Admire 10 priceless photos taken by NASA's Spitzer telescope

NASA calls Lyman Spitzer Jr. (1914-1997) is one of the greatest scientists of the 20th century. The Spitzer Space Telescope (Spitzer Space Telescope) is named in honor of the legendary scientist who has made countless valuable contributions to Astronomy field of humanity :.

NASA calls Lyman Spitzer Jr. (1914-1997) was one of the greatest scientists of the 20th century. This veteran astrophysicist is an important factor contributing to the creation of a large-scale space telescope. At the beginning of 1946, at the same time began the rapid development phase of telescope development until it peaked with the launch of the Hubble Space Telescope in 1990. After Lyman Spitzer Jr. died in 1997, NASA continued to develop the ambitious Great Observatories. The Great Observatories are basically a combination of a group of four telescopes operating right in the orbit of the earth, in which each telescope will be responsible for observing the universe under a different kind of light. . In addition to Hubble, other telescopes participating in the program include the Compton Gamma Ray Observatory (CGRO) and the Chandra X-Ray Observatory (CXO). In particular, the telescope model was finally launched in 2003, including "a large telescope and modern cooling system, capable of studying the universe at infrared wavelengths from near-to -far".

NASA names this new "space eagle" face as the Spitzer Space Telescope (Spitzer Space Telescope) in honor of the legendary scientist who has made countless valuable contributions to the astronomical field of humanity. : Lyman Spitzer Jr. After 16 years of dedication to science, this revolutionary telescope is now approaching 'retirement' - scheduled for January 30, 2020. And to thank for the contribution. from the Spitzer Space

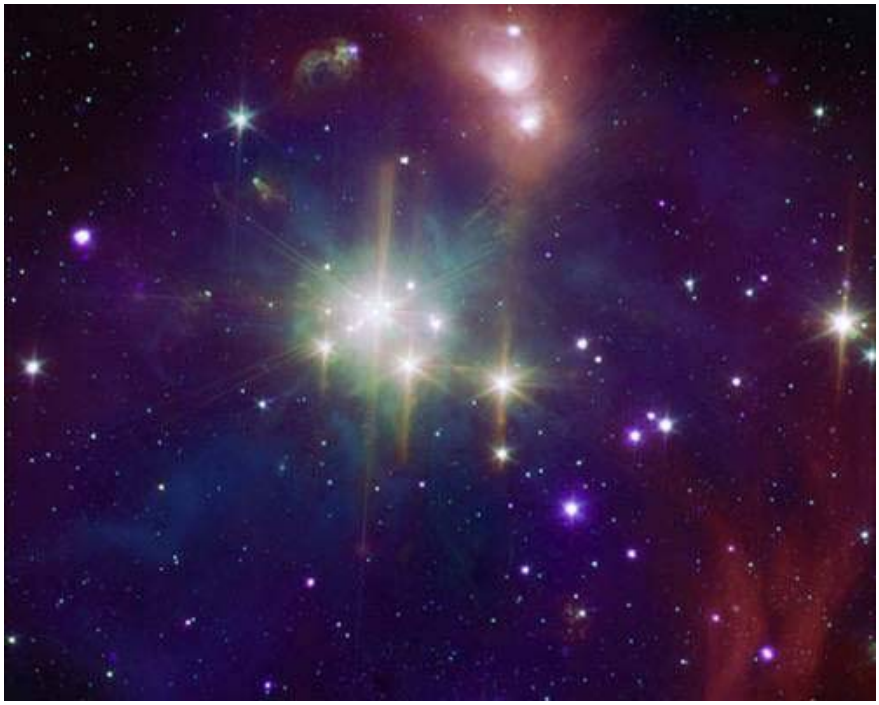
Telescope, we are pleased to present 10 incredible images of the universe that it captured for nearly two decades of existence.

