

Status of SABRE North at LNGS and radiopurity of SABRE NaI(Tl) crystals

Thursday 18 July 2024 15:23 (18 minutes)

SABRE aims to deploy arrays of ultra-low background NaI(Tl) crystals to carry out a model-independent search for dark matter through the annual modulation signature. SABRE will be a double-site experiment, made up of two separate detectors which rely on a joint crystal R&D activity, located in the North (LNGS) and South hemisphere (SUPL). SABRE has carried out, since more than 10 years, an extensive R&D on ultra radiopure NaI(Tl) crystals. Several crystals have been grown and tested in active and passive shields at LNGS. Based on these results SABRE North is proceeding to a full scale design with purely passive shielding. To reach an unprecedented level of radiopurity for NaI(Tl) crystals, SABRE North is exploiting zone refining purification of the NaI powder prior to growth. We will present the first results from the zone refining activities and predictions on the ultimate radio purity achievable for the crystals. The status of SABRE North installation at LNGS will also be discussed.

Alternate track

1. Astro-particle Physics and Cosmology

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Yes

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