


IEEE TRANSACTIONS ON RADIATION AND PLASMA MEDICAL SCIENCES

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Current Special Issue Call:

 IEEE Transactions on Radiation & Plasma Medical Sciences
Special Issue on
"Low Dose Emission Tomography Imaging"
Call for Papers: extended submission deadline 1st April 2023

Positron Emission Tomography (PET) and Single Photon Emission Computed Tomography (SPECT) visualize the molecular pathway in vivo and are the most sensitive molecular imaging modalities routinely applied to clinics. Radiation reduction has a major concern in the practice of PET and SPECT imaging, which hampers the diagnostic efficacy sensitivity by increasing the geometric coverage, which for standard full-body PET imaging that can reduce approximately 10 times radiation exposure. This encouraging breakthrough brings the hope of ultra-low dose PET imaging equivalent to transatlantic flight with the assistance of advanced computational methods, which provide alternative cost-effective solutions to improve image quality for low-dose PET and SPECT imaging. Recently developed deep learning techniques have been shown to better predict textual information in radiological images and can empower high-quality imaging from low-dose scans. The reduction of radiation exposure will open a new era for PET and SPECT imaging and their clinical applications.

In this special issue, we invite scientists to submit papers on methodological developments and clinical translations of low-dose PET and SPECT imaging. We hope to provide a dedicated forum for interested researchers to review past achievements, report recent progress and novel techniques, and discuss remaining challenges and future directions towards clinical translations. The topics include, but are not limited to:

- PET and SPECT image denoising techniques
- AI-based image quality enhancement techniques
- Low-dose image acquisition techniques (e.g. CT-free PET and SPECT imaging)
- Reconstruction methods for low-dose PET and SPECT imaging
- Image processing (e.g. registration, segmentation, and synthesis) as applied to low-dose PET and SPECT
- Imaging features (e.g. radiomics) on low-dose PET and SPECT images, and AI-enhanced images
- Evaluation of the clinical translational potential of PET and SPECT image quality enhancement techniques

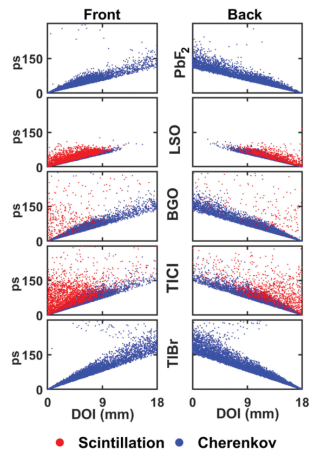
Authors must submit papers digitally to <https://mc.manuscriptcentral.com/tpms> using standard IEEE Transactions format, indicating that cover letter that the submission is aimed for this special issue. Authors are encouraged to contact the guest editors to determine suitability of their submission for the special issue.

Low Dose Emission Tomography Imaging

Deadline: 1st April 2023

[Details Can Be Found Here](#)

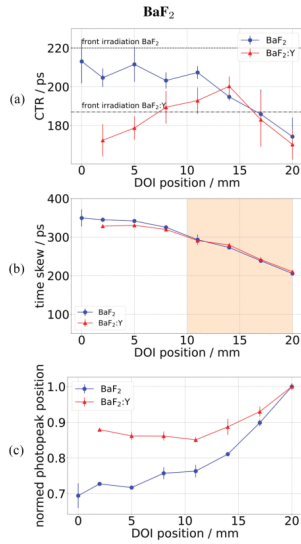
Features in This Issue



Potential of Depth-of-Interaction-Based Detection Time Correction in Cherenkov Emitter Crystals for TOF-PET

by Xuzhi He, Carlotta Trigila, Gerard Ariño-Estrada, and Emilie Roncali

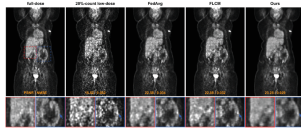
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On the Prospects of BaF₂ as a Fast Scintillator for Time-of-Flight Positron Emission Tomography Systems

by Katrin Herweg, Vanessa Nadig, Volkmar Schulz, and Stefan Gundacker

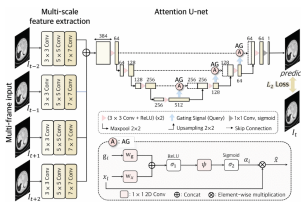
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Federated Transfer Learning for Low-Dose PET Denoising: A Pilot Study With Simulated Heterogeneous Data

by Bo Zhou, Tianshun Miao, Niloufar Mirian, Xiongchao Chen, Huidong Xie, Zhicheng Feng, Xueqi Guo, Xiaoxiao Li, S. Kevin Zhou, James S. Duncan, and Chi Liu

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MM-Net: Multiframe and Multimask-Based Unsupervised Deep Denoising for Low-Dose Computed Tomography

by Sun-Young Jeon, Wonjin Kim, and Jang-Hwan Choi

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