A03a **Galaxy Morphologies and Star Formations at Redshift** $z \sim 1$

(   ) MODS

We used the Subaru/MOIRCS JHKs deep imaging data (MOIRCS Deep Survey; MODS) with the publicly available data including HST/ACS and Spitzer/MIPS to investigate the morphologies and the star-formation activities of galaxies at $z \sim 1$ in the GOODS-North field.

The Ks-band data has the F.o.V. of $\sim$33 arcmin^2, the limiting magnitude of $\sim$25.0 (5sigma, AB) and the seeing FWHM of ~ 0.4 arcsec.

We compiled the rest-frame optical to NIR morphologies, the star-formation (SF) rates (SFRs) estimated from the UV-continuum fluxes and/or the MIPS 24um fluxes, and the multi-band (photometric) SEDs, and then constructed the stellar mass-selected sample (Ms$> 10^{10}$Msun) between z=0.8 and 1.2.

Galaxies with active SFs inferred from either UV or 24um flux are mostly Luminous InfraRed Galaxies (LIRGs) and they have the disk-dominated morphologies with no clear signs of galaxy interaction in both the z-band (rest-frame B-band) and Ks-band (rest-J). Those LIRGs have comparable sizes and number densities to those of the local massive spirals.

We conclude that (1) the LIRGs at $z \sim 1$ are the progenitors of the local massive spirals, (2) the growth of their structures (stellar masses and sizes) have been almost completed at $z \sim 1$, and (3) their SFRs decrease faster than the cosmic SFR. Their high SFRs compared to the local galaxies are thought of as the final phase of the structure formation including disk-dominated morphologies.