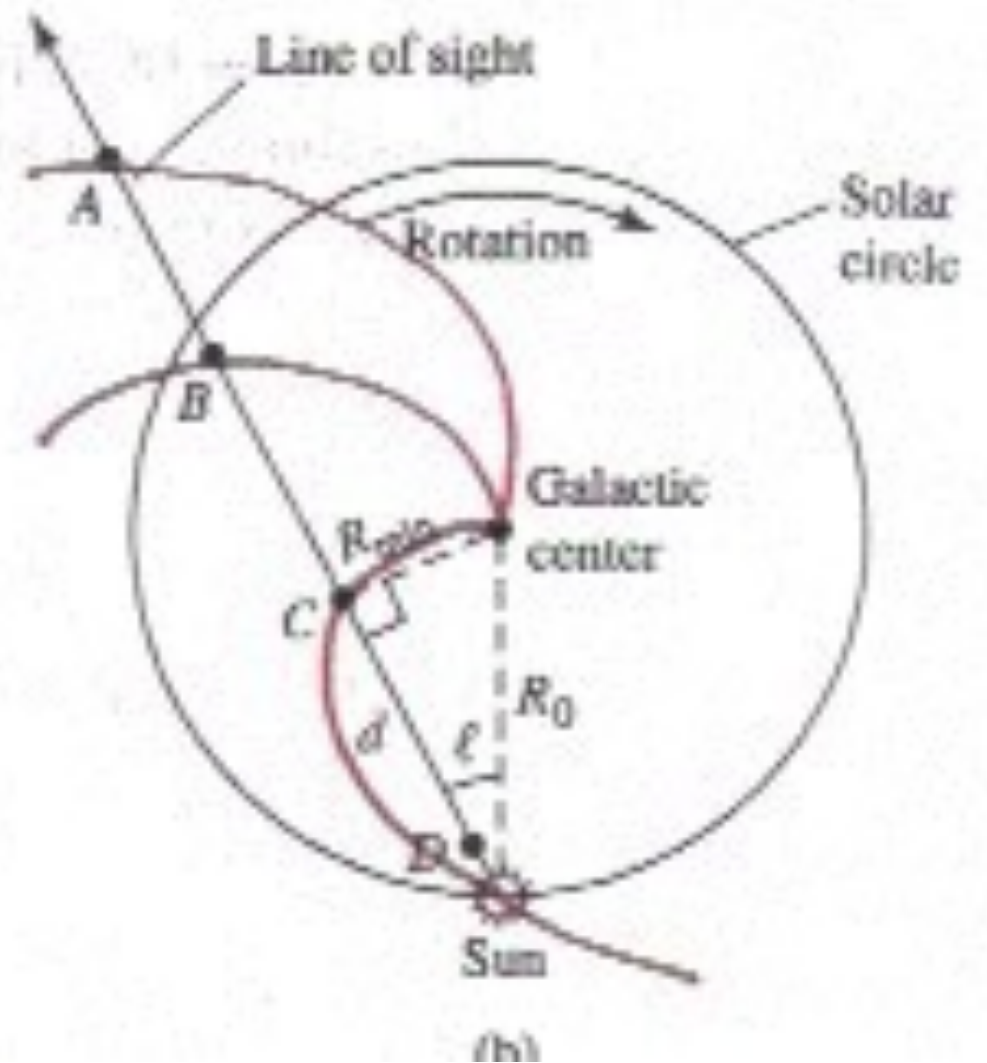
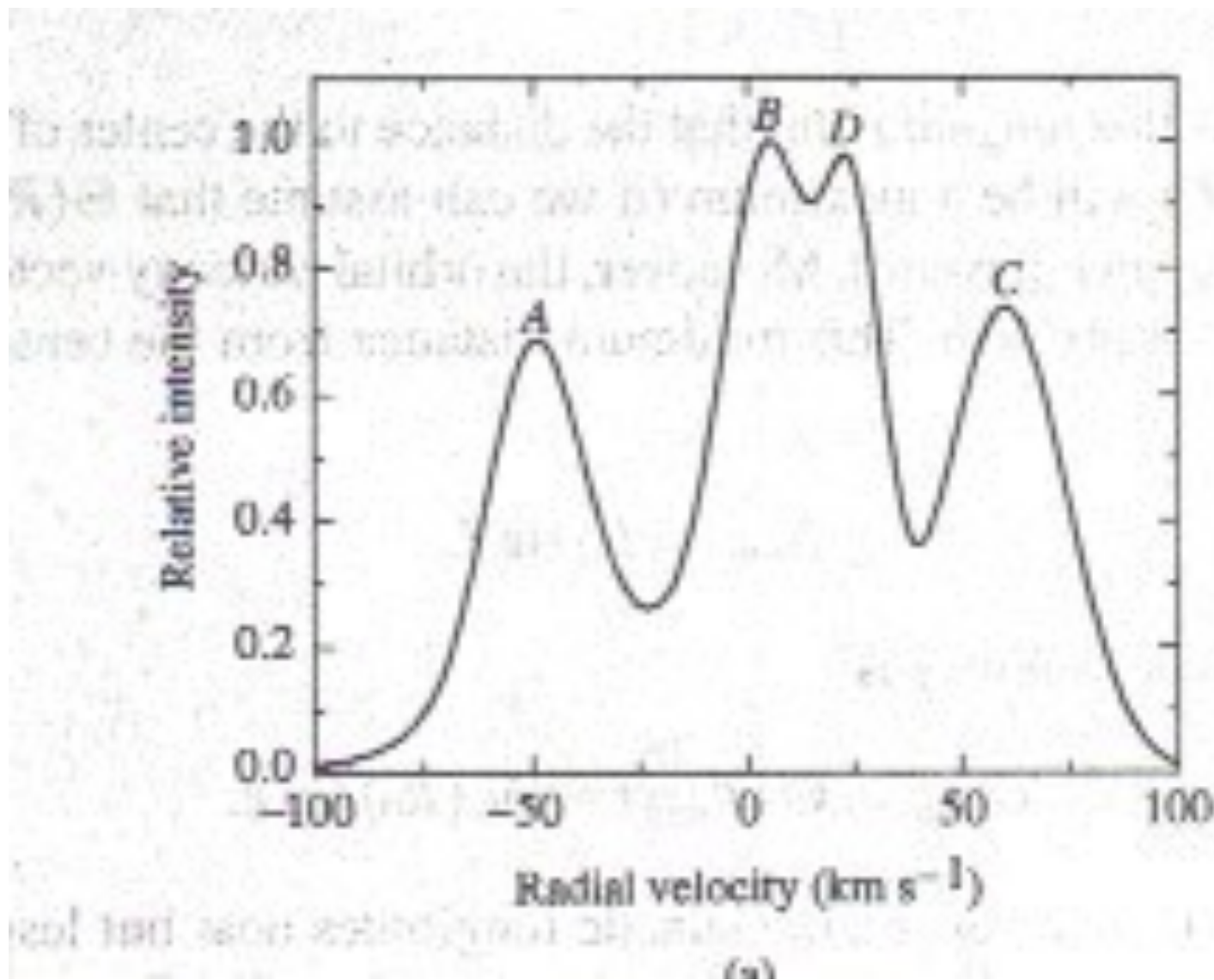


