

SYMPOSIUM ON CURRENT TRENDS IN PET: PAVING THE WAY TO FULLY QUANTITATIVE IMAGING

Topic session on: "Metabolic Imaging, with or without"

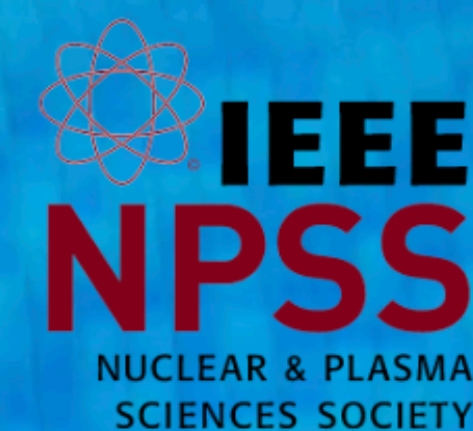
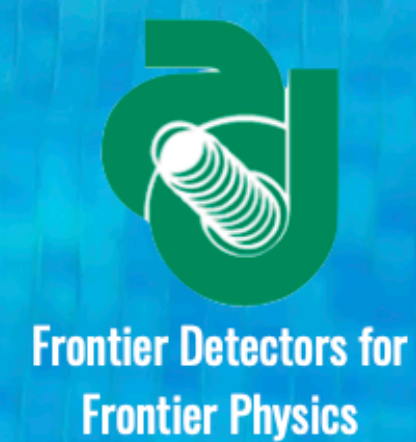
PSMR2022

