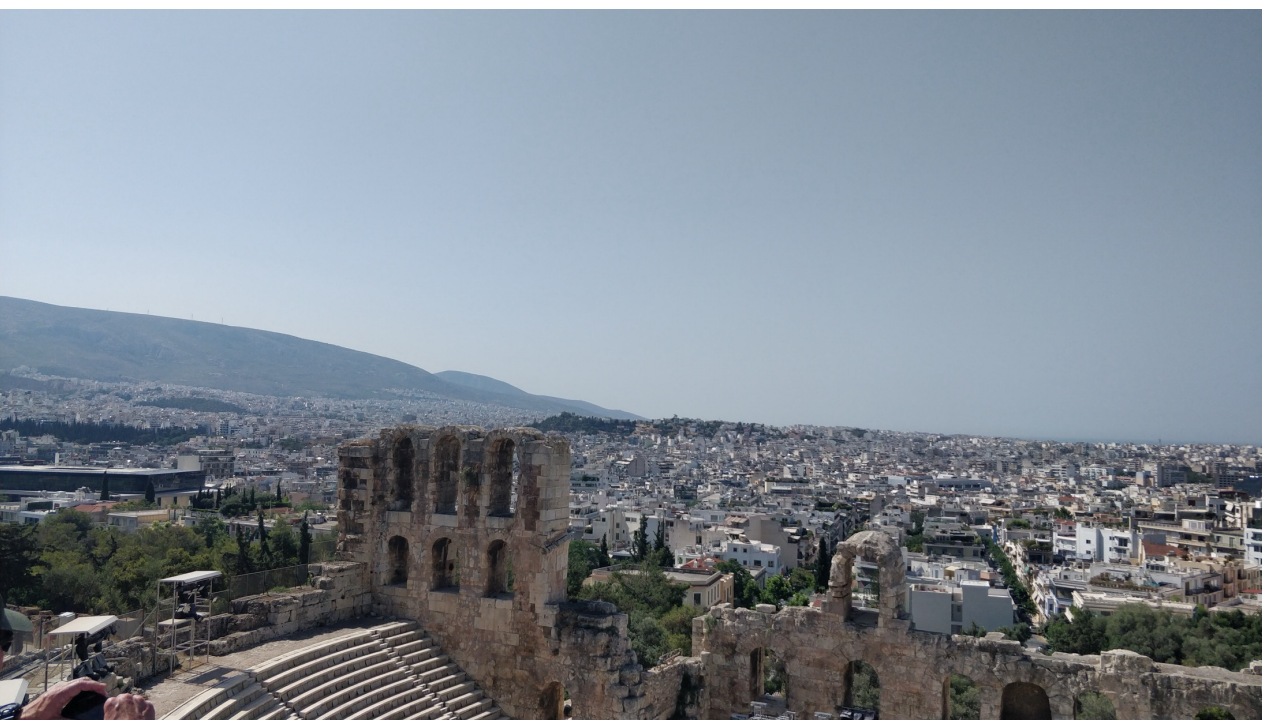




The GATE Monte Carlo simulation platform

Lydia Maigne, PhD, Lydia.Maigne@clermont.in2p3.fr

Spokesperson of the OpenGATE collaboration



Welcome to Athens !

Many thanks to

- Dr Panagiotis Papadimitroulas
- Dr Valentina Paneta
- Dr Varvara Lagakis

The collaboration

23 laboratories, companies, clinics
developing and validating an **open source**
platform



