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Hα kinematics of nearby galaxies using Fabry-Perot and IFU data

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Abstract. I present here analysis of the shapes of the rotation curves of a large sample of nearby spiral galaxies with high angular and spectral resolution Hα (Fabry-Perot GHαFaS) kinematics, and the resulting constraints on their total mass distributions. In particular I discuss how their rotation curve shapes relate to key galaxy properties. Finally I present related results from the MUSE Atlas of Disks (MAD) program, which is dissecting the nearby disk population with IFU spectroscopy at ∼100pc resolution.

Keywords. Spirals - kinematics

1. Inner Rotation Curves

We present the results published in Erroz-Ferrer *et al.* (2016) regarding the relationship between the shape of the inner rotation curves and the galaxy properties. We find that the stellar mass and the maximum rotational velocity limit the inner slope. The bar strength, bar length and star formation rate do not correlate with the inner slope of the rotation curve. On the other hand, the central surface brightness, T-type, bulge-to-total ratio and bulge mass correlate with the inner slope, indicating that bulges play a role in the dynamics of the central parts and that baryonic mass dominates the dynamics in the inner regions.

2. MAD* Kinematics and Gas Properties in Nearby Galaxies

We show the first results from the MAD (Carollo *et al.*, in prep.) program. First, we study the possible decoupling between stellar velocity and gas velocity found in the central parts of our galaxies. The BPT diagrams and gas velocity maps discriminate between the different physical scenarios, pointing towards inflows and outflows provoking shocks, caused for example by a bar. Secondly, we study the inner kinematic and gas properties of the disks that have different outer brightness profiles (Type II and Type III breaks). We find that the stellar and gas velocity dispersion profiles present a similar exponential decay for both Type II and Type III galaxies. The gas metallicity gradient is nearly flat for both Type II and Type III, and steeper electron density radial profiles are found for Type III than Type II galaxies.

Reference

Erroz-Ferrer, S., Knapen, J. H., Leaman, R., *et al.* 2016, *MNRAS*, 458, 1119