

Phenomenology 2021 Symposium



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Signatures of toponium formation in LHC run 2 data

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Measurements in top-antitop events at the LHC unraveled some anomalies. We examine the possibility that those reflect some mismodeling in Standard Model top pair-production. While subdominant, so-far neglected toponium contributions yield the additional production of dileptonic systems of small invariant mass and small azimuthal angle separation, which could explain the anomalies. We propose a method to discover toponium in present and future data. This paves the way to further experimental and phenomenological studies, as understanding toponium effects is essential for precision measurements of one of the most important parameters of the Standard Model, the top mass.

Summary

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