

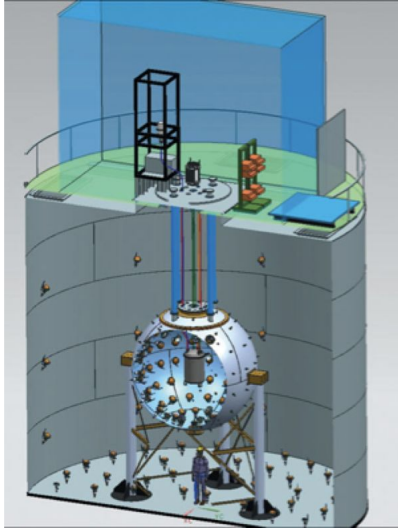


DarkSide: dark matter search with a liquid argon TPC

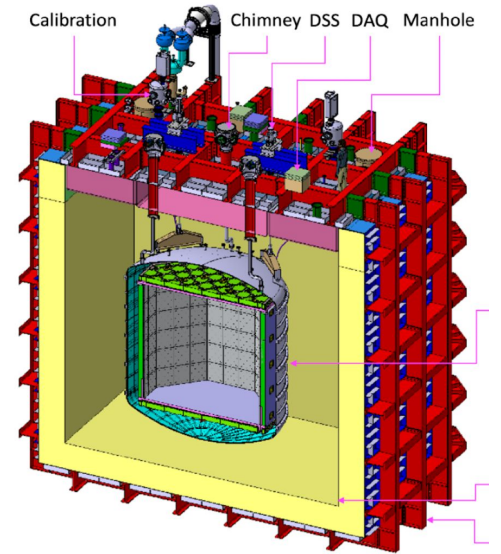
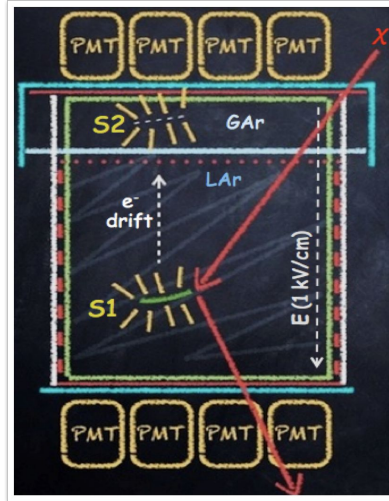
Davide (APC) - AstroCENT - 20/12/2023

