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Particle Physics at LPTHE

Vendredi 30 Mars 2018, 14 :00
LPTHE, Library
Domaines : hep-ph

Titre : *Constraints on decaying/annihilating long-lived particles from big-bang nucleosynthesis*

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Résumé : *In SUGRA, gravitino is predicted as a super partner of graviton. For weak scale mass of gravitino due to the SUSY breaking which at least gravitino is supposed to obtain, it is known that gravitino has a long lifetime due to the gravitational interaction and inevitably decays during/after the epoch of big-bang nucleosynthesis. Due to the decay of gravitino, high energy particles are emitted, which modifies light element abundances and may disagree with observations. This is called the gravitino problem. If gravitino is the lightest SUSY Particle (LSP), the next LSP decays into gravitino, which induces the similar problem. I introduce recent progresses on those topics by reviewing a serris of our works on cosmological constraints on gravitino including our recent paper (arXiv :1709.01211 [hep-ph]) in which we updated our own bounds in astro-ph/0408426. In addition, I also mention our updated constrains on annihilating cold dark matter (like WIMP) given in arXiv :1509.03665, which have less astrophysical ambiguities.*