

Hidden vectors from solar nuclear reactions

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Nuclear reactions in the solar core can produce light and weakly coupled beyond the standard model particles that subsequently reach the Earth. We analyze the second step of the proton-proton chain, and we investigate the flux of monochromatic 5.49 MeV massive spin-one particles. Focusing on two benchmark scenarios, which correspond to different communication mechanisms with the visible sector, we evaluate the expected flux on the Earth. Finally, we explore the sensitivity reach of the next-generation large underground neutrino oscillation experiment Jiangmen Underground Neutrino Observatory (JUNO).

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