

Theoretical Physics Seminar Series

Galactic Halos and rotating bosonic dark matter

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Abstract: Rotating bosonic dark matter halos are considered as potential candidates for modeling dark matter in galactic halos. These bosonic dark matter halos can be viewed as a dilute and very extended version of bosonic stars, and the methods used for the calculation and analysis of the latter objects can be directly applied. Bosonic stars, a hypothetical type of astrophysical objects, are categorized into two primary families, based on the nature of the particles composing them: Einstein-Klein-Gordon stars and Proca stars. We examine various models from both families and the rotation curves which their contribution induces in different galaxies, to identify the most plausible candidates that explain the flattening of orbital velocities observed in galactic halos. By exploring different combinations of our dark matter models with observable galactic features, we propose an interesting source to compensate for the apparent lack of matter in dwarf and spiral galaxies, providing a possible explanation for this longstanding astronomical puzzle.

Prof. A. Chamorro Seminar Room, Theoretical Physics Seminar Room

WEDNESDAY, March, 12th, 2025

Time: 11:40 am