
Medical Physics Seminar

Monday, October 28, 2019

1345 HSLC 4:00 P.M.



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Photon-counting Detector CT: Principles, Algorithms, and Clinical Applications of an Emerging Technology

Photon-counting detector (PCD) CT is an emerging technology that has shown tremendous progress in the last decade. Various types of PCD CT systems have been developed to investigate the benefits of this technology, which include reduced electronic noise, increased contrast-to-noise ratio with iodinated contrast material and radiation dose efficiency, reduced beam hardening and metal artifacts, high spatial resolution, simultaneous multienergy data acquisition, and the ability to image and differentiate novel CT contrast agents. In this presentation, PCD technology will be described and compared with conventional CT detector technology. With the use of a whole-body research PCD CT system as an example, PCD technology and its use for *in vivo* high-resolution, multienergy CT imaging will be discussed. Potential clinical applications, the diagnostic benefits and challenges associated with this technology will then be presented, and examples with phantom, animal, and patient studies will be provided.

1345 Health Sciences Learning Center (HSLC) 4:00–5:00 P.M.