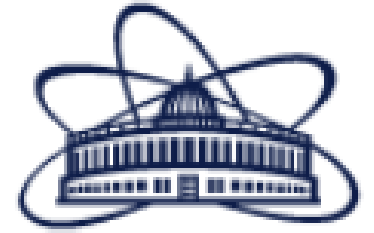




S_oFT



EM physics validation results for 11.3ref01

V. Ivantchenko

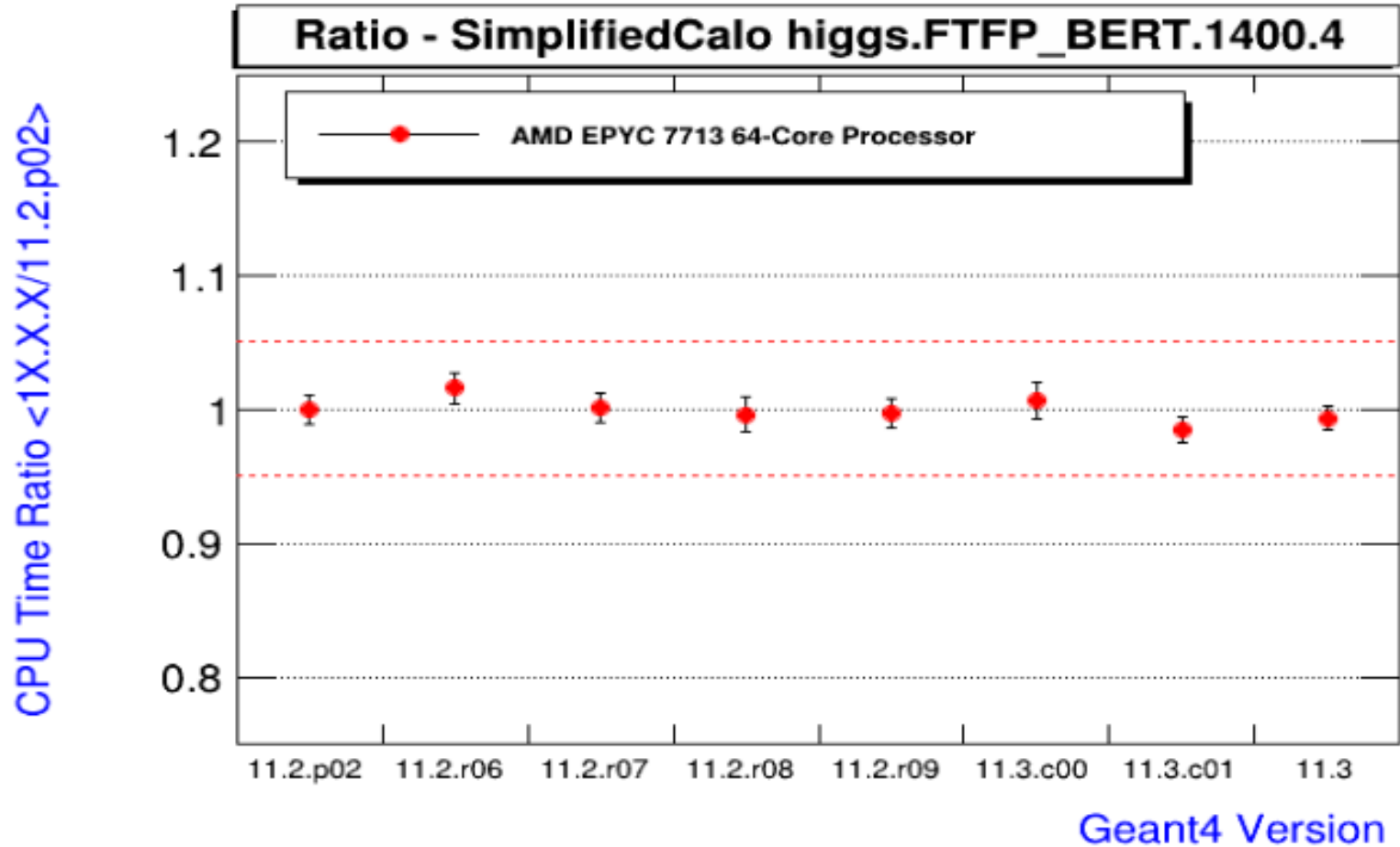
CERN & JINR, Dubna, Russia

04 february 2024

