

Homogeneity Scale  $(1 \text{ Gpc})^3$

Redshift:  $\frac{\lambda_{\text{obs}}}{\lambda_{\text{emitted}}} = (1+z) = \sqrt{\frac{1+v/c}{1-v/c}}$   
 $\approx \frac{1+v/c}{1-v/c}$

Olber's paradox

Hubble's law:

$$V_{\text{galaxy}} = \dot{a} r_c$$
$$\text{Distance} = a \cdot r_c$$
$$\frac{V}{D} = H = \frac{\dot{a}}{a}$$

$$V_{\text{galaxy}} = H(t) \cdot \text{distance}$$

↑  
Hubble parameter

$$H_0 = H(t=\text{today}) = 68-70 \frac{\text{km/s}}{\text{Mpc}}$$

