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The searches for neutrinoless double beta decay and other physics with EXO-200

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EXO-200 is a single phase liquid xenon detector that is one of the most sensitive searches for neutrinoless double beta decay in the world. The experiment uses enriched liquid xenon (110 kg in the active volume) in an ultralow background time projection chamber installed at the Waste Isolation Pilot Plant (WIPP), a salt mine with a 1600 m water equivalent overburden near Carlsbad, NM, USA. The detector has demonstrated excellent energy resolution and background rejection capabilities to set a limit of 1.1×10^{25} yr at 90% C.L. Recently, the experiment has restarted data taking after a two year hiatus due to unforseen WIPP incidents. I will talk about the latest EXO-200 physics results, in particularly the search for the decays of ^{136}Xe to the excited state of ^{136}Ba, and how the imminent upgrades to EXO-200 can help with the planning of tonne-scale next generation experiment, nEXO.

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Classification de Session: Neutrinos

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