

Cosmology as a search for neutrinos and new light particles

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Cosmological measurements are becoming sensitive enough to provide the first-ever measurement of the neutrino masses, and to search for completely new particles suggested by recent experiments. I will discuss the effects of these light, fast particles on the formation of large-scale cosmic structure, as well as my recent constraints on them. Then I will describe ongoing work to tackle one of the most difficult problems in theoretical cosmology, the prediction of the non-linear clustering of massive neutrinos, which will be essential for making full use of next-generation cosmic surveys as probes of fundamental physics.

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