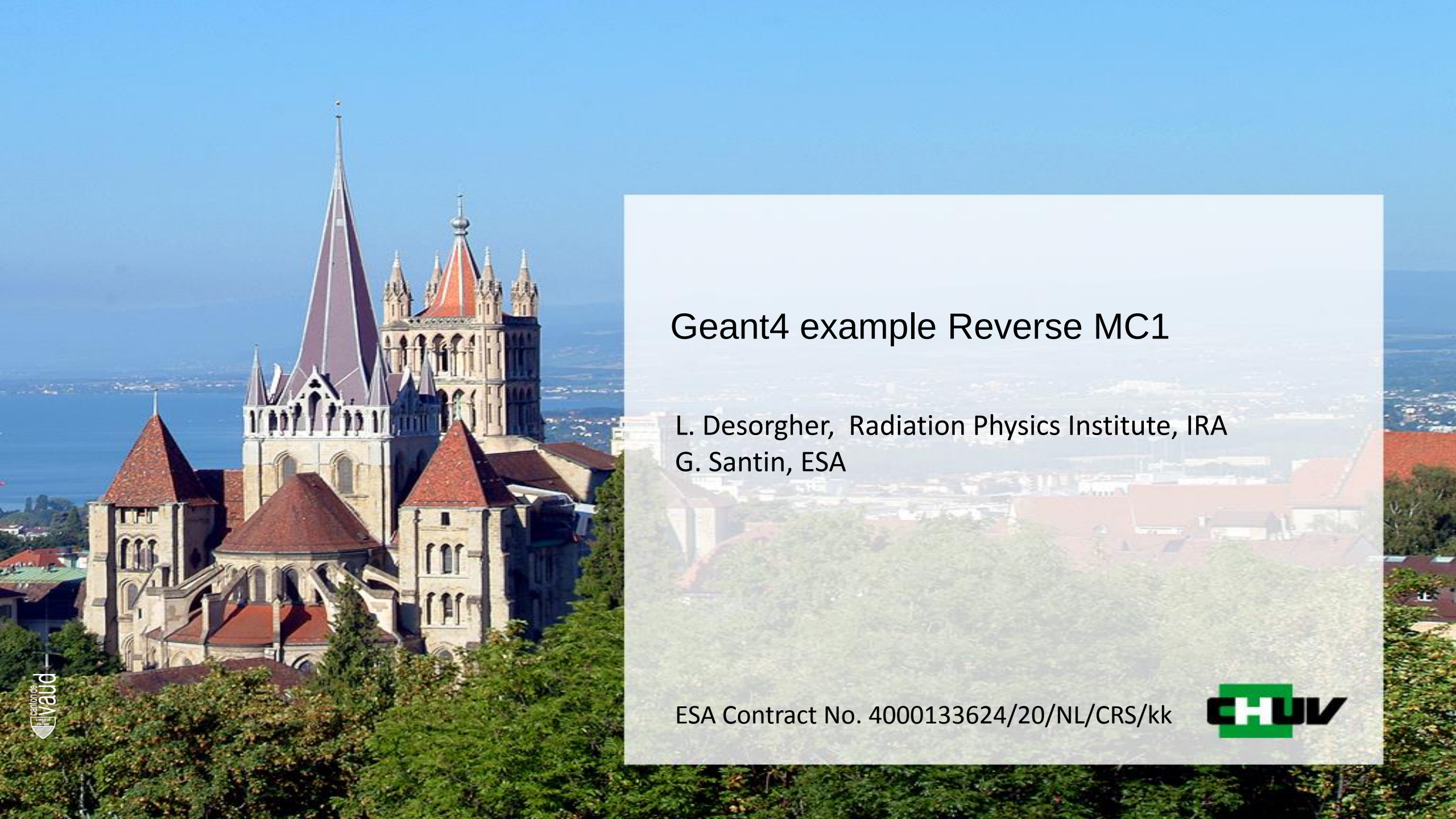


Geant4 example Reverse MC1

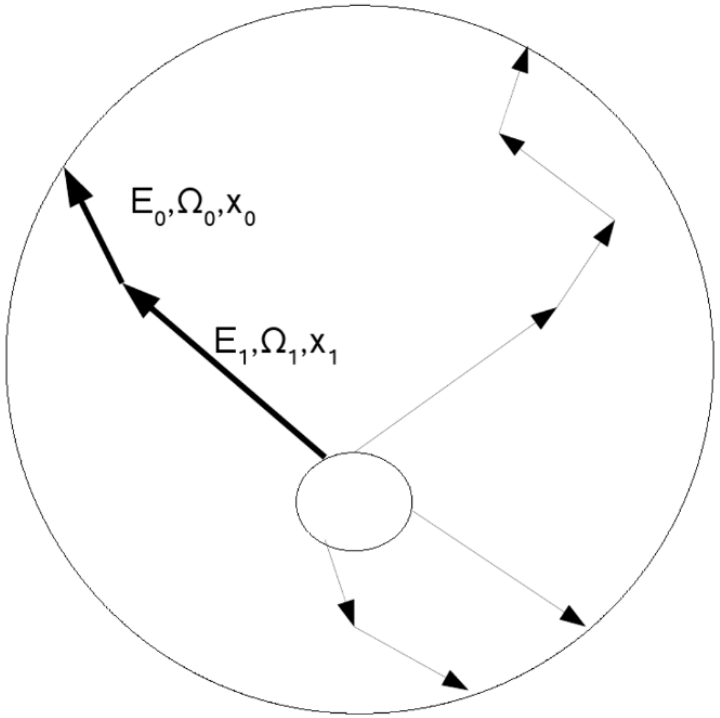
L. Desorgher, Radiation Physics Institute, IRA
G. Santin, ESA

ESA Contract No. 4000133624/20/NL/CRS/kk

Geant4 ReverseMC1 example

Geant4 classes modification

- Update of reverse gamma tracking based on forced interaction
- Slight update in G4AdjointSimManager for porting to MT mode



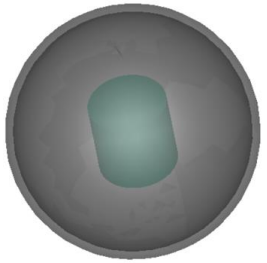
exampleRMC1

- Compute dose in user defined sensitive volume by Reverse MC or analog simulations

