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A Correlation of Magnitudes, Color and Redshift in Cosmologically Distant Type 1a Supernovae GOPOLANG MOHLABENG, JOHN RAL-STON, University of Kansas — We independently explore the Union 2.1 data set (Supernova Cosmology Project) of 580 type 1a supernovae. We find a correlation of very high statistical significance between supernova color × redshift and distance modulus residuals relative to the standard cosmological model. We find a Pearson correlation coefficient $r_{SN} = -0.521$, which is more than 13 standard deviations (σ) away from the mean obtained by Monte-Carlo simulations with random data shuffling. We find that adding one parameter to the standard magnitude vs redshift relation improves the value of χ^2 by more than 50 units. The updated Dark Energy and matter density parameters, assuming a flat universe are $\Omega_{\Lambda} = 0.74 \pm 0.013$ and $\Omega_m = 0.260 \pm 0.013$. The trend of the correlation is that distant supernovae become redder as a function of redshift by a rule which cannot be fit by the standard Cosmology.

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