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## Higher-Spin Dark Matter Meets Hilbert Series: Counting Interactions to Even Higher Orders

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An effective Lagrangian is composed of all higher dimensional operators that are Lorentz singlets and invariant under the gauge symmetries of the theory, suppressed by powers of the cutoff. A challenging problem is the construction of the EFT operators, since the number of possibilities grows extremely fast. Furthermore, many of these operators are linearly dependent or can even be discarded, through field redefinitions which make use of equations of motion (EOM) or integration by parts (IBP). Therefore, the number of independent operators of a certain type at some order in an EFT is an extremely useful information, and it turns out one can obtain it precisely by employing the Hilbert Series, a tool from Invariant Algebra that allows one to count invariants in an EFT. In this work, we perform the operator counting of the EFT of the Standard Model aided with a higher-spin Dark Matter particle, up to mass dimension 12.”

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