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Displaced Vertices of a Light Neutralino at Belle II

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I will present ongoing work on light neutralinos with baryon-number-violating R-parity-violating (RPV) couplings at Belle II. Neutralinos can be produced in B-meson decays and subsequently decay into baryon-meson pairs, leading to displaced-vertex (DV) signatures. We employ partial reconstruction techniques to enhance signal efficiency and suppress backgrounds. Using Monte Carlo simulations, we determine Belle II's sensitivity to RPV couplings for GeV-scale neutralinos, surpassing current bounds. These preliminary results complement collider searches and explore new regions of parameter space for physics beyond the Standard Model.

Author: Dr HELO HERRERA, Juan Carlos (Universidad de La Serena (CL))

Presenter: Dr HELO HERRERA, Juan Carlos (Universidad de La Serena (CL))

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