophysical observations where a weak but non-zero bulk flow (i.e, the gravitational pull from the “outside”) has been measured – seems by itself to be sufficient for making viable the proposed configuration of the two rotating parallel three-dimensional universes.

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