# Spiral Arms and Differential Velocity of the Milky Way Galaxy

H-I Line Profile

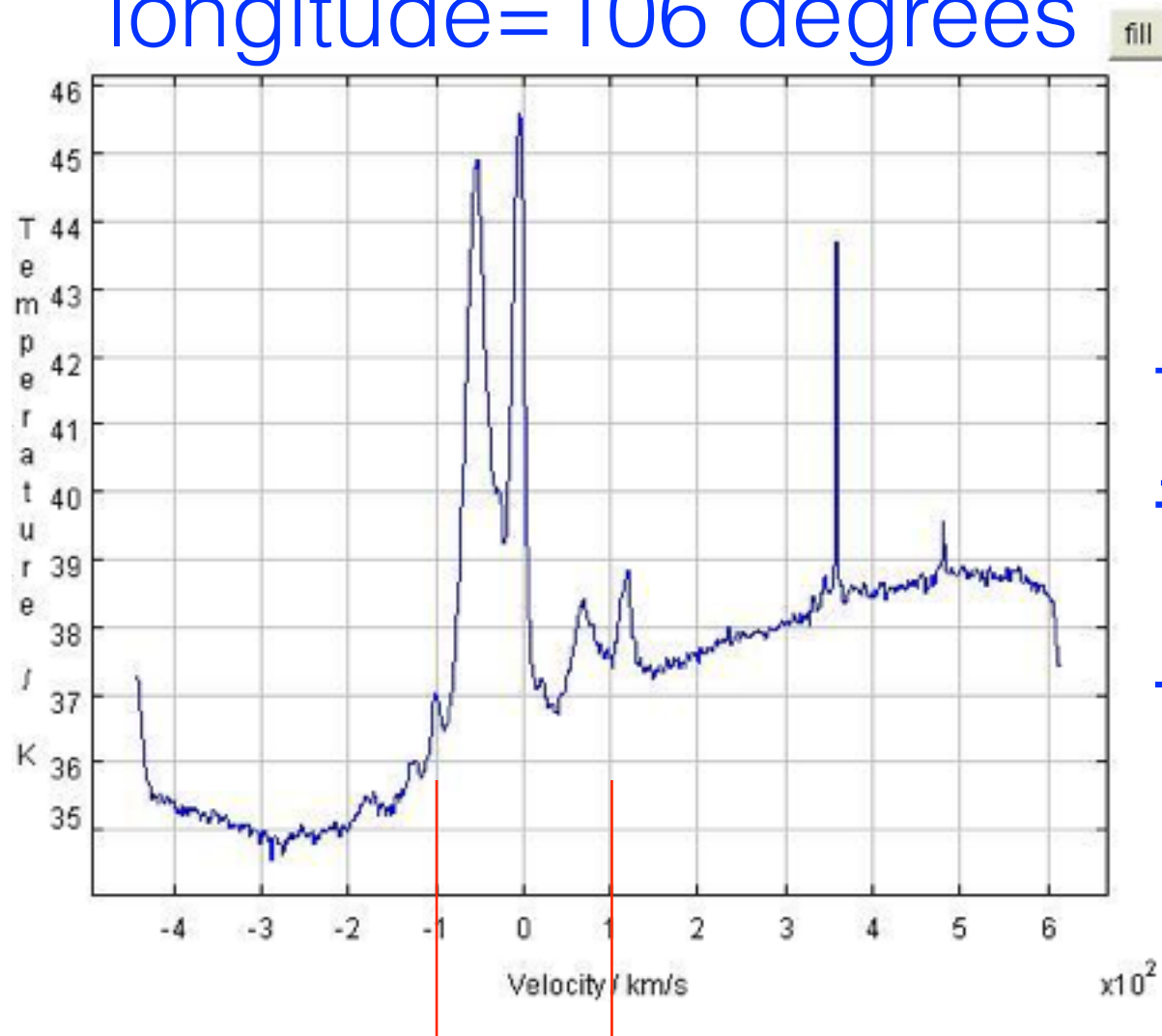
Model



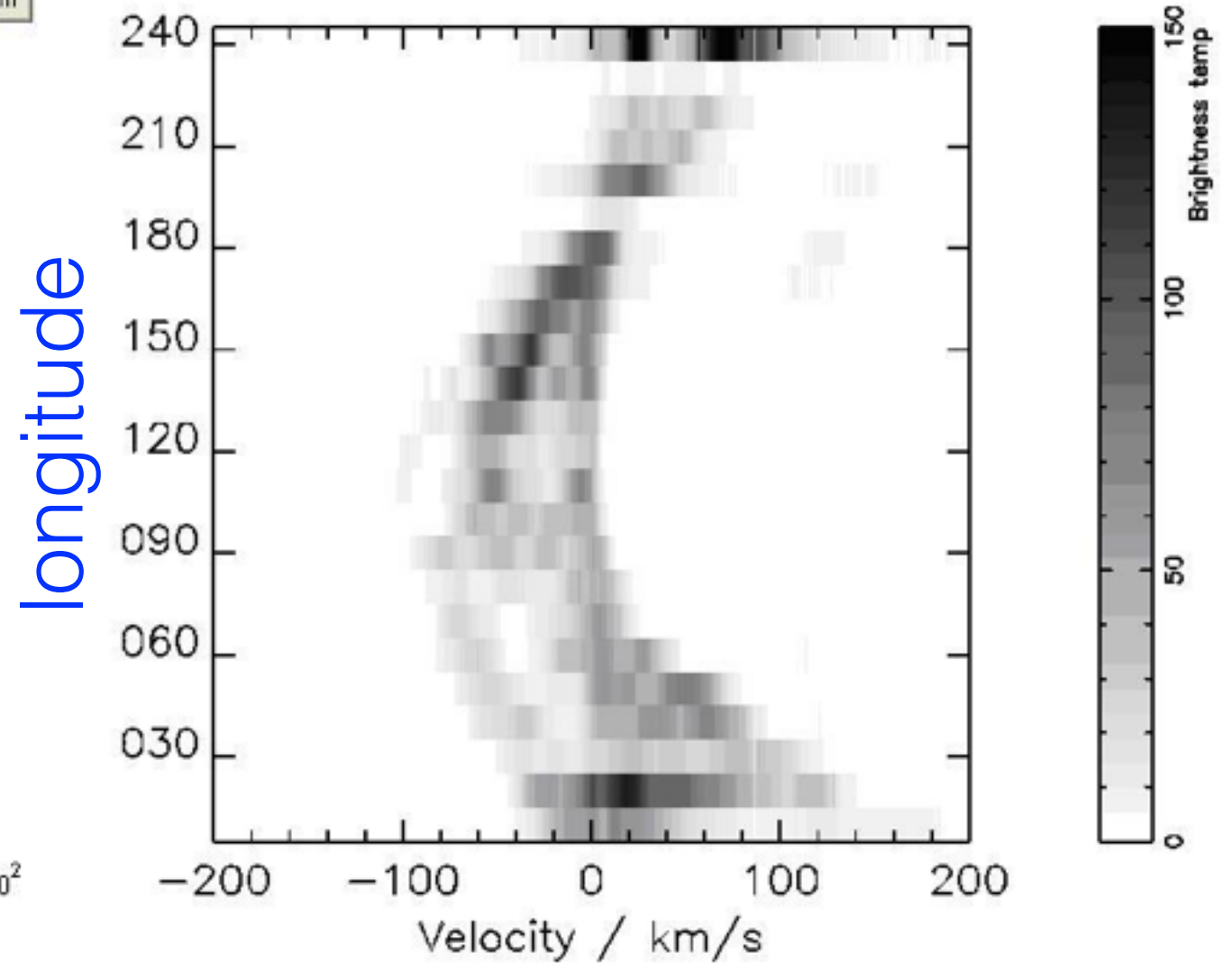
**Carrol and Ostlie Figure 24.24**

<http://www.farnham-as.co.uk/2010/09/mapping-neutral-hydrogen-in-the-milky-way-galaxy-by-peter-campbell-burns/>

