

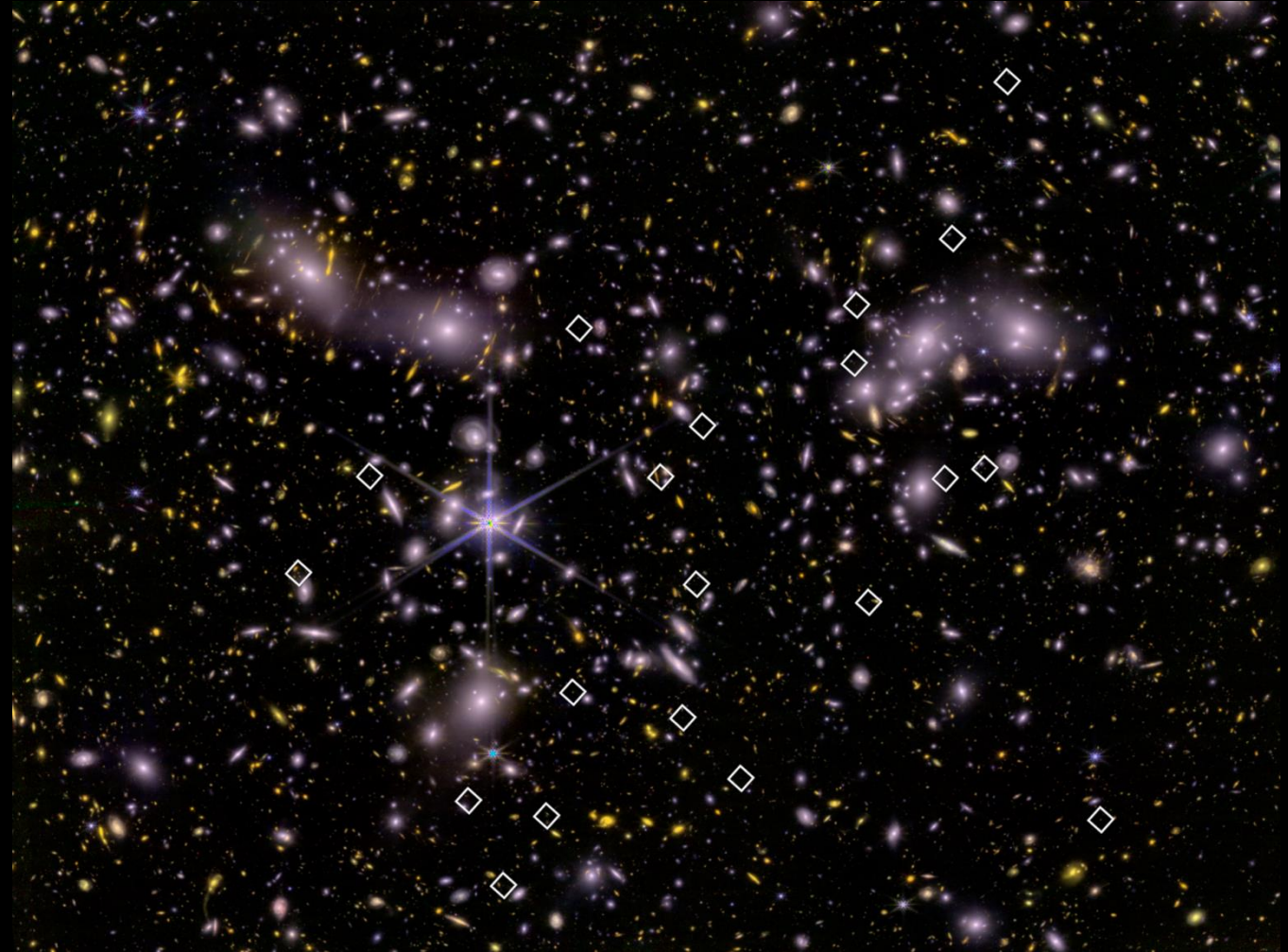
NASA's Webb 'UNCOVERs' Galaxy Population Driving Cosmic Renovation

Astronomers using data from NASA's Webb telescope identified dozens of small galaxies that helped transform the early universe into the one we know today.

Before it was a billion years old, the universe's hydrogen changed to a form that allowed ultraviolet light to travel far and wide. For years, scientists have tried to identify which objects drove this change.

Webb was designed to provide an answer. The new study — which is 10 times more sensitive than previous ones — suggests young, low-mass, star-forming galaxies played a key role.

We see these small starburst galaxies in the Webb data as they appeared when the universe was just 6% of its current age. But based on characteristics of similar galaxies in our local universe, they could have produced all the ultraviolet light needed to drive this momentous cosmic makeover.