9TH CONFERENCE ON PET/MR AND SPECT/MR

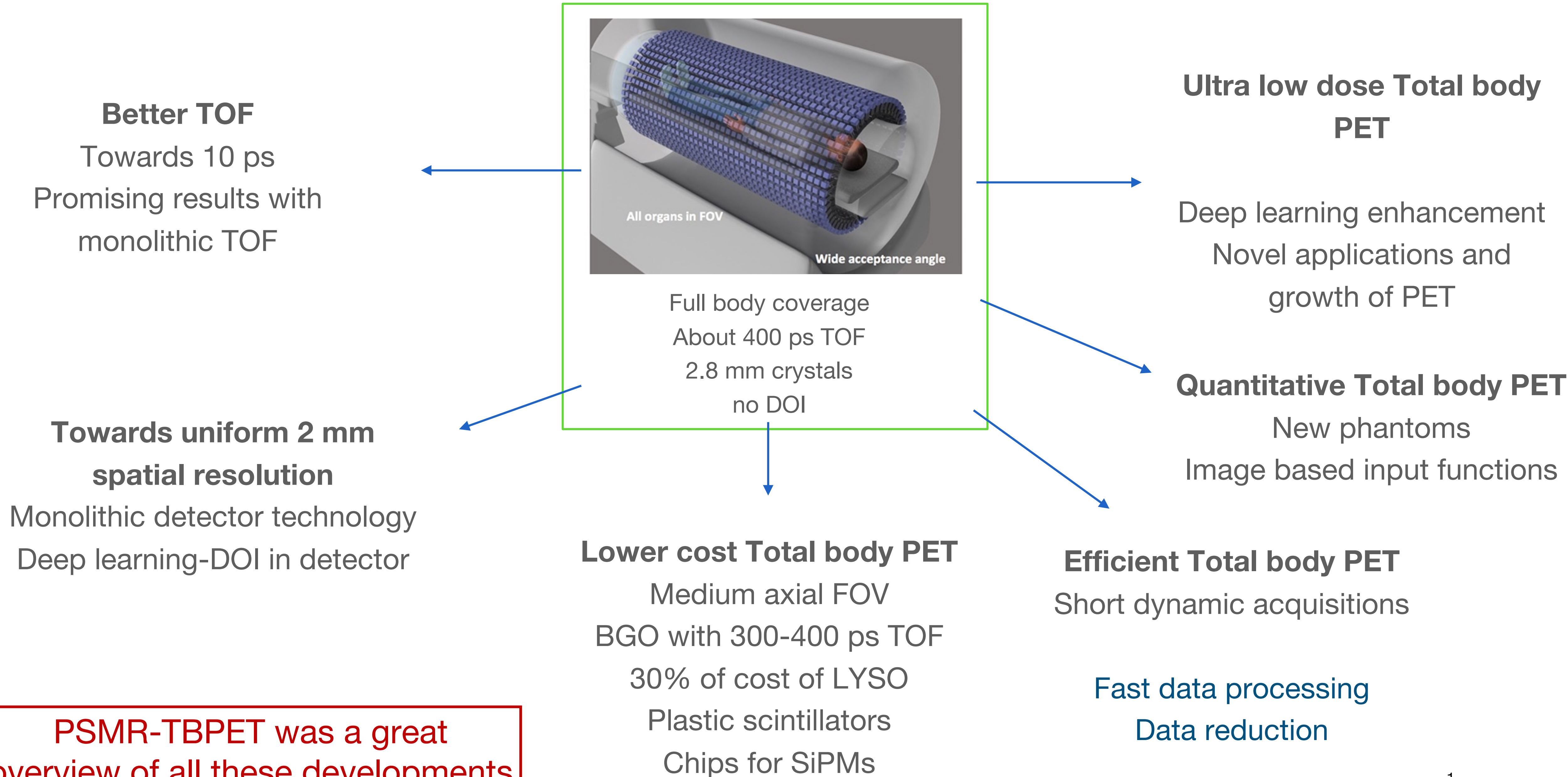
**TOTAL-BODY PET
WORKSHOP**

MAY 28 - JUNE 1, 2022

Hotel Hermitage
