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Radioxenon collection using synthetized xenon-adsorbing material for Nuclear Test Monitoring

LLNL is researching a metal-organic framework material for collecting radioactive xenon isotopes from atmospheric raw air for applications in the context of nuclear test monitoring. By using a recently-synthetized xenon-adsorbing material, in combination with an advanced adsorption processing cycle in a structured adsorbent bed, the LLNL concept has the potential of reducing the footprint and improving the energy-efficiency of radioxenon systems by allowing operation at room temperature and with no pre-processing. The high-xenon selectivity of the adsorbent material and its insensitivity to water are key enabling features in adsorbing xenon from raw unprocessed air at room temperature. This poster will discuss the current state of the material characterization, the system modeling, and possible applications of relevance to CTBT.

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