

Abstract Submitted
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Coincident Muon Analysis Between the DM-Ice17 and IceCube Detectors NIKITA DUTTA, Yale Univ, DM-ICE COLLABORATION — DM-Ice17 is a direct detection dark matter experiment with two detectors located within the volume of the IceCube Neutrino Observatory at the South Pole. We report the use of muons coincident between DM-Ice17 and IceCube to verify muon identification in DM-Ice17 and provide a novel calibration technique for IceCube. Such events are unique within the IceCube data sample because they are known to pass through each $2,309 \text{ cm}^3$ DM-Ice17 crystal volume within IceCube's 1 km^3 total volume. Different muon track reconstruction techniques are explored to optimize resolution by minimizing distance from DM-Ice17 and maximizing accuracy in angles of approach. Reconstructions are performed both on data and simulation. Results indicate a strong improvement in the reconstruction accuracy of low-energy events with the addition of DM-Ice17 information.

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