La Biodola, Isola d'Elba – Italy



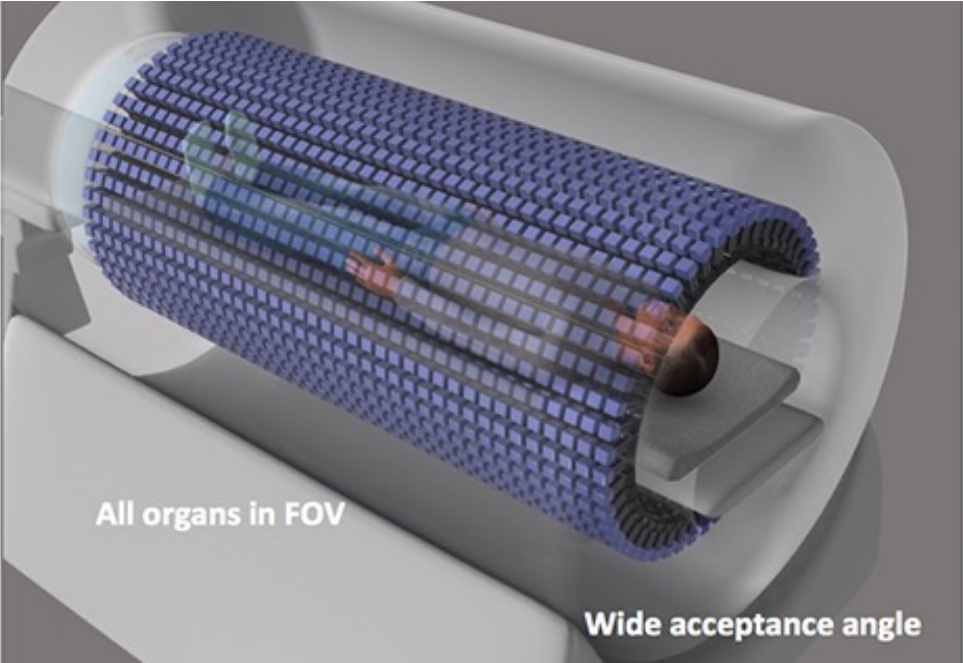
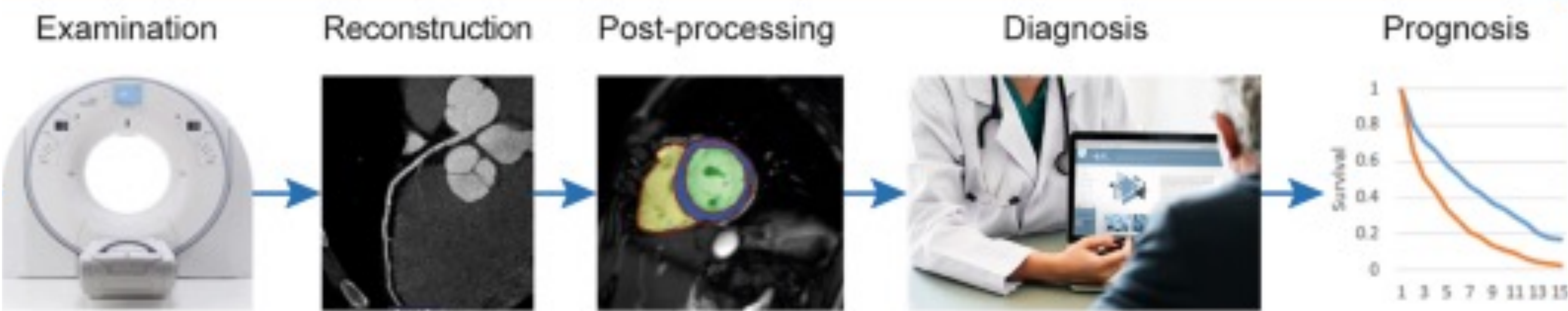
Summary: can we further improve TB-PET?



