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## Fitting the currently accepted cosmic time scale for $(1+z)=1100$ with light speed expanding Hubble-Hawking Cosmology

In our recently proposed papers, we have proposed new concepts and results pertaining to a very simple and practical model of quantum cosmology based on light speed expanding black hole universe having no dark matter and no dark energy. Our model can be called as Hubble-Hawking Cosmology. Big bang concept can be replaced with Plank scale. Cosmic temperature and expansion rate can be related with scaled Hawking's Black hole temperature formula. Starting from cosmic center to cosmic boundary, a decreasing trend of galactic acceleration can be understood with continuous light speed expansion at cosmic boundary. Issue of 'causal disconnection of galaxies at large scale distances' can be eliminated by cosmic black hole physical concepts. Dark matter concept can be eliminated with 'super gravity of galactic baryonic mass caused by weak interaction'. Cosmic inflation and dark energy concepts can be eliminated with 'light speed expansion'. To fit the estimated light travel distances and to eliminate the dark energy, cosmic red shift can be redefined as the ratio of change in photon wavelength to observed photon wavelength. In this contribution, up to  $(1+z) \cong 1100$  with a great accuracy,  $t \cong \left(\frac{1}{1+z}\right)^{\frac{3}{2}} \frac{1}{H_0} \cong \frac{\sqrt{1+z}}{H_t} \cong \frac{[(\exp(\gamma_0 - \gamma_t))]^{\frac{1}{4}}}{H_t}$  where  $\frac{H_t}{H_0} \cong \left(\frac{T_t}{T_0}\right)^2 \cong (1+z)^2$ ,  $H_{pl} \cong \frac{1}{2} \sqrt{\frac{c^5}{G\hbar}}$ ,  $\gamma_t \cong 1 + \ln\left(\frac{H_{pl}}{H_t}\right)$ ,  $\gamma_0 \cong 1 + \ln\left(\frac{H_{pl}}{H_0}\right)$ ,  $T_t \cong \frac{\hbar c^3}{8\pi k_B G \sqrt{M_t M_{pl}}} \cong \frac{\hbar \sqrt{H_t H_{pl}}}{4\pi k_B}$ ,  $M_{pl} \cong \frac{c^3}{2GH_{pl}} \cong \sqrt{\frac{\hbar c}{G}}$  and  $M_t \cong \frac{c^3}{2GH_t}$ . It needs further study.

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