

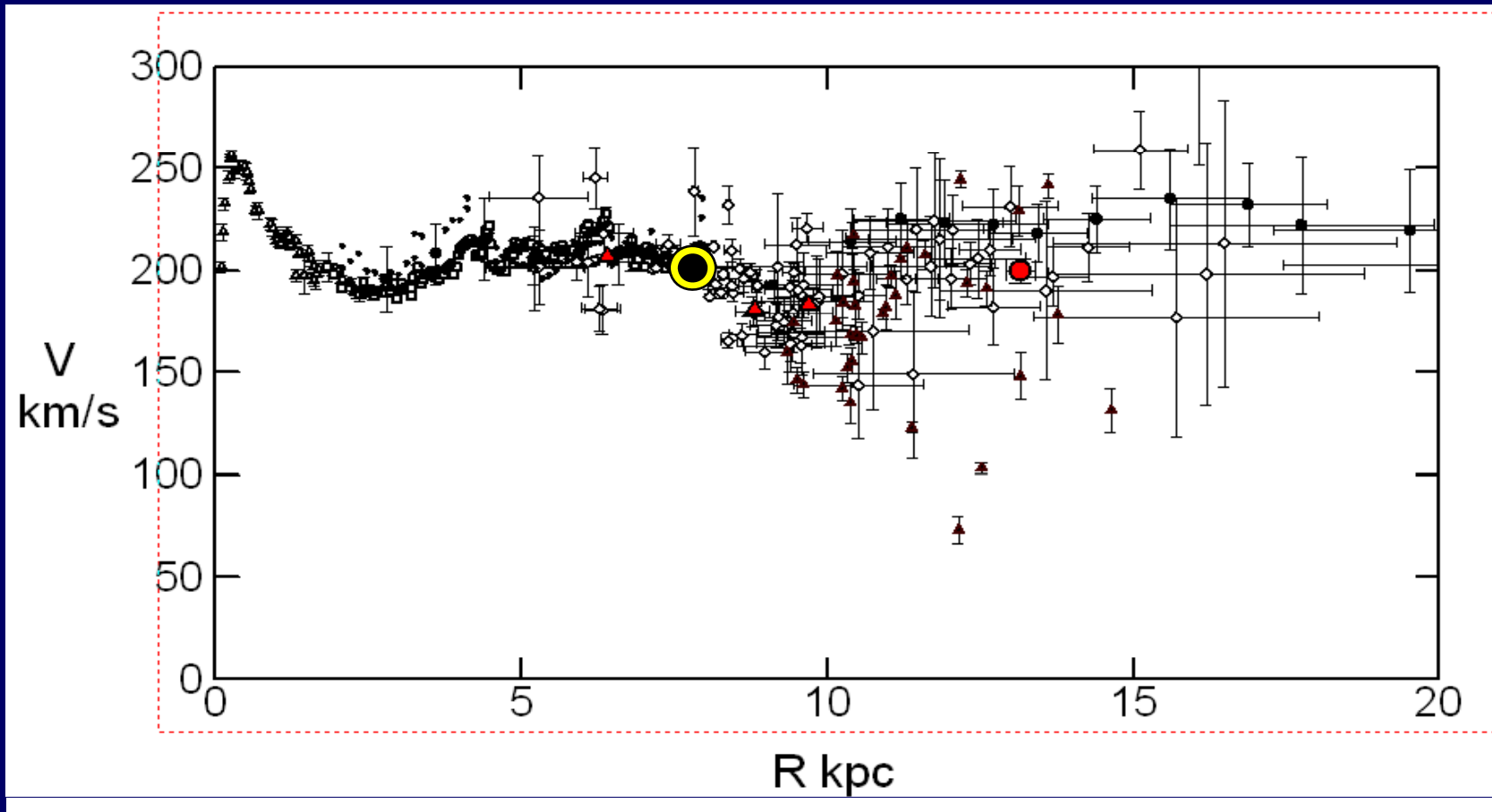
The Local Dark Matter Density