Spokesperson
Lydia Maigne

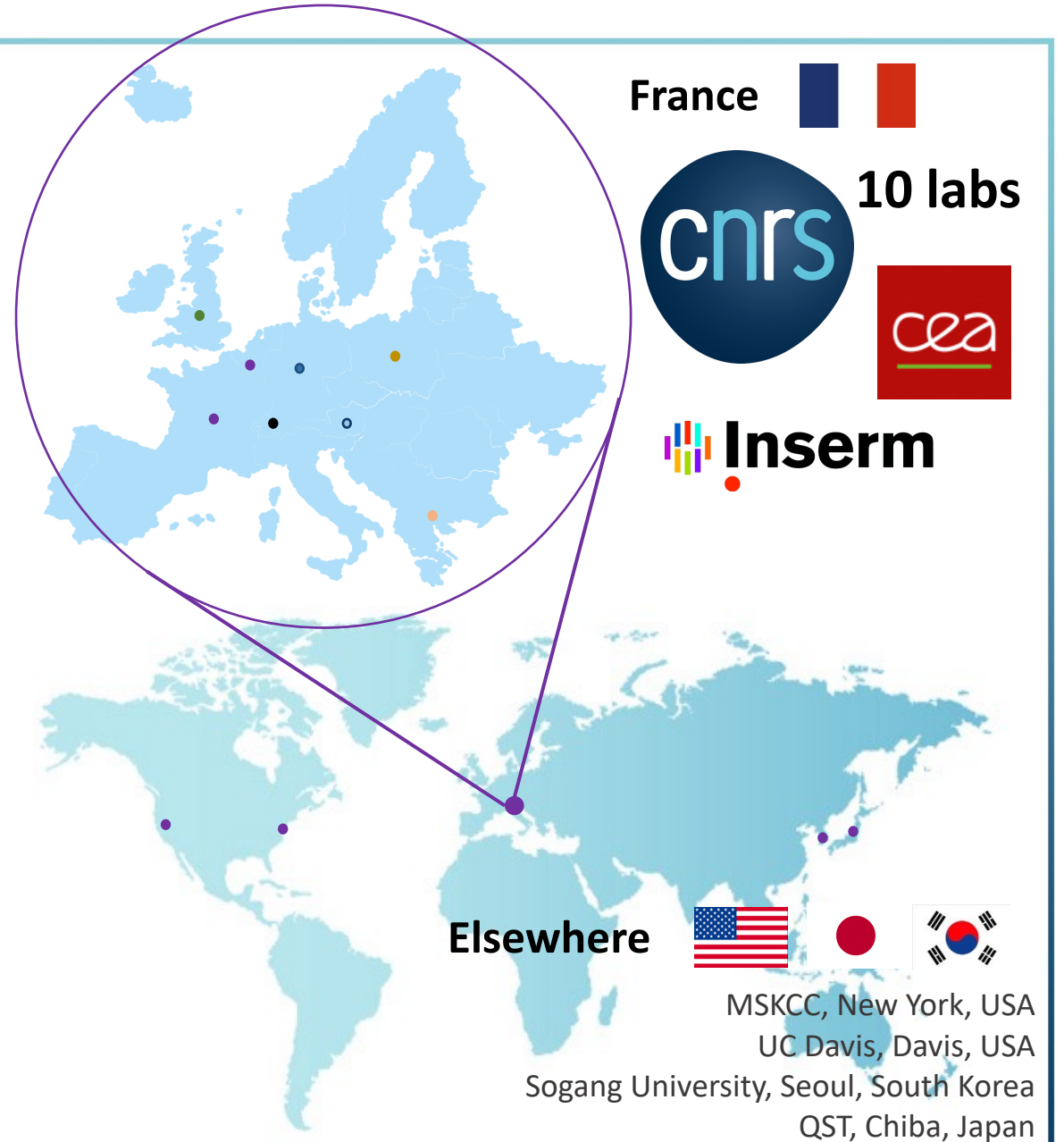


