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Putting all the X in one basket: X-ray constraints on sub-GeV dark matter

Wednesday, June 28, 2023 3:00 PM (45 minutes)

In this talk I will focus on light dark matter particles, with a mass between 1 MeV and a few GeV. These particles can annihilate or decay into electron-positron pairs which can upscatter the low-energy fields in our Galaxy and produce X-ray emission. By using the X-ray data from XMM-Newton, Integral, Suzaku and NuSTAR, we derive strong constraints on MeV dark matter. In the decay scenario, our bounds are the strongest to date for dark matter masses above 100 MeV and improving up to 3 orders of magnitude upon existing limits. In the annihilation case, our constraints are the strongest available for dark matter masses above 180 MeV.

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