

1st MEDICAL PHYSICS IN RADIATION ONCOLOGY - GLASGOW MEETING

17th-18th November 2017

Title: The multidisciplinary Gate/Geant4 Monte Carlo platform in medical physics: clinical applications and research

Registration:

Invited speakers and chairmen are automatically registered by ESTRO, there is no need for a separate registration.

Workshop chairs:

Uwe Pietrzyk

Hermann Fuchs

Loïc Grevillot

Invited speakers:

David Sarrut

Lydia Maigne

Sebastien Incerti (Geant4)

Abstract grading

Next Skype meeting on 20th of September 16:00-17:00

Deadline now 12th of September

We should receive all abstracts shortly afterwards. Return list of presenters approx. 14 days afterwards.

Coordination via Internet (Google docs, Dropbox...) will be coordinated by Loïc.

Program proposal:

Available slots:

Day 1: 2h + 2h

Day 2: 2h + 2h + 1h

In total, two half days (9h, excl. breaks) are available

All times include discussion, if not stated otherwise.

Day 1

- (2 hr)
 - Introduction into Gate by Uwe Pietrzyk 30 min
 - Geant4 Physics, Basics and Future by Sebastien Incerti 45 min
 - Introduction into Imaging by David Sarrut (CBCT, SPECT...) and Uwe Pietrzyk (PET, ...) 45 min
- (2 hrs)
 - Imaging presentations: 6 user talks (20 min) 120 min

Day2

- (2 hrs)
 - Introduction into Internal/ External Radiationtherapy and Ion therapy by Lydia Maigne 40 min
 - 4 user talks (20 min) 80 min

Incl: Detector modelling + novel applications
- (2 hrs)
 - 1-2 radiation therapy talks (20 min) 40 min
 - GATE RTion project (20 min) 20 min
 - Clinical use (Manchester) (20 min) 20 min
 - 2 user talks of interest: biology, new use cases 40 min
- (1 hr)
 - Future 30 min
 - Discussion 30 min

We need a 10 min wrap-up every day

There will be no additional official ESTRO pre or post meeting.

Possible meeting schedule (08-2017)

Day 1	Friday 17 November	
10:00- 10:15	Introduction of the meeting. Physics Committee Chair.	
10:15- 11:00	Opening lecture (Proposal by the Future Task Group) All participants	
11:15-13:15	Introduction into Gate by Uwe	30 min
	Geant4 Physics, Basics and Future by Sebastien Incerti	45 min
	Introduction into Imaging by David and Uwe	45 min
13:15-14:30	Lunch/commercial symposia	
14:30-16:30	Imaging presentations: 6 talks (20 min)	120 min
16:30 -17:00	Coffee	
17:00-18:00	Wrap up of the different topic workshops (10 min per topic)	

Social Event

Day 2	Saturday 18 November	
08:00 - 10:00	Introduction into Internal/ External Radiationtherapy and Ion therapy by Lydia	40 min
	4 talks (20 min)	80 min
10:00-10:30	Coffee	
10:30-12:30	1-2 radiation therapy talks (20 min)	40 min
	GATE RTion project (20 min)	20 min
	Clinical use (Manchester) (20 min)	20 min
	2 talks of interest: biology, new use cases	40 min
12:30 - 14:00	Lunch/commercial symposia	
14:00 - 15:00	Future	30 min
	Discussion	30 min
15:00 - 16:00	Wrap up: highlights of the different workshops (10 min per topic)	
16:00- 16:15	Closure	

Short description of the workshop:

GATE/GEANT4 is a unique multidisciplinary Monte Carlo platform supporting a wide range of medical physics applications involving ionizing radiation.

This workshop will cover the use of GATE/GEANT4 Monte Carlo simulation for emission and transmission imaging, internal and external radiotherapy and dosimetry applications in general.

The workshop will be divided in three main parts:

- A general introduction to GATE and GEANT4, including an overview of the current state of physics validation, future perspectives and possibilities for clinical use and research purposes
- Monte Carlo simulation for emission and transmission imaging including design and imaging modeling activities
- internal and external radiotherapy including beam modeling and TPS validation activities.

Keynote speakers will introduce the different sessions and selected speakers will present their current activities and research results. A specific time for discussion will be dedicated at the end of each session in order to allow direct exchange between the speakers and the audience. The debates and discussion will be animated by the chairs in order to stimulate exchanges and networking activities within the attendees.

Potential presentation topics

Transmission and emission imaging: Modelling of devices, thermotherapy, treatment verification (particle therapy), prompt-gamma...

Internal and external radiotherapy & Dosimetry: Conventional radiation therapy, Brachytherapy/Targeted nuclide therapy, Dosimetry, Animal applications, ion beam therapy, beam modelling, novel treatment options...