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Title of presentation: Reconstruction of the 8pi Gamma Ray Spectrometer for the Development of Medical Imaging Technology

Abstract

Medical imaging takes advantage of the detection of penetrating radiation to provide non-invasive tools for medical procedures. More specifically, specialized gamma-ray detectors such as positron emission tomography (PET) and single-photon emission computed tomography (SPECT) scanners can be used to track the flow of a radioactive tracer in a patient and yield data about their condition. The radiotracer compound can be modified to target specific bodily functions or tracts, thus improving the contrast of a scan. At SFU, the 8pi spectrometer has been established as a framework for conducting studies to advance imaging software, detector systems, and radiotracer technology.

This presentation will outline the rebuild process of 8pi, (both electrical and mechanical), the application of digital signal processing technology to 8pi to provide superior detection systems at a decreased cost, and how 8pi can be used by the SFU scientific community to further research in the medical field.