Chemo-Kinematic Survey of z ∼ 1 Star Forming Galaxies using Keck OSIRIS LGS-AO

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Abstract. We present first results from the Intermediate Redshift OSIRIS Chemo-Kinematic Survey (IROCKS) of z ∼ 1 star forming galaxies (Mieda *et al.* in prep). We have targeted Hα and [NII] emission lines in J-band and have spatially resolved the galaxies at sub-kilo parsec scale. We have combined our sample with deep HST continuum images, and are able to reveal the dynamics, morphologies, metallicity distribution, emission-line diagnostics, and star formation rates of galaxies spanning this crucial z ∼ 1 epoch.

1. Introduction

The majority of high redshift galaxy studies using IFS + AO have focused on z > 1.3 and under-sampled z ∼ 1 due to instrumental and AO performance. The z ∼ 1 regime is a critical epoch to understand galaxy evolution; it is when the star formation rate density starts to rapidly drop (Hopkins & Beacom 2006), and the stellar mass density becomes more established to present-day values (e.g. Ilbert *et al.* 2013).

2. Conclusions

We have observed z ∼ 1 star forming galaxies using Keck OSIRIS LGS-AO. We selected galaxies in many fields: GOODS-S, GOODS-S, DEEP2, and UDS. We detected over ten sources, and it is now the biggest IFS + AO z ∼ 1 samples. Our samples span $0.83 \lesssim z \lesssim 0.98$. Hα and [NII] emission lines show $50 \lesssim \sigma \lesssim 80$ km/s and $-0.7 \lesssim log_{10}([NII]/H\alpha) \lesssim -0.3$. Using Planck cosmology, Kennicutt (1998) + Chabrier (2003), and E(B-V) = 0.15, SFR of our samples span an order of magnitude, $2 \lesssim SFR_{H\alpha} \lesssim 20$ M$_\odot$/yr.

References

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