

## **COSINUS: Cryogenic NaI detectors for direct dark matter search**

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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.

In this contribution, we will sketch the current status of the COSINUS experiment, from the development of the cryogenic NaI detectors to the construction of the experimental facility at the LNGS underground laboratory.

### **Reference to paper (DOI or arXiv)**

### **Your gender (free text)**

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