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Gamma-ray Signal from Dark Matter Annihilation Mediated by Mixing Slepton FEI TENG, Univ of Utah — In order to reconcile the tension between the collider SUSY particle search and the dark matter relic density constraint, we free ourselves from the simplest CMSSM model and find a large parameter space in which a sub-TeV bino dark matter may comply with all the current experimental constraints. In this so-called incredible bulk region, dark matter mainly annihilates through the t channel exchange of a mixing slepton into a leptonic final state. We have explored this proposal and studied the resultant spectrum feature. We are going to show that the line signal produced by the $\gamma\gamma$ and γZ final state will give some indications to the mixing angle and CP-violation phase of the slepton sector. On the other hand, internal bremsstrahlung (IB) feature will be easier to get observed by future experiments, with sensitivity around $10^{-29} cm^3/s$. Unlike some other models, our IB signal is dominated by the collinear limit of the final state radiation amplitude and shows a bump-like feature.

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