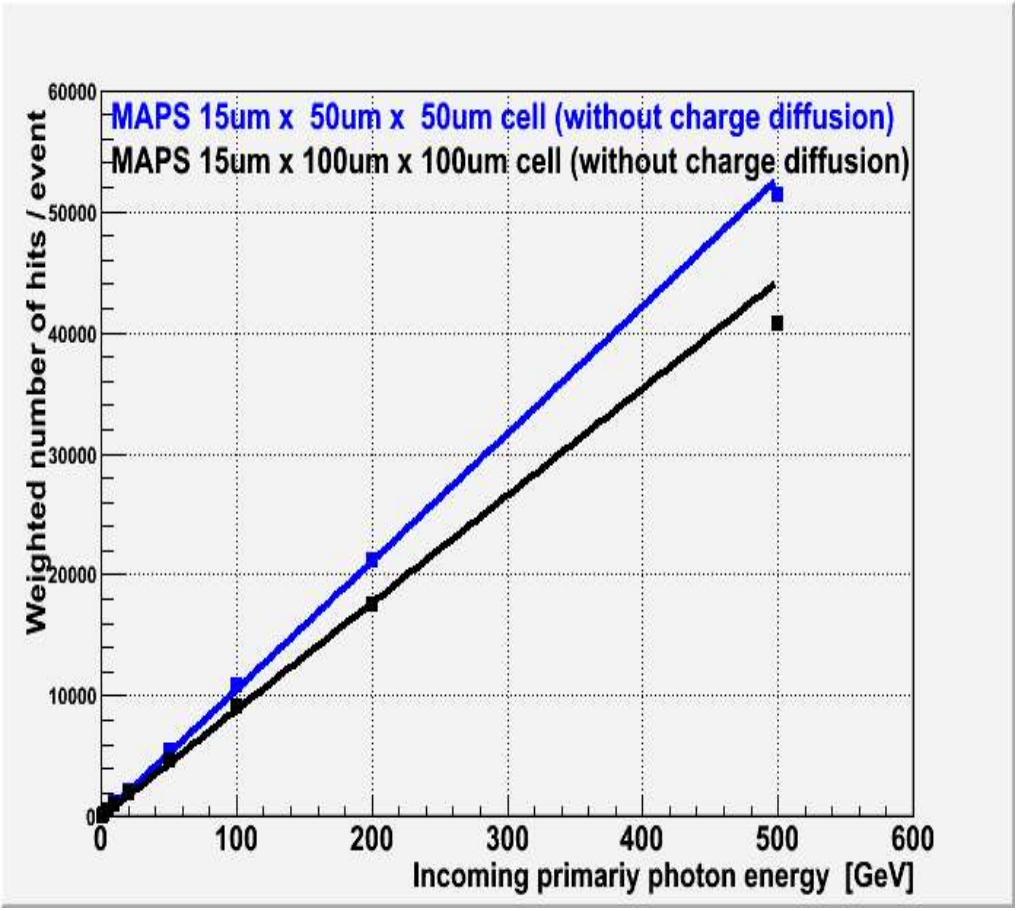
Cell size and digitization effects (remind & discussion again)

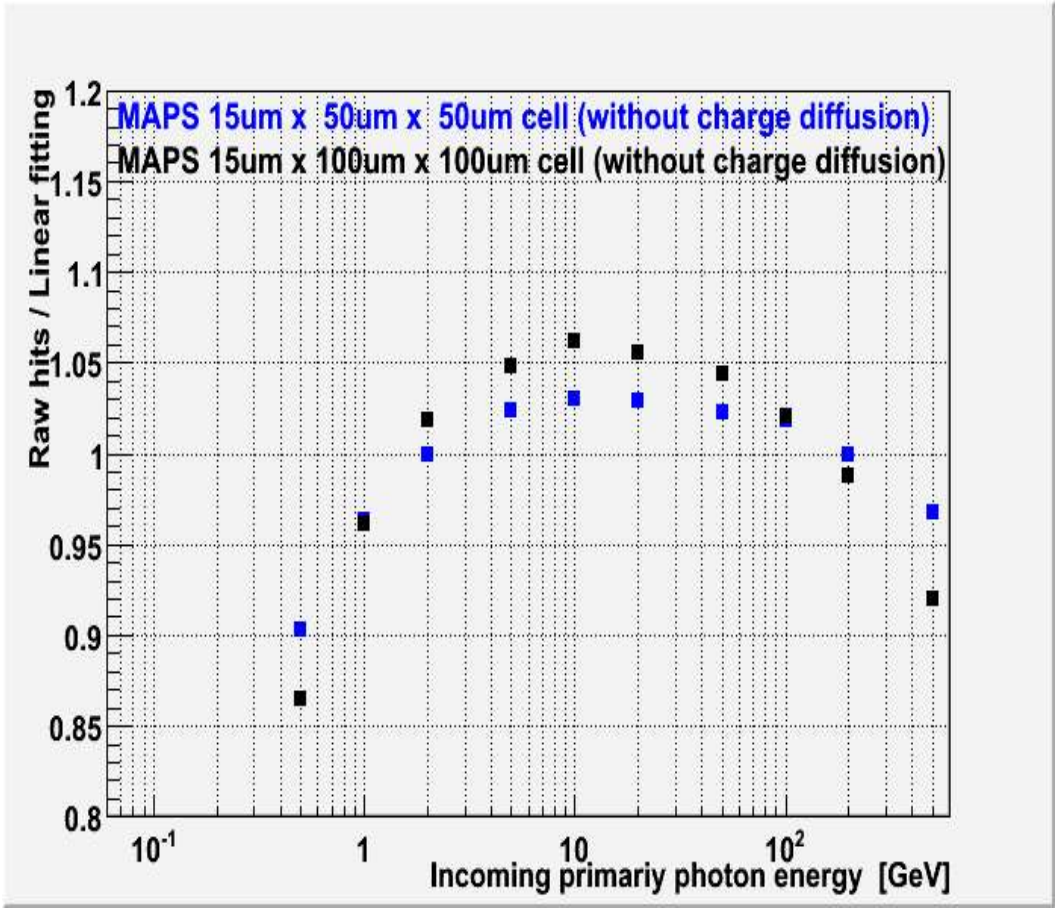
MAPS ECAL meeting
at Rutherford Appleton Laboratory
31st Aug. 2007

