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Type: **Afternoon Session**

Coloured coannihilations: Dark matter phenomenology meets non-relativistic EFTs

Wednesday, 24 April 2019 11:40 (15 minutes)

We investigate the phenomenology of a simplified model with a Majorana fermion as dark matter candidate which interacts with Standard Model quarks via a colour-charged coannihilation partner. Recently it has been realized that non-perturbative dynamics, including the Sommerfeld effect, bound state formation/dissociation and thermal corrections, play an important role in coannihilations with coloured mediators. This calls for a careful analysis of thermal freeze-out and a new look at the experimental signatures expected for a thermal relic. We employ a state of the art calculation of the relic density which makes use of a non-relativistic effective theory framework and calculate the effective annihilation rates by solving a plasma-modified Schrödinger equation. We determine the cosmologically preferred parameter space and confront it with current experimental limits and future prospects for dark matter detection.

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