longitude=106 degrees

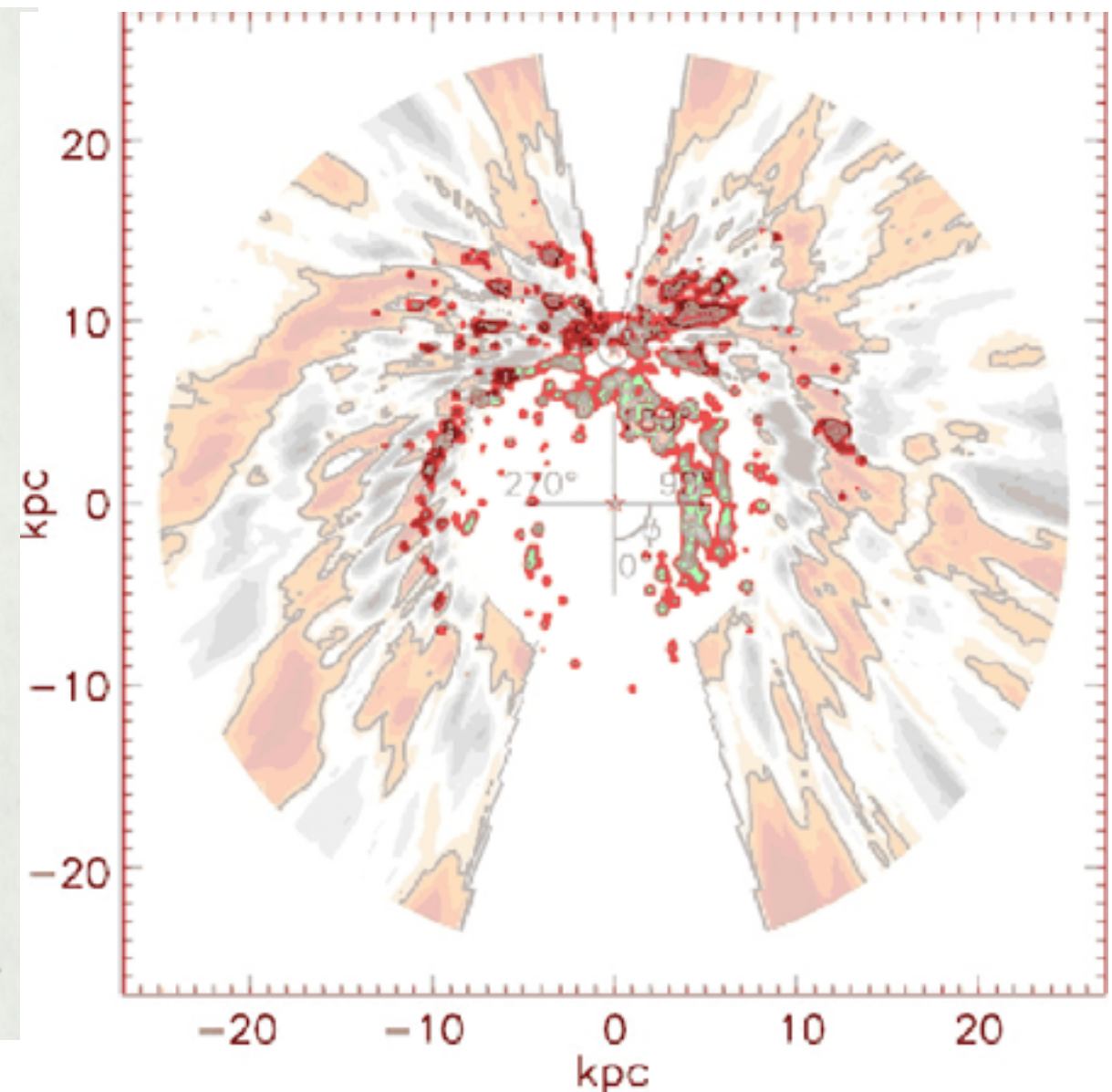
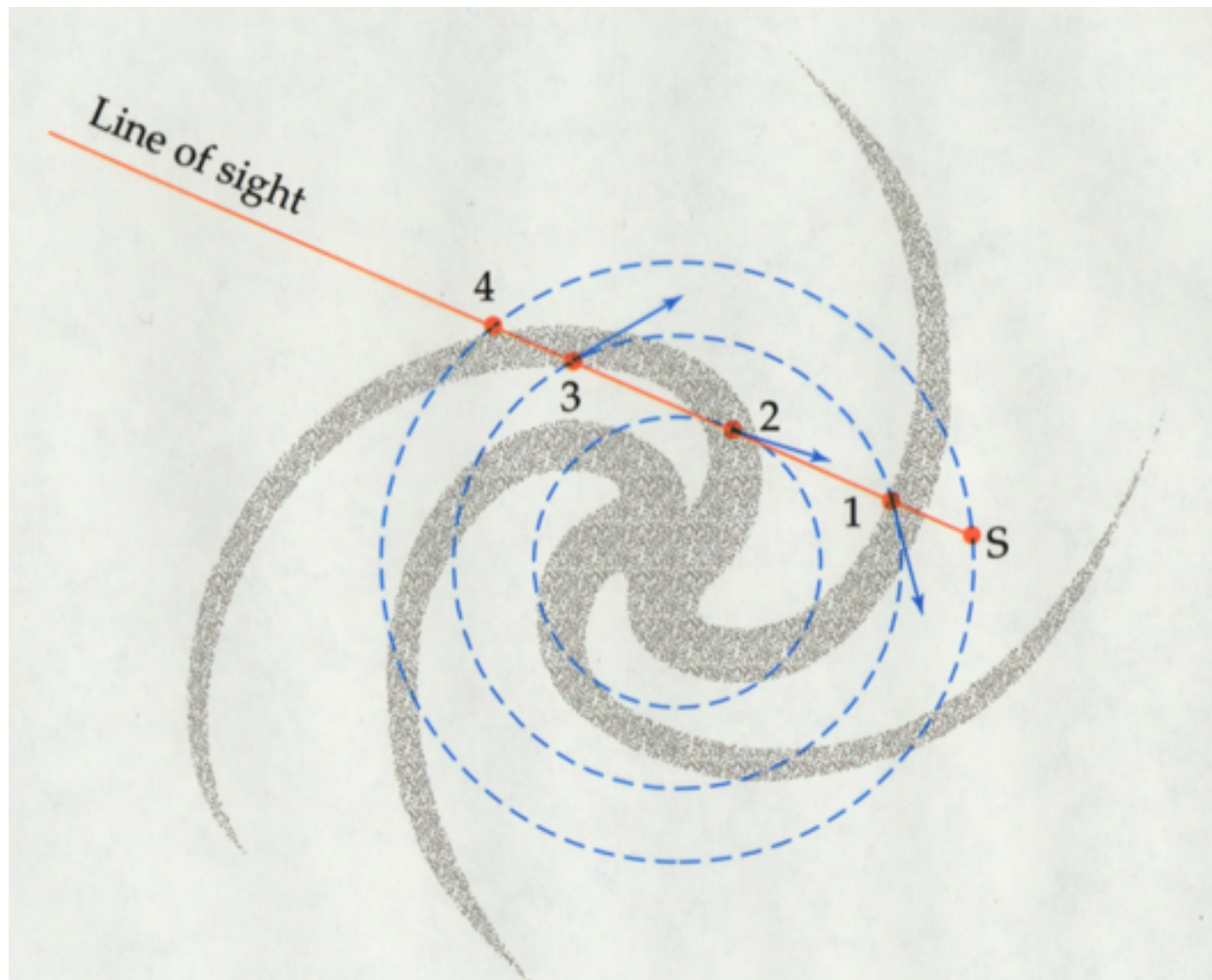


