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## Separation of Cherenkov and Scintillation Light in SNO+ (G)\*

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Solar neutrinos are an irreducible background for the SNO+ double beta decay experiment. Neutrino interactions in the SNO+ detector produce directional Cherenkov light which, if separated from the dominant scintillation light, would allow for neutrino direction reconstruction and elimination of solar neutrino signals. Other liquid scintillator detectors can also benefit from direction information and so understanding the factors that enable Cherenkov discrimination would be valuable. I have built a Monte Carlo simulation to determine whether this scintillation/Cherenkov discrimination is in fact possible and to study the factors affecting it. Should it prove possible to distinguish between the signals this will allow for a major improvement in SNO+ and possible applications in other liquid-scintillator based detectors.

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