



Allgemeines Physikalisches Kolloquium

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Neutrinos in cosmology: A match made in the heavens

The standard hot Big Bang model predicts a background of neutrinos permeating all space. At an average of 330 neutrino per cubic centimetre, the relic neutrinos are the most abundant known particles in the universe. However, unlike its better-known cousin, the cosmic microwave background, the direct detection of this relic neutrino background has so far eluded us. Nonetheless, because of the sheer enormity of their collective gravitational forces, these relic neutrinos have a strong impact on the many phases of the universe's evolution. In this talk I will discuss some of the ways in which neutrinos influence the evolution of the universe on the largest scales, and how we can use this understanding in combination with cosmological observations to learn about neutrino physics in the early universe.