Abstract Submitted
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The curved SN1a Hubble plots R.L. COLLINS, retired, U.T. Austin — Recent Hubble plots, of distance vs. red shift, curve upward at the large distances afforded by using distant SN1a supernovae as "standard candles." Hubble plots are intended to be of present distance vs. red shift, and were expected to be linear absent acceleration. The light left long ago, and observed distance must be extrapolated to present distance. Further, distance measured by dimness is optical distance. This can be corrected to geometrical distance, using GR, or by using mass-metric relativity (http://arXiv.org/pdf/physics/0012059.), which assigns to space an index of refraction, $n = (1 + GM/rc^2)^2$. This index easily accounts for the deflection of starlight and the Shapiro time delay, tests that have been cited as affirming GR. It changes with time, since all distances "r" increase as the big bang expands. On modeling this to two parameters, the Hubble plot is well fitted by choosing total mass $M = 6.03 \times 10^{52}$ kg and $T = 16.24 \times 10^9$ years since the big bang. These agree well with estimates found using other methods. The present index of refraction of space, due to all mass in our big bang, is 2.41. The full paper is available at http://arxiv.org/pdf/physics/0101033.

R.L. Collins
retired, U.T. Austin

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