## PALS Avalanche – a new PAL spectra analysis software

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A novel concept for tomography of human body developed by Jagiellonian Positronium Emission Tomography (J-PET) [1-5] project provides the possibility to combine metabolic information collected by standard PET with structural information obtained from Positronium lifetime, in a concept of morphometric image [6]. Therefore, there was a need to develop compatible software with J-PET Framework [7], for fast online analysis during imaging.

PALS Avalanche [8] is a software developed on UNIX system and based on ROOT software, which allows to decompose Positronium Annihilation Lifetime (PAL) spectra collected by both digital and analog electronics. An unique iterative procedure and parameterization of intensities, implemented in PALS Avalanche, will be presented.

## References

- [1] P. Moskal et al., Nucl. Instr. and Meth. A764, 317 (2014)
- [2] P. Moskal et al., Nucl. Instr. and Meth. A775, 54 (2015)
- [3] P. Moskal et al., Phys. Med. Biol. 61, 2025 (2016)
- [4] Sz. Niedzwiecki et al., Acta Phys. Polon. B48, 1567 (2017)
- [5] P. Kowalski et al., Phys. Med. Biol. 63, 165008 (2018)
- [6] P. Moskal et al., Phys. Med. Biol. 64, 055017 (2019)
- [7] W. Krzemień Acta Phys. Polon. A127, 1491 (2015)
- [8] K. Dulski et al., Acta Phys. Polon. A132, 1637 (2017)

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