

Abstract Submitted  
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**Purification of Xenon in the Liquid Phase in XENONnT<sup>1</sup>** JOSEPH HOWLETT, ELENA APRILE, Columbia University, XENON COLLABORATION — The observable ionization signal in liquid xenon (LXe) time-projection chambers is reduced if electronegative molecules attract and capture drifting electrons. Removing these impurities, which are outgassed from detector materials, is crucial to the performance of these detectors. The XENONnT experiment will be the first of its kind to benefit from the higher mass flow delivered by commercial cryogenic pumps, in contrast to high-temperature getters and gas pumps working with gaseous xenon. This requires a filter with a sufficiently high reaction rate and adsorption capacity at LXe temperatures, while also meeting the radio-purity requirements of these detectors as they search for rare signals. This talk will describe the design of the liquid xenon purification system built for the XENONnT dark matter experiment, preliminary results of its performance along with results from a dedicated test stand operated at Columbia University.

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