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Ba-ion extraction and identification from high pressure Xenon gas for nEXO YANG LAN, TRIUMF/UBC, THOMAS BRUNNER, McGill University, DANIEL FUDENBERG, Stanford University, VICTOR VARENTSOV, ITEP/FAIR, JENS DILLING, TRIUMF/UBC, GIORGIO GRATTA, Stanford University, NEXO COLLABORATION — The Enriched Xenon Observatory (EXO) is searching for the lepton-number violating double beta decay ($0\nu\beta\beta$) in ^{136}Xe. If experimentally confirmed, $0\nu\beta\beta$ will require the neutrino to be a Majorana particle, and shed light on the neutrino-mass hierarchy. The currently running EXO-200 experiment has obtained the limit of $T_{1/2}^{0\nu\beta\beta} \geq 1.1 \times 10^{25}$ years. In parallel, the development of nEXO has started and is expected to probe the inverted mass hierarchy of neutrino. One of the design goals of nEXO is to unambiguously differentiate true double beta decay events from background contributions through Ba-tagging, i.e. by identifying the daughter isotope ^{136}Ba. With an efficient Ba-Tagging technique, the backgournds can be virtually eliminated. A setup is being developed for Ba-tagging in xenon gas. Its central component is an RF-funnel to extract Ba-ions from high pressure xenon gas (up to 10 bar). The second stage, a linear Paul trap, cools the ions through buffer gas and bunches them into a multi-reflection time-of-flight mass spectrometer for ion identification. The RF-funnel has been built and tested. The liner Paul trap is currently under development. The Ba-tagging setup will be presented and future works will be discussed.

Yang Lan
TRIUMF/UBC

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