APC -AstroCENT Annual Meeting

From DarkSide-50 to DarkSide-20k



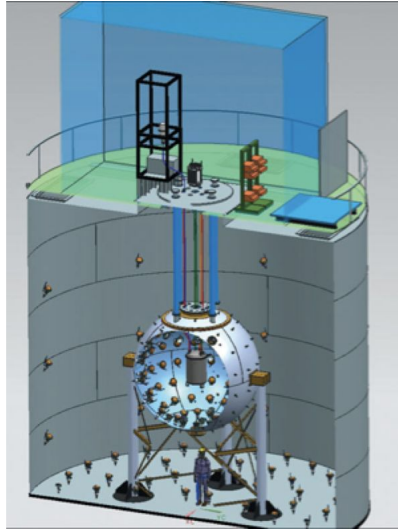
DS-50



DS-20k

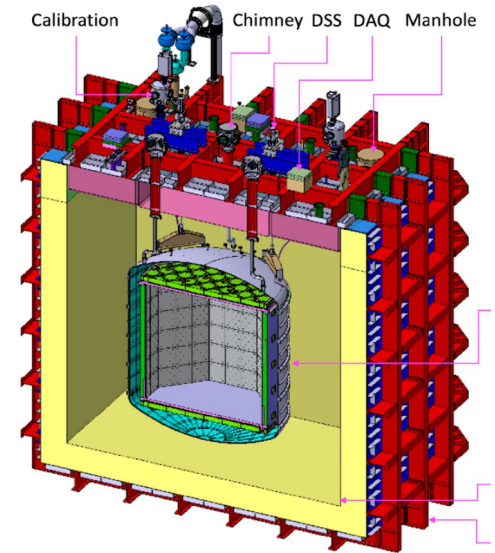


From DarkSide-50 to DarkSide-20k



DS-50

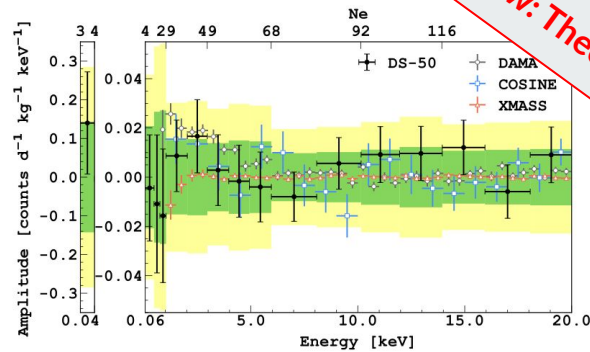
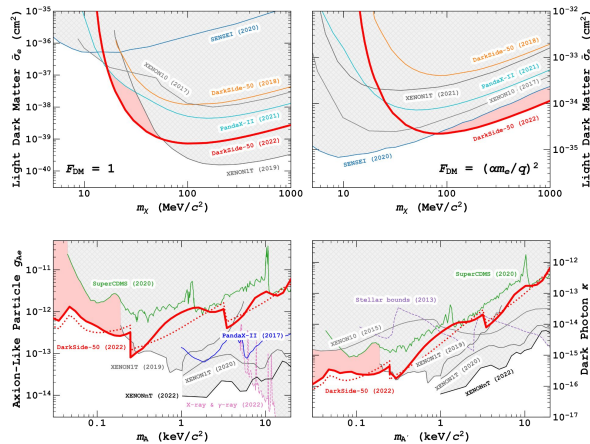
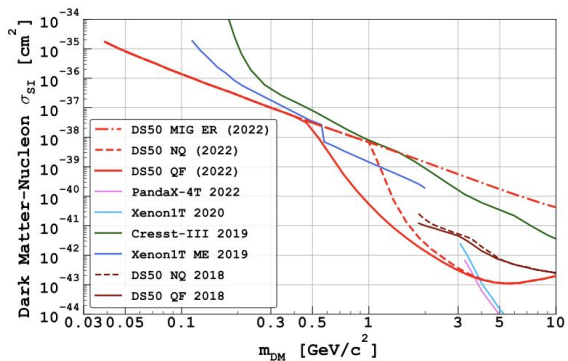
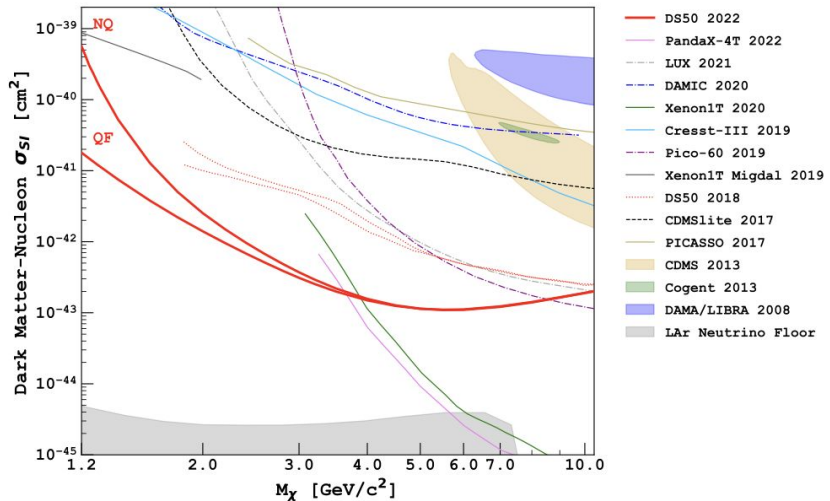
50 kg	50 ton
H = 0.37 m	H = 3.5 m
NV: LS + ^{10}B	NV: Acrylic + Gd
Muon veto: water	Muon veto: LAr
PE: 38 PMTs	PE: 2200 tiles of SiPMs
Trigger on S1	Trigger-less
Ended in 2019	Start in 2026



