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The SABRE experiment

Monday, 2 July 2018 15:00 (30 minutes)

The SABRE (Sodium Iodide with Active Background Rejection Experiment) project aims to directly reveal the Dark Matter through the annual modulation signature due to the Earth's motion within the galactic halo. The DAMA experiment, at the Gran Sasso National Laboratory (LNGS, Italy), has detected such modulation over a period of 14 years but its results appear in contrast with other Dark Matter experiments. As confirmation of this observation SABRE intends to use the same sensitive material of DAMA, NaI(Tl) crystals, with four major improvements: ultra-high radiopure crystals, an active veto of liquid scintillator, a very low energy threshold and a double-site strategy. Indeed, twin detectors will be placed in both the hemispheres, at LNGS in Italy and at SUPL in Australia, in order to disentangle any possible seasonal effects that could mimic the DM signature. The current experimental phase, called Proof of Principle (PoP), is designed to characterize the first ~5 kg NaI crystals produced by the collaboration. In this talk an overview of the scientific program with its key features will be given, in addition to an update on the status of Sabre PoP and its future prospects.

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