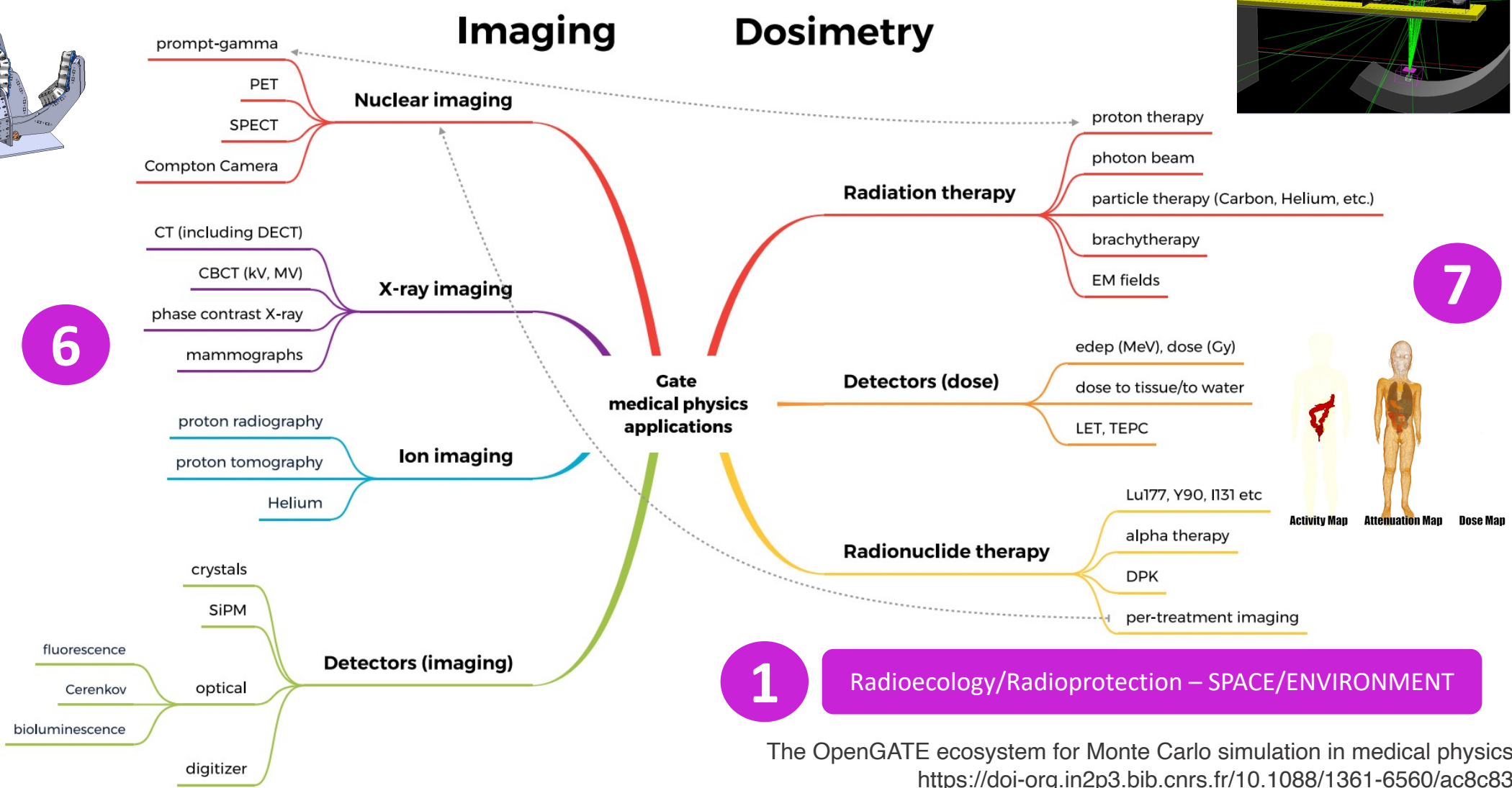
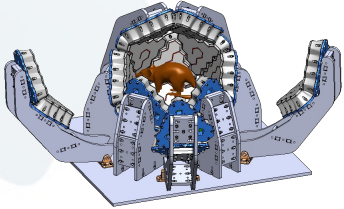
Tech. Coord.
David Sarrut