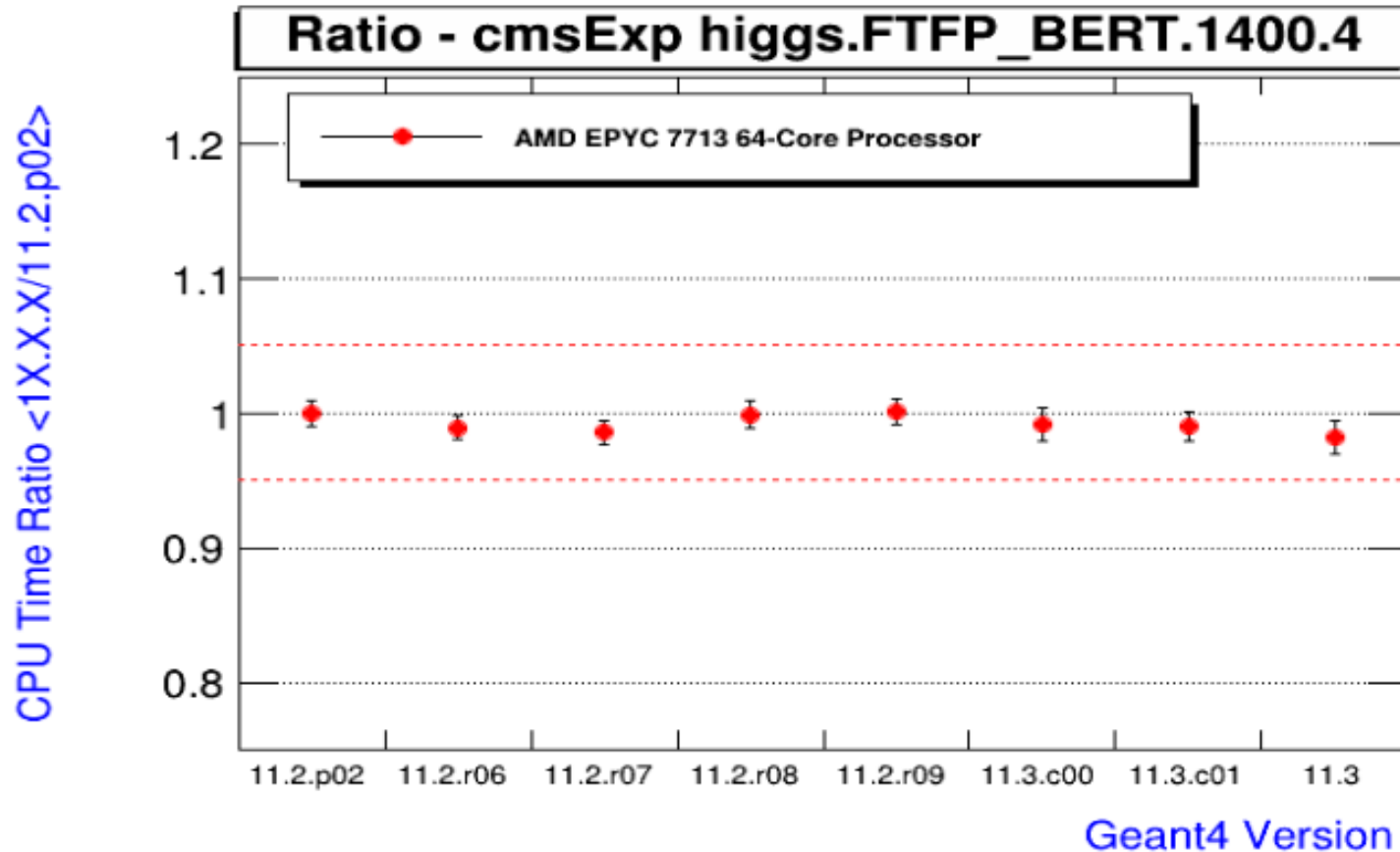
Modifications in EM libraries

- Roll back G4eBremsstrahlungRelModel to 11.2ref10
 - Issue with Celeritas software
 - We plan to improve this place differently
