Contribution ID : **85** Type : **Invited Talk**

Diffusion Priors for Physics-Informed CT and PET Reconstruction

Wednesday, 9 September 2026 09:00 (40)

Generative models provide powerful learned priors for solving challenging inverse problems in medical imaging. In this talk, I will present diffusion-based, physics-informed approaches for CT and PET reconstruction, illustrated through three applications: motion-compensated head cone-beam CT, material decomposition in photon-counting CT, and joint activity-attenuation reconstruction in CT-less PET. These examples demonstrate how learned image priors can be combined with measurement physics to achieve high-quality, data-consistent reconstruction without paired training data.

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Session Classification : Machine Learning in Medical Applications

Track Classification : Machine Learning in Medicine