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The NEXT experiment for neutrinoless double beta decay searches

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The goal of the NEXT collaboration is to observe neutrinoless double beta decay in gaseous 136-Xe using a time projection chamber (TPC) capable of doing both energy and tracking reconstruction from light produced via electroluminescence (EL).

The collaboration is now taking data with NEXT-White (NEW), phase-I of the NEXT-100 detector. With about half of the NEXT-100 linear dimensions (about 10 kg of xenon), NEW has the right size for demonstrating and fully understanding the different technological solutions to be implemented in NEXT-100. Furthermore, NEW is the first NEXT detector that is built with highly radio pure materials and operates underground in the Laboratorio Subterráneo de Canfranc (LSC), where NEXT-100 will be located. Its operation will permit a first in-situ measurement of the backgrounds to be expected in NEXT-100.

Overview of the NEXT experiment will be presented in this talk including a description of NEXT unique advantages over other detection techniques. Latest results of the NEW detector will be shown and discussed.

Author: SIMÓN ESTÉVEZ, Ander (IFIC)

Presenter: SIMÓN ESTÉVEZ, Ander (IFIC)

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