

IPA Colloquium HS24

Report of Contributions

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Searching for Dark Matter High and Low

Thursday 14 November 2024 12:00 (50 minutes)

The nature of dark matter (DM) is one of the most important questions in modern physics. In this presentation, we will review the status of DM searches and present the status of two complementary experiments with the capability to provide the most powerful experimental sensitivity for particle DM today and in the next few years, LZ and TESSERACT:

The LUX-Zeplin (LZ) experiment is the most sensitive dark matter search experiment to date, located 1.6 km underground at the Sanford Underground Research Facility. LZ uses a two-phase time projection chamber, containing 10 tonnes of liquid xenon to search for WIMPs. LZ has been designed to explore much of the parameter space available for WIMP models. TESSERACT is a novel sub-GeV dark matter experiment employing different cryogenic targets to explore this novel energy region. The multi-target approach allows to discriminate and distinguish novel backgrounds and the exploitation of a range of possible DM signatures. We will present the status of the experiment, detector settings, timescale, and projected sensitivity.

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Session Classification: Session