Contribution ID: **135** Type: **not specified**

Gravitino Dark Matter and Neutrino Masses

Tuesday 8 July 2025 11:30 (30 minutes)

In MSSM with a global U(1) symmetry, the gauginos are psuedo-Dirac particles. The psuedo-Dirac bino can play the role of right-handed neutrinos and generate the light neutrino masses through an inverse seesaw mechanism. In this scenario, the lightness of the neutrino masses is governed by the ratio of the gravitino mass and the messenger scale between the SM and the supersymmetric sector. For low messenger scales at O(100 TeV), the gravitino is expected to be about O(keV-MeV) in mass. I will discuss how this gravitino can be a dark matter candidate.

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Session Classification: Plenary