

## **Discoveries with the James Webb Space Telescope**

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The James Webb Space Telescope was launched on Dec. 25, 2021, and commissioning was completed in early July 2022. With its 6.5 m golden eye, and cameras and spectrometers covering 0.6 to 28  $\mu\text{m}$ , Webb is already producing magnificent images and surprises about galaxies, active galactic nuclei, star-forming regions, and planets. It extends the scientific discoveries of the great Hubble, and ties the most distant galaxies to their origin story from the fluctuations of the cosmic microwave background radiation. Scientists are hunting for some of the first objects that formed after the Big Bang, the first black holes (primordial or formed in galaxies), and beginning to observe the growth of galaxies, the formation of stars and planetary systems, individual exoplanets through coronagraphy and transit spectroscopy, and all objects in the Solar System from Mars on out. It could observe a 1  $\text{cm}^2$  bumblebee at the Earth-Moon distance, in reflected sunlight and thermal emission. I will show how we built the Webb, why we study infrared, and the most exciting current discoveries. Webb is a joint project of NASA with the European and Canadian space agencies.

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