

Search for DM annual modulation with NaI-based detectors

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DAMA/LIBRA has successfully developed ultra-high purity NaI(Tl) detectors which have been operated underground for about 20 years. A modulation signal compatible with the expected DM modulation is observed with an exposure of order 3 ton x yr. Any hint of a possible observation of a DM signal deserves deep examination. Therefore, testing the DAMA/LIBRA finding is of crucial interest and in particular probing the amplitude and phase of the modulation. In the last 10 years the effort to probe the DAMA/LIBRA finding on annual modulation has increased intensively. ANAIS-112 and COSINE-100 by using the same target as DAMA/LIBRA have provided important inputs on this search proving that a conclusive result is accessible and currently limited by statistics, with an exposure of order 0.2-0.3 ton x yr. In addition, more efforts are underway to improve the radiopurity of crystals at the level of DAMA/LIBRA or better. This is a crucial step to definitively probe the DAMA/LIBRA results. Besides crystal radiopurity new techniques are being considered to exploit NaI-based detectors for this physics case. In this talk a review of the present results and efforts is reported and near future prospects are discussed.

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