

Subject :

Galaxy Evolution and Galaxy Clusters

Title :

Galaxy Evolution across Cosmic Time and Environment

Lecturer :

Yusei Koyama (Subaru Telescope)

Outline :

Galaxies in the present-day universe are really diverse – but the nature of individual galaxies (e.g. color, mass, shape, etc) are not just randomly assigned. Like human beings – properties/personalities of galaxies can be altered by their surrounding environments. Understanding *when*, *where*, and *how* the properties of galaxies are established is thus one of the ultimate goals of the extra-galactic astronomy. In particular, galaxy (proto)clusters in the early universe are excellent laboratories for studying the early stages of galaxy formation along the structure formation of the universe. This lecture will focus on the star formation history and the build-up of a variety of galaxy morphologies across cosmic time and environment, by reviewing recent progresses from observations of distant galaxies and clusters of galaxies with Subaru Telescope. If time allows, I will also introduce some very recent results from the James Webb Space Telescope, launched in December 2021.

Learning objectives :

- Galaxy evolution across cosmic time
- Environmental impacts on galaxy formation
- Search for distant galaxies and clusters in the early universe

Textbooks and references :

N/A