PSMR-TBPET was a great overview of all these developments

Artificial intelligence/Deep learning in medical imaging

Where ?

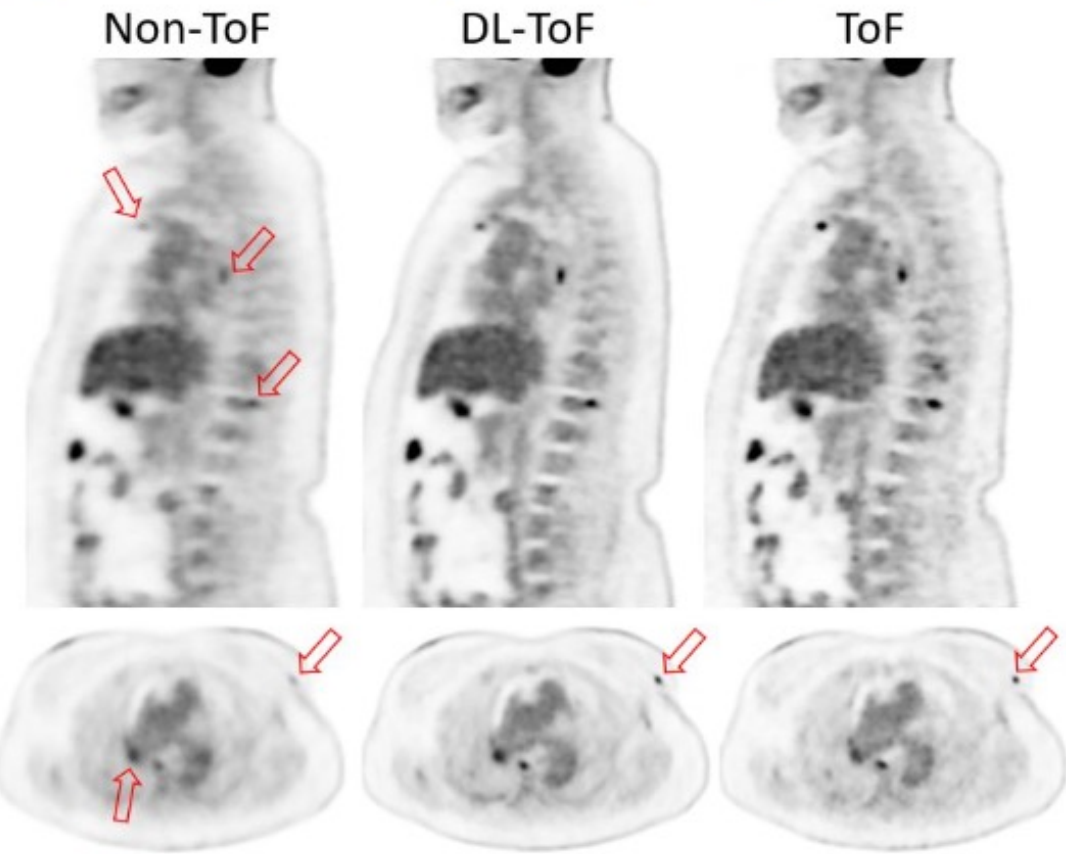


TOF: 25 % improvement > SR : 20% improvement > DL-Denoising: 3-4 x dose reduction

Gains
enhance
each other

No time of flight (ToF)? No problem ;)
In our recent paper, we developed a deep learning based ToF (DL-ToF) algorithm that improves the lesion detectability and diagnostic confidence of non-ToF PET images. Check it out here <https://lnkd.in/eqWVjNa3>

#gehealthcare #oxforduniversity #NCIMI #deeplearning



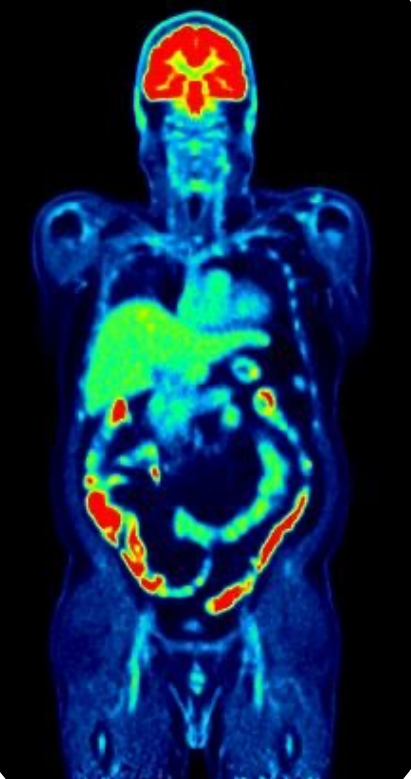
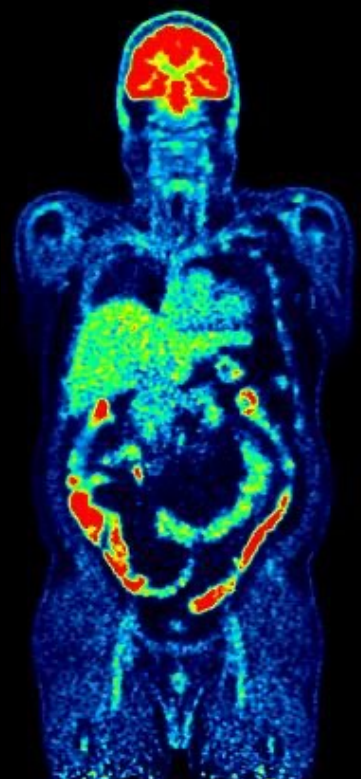
Workshop on 'AI in
nuclear medicine'
May 2023 Brussels

INTRODUCTION

- Ionization radiation burden is a major concern in the practice of PET imaging.
- Recent development in PET dramatically increased the effective sensitivity by increasing the geometric coverage.
- This encouraging breakthrough brings the hope of low statistics corresponding to low dose PET imaging equivalent to transatlantic flight with the assistance of computational methods.

