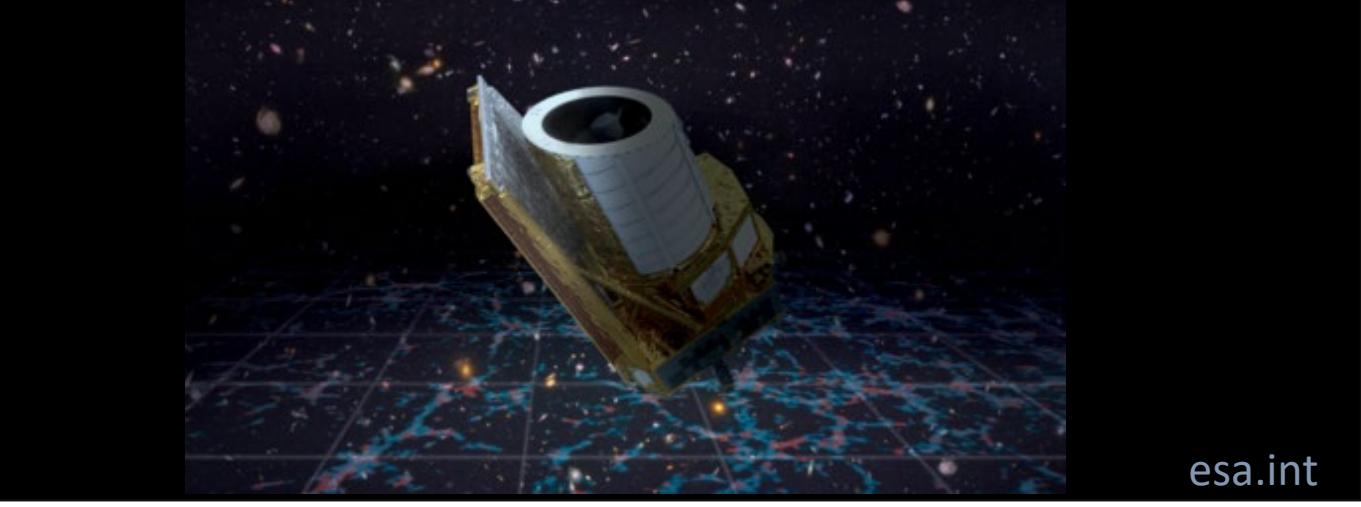

Extragalactic Stellar Streams as cosmological diagnostic

Lecturer: David Martínez-Delgado, Investigador Araid, CEFCA (Teruel)

Abstract:. Understanding the nature of dark matter remains one of the most profound challenges in modern astrophysics. Stellar streams - faint tidal remnants of accreted satellite galaxies - offer a uniquely sensitive probe of dark-matter physics, as their morphology, abundance, and internal structure record the gravitational imprint of both the host halo and its substructure. Yet, the current observational sample of extragalactic streams is far too small and heterogeneous to enable robust statistical comparisons with cosmological simulations. In this talk, I present the first results of our two systematic surveys for faint stellar streams in a sample of a few thousand massive galaxies in the local Universe, taking advantage of deep imaging from amateur telescopes and the DESI Legacy survey imaging. Our stream sample has allowed us for the first time to perform a direct comparison of these observations with mock images computed from a set of available L-CDM cosmological simulations (Coco, TNG-50, FireBOX). Finally, I will discuss how the ESA Euclid mission will transform this landscape by delivering the first homogeneous, deep, and wide-area low-surface-brightness survey of galaxies across the nearby Universe at an unprecedented low surface brightness regime, providing an unprecedented opportunity to unveil the dark matter nature at galactic and cosmological scales.

Jueves 9 de abril de 2026, 12:10 horas, seminario de Física Nuclear

On-line

Centro de Astropartículas y Física de Altas Energías
Universidad Zaragoza