

New Limits on WIMP Dark Matter from Annual Modulation Analysis of the CDEX Experiment at the China Jinping Underground Laboratory

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Positive signatures in direct searches of WIMP dark matter are so far derived from Annual Modulation (AM) studies. We present the analysis and results of AM search [1] with data from a 1-kg p-type point-contact germanium detector of the CDEX experiment at the China Jinping Underground Laboratory [2]. The allowed regions due to DAMA/LIBRA and CoGeNT AM-data are probed and excluded. These results represent the most stringent bounds at WIMP-mass less than 6 GeV among WIMP-AM measurements. New limits on Light DM with Migdal effects [3] and on dark photons [4] will also be presented.

Reference:

- [1] "Search for Light Weakly-Interacting-Massive-Particle Dark Matter by Annual Modulation Analysis with a Point-Contact Germanium Detector at the China Jinping Underground Laboratory", L.T. Yang et al., CDEX Collaboration, Phys. Rev. Lett. 123, 221301 (2020).
- [2] "The China Jinping Underground Laboratory and its Early Science", J.P. Cheng et al., Ann. Rev. Nucl. Part. Sci. 67, 231 (2017).
- [3] "Constraints on Spin-Independent Nucleus Scattering with sub-GeV Weakly Interacting Massive Particle Dark Matter from the CDEX-1B Experiment at the China Jinping Underground Laboratory", Z.Z. Liu et al., CDEX Collaboration, Phys. Rev. Lett. 123, 161301 (2019).
- [4] "Direct detection constraints on dark photon with CDEX-10 experiment at CJPL", Z. She et al., CDEX Collaboration, arXiv:1910.13234 (2019).

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