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# New Physics virtual correction to top-pair production

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Being the heaviest fermion and having a Yukawa interaction almost equal to one, the top-quark represents one of the most interesting portals to New Physics (NP). If it is light or belongs to a secluded sector, NP can be difficult to detect in colliders with traditional methods. An alternative way, at least for setting bounds, is studying the virtual corrections to SM processes. Kinematical distributions of top-quark pairs produced at the LHC are studied both by the CMS and ATLAS experiments. A plethora of data for both the threshold region and the tails of the distributions are already available. In addition, SM theoretical predictions are known at very high accuracy (NNLO QCD and beyond). In this talk I will discuss the effect of virtual corrections to top-pair production coming from different types of NP: Axion-Like-Particles, CP-even and CP-odd scalars. I will also discuss the opportunity that top-pair production opens to bound new-particle interactions or probe their existence.

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