

DARWIN: an excellent environment to probe neutrino physics

Authorship annotation

on behalf of the DARWIN collaboration

Session and Location

Wednesday Session, Poster Wall #129 (Hölderlin-Room)

Abstract content

The future of dark matter direct searches calls for the use of multi-ton scale detectors. In this context, DARWIN (DARK matter WImp search with liquid xenON), with its 40 tons of active target, will be the ultimate detector, able to explore the entire experimentally accessible parameter space for WIMPs. Such a huge detector, with its low-energy threshold and ultra low background level, will be also a powerful tool to probe neutrino physics. We show that solar neutrinos (pp) will be seen with a precision below 2%, allowing to test neutrino models at very low energies. A competitive half-life sensitivity is at reach for the neutrinoless double beta decay of ^{136}Xe . The coherent neutrino-nucleus interaction will be observed as well. The event rate of this process has been estimated for different neutrino sources, including solar neutrinos and neutrinos from supernova explosions.

Poster included in proceedings:

yes

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