

LABORATORI NAZIONALI DEL GRAN SASSO

SEMINAR ANNOUNCEMENT

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***The NEXT experiment
at the LSC***

NEXT is a new experiment to search for $bb0\nu$ processes. It is based in a high-pressure xenon time projection chamber with EL amplification of the ionisation charge in optical readout (PMTs and SiPMs) of ionisation and scintillation. It offers a unique combination of good energy resolution ($< 1\%$ FWHM at Q_{bb}) and the availability of a topological signature (the reconstruction of the two electrons in gas xenon) as a further handle to suppress backgrounds. The NEXT project has completed its R&D period and will move, during 2014 to the construction, commissioning and operation of an intermediate prototype called NEW, whose goal is to demonstrate the topological signature (via the observation of the two electrons produced in the $bb2\nu$ mode) and precisely assess the background model. The next step in the project will be the construction of the NEXT-100 detector deploying 100 kg of enriched xenon. In this seminar I will present the status of the project, the prospects of the NEXT-100 detector and the suitability of the technology for the ton scale.

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LNGS - “B. PONTECORVO” ROOM