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Avoiding tensions with a functioning cosmological model

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The standard model of cosmology relies on the existence of dark matter particles which drive structure and galaxy formation. A rigorous prediction of this model is that each present-day galaxy must be embedded in a massive and extended halo of dark matter particles. The existence of such halos of dark matter can be tested for by applying Chandrasekhar dynamical friction. I will present the results that have been achieved on this with the conclusion that the galaxy–galaxy motion data do not support the existence of these halos. The implication of this tension is that gravitation becomes non-Newtonian on scales beyond the Solar System, in turn implying the need to develop a new cosmological model. Such models, based on Milgromian gravitation, now exist and these automatically solve the Hubble Tension. They also account for the observed very massive galaxy clusters such as El Gordo at a redshift of 0.87 and the closer Bullet cluster, and allow for significant matter density contrasts on spatial scales larger than a few hundred Mpc.

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