 - In 2025 work plan we will try to reduce number of static class members limiting ourself only by real static numbers and not data structures

FNAL Geant4 Profiling (J. Yarba)



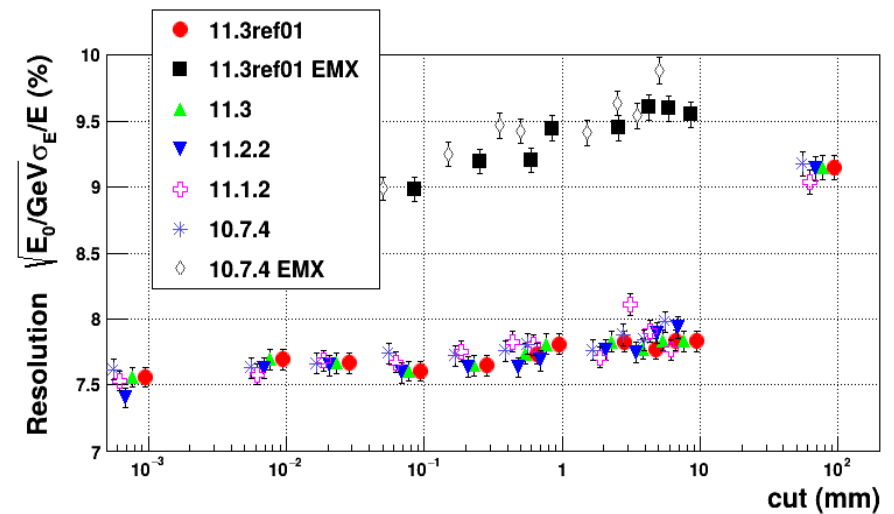
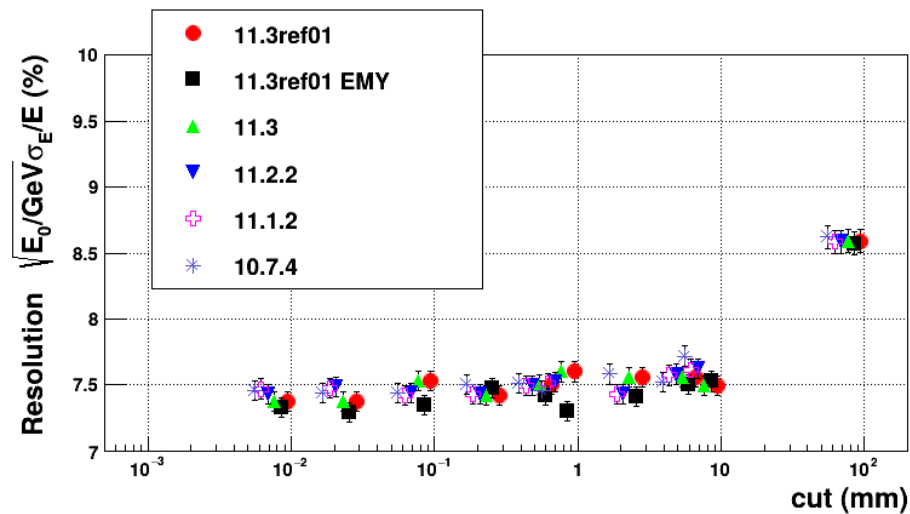
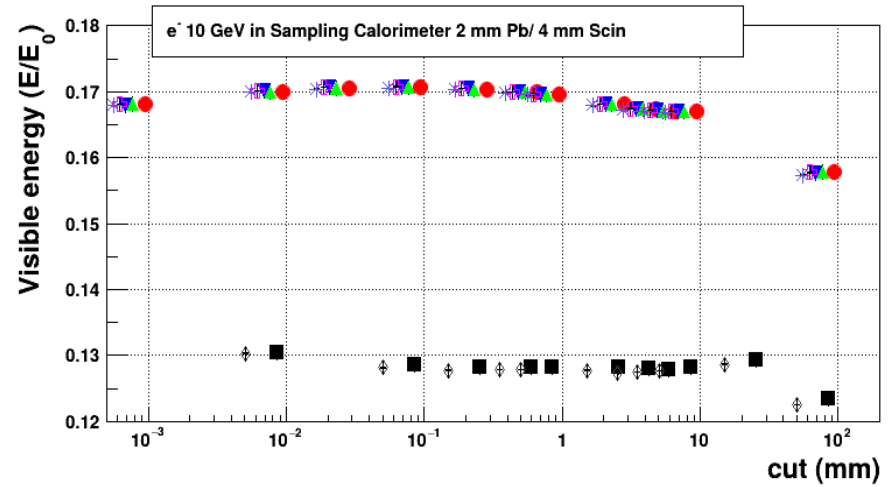
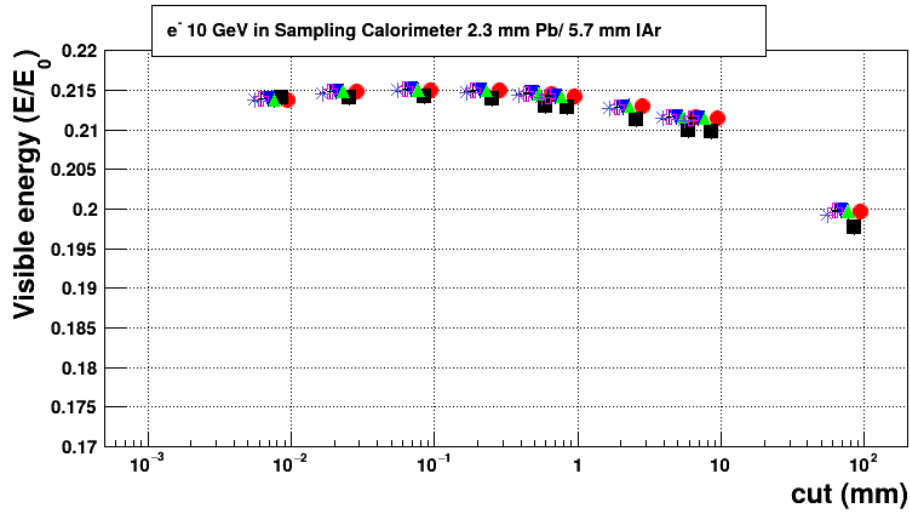
FNAL Geant4 Profiling (J. Yarba)



