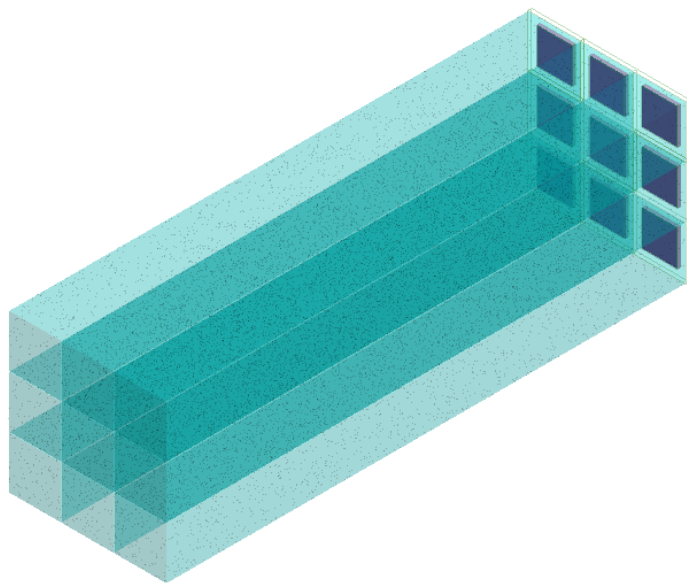


Geant4 Standalone Optical simulation Updates of S14160-6010PS MPPC



Artur Hognmrtsyan



Used Code from:

<https://github.com/JeffersonLab/glass-prototype>

Author: Petr Stepanov

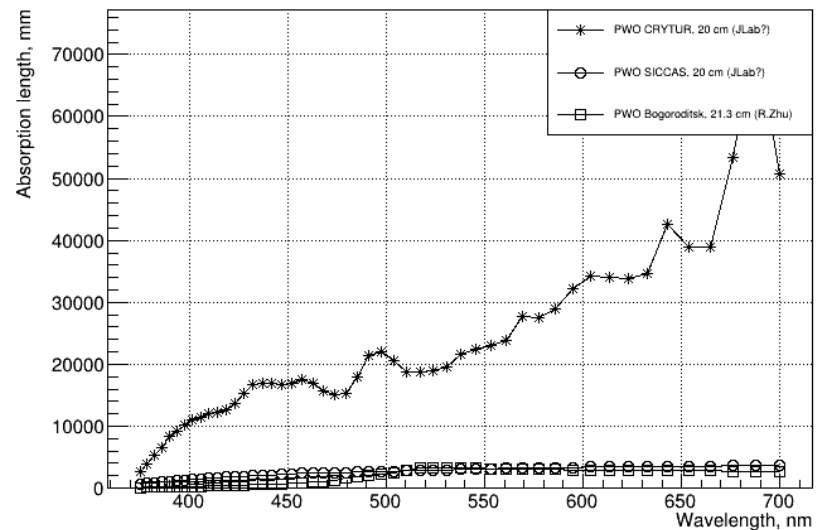
Provided by: Dmitry Kalinkin

Simulation Setup

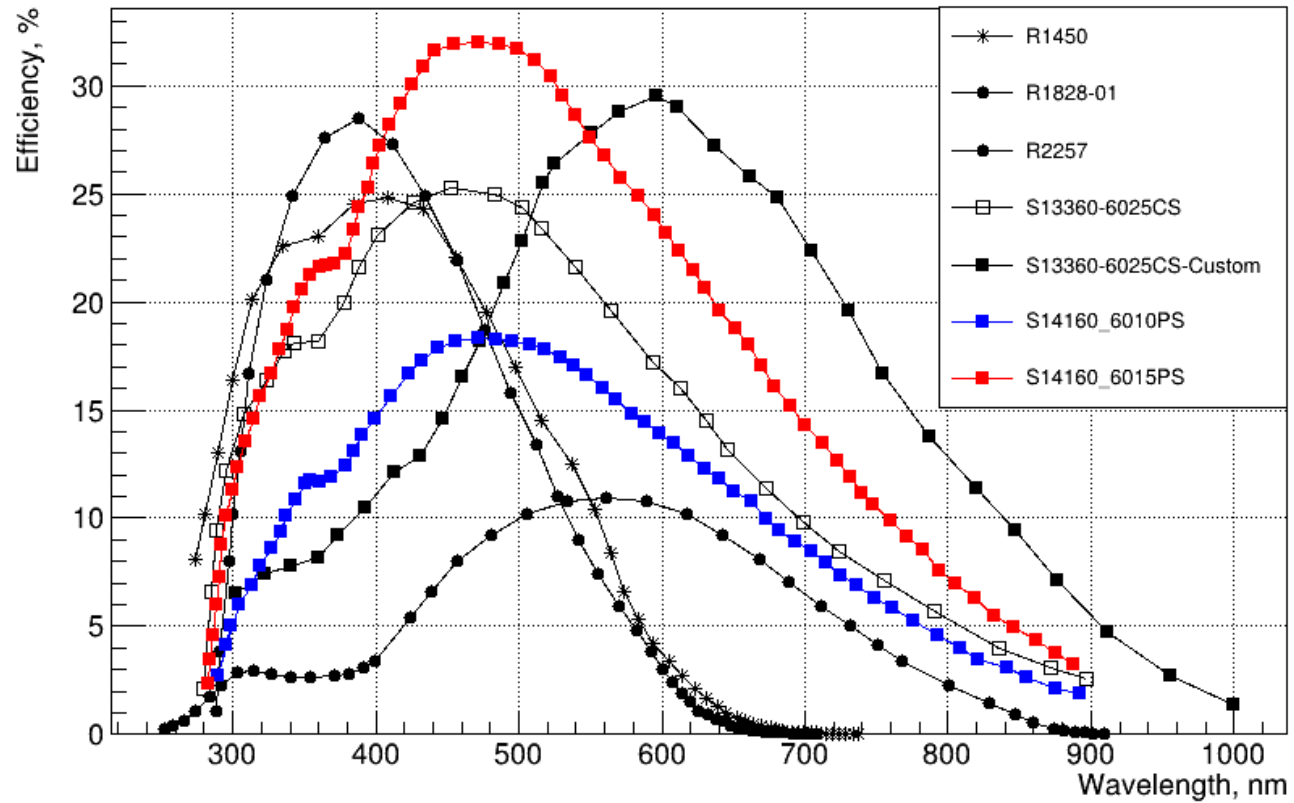
- Material – PWO-CRYTUR
- Matrix – 5x5, 1 crystal
- Wrap material – VM2000
- Physics List – FTFP_BERT

- 1Mev – 300 Op. Photons
- Number of events - 1000
- Particle - e-
- Finish model – dielectric-metal
- Finish type - unified

