Contribution ID: **36** Type: **Parallel talk**

Asymmetric thermal-relic dark matter

Thursday 22 June 2017 17:45 (15 minutes)

I will discuss symmetric and asymmetric dark matter with long-range interactions, in particular dark matter coupled to a light vector or scalar force mediator. Accurate determination of the relic abundance requires inclusion of Sommerfeld enhancement and consideration of bound state formation. Due to the Sommerfeld enhancement, highly asymmetric dark matter with long-range interactions can have a significant annihilation rate in halos today, potentially larger than symmetric dark matter of the same mass with contact interactions. Finally, I will discuss the unitarity bound on the inelastic cross-section and why it can be realised only by long-range interactions. I will showcase upper bounds on the mass of symmetric and asymmetric thermal-relic dark matter for s-wave and p-wave annihilation, and exhibit how these bounds strengthen as the dark asymmetry increases.

Presentation type

Parallel talk

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