

Status of KIMS-NaI Experiment

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It is widely known that a large component of the universe's mass is in the form of dark matter and dark energy. There are several candidates for dark matter and WIMPs (Weakly Interacting Massive Particles) are considered to be one of the most probable ones. Until now, only the DAMA/LIBRA experiment, with NaI(Tl) crystals, has shown a statistically compelling positive result, which is a WIMP-like annual modulation, but this still under considerable debate. The KIMS-NaI group is preparing to test the DAMA/LIBRA annual modulation signal unambiguously, with an array of low-background NaI(Tl) crystals at the Yang Yang Underground laboratory. For this, we studied more than ten NaI(Tl) crystals as part of an R&D program aimed at reducing internal backgrounds to achieve better quality crystals than those used by DAMA/LIBRA. The first phase of experiment with a ~100kg array of NaI(Tl) crystals will be ready soon. In this talk, we will present the results of the NaI(Tl) crystal R&D program, the current status of the KIMS-NaI experiment, and future prospects.

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