

# No-go for freeze-in DM in right-handed neutrino extended MSSM (not final).

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We investigate the possibility of saturating the relic density bound with light higgsinos. When the minimal supersymmetric Standard Model is extended with right-handed neutrino superfields and the seesaw scale is very low, right sneutrinos can be produced via the freeze-in mechanism. In such a case we can have essentially two independent sources for dark matter, the traditional freeze-out of higgsinos and the freeze-in of right-handed sneutrinos. The heavier of these two will decay to the lighter species with a delay. We have ruled out such a scenario for all seesaw models as the lifetime of sterile neutrino, produced via Dodelson-Widrow mechanism, exceeds the age of the universe and will contribute to the relic density.

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