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## Identification of a Directional Cherenkov Signal in Tl208 Decays in the SNO+ Detector

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The identification of a directional signal from the Cherenkov photons generated during Tl208 decays in the SNO+ detector will be discussed in this presentation. The SNO+ experiment aims to study neutrino properties using a target of 780 tonnes of organic liquid scintillator. Liquid scintillator produces light when excited by the passage of charged particles. The isotropic light, which dominates the signal, can be used to determine a number of properties of the particles, but cannot be used to determine the direction of the primary particle. Cherenkov light, which is present as a sub-dominant component of the signal, is directional. Therefore, this analysis investigates the possibility of separating the Cherenkov signal from the scintillation light. The analysis uses Tl208 decays which are a background in the SNO+ detector. The angle between the high energy gamma released during Tl208 decays and the photons generated in the event was analyzed. The angular distributions of the data and Monte Carlo simulations with Cherenkov effects included and excluded were compared.

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