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Searching for top squarks from the landscape at HL-LHC

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Abstract: Supersymmetric models with low electroweak fine-tuning are more prevalent on the string landscape than fine-tuned models. We assume a fertile patch of landscape vacua containing the minimal supersymmetric standard model (MSSM) as a low-energy EFT. Such models are characterized by light higgsinos in the mass range of a few hundred GeV whilst top squarks are in the 1-2.5 TeV range. Other sparticles are generally beyond current LHC reach. We evaluate prospects for top squark searches of the expected natural SUSY at HL-LHC.

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