

GALAXY INTERACTIONS IN THE IFU ERA: THE SPATIALLY RESOLVED PROPERTIES OF THE INTERACTING SDSS-IV MANGA GALAXIES.

L. Lin ¹, J.K. Barrera-Ballesteros², S.F. Sánchez³

We present a study of the spatially resolved properties of a sample of 240 interacting galaxies included in the MaNGA survey. In particular, we compare their surface mass density, metallicity and specific star formation rate (sSFR) radial profiles with respect to a control sample of non-interacting galaxies. Our preliminary results quantify the degree (and location) on how interactions shape galaxy properties.

Galaxy interactions have been acknowledged as a key mechanism in galaxy formation and evolution. This evolutionary channel has a profound impact in the galactic observables as well as the triggering of complex physical processes at different scales of the interacting systems. In particular, large spectroscopic samples reveal that central sSFR (metallicity) is enhanced (reduced) as companions approach to each other.

Integral-field spectroscopy observation (IFS) have become available for a large sample of galaxies. From the CALIFA interacting sample it was possible to determine the change of sSFR enhancement at different aperture sizes. Central regions show larger sSFR enhancement in comparison to extended apertures. This suggests that tidal inflows produced by the interaction trigger central star formation. Despite these efforts, the samples of these IFS surveys are rather small in size and cover a limited range of the interaction parameters. The IFS MaNGA survey (Mapping Nearby Galaxies at APO) is ideal for probing the impact of global parameters on the local relations. It is aimed to observed 10,000 galaxies. Currently, more than 1,300 galaxies have been observed, reduced and analyzed.

In this study we want to dissect one of the largest sample of interacting galaxies with IFS observations. Currently the MaNGA survey have acquired obser-

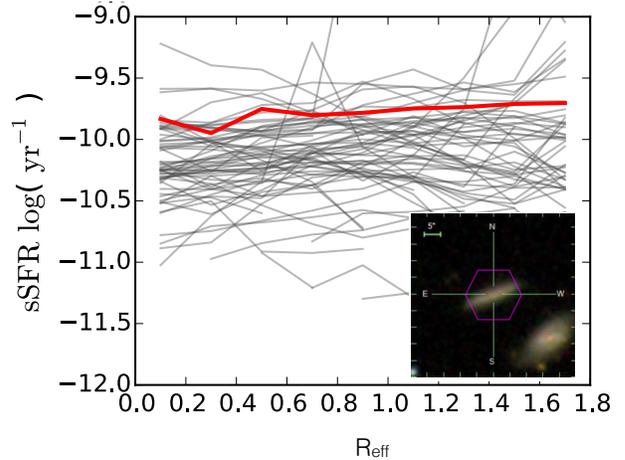


Fig. 1. sSFR radial profile of an interacting galaxy (red curve) compared with a matched control sample in stellar mass (gray curves). The inset shows a composite SDSS image highlighting the MaNGA field-of-view footprint. The sSFR at different radii for the paired galaxy is larger in comparison with control objects.

vations from more than 240 interacting galaxies. The importance of the statistical large sample from the MaNGA survey lies in the fact that we will have a large sample of control galaxies which allows us to perform a precise quantification of the impact of interactions in galactic observables such as the SFR or metallicity. Among other studies, we will study the location and the degree of enhancement of SFR in interacting galaxies at different interaction stages. As a first step, we compare the radial profile of the SFR of a given interacting galaxy with respect to profiles from control galaxies (see Fig. 1). Thanks to the large wavelength coverage we are able to measure the metallicity gradient in these interacting galaxies as well as quantify any possible dilution caused by interactions.

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¹Academia Sinica Institute of Astronomy and Astrophysics P.O. Box 23-141, Taipei 10617, Taiwan (lih-wailin@asiaa.sinica.edu.tw).

²Department of Physics & Astronomy, Johns Hopkins University, Bloomberg Center, 3400 N. Charles St., Baltimore, MD 21218, USA.

³Instituto de Astronomía, Universidad Nacional Autónoma de México, A.P. 70-264, 04510 México, D.F., México.