

# Direct detection of dark matter: Precision predictions in a simplified model framework

*Friday 25 September 2020 15:45 (15 minutes)*

In my talk, I will present a calculation of the next-to-leading order QCD corrections for the scattering of Dark Matter particles off nucleons in the framework of simplified models with  $s$ - and  $t$ -channel mediators. These results are matched to the Wilson coefficients and operators of an effective field theory that is generally used for the presentation of experimental results on spin-independent and spin-dependent direct detection rates.

Detailed phenomenological studies illustrate the complementary reach of collider searches for Dark Matter and the direct detection experiments CRESST and XENON. In the case of cancellation effects in the tree-level contributions, one-loop corrections can have a particularly large impact on exclusion limits in the case of combined  $s + t$ -channel models.

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