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PROF. DANIEL AKERIB Stanford University, USA The Search for WIMP Dark Matter with Massive Liquid Xenon Detectors

Dark Matter remains a profound mystery at the intersection of particle physics, astrophysics, and cosmology. While searches have made significant progress, particularly for dark matter in the form Weakly Interacting Massive Particles, or WIMPs, dark matter has so far been observed solely through its gravitational effects. After touching on the cosmological and astrophysical underpinnings, I will discuss the experimental challenges in searching for WIMPs and how we are attempting

to meet them with LUX-ZEPLIN (LZ) experiment. LZ is a time projection chamber that uses 10 tonnes of liquid xenon as a WIMP target and is housed a mile underground in the Sanford Underground Research Facility at the former Homestake goldmine in South Dakota. I will discuss the development and current status of the experiment, as well as future plans to build XLZD, a larger next-generation with the XENONnT and DARWIN collaborations.