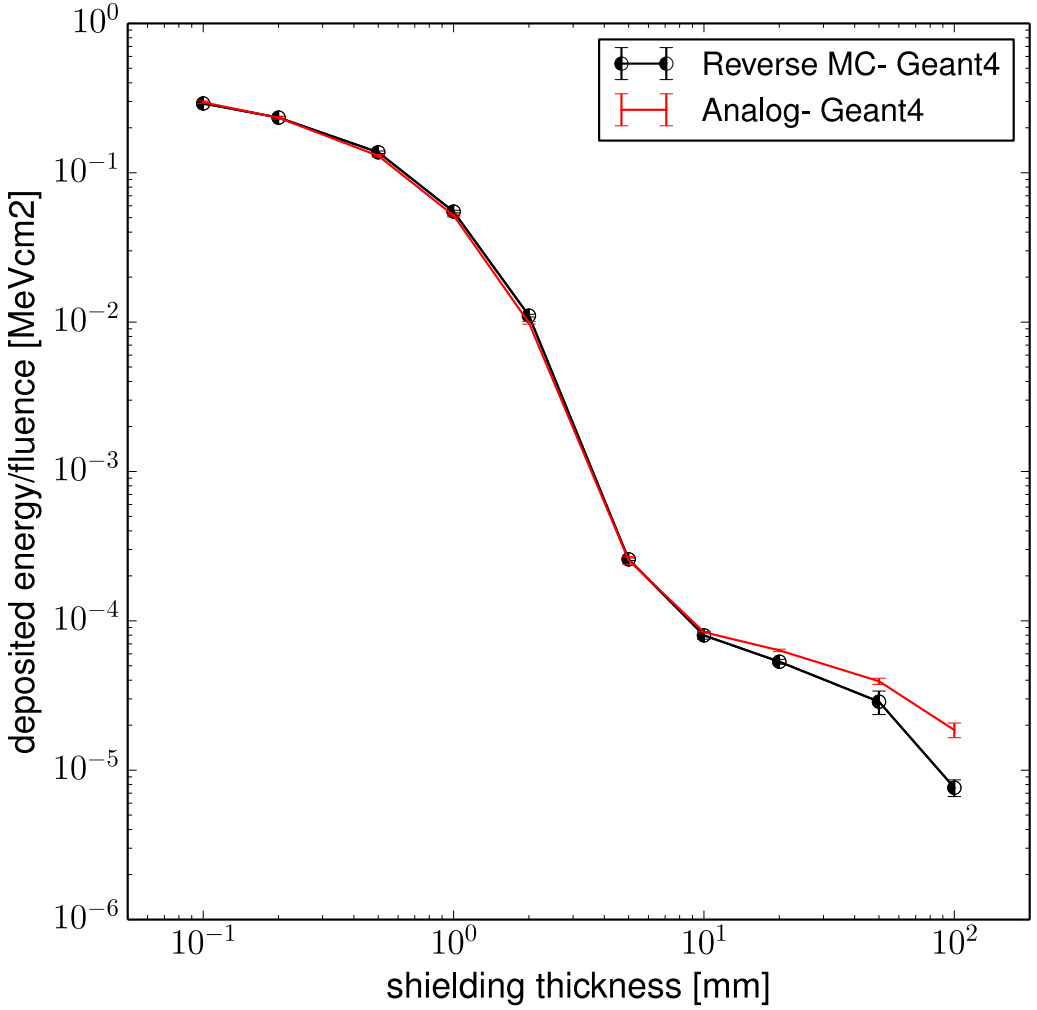
- Run in sequential or MT mode - thanks to external contribution of Michalis Axiotis (G4G)

