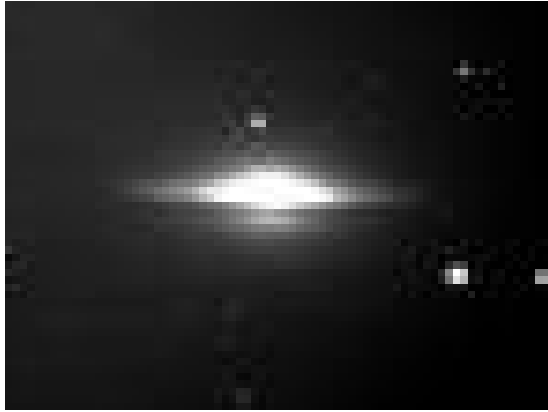


Edge-on galaxies of different Hubble types



Edge on early type spirals = Sa(s) NGC 4594 or M104 (Sombrero)
Unusually large bulge and a dusty disk

Edge-on galaxies of different Hubble types



Sa(s) M104



SA(s) b Pec NGC 891



SA(s)b? NGC 4565

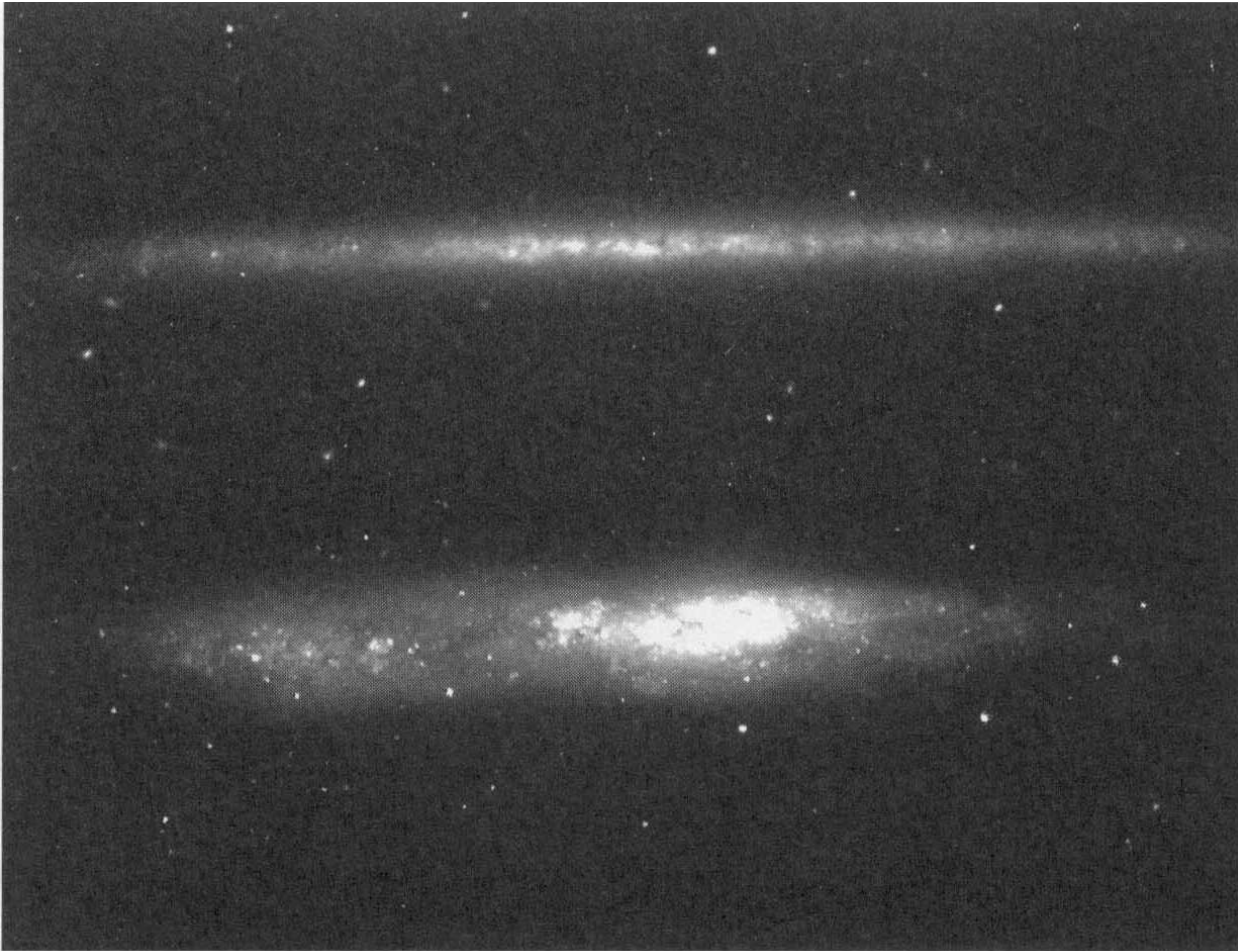


SB(s) cd M108



COBE NIR image of Milky Way SBbc

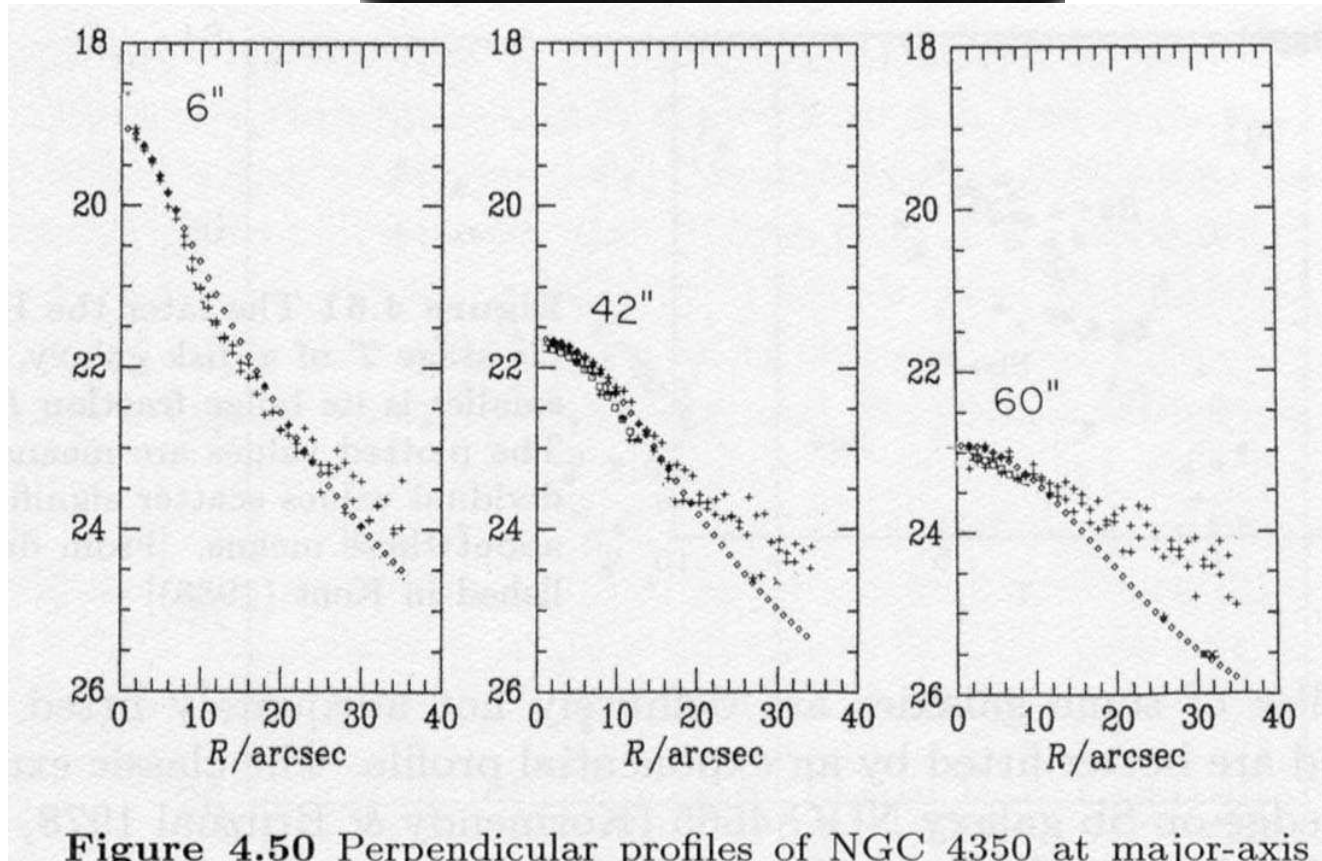
Edge-on galaxies of different Hubble types



Late type galaxies

- Top = Sd, UGC 7321; inc = 88 deg ; $L_B = 1 \times 10^9 L_\odot$, D=10 Mpc
- Lower= SBm NGC 55 : inc=80 deg; $L_B = 2 \times 10^9 L_\odot$; D=1.5 Mpc

Edge-on galaxies: Vertical luminosity density profile



NB: The x-axis " R/arcsec " in the graphs denotes the distance z above the disk plane, along the z -axis or minor axis.

The 3 cuts are made at 3 different positions along the major axis at radii of 6, 42" and 60"

$\text{Sech}^2(z)$, $\text{Sech}(z)$ and exponential fits .

