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Experimental status of the cosmological standard model

Monday, 8 July 2024 10:00 (30 minutes)

This talk will detail the experimental status of the cosmological standard model. It will cover the recent joint analyses from the Pantheon+ & SH0ES collaborations and that tell two important stories. The Pantheon+ supernova constraints of cosmic acceleration are the current best measurement of the dominant energy density components of the universe and provide strong constraints on potential modifications to Lambda Cold Dark Matter (LCDM) model. Meanwhile, I will detail how SH0ES cosmic distance ladder measurement is now even more robust to systematic uncertainties and has crossed the significant threshold of 5-sigma discrepancy when compared to the cosmic microwave background (Planck) under the assumption of a LCDM model. The talk discusses the original treatment and now new testing of systematic uncertainties, numerous additional datasets that independently corroborate the tension, and additional techniques that shed light on the source of the tension.

Presenter: BROUT, Dillon (Boston University)

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