

Abstract Submitted
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Searching for the Mass of the Neutrino (Spectroscopy of Ba+ ions in Liquid ^{136}Xe)¹ KENDY HALL, CESAR BENITEZ, BILL FAIRBANK, Colorado State University, ENRICHED XENON OBSERVATORY (EXO) COLLABORATION — The goal of the Enriched Xenon Observatory (EXO) collaboration is to detect neutrino-less double beta decay using a ton size liquid ^{136}Xe detector with zero background. Such detection can only be achieved if the daughter $^{136}\text{Ba}^+$ ion that is present at decay site is tagged. The EXO collaboration is working towards several techniques to tag the Ba^+ ion. In-situ laser tagging of Ba^+ ions in a liquid xenon test apparatus is being developed at Colorado State University (CSU). Ba^+ ions are implanted in the liquid xenon by ablating a barium sample with a 1064nm Nd-YAG pulsed laser. In-situ laser tagging can only be accomplished if the spectroscopy of Ba^+ ions in liquid xenon is understood. This work's goal is to confirm the spectra of Ba+ ions in liquid xenon. The most recent results of the experiments at CSU will be presented.

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