

Abstract Submitted
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Cosmic Observations and Speculation SOL AISENBERG, IT GROUP — Newton's laws of gravity, based upon solar system observations are assumed to also apply in the universe, and has needed the belief in Dark Matter to explain the observations of Rubin for spiral galaxies, and of Zwicky for groups of galaxies. For mass M and Newton's gravitational constant G_n , star motion in spiral galaxies is described by $M \cdot G_n = v \cdot v \cdot r$. Observed constant rotational velocities v , results in the product $M \cdot G_n$ as a linear function of distance r . Current speculation is that M provides the linear dependence and results in belief in massive Dark Matter. Our alternate Theory of Additional Gravity, (TAG), adds this linear term to Newton's gravitational constant as $G_a = G_n + A \cdot r$. This explains observations outside our solar system. This new TAG theory for gravity involves distances and is different from the MOND theory of Milgrom, which involves acceleration. Also, about seven decades ago, Hubble observed remote galaxies and found a linear relationship between the distances and red shifts. Belief is that the red shift is "apparently" due to the Doppler effect. Velocities were not directly measured. This belief led to the apparent expanding universe, and Dark Energy. We explain red shift by three forms of gravity including gravitational drag on interstellar dust and gas.

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