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Illuminating the Invisible: deep underground dark matter search with COSINUS using NaI cryogenic calorimeters

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The COSINUS experiment (Cryogenic Observatory for Signatures seen in Next generation Underground Searches) is a low-threshold, cryogenic experiment being set up at Laboratori Nazionali Del Gran Sasso, Italy. It aims to provide a model independent cross-check of the DAMA/LIBRA findings of a potential dark matter-like modulation signal.

COSINUS utilizes a two-channel readout system based on transition edge sensors (TESs) that allows for particle discrimination. It consists of ultrapure scintillating sodium iodide (NaI) crystals, read out using a novel remoTES scheme to measure the phonon signal of a particle interaction. A silicon beaker surrounding the crystal is used to measure the light signal from the same particle interaction. Results from the latest prototypes and updates on the setup will be presented in this contribution.

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