

Special issue on

“Low Dose Emission Tomography Imaging”

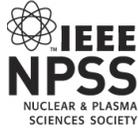
Call for Papers: extended submission deadline 1st April 2023

Positron Emission Tomography (PET) and Single Photon Emission Computerized Tomography (SPECT) visualize the molecular pathway *in vivo* and are the most sensitive molecular imaging modalities routinely applied in clinics. Ionization radiation burden is a major concern in the practice of PET and SPECT imaging, which hampers the application in many situations. Recent developments in PET and SPECT dramatically increased the effective sensitivity by increasing the geometric coverage, which for example led to total-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 textural 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/trpms>, using standard IEEE Transactions format, indicating in their 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 this special issue.



IEEE Transactions on Radiation & Plasma Medical Sciences

Guest Editors:

Kuangyu Shi, Inselspital, University of Bern, kuangyu.shi@dbmr.unibe.ch

Kuang Gong, Mass General Hospital, Harvard Medical School, KGONG@mgh.harvard.edu

Jae Sung Lee, Seoul National University College of Medicine, jaes@snu.ac.kr

Chi Liu, Yale University, chi.liu@yale.edu

Provisional schedule:

Submission of manuscripts: **April 1st 2023**

Acceptance/rejection notification: June 2023

Revised manuscripts due: August 2023

Publication: January 2024