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The NEXT Experiment

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For experiments searching for neutrinoless double beta decay, rejection of backgrounds from radioactivity will be pivotal for success. Gaseous xenon TPC detectors offer unique background rejection capabilities over solid- and liquid-phase technologies. The NEXT-NEW detector is presently operating in the Laboratorio Subterráneo de Canfranc (LSC), and will be followed by the NEXT-100 neutrinoless double beta decay search. This talk will describe the status of the NEXT program and present some early data from NEXT-NEW. It will also describe R&D towards ultra-low-background xenon gas detectors, including the development of a barium daughter tagging scheme based on single molecular fluorescence imaging.

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