Contribution ID: **98** Type: **Poster new technologies**

Distributed Imaging for Liquid Scintillation Detectors

We discuss a novel paradigm in the optical readout of scintillation detectors. Usually, such detectors are homogeneous and the scintillation light is collected by external photodetectors. It is usually assumed that imaging in such a photon-starved and large-emittance regime is not possible. We show that the appropriate optics, matched with segmented photodetector and dedicated reconstruction, can be used to 3D image the radiation-induced events. In particular, such a "distributed imaging"system can discriminate between events produced as single cluster and those resulting from multiple energy depositions. This is crucial in discriminating many common backgrounds at MeV energies. Using simulation, we demonstrate the performance of a detector augmented with a practical, if preliminary, set of optics. Finally, we remark this new technique lends itself to be adapted to different detector sizes and briefly discuss the implications for various common applications in science and technology.

Session and Location

Monday Session, Poster Wall #90 (Auditorium Gallery Left)

Poster included in proceedings:

yes

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