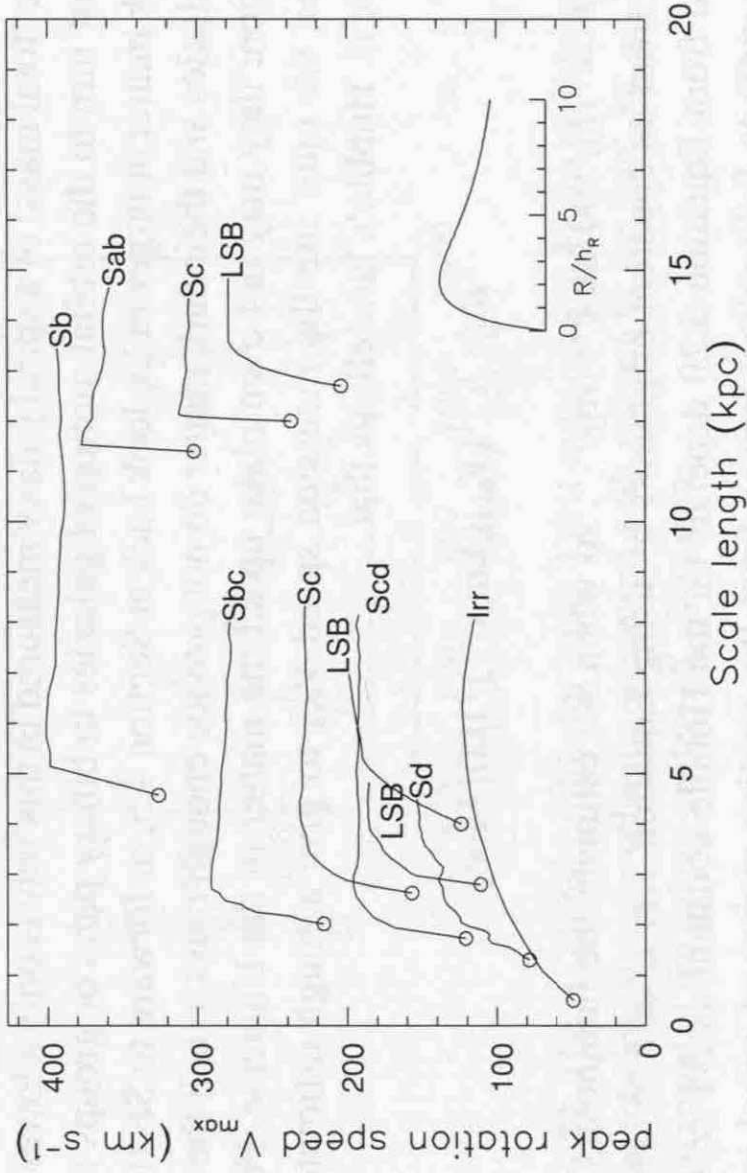


Figure 5.21 Rotation curves for disk galaxies of various types. Open circles show scale length h_R of the stellar disk, and peak rotation speed V_{\max} for each galaxy. Curves are plotted in units of R/h_R , to the same horizontal scale as the inset, showing $V(R)$ for the exponential disk (Equation 5.1). LSB denotes a low-surface-brightness galaxy. The measured rotation does not fall as it should if the stellar disk contained most of the mass – A. Broeils, E. de Blok.

Table 5.1 The sequence of luminous disk galaxies

<i>Characteristic</i>	<i>S0–Sa</i>	<i>Sb–Sc</i>	<i>Sd–Sm</i>
Spiral arms	absent or tight		open spiral
Color	red: late G star	early G star	blue: late F star
$B - V$	0.7–0.9	0.6–0.9	0.4–0.8
$1550 \text{ \AA} - V$	4 to 2	2 to 0	0 to –1
Young stars	few		relatively many
HII regions	few, small		more, brighter
Gas	little gas		much gas
$\mathcal{M}(HI)/L_B$	$\lesssim 0.05$ to 0.1		~ 0.25 to >1
L_B	luminous		less luminous
$I(0)$	$(1-4) \times 10^{10} L_\odot$		$(<0.1-2) \times 10^{10} L_\odot$
$\mathcal{M}(<R)$	high central brightness		low central brightness
Rotation	massive		less massive
	$(0.5-3) \times 10^{11} M_\odot$		$(<0.2-1) \times 10^{11} M_\odot$
	fast-rising $V(R)$		slowly rising $V(R)$

Note: color $1550 \text{ \AA} - V$ is defined as for 15 – V in Table 1.3, using flux-based magnitudes at 1550 \AA measured by OAO and ANS satellites.