

## Light sneutrino and neutralino as dark matter candidates in $U(1)_X$ SSM

*Wednesday, 18 August 2021 09:10 (20 minutes)*

$U(1)_X$ SSM is the extension of the minimal supersymmetric standard model (MSSM) and its local gauge group is  $SU(3)_C \times SU(2)_L \times U(1)_Y \times U(1)_X$ . To obtain this model, three singlet new Higgs superfields and right-handed neutrinos are added to MSSM. In the framework of  $U(1)_X$ SSM, we study the lightest CP-even sneutrino and neutralino as cold dark matter candidates. The relic density and the cross section for dark matter scattering off nucleon are both researched. In suitable parameter space of the model, the numerical results satisfy the constraints of the relic density and the cross section with the nucleon.

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**Session Classification:** Parallel Session I: TeV and BSM Physics

**Track Classification:** 1. TeV 物理和超出标准模型新物理