1. What is halo moon, moon canopy? Why are there these two natural phenomena?

10 cosmic masterpieces taken by Spitzer telescope

1. Coronet clusters in X-rays and infrared
2. Sombrero galaxy from a more spectacular perspective
3. Great picture of the Carina Nebula
4. The 'chaotic realm' within Orion's heart
5. Cosmic sunflower flowers
6. The 'meeting' of the stars in the center of the galaxy
7. Bright light, green city
8. Great family of stars
9. Magical circle of the 'horse wheel' Galaxy
10. Spitzer's priceless heritage

Coronet star cluster in X-rays and infrared



According to NASA, the Spitzer telescope is designed to detect infrared radiation, mainly thermal radiation. Spitzer has two main compartments: Cryogenic Telescope Assembly, where 85cm diameter telescopes are placed and 3 space instruments. The second compartment is a telescope-controlled spacecraft, which is responsible for powering devices and processing scientific data obtained and sending them to Earth. The picture above shows the results of the observations of the Spitzer infrared telescope and the Chandra X-ray observatory toward the young Coronet star in the South Region. It can be seen through this close-up shot of the intense formation of stars in coronet clusters, with giant blue stars, protostars of varying masses. The Coronet is located at a distance of 424 NAS, three times the distance from the Earth to the Orion constellation (Orion). Coronet is a very significant object for scientists in studying the formation and development of stars in the universe.

Spitzer telescope data: 4.5 microns (blue), 8.0 microns (green), and 24 microns (orange yellow). Chandra Observatory Data: X-ray wave range (purple).

1. This is a photograph of the first black hole of mankind, located in a galaxy 55 million light-years from Earth

Sombrero galaxy from a more spectacular perspective

Because the modern components of the Spitzer telescope have extremely high light sensitivity, it can see objects that cannot be observed by ordinary optical telescopes, such as the crystalline orbiting a star outside the solar system, the stars are about to turn off and even giant molecular clouds. The two most advanced space telescopes in the world, Spitzer and Hubble, have joined forces to create a striking composite image of one of the "most popular attractions in the universe", that is Sombrero galaxy with enchanting halo The Sombrero galaxy, named after its resemblance to the Mexican broad-brimmed hat, lies 28 million light-years from Earth. a giant black hole lies at the center of this galaxy, with an estimated size one billion times larger than our 'little' sun.

Great picture of the Carina Nebula

When the Spitzer Space Telescope was launched in 2003, scientists hoped that it could carry out the task that lasted for more than six years, but in May 2009, the supply of helium on board The telescope controlled telescope has been exhausted. As a result, there was not enough helium needed to cool the components, and the space telescope had to reluctantly switch to the "warmer" mission. Above is a beautiful picture Spitzer captured from the Carina Nebula. The Carina Nebula or the Boat Live Nebula, is a large and bright nebula that surrounds a number of star clusters, spanning more than 300 light years, including a star that is 100 times more massive and a million times brighter. compared to our sun.

1. 7 alien planet is more exotic than science fiction movies

The 'chaotic realm' within Orion's heart

When Spitzer is in a fully functional state, it must align itself both warmly and cool to operate most efficiently. Thus, according to NASA, all Cryogenic Telescope Assembly 'containment devices must be properly cooled to only a few degrees above absolute zero. "The Spitzer can meet this difficult requirement is thanks to the help. the strength of a helium-containing vessel or refrigerant on the container, meanwhile, the electronic devices installed in the spacecraft section must operate at room temperature.

In this picture, two Spitzer and Hubble space telescopes once again combine their ideas to create a cosmic masterpiece, showing the 'chaos' of tiny stars, away from the earth. about 1,500 light years, within the Orion cluster. Orange dots are 'newborn' stars, taken by Spitzer, while Hubble displays larger stars, such as green spots and foreground stars like blue spots.

As for Orion, this is one of the most prominent, perhaps most well known constellations in the sky. Its brightest stars are located above the cosmic equator and can be observed from all over the world, making this constellation known to be relatively spacious.

1. Detects a hot alien planet, about the same size as the Earth

Cosmic sunflower flowers

Messier objects were first located by astronomer Charles Messier in 1774. The Messier list consists of 110 celestial objects, numbered from M1 to M110. Messier 63 (M63) is best known for its enchanting beauty. Messier 63 is also known as the Sunflower Galaxy, a spiral galaxy of the constellation of the Greeks, discovered by astronomer Pierre Méchain on June 14, 1779 and Charles Messier added to the list later. The best picture shows that the structure and beauty of Sunflower is captured by the Spitzer telescope in 2006 via infrared wavelengths.

