

DESY Seminar

Tuesday, 17.06.2008, 17h

DESY Hörsaal

Cold Dark Matter Searches and the XENON Experiment

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The XENON experiment aims to detect weakly interacting massive particles (WIMPs) via their elastic scattering on Xe nuclei, using a low background, two-phase time projection chamber. With 1-ton of ultra pure liquid xenon as target, an energy threshold below 10 keV and a background rejection power above 99.5%, XENON could reach a sensitivity close to 10^{-46} cm² for spin-independent WIMP-nucleon cross sections. To verify the XENON approach to dark matter detection, a first prototype (XENON10) was developed and operated for a period of several months at the Gran Sasso Underground Laboratory (LNGS) in Italy. XENON10 data have resulted in a 90% C.L. upper limit of 8.8×10^{-44} cm² for a 100 GeV WIMP. XENON100, a new detector with 170 kg total liquid Xe mass, is currently under commissioning at LNGS; the goal is to start the science run in fall 2008. The status and WIMP sensitivity expectations for the new experiment will be presented.

- Tea and cookies will be served at 16.45h in the lobby
- After the seminar there is a chance for private discussions with the speaker over wine and pretzels