

# Effective theory approach to direct detection of dark matter

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## 1 Introduction of WIMP dark matter

## 2 Direct detection of WIMP dark matter

## 3 Effective theories at the nucleon level

## 4 Evaluation of scattering cross section from UV theories at Leading Order in $O(\alpha_s)$

### 4.1 Effective theories at parton level

### 4.2 Matrix elements

### 4.3 Matching at UV scale

## 5 Toward Next-leading order in $O(\alpha_s)$

## 6 Summary

## References

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