

New Perspectives



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NEXUS: A low-background, cryogenic facility for detector development and calibrations

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The Northwestern Experimental Underground Site (NEXUS), located in the MINOS cavern at Fermilab, is a user facility for development and calibration of cryogenic detectors. The heart of NEXUS is a dilution refrigerator with a 10 mK base temperature, protected from radiogenic backgrounds by a moveable lead shield and 100 meters of rock overburden. The fridge is outfitted with cabling to support multiple detector payloads, with both RF and DC input and readout. Currently, NEXUS houses three experiments: a superconducting qubit array, SuperCDMS HVeV detectors, and a microwave resonator array. The facility is in the process of being upgraded with a DD neutron generator, an ideal source for calibrating low-energy nuclear recoils and processes like the Migdal effect. In this talk, I will provide an overview of the utilities available at NEXUS and discuss future opportunities.

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