IRN Terascale @ Laboratori Nazionali di Frascati



ID de Contribution: 42 Type: Non spécifié

Status and prospects of the SABRE experiment for Dark Matter search in the two hemispheres

mardi 16 avril 2024 14:50 (15 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 radio-pure 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 is exploiting zone refining purification of the NaI powder prior to growth. We will present the status of SABRE North installation at LNGS, and recent results from the R&D towards the ultimate radio purity achievable for the crystals.

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Classification de Session: Dark universe

Classification de thématique: Dark universe