Yoshiaki Sofue

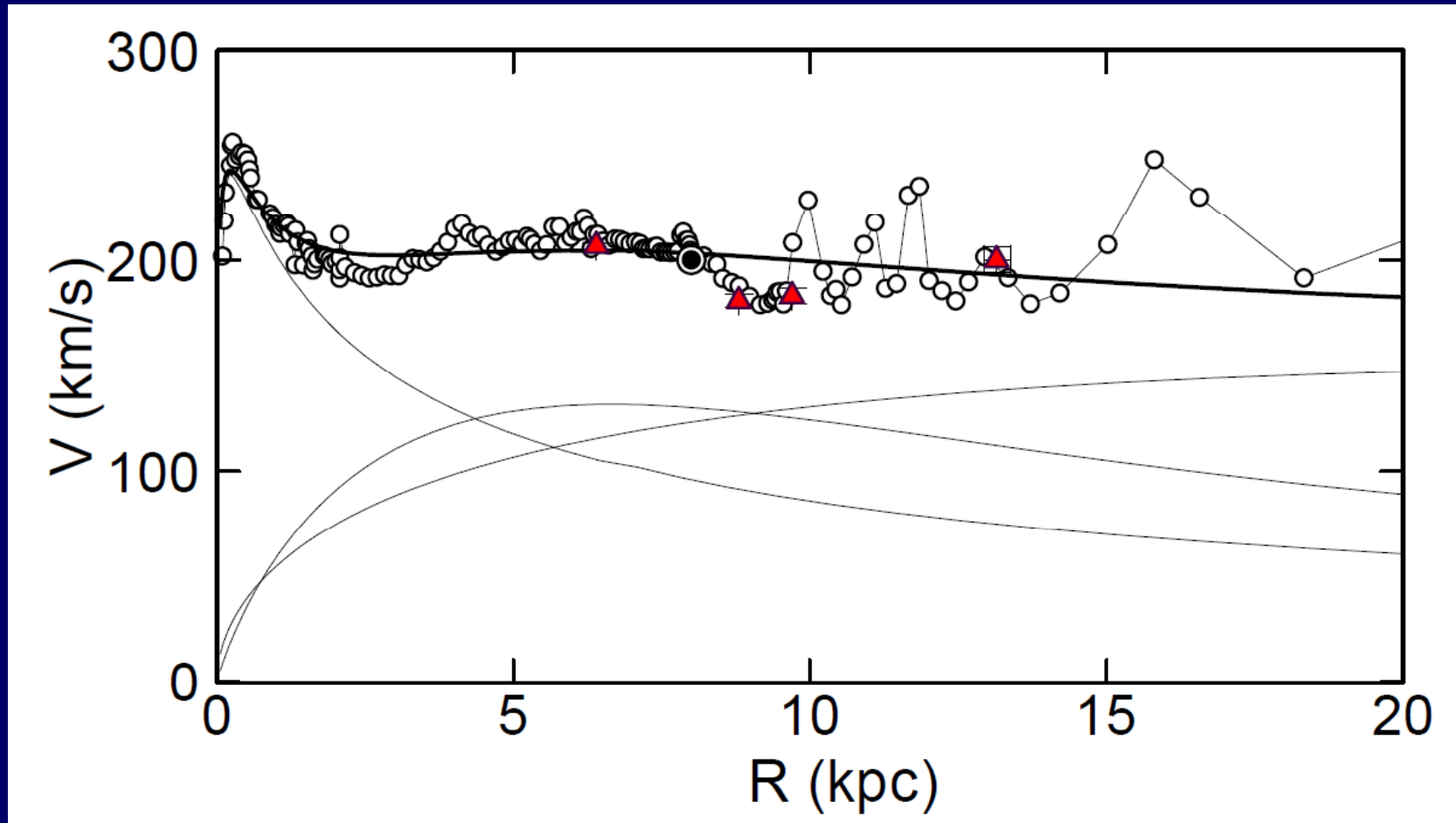
U-Tokyo & Meisei-U.

