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The Radial Acceleration Relation of satellite galaxies: a test for dark matter and MOND

Wednesday 24 October 2018 16:00 (30 minutes)

The Radial Acceleration Relation (RAR) has recently emerged as a challenge to the Λ CDM cosmological model and possibly as an evidence of new physics, most notably of Modified Newtonian Dynamics (MOND). Satellite galaxies represent an intriguing laboratory for testing these theories, since in MOND they are affected by the external field effect, that has no analogous in Λ CDM. I will present the first-ever predictions of the RAR for Λ CDM satellite galaxies, its evolution with redshift, and its dependence on other satellite properties. I will then compare these results with available data and show that both Λ CDM and MOND fail to reproduce the observed RAR in this regime. Finally, I will illustrate a new test that exploits the results aforementioned to discriminate between the Λ CDM and MOND theories and discuss its feasibility in the light of upcoming data.

Presenter: Mr GARALDI, Enrico (University of Bonn)

Session Classification: Afternoon session