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Solar atmospheric neutrinos and implications for dark matter

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The Sun is a high-energy gamma-ray and neutrino source due to cosmic rays interacting with the solar atmosphere. It is also a popular target for dark matter searches with high-energy neutrinos, as dark matter could be trapped and annihilate at the core of the Sun. However, from the gamma-ray observations with HAWC and Fermi, it is clear that the complex solar magnetic fields play an important role in the production of solar atmospheric gamma rays, and thus also the neutrinos. I will discuss current theoretical and observational status of the high-energy Sun, as well as the implications of these solar atmospheric gamma rays and neutrinos on dark matter searches from the Sun.

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