ID de la contribución : **128** Tipo : **Talk**

Cosmic Tensions and Neutrino cosmology

martes, 4 de noviembre de 2025 17:00 (15)

Tensions between independent cosmological probes continue to challenge the ΛCDM framework. The persistent ~5σ discrepancy between early- and late-time determinations of the Hubble parameter remains unresolved, while recent DESI BAO measurements, when interpreted within ΛCDM, yield constraints on the sum of neutrino masses that increasingly conflict with lower bounds from particle physics. Dynamical dark energy models offer a possible route to relax the neutrino mass tension by introducing additional background-level degrees of freedom. In some cases, these models are even favored over a cosmological constant at more than ~4σ. However, such late-time extensions generally fail to resolve the Hubble tension and can, in fact, worsen it. Conversely, models that appear promising in raising H_0 tend to push the inferred neutrino mass bounds toward unrealistically small values, deepening the disagreement with oscillation experiments. This leaves us questioning whether a consistent resolution is still within reach, or whether we are instead confronted with an unavoidable trade-off. To address this, in this talk I will further explore the three-way interplay between dark sector physics, neutrino cosmology, and cosmic tensions, reviewing what a resolution could require in terms of new physics, and analyzing the role of potential unaccounted-for observational systematics in the data.

Primary author(s) : GIARE, William (University of Sheffield)

Presenter(s) : GIARE, William (University of Sheffield)

Clasificación de la sesión : Cosmology

Clasificación de temáticas : Cosmology