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The KIMS-Nal experiment at Yangyang (15' + 5')

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The KIMS group searches for dark-matter interactions using an array of scintillating NaI(Tl) crystals that serve both as a WIMP-interaction target and detector in the low-background environment of the Yangyang underground laboratory. The group has made significant progress to develop low-background, high light-yield, NaI(Tl) crystals for such a WIMP dark-matter search. The goal of this NaI(Tl) experiment is to make an unambiguous test of the controversial DAMA/LIBRA annual modulation signature. So far, studies with more than ten prototype NaI(Tl) crystals have shown progress in the reduction of internal contaminations of radioisotopes. With a new shielding at Yangyang, we plan to start the first phase of the experiment using a total of 100 kg of KIMS and DM-ice crystals. Soon, we expect to achieve a background level of less than 1 counts/day/keV/kg for recoil energies around 2 keV with a total mass of 200 kg. The current status of the effort is reported.

Primary author: HA, Chang Hyon (IBS)

Presenter: HA, Chang Hyon (IBS)

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