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Unitarity constraints for Effective Field Theories

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Effective Field Theories have shown to suffer from some validity problems when applied to DM search at collider. EFT operators are generated by integrating out heavy mediators of some UV theory, and therefore are valid up to some energy scale below the mass of the integrated out particles.
To overcome such problems, different proposals have been made. An appealing possibility is certainly to switch from EFT to simplified models. Anyway this enlarges the parameter space and introduces some model dependence.
It would be certainly useful to be able to work with EFT, despite of such validity issues, given its model-independent and simple framework. A development in such direction was the introduction of truncation of the simulated events.
To calculate the expected cross section, one may retain only the events that have a momentum transfer below a certain treshold, usually identified with the mass of the heavy integrated out mediator. In this talk we analyse limitations coming from unitarity bounds, showing that in some cases unitarity may break at energies below the mass of the heavy mediator, and therefore in such cases additional constrains have to be enforced on the EFT.
Using the K matrix formalism, we propose a way to force the theory to satisfy such additional constrains.

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