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XeStill Project: Isotopic Dependence of Vapor Pressure in Xenon

Future searches for neutrinoless double beta decay may require over 50 tonnes of enriched ^{136}Xe, driving needs for increased xenon production as well as efficient enrichment methods. Centrifuge separation, currently available from a limited number of manufacturers, is the primary technique used for enrichment. Cryogenic distillation is a proposed alternative that depends on the relative vapour pressure differences of the xenon isotopes. Our group has provided the first credible measurement of these parameters for xenon using a 1.8-meter tall still, and has operated an eightfold scaled-up version in the Cryopit at SNOLAB since 2020, the Xe-Still Project. We have already gathered calibration data using argon and krypton. This talk will discuss these updates, the current status of the project, and outline our plans for the future.

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