

Abstract Submitted  
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**Purity Measurements in Liquid Xenon** JULIO CESAR BENITEZ MEDINA, KENDY HALL, WILLIAM FAIRBANK, EXO COLLABORATION — Detection of fluorescence from single  $\text{Ba}^+$  daughter ions in liquid xenon is a potential key method of background discrimination in the Enriched Xenon Observatory (EXO) double beta decay experiment. An important requirement is to have ultrapure liquid in order to ensure  $\text{Ba}^+$  ion survival for many seconds. To measure the purity of liquid Xenon we produce photoelectrons using a 355 nm Nd-YAG pulsed laser. As the electrons travel in the liquid some may be lost by attachment to impurities. By measuring the fraction of photoelectrons that survive, we can determine the purity of the liquid. The purity of the liquid is monitored before and after  $\text{Ba}^+$  ions are deposited in the liquid by laser ablation. In some cases, ablation causes a purity decrease, but in other cases, it does not. We are gaining an understanding of what conditions allow  $\text{Ba}^+$  ion deposition without purity degradation.

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