

## New constraints of dark matter models in disc galaxies

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A detailed statistical analysis of four large optical rotation curve samples, totalling almost three thousand individual optical rotation curves, has revealed the existence of a startling new phenomenon: specifically, that the distribution of rotation velocities at any standard distance is strongly multi-modal. Thus, for example, four strong modes at 1kpc have been identified with peak values of approximately 49 km/sec, 65 km/s, 112 km/s and 164 km/s (Roscoe A&A 2002). Large scale Monte-Carlo simulations have confirmed this result at the level of virtual certainty. This result imposes very strong constraints on any theory which seeks to explain it - in particular, upon the various CDM scenarios which have been proposed to explain dynamical phenomenology in spiral discs.

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