

Admire the stunning view of the Sombrero Galaxy through the eyes of the James Webb Space Telescope

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A new image from the James Webb Space Telescope reveals a beautiful and majestic sight: the Sombrero Galaxy (also known as Messier 104), named for its resemblance to a traditional Mexican hat. With a wide, flat shape reminiscent of the famous wide brim of the hat, the galaxy has beautiful outer rings that are clearly visible.

The Sombrero Galaxy is located 30 million light-years away in the constellation Virgo, and was previously photographed by the Hubble Space Telescope. However, in the Hubble image, the galaxy appears as a pale, opaque disk. In the new image from the James Webb Space Telescope, you can see a blue outer disk, with a small bright core at the center that defines the galaxy. Everything appears in sharp detail.



The difference between the two images is largely due to the different wavelengths at which the telescopes operate. Hubble takes images primarily in the visible light portion of the spectrum, the same wavelengths our

eyes can see. As a result, dusty galaxies like the Sombrero appear opaque. James Webb, on the other hand, operates in the infrared portion of the spectrum, meaning it can peer through the dust to see structures invisible to the human eye.

The James Webb image also shows more detail of the dust that makes up the outer reaches of the galaxy's rings. If you look closely, you can see that this blue-white shape is clumpy, with the dust unevenly distributed in pockets that are denser in some places than others. The region is interesting to scientists because it contains molecules called polycyclic aromatic hydrocarbons, which are often found in regions where young stars are forming. But the rate of star formation in this galaxy is quite low, with the Sombrero rings producing half as many stars per year as our own galaxy, the Milky Way.

Another feature of this image is the bright light at the center of the galaxy, a region around the galaxy's supermassive black hole, known as the active galactic nucleus (AGN). This region is not as bright as some other AGNs, because the central black hole is relatively quiet, not devouring large amounts of matter as seen in some other galaxies.

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