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„Critical Tests of Theory of the Early Universe using the Cosmic Microwave Background“

The Cosmic Microwave Background (CMB), the fossil light of the Big Bang, is the oldest light that one can ever hope to observe in our Universe. The CMB provides us with a direct image of the Universe when it was still an "infant" - 380,000 years old - and has enabled us to obtain a wealth of cosmological information, such as the composition, age, geometry, and history of the Universe. Yet, can we go further and learn about the primordial universe, when it was much younger than 380,000 years old, perhaps as young as a tiny fraction of a second? If so, this gives us a hope to test cosmic inflation, the leading paradigm on the origin of our Universe at ultra high energies.

In my talk I will review the physics of temperature and polarization anisotropies of the CMB and the key results from the recent experiments, and discuss future prospects on our quest to probe the physical conditions of the very early Universe.