

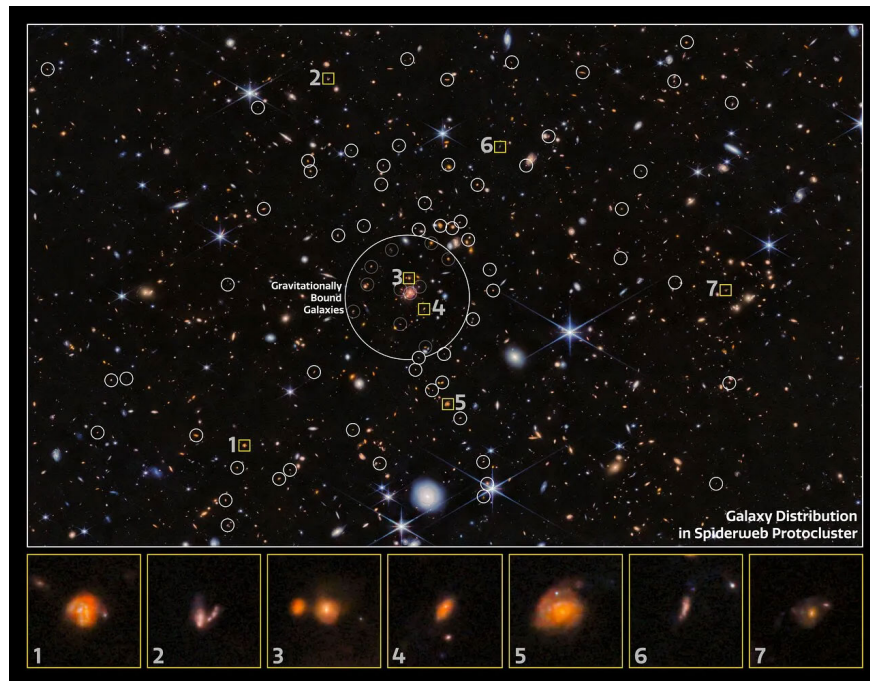
# Ancient 'spider web galaxy' cluster discovered, 10 billion years old

Another stunning new image has just been sent back from the world's most expensive Space Telescope, James Webb.

A stunning new image has been sent back from the world's most expensive space telescope, the James Webb Space Telescope, revealing thousands of sparkling galaxies discovered using advanced infrared instruments peering through dense clouds of dust. At the center of the image is the Spiderweb Prototype Cluster, a group of galaxies in the early stages of forming a "space city".

The light from Spiderweb has traveled an incredible 10 billion years to reach us. In other words, looking at it is like going back in time to the very beginning of the universe. Astronomers are interested in studying this cluster of more than 100 interacting galaxies because it shows how galaxies clump together to form groups when the universe was still young.

*' We are observing the tectonic process of one of the largest structures in the universe, a galactic city in progress ,' explains researcher José M. Pérez-Martínez of the Institute of Astrophysics of the University of La Laguna (Spain). ' We know that most galaxies in local clusters (the largest metropolises in the universe) are old and inactive, while in this work (Spiderweb) they are being observed in their infancy. As this cosmic city grows, its physical properties will also be affected. The James Webb Space Telescope is giving us new insights into the accumulation of such structures for the first time .'*



The image above shows the galaxies that make up the Spiderweb cluster. Although there are many galaxies highlighted by white circles, only a relatively small number of them are located within the central circle, indicating that the galaxies are bound together by gravity. When Webb peered through the dust in this area, it discovered many more galaxies in this primordial cluster than researchers had originally expected.

James Webb is doing a great job of helping reveal previously unknown information about the early universe, as it is the most powerful telescope in existence and can observe extremely distant objects — allowing it to see the early universe. Researchers were surprised to find that the early universe was busier and brighter than they expected, suggesting that stars may have formed more quickly than predicted.

In the case of galaxy clusters like Spiderweb, the researchers suggest that the lower amount of dust seen may have something to do with how these galaxies form and evolve. Unlike galaxies we've recently observed, where star formation is often fueled by galaxies interacting or merging with each other, there appears to be a lot of gas in the region where stars are forming in this case.

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