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Unifying the community to realize a next-generation Xe rare-event search

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The search for neutrinoless double-beta decay (0νββ) remains one of the most compelling frontiers in contemporary physics, offering a unique path to uncovering the Majorana nature of neutrinos and potentially providing an avenue towards explaining the observed matter dominance in our Universe. One of the most compelling elements for this search is xenon-136, deployed in a time-projection chamber. The strength of this technology is that the target mass can be scaled to tons and even tens of ton scales. The possibility to control the isotopic loading of xenon enables a staged approach starting with natural xenon that is later replaced with enriched xenon, enhancing the scientific reach of the second stage.

Xenon detector technology has been well established and several liquid xenon detectors of a few tons of Xe are currently searching for signatures of Dark Matter. At least two proposals aim to scale up these searches to a few tens of tons of liquid xenon. These Dark Matter detectors will also reach a significant sensitivity to neutrinoless double beta decay.

A challenge in the realization of Xe-based next-generation experiments, besides technical scaling, is their significant cost. I will present a personal perspective on a unified path toward sensitivities towards the 10^28 year regime, arguing that the xenon community must converge on shared goals, assess technical readiness for next-generation detectors, and pursue targeted R&D. A united community can realize a coherent, collaborative xenon program capable of delivering transformative discoveries in neutrino and dark matter physics.

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