MAGIC

Science of the Cosmos

Contribution ID: **14** Type: **not specified**

Simple and direct formulae for galactic receding speeds and luminosity distances

With our corrected cosmic red shift formula and Hubble-Hawking model of cosmology [1], we have developed a direct relation for fitting the accelerating model of luminosity distances (LD) [2-6] having $H_0 \cong 2.92 \times 10^{-19} (2.725)^2 \cong 66.9$ km/sec/Mpc. If $z_{new} \cong \frac{E_{emitted}-E_{Observed}}{E_{emitted}} \cong \frac{\lambda_{Observed}-\lambda_{emitted}}{\lambda_{Observed}} \cong \frac{z}{z+1}$ and $1+z \cong \frac{1}{1-z_{new}}$, $(LD)_{z_{new}} \cong (z+1)\left[\frac{sinh(z_{new})}{1+sinh(z_{new})}\right][exp[sinh(z_{new})]]^{\frac{3}{2}}\left(\frac{c}{H_0}\right)$. See our two 2 page PDF submitted by email for Fig. 1, Fig.2, the attached data table, http://www.atlasoftheuniverse.com/cosmodis and https://cosmocalc.icrar.org/. Proceeding further, currently believed galactic receding speed ratio can be expressed as, $\frac{V_{Gal}}{c} \cong \left[\frac{sinh(z_{new})}{1+sinh(z_{new})}\right][exp[sinh(z_{new})]]^{\frac{3}{2}}$. Thus luminosity distances can be expressed as $(LD)_{z_{new}} \cong (z+1)\left(\frac{V_{Gal}}{H_0}\right)$. Comoving distances (CD) can be expressed as, $(CD)_{z_{new}} \cong \frac{V_{Gal}}{H_0}$. By considering the fitted power factor $\frac{3}{2} \cong 1.5$ of $[exp[sinh(z_{new})]]$ as a combination of $2(\Lambda_{dark}+\Lambda_{matter}) \cong 2(0.7+0.05) \cong 1.5$, there is a scope for understanding cosmic acceleration as a true nature of current cosmic expansion rate. In that case, accelerating model of cosmology must accommodate the corrected cosmic red shift definition $z_{new} \cong \frac{z}{z+1}$ without affecting the basics of Lambda model. But, directly and indirectly, (1) as the proposed formulae are independent of cosmic acceleration parameters, (2) as there exist no arbitrary parameters in the formulae and (3) as the estimated data is within the acceptable range - with further study and by considering the corrected cosmic red shift formula, true nature of cosmic expansion rate can be understood. It needs an unbiased review.

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