Yoshinari Mikami
University of Birmingham

Linearity

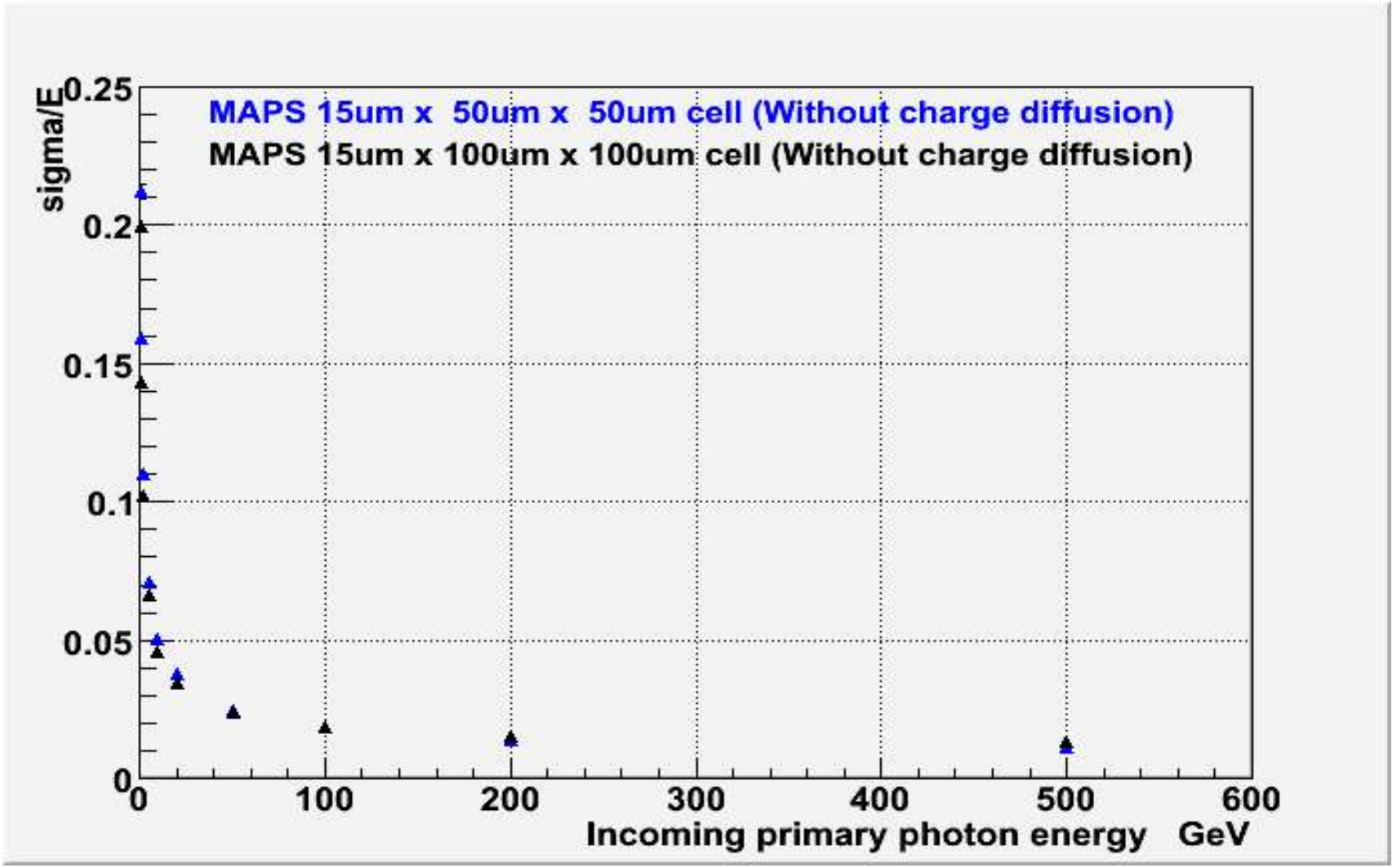
50umX50um v.s. 100umX100um





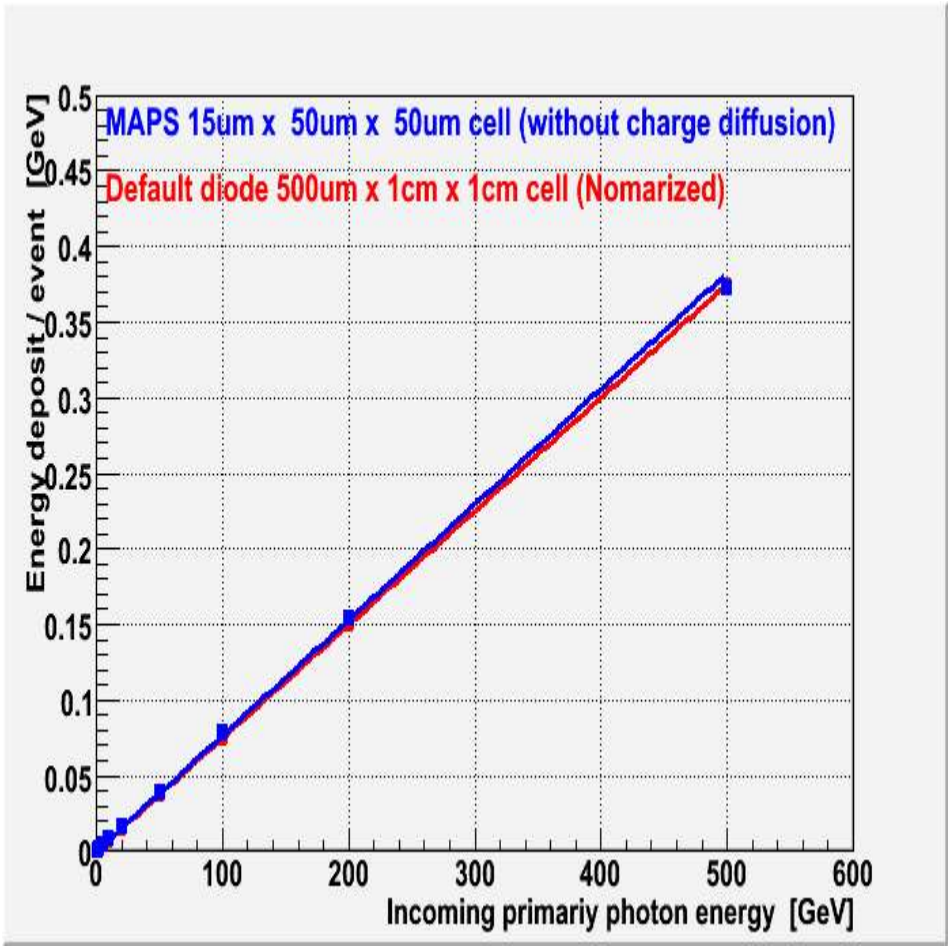
