

EDGE-ON SPIRAL GALAXIES – DUST INFLUENCE AND THICK DISKS

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1. Vertical model fitting

We have fitted exponential, isothermal (“sech²”) and intermediate (“sech”) model distributions to the observed vertical light profiles in edge-on galaxies.

In general, in the late-type galaxies the vertical light distribution is best represented by either an exponential or a sech single component model; in the inner parts the stellar distribution in the disk seems to be exponential, although near-infrared observations are needed to distinguish between the models. In the early-type galaxies two-component fits yield better results than a single component model.

2. Constant scale height

We confirm that the vertical scale height remains constant as a function of radius, although it seems to lose strength in the outer parts.

The probable cause of this constancy is that in dynamically stable disks Toomre’s (1964) Q -parameter is constant. Combined with an exponentially decreasing velocity dispersion (as found in exponential disks), this leads to a constant scale height.

The flaring in the outer parts may be due to the presence of optical warps or an intrinsic thickening of the galaxy disks.