

Precise Estimation of Charged Higgsino/Wino Decay Rates and Implications for Collider Searches

Tuesday 4 June 2024 16:40 (20 minutes)

Electroweakly interacting massive particles are strong candidates for dark matter and are included in various new physics models. For example, Higgsinos and Winos are leading dark matter candidates in supersymmetry models. A major characteristic of such dark matter is that there are slightly heavier isospin partner particles in addition to the dark matter itself. These particles are metastable and eventually decay into dark matter, but they produce signals such as charged tracks and displaced vertices, playing a significant role in the search at colliders like the LHC. The decay modes and lifetimes of these heavier particles are crucial for the collider search for dark matter. In this talk, I will discuss the precise calculations of these decay rates, including quantum corrections, and the impacts of these results on collider searches.

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Session Classification: Parallel Session PL6