

Prospects for DarkSide-20k sensitivity to light dark matter particles

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DarkSide-20k, currently under construction at LNGS, is a liquid argon double-phase Time Projection Chamber designed for the direct detection of Weakly Interacting Massive Particles (WIMPs) with masses exceeding $10 \text{ GeV}/c^2$. In addition to its primary goal, DarkSide-20k has a significant potential for discovering light dark matter particles. Building on the success of its predecessor, DarkSide-50, which set world-best limits on WIMPs in the 1.2 to $3.6 \text{ GeV}/c^2$ mass range with $\sim 1,000$ times smaller target mass, DarkSide-20k presents unprecedented sensitivity prospects for low mass (1 - $10 \text{ GeV}/c^2$) WIMPs and other light dark matter candidates.

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