S06a Optical IFU Observations of GOALS Sample with KOOLS-IFU on Seimei Telescope: Initial results of 9 U/LIRGs at $z < 0.04$

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We present ionized gas properties of 9 local ultra/luminous infrared galaxies (U/LIRGs) at $z < 0.04$ through IFU observations with KOOLS-IFU on Seimei Telescope. The observed targets are drawn from the Great Observatories All-sky LIRG Survey (GOALS), covering a wide range of merger stages. We successfully detect emission lines such as Hβ, [O III]λ5007, Hα, [N II]$\lambda\lambda$6549,6583, and [S II]$\lambda\lambda$6717,6731 with a spectral resolution of $R = 1500$–2000, which provides (i) spatially-resolved ($\sim$200–700 pc) moment map of ionized gas and (ii) diagnostics for active galactic nucleus (AGN) within the central $\sim$3–11 kpc in diameter for our sample. We find that [O III] outflow that is expected to be driven by AGN tends to be stronger (i) towards the galactic center and (ii) as a sequence of the merger stage. In particular, the outflow strength in the late-stage (stage D) mergers is about 1.5 times stronger than that in the early-stage (stage B) mergers, which indicates that galaxy mergers could induce AGN-driven outflow and play an important role in the co-evolution of galaxies and supermassive black holes (Toba et al. 2022, PASJ, in press.) (arXiv:2208.11824).