

IWCD-PRISM for Dark Matter Direct Detection

Tuesday, 19 August 2025 17:30 (20 minutes)

Dark matter (DM) is one of the main components of the universe and strongly related to the evolution of the universe. In order to understand the nature of DM, numerous direct and indirect search experiments are on-going or planned. The Intermediate Water Cherenkov Detector (IWCD), a near detector planned for Hyper-Kamiokande, is equipped with a vertically movable capability that enables the implementation of the PRISM technique. This feature, originally designed to provide off-axis measurements for neutrino studies, may also offer advantages for DM direct detection. We obtain DM direct detection sensitivity of IWCD-PRISM with optimized kinematic cuts and realistic detector effects. We find that the expected sensitivity of IWCD-PRISM is comparable to that of DUNE-PRISM.

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Session Classification: Parallel session 3