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Testing the Cosmological Principle: a new cosmic tension?

Monday, 11 September 2023 12:00 (1 hour)

Tensions in the observed values of the Hubble constant and other key parameters of the concordance model of cosmology may indicate problems in the model itself. This motivates further independent tests of the model. I will describe a test of a key foundation of the concordance model - the Cosmological Principle. According to the Cosmological Principle, the Universe should be statistically isotropic. In particular, isotropy in the CMB must be consistent with isotropy in the galaxy distribution. This means that the kinematic dipole in the CMB should agree in direction and amplitude with the dipole in the galaxies. Current results suggest that there is a significant tension between the amplitudes of these dipoles. I will discuss some theoretical issues that remain to be clarified before this can be declared as a new tension.

Presenter: MAARTENS, Roy

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