Europe



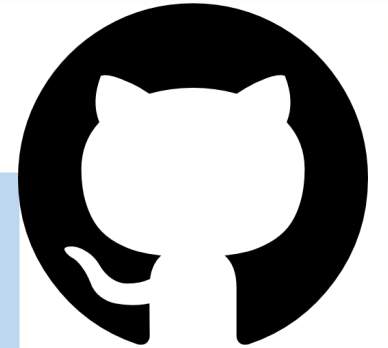
- FH Aachen, University of Applied Sciences, Julich, Germany
- Medisip, Ghent University, Belgium
- Medical University of Vienna, Wiener Neustadt, Austria
- MedAustron, Wiener Neustadt, Austria
- Christie Medical Physics & Engineering, Manchester, UK
- Institute of Nuclear Physics Polish Academy of Sciences, Poland
- Univ. of Patras, Dept of Med. Phys., Greece
- BioemTech, Athens, Greece
- Paul Scherrer Institute (PSI), Switzerland





1 Radioecology/Radioprotection – SPACE/ENVIRONMENT

The OpenGATE ecosystem for Monte Carlo simulation in medical physics
<https://doi-org.in2p3.bib.cnrs.fr/10.1088/1361-6560/ac8c83>



Source code

GATE 10 github.com/OpenGATE/opengate (Release Nov. 2024)

GATE 9.4.1 github.com/OpenGATE/Gate (Release Feb. 2025)

Documentation opengate-python.readthedocs.io

Tests github.com/OpenGATE/opengate/tree/master/opengate/tests

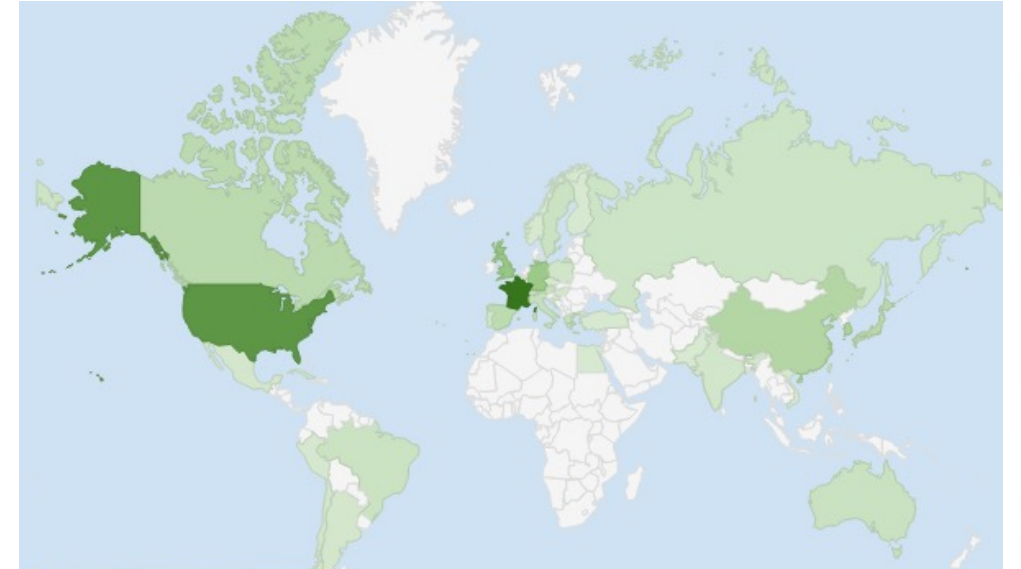
Examples github.com/OpenGATE/opengate/tree/master/opengate/contrib

Python tools github.com/OpenGATE/GateTools/tree/master/gatetools

A large community of users

Around 2000 registered users

- Large communities in France and USA
- Increasing number in Asia: China, Japan and South Korea



GATE USERS MAILING LIST - What is for?