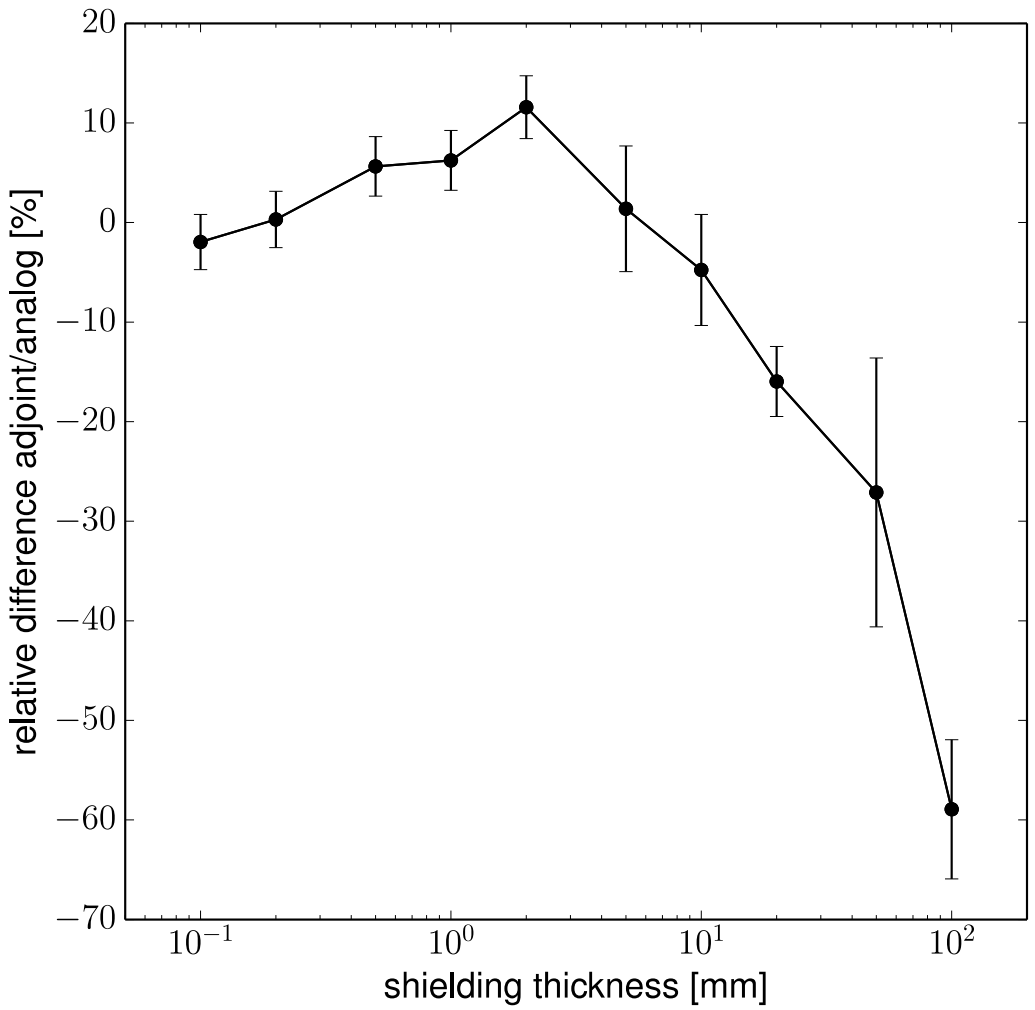
- Capability of using GDML geometry

Energy deposited in sensitive volume behind Al shielding

