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Dark matter searches with antideuterons

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Antideuterons can be produced through the nuclear coalescence of the antiprotons and the antineutrons that are originated in a dark matter pair annihilation or decay event. At low kinetic energies, the fluxes of these bound states are found to dominate over the astrophysical background and thus antideuterons may be considered as a very promising channel for a dark matter indirect detection, especially for WIMPs with a low or intermediate mass. In this talk, an overview on the principal issues related both to the antideuterons production and to their subsequent propagation through the interstellar medium and the heliosphere will be given. Then, the capability of current and future experiments to detect an antideuteron flux produced by dark matter annihilation will be investigated in relation to the constraints on the dark matter annihilation cross section that can be derived from the latest measurements of the cosmic antiproton flux.

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