TASK

This challenge aims to develop computational algorithms capable of recovering high-quality imaging from low statistics corresponding to low dose scans, with the hope of reducing the radiation exposure to be equivalent to transatlantic flight.





MICCAI2022

Singapore

DATASET

- Training: 450 subjects (^{18}F -FDG, ^{18}F -PSMA, ^{68}Ga -DOTA-TOC, ^{68}Ga -DOTA-TATE) low statistics corresponding to low dose image with DRF at 4, 10, 20, 50 and 100, as well as full dose image. All these low-dose PET perfectly aligned with the full dose PET.
- Testing: 50 subjects (Same as training set) + 50 subjects scanned with Siemens Biograph Vision Quadra in ultra-high sensitivity mode



Award



Organizers

Kuangyu Shi¹, Rui Guo², Song Xue¹, Axel Rominger¹, Biao Li²
1. University of Bern, Bern, Switzerland
2. Shanghai Jiao Tong University, Shanghai, China



Important Date

Submission Deadline:
August 28th, 2022

Workshop I Date:
Sep 18th, 2022, Singapore

Workshop II Date:
Nov 12th, 2022, Milan



<https://ultra-low-dose-pet.grand-challenge.org>



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Total Body PET 2022

Edinburgh 24-26 September 2022

Focus on
Novel methods
and applications
for Total body
PET

PSMR-style
100-200
attendees



<https://totalbodypet2021.org/>

Conference organisers:

Adriana Tavares and Stefaan Vandenberghe

Deadline abstracts: Friday 3th june⁵



PRACTICAL INFO

- Buses to the airports will leave at 7:00 from the hotels.
 - Breakfast will start at 6:15
 - Biodola area: Hotel Hermitage, Hotel Biodola
 - Buses already tagged to Pisa or Rome, please get on the right one.
- Please check out at the hotel no later than 21:00 tonight.
- Participants not using the buses, please leave your room by 10.30
- You can store your luggage at the hotel reception

SUBMISSION OF FULL PAPERS TO IEEE TRPMS

- Full papers from the joint event undergoing also a full peer review process will be published as a special issue of IEEE Transactions on Radiation and Plasma Medical Sciences (TRPMS).
- In the letter to the editor please specify that your manuscript is for the special issue on "PSMR-TBP 2022". The deadline for submission is the 30th of August 2022.
- Check for further instructions on the conference website

SPECIAL THANKS

Such a large conference is only possible thanks to the coordinated work of many people.

- Supporting sponsors
 - Frontier Detectors for Frontier Physics Association
 - INFN - Pisa
 - Stella Maris and IMAGO 7 foundations
 - University of Pisa
 - IEEE NPSS (technical sponsorship)
- Scientific Committee
- Local Organizing Committee
- All students that volunteered helping with the microphones

SPECIAL THANKS

- The organization rests mostly on INFN – Pisa which provides most of the support for the meeting.

Conference secretariat:

- Giacomo Betti
- Lucia Lilli
- Claudia Tofani

Computing support

- Gabriele Lo Re

Technical support

- Marco Ceccanti
- Maurizio Garzella

- Many thanks to the hotels and hotel staff

INDUSTRIAL SPONSORS



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THANKS!



POSITRIGO
IMAGING EVERYONE



CAEN
Tools for Discovery



Industrial booths are open for visit during coffee breaks

**MANY THANKS TO ALL
PARTICIPANTS AND SPEAKERS**

AWARDS

- Student awards: 37
- Best poster presented by a student
- Best oral presented by a student
- Winners will be announced at the Farewell Cocktail

FUTURE

- The merging of PSMR with TB-PET workshop + Metabolic imaging have received very positive feedback
- Many common topics: new detectors/technologies, quantitative and metabolic imaging
- Bi-annual meeting could be the ideal pace for this common event

2024 EDITION