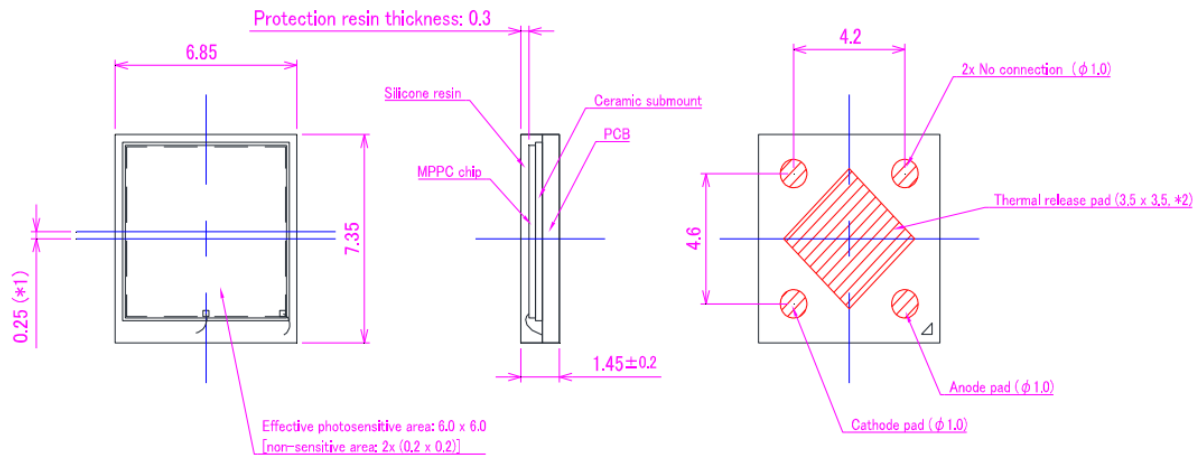
Calculated PWO Absorption Length



Detector Quantum efficiencies



S14160-6010PS/6015PS properties



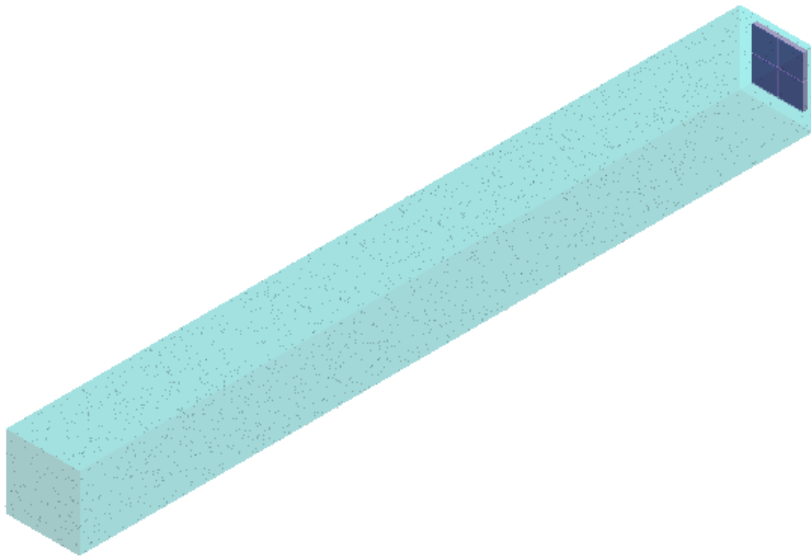
*1 : Chip center to PKG center

*2 : The thermal pad is not electrically but thermally connected to MPPC chip.
It is recommended that the pad is connected to ground plane for thermal release.

General tolerance : ±0.1

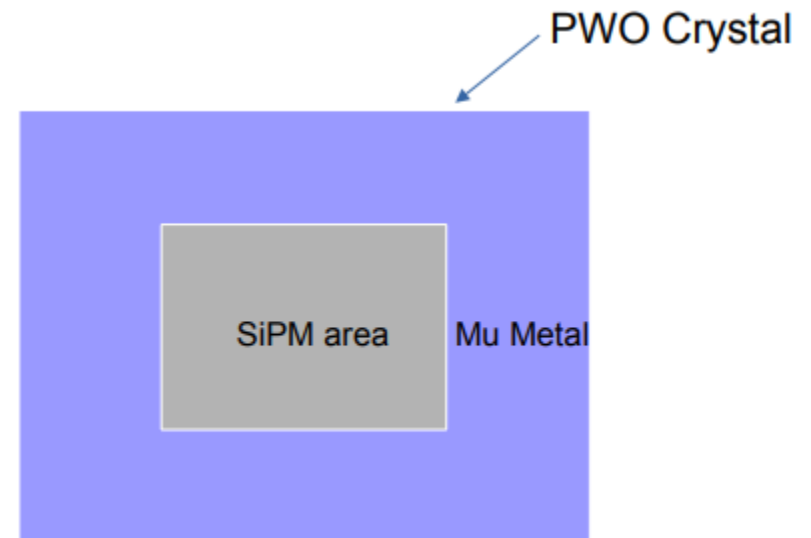
Instead of 4 siPM's with size 6.85mm*7.35mm on one crystal. One siPM with size 13mm² were used.

Simulations for 4 SiPMs in one crystal

