Solving the Li problem by long lived stau in a stau-neutralino coannihilation scenario

Saturday 18 July 2009 10:10 (15 minutes)

A scenario of the big-bang nucleosynthesis is analyzed within the minimal supersymmetric standard model, which is consistent with a stau-neutralino coannihilation scenario to explain the relic abundance of dark matter. We find that we can account for the possible discrepancy of the abundance of 7Li between the observation and the prediction of the big-bang nucleosynthesis by taking the mass of the neutralino as 300GeV and the mass difference between the stau and the neutralino as (100 −120)MeV. We can therefore simultaneously explain the abundance of the dark matter and that of 7Li by these values of parameters. The lifetime of staus in this scenario is predicted to be O(100 −1000) sec.

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Session Classification: I. Cosmology and Gravitational Waves

Track Classification: Cosmology and Gravitational Waves