Predicting a Value for the Hubble Constant and Dispersion Measure using New Tired Light and Data from FRB 121102

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Abstract. There are now five extragalactic sources having published Dispersion Measures (DM's) and distances and this enables us to find a value for the mean electron number density, n in the cold plasma of the IGM of $n = 0.54\, m^{-3}$. New Tired Light explains redshifts as not being due to expansion but in terms of an interaction between photons and electrons in the cold plasma of the IGM and predicts an expression for the Hubble constant as $H = 2nhr/m$ where$h$ is the Plank constant, r the classical electron radius and m the rest mass of the electron. Using the value of $n = 0.54\, m^{-3}$ gives $H = 2.2x10^{-18}s^{-1}$ or $H = 70\ km/s\, per\, Mpc$. This compares well with the recently published value of $H = 70\ km/s\, per\, Mpc$ – a difference of just 5%. Additionally, Since in DM is due to a photon – electron interaction and since in NTL redshift is also due to a photon – electron interaction then there should be a direct relation between DM and redshift and this is shown to be $DM = mcLN(1+z)/2hr$ In SI units or $DM = 2380LN(1+z)$ in standard cosmology units of $DM\ in\ cm^{-3}p$ with a unit conversion factor included. A recently discovered repeating Fast Radio Burst (FRB121102) has a $DM_{IGM} \approx 340\ pc\ cm^{-3}$ and host galaxy of redshift $z = 0.19273$. Using these values gives $DM = 1930LN(1+z)$ a difference of just 19% in the constant term. In view of the closeness of the predicted values of NTL to measured ones we will revisit the evidence that was once said to support and expanding universe over a static one and see how it has stood the test of time. We will see whilst the results could still be interpreted as in favour of expansion, it is not as robust as once thought.