SC Summer '10

DISK GALAXIES FROM Z=1 TO THE PRESENT:KINEMATIC DECOMPOSITION

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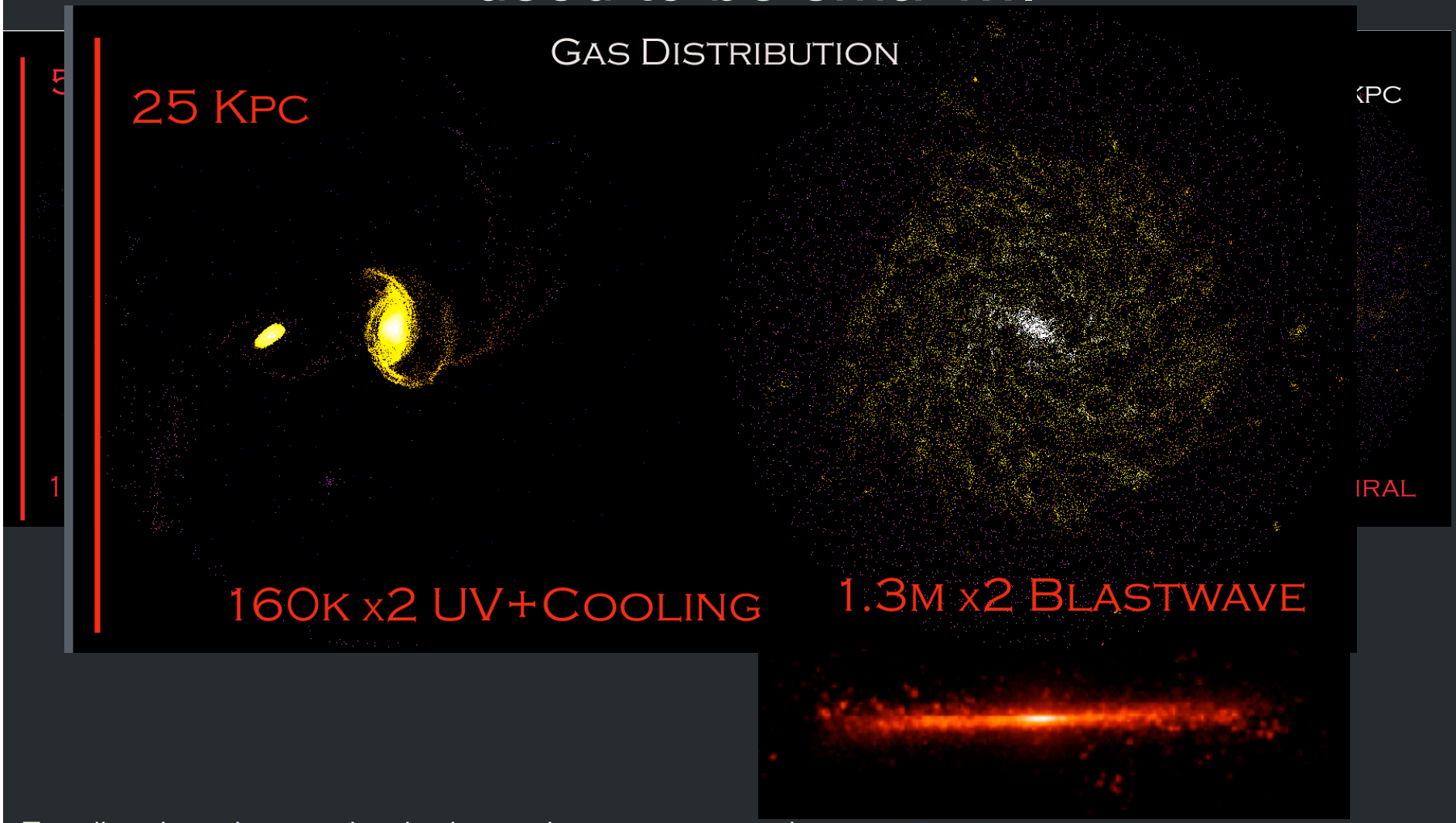
Simulated disks used to be small….



Feedback reduces physical angular momentum loss during the build up of disks.

