Contribution ID: **1149** Type: **Parallel session talk**

Cryogenic CsI as a potential PET material Abstract:

Thursday 18 July 2024 17:00 (15 minutes)

This study explores the possibility of employing pure cesium iodide (CsI) crystals for a total-body positron emission tomography (TB-PET) device. When operated at cryogenic temperatures, these crystals exhibit an excellent light yield, up to 120 photons/keV, which is approximately four times larger than LYSO. Although CsI has a slightly smaller stopping power and a slower decay time compared with BGO and LYSO, its significantly lower price (3 to 5 times cheaper than its counterparts) could enable the realization of accessible TB-PET devices.
In this project we also investigate the feasibility of using larger, monolithic crystals read out by an array of solid-state photosensors. This approach significantly simplifies the device's design and assembly, further reducing costs. We show that modern machine learning algorithms for image processing can potentially enable the realization of a monolithic PET with performances analogous or better than a pixelated one.

Alternate track

I read the instructions above

Yes

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