Resolution

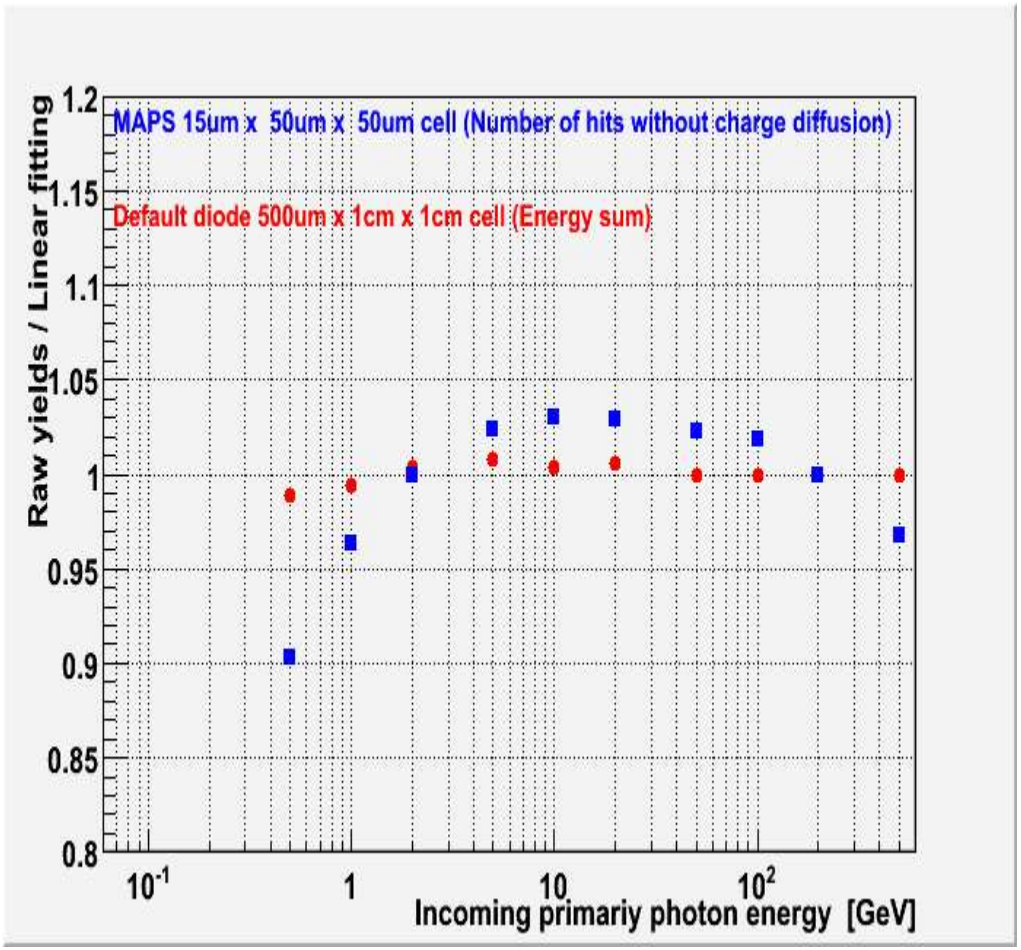
50umX50um v.s. 100umX100um



Linearity

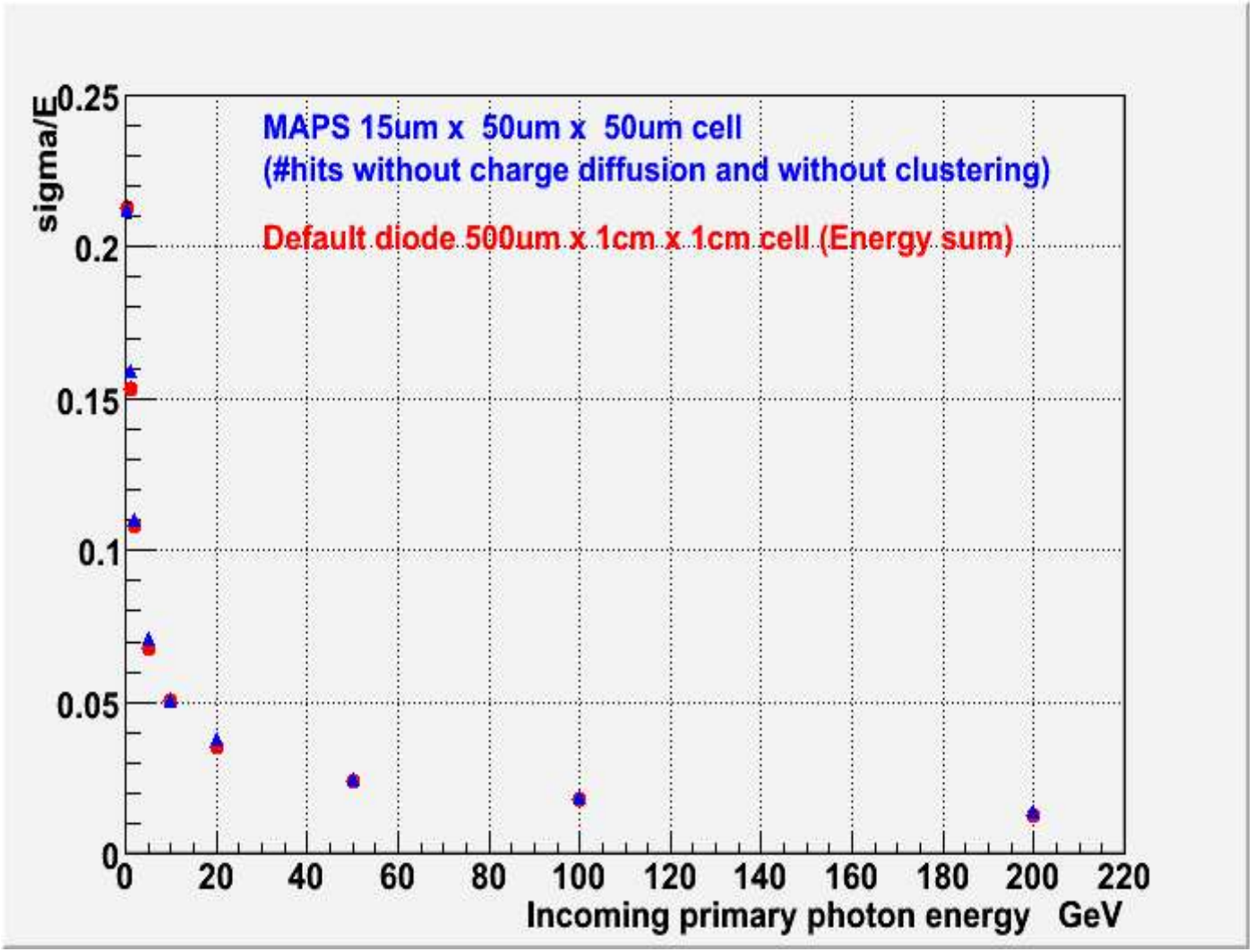
Default Diode v.s. MAPS (Geant4)





