

# GATE PET 2 STIR

A platform to connect GATE  
simulation output to STIR  
reconstruction

Nikos Efthimiou  
Univ. of Patras

nikos.efthimiou@gmail.com  
efthimioun@upatras.gr

# Motivation

- GATE is a popular simulation toolkit.
  - PET simulations
  - SPECT simulations
- STIR is a widely used reconstruction toolkit
  - PET systems
  - SPECT systems (near future)
- There is not, yet, a straight forward way to communicate.
- The terminology is a slightly different, leading to time loss.
  - The two communities is hard to interact

# Current Status

- GATE\_PET\_2\_STIR
  - cylindrical geometries
  - detects automatically the system hierarchy
  - calculates the geometry
    - all available units (and mixed)
    - aliases
  - creates an empty STIR template (hs & s)
  - user friendly GUI
  - More than 200 downloads, last 5 months!!
  - Currently news are published only at STIR mailling list

# Convenience features

- Imports data from ROOT files
- Provides statistics (trues, randoms etc)
- Allows interactive energy windows
- Visualises the annihilation position
- Exports the data as projection data, based on the created template

# Near future goals

- Export GATE voxelized phantoms to STIR
- Export GATE non voxelized phantoms to STIR, for compatible shapes
- Use of GATE phantom data to calculate the attenuation factors

# Far future goals

- Calculation of normalization factors
- Support SPECT geometries
- ...
- Construction of a "full" interface?