Are they still too small?
The Luminosity-size relation
is a fundamental test.

The Luminosity - Size Relation at z=0 (Brooks et al '10?)

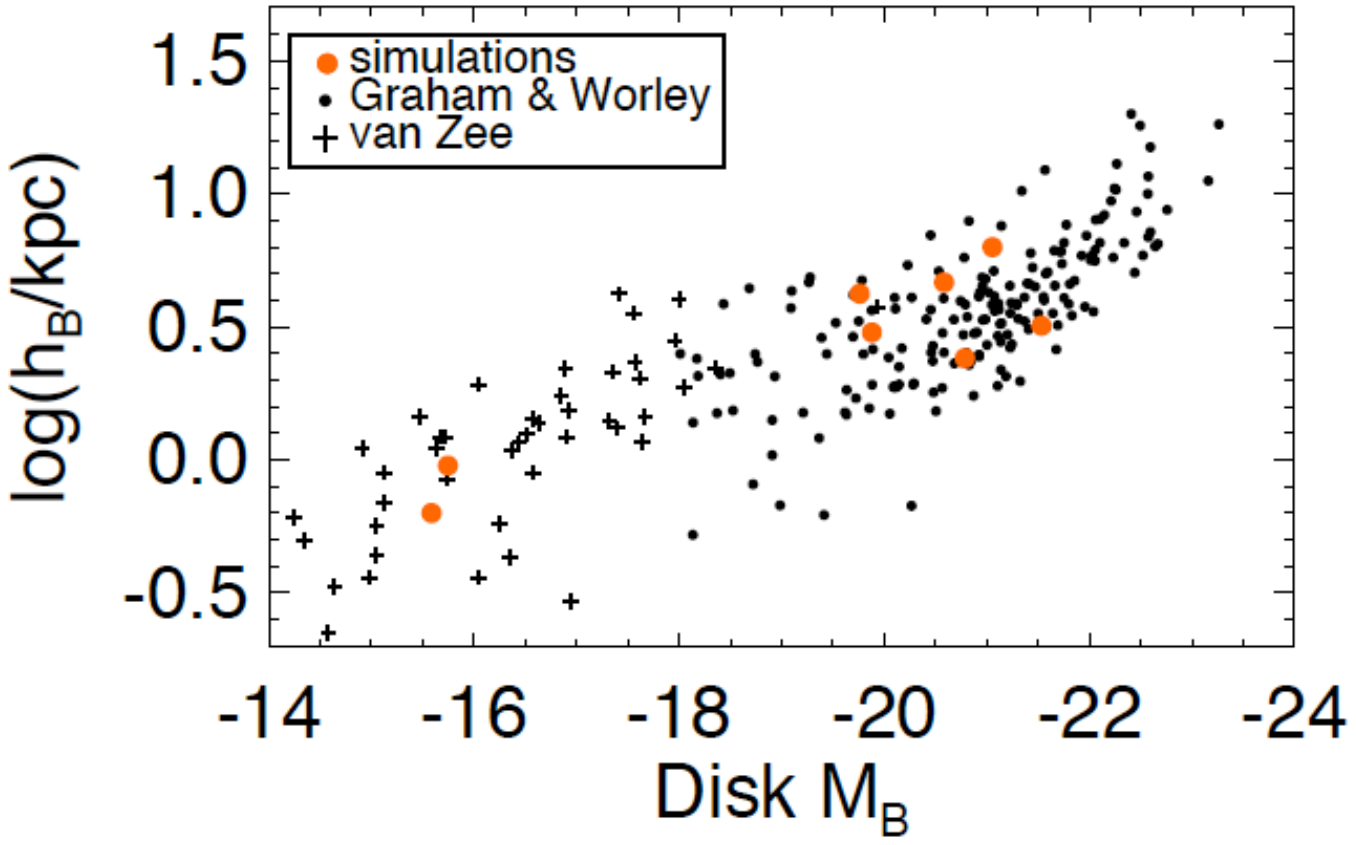
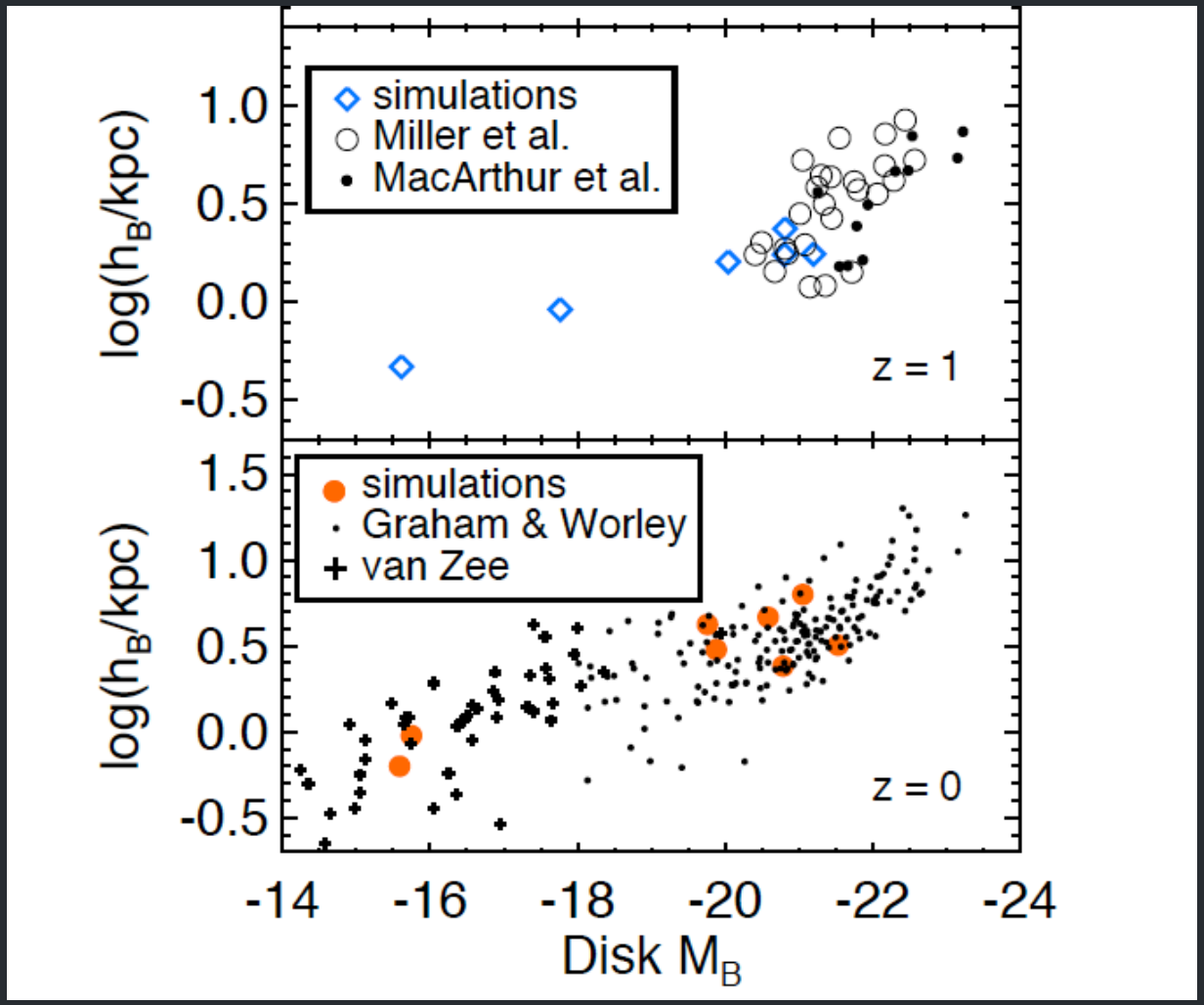