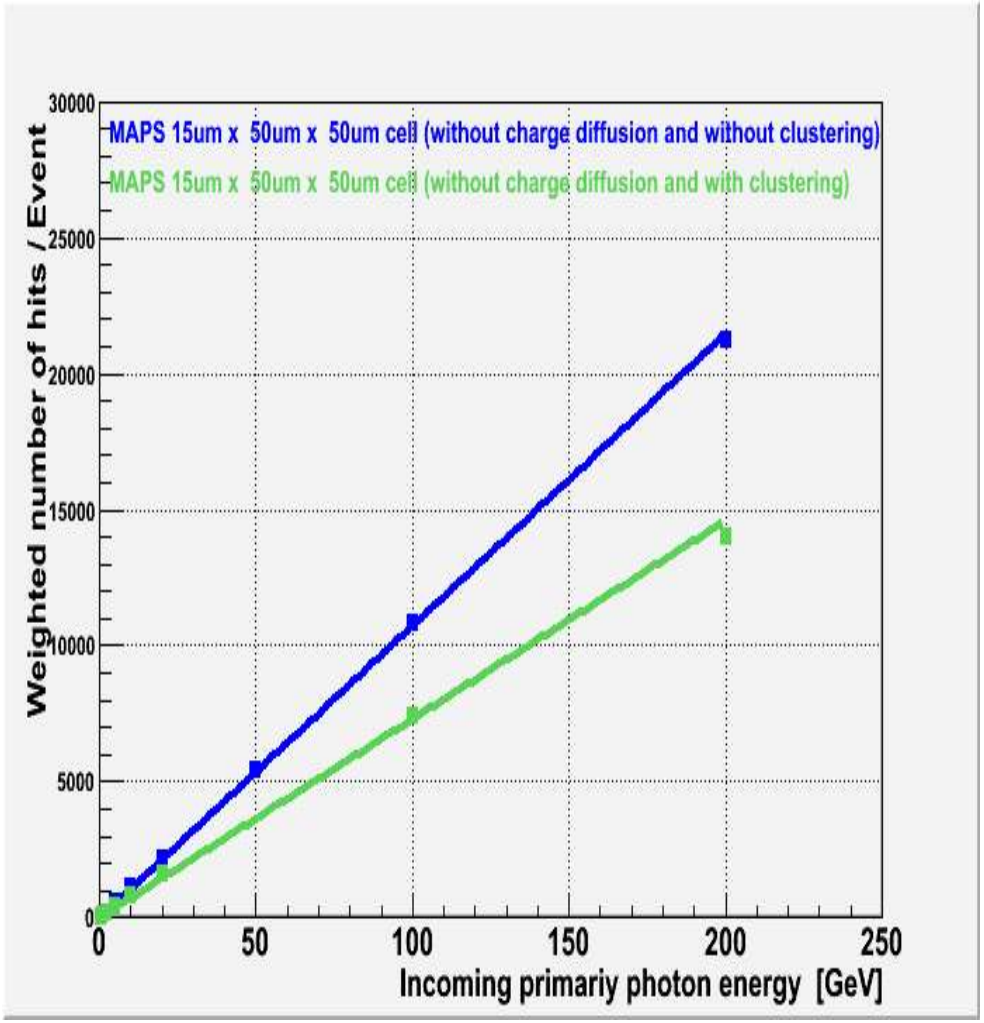
Resolution

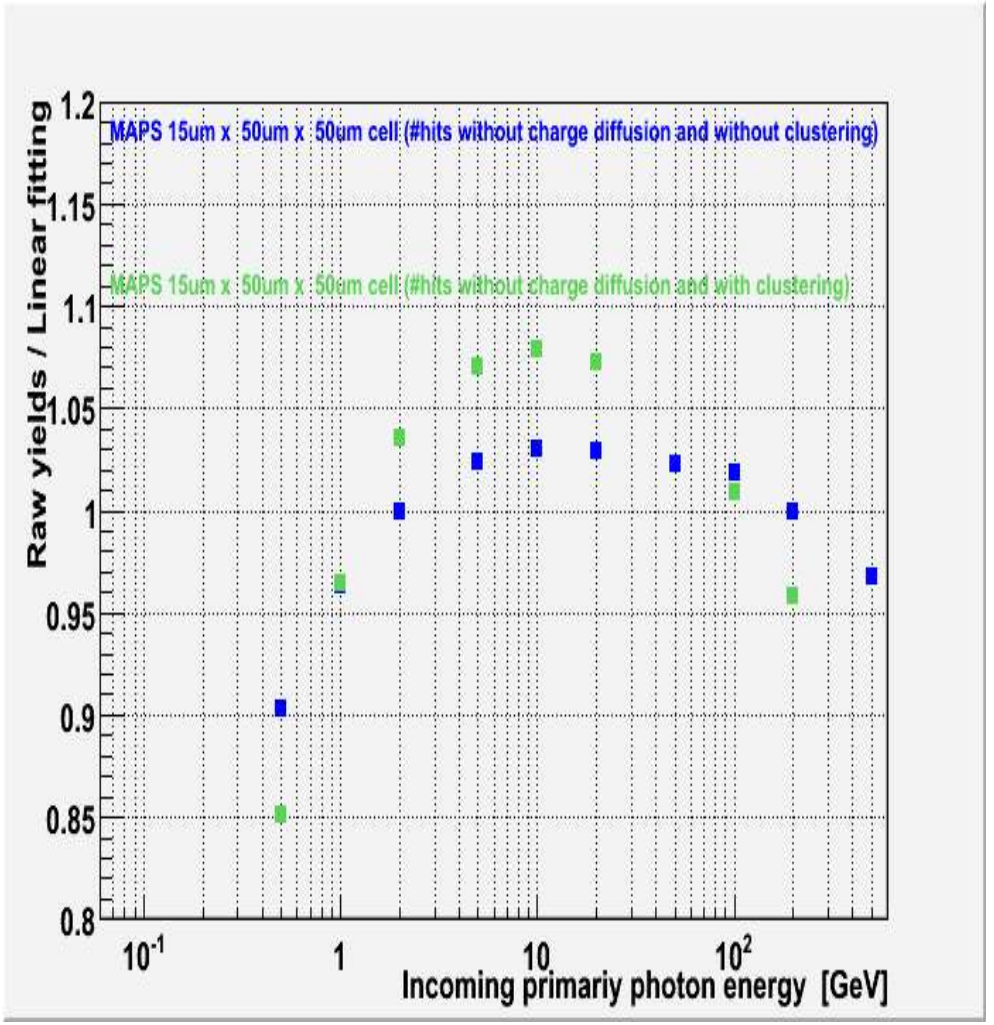
Default Diode v.s. MAPS (Geant4)



