

13.3: Galaxies

A **galaxy** is a massive, gravitationally bound system of stars, stellar remnants, interstellar medium, and dark matter. The term galaxy comes from the Greek *galaxias*, literally translated as milk or milky, referring to our Milky Way galaxy. Galaxies can range in size from the dwarf galaxies — as small as ten million stars, to giant galaxies with one hundred trillion stars. It is currently estimated that there are 170 billion galaxies in the Universe. It is believed that nearly all galaxies also contain stellar systems with planets orbiting many of their stars, like our Milky Way galaxy. However, that has not been confirmed, but is a solid theory based on what we have discovered in the Milky Way, and comparing the characteristics of the Milky Way to other galaxies.

A number of galaxies are believed to have **supermassive black holes** at their centers. The Milky Way's supermassive black hole is called **Sagittarius A^{*}** or **SGR A^{*}**. These supermassive black holes have been observed in a number of other galaxies; astronomers are trying to determine if this is a consistent characteristic.

These supermassive black holes are hypothesized to be the principal driver of the **active galactic nuclei** or **AGN**. An AGN is a compact region located at a galaxy's center, which has a significantly higher luminosity from one to several ranges of the electromagnetic spectrum.

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