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Particle cosmology: from neutrinos to stringy inflation

Wednesday, 23 May 2018 10:00 (45 minutes)

Cosmological observations represent a powerful tool to constrain particle physics, often complementary to laboratory experiments. In my talk I will focus on two distinct examples of such an interplay between cosmology and particle physics, namely neutrino physics and inflation. After briefly reviewing the relevant cosmological datasets, in the first part of the talk I will show how observations of the cosmic microwave background (CMB) and of the distribution of large scale structures (LSS) in the Universe constrain the properties of the relic neutrinos, as well as of additional light relic particles in the Universe like sterile neutrinos, axions or majorons. In the second part of the talk, I will discuss how string-inspired model of inflation can explain the observed “low-ell anomaly” in the CMB power spectrum, i.e., the lack of large-scale correlations.

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