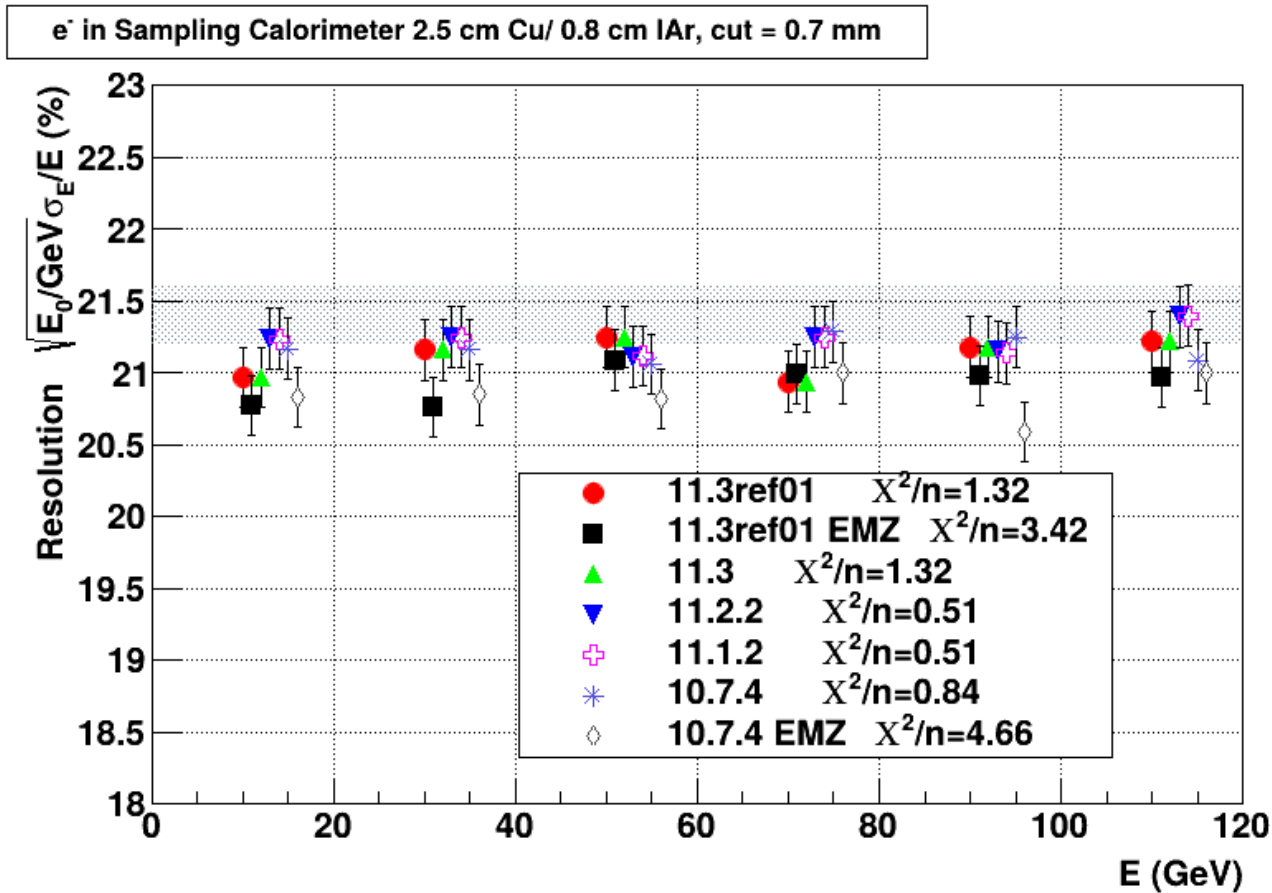
Test Results

- Testing results will be available:
 - <https://ivanchenko.web.cern.ch/electromagnetic/>
- EM results are stable since 11.1.X

