GATE TRAINING: MONTE CARLO SIMULATION IN MEDICAL PHYSICS
1-3 OCTOBER 2018
SACLAY, FRANCE

Training overview

The purpose of this training session is to give the participants the basics of GATE, an advanced opensource software developed by the international OpenGATE collaboration and dedicated to numerical simulations in medical imaging and radiation therapy

Who is the training for?

Lab researchers, engineers, medical doctors and physicists working in hospitals, laboratories or companies in the medical imaging and radiation therapy fields

Entry requirements

Attendees must have a good understanding of medical physics, and should have experiences in Linux and basic programming

Training objectives

- Handle user interface and visualization
- Illustrate a GATE simulation architecture and its general concepts
- Manage anthropomorphic voxelized phantoms and sources to simulate realistic acquisitions
- Build a complete simulation set-up by for medical imaging applications and/or dosimetry and radiation therapy experiments (according to the trainee's domain of expertise/interest)
- Perform output data analysis
- Perform code development to add new features into GATE

Duration 19 hours (3 days)
Location INSTN, Saclay, France
Groups limited to 20 trainees

Registration deadline September 7, 2018

Registration fees Student: 850 €
Academic: 1000 €

Contact Albertine DUBOIS – albertine.dubois@cea.fr

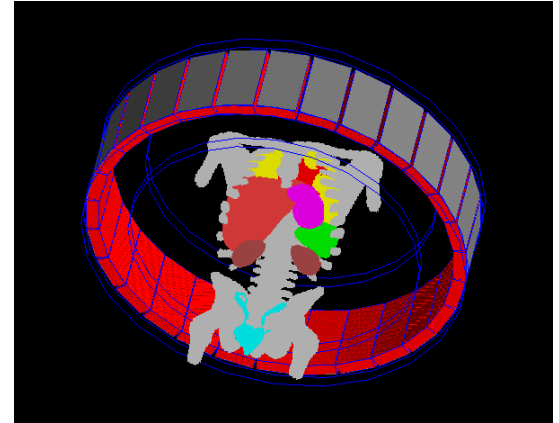Please contact us for more information on this course.

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Course content

- Main principles of GATE: scanner/beam and phantom geometry, materials, physics processes, source(s), actors and output data formats
- GATE for imaging applications: system, sensitive detector and digitizer
- GATE for dosimetry and radiation therapy applications: dose actor, phase-space actor, production cuts and variance reduction techniques
- Using both ROOT software and Python language for dose distribution and/or PET output data analysis
- Using C++ for creating a new actor in GATE

Why take this training?

- ✓ Most of the time reserved for hands-on exercises on Scientific Linux workstations
- ✓ Based on modern pedagogical approaches (active learning and flipped classroom model)
- ✓ Detailed lectures provided by two GATE experts, S. Jan and D. Sarrut, both members of the OpenGATE collaboration