FIG. 3.— B band disk scale length as a function of magnitude for our simulated galaxies. Simulated galaxies at z=0 are shown as large red circles. The observational results of Graham & Worley (2008) and van Zee (2000) are shown for comparison.

Size - Luminosity Relation @ z=1

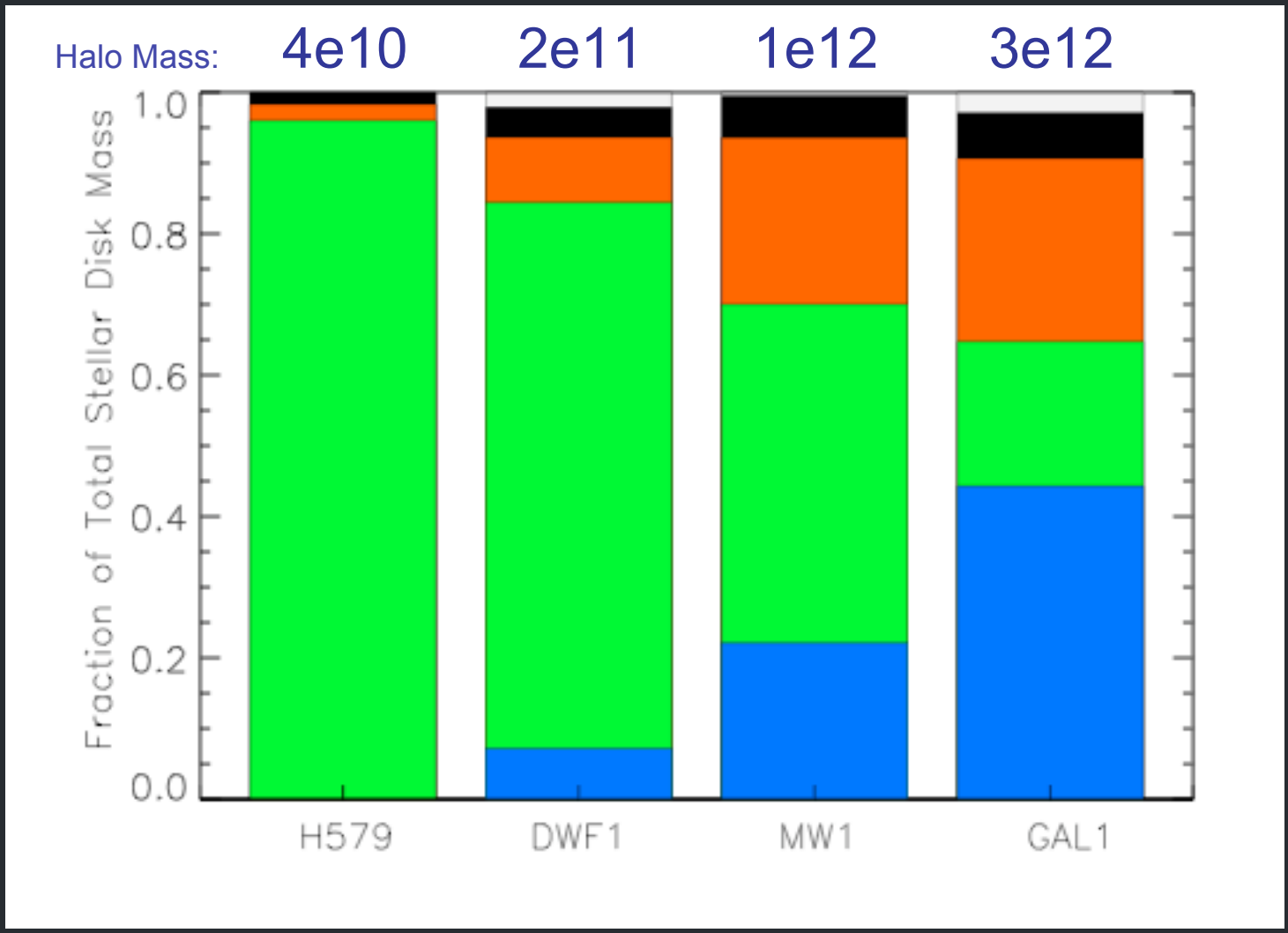


Simulated disk galaxies have the correct size.

Alyson Brooks in prep.
Data from **Graham & Worley, 2008**
MacArthur et al, Miller et al.

Where do disk stars come from?

clumpy cold flows shocked



Brooks et al in 2009.

The kinematic components of simulated galaxies need to be 1) indentified and 2) imaged.

