



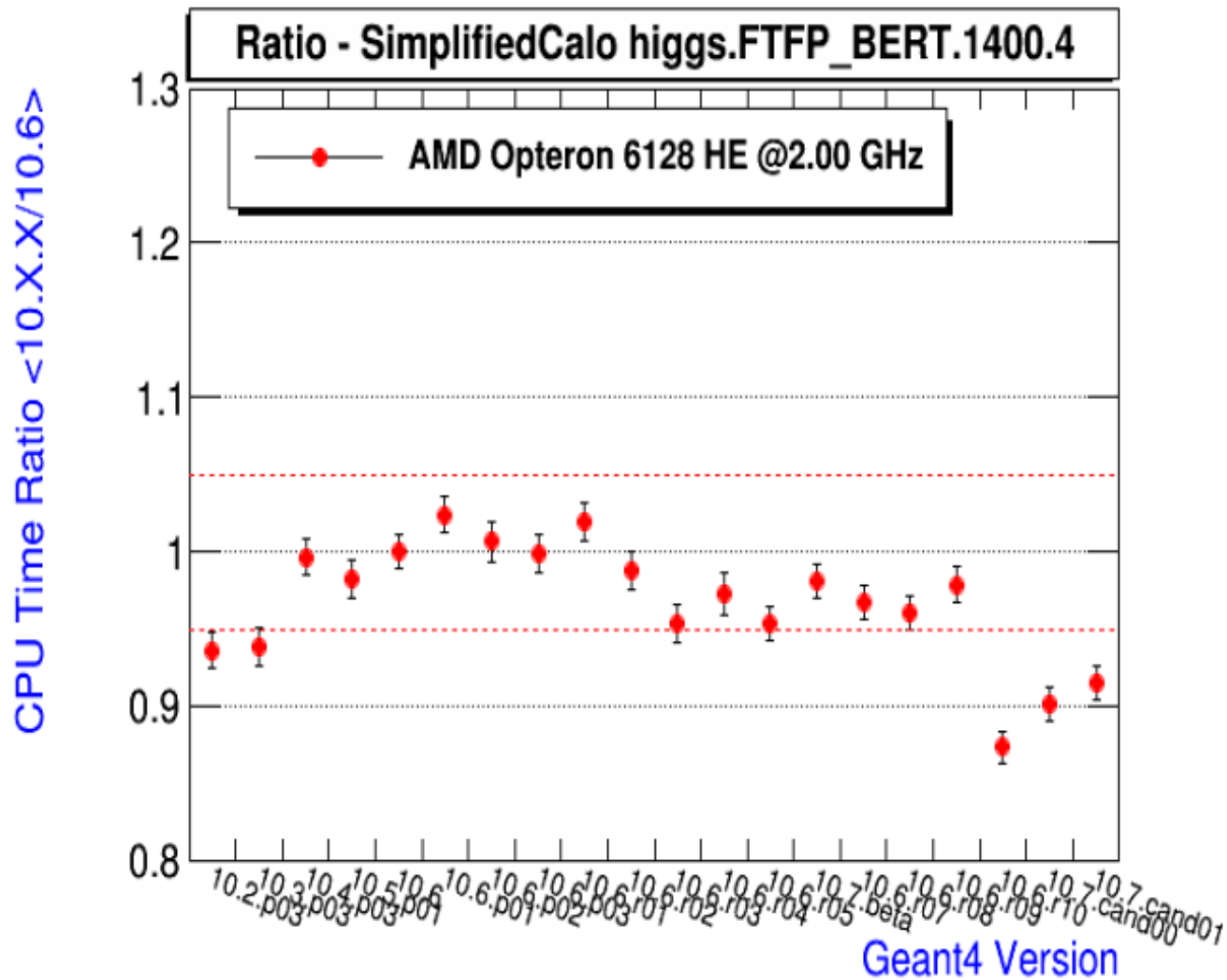
# EM VALIDATION RESULTS FOR GEANT4 10.7CAND01

