

Phenomenology 2021 Symposium



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Landscape Higgs and sparticle mass predictions from a logarithmic soft term distribution

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Recent work on calculating string theory landscape statistical predictions for the Higgs and sparticle mass spectrum from an assumed power-law soft term distribution yields an expectation for $m(\tilde{h}) \sim 125$ GeV with sparticles (save light higgsinos) somewhat beyond reach of high-luminosity LHC. A recent examination of statistics of SUSY breaking in IIB string models with stabilized moduli suggests a power-law for models based on KKLT stabilization and uplifting while models based on large-volume scenario (LVS) instead yield an expected logarithmic soft term distribution. We evaluate statistical distributions for Higgs and sparticle masses from the landscape with a log soft term distribution and find the Higgs mass still peaks around ~ 125 GeV with sparticles beyond LHC reach, albeit with somewhat softer distributions than those arising from a power-law.

Summary

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