Range of previous slide



# Recall discussion on Doppler Shift of 21cm radiation from H-I regions

## *Spiral structure (?) of the Milky Way Galaxy*



# Dan P Clemens, Astrophysical Journal 295(1985)422

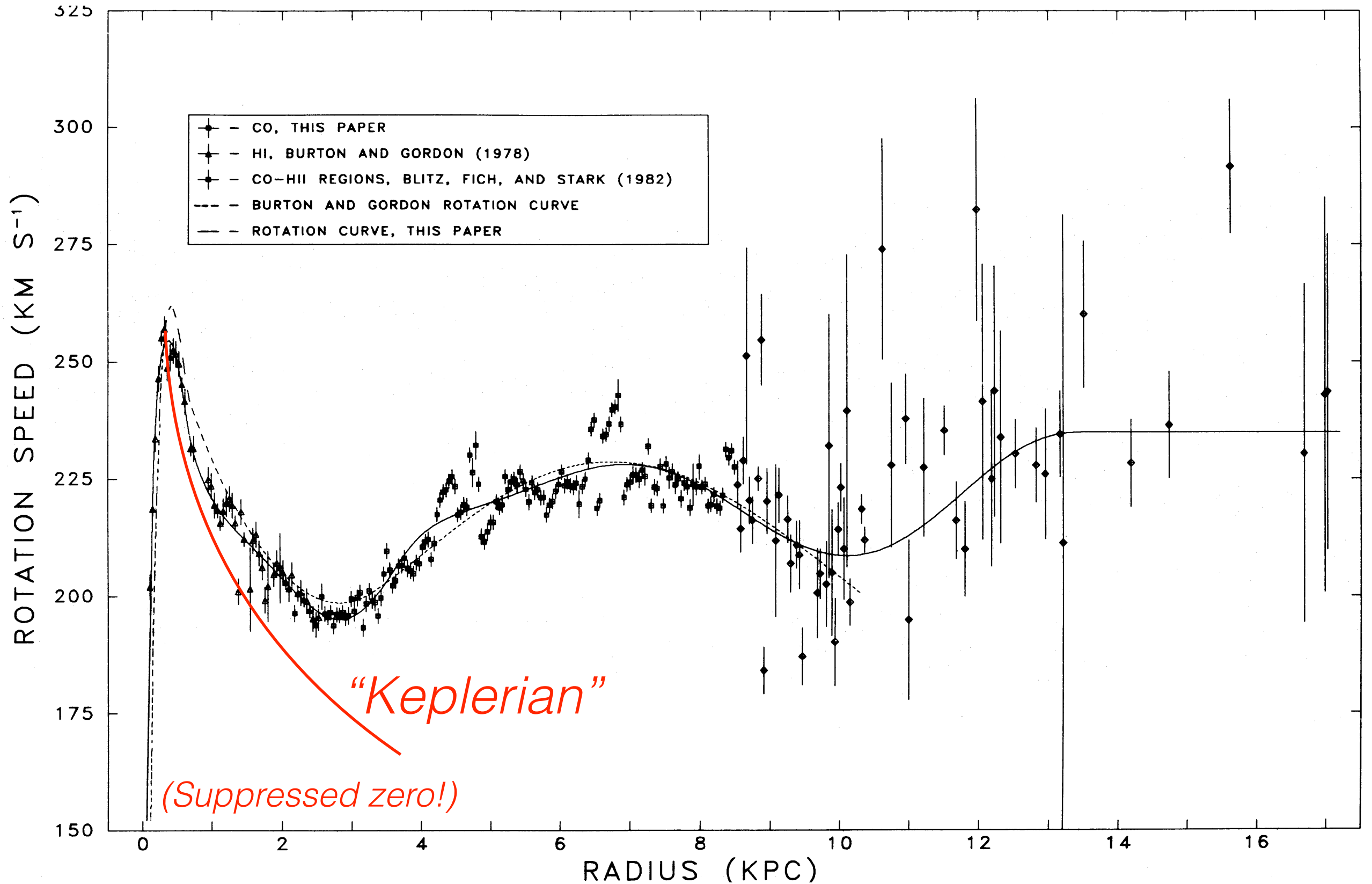
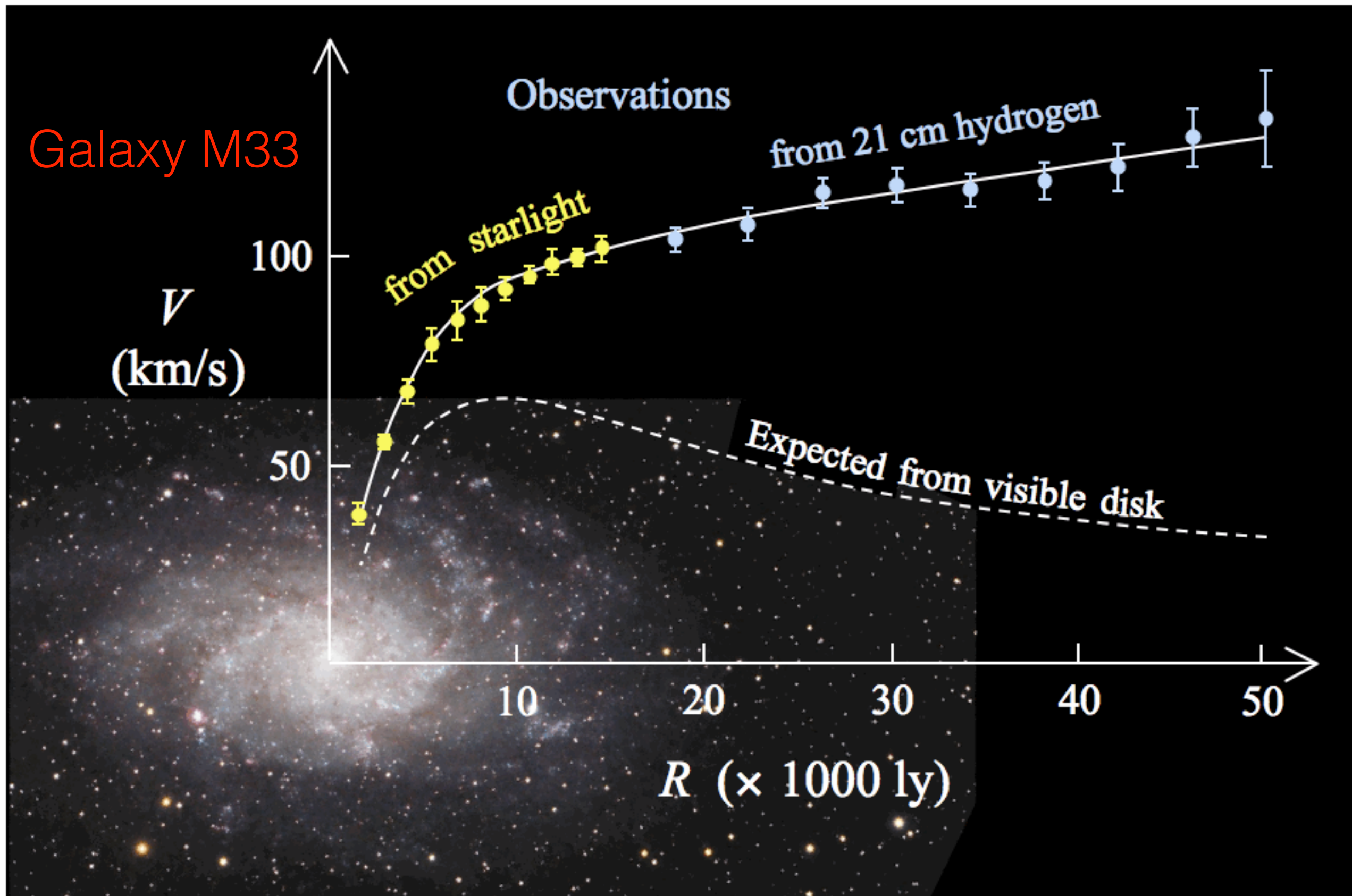


