

Prototypes of an Ion Trap for the Barium Tagging of nEXO

Wednesday, 10 February 2021 13:00 (15)

The next Enriched Xenon Observatory (nEXO) is a planned ton-scale experiment to search for neutrinoless double beta decay ($0\nu\beta\beta$) in xenon-136. The sensitivity of nEXO is limited by the natural occurrence of radioactive background events which produce signals indistinguishable from $0\nu\beta\beta$ in nEXO's detector. Barium tagging is a planned future upgrade of nEXO to reject backgrounds by identification of a barium ion extracted from the same vicinity as the detected decay. An ion trap has been developed as a part of a barium tagging approach. Prototypes of the ion trap have been built and tested. Experiments with the prototypes demonstrate successful ion transmission, trapping, cooling and ejection to meet the requirements for barium tagging.

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Please select: Experiment or Theory

Experiment

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