

# The Universal Rotation Curve of disk galaxies: probing dark matter and the local expansion rate

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The Universal Rotation Curve provides a powerful empirical framework to investigate the distribution of luminous and dark matter in disk galaxies. By adopting normalized radial and velocity coordinates, we investigate the emergence of universal kinematic properties across galaxies with different masses and luminosities. The resulting co-added rotation curves will be analyzed through different dark matter mass models to constrain the halo density profiles. Finally, we discuss the use of the radial Tully–Fisher relation to obtain an independent estimate of the Hubble constant in the local Universe. This work represents a first step toward a unified analysis of galaxy rotation curves and their cosmological applications.

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