Friday 8 July, 10:05 – 10:25

Session 13: Neutrino properties I: searches for neutrinoless double beta decay

Status and prospects for the EXO-200 and nEXO experiments

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Large ultra-low background liquid xenon (LXe) detectors have recently emerged as a promising technology that can push the neutrinoless double beta decay search to unprecedented sensitivity. Since it began operation, EXO-200 has completed one of the most sensitive searches for $0\nu\beta\beta$-decay of ^{136}Xe using its first two years of data. After an unexpected interruption due to underground incidents at the Waste Isolation Pilot Plant, EXO-200 has started its Phase-II running in April 2016 with upgrades to its front-end electronics and Rn suppression system. In the talk, we will present the performance data of upgraded EXO-200 detector and the projected sensitivity for its Phase-II running. nEXO is a next-generation tonne-scale experiment building on the success of EXO-200. This 5 tonne LXe detector will be capable of probing Majorana neutrino mass in the inverted mass hierarchy region. The prospects for the nEXO experiment will also be presented in this talk.