NDM12, Nara, 2012.06.11-15

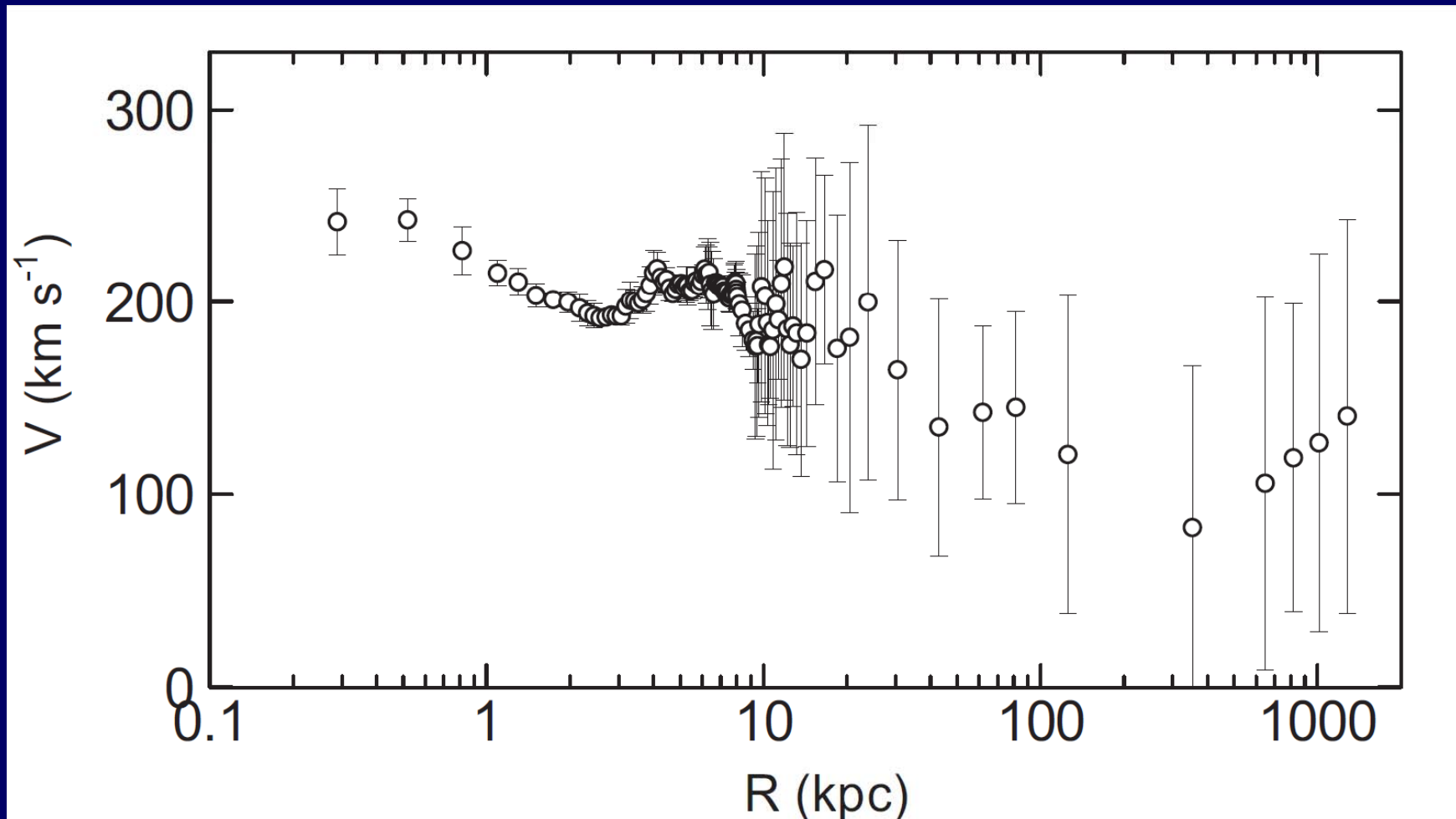
Rotation Curve of the Galaxy is flat at $R < 30$ kpc.



But, not sensitive to DH models.