Simplified ATLAS and LHCb

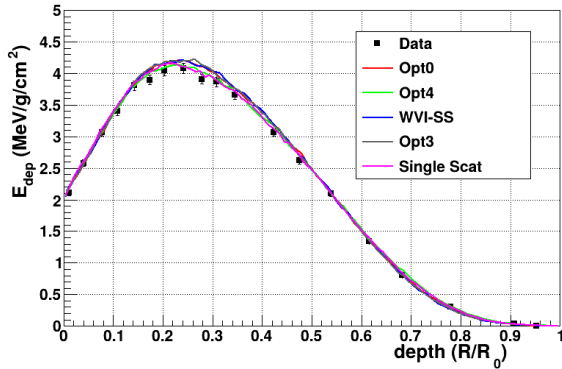


Simplified ATLAS HEC

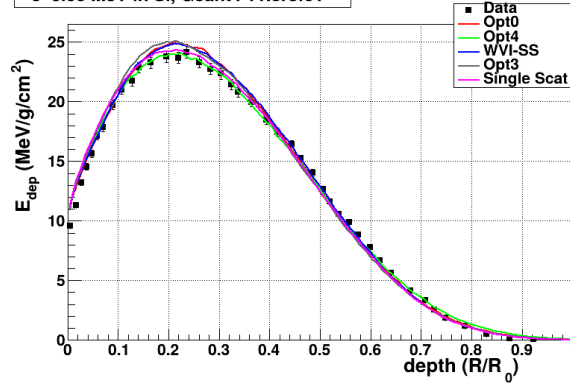


Electron energy profiles

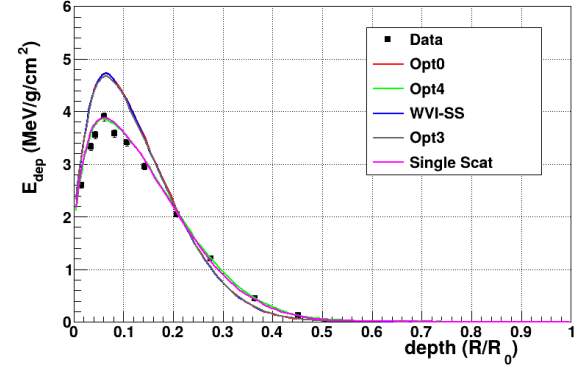
e^- 0.521 MeV in Al, Geant4 11.3ref01



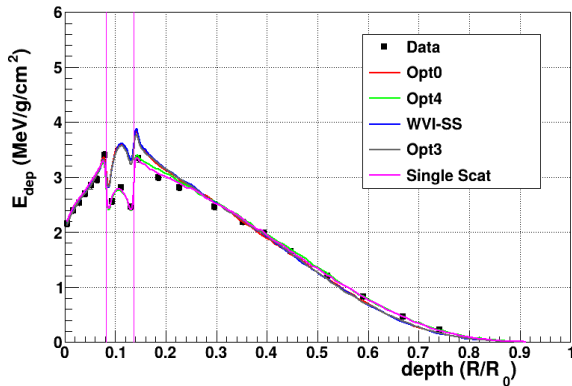
e^- 0.03 MeV in Si, Geant4 11.3ref01



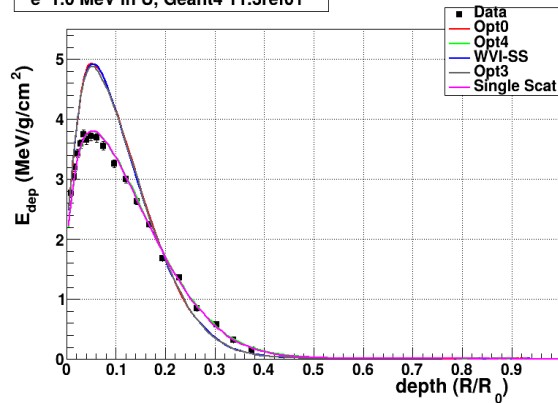
e^- 1.0 MeV in Ta, Geant4 11.3ref01



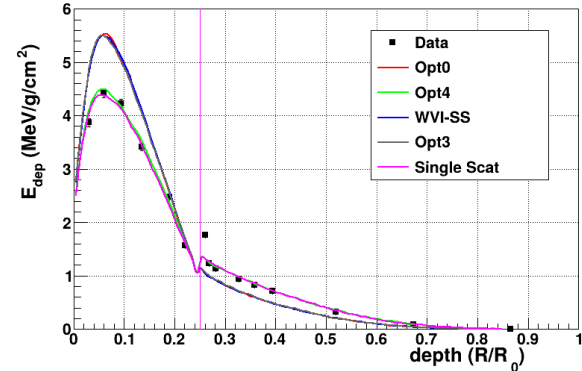
e^- 1.0 MeV in AlAuAl, Geant4 11.3ref01