According to an explanation from NASA, 'infrared light is very sensitive to dust roads in spiral galaxies. These dust lines often appear as dark streaks in visible light images. Spitzer's photograph shows complex structures in the spiral arms of this particular galaxy. Messier 63 is believed to be 37 million light-years from Earth. This galaxy is also relatively large with a diameter of up to 100,000 light-years, equivalent to our Milky Way. Despite the incredible 'power' of historical images captured, the Spitzer space telescope itself is quite small in size. Spitzer is only about 4m tall and weighs about 865kg.

1. NASA began assembling Mars 2020 spacecraft

The 'meeting' of the stars in the center of the galaxy

The Spitzer telescope operates in heliocentric orbit, tracking the whole Earth. As explained by astronomers, this system has helped to extend the life of coolants in cryogen used to extract energy dissipated by detector arrays, instead of being lost due to heat load. The Milky Way, also known as the Milky Way, is our galaxy containing the Solar System. In the image is the central star cluster, concentrated at the center of the Milky Way. The Milky Way has an estimated diameter of 100,000-180,000 light-years and a thickness of about 2,000 light-years, and is home to 100 to 400 billion stars, of which the oldest identified star is about 13.7 billion. five years old. From the Earth, the Milky Way looks like a faded silvery strip across the sky. However, the Milky Way has a relatively low surface brightness, so to clearly see the sky needs to reach a certain darkness - about 20.2 magnitude. It has been shown that only more than half of the world's population can see the Milky Way in the night sky, mainly due to light pollution.

Thanks to Spitzer's infrared capabilities, we can see these stars extremely clearly - something that people have never done before. Despite being neat in the picture, in fact the area is extremely large. According to NASA calculations, the area in the picture owns a horizontal span (diameter) of 2,400 light years (5.3 degrees) and a vertical span (thickness) of 1,360 light years (3 degrees).

1. The Kepler Space Telescope is about to stop operating in the next few months

Bright light, green city

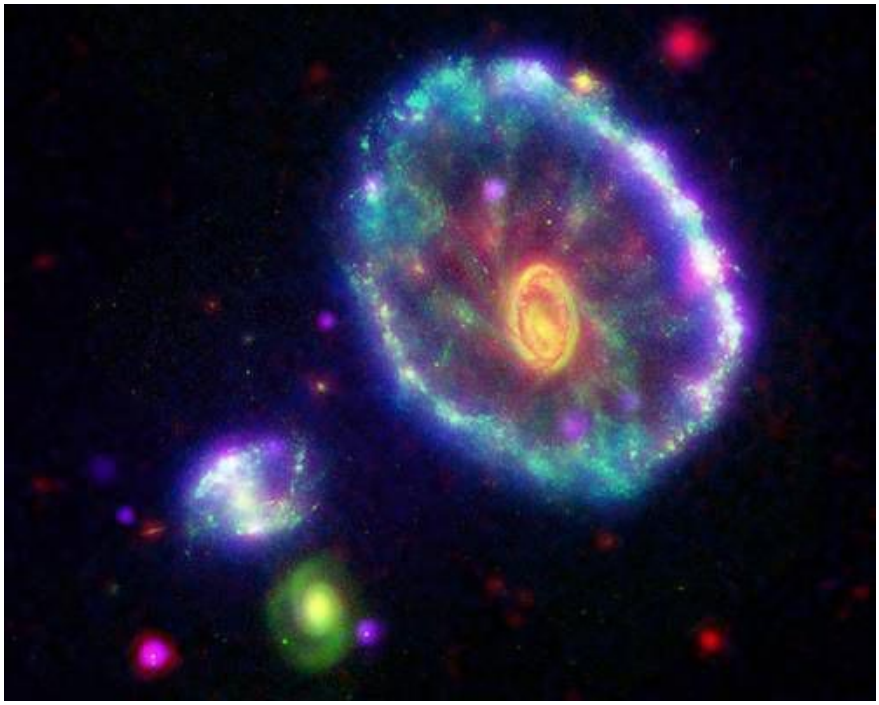
This opaque green fog is obtained through Spitzer's color coding capabilities. It includes polycyclic aromatic hydrocarbon molecules (PAHs) that NASA says "can be found right on Earth, in vehicle emissions and on every household's grill". Spitzer may allow the human eye to see glowing PAH thanks to infrared light, the image you see above is synthesized after Spitzer's cooling helium depletes, marking the beginning of the mission. work in its "warm" state If you are interested, you can track the Spitzer space telescope's location in real time at: www.spitzer.caltech.edu/mission/where_is_spitzer ? previous = 310 & next = 36

