NASA's Webb Uncovers Dense Cosmic Knot in The Early Universe

Astronomers looking into the early universe have made a surprising discovery using NASA's James Webb Space Telescope: a cluster of massive galaxies in the process of forming around an extremely red quasar. The result will expand our understanding of how galaxy clusters in the early universe came together and formed the cosmic web we see today.

A quasar, a special type of active galactic nucleus, is a compact region with a supermassive black hole at the center of a galaxy. Gas falling into a supermassive black hole makes the quasar bright enough to outshine all the galaxy's stars.

The quasar Webb explored, called SDSS J165202.64+172852.3, existed 11.5 billion years ago. It is unusually red not just because of its intrinsic red color, but also because the galaxy's light has been redshifted by its vast distance. That made Webb, having unparalleled sensitivity in infrared wavelengths, perfectly suited to examine the galaxy in detail.

Goddard managed the development of the mission and continues to support NASA's communications efforts in sharing the mission's results.

www.nasa.gov/feature/goddard/2022/nasa-s-webb-uncovers-dense-cosmic-knot-in-the-early-universe

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