



detector seminar

SPEAKER: Stan Majewski
TITLE: **The future of dedicated Imagers in Nuclear Medicine and the Role of HEP in this Evolution**
DATE: Fri 24/04/2015 11:00
PLACE: Salle Anderson

ABSTRACT

New developments in compact radiation imaging technology and in modern reconstruction algorithms permit designs and implementations of flexible limited-angle tomography detection structures well-adapted to particular imaging tasks, offering higher efficiency and resolution, mobility, and even wearability. On the other hand there is the real prospect now for a universal whole body molecular imager (whole body PET) that will have the “ultimate” efficiency and resolution and permit many studies that were not possible before due to low efficiency of the current systems and associated radiation exposure concerns.

I will attempt to illustrate these two extremes and the ideas in-between. I will primarily focus on the PET modality due to its intrinsically higher efficiency.

First example of the role that dedicated imagers may play already in the not so distant future is breast imaging. Recently Mayo Clinic system approved Molecular Breast Imaging (MBI) as the first supplemental screening modality after inconclusive mammograms. Next I expect will come dedicated adjunct screening imagers for brain, heart and prostate. The dedicated molecular imagers can be also operating in tandem with other modalities to form hybrid multimodality systems with highly enhanced combined diagnostic power. Their future in assisting with treatments (surgery and radiosurgery, adjuvant chemotherapy, etc) seems to be also assured due to less competition from bulky standard imagers. HEP community contributed and still has a lot to contribute to this exciting spin-off activity that society very much appreciates.