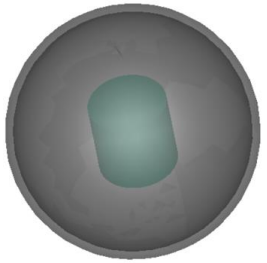


Before correction of reverse MC tracking algorithm for gamma



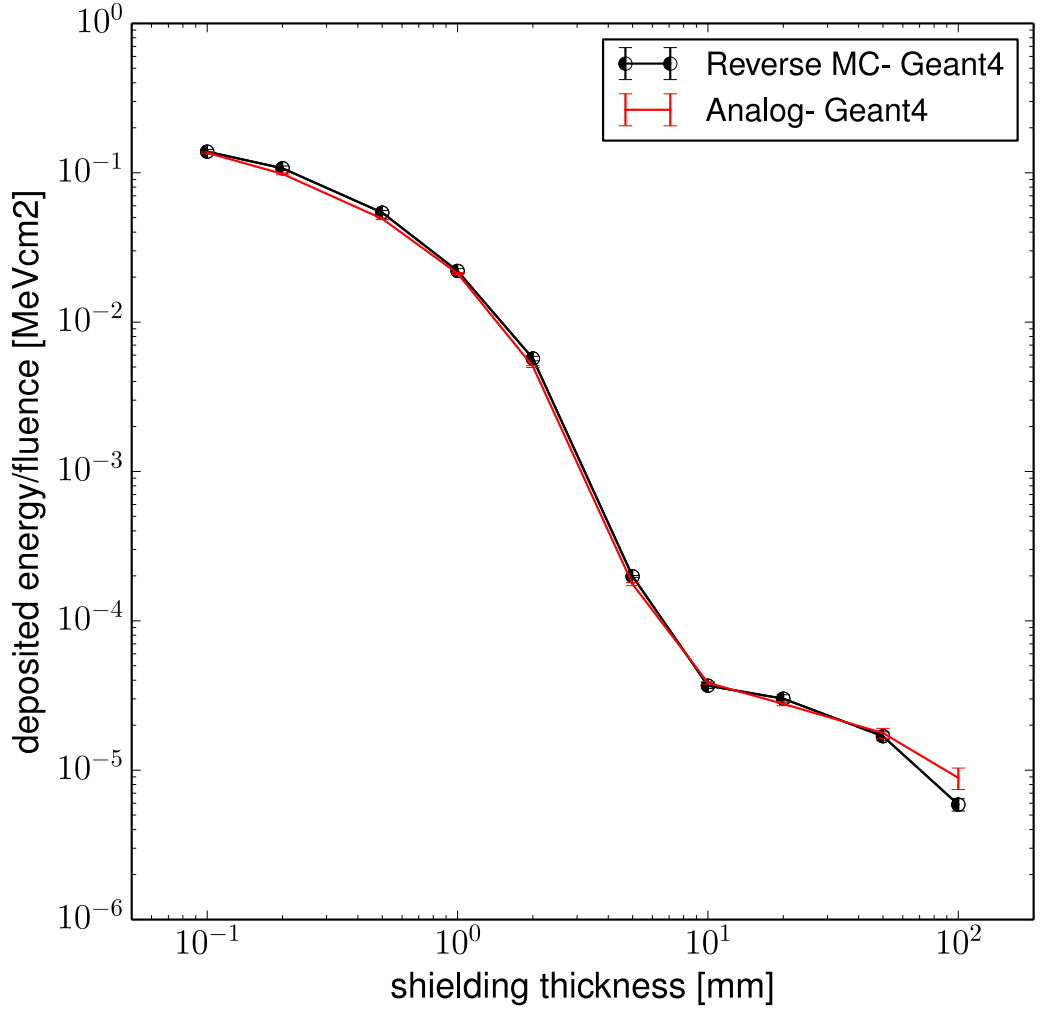


