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Search for solar neutrino and light dark matter with the PandaX-4T experiment

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The PandaX-4T experiment aims to search for potential dark matter interactions. With significant technical improvements, PandaX-4T achieves unprecedented sensitivity at the low-energy edge of LXe detectors, opening a new window for observing solar neutrinos. Using commissioning data, two hybrid analyses are carried out to search for dark matter interactions, yielding world-leading results for neutrino-nucleus coherent elastic scattering from solar B8 neutrino, as well as for dark matter interactions with nucleons and electrons. These results demonstrate PandaX-4T's unique capability to search for low-energy interactions from solar and galactic sources.

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