

Photon Proliferation Effect from N-body ultralight DM annihilation

I will demonstrate a general photon proliferation effect from N-body ultralight dark matter (DM) annihilation in the early Universe, which can induce a drastic photon-temperature shift after neutrino decoupling. For pseudoscalar DM mass below the eV scale, I will show that the photon proliferation effect becomes significant as the mass approaches the ultralight end, presenting the leading constraints on the DM-photon coupling, DM self-interaction, and DM-electron coupling.

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