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Dark Matter Detection in Liquid Argon with DarkSide-20k Dual Phase Time Projection Chamber

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DarkSide-20k is the next generation dual-phase TPC of the DarkSide programme with 50 ton underground argon target, currently under construction at LNGS (Italy). With data taking to begin in 2026, DarkSide-20k will achieve cross-section discovery sensitivity of 10-47 cm2 searching for interactions of WIMPs with 0.1 TeV/c2 mass. The sensitivity projection relies on innovative technologies such as novel low-noise, high efficiency SiPM and Gd-loaded acrylic neutron veto, and on the extraordinary background rejection power of liquid argon. In this talk, a broad overview will be provided with some recent updates on the experiment.

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