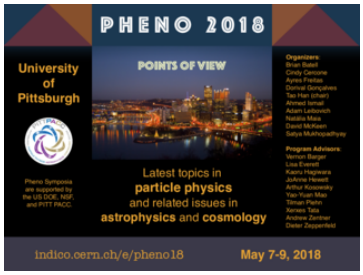

Contribution ID: **584** Type: **parallel talk**

GeV-Mass Thermal WIMPs: Not Even Slightly Dead

Monday 7 May 2018 17:00 (15 minutes)

A leading dark matter candidate is a Weakly Interacting Massive Particle (WIMP). The observed dark matter abundance can be naturally obtained through freezeout of the thermal annihilation rate. The defining feature of a thermal WIMP is that its total annihilation cross section is specified through the thermally averaged cross section $\langle \sigma v \rangle$. Searches for dark matter annihilation products have set strong limits in certain cases, requiring that the dark matter mass be greater than about 100 GeV if annihilation proceed solely to b quarks (Fermi), τ leptons (Fermi), or electrons (AMS). We construct the first limits on the WIMP total annihilation cross section, showing that allowed combinations of the annihilation-channel branching ratios considerably weaken these limits. We show that GeV-mass thermal WIMPs have not yet been adequately tested, and outline ways forward.

Summary

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Session Classification: DM II