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Darkside latest results and the future liquid argon dark matter program

Tuesday 24 July 2018 14:50 (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 ($M_{WIMP} < 20GeV/c^2$) and high mass ($M_{WIMP} > 100GeV/c^2$) 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, is designed as a >20-tonne fiducial mass TPC with SiPM based photosensors, expected to achieve an instrumental 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 $1TeV/c^2$ in a 5 yr run.

Parallel Session

Dark Matter, Astroparticle Physics

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Session Classification: Dark Matter, Astroparticle Physics