- The mean for the collaboration to send information about releases, job offers, interesting papers
- The mean for users to ask any question regarding GATE: bugs, compilation problems, good practice for using or developing the platform

To register to the mailing-list: <https://listserv.in2p3.fr/cgi-bin/wa?A0=OPENGATE-L>

GATE 10 – a new Python library

Environment

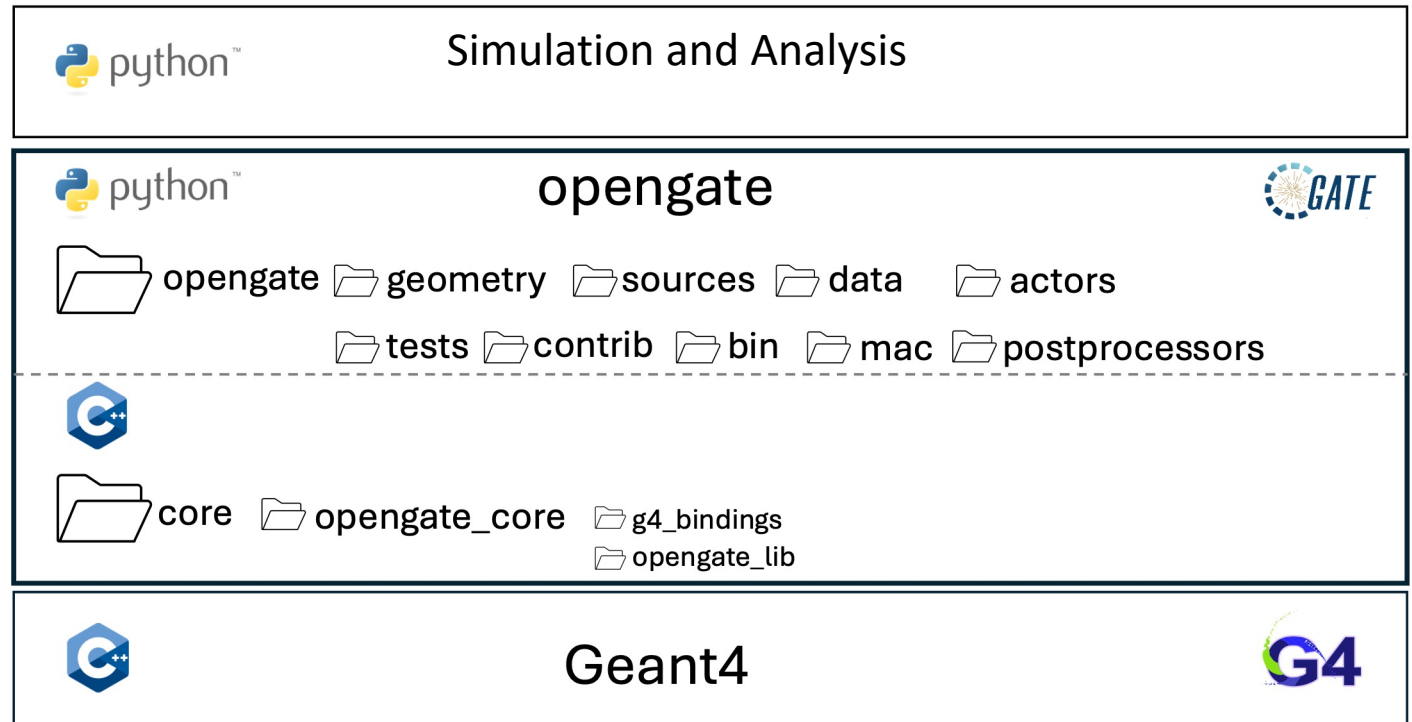
```
python3 -m venv opengate  
source opengate/bin/activate
```

Installation of libraries

```
pip install -U pip  
pip install pyvista simpleitk ...  
pip install opengate
```

Downloads and prints

```
opengate_info  
opengate_tests
```



 **Hackaton day**

Conferences

- ESTRO, AAPM, PTCOG, FRPT
- IEEE-NPSS MIC 2025, Yokohama (Japan) <https://nssmic.ieee.org/2025/>

