Hadronic Contributions to New Physics Searches



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## What is the size of the dark matter – nucleus cross section?

Tuesday 27 September 2016 09:35 (35 minutes)

## Summary

In this talk I will report on our efforts to estimate the dark matter – nucleus cross section, given any effective operator that connects the dark sector to the standard model. Many scales enter this prediction: The mass of dark matter and the mediators, the electroweak symmetry breaking scale, the scale of chiral symmetry breaking, and the scales given by the kinematics of non-relativistic scattering. We construct the corresponding effective theories and calculate the scattering cross section to leading order in all ratios of scales. We take into account dark matter with electroweak charges, operator mixing, and the scaling of the nuclear response functions.

**Presenter:** BROD, Joachim (TU Dortmund) **Session Classification:** Direct searches of Dark Matter