

The Structure of Cold Dark Matter Halos and the Nature of Dark Matter

A. Burkert

University Observatory, University of Munich

I will summarize the structure of cold dark matter halos as predicted by current cosmological LCDM simulations. A comparison with the observed kinematical properties of galaxies reveals several still unsolved problems. The predicted cuspy central dark matter density distribution is not in agreement with the slow rise of rotation curves. The predicted high number of satellites is not observed. And the large amount of angular momentum that is found in bulgeless disk galaxies is not in agreement with numerical models. Possible solutions which might provide interesting insight into the early phases of galaxy formation and maybe also into the nature and origin of dark matter will be discussed.

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