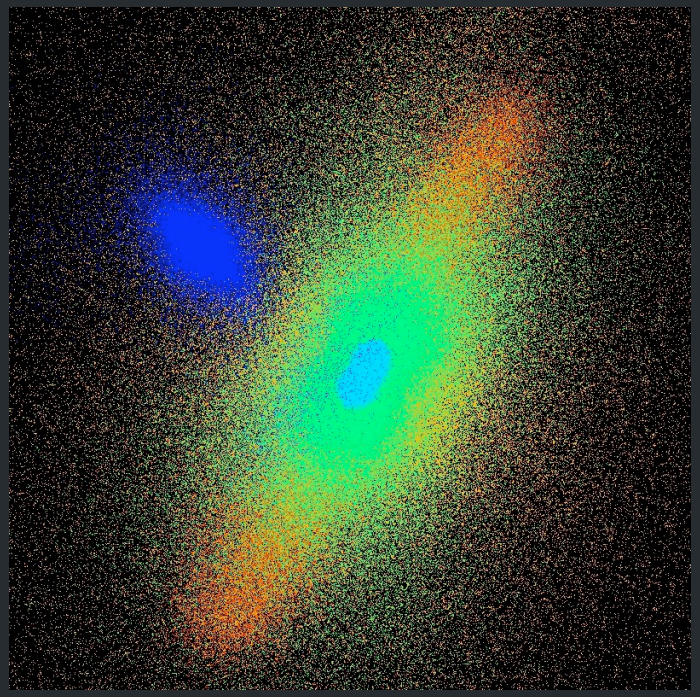
Are they still too small?
The Luminosity-size relation
is a fundamental test.

Kinematic components:

