

Parallel-sequencing of early-type and spiral galaxies

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Abstract. Since Edwin Hubble introduced his famous tuning fork diagram more than 70 years ago, spiral galaxies and early-type galaxies (ETGs) have been regarded as two distinct families. The spirals are characterized by the presence of disks of stars and gas in rapid rotation, while the early-types are gas poor and described as spheroidal systems, with less rotation and often non-axisymmetric shapes. The separation is physically relevant as it implies a distinct path of formation for the two classes of objects. I will give an overview of recent findings, from independent teams, that motivated a radical revision to Hubble's classic view of ETGs. These results imply a much closer link between spiral galaxies and ETGs than generally assumed.

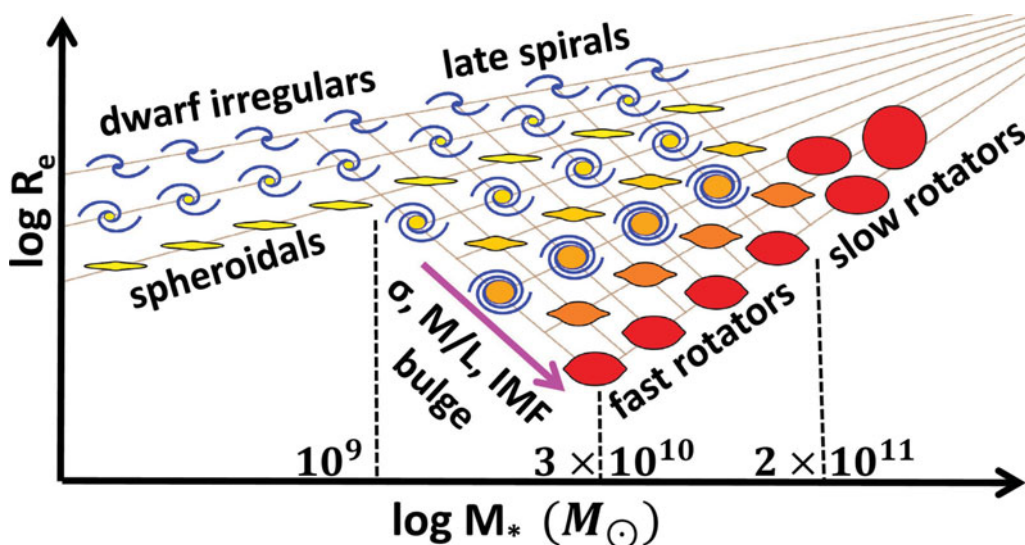


Figure 1. ETGs properties like shape, dynamics, population and IMF, merge smoothly with the properties of spiral galaxies on the mass-size diagram. All trends appear driven by an increase of the bulge fraction, which greatly enhance the likelihood for a galaxy to have its star formation quenched. This parallelism between the properties of spirals and ETGs motivated a proposed revision of Hubble's tuning-fork diagram. The same symbols are used in this figure (taken from Cappellari *et al.* 2012) as in the 'comb' morphological classification diagram proposed in Cappellari *et al.* (2011).

References

- Cappellari, M., *et al.*, 2011, *MNRAS*, 416, 1680
- Cappellari, M., *et al.*, 2013, *MNRAS*, 432, 1862