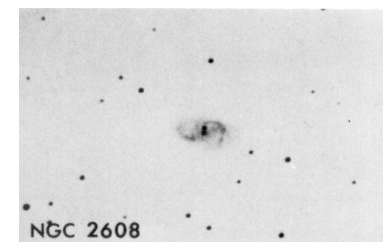
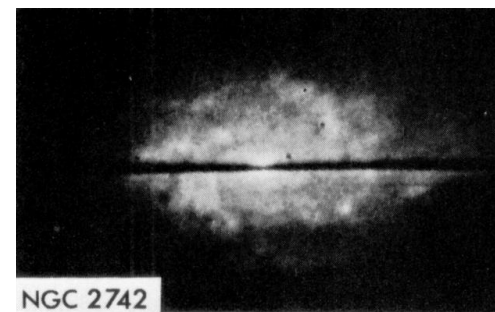
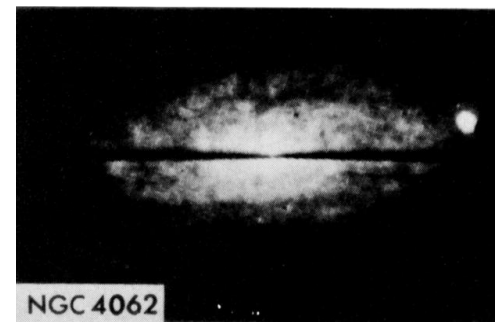
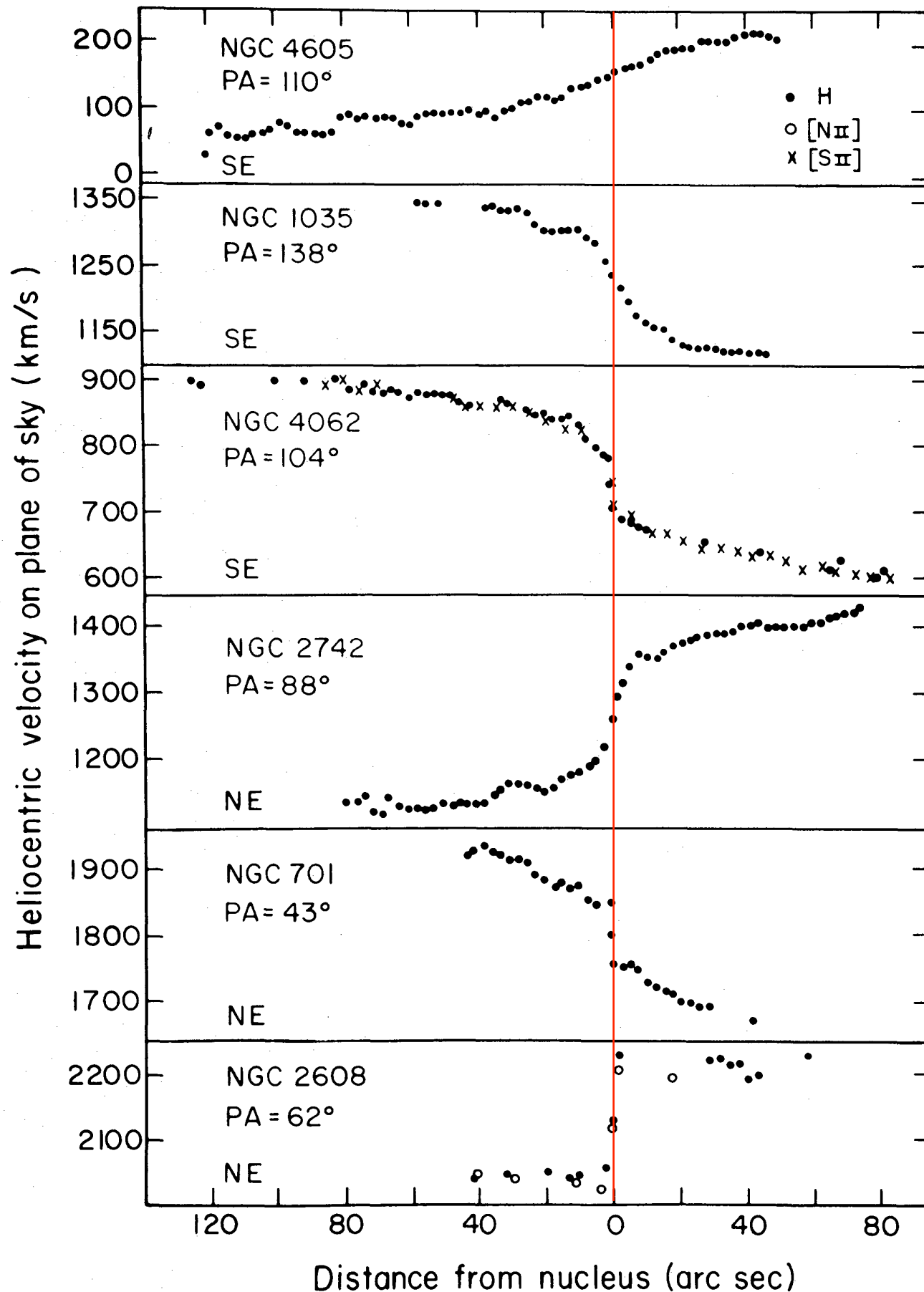