Scientific meeting (1/year)

- 01-02 April 2025, Athens (Greece), <https://indico.in2p3.fr/e/gate2025>
- 22-23 May 2024, Paris-Saclay (France), <https://indico.in2p3.fr/e/gate2024>
- 25-26 April 2023, Krakow (Poland), <https://indico.in2p3.fr/e/gate2023>

Trainings on dedicated computing resources

- [GATE training for beginners](#) **November 2025**
- GATE trainings in master programs
- GATE trainings aside main conferences



ENJOY the Scientific meeting

Contact:

lydia.maigne@clermont.in2p3.fr

09:00	Introduction in GATE MC simulation toolkit (David Sarrut / Lydia Maigne) Central Auditorium, NCSR DEMOKRITOS	09:00 - 09:20
	GATE simulations of a multi-detector geometry: combining the total body J-PET with a brain insert (M. Rädler) Central Auditorium, NCSR DEMOKRITOS	09:20 - 09:40
	Gate implementations for Monolithic Crystals (Marc Granado-Gonzalez) Central Auditorium, NCSR DEMOKRITOS	09:40 - 10:00
10:00	Simulation of triple coincidences on a dual-ring, long-axial PET using GATE (Dimitrios Thanasis / Dhimitri Calamanti) Central Auditorium, NCSR DEMOKRITOS	10:00 - 10:20
	GATE activities @ NCBJ (Wojciech Krzemien) Central Auditorium, NCSR DEMOKRITOS	10:20 - 10:40
	Coffee break Central Auditorium, NCSR DEMOKRITOS	10:40 - 11:00
11:00	GATE activities @ Orsay (Olga Kochebina) Central Auditorium, NCSR DEMOKRITOS	11:00 - 11:20
	Development of techniques for radionuclide imaging and dosimetry (Matthew Strugar) Central Auditorium, NCSR DEMOKRITOS	11:20 - 11:40
	GATE activities @ BIOEMTECH (Panagiotis Papadimitroulas) Central Auditorium, NCSR DEMOKRITOS	11:40 - 12:00
12:00	Gate activities at DeSis-IPHC (Lucia Victoria Garcia Garcia) Central Auditorium, NCSR DEMOKRITOS	12:00 - 12:20
	The GATE MARIM database (Lydia Maigne) Central Auditorium, NCSR DEMOKRITOS	12:20 - 12:40
	Lunch	
13:00		
	BIOEMTECH presentation Central Auditorium, NCSR DEMOKRITOS	13:40 - 14:00
14:00	Monte Carlo Simulation of Dose Enhancement Around Gold Nanoparticles for the Development of a Nanoparticle-Doped Dosimetric Gel (Alexandre Ocadiz)	
	Prototype of GATE v9.1 workflow for BNCT dosimetry on ICRP110 phantoms (Daniele Pistone) Central Auditorium, NCSR DEMOKRITOS	14:20 - 14:40
	GateRTion v2: A reference GATE 10 version for ion beam therapy (Martina Favaretto) Central Auditorium, NCSR DEMOKRITOS	14:40 - 15:00
15:00	Validation of GateRBEActor for carbon ion pencil beam therapy (Yihan Jia) Central Auditorium, NCSR DEMOKRITOS	15:00 - 15:20
	Coffee break Central Auditorium, NCSR DEMOKRITOS	15:20 - 15:40
	OpenGATE for helium ion beam commissioning at the MedAustron iontherapy center (Hermann Fuchs) Central Auditorium, NCSR DEMOKRITOS	15:40 - 16:00
16:00	Photon Last Vertex Splitting: A Variance Reduction Technique applied to LINAC out of field dose computation (Maxime Jacquet)	
	Development of chemistry and biodose actors in GATE 10 (Alexis Perefa) Central Auditorium, NCSR DEMOKRITOS	16:20 - 16:40
	GATE 10 status (David Sarrut) Central Auditorium, NCSR DEMOKRITOS	16:40 - 17:00