



Crab Nebula

The Crab Nebula is the remains of a supernova explosion nearly 1,000 years ago. This event was seen and recorded here on Earth. Its cloud of debris is lit by infrared light, visible light, and X-rays emitted by the dense neutron star left in the center.

This image combines infrared light (red) from the Spitzer Space Telescope, visible light (green and dark blue) from the Hubble Space Telescope, and X-rays (light blue) from the Chandra Space Telescope. These great telescopes expand our vision, revealing otherwise hidden structure, detail, and beauty.

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An
infrared
view of
nebulas by

spitzer

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Rosebud Nebula, NGC 7129

This cloud of gas and dust, called a nebula, is a star nursery. It is 10 light-years across and already has given birth to about 130 stars. The main stars are less than a million years old, still in their infancy. It contains enough material to form a thousand stars like the Sun.

The Spitzer Space Telescope made this image in infrared light. Infrared light is not visible to our eyes or ordinary telescopes. Spitzer can see parts of the universe, such as gas and dust, that are too cool to be seen in detail using visible light telescopes.

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Bode's Galaxy, M81

M81, often called Bode's Galaxy, is a spiral galaxy like our own Milky Way. It is 12 million light-years away and can be seen with a small telescope in the Big Dipper constellation part of the sky. This Spitzer Space Telescope image was made using infrared light. Our eyes cannot see infrared, so many of the details of the galaxy would be unknown to us if not for infrared telescopes.

The center of the galaxy (which appears white) has mostly old stars. The spiral arms, which appear red) contain a lot of gas and dust. The clumpy places in the spiral arms are where new stars are forming.

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Whirlpool Galaxy, M51

M51, also called the Whirlpool Galaxy, is a spiral galaxy with a much smaller companion galaxy. It is 37 million light-years away in the constellation Canes Venatici.

This image was made using four different wavelengths of infrared light. It shows in red the gas and dust between the spiral arms and mysterious spoke-like structures connecting them. The areas of gas and dust are where new stars are forming. The companion galaxy does not seem to be forming new stars. These star forming regions would not be seen in ordinary visible light.

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RCW 49 Nebula

In this infrared image from the Spitzer Space Telescope, RCW 49 is a dark and dusty stellar nursery that houses more than 2,200 stars. Because many of the stars in RCW 49 are deeply embedded in plumes of dust, they cannot be seen at visible wavelengths. More than 300 never-before-seen newborn stars are sprinkled amongst the nebula's older stars (blue stars in center pocket), its gas filaments (green) and dusty tendrils (pink). Astronomers want to study these newfound proto-stars because they offer a fresh look at star formation in our own galaxy.

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Helix Nebula

Looking like a giant eye in this infrared image from the Spitzer Space Telescope, the Helix Nebula is the spectacular remains of a star that was once similar to our Sun. At the end of the star's life, it blew off its outer layers of gas. What was left is a white dwarf at the center, barely visible here, in whose light the cast-off gases glow. Infrared light from the outer gaseous layers is represented in blues and greens. The red in the middle shows the final layers of gas blown out when the star died.

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Pinwheel Galaxy

This infrared image from the Spitzer Space Telescope shows the galaxy also known as Messier 101. The image reveals that this outer red zone lacks organic molecules present in the rest of the galaxy. Dusty, carbon-containing organic molecules help in the formation of stars. In regions like the rim of the Pinwheel, as well as the very early universe, stars form without the organic dust. Astronomers don't know precisely how this works, so the rim of the Pinwheel provides them with a laboratory for examining the process.

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Sombrero Galaxy

Messier 104 is called the Sombrero Galaxy because in visible light only the near rim of dust can be seen, making it look as if it were the brim of a hat. This infrared image from the Spitzer Space Telescope reveals in red the bright, smooth ring of dust circling the galaxy.

The Sombrero galaxy is about 28 million light-years away. Spitzer detected infrared emission not only from the ring, but from the center of the galaxy too, where there is a huge black hole, believed to be a billion times more massive than our Sun.

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