2011 Nuclear Science Symposium and Medical Imaging Conference

What’s new in GATE?
- GATE documentation is now provided as a wiki
- Any user is allowed to contribute after registration (by default, contribution is not enabled)
Distribution of GATE as a virtual image

- Seems to be a success as users can run GATE in a few minutes on any host machine using the VirtualBox software (no Geant4 installation, no GATE installation)

- The vGATE image corresponding to GATE V6.1 will be distributed by the end on November 2011

- Good for trying GATE, not for massive data production
GATE for radiotherapy and hadrontherapy

- We provide recommendations for physics lists

**Documentation and Recommendations for Users**

**Recommendations**

- Setting the Physics Parameters for Radiation Therapy Applications
- Setting the Physics Parameters for Proton Therapy Applications
- Setting the Physics Parameters for Carbon Therapy Applications

GATE is the only integrated framework to enable modeling of radiotherapy/hadrontherapy and imaging

Research is on-going to provide more recommendations for users
Where to meet GATE developers

- On the GATE website, we now advertise the meetings in which you can meet some members of the OpenGATE collaboration or where we have some GATE-related events
Systems modeled in GATE

- You can find a list of systems (PET, SPECT, and more recently radiotherapy systems) on the GATE website, with associated references

- Only the systems that have been modeled by members of the collaboration are listed

- Other models do exist, please post on the gate-user list if you are looking for a specific model, some colleagues are willing to share
# Radiotherapy systems

## GateRT/Systems

### Systems simulated with Gate

Please contact the authors if you need more information.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Reference</th>
<th>Contact</th>
<th>figure</th>
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</thead>
<tbody>
<tr>
<td>Varian Medical System - Clinac 2100C</td>
<td>6MeV and 20MeV electron beams. Simulation of the linac head (vacuum window, scattering foils, monitor chamber, jaws, exit window) and applicators</td>
<td><a href="#">Maigne et al, PMB2011</a></td>
<td>Yan Lydia</td>
<td><img src="image" alt="Varian Medical System - Clinac 2100C" /></td>
</tr>
<tr>
<td>Siemens Artiste</td>
<td>Modelling of 6 MV and 18 MV photon beams, dosimetric validation (comparison between measurements and simulation results) and validation against the PENELOE MC code</td>
<td><a href="#">D. Lazaro-Ponthus, L. Guérin, A. Batalla, T. Frisson and D. Sarrut, Commissioning of PENELOE and GATE Monte Carlo models for 6 and 18 MV photon beams from the Siemens Artiste linac, 11th Biennial ESTR0, London UK, May 2011.</a></td>
<td>Delphine</td>
<td><img src="image" alt="Siemens Artiste" /></td>
</tr>
</tbody>
</table>
Management of development priorities in GATE

- Development priorities are driven by funding!

- Highest priorities are given to GATE developments we committed to perform as part of funded projects.

- Currently:
  - Monte Carlo simulations for hadrontherapy monitoring by prompt gamma or PET imaging
  - Monte Carlo simulations for optical imaging
  - Options to speed up GATE (GPU, multithreading, hybrid models combining Monte Carlo and analytical modeling)
Next training session

- Next training will take place in Saclay, near Paris, France, on February 14th-16th, 2012

- Save the date or pass the word around, registration procedure will open mid-november
Key links

- [http://www.opengatecollaboration.org](http://www.opengatecollaboration.org) for information, registration, download

- [gate-users@lists.opengatecollaboration.org](mailto:gate-users@lists.opengatecollaboration.org) for posting questions or GATE-related announcements

Thank you!