

GPET: An Efficient and Accurate Simulation Tool via GPU-Based Monte Carlo for PET

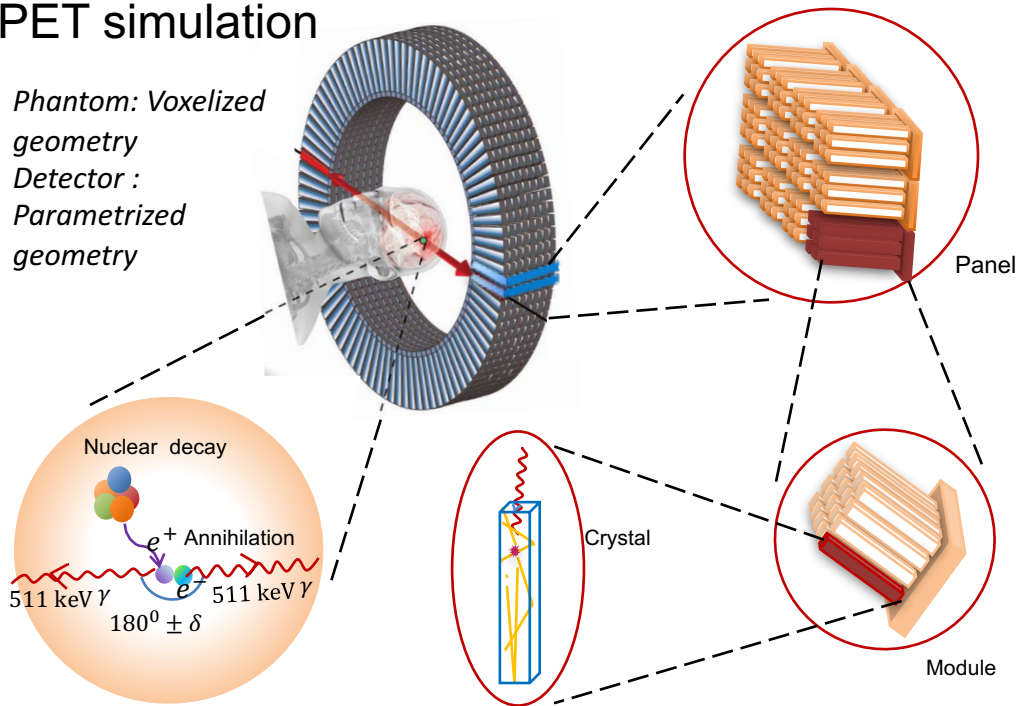
Session Title: Nuclear Medicine

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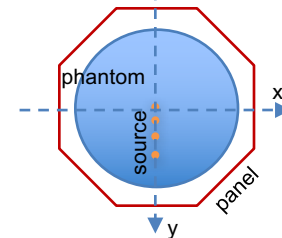
gPET simulation

- Phantom: Voxelized geometry
- Detector: Parametrized geometry

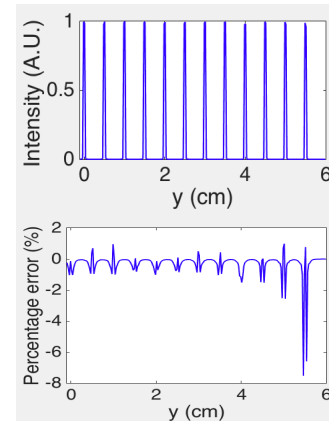


RESULTS

- High accuracy



- Simulate data acquisition process
- Reconstruct source distribution
- Evaluate against GATE/Geant4 results



- High efficiency

| | |
|---------------------------------------|---------------------|
| gPET (GeForce GTX TITAN Black GPU) | 1.8 μ s/history |
| GATE/Geant4 (Intel Core i7 CPU) | ~35ms/history |