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24 November 2020

# Modifications for 10.7cand01

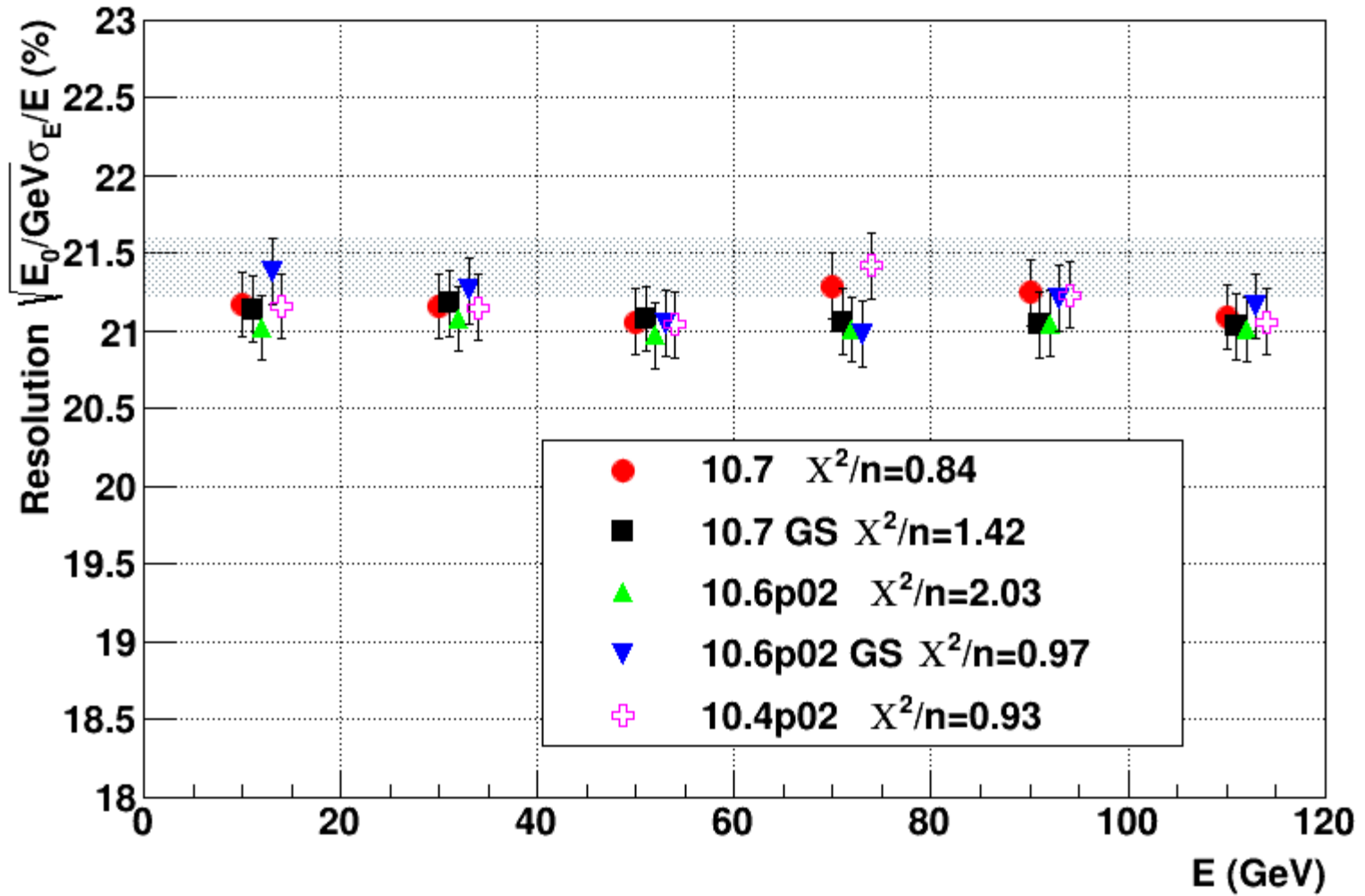
- **G4UrbanMscModel** – parameterization of the maximum step limit is changed to ref-08 version in order to have less variations in response of sampling calorimeters with low sampling fraction
- In 10.7cand01 is slower than 10.6ref10 and 10.7cand00:
  - See <https://g4cpt.fnal.gov/>
  - *Part of effect from Urban msc*
  - *Still there is visible speed-up compared to 10.6*
- **Testing results are available:**
  - <https://test-geant4-tools.web.cern.ch/test-geant4-tools/emtesting/>