Figure: S. Deluca via Wikipedia



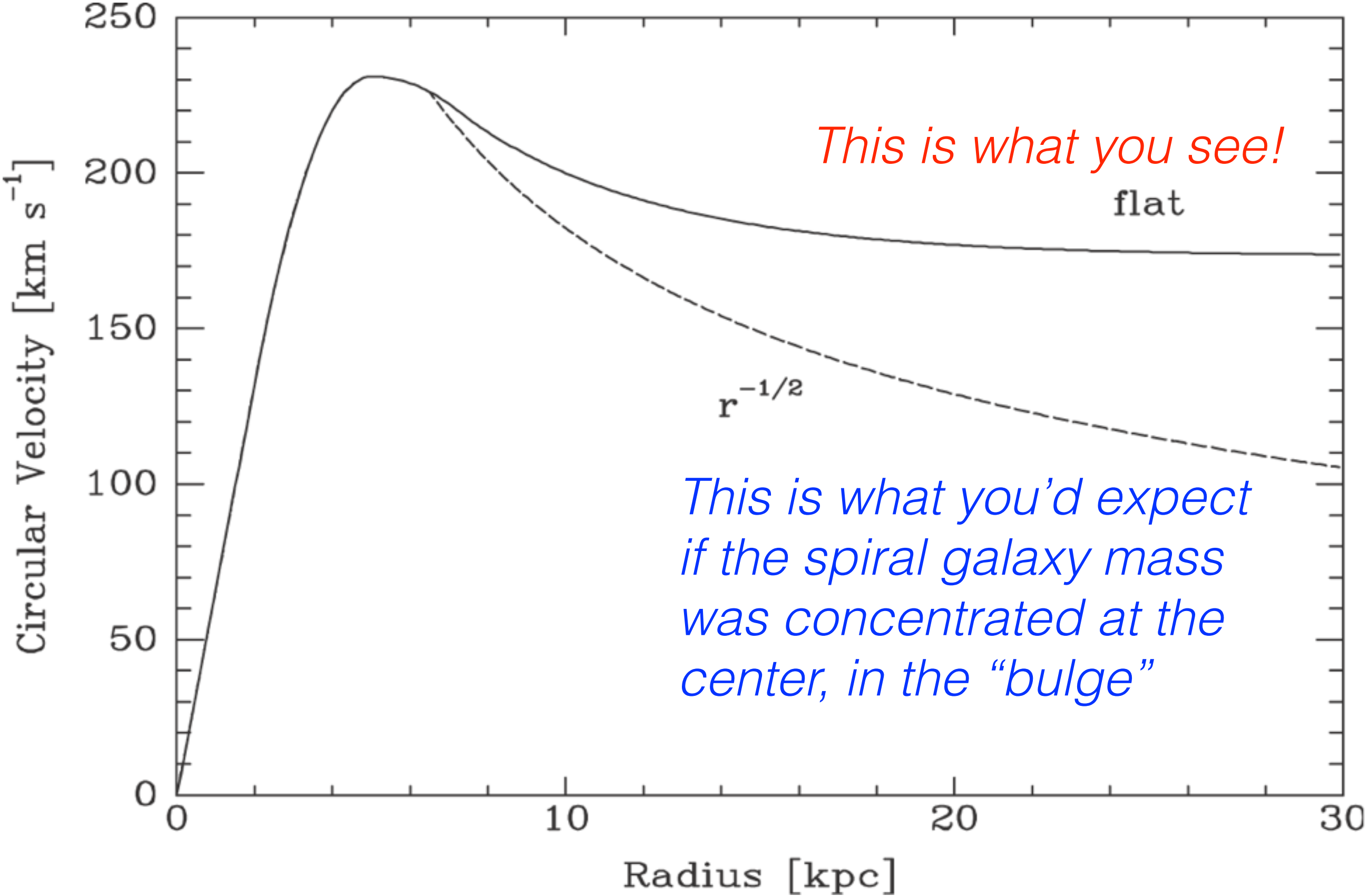
ROTATIONAL PROPERTIES OF 21 Sc GALAXIES WITH A LARGE RANGE OF LUMINOSITIES AND RADII, FROM NGC 4605 ( $R = 4$  kpc) TO UGC 2885 ( $R = 122$  kpc)

VERA C. RUBIN,<sup>1,2</sup> W. KENT FORD, JR.,<sup>1</sup> AND NORBERT THONNARD  
 Department of Terrestrial Magnetism, Carnegie Institution of Washington  
 Received 1979 October 11; accepted 1979 November 29



All curves are “flat” (or rising) out to the limits of the spiral galaxy!

# Maoz Figure 7.6





# Maoz Figure 7.6

Alcock, Ap.J 542(2000)281

