



ID de la contribución : 834

Tipo : no especificado

Advancements in the Hubble Constant Estimation via Gamma-Ray Attenuation

miércoles, 20 de noviembre de 2024 9:15 (15)

The persistent discrepancy in the Hubble constant determinations, known as the Hubble tension, represents one of the most intriguing challenges in modern cosmology. For this reason, results from new and independent techniques are especially compelling. We will present the latest estimates on the Hubble constant (H_0) from gamma-ray attenuation that uses optical depths calculations from a recent extragalactic background light model. This approach is built from multiwavelength galaxy data from the Hubble Space Telescope Cosmic Assembly Near-Infrared Deep Extragalactic Legacy Survey (HST/CANDELS). CANDELS gathers one of the deepest and most complete observations of stellar and dust emissions in galaxies. These optical depths are compared with data from gamma-ray observations taken with the Large Area Telescope onboard the Fermi Gamma-ray Space Telescope and imaging atmospheric Cherenkov telescopes. We find $H_0 = 62.4 +4.1/-3.9 \text{ km s}^{-1} \text{ Mpc}^{-1}$ when fixing the matter density of the Universe, $\Omega_m = 0.32$, and $H_0 = 65.1 +6.0/-4.9 \text{ km s}^{-1} \text{ Mpc}^{-1}$ and $\Omega_m = 0.19 \pm 0.08$, when exploring these two parameters simultaneously. Although with low significance, results from this methodology tend to align with Hubble determinations at cosmic scales such as those from baryonic acoustic oscillations and the cosmic microwave background rather than from local scales such as those from Cepheid variable stars and Type Ia supernovae.

Abstract

Primary author(s) : DOMINGUEZ, Alberto (UCM & IPARCOS)

Presenter(s) : DOMINGUEZ, Alberto (UCM & IPARCOS)

Clasificación de la sesión : RENATA (Red Nacional Temática de Astropartículas)

Clasificación de temáticas : Red Temática de Astropartículas (RENATA)