DS-20k

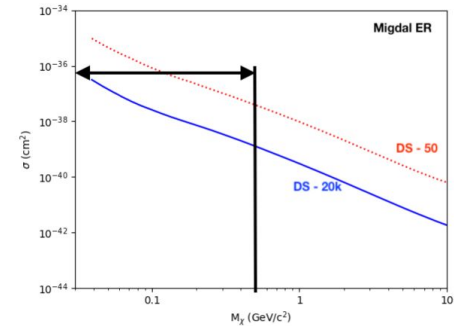
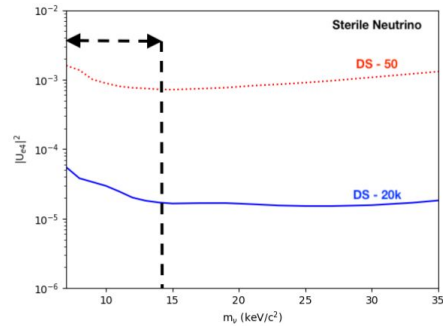
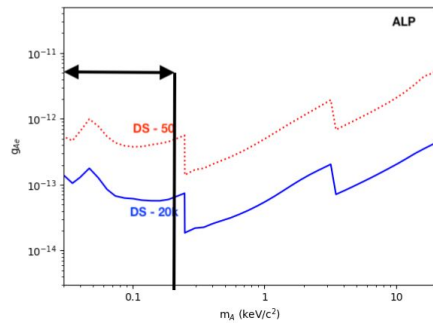
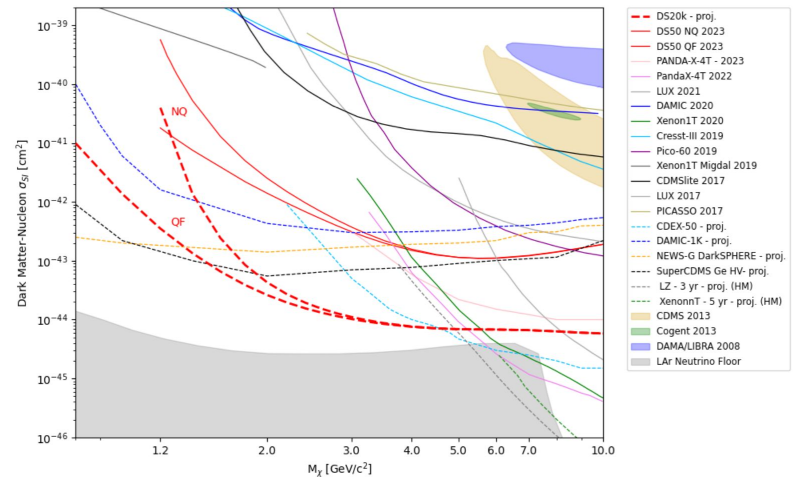
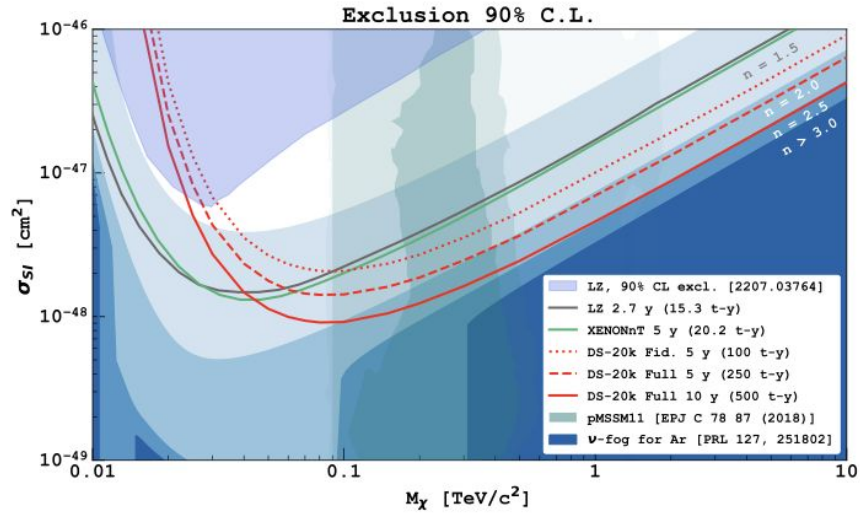