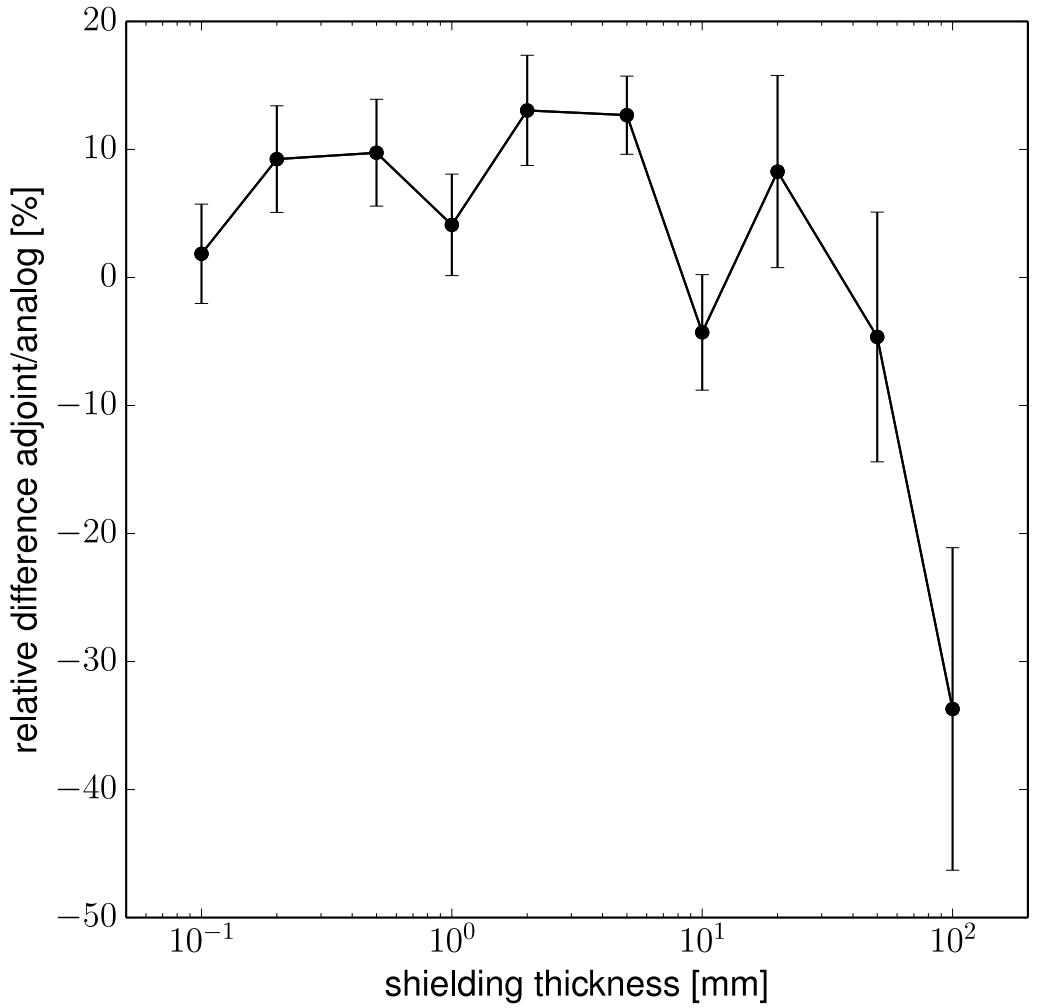
Discrepancy between Geant4 Reverse MC and Geant4 analog at thick shielding where the dose from secondary gamma dominates

