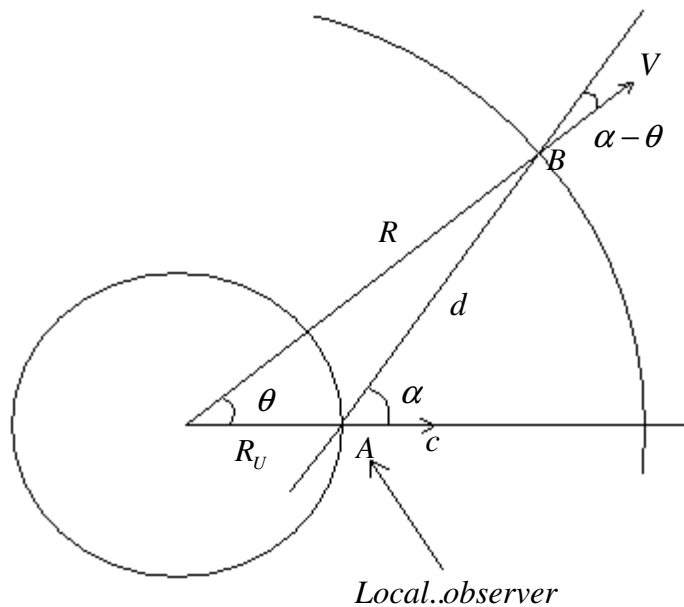


Variable Hubble Constant

António Saraiva - 2007-09-14
ajps2@hotmail.com

Abstract - The Hubble constant is variable with distance and celestial coordinates because we are not living at the center of our universe. With the right measurement procedure, we can find the location of the universe's center.



We must fix a reference distance d:

$$d = \frac{R_U}{2} = 2.57 \times 10^{25} \text{ ; } R_U = \text{Local universe radius} = 5.14 \times 10^{25} \text{ m}$$

$$R = \sqrt{d^2 + R_U^2 + 2dR_U \cos \alpha}$$

$$\theta = \text{Arc sin} \frac{d \sin \alpha}{R}$$

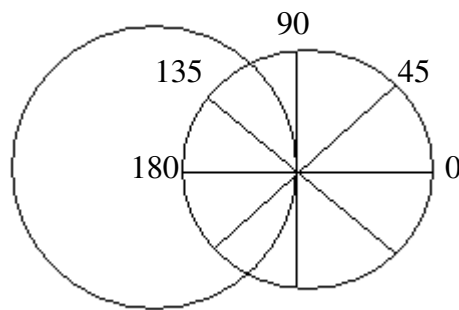
Relative expansion speed between A and B:

$$\Delta V = \sqrt{2Rg_U} \cos(\alpha - \theta) - c \cos \alpha$$

g_U = Universe acceleration = 8.74×10^{-10} ; c = light speed

Hubble frequency:
$$H = \frac{2\Delta V}{R_U}$$

All sky observation:



$$H_0 = 2.61 \times 10^{-18} \text{ ; } \text{ Universe frequency -- } H_U = 2.91 \times 10^{-18} \text{ Hz}$$

$$H_{45} = 3.66 \times 10^{-18}$$

$$H_{90} = 5.5 \times 10^{-18}$$

$$H_{135} = 5.4 \times 10^{-18}$$

$$H_{180} = 3.42 \times 10^{-18}$$

It's why the investigators never found the same value for H. The distance and observation angle are variables.

The local relative expansion is not isotropic.