A15a Mapping Dusty Star Formation in the Cluster Outskirts at z=0.8 with AKARI

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We have studied many distant galaxy clusters mainly using the Subaru Telescope (PISCES project, e.g. Kodama et al. 2005). The wide field of view of the Subaru Telescope has enabled us to show that the "group" and "outskirt" environment surrounding galaxy clusters is important when considering the galaxy evolution. Many previous studies showed that in the distant universe the number of infrared(IR) luminous galaxies increase with lookback time, and it is said that this IR-luminous stage is a important phase of the galaxy evolution.

We have observed many galaxy clusters in wide redshift range (CLEVL, PI: H.M. Lee) with AKARI IRC, which has a wide field of view ($10' \times 10'$). Especially, we could get very deep data in N3($3\mu m$), S7($7\mu m$) and L15($15\mu m$) bands with AKARI for one of our targets, RXJ1716 cluster($z = 0.81$), which is located near the NEP field. Combining with Subaru $VRi'z'$ data, we have analysed this cluster in detail. As a result, many mid-infrared(MIR) sources are detected from the cluster outskirts, while few MIR sources are detected from the very center of the cluster core. Also, these MIR sources are detected mainly from blue galaxies, but some MIR sources associate with optically red galaxies. In our presentation, focusing on the results for the RXJ1716 cluster, we discuss the galaxy evolution and its physical processes in and around the galaxy clusters at high redshifts.