Linearity

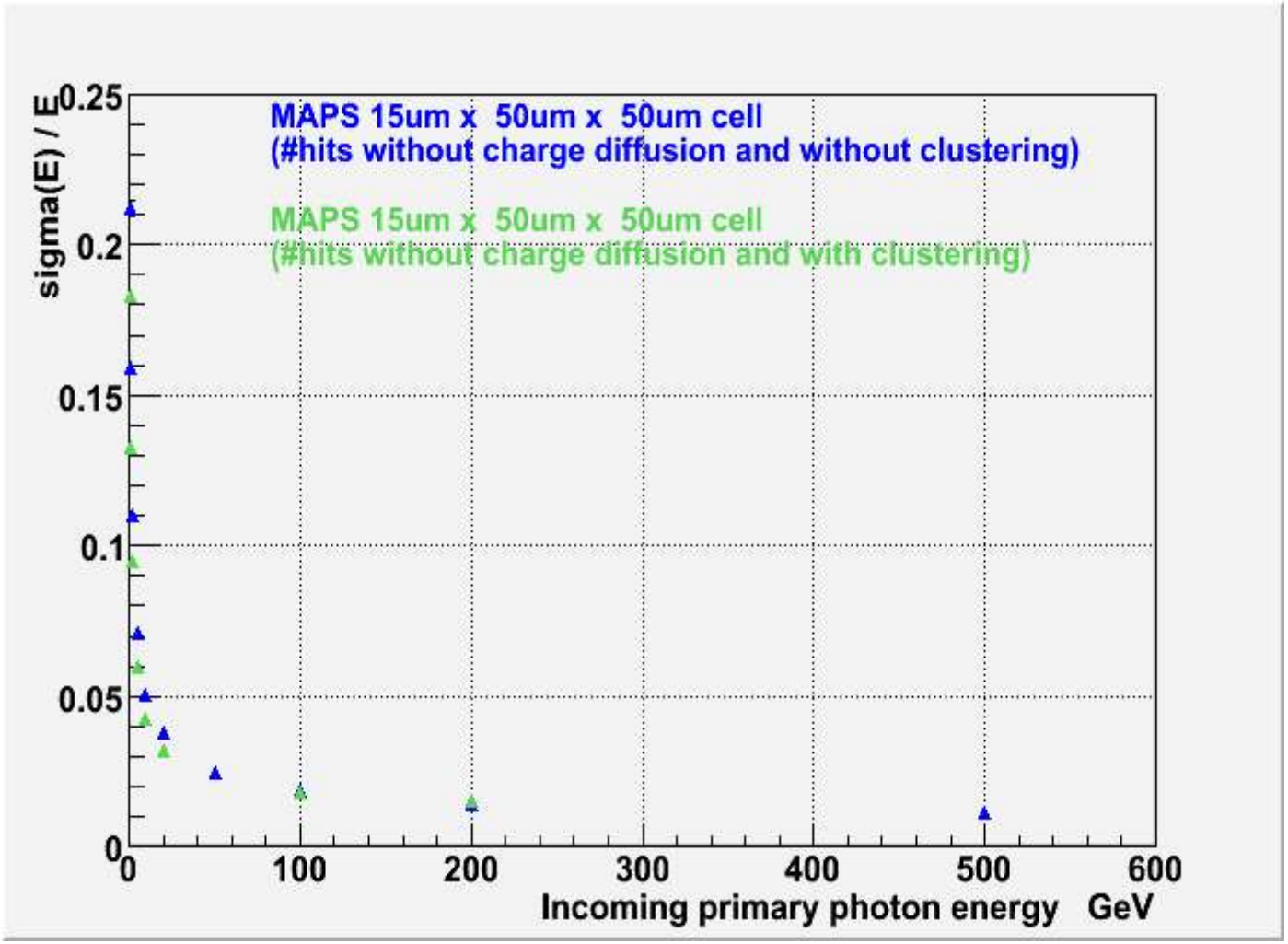
Without clustering v.s. With clustering





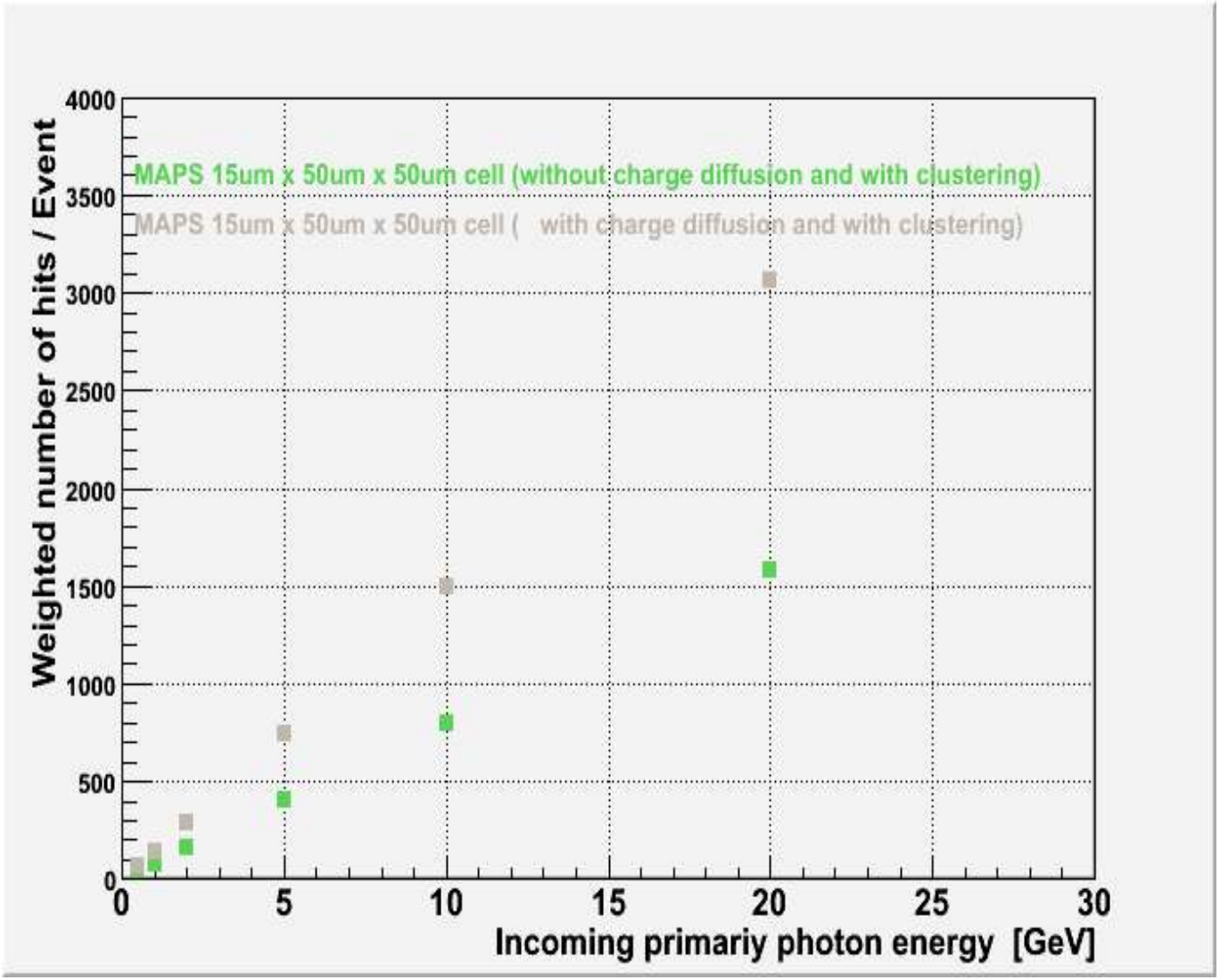
