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Monochromatic Gamma-ray signal from Dark Matter Annihilation FEI TENG, University of Utah — Current experimental limits from LHC and Planck have ruled out a large portion of the CMSSM parameter space, while the major tension is between the null result of sub-TeV squark and the low dark matter relic density. However, if we free ourselves from the CMSSM, we still have a large parameter space in which a sub-TeV dark matter may comply to all the current experimental constraints. In this so-called incredible bulk region, sleptons have a nonzero mixing while the dominant dark matter annihilation product is lepton-anti-lepton pair. We have explored this alternative and studied the resultant monochromatic gamma-ray signal produced by the $\gamma\gamma$ and γZ final state. This signal will give some indications to the mixing angle and CP-violation phase of the slepton sector. Future ground-based and satellite-based experiments will reach the sensitivity $10^{-29} cm^3/s$ for dark matter annihilation cross section and thus are possible to discern this line signal from the continuous background.

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