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Looking for lights from the darkness: Signals from MeV-scale solar axion-like particles

Sunday, 19 April 2026 14:00 (30 minutes)

We investigate the photons from the decay of axion-like particles, produced in the solar activity. The nontrivial geometry indicates a wide angular distribution of these photons, which can even come from directions which deviate significantly from the direction of the sun. We consider some detection setups including space and terrestrial experiments in the pole region. There is a critical height for the terrestrial searches, below which there is no flux at all for some regions of the parameter space. One can explore the coupling of axion-like particle to photons up to 10^{-13} GeV^{-1}, if the flux of MeV-scale photons can reach the order of 10^{-15} erg cm^{-2} s^{-1} in future experiments.

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