

FAKULTÄT für PHYSIK
LUDWIG-MAXIMILIANS-UNIVERSITÄT
MÜNCHEN/GARCHING

PHYSIK-DEPARTMENT
TECHNISCHE UNIVERSITÄT MÜNCHEN
MÜNCHEN/GARCHING

MLL-KOLLOQUIUM

Donnerstag, 09.02.2017, 16¹⁵ Uhr

Hörsaal der LMU in Garching, Am Coulombwall 1
Treffen zum gemeinsamen Kaffee 16 Uhr

Dr. Matteo Agostini

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The neutrinoless double-beta decay and the GERDA experiment

Neutrino physics is entering in a phase of precision measurements. Neutrino flavor oscillations have been established and the main oscillation parameters measured. Nonetheless, several fundamental properties of these particles are still unknown, including whether they are their own anti-particles as predicted by most extensions of the Standard Model. This would imply the existence of a lepton-number-violating radioactive decay named neutrinoless double beta decay. The talk will review the theoretical and experimental aspects related to neutrinoless double beta decay, with focus on its background-free search performed by the GERDA experiment. GERDA is based on Ge semiconductor detectors operated bare in liquid Ar. The background suppression is achieved thanks to the detection of the LAr scintillation as well as the superior energy resolution and pulse shape discrimination performance of the Ge detectors. Phase II of data taking started in Dec 2015 and it has already provided world-leading results.

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