

Radial Migration in Spiral Galaxies

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Understanding the build up of spiral galaxy disks hinges on our capacity to determine where and when the stars that make up the main structures were born. While young stars are typically kinematically cold, following the low velocity dispersion of the gas from which they spawn, the departure such circular orbits increases for older generations of stars. In the solar neighborhood, the maximum amount of such oscillations about the guiding radii of the oldest stars is ~ 1.5 kpc. However, in recent years it has become widely acknowledged that in addition to simply increasing their oscillations around their guiding centers, stars may shift those guiding centers by several kpc on short timescales due to resonant interactions with disk structure. Such orbital radial migration significantly complicates the reconstruction of disk formation from the stellar record because it prevents one from safely assuming that groups of stars observed at a given location in the disk today were also actually born there. I will discuss some of the theoretical aspects of this process as well as its observational implications.