



ID: P2.3-292

Type: E-poster

gas handling and extraction system for transport experiments of the PE1 series

Radioxenon is an important signature for the International Monitoring System, and as such, its inclusion in field experiments providing validation data for gas transport modeling is critical. Several experiments have already been conducted in the Low Yield Nuclear Monitoring (LYNM) Physics Experiment 1 (PE1) series that incorporated ^{127}Xe . Unfortunately, while ^{127}Xe is ideal for these kinds of experiments, with its long half-life and distinct signature, it comes only from irradiation of ^{126}Xe which is logistically difficult to procure and irradiate. Another alternative is commercially available ^{133}Xe . Large quantities can be purchased in 2-3mL vials but it has a significantly shorter half-life. The work detailed here discusses the development of a benchtop system for transferring multiple Curies of ^{133}Xe within a short timetable to potentially support upcoming PE1 experiments.

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Session Classification: P2.3 Atmospheric and Subsurface Radionuclide Background and Dispersion

Track Classification: Theme 2. Monitoring events and Nuclear Test Sites: T2.3 Atmospheric and Subsurface Radionuclide Background and Dispersion