ROTATING
1)Thin Disk

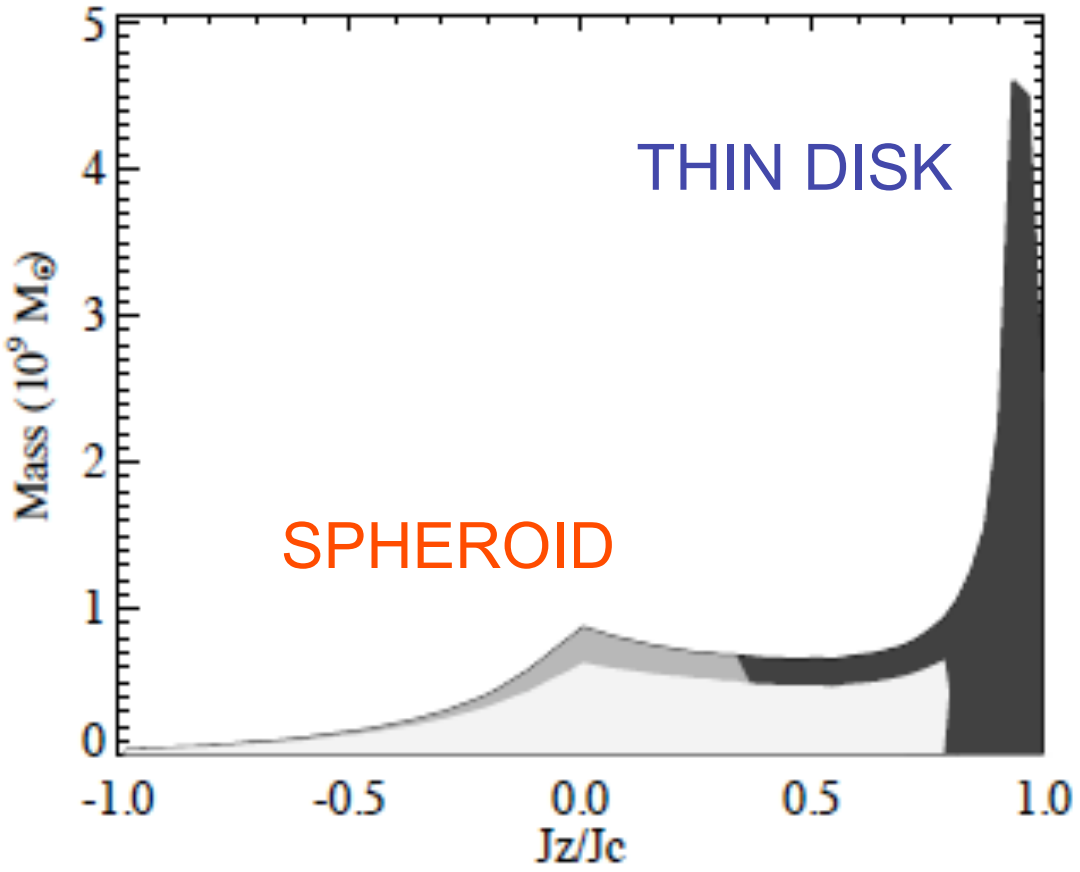
SPHEROID
2) Non rotating Halo
3) Bulge

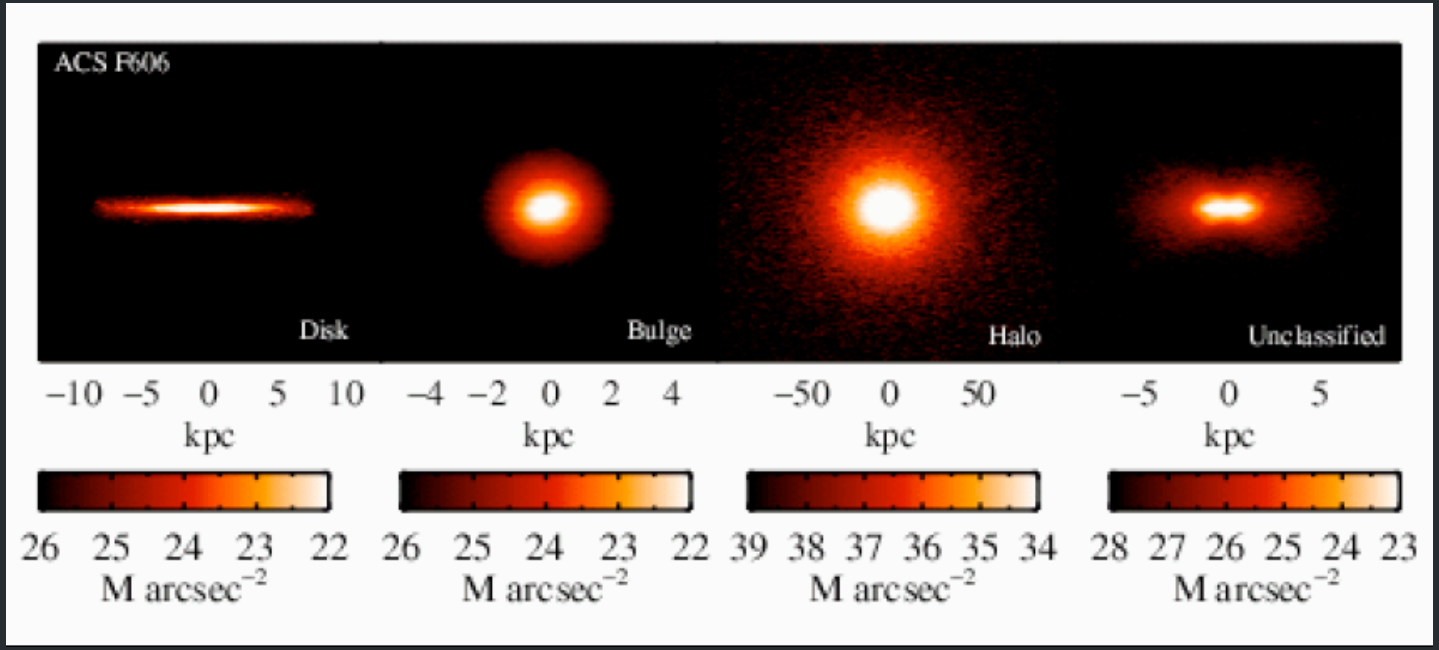
PARTIALLY ROTATING:
4)Thick Disk
5) Pseudo bulge



DECOMP: an IDL + TIPSY procedure to divide the stellar component of a galaxy into its kinematic sub components.

/home/hipacc-29/ANALYSIS/Decomposition


THIN DISK
SPHEROID
Mass (10^9 $M_\odot$)
0
1
2
3
4
5
-1.0
-0.5
0.0
0.5
1.0
Jz/Jc



Theory vs Observations

Kinematic vs Photometric Decompositions