Investigating the Optical/NIR Properties of Galaxies inside Clusters using the Archival Data Resources from Astronomical Satellites

Project Description:

With its high sensitivity and high spatial resolution, ALMA observation of the thermal Sunyaev & Zel'dovich effect (SZE) of clusters of galaxies will offer an important key information to characterize the properties of detail thermal and kinematic structure of clusters of galaxies. The SZE is especially important because it is a scattering process and the strength of the distortion does not depend on redshift, enabling us to probe clusters at very high redshifts.

For the effective usage of these powerful ALMA observations, however, the complementary multi-wavelength observations are essential.

As part of multi-wavelength observational campaign to characterize galaxies and clusters of galaxies, the deep imaging in both optical and near infrared bands is crucial.

Here, we propose to start assembling the optical/near-infrared datasets of several clusters of galaxies using archival data taken from astronomical satellites, to investigate properties of galaxies inside clusters of galaxies.

Supervisors:

Primary supervisor:
Yasuhiro Hashimoto (NTNU)

Secondary supervisor:
Sebastien Foucaud (NTNU)

Preferred background of student candidates

*Strong knowledge/experience in computers is essential. Familiarity with linux is highly desirable.
*Background knowledge in astronomy is essential.
*Good English communication skill is desirable.
*Prefer a senior student, but junior student is acceptable if s/he can meet the requirements/preferences above.