



Preliminary Monte Carlo study of Modular J-PET



Modular JPET	
Facility	Jagiellonian University
Purpose	Clinical and portability
Scintillator	EJ-230
Scintillator cross_section (mm)	24 * 6
Photo_sensor	Analog SiPM (Hamamatsu)
Number of modules	24
Number of ring	1
Ring diameter (cm)	37.6
AFOV(cm)	50
acceptance angle	34 ⁰
Coincidence timing window (ns)	3
Energy window	>200

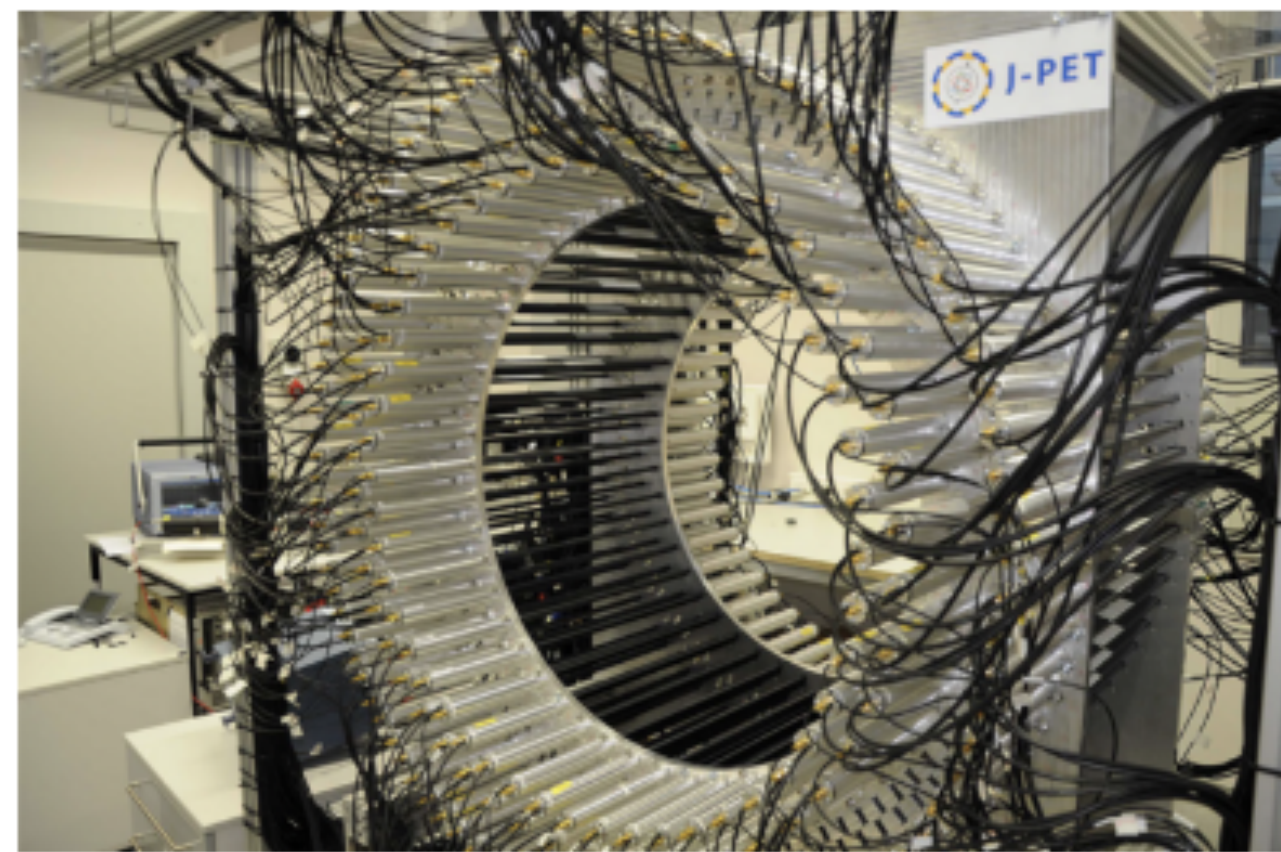


Fig1: Big Barrel, 1st generation of J-PET tomography with 50 cm AFOV

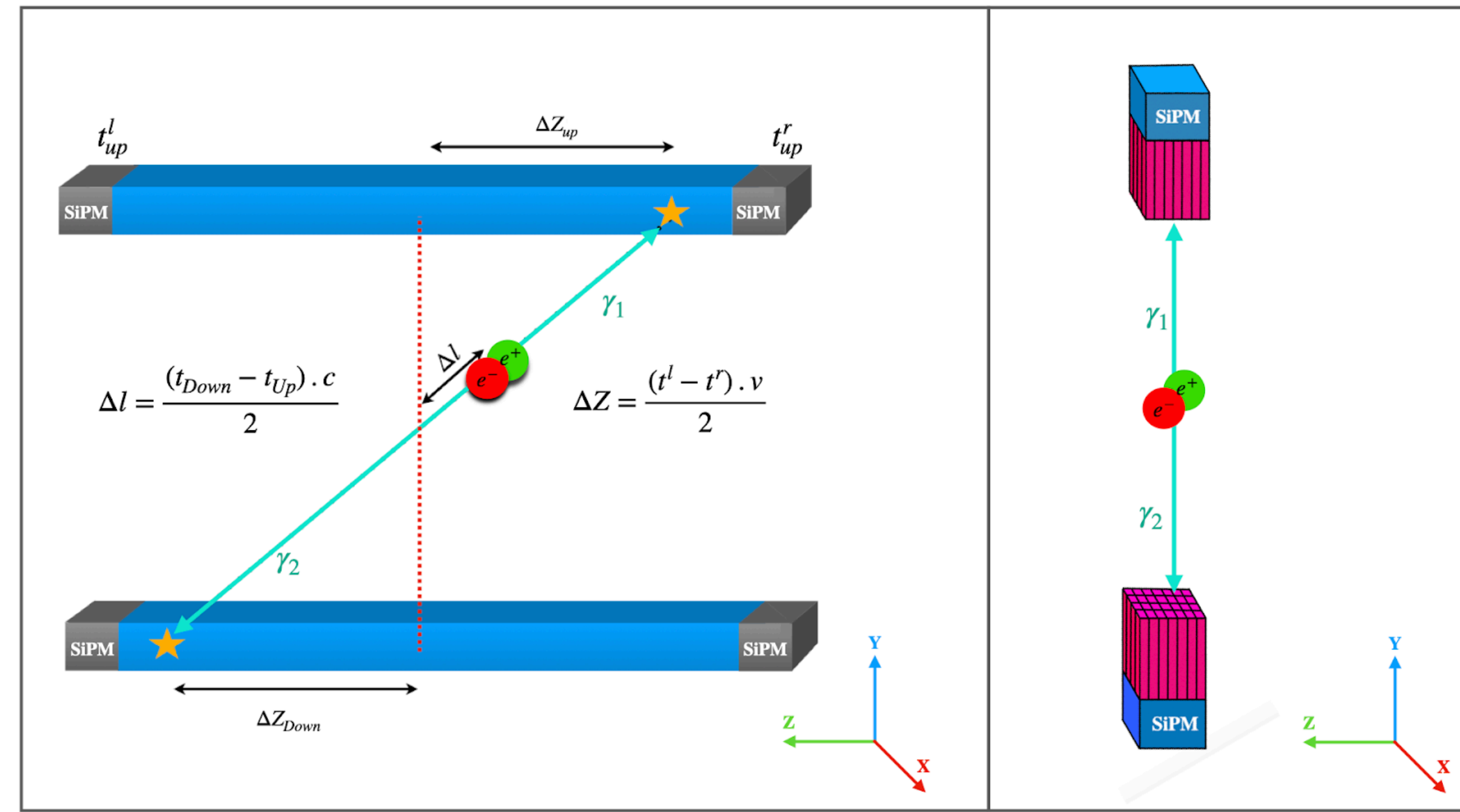


Fig: J-PET technology vs traditional PET scanners (by Meysam Dadgar)

J-PET technology provided the possibility of the development of cost-efficient Total-Body PET which is able to cover all the patient body. In the J-PET group, we are developing the performance of each single module for the construction of the most optimized TB J-PET.

For data processing of Scatter fraction sonogram was generated and re-binned using SSRB algorithms. For sensitivity also were re-binned into direct plane sinograms (2 mm slice thickness) using SSRB.

Table: Number of different coincidence for Sensitivity and scatter fraction

Type of coincidence	TRUE	phantom_scatter	detector_scatter	Random	Random/True (%)
Sensitivity	647522	0	50515	7589	1.1
Scatter Fraction	453236	295522	19431	12713	0.02