

# **Requirements, Development Plans, and Requests**

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# Simulation in Medical Physics

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Validation of low energy libraries from the Geant4 Standard, Livermore, Penelope. The work will go on for 3 - 4 years therefore the physics models in these libraries are not obsolete for us, on the other way round, they are very important to our work. We are working together Dr. Pia and the NANO5 group in order to improve them as well.

- M. Begalli

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Brachytherapy, HDR and LDR. Simulation done with all Geant4 packages.

# Simulation Requirements

Main simulation requirements for low energy physics in Geant4:

- Photon interactions
- Electron energy loss and multiple scattering
- Atomic de-excitation
- PIXE
- Radioactive decay
- Complex geometries with thin ( $< \mu\text{m}$ ) layers close to detectors
- Physics and software quality for critical applications

# Requests

- Geant4 electromagnetic working group wants to remove the original low energy extension, which they consider “obsolete”, from future Geant4 releases

Our requests:

- Keep original low energy processes in future Geant4 releases
- Since Geant4 electromagnetic working group does not want to maintain them, move EEDL/EPDL based physics processes to “pii package”

Together with our collaborators, we will maintain – and improve – these processes along with PIXE.