ID de Contribution: **65** Type: **Oral presentation**

Effective theory reproducing MOND phenomenology based on a non-Abelian Yang-Mills graviphoton

vendredi 11 avril 2025 10:30 (15 minutes)

Despite the remarkable success and relative simplicity of the standard ΛCDM model, some phenomena remain unexplained. Most notably, the puzzling relationship between galaxy rotation curves and the observed baryon density that motivated the development of MOND. However, most field theories attempting to reproduce MOND predictions have to rely on ad hoc free functions, preventing them from being considered fundamental.
In this presentation, I will introduce a new theory that reproduces MOND phenomenology, built on a fundamental non-Abelian Yang-Mills gauge field based on SU(2), with a gravitational coupling constant that emerges in a low-acceleration regime. Using a mechanism of gravitational polarization within the dark matter medium, I will discuss how certain solutions of this theory naturally recover the deep MOND regime.

Astrophysics Field

Dark matter, MOND theory, Modified gravity

Author: SERAILLE, Emeric (LPENS)

Orateur: SERAILLE, Emeric (LPENS)

Classification de Session: Session 9

Classification de thématique: Astrophysics