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Effective theory of nuclear scattering for WIMPs of arbitrary spin

Thursday 26 March 2020 17:00 (15 minutes)

We have extended the nonrelativistic effective theory of WIMP-nucleus scattering from WIMPs of spin 0, 1/2, and 1 to WIMPs of arbitrary spin, under the assumption of one-nucleon operators. New effective operators arise at each additional half-unit of WIMP spin. The nuclear structure functions are the same for WIMPs of all spin. The theory can easily include mediators of any mass, and form factors for WIMPs of finite size. This talk will present the new operators and how they are constructed, together with some preliminary phenomenological results.

Author: GONDOLO, Paolo (University of Utah)

Presenter: GONDOLO, Paolo (University of Utah)

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