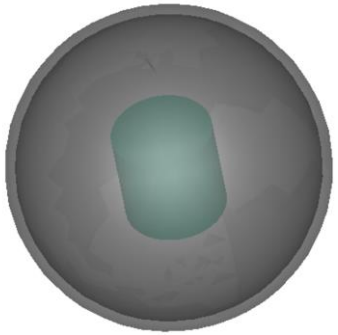


Test Dose vs Al shielding thickness – MEO spectrum

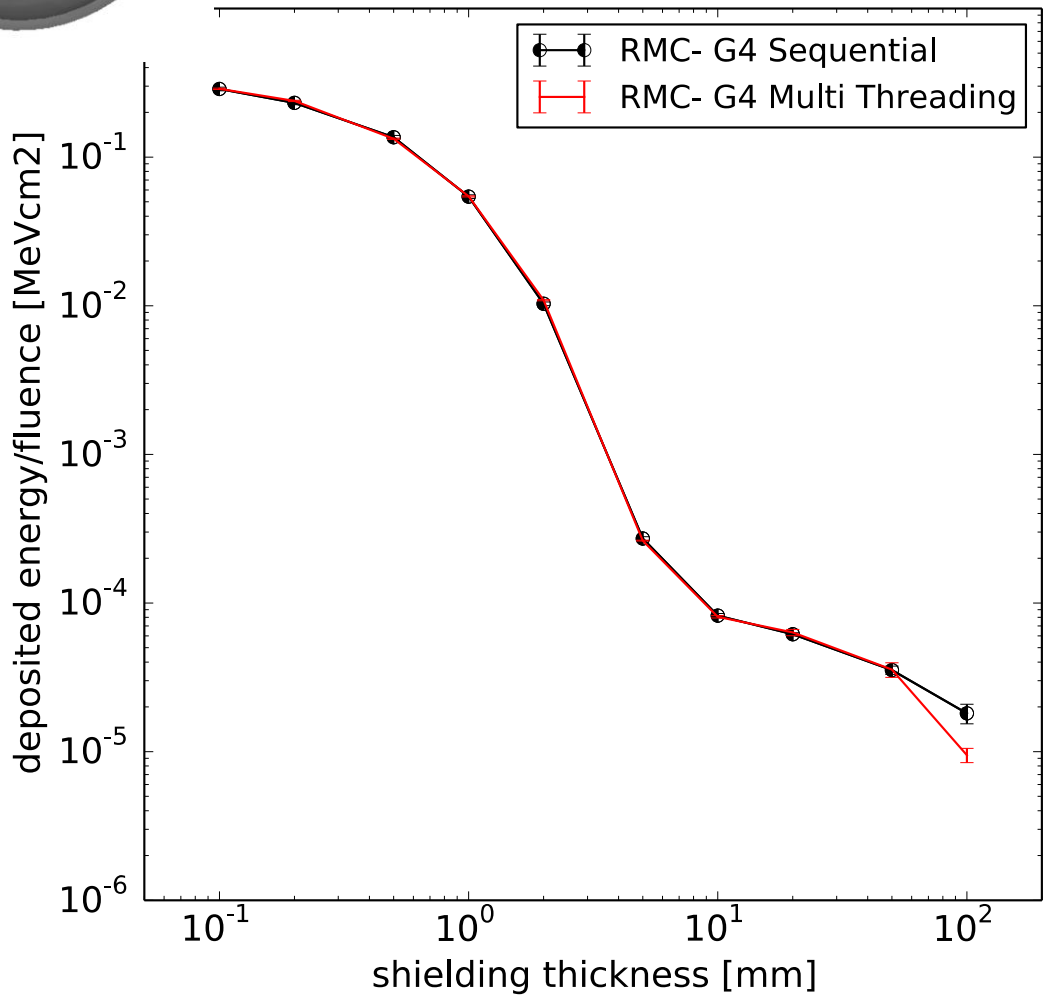
after correction of Reverse MC tracking algorithm for gamma
based on forced interaction – better balance in process cross section and interaction location sampling
(details discussed by Laurent in session: Generic processes & materials)

