

Status of the SABRE NaI (Tl) dark matter experiment

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Abstract

SABRE is a dark matter experiment that utilizes an array of NaI (Tl) scintillating crystals. A primary goal of the experiment is to test the DAMA/LIBRA annual modulation signal claimed to be evidence for dark matter. The experiment features ultra-low background NaI (Tl) crystals with liquid scintillator active veto system and twin

detector setup, one in Laboratori Nazionali del Gran Sasso, Italy (LNGS) and the other in Stawell Underground Physics Laboratory (SUPL). Most recently, we have successfully developed a NaI (Tl) single crystal with 4 ppb of potassium measured by inductively coupled plasma mass spectroscopy (ICP-MS), which is about 3 times lower

compared to DAMA/LIBRA crystals. In this talk, I will present an overview of the detector design followed by the recent progresses on the development of low radioactivity NaI (Tl) crystals and the status of detector commissioning in LNGS.

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