

Clues on structure and composition of galactic disks from studies of 'superthin' spirals

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'Superthins' are a subset of low surface brightness spiral galaxies seen edge-on, and that exhibit highly flattened ($a/b > 10$), bulgeless stellar disks, often with extremely small stellar scale heights ($h_z \sim 150 - 200$ pc). These properties imply the superthins have undergone few external perturbations during their lifetimes, and must be highly dark matter-dominated. These galaxies therefore provide excellent laboratories for constraining models of galaxy disk assembly and the nature of galactic dark matter, and can yield valuable insight into how both internal and external processes affect the evolution of galactic disks. I will highlight some recent results from the analysis of multiwavelength observations of two nearby superthin spirals, with an emphasis on sensitive new VLA HI imaging. The first galaxy is isolated, while the second is located in a group environment and in the process of undergoing a minor merger. I will discuss the clues these observations shed on a variety of phenomena, including the origin of warps, dynamical heating, secular evolution, and the fraction of dark matter residing in the disks versus the halos of late-type galaxies.

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