e^- 1.0 MeV in U, Geant4 11.3ref01

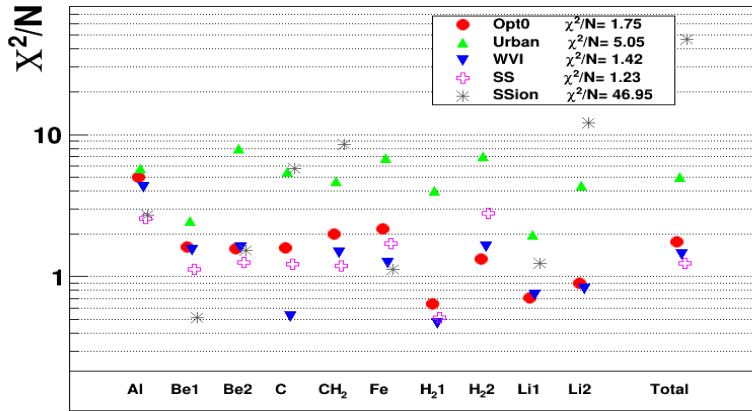


e^- 0.521 MeV in TaAl, Geant4 11.3ref01

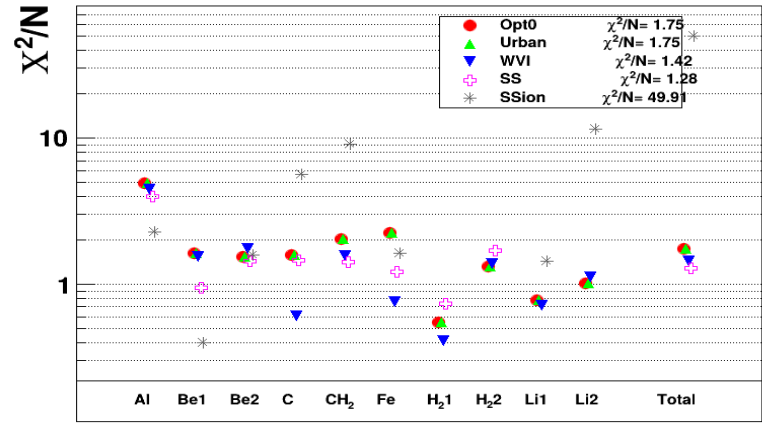


MuScat thin target test

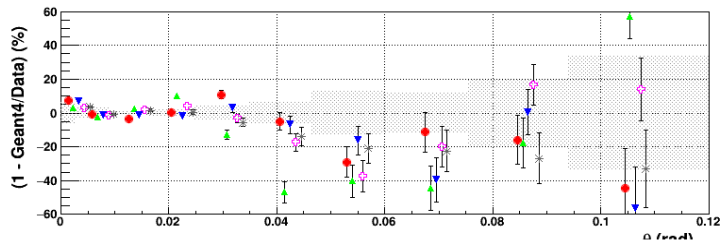
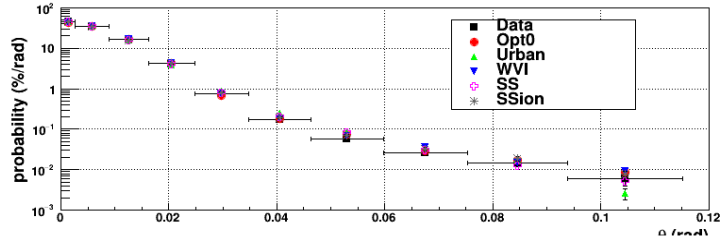
172 MeV/c muon scattering - MuScat, Geant4 10.7.4



172 MeV/c muon scattering - MuScat, Geant4 11.3ref01



172 MeV/c muon scattering off Fe 0.24 mm, Geant4 10.7.4



172 MeV/c muon scattering off Fe 0.24 mm, Geant4 11.3ref01