Great family of stars

Have you ever asked a family about how stars in the universe look like? Spitzer's vision has given us a glimpse of starburst populations including countless stars in different generations (ages) in the universe through images of W5, the region. It is said to be the place for the stars. According to NASA experts, "the oldest stars can be seen as dark blue dots in the center of two hollow spaces (smaller blue dots are background stars and foreground, completely unconnected). In the W5 area, meanwhile, younger stars form a ring covering the niches, and some can be thought of as small dots on the top of the pillars like the elephant. The area with many white dots is where the youngest stars are being formed.

1. Bacteria on Earth live easily on Moon Enceladus

Magical circle of the 'horse wheel' Galaxy



Cartwheel galaxy (nicknamed the horse wheel galaxy) is a galaxy located in the constellation Sculptor, 'located' in the southern hemisphere's southern hemisphere, beneath the constellation Pisces and Kinh Ngu. (Cetus), At the same time, Sculptor was also the result of a collision that occurred about 200 million years ago. According to calculations, Cartwheel Galaxy is about 500 million light-years away and is a lens galaxy. It is about 150,000 light-years in diameter and has a mass equivalent to about 3 billion solar masses. Along with the two galaxies on the left, the Cartwheel galaxy is part of a group of galaxies about 500 million light-years away from Earth.

The image above is the result of 'collaboration' of many NASA devices, including: Galaxy Evolution Explorer spacecraft ultra-violet detector (blue light in the picture), wide field camera and Hubble Space Telescope-2 telescope (for visible light in the green strip), Infrared camera of the Spitzer Space Telescope (red light section), and the end The same is the CCD advanced image spectrometry device of Chandra X-ray Observatory (purple light section).

About 200 million years ago, a small galaxy passed through the heart of Cartwheel and created interstellar gas and dust shock waves and, as a result, created stellar regions, dust and gas circles like wheel. The outermost ring of the galaxy is marked with shock waves with intense light emitting.

1. Giant dust storms are taking away water on Mars

Spitzer's priceless heritage

The image above is a composite image of the Large Magellanic Cloud that the Spitzer telescope and the Chandra X-ray observatory have seen. Finally, the $ 670 million Spitzer telescope could also give us a glimpse of what is supposed to be the foundation of life. "With the help of the Spitzer Space Telescope, we can see things that people cannot see before," said astronomy professor John Bahcall, who spoke at the Spitzer launch in 2003. . Humans will be able to observe how stars are born, can see how planets are forming, can uncover the mysterious veil of galaxies covered in cosmic dust. , and finally, we will be able to see the edge of the visible universe '. And it seems, through the ingenuity of the geniuses that created the Spitzer Space Telescope, the above tasks have almost been successfully accomplished. Congratulations on this success of humanity.

Further information to you, the Large Magellanic Cloud is a dwarf amorphous galaxy in the neighboring group (sometimes referred to as the satellite galaxy) of the Milky Way, less than 160 thousand light-years away from our earth. . The large Magellanic cloud is the third galaxy from the center of the Milky Way, having 10 billion times the mass of our Sun and 7,000 light-years radius. This beautiful galaxy can be seen as a faint cloud in the night sky of the southern celestial sphere, a bit darker than the Niu Lang star.

These are the 10 most significant 'treasures' that the Spitzer telescope contributed to the overall development of astronomy during its 16 years of operation. Spitzer will conclude his miraculous journey next year as one of the most important contributors of equipment throughout the thousands of years of astronomy.