

## ST 10: Total-Body PET

Time: Thursday 16:15–16:55

Location: ST-H4

**Invited Talk**

ST 10.1 Thu 16:15 ST-H4

**Artificial intelligence in PET image reconstruction and quantitative analysis** — ●ZHAOHENG XIE — University of California Davis

Positron emission tomography (PET) in vivo visualizes the molecular pathway and is the most sensitive molecular imaging modality routinely applied in clinic. Recent developments in PET technology dramatically increased the effective sensitivity by increasing the geometric coverage or improved time of flight (TOF) resolution. In this talk, I will discuss a few examples of deep learning-based solutions to address the

specific challenges in ultra-low-dose or ultra-fast scanning, which enables more convenient and safer clinical practice, medical research and drug screening. The talk will start with an overview of the applications of AI in PET imaging. Then I will provide some frontline applications, which will cover the latest works we published including learning-based PET image reconstruction, scatter correction, motion correction, and kinetic modeling. A special emphasis is on deep-learning-based methods. We will discuss their potential benefits and limitations. The talk will conclude with a few challenging opportunities in various research and clinical applications.