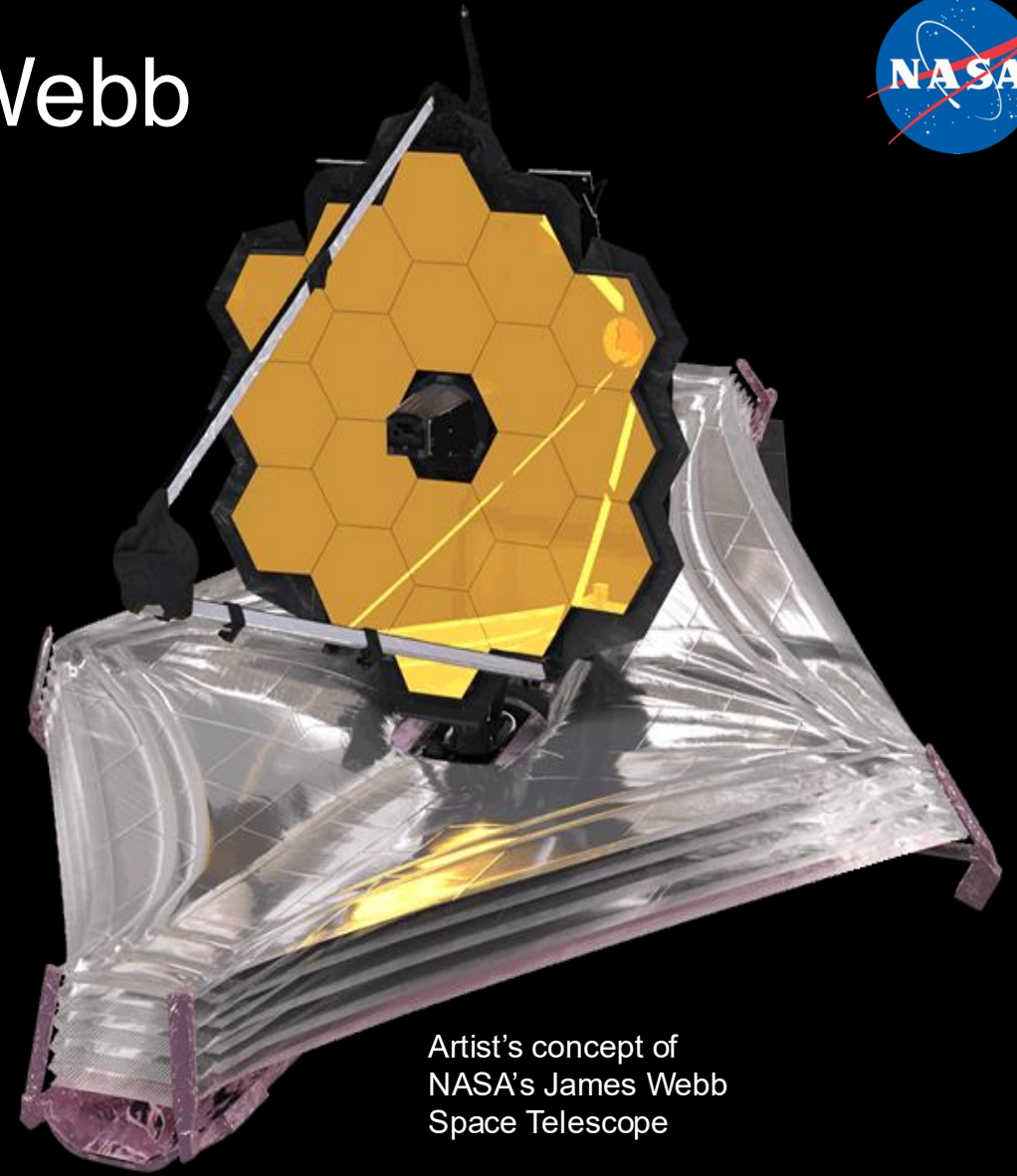


White diamonds show the locations of 20 of the 83 young, low-mass, starburst galaxies found in infrared images of the giant galaxy cluster Abell 2744. The cluster's mass acts as a natural magnifying glass, allowing astronomers to see these tiny galaxies as they were when the universe was about 800 million years old. Credit: NASA/ESA/CSA/Bezanson et al. 2024 and Wold et al. 2025

More About Webb



- Tools developed for measuring Webb's mirrors are now used for diagnosing eye diseases and have driven improvements to LASIK eye surgery.
- High-quality beryllium manufacturing processes developed for Webb's mirrors has medical applications. For example, beryllium shielding can lower X-ray doses received by patients.
- Microshutters, a key component of NIRSpec, are planned for use in future space missions and may find use in medicine. Selectively opening these tiny apertures in a large array allows NIRSpec to obtain high-resolution data on up to 100 objects simultaneously.
- Near-infrared detectors developed for Webb are incorporated into numerous flying or planned NASA and ESA missions.
- Webb, which orbits the Sun almost a million miles behind Earth, is the most powerful space observatory yet built.



Artist's concept of
NASA's James Webb
Space Telescope