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Loop Effects of an Effective Dark Matter Model on Dilepton Production

While LHC searches for new resonance states (Z' models) are ongoing in the neutral-current Drell-Yan process, one of the cleanest channels to seek New Physics, it is important to also look for non-resonant effects. In particular, box diagrams with hidden sector TeV-scale states can interfere with the Standard Model to produce spectacular dilepton spectra. To this end, I will motivate an effective theory with a hidden sector that provides a dark matter candidate, and discuss the role of dispersion relations in producing these new signals. I will conclude with constraints from the dark matter relic abundance, and direct detection and collider experiments.

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