Resolution

Without clustering v.s. With clustering



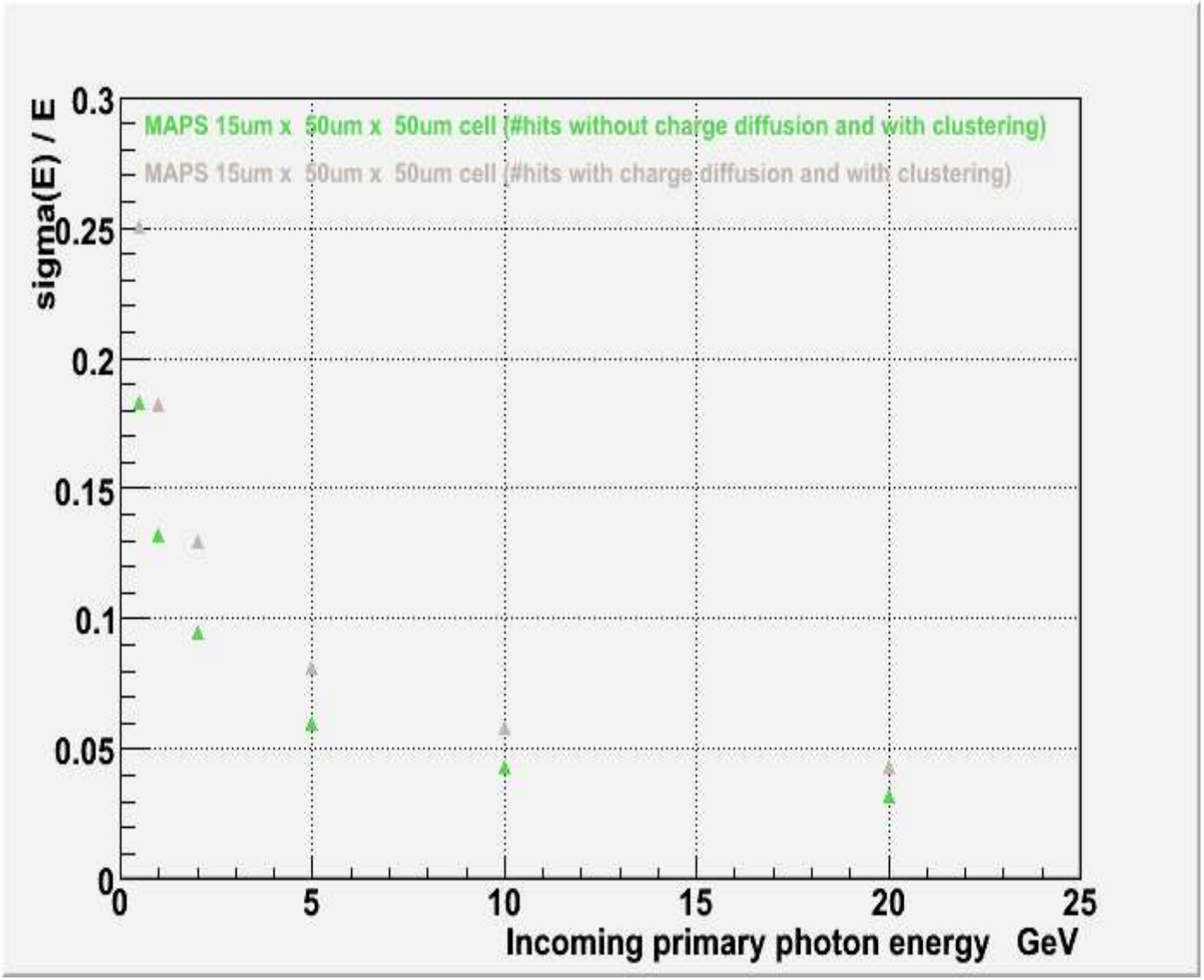
Linearity (lower energy)