DS-50: the Physics



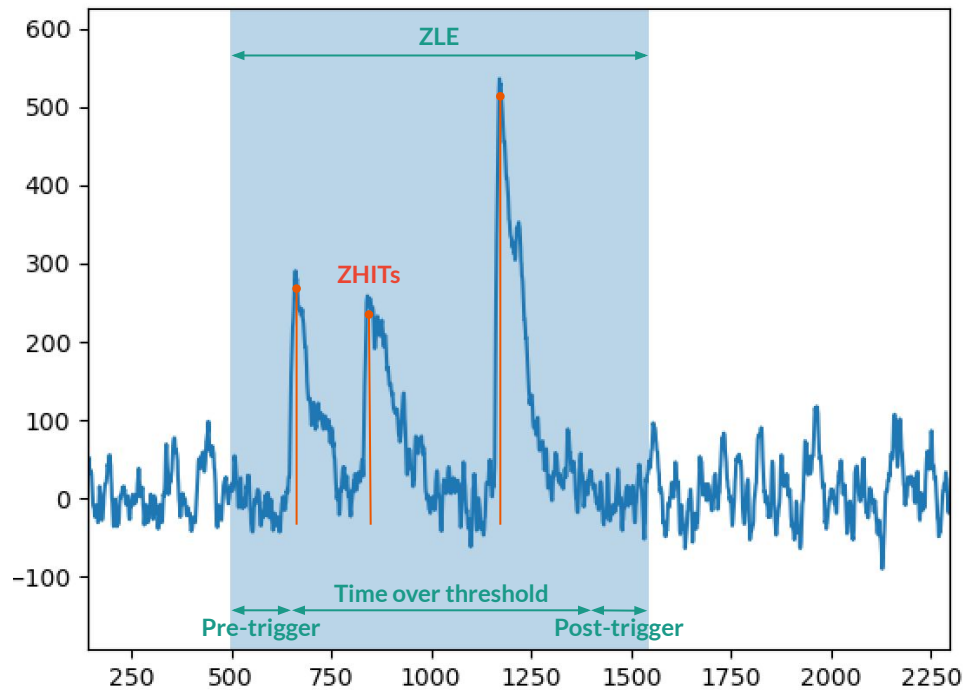
new: Theo's talk

DS-50 \Rightarrow DS-20k: the Physics

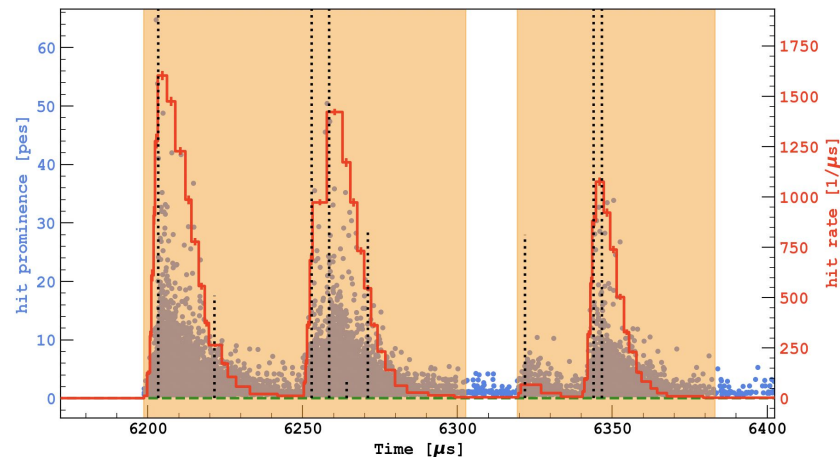


DS-20k: signal processing and reconstruction

Triggerless mode with 125 MHz sampling rate x ~2200 channels => need to process ~0.5 TB / s in real time



- Data reduction through matched filtering
- Data reconstruction based on Bayesian Blocks



see Timothée's talk