

SPECT-to-Reco a new Module for the **EduGATE Project**

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**- *Long is the way of theory,
short and effective by examples –***

(Lucius Annaeus Seneca (the Younger),
Epistulae morales)

Using GATE to Educate → EduGATE

- Aim: Provide insights into **Physics of Medical Imaging**
- Means: Provide a collection of very basic and simple GATE macros
- Simple Detector setups, but variable Materials
- Selection of **Physical Processes**
- Easy switching between **Sources** of different Types
 - Ion sources (General Particle Source)
 - Gamma source
 - Electron or Positron source
- Provide a simple **Analysis** Module for ROOT

SPECT-to-Reco

- **SPECT** – Rotating HEAD
- Store data as **Projections**
- Display with **Fiji** / ImageJ
- **Reconstruct** with FBP and Iterative Methods in IDL/GDL (or ROOT)
- Display with **Fiji** / ImageJ
- All **Code** and **READMEs** provided!!

File: **Readme_Intro.txt**
#

Description of EduGATE module: SPECT_to_Reco

* Intro *

There are three main aspects, which are demonstrated to the interested user:

1) Running a "Gamma_Camera" in SPECT-mode, acquiring 60 projections covering 180°

The setup relates closely to the Gamma_Camera example of the EduGATE-collection

2) produce basic output like energy spectra with "root"

3) Use the provided IDL/GDL modules to reconstruct images, either with filtered backprojection or with an iterative approach

4) Use Fiji (or ImageJ) to inspect

- a) the acquired projections
- b) reconstructed images

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additional information or readme-files for parts 1 to 4

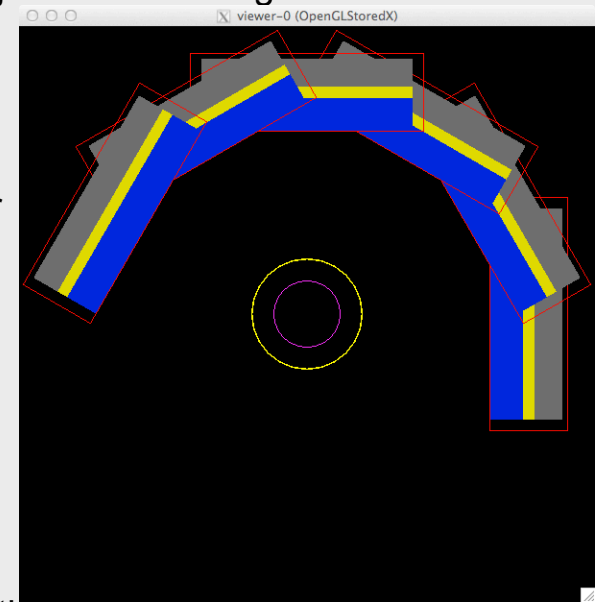
part1: start with config_starter.sh (needs probably to be adapted to the individual environment)

part2: ROOT-analysis; this is automatically started, when GATE has completed

part3: Readme_reco_demo_idl_gdl

idl (Interactive Data Language) or gdl (GNUDataLanguage) can be used with the supplied "pro"-files.

part4: Readme_reco_demo_Fiji.txt



Projections and Reconstruction

