



Lodewijk Woltjer Lecture: When Galaxy Scaling Relations Play Together (No 1226)

📅 29.06.2020 ⌚ 11:30 - 12:00 🏆 Prize winner
🔗 Monday Plenary

[Alvio Renzini¹](#)

¹ INAF - Osservatorio Astronomico Di Padova

Observations have established a series of trends of major galaxy properties with redshift, called scaling relations, which represent a top-level summary of how galaxies evolve.

In particular, these relations refer to galaxy sizes, star formation rates, gas fraction and rotational support. From such relations and their combinations one can deduce other trends with redshift, such as how much an individual galaxy will grow in mass, surface density and angular momentum (AM). Particularly intriguing is the AM evolution of galactic disks, with scaling relations suggesting a more than an order of magnitude increase since redshift 2. Still, this appears to conflict with other lines of evidence, while instead agreeing with some hydrodynamical simulations. Solving these conflicts offers an excellent opportunity for a better understanding of how galaxies evolve, with AM coming to play a primary role. The star formation rates and star formation histories (SFH) have been central to galaxy evolution studies over the last two decades. Time has come for the AM histories (AMH) to share the stage -on equal foot- with the SFH.

