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DARWIN: Towards the Ultimate Dark Matter Detector

The DARWIN (DARk matter WImp search with liquid xenoN) project is planning for a 50-ton ultimate liquid xenon dark matter detector. The experiment will reach sensitivity to WIMP nuclear recoil cross sections within a wide mass range down to the level of the irreducible neutrino background. In addition to WIMPs, DARWIN will also be sensitive to the neutrinoless double beta decay of Xe-136, alternative dark matter candidates such as dark photons and super-WIMPs, and other interesting science channels, such as solar axions, solar neutrinos, and coherent neutrino-nucleus scattering. This talk will give an overview of the current detector design, inherent challenges, and ongoing R&D projects. Sensitivity projections for WIMPs and other prominent detection channels will be presented.

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