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# DARKSIDE: RECENT RESULTS WITH UNDERGROUND ARGON AND OUTLOOK

*Tuesday, 1 December 2015 08:30 (30 minutes)*

DarkSide-50 is a two-phase 50 kg liquid argon TPC, shielded by a liquid scintillator neutron veto and by a water Cherenkov muon veto, running at LNGS since October 2013. In the first run, DarkSide-50 operated with atmospheric argon (1,422 kg day exposure), collecting and completely rejecting about 16 millions of background events in the region of interest, mostly originating from  $^{39}\text{Ar}$ . Operations with underground argon, started in March 2015, demonstrated an  $^{39}\text{Ar}$  suppression factor larger than 1,000. The  $^{39}\text{Ar}$  suppression factor in underground argon combined with the exceptional electron recoil rejection power are paving the way towards the next DarkSide phase, the 20-tonne fiducial DarkSide-20k detector.

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