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The SABRE Dark Matter Experiment

Tuesday, 26 May 2020 09:54 (18 minutes)

SABRE is a particle dark matter experiment whose aim is to conclusively test the claim of dark matter detection by the DAMA collaboration, who have measured an anomalous annual modulation in their NaI:Tl detector for many years. To this end, SABRE has developed NaI:Tl crystals of unsurpassed purity, which will serve as a low-background target and operate submerged within a large liquid scintillator veto to be used to further suppress backgrounds. SABRE will also operate twin underground detectors: in Gran Sasso National Laboratory, Italy and a new underground laboratory at Stawell, Australia.

This talk will give an overview of the SABRE design and expected sensitivity, and present results from recent detector development and characterisation activities. These include underground measurements of the first full-sized crystals at Gran Sasso; liquid scintillator development, characterisation, and material compatibility testing; and NaI:Tl quenching factor measurements.

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