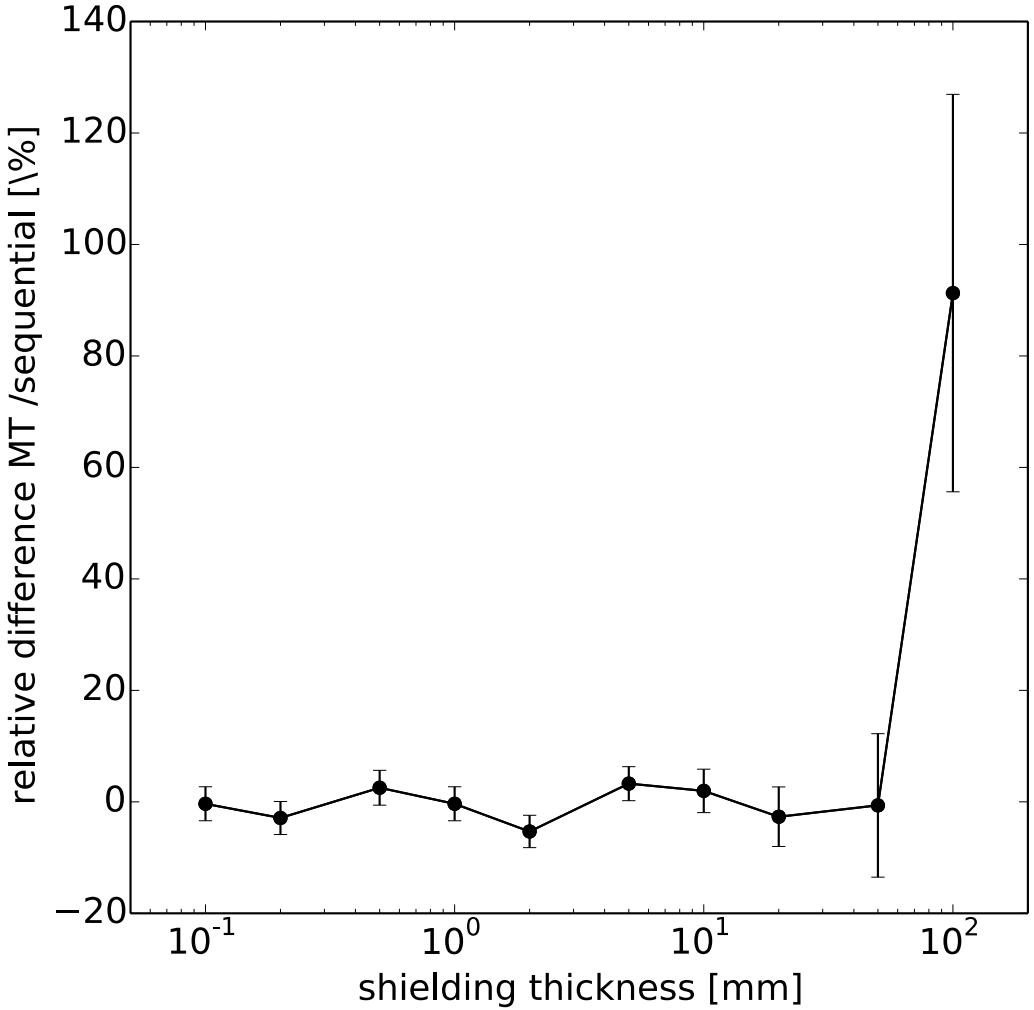






G4RMC MT vs sequential mode





Thanks to M. Axiotis (ESA « G4G » contract)