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Results from the XENON1T Demonstrator[1] HUGO CONTRERAS, ELENA APRILE, RANNY BUDNIK, LUKE GOETZKE, GUILLAUME PLANTE, MARCELLO MESSINA, ALFIO RIZZO, ANTONIO MELGAREJO, Columbia University, JUNJI NAGANOMA, PETR CHAGUINE, Rice University, XENON COLLABORATION — The current stage of the XENON Dark Matter Search project, XENON100, constitutes one of the best performing dark matter experiments in the world, setting the best upper limit on the cross section for spin independent WIMP-nucleus scattering. The next generation detector within the program, XENON1T, is at the end of its design phase and construction will start in the present year. XENON1T is a liquid xenon dual-phase time projection chamber with a 1 Ton fiducial mass, and it will improve the present XENON100 limit by 2 orders of magnitude. However, the increase in mass in the new detector presents several technological challenges. In order to address the required improvements, a fully operational prototype of the detector, the XENON1T Demonstrator, has been built at Columbia University. In this talk we will present the main results of the XENON1T Demonstrator R&D program, comprising high-speed recirculation on a full-scale cryogenic system, the observation of electron drift over 30 cm, and the operation of the detector with a cathode high voltage exceeding 30kV and preliminary results of the new 60 and 100 cm setups.

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