

Cosmic Suburbia

Young city dwellers on Earth aren't the only ones rushing to suburbia to start families. New observations from NASA's Spitzer Space Telescope suggest that galaxies also prefer to breed stars in the cosmic suburbs. Hi, I'm Daniel Brennan.

This Spitzer Space Telescope podcast is part of a series highlighting recent discoveries in infrared astronomy. It's produced by NASA's Spitzer Science Center at the California Institute of Technology in Pasadena. The Spitzer mission is managed by NASA's Jet Propulsion Laboratory.

Across the universe, galaxies reside in communities both big and small. Large, densely populated communities are called galaxy clusters. Like big cities on Earth, clusters are scattered throughout the universe, connected by a web of dusty highways, called filaments. While thousands of galactic residents live within the limits of a cluster, smaller communities of galaxies are sprinkled along filaments, creating the celestial suburbs.

Recently, Spitzer's supersensitive eyes were the first to catch an infrared glimpse of two filamentary roads leading to a galaxy cluster, called Abell 1763. The observations revealed that galaxies sitting along the filaments in cosmic suburbia formed twice as many stars as their cluster counterparts.

Although galaxies breed in suburbia, every suburbanite will eventually retire in a cluster, which many scientists suspect is not conducive to star formation. According to astronomer Dario Fadda of the Herschel Science Center, most suburban galaxies are stripped of their star-forming material when they fall into a cluster. Ram-pressure forces exerted on the falling galaxy, as it speeds through dense intra-cluster material combined with gravitational forces applied by cluster residents work to shove star-forming gas out of the fertile galaxy, essentially quenching its ability to breed stars.

Fadda says the new Spitzer finding will offer some valuable insights into how galaxies grow and change as they leave their small communities in suburbs to join a massive galaxy cluster. He notes that future infrared missions like the European Space Agency's Herschel Space Telescope will be able to follow up on these findings by studying how filaments and clusters affect the growth of galaxies in greater detail. For the Spitzer Science Center, I'm Daniel Brennan.

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to our newsletter. On behalf on NASA's Spitzer Science Center, thanks for listening.