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X-rays constraints on sub-GeV Dark Matter

Monday, September 11, 2023 5:15 PM (15 minutes)

In this talk, I will present updated constraints on 'light' dark matter (DM) particles with masses between 1 MeV and 5 GeV. In this range, we can expect DM-produced $e^{\pm}$ pairs to upscatter ambient photons in the Milky Way via Inverse Compton, and produce a flux of X-rays that can be probed by a range of space observatories. Using diffuse X-ray data from XMM-Newton, INTEGRAL, NuSTAR and Suzaku, we compute the strongest constraints to date on annihilating DM for 200 MeV < m_{DM} < 5 GeV and decaying DM for 100 MeV < m_{DM} < 5 GeV. I will also discuss possible future developments of these results and this technique.

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