New research confirms: The mystery of 'dark energy' may not exist

The universe may not expand at an accelerated rate after that, meaning that the dark energy mystery may not really exist, according to a new study.

" *The universe may not expand at an accelerated rate after that, which means the mysterious" dark energy " may not really exist* ," a new study suggests.

This is only published. In 2011, three cosmologists from two Nobel Prize-winning physics groups show the distance of an IA-type supernova - a type of exploding star that is moving away from Earth faster than nearby objects. there.

The image below is **supernova type IA** surviving 0.509-67.5 used data from NASA's Hubble Space Telescope and NASA's Space Observatory. The analysis of the motion of IA type supernovae in space helps most cosmologists conclude that the expansion of the universe is increasing, fueled by a mysterious force known as dark energy.

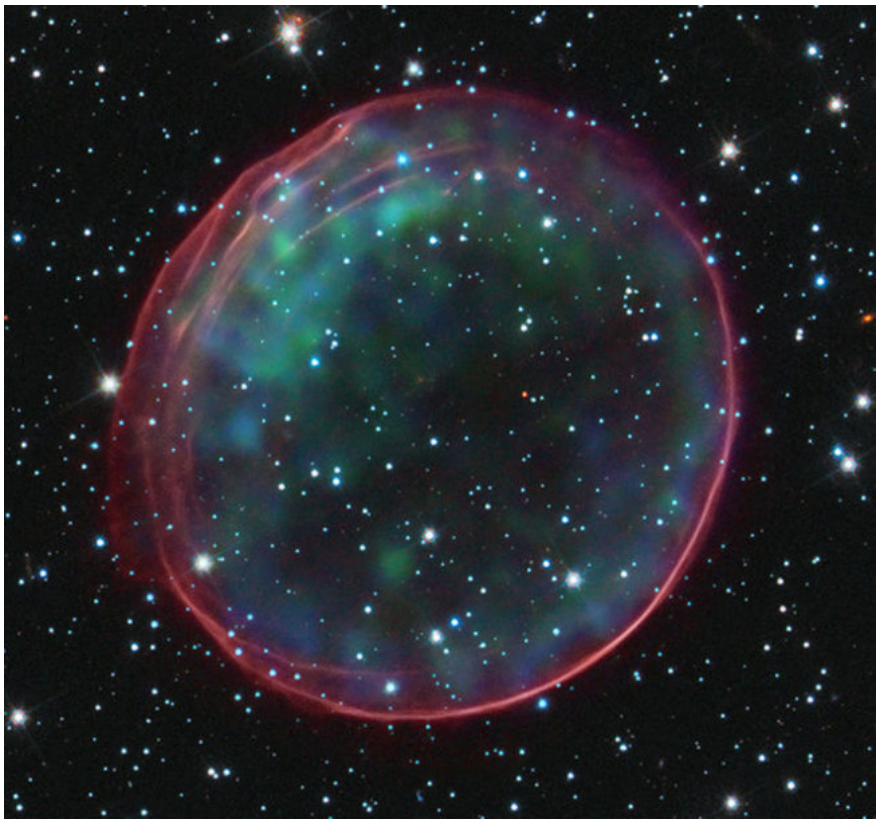


Photo sources: NASA, ESA, and B. Schaefer and A. Pagnotta (Louisiana State University, Baton Rouge);NASA, ESA, CXC, SAO, Hubble Team Heritage (STScI / AURA), J. Hughes (Rutgers University)

In the late 1990s, surprising results were published and strongly confirmed that some **strange forces spread** in space - part time. Without the existence of force, the arguments given, then the expansion of space - starting with the Big Bang Big Bang 13.8 billion years ago should not be accelerated. Instead, it should decrease, slowing down by the gravitational pull of all galaxies, black holes and other objects in the universe.

The distributive force hypothesis is known as **dark energy** , because astronomers have not really understood it (still, not yet, as a matter of fact).

However, new research is published online on Friday (October 21) in the Journal of Scientific Reports, which concludes the Nobel Prize. The lead author JT Nielsen of the Niels Bohr Institute at the University of Copenhagen, Denmark and his colleagues analyzed 740 IA-type supernovae using a different theoretical framework than either of the 1990 study groups. " *Previous studies only looked at 70 or more IA-type supernovae* , "Nielsen's team said.

New analyzes found only " *marginal evidence* " for the concepts of dark energy and accelerated expansion.

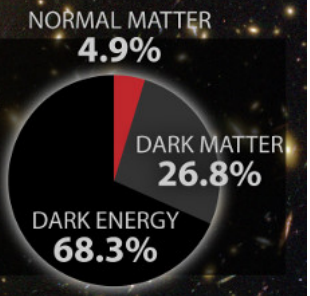
" *The evidence of the most obvious expansion is called" 3 sigma "by physicists - lower than the 5 sigma standard required to publish a fundamental meaning* ", co-author Subir Sarkar, Oxford University in England, said in a statement.

