Contribution ID: **256**   Type: **Talk**

Reviving the clumpiness boost for dark matter indirect searches

Monday 27 August 2018 16:30 (15 minutes)

Cold dark matter candidates generically lead to the structuring of matter on scales much smaller than typical galaxies. This clustering translates into a very population of subhalos in galaxies, which induces an enhancement of the average annihilation rate with respect to a smooth-halo assumption. Recent work by van den Bosch et al. showed that the number of these objects that survive tidal interactions with the galaxy may have been drastically underestimated by numerical simulations. Taking this result into account, we reexamine the impact of clumps on indirect searches for annihilating dark matter, paying particular attention to the gamma-ray and cosmic-ray antiprotons channels.

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Session Classification: Dark Matter

Track Classification: Dark Matter