[No. 2]

Scalar dark matter interacting through an extra U (1) gauge interaction

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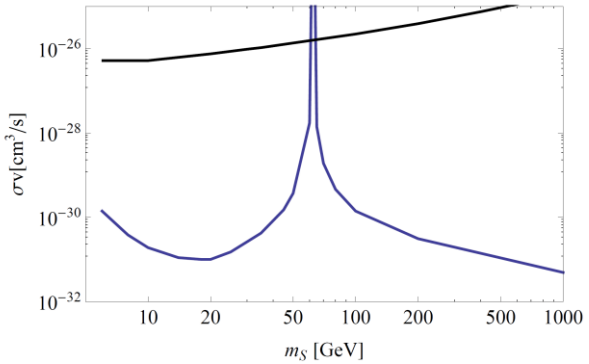
with Nobuchika Okada, arXiv:1908.09277

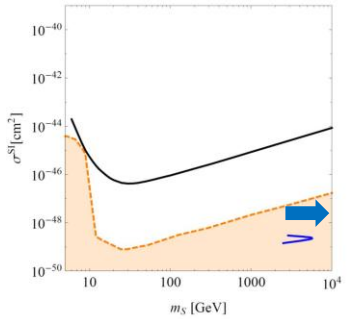
- Cross section of WIMPs
  - $\sigma < 10^{-9}$ pb for Direct detection
  - $\sigma v < 1$ pb for Indirect detection (Fermi-LAT)
  - $\sigma v \simeq 1$ pb for Ωh^2



- Scalar DM interacting with Z' from an extra U(1)s
  - Co-annihilation

a kind of inelastic dark matter

- Prediction depends on models; B-L, (B-L)3, Lμ-Lτ
- LHC, direct detection above and below neutrino floor, indirect, implication to other anomalies (muon g-2, Hubble Tension, …)
  - LHC



  - Indirect search
    - ✓ $< 10^{-30}$ cm^3/s e.g., 47 Tuc [Brown et al (2018)]
  - Challenges for direct detection
    - ✓ Below neutrino floor
    - ✓ Lighter than 1 GeV