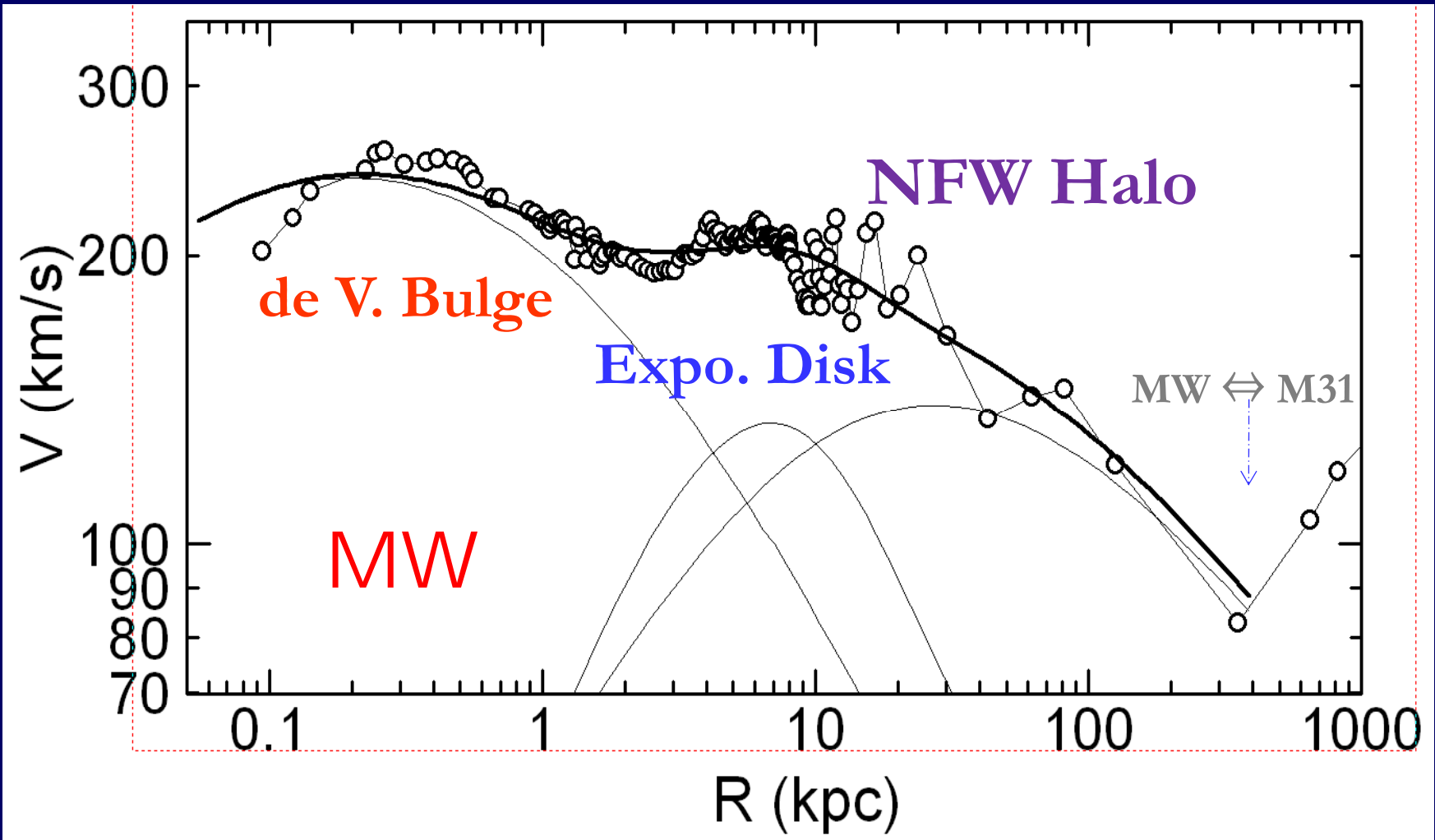


Grand RC beyond $R > 30$ kpc is
sensitive to DH profile.



**Least-sq fitting to GRC yielded
the most accurate galactic
parameters for:**

- 1. de Vaucouleur bulge,**
- 2. Exponential Disk, and**
- 3. Navarro-Frenk-White
Dark Halo.**



The Local Dark Matter Density @ Sun

$$\rho_{\odot} = 0.235 \pm 0.030$$

GeV cm⁻³

$$M \sim RV^2/G \Rightarrow \rho_0 \sim M/R^3 \sim (V/R)^2 \sim \Omega^2$$

$V_0/R_0 = \Omega_0$ (km s ⁻¹ kpc ⁻¹)	ρ_0 (GeV cm ⁻³)
Sofue (2012) 200/8.0 = 25.0 (248/8.2 = 30.3)	0.235 ± 0.030 0.34 ± 0.04)
Salucci, et al. (2011) 248/8.2 = 30.3 (200/8.0 = 25.0)	0.43 ± 0.11 0.29 ± 0.07)
Weber and de Boer (2010)	0.2 ~ 0.4