

DCM1.2) continued

51.

$\ddot{s} = 2T_{cm} + U$  which is  $< 0$  for  $R$  large enough. Minimum size of initial clump

occurs when  $\ddot{s} \approx 0 \Rightarrow 2T_{cm} = -U$ . A smaller size cloud will not clump because then  $\ddot{s} > 0$ .

Putting  $2T_{cm} = -U \Rightarrow$

$$4\pi k \bar{c} \rho R_c^3 / m = 16/15 G \rho^2 R_c^5 \pi^2$$

$$\Rightarrow R_c = \left[ \frac{15 k \bar{c}}{4\pi m G \rho} \right]^{1/2}$$