

Contribution ID: 383

Type: talk

Looking forward: DARWIN-LXe, another step beyond XENON1T

Friday 24 July 2015 17:15 (30 minutes)

XENON1T has a design sensitivity for spin-independent WIMP-nucleon cross section a factor 100 below the XENON100 best limit, reachable by early 2018. Another order of magnitude can be achieved in a very cost effective and rapid realization building and installing in the same XENON1T vacuum cryostat a new detector with more than twice the liquid xenon mass and with even lower background: XENONnT. However, in order to be able to explore the entire experimentally accessible parameter space for WIMPs, until neutrino interactions become an irreducible background, an initiative to build an even bigger dark matter detector is being taken with the DARWIN-LXe project. Both detectors will be based on a xenon filled dual phase (liquid-gas) time projection chamber, a concept that was successfully realized within the ZEPLIN, XENON, PandaX and LUX programs. The concept and science goals of the DARWIN-LXe project will be presented. The various technical challenges will be discussed and the time scale of the project outlined.

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