" *So it is entirely possible that we are confused and the apparent expression of dark energy is the result of analyzing data in a too simple theoretical model - in fact one of That was built in the 1930s, long before there was any real data*, "Sarkar added.

MYSTERIOUS MATERIALS DOMINATING THE UNIVERSE

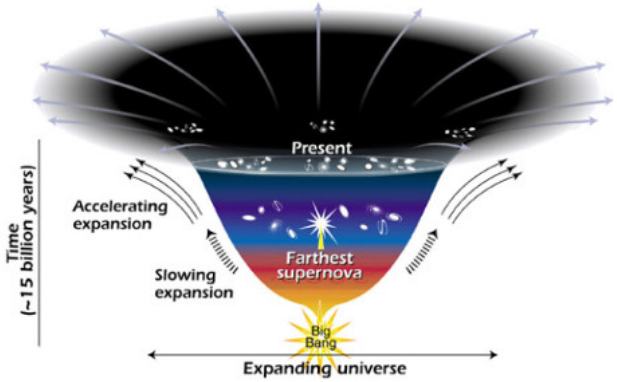
DARK MATTER
DARK ENERGY

Most of the universe is made up of **dark energy**, a mysterious force that drives the accelerating expansion of the universe. The next largest ingredient is **dark matter**, which interacts with the rest of the universe only through its gravity. Normal matter, including all the visible **stars, planets and galaxies**, makes up less than 5 percent of the total mass of the universe.



WHAT IS THE EVIDENCE FOR DARK ENERGY?

Astronomers note that the universe has expanded at different rates throughout history. For the first half of the universe's life, following the Big Bang and inflationary era, the expansion slowed down. Then, after about 7 billion years ago, the expansion began accelerating.



WHAT IS DARK ENERGY?

Dark energy can be thought of as "quintessence," or a fifth fundamental force following the known forces: gravity, electromagnetism, and the strong and weak nuclear forces. Possibilities include:

1. SCALAR FIELD: A scalar is a value that varies, or scales, in magnitude but it does not have a direction. Examples of scalars are mass and volume.

2. CHAMELEON PARTICLES: These hypothetical particles vary in mass according to the surrounding density of energy. On Earth, the particle would not be detectable. In the emptiness of intergalactic space, the particle would gain mass.

WHAT IS THE EVIDENCE FOR DARK MATTER?

Astronomers can see light bent from the gravity of invisible objects (a phenomenon called gravitational lensing). They can also measure stars orbiting around their galaxies faster than they should be.

This can all be accounted for if there is a large amount of invisible matter tied up in each galaxy, contributing to its overall mass and rotation rate.

WHAT IS DARK MATTER?

Astronomers know more about what dark matter isn't than what it is.

1. DARK MATTER IS DARK
It emits no light and cannot be

DISTRIBUTION OF DARK MATTER IN 3D SPACE

It is believed that dark matter condensed first to form a "scaffolding," with normal matter in the form

Astronomers say that dark matter is nothing compared to what it has.Photo source: Graphic designer Karl Tate, Space.com

Sarkar admits: " *Many studies are needed to convince the physical community that the latter might actually reflect reality. This appraisal seems accurate, indeed it was pushed back by the celestialists. other writing* ".

Paul Sutter, an astronomer at Ohio State University and collaborator for Space.com's " *Expert Voices* " section, feels skeptical. To begin with, Sutter thinks Nielsen et al. Should not be too arbitrary with linked statistics.

" *I don't know but 3 sigma is pretty cool for me. Their article is very clear about a universe with dark energy* ," Sutter replied to Space.com.

Meanwhile, Sutter agrees with Sarkar: " *The 3-sigma detection itself is not entirely convincing* ," he stressed: " *The movements of the IA-type supernova must have clear, unambiguous evidence. more to support the existence of dark energy* ". Sutter cites, among other things, vibrating in the cosmic background (cosmic microwave background CMB), observing large-scale structures in the universe and " *Baryon sound vibrations* "are strange fluctuations in the density of matter.

" *If we have a universe that doesn't have dark energy, these features have long since disappeared. We have lots of evidence - diverse and independent detectors - all showing a universe that has Dark energy and the authors of the new study try to produce these types of polarization waves away* , "Sutter said.

Sutter said: " *The new study will help scientists better understand how to use supernova data to better handle dark energy." But he argues that the authors made a groundless leap in proposing that, as Sarkar said, "an important evidence of the standard model of the universe is quite lax* ."

" *If you make a strong statement that the authors are trying to do, it is an interesting key method. However, even it does not really start shaking the foundation of cosmology. Modern,* "said Sutter.