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Status of DEAP-3600 experiment

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DEAP-3600 operates as a dark matter direct detection experiment situated at the SNOLAB facility in Sudbury, Canada. The spherical detector, positioned 2 km beneath the earth's surface, operates within a low cosmic muon background environment. It comprises 3.3 tonnes of liquid argon target encircled by an array of 255 photomultiplier tubes. DEAP-3600 encounters significant background sources primarily emanating from alpha particles generated by its components and dust particles within the detector, external neutrons, and beta decays of Argon-39. This presentation will cover the most recent findings from DEAP-3600, including advancements in developing a detailed background model, pulse-shape discrimination techniques, and enhancing the sensitivity to dark matter. Additionally, I will provide an overview of the ongoing research and development projects aimed at hardware upgrades.

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