

# Workshop on Xenon Detector $0\nu\beta\beta$ Searches: Steps Towards the Kilotonne Scale

Contribution ID: 15

Type: **Invited talk**

## **Origin-X: A Ktonne Scale Neutrinoless Double Beta Decay Experiment with 1030yr Half-life Sensitivity.**

*Wednesday, 25 October 2023 09:25 (25 minutes)*

Large detectors employing xenon are a leading technology in existing and planned searches for new physics, including searches for neutrinoless double beta decay ( $0\nu\beta\beta$ ) and dark matter. While upcoming detectors will employ target masses of a ton or more, further extending gas- or liquid-phase Xe detectors to the ktonne scale would enable extremely sensitive next-generation searches for rare phenomena. The key challenge to extending this technology to detectors well beyond the ton scale is the acquisition of the xenon itself. We describe the motivation for extending xenon time-projection chambers to the kton scale and possible avenues for xenon acquisition.

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**Session Classification:** Challenges of a program towards the kton scale