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Calculation of the Hubble Constant

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Temperature of the background radiation:

$$T = 2.725K$$

Energy:

$$E = k_B T = hf \qquad \Leftrightarrow \qquad f = 5.6753\times10^{10}\,Hz$$

$k_B = Boltzmann..cons\tan t$; h = Planck constant; f = frequency

Acceleration of the universe:

$$g_U = \frac{Sf^3}{c} = 1.1668\times10^{-10}\ ; \qquad S = 1.9\times10^{-34}\,m^2$$

Two formulas of the universe:

$$g_U = \frac{GM_U}{R_U{}^2}\ ; \qquad c^2 = \frac{GM_U}{R_U}$$

G = gravitational constant; $M_U = mass..of..the..universe$;
$R_U = radius..of..the..universe$; c = light..speed

$$R_U = \frac{c^2}{g_U} = 7.703\times10^{26}\,m$$

$$M_U = \frac{g_U R_U{}^2}{G} = 1.038\times10^{54}\,kg$$

Hubble constant:

$$H_0 = \frac{c}{R_U} = 3.9\times10^{-19}\,Hz$$