

**Special issue on
Time-of-Flight PET**

Call for Papers: extended submission deadline 30 June 2020

Guest Editors

Suleman Surti, Dennis R. Schaart, Johan Nuyts

The widespread clinical employment of time-of-flight (TOF) PET scanners is one of the main breakthroughs in molecular imaging of the last decade. TOF PET was already explored in the 1980's, but the prototype systems built in that period were limited in terms of system sensitivity and spatial resolution. The commercial TOF PET scanners introduced in the mid-2000s were used primarily for oncological imaging and achieved coincidence resolving times (CRT) of the order of 600ps. The introduction of novel detector technology based on fast scintillators and silicon photomultipliers (SiPM) in the latest PET/CT systems enables system CRTs as low as 200-250ps at the time of writing. This opens up new possibilities for accurate image reconstruction and data correction methods, improved imaging performance leading to shorter scan times and/or new imaging protocols with non-¹⁸F based tracers, and new system designs, not only for whole-body imaging but also application-specific imaging. Authors are invited to submit relevant papers to this special issue on topics that include, but are not limited to, the following:

- Design, modelling and development of new TOF PET detector technology, including scintillators and photosensors
- System electronics and data acquisition
- Data correction methods for TOF PET including those taking advantage of TOF information
- New reconstruction algorithms that take advantage of the improved CRT
- Design, modelling and development of TOF PET systems for whole-body and application-specific imaging
- Evaluation of TOF PET imaging performance

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.

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Schedule:

Submission of manuscripts:	June 30, 2020
Acceptance/rejection notification:	Sept 1, 2020
Revised manuscripts due:	Nov 1, 2020
Publication:	Jan/Mar 2021