# CPU evaluation

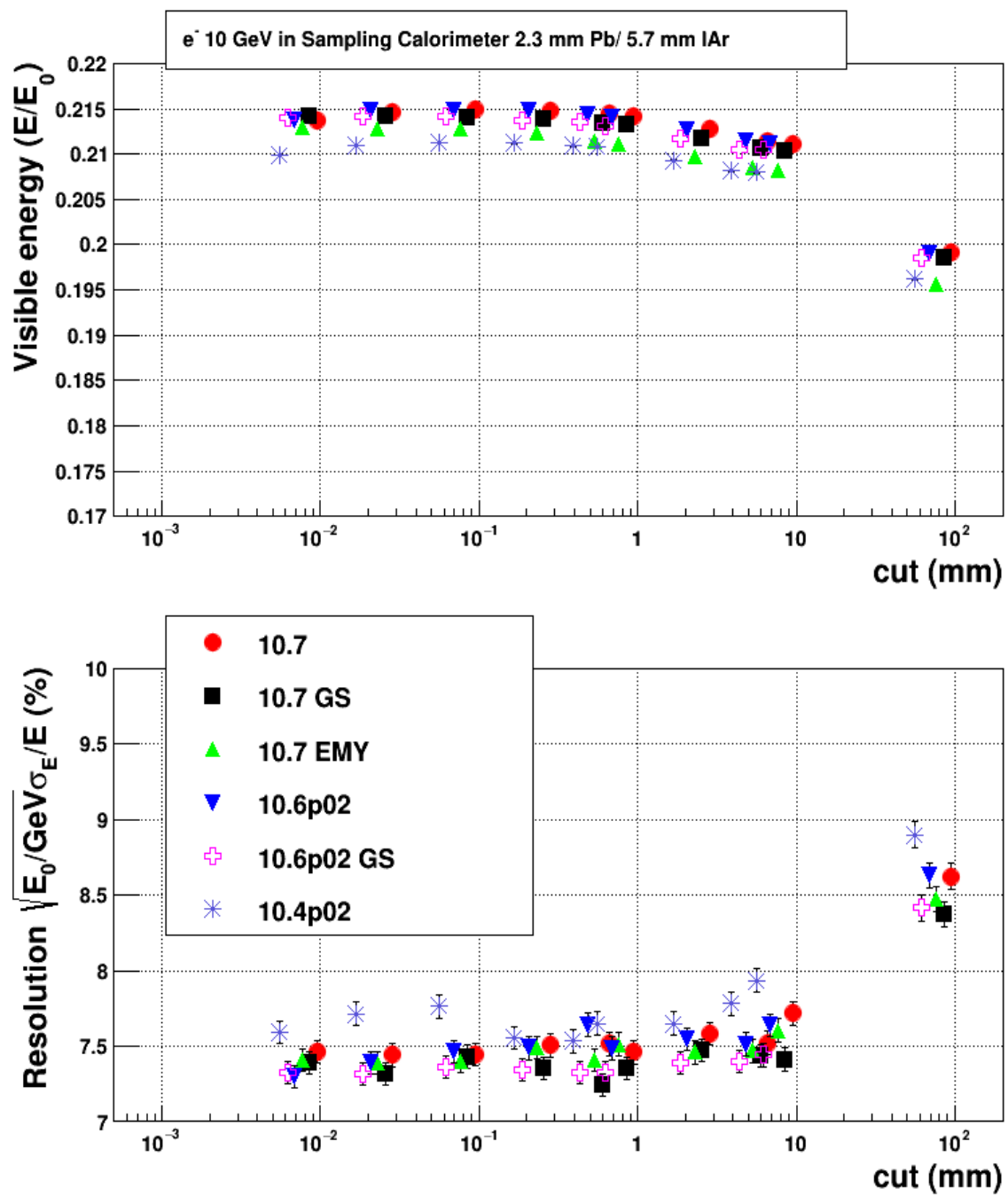


# Simplified ATLAS HEC

$e^-$  in Sampling Calorimeter 2.5 cm Cu/ 0.8 cm IAr, cut = 0.7 mm

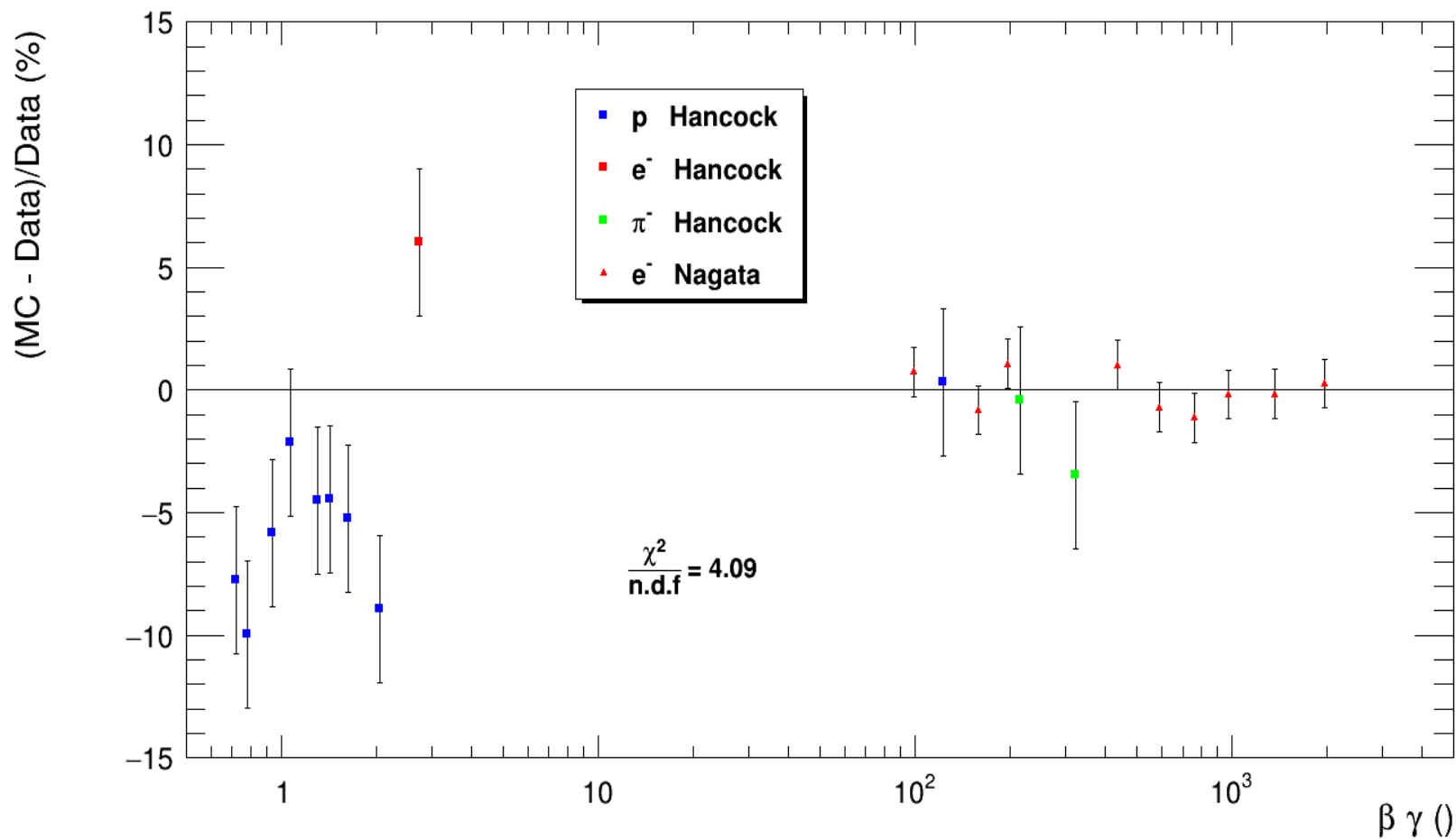


# Simplified ATLAS barrel



# Silicon detector response

Comparison of Most Probable Energy Deposition  $\Delta$  between GEANT4 10.7 and Bichsel data with Gauss fit, emstandard\_opt0 & Cut = 10  $\mu\text{m}$



# Summary

- Geant4 10.7cand01 provide EM results consistent with Geant4 10.6p03
  - *Similar calorimeter response*
  - *Similar tracking detector responses*
- CPU improvement in Geant4 10.7cand01 is less than 10.7cand00
  - *Urban msc*