



ID contributo: 937

Tipo: Parallel Talk

The COSINUS dark matter search with cryogenic NaI detectors

sabato 9 luglio 2022 11:55 (20 minuti)

Today, the situation in direct dark matter detection is puzzling: the DAMA/LIBRA experiment observes an annual modulation signal at high statistical significance and fitting to the expectation of a cold dark matter halo in the milky way. However, in the so-called standard scenario on dark matter halo and dark matter interaction properties, the DAMA/LIBRA signal contradicts the null-results of numerous other experiments.

COSINUS aims for a model-independent cross-check of the DAMA/LIBRA signal. To be immune to potential dependencies on the target material, COSINUS will use NaI target crystals, the same material as DAMA/LIBRA. Several experimental efforts with NaI targets are planned or already ongoing. COSINUS is the only experiment operating NaI as a cryogenic detector, which yields several distinctive advantages: Discrimination between electronic interactions and nuclear recoils off sodium and iodine on an event-by-event basis, a lower nuclear recoil energy threshold, and a better energy resolution.

The construction of COSINUS started in December 2021 at the LNGS underground laboratory in central Italy. In this contribution, we will report on the current status of the construction and discuss in detail the cryogenic NaI detectors which use an innovative phonon readout, denoted remoTES.

In-person participation

Yes

Autore principale: REINDL, Florian (HEPHY & TU Vienna)**Relatore:** EINFALT, Leonie (HEPHY & TU Vienna)**Classifica Sessioni:** Dark Matter**Classificazione della track:** Dark Matter