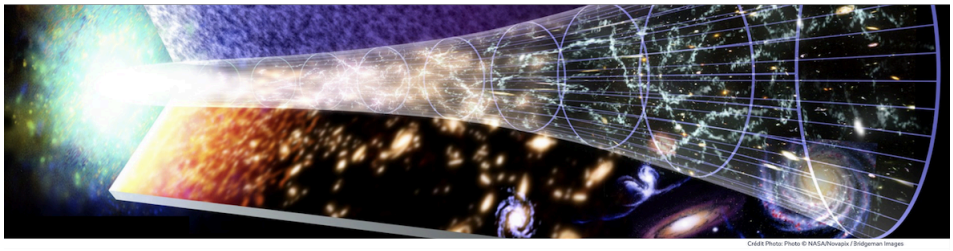

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Future missions for CMB spectral distortion measurements

mardi 2 juin 2026 16:30 (30 minutes)

The only precise measurement of the cosmic microwave background (CMB) spectrum to date was achieved by COBE-FIRAS in the early 1990s, showing that it is close to a perfect blackbody emission. However, both standard and non-standard physical processes inevitably generate small deviations from this spectrum, known as CMB spectral distortions. They provide a powerful and unexplored probe of the thermal history of the Universe, offering unique insights into early Universe, particle physics and structure formation.

After a brief review of the scientific motivations for CMB spectral distortion measurements, I will present current experimental efforts aimed at their detection. In particular, I will provide the latest updates on the balloon-borne pathfinder BISOU, led by CNES, and on the ESA M8 proposal for spectral distortions, FOSSIL.

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