Without diffusion v.s. With diffusion



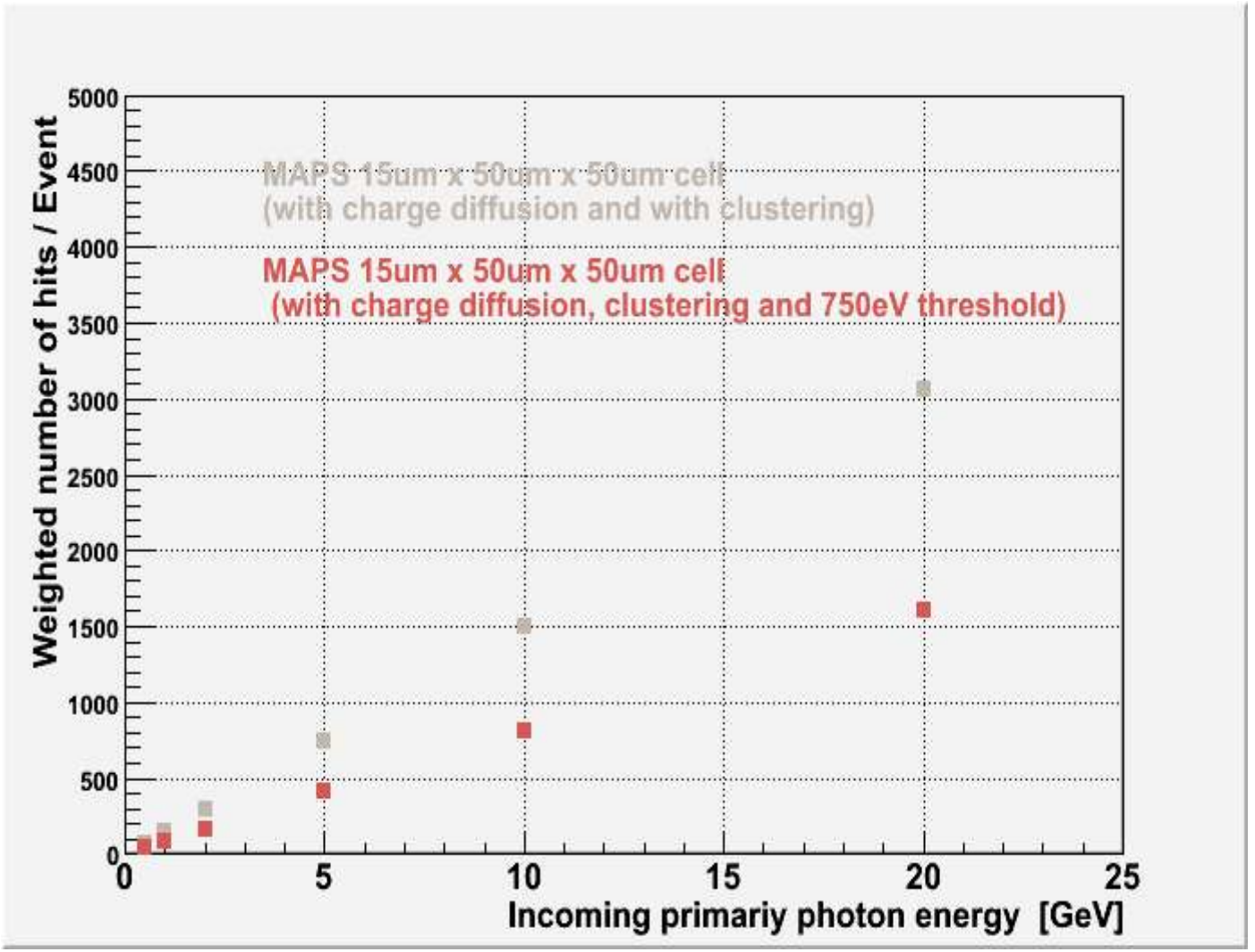
Resolution (lower energy)

Without diffusion v.s. With diffusion



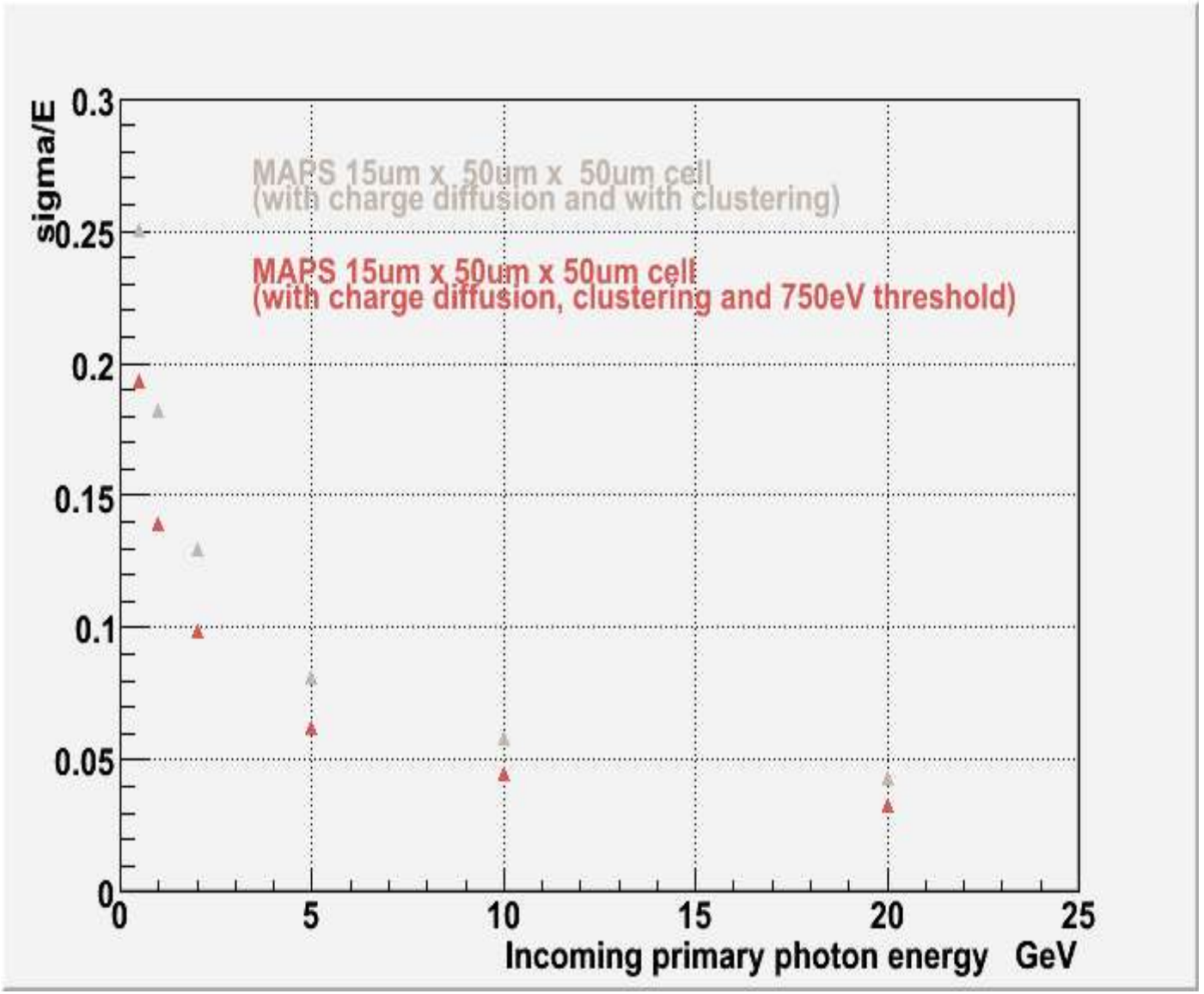
Linearity (lower energy)

Without threshold v.s. With 750keV threshold



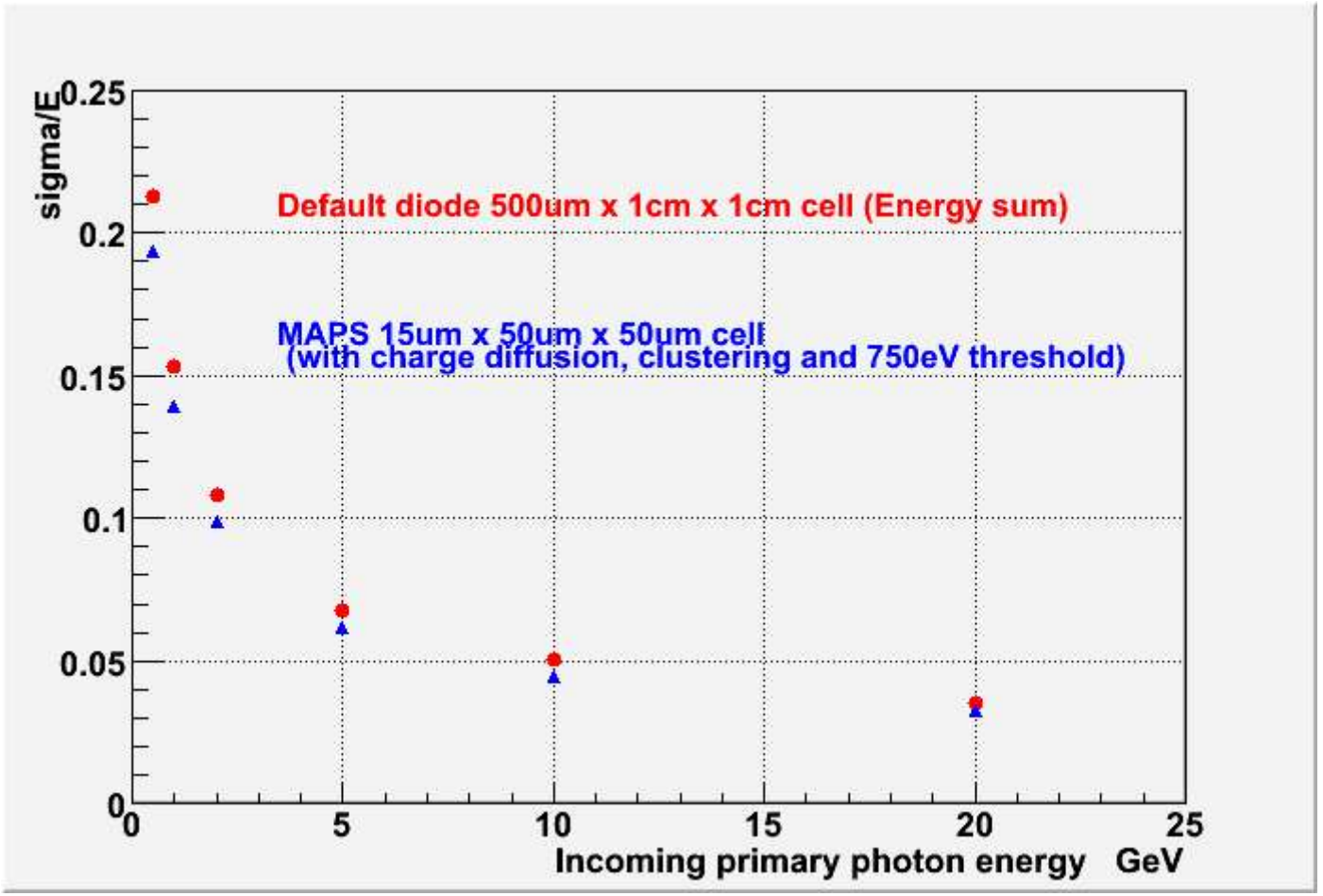
Resolution (lower energy)

Without threshold v.s. With 750keV threshold



Resolution (lower energy)

Default diode v.s. MAPS (full digitization)



Summary:

- MAPS is better resolution. (charge diffusion effect make the resolution worse but clustering and threshold effects recover it.)
- Diode is better linearity.

Next step:

- Linearity and residual plots up to 200GeV for default diode v.s. MAPS full digitization comparison