

Darkside latest results and future prospects

Saturday, July 7, 2018 2:20 PM (20 minutes)

DarkSide uses a dual-phase Liquid Argon Time Projection Chamber to search for WIMP dark matter. The talk will present the latest result on the search for low mass ($M_{WIMP} < 20 \text{ GeV}/c^2$) and high mass ($M_{WIMP} > 100 \text{ GeV}/c^2$)

WIMPs from the current experiment, DarkSide-50, running since mid 2015 a 50-kg-active-mass TPC, filled with argon from an underground source. The next stage of the Darkside program will be a new generation experiment involving a global collaboration from all the current Argon based experiments.

DarkSide-20k, based on a >20-tonne fiducial mass TPC with SiPM based photosensors, is designed to have a background well below that from coherent scattering of solar and atmospheric neutrinos. Like its predecessor DarkSide-20k will be housed at the Gran Sasso (LNGS) underground laboratory, and it is expected to attain a WIMP-nucleon cross section exclusion sensitivity of 10^{-47} cm^2 for a WIMP mass of $1 \text{ TeV}/c^2$ in a 5 yr run.

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Session Classification: Dark Matter Detection

Track Classification: Dark Matter Detection