

5 : SPIRAL GALAXIES

(5.1) Introduction

- (a) Spiral Galaxies are Complex Systems
- (b) Review of Basic Components

(5.2) 3-D Shapes

- (a) Disks
- (b) Bulges
- (c) Bars

(5.3) Surface Photometry

- (a) Radial Profiles
 - (i) Bulge
 - (ii) Disk
 - (iii) Bulge to Disk Ratio
- (b) Vertical Disk Structure

(5.4) Disk Velocity Field

- (a) 2-D Velocity Fields : Spider Diagrams
- (b) V_{\max} & the Tully-Fisher Relation
- (c) Rotation Curve Shapes and Systematics
 - (i) At Large Radius
 - (ii) At Small Radius
- (d) Stellar Velocities in the Disk
 - (i) Rotation
 - (ii) Dispersion

(5.5) Mass Estimates & Dark Matter Halos

- (a) Deriving $M(<R)$ from $V_c(R)$
- (b) Results from Optical Rotation Curves
- (c) Results from HI mapping
- (d) Dark Matter Halo Structure
- (e) Disk Halo Conspiracy

(5.6) Spiral Structure

- (a) Spirals
 - (i) Spiral Classes
 - (ii) Arm Prominence
 - (iii) Leading or Trailing ?
 - (iv) Pitch Angle
 - (v) The Winding Problem
- (b) Bars