

Asymmetric dark matter and an antineutrino signal

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Under rather generic assumptions, we show that in the asymmetric dark matter (ADM) scenario, the sign of the B-L asymmetry stored in the dark matter sector and the standard model sector are always the same. One particularly striking consequence of this result is that, when the dark matter decays or annihilates in the present universe, the resulting final state always involves an anti-neutrino. As a concrete example of this, we construct a composite ADM model and explore the feasibility of detecting such an anti-neutrino signal in atmospheric neutrino detectors.

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