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The Search for Dark Matter using Underground Argon

Tuesday, 21 October 2025 10:00 (30 minutes)

The DarkSide-20k experiment represents the latest phase of the Global Argon Dark Matter Collaboration, leveraging expertise from previous argon-based detectors. This effort is focused on constructing a dual-phase liquid argon time projection chamber (LAr-TPC) that will deploy 100 tonnes of underground argon outfitted with silicon photomultiplier (SiPM) arrays for precise light detection. This presentation will provide an overview of argon-based dark matter searches with an emphasis on the DarkSide detector, highlight its key design elements and its objectives, as well as updates on the ongoing construction of the underground infrastructure at the Laboratori Nazionali del Gran Sasso (LNGS) in Italy.

Primary author: JAMIL, Ako (Princeton University)

Presenter: JAMIL, Ako (Princeton University)

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