

$$\left(\text{for } R \lesssim R_{\text{bulge}}, \rho_{\text{M}} \simeq \text{const}\right) \quad \Rightarrow \quad v_{\text{rot}}(R) \propto R$$

$$\left(\text{for } R \gtrsim R_{\text{bulge}}, M \simeq \text{const}\right) \quad \Rightarrow \quad v_{\text{rot}}(R) \propto 1/\sqrt{R}$$