

Overview of the James Webb Space Telescope

The James Webb Space Telescope (JWST) is a large aperture (6.5 meter), cryogenic space telescope with a suite of near and mid-infrared instruments covering the wavelength range of 0.6 μm to 28 μm . JWST's primary science goals are to detect and characterize the first galaxies, and study the assembly of galaxies, star formation, and the formation of evolution of planetary systems. JWST is a segmented mirror telescope operating at $\sim 40\text{K}$, a temperature achieved by passive cooling of the observatory, via a large, 5-layer membrane-based sunshield. We will review the scientific capabilities of JWST in the context of their synergy with survey facilities, and with the next generation of ground-based Extremely Large Telescopes. We will also present an overview of the observatory design, and report on recent progress in the construction of the observatory and its science instruments.