Dark energy and dark matter may not exist as scientists believe for nearly a century

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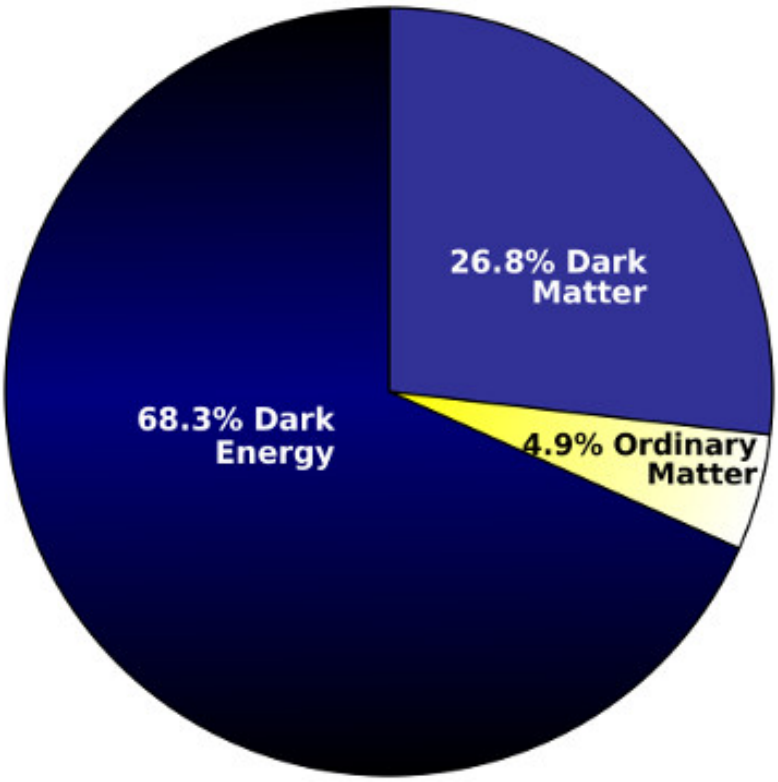
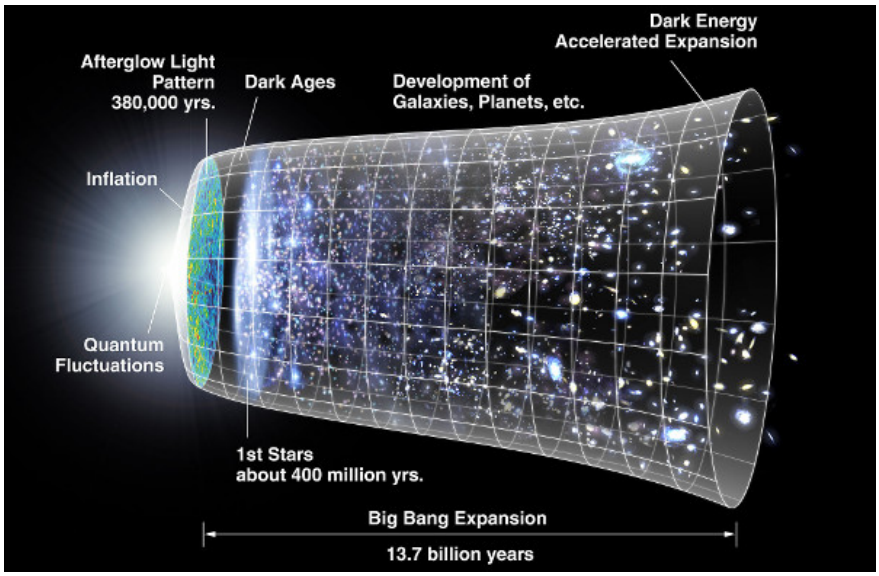
1. New research confirms: The mystery of "dark energy" may not exist
2. After all the mysterious material that occupies more than half of the universe hidden for billions of years has been discovered

Scientists believe that dark energy, which promotes the acceleration of the universe's expansion, is stronger than gravity and dark matter, which makes stars move. These are two of the biggest mysteries of astronomy.



But a researcher from the University of Geneva (UNIGE) in Switzerland has illustrated phenomena without the need for dark matter and dark energy. Accordingly, the two concepts of dark matter and dark energy are no longer reasonable.

According to Science Daily, the universe and evolutionary history are characterized by equations in Einstein's general theory of relativity, quantum mechanics and Newton's universal gravitation. The current central universe model is big bang and expansion.



Traditional universe model.
According to André Maeder, emeritus professor of astronomy at UNIGE, the traditional model does not take into account the scale variation of empty space, which forms Einstein's relatively broad equations, which are expressed by a number often called "cosmological constant".

$$G_{\mu\nu} = 8\pi G T_{\mu\nu}$$

Law of an expanding universe — All matter and energy in the universe — Einstein's original equation

$$G_{\mu\nu} + \Lambda g_{\mu\nu} = 8\pi G T_{\mu\nu}$$

Law of an expanding universe — Cosmological constant — All matter and energy in the universe

$$G_{\mu\nu} = 8\pi G (T_{\mu\nu} - \bar{\rho}_{DE} g_{\mu\nu})$$

Law of an expanding universe — All matter and energy in the universe

Einstein's relatively broad original equation.(Photo: UTokyo Research).

Maeder has changed the assumption of empty space in the old model from constants to variables to build and test three new models.

The first model was built based on Einstein's general theory of relativity , physical equations that included accelerating expansion of the universe. The calculation results are consistent with the observations. This model does not need dark energy elements or molecular energy but still predicts the accelerating expansion of the universe.

The second test is based on Newton's gravity (a specific version of the relatively wide equations) applied to galaxy clusters. This model can explain the high speed of galaxies in galaxy clusters without the need for dark matter.

The third experiment examined the speed dispersion of stars around the Milky Way galaxy, the galaxy that contains the Earth. This speed dispersion is clearly explained based on the traditional null (unchanging) null space hypothesis. This unique result is something that science has yet to agree on.

Professor André Maeder's new discovery will pave the way for a new concept that raises questions and controversies in astronomy. He said that dark matter and dark energy, two of the universe's greatest mysteries were finally decoded.

The study was published in the Astrophysical Journal physical astrophysical journal.

Historical discovery, dark matter research and dark energy

In 1933, Fritz Zwicky, a Swiss astronomer announced a world-shocking discovery: the universe has more matter than what we have seen in reality and that matter is called dark matter.

By the 1970s, American astronomer Vera Rubin used the concept of dark matter to explain the movement and speed of stars making it even more important.

In 1998, a group of Australian and American astrophysicists discovered the acceleration of the expanding universe and were called dark energy that was thought to be stronger than Newton's gravity. This discovery is again the second shocking world and it was awarded the Nobel Prize for Physics in 2011.

Since its discovery, scientists have done a lot of research to determine dark matter and dark energy but all have no results. They have become two mysteries that have challenged astronomers for almost a century.

In April this year, a group of Hungarian scientists also published a hypothesis that the new model of the universe does not need dark energy. This theory considers the density of the universe to be different, so the expansion of the universe is also different. The calculation results also show that this model is consistent with general relativity and also explains the expansion of the universe without dark energy.

See also: Dark matter, dark energy and unexplored mysteries

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