

## What about dark energy and dark matter?

The theory of the dimensional basic offers an alternative to the idea of dark energy. The observations of a seemingly accelerated expanding universe are being explained by the 'aging of the photon', as explained in the main article 'About Dark Matter and the Nature of Elementary Particles' ([www.dbphysics.org](http://www.dbphysics.org)). We have doubts concerning the hypothesis of dark energy being responsible for the expanding of the universe at an accelerating rate.

Some reading from wikipedia about the probability of dark energy's existence:

**Wikipedia on dark energy:** ([https://en.wikipedia.org/wiki/Dark\\_energy](https://en.wikipedia.org/wiki/Dark_energy))

*Some alternatives to dark energy aim to explain the observational data by a more refined use of established theories. In this scenario, dark energy doesn't actually exist, and is merely a measurement artifact. For example, if we are located in an emptier-than-average region of space, the observed cosmic expansion rate could be mistaken for a variation in time, or acceleration. A different approach uses a cosmological extension of the equivalence principle to show how space might appear to be expanding more rapidly in the voids surrounding our local cluster. While weak, such effects considered cumulatively over billions of years could become significant, creating the illusion of cosmic acceleration, and making it appear as if we live in a Hubble bubble. Yet another possibility is that the accelerated expansion of the universe is an illusion caused by the relative motion of us to the rest of the universe.*

*A team led by Professor Subir Sarkar of Oxford University's Department of Physics and the Niels Bohr Institute in Copenhagen making use of a vastly increased data set – a catalogue of 740 Type Ia supernovae which is more than ten times the original sample size – has scrutinized the claim of an accelerating expanding universe. The researchers were unable to find any significant evidence of an accelerating expansion.*

*Sarkar comments:*

*The discovery of the accelerating expansion of the universe won the Nobel Prize, the Gruber Cosmology Prize, and the Breakthrough Prize in Fundamental Physics. It led to the widespread acceptance of the idea that the universe is dominated by "dark energy" that behaves like a cosmological constant – this is now the "standard model" of cosmology... However, there now exists a much bigger database of supernovae on which to perform rigorous and detailed statistical analyses. We analyzed the latest catalogue of 740 Type Ia supernovae – over ten times bigger than the original samples on which the discovery claim was based – and found that the evidence for accelerated expansion is, at most, what physicists call "3 sigma". This is far short of the 5 sigma standard required to claim a discovery of fundamental significance.*

**Wikipedia on dark matter:** ([https://en.wikipedia.org/wiki/Dark\\_matter](https://en.wikipedia.org/wiki/Dark_matter)):

*Dark matter is a hypothetical type of matter distinct from baryonic matter (ordinary matter such as protons and neutrons), neutrinos and dark energy. Dark matter has never been directly observed; however, its existence would explain a number of otherwise puzzling astronomical observations. The name refers to the fact that it does not emit or interact with electromagnetic radiation, such as light, and is thus invisible to the entire electromagnetic spectrum. Although dark matter has not been directly observed, its existence and properties are inferred from its gravitational effects such as the motions of visible matter, gravitational lensing, its influence on the universe's large-scale structure, on galaxies, and its effects on the cosmic microwave background.*

In our opinion the dimensional basic is the dark matter. It's properties are described in our main article ([www.db-universe.org](http://www.db-universe.org)). The consequence being that dark matter is the building block of all that we perceive. Hence the title of the main article, the article should be read out of the perspective of dark matter.

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[www.dbphysics.org](http://www.dbphysics.org)