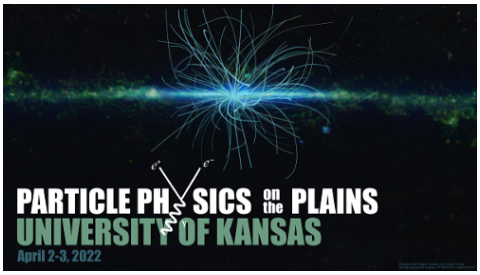

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Toponium at the LHC

Sunday 3 April 2022 09:20 (20 minutes)

Measurements of the di-leptonic top-antitop events at the LHC unraveled some excesses. We examine the possibility that those excesses can be consequences of non-perturbative enhancement of the production cross section near the t-tbar threshold. While sub-dominant in terms of total rates, so-far neglected toponium effects yield the additional production of di-leptonic systems with small invariant mass and small azimuthal angle separation. This could contribute to the above-mentioned deviations from the Standard Model simulation, which accounts only for perturbative corrections. We propose a method to discover toponium in present and future data, and our results should pave the way to further experimental and phenomenological studies on toponium.

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