



# RADIOLOGY GRAND ROUNDS

**Tuesday, January 24, 2023**

**4:30 – 5:30 p.m. ■ Zoom**



## **Research Highlights in Molecular Imaging & Theranostics at The University of Chicago**

### **Chin-Tu Chen, PhD**

Associate Professor, Department of Radiology and  
Graduate Program in Medical Physics (GPMP), and  
Committee on Medical Physics  
Scientific Co-Director, Integrated Small Animal  
Research Resource (iSAIRR)  
Faculty Director, Cyclotron Facility

#### Learning Points:

1. Learning 3 basic research pillars in Molecular Imaging & Theranostics (MI&T): physics & instrumentation, chemistry & probes, and computing & data science at The University of Chicago (UChicago)
2. Learning MI&T examples in clinical and research applications with potential transformative impact
3. Learning the nascent field of long-axial & total-body PET and UChicago's evolving contribution

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Dr. Chen's research interests, primarily in quantitative and integrative multi-modality molecular imaging and theranostics, cover a broad spectrum of imaging-centered topics including imaging physics and instrumentation, image reconstruction and processing, imaging tracers and probes development, physiological modeling and kinetic analysis, quantitative and intelligent image analysis, as well as applications of molecular imaging & theranostic methods in a wide spectrum of biological and medical investigations, including cancer, neurological and behavioral disorders, cardiac diseases, diabetes, tissue/organ injuries and repairs, etc. He and his colleagues pioneered the concept of multi-modality imaging, including image co-registration and integration, hybrid image instrumentation, image/information fusion in PET, SPECT, CT, and MRI image reconstruction, processing, and analysis, as well as functionalized targeting imaging probes and tracers research and development. He led The University of Chicago's efforts in developing the Functional and Molecular Imaging Cores (including CT, PET, SPECT, ultrasound, and optical imaging) & the Integrated Small Animal Imaging Research Resource (iSAIRR), as well as the Cyclotron and Radiochemistry Initiatives, leading to re-establishing the only academic Cyclotron Facility in the entire state of Illinois in 2017.