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Particle Physics at LPTHE

Mardi 16 Mai 2017, 14 :00
LPTHE, Library
Domaines : hep-ph

Titre : *Chiral Effective Theory of Dark Matter Direct Detection*

Orateur : **Jure Zupan (University of Cincinnati and CERN)**

Résumé : *I will present the effective field theory for dark matter interactions with the visible sector that is valid at scales of O(1 GeV). Starting with an effective theory describing the interactions of fermionic and scalar dark matter with quarks, gluons and photons via higher dimension operators that would arise from dimension-five and dimension-six operators above electroweak scale, we perform a nonperturbative matching onto a heavy baryon chiral perturbation theory that describes dark matter interactions with light mesons and nucleons. This is then used to obtain the coefficients of the nuclear response functions using a chiral effective theory description of nuclear forces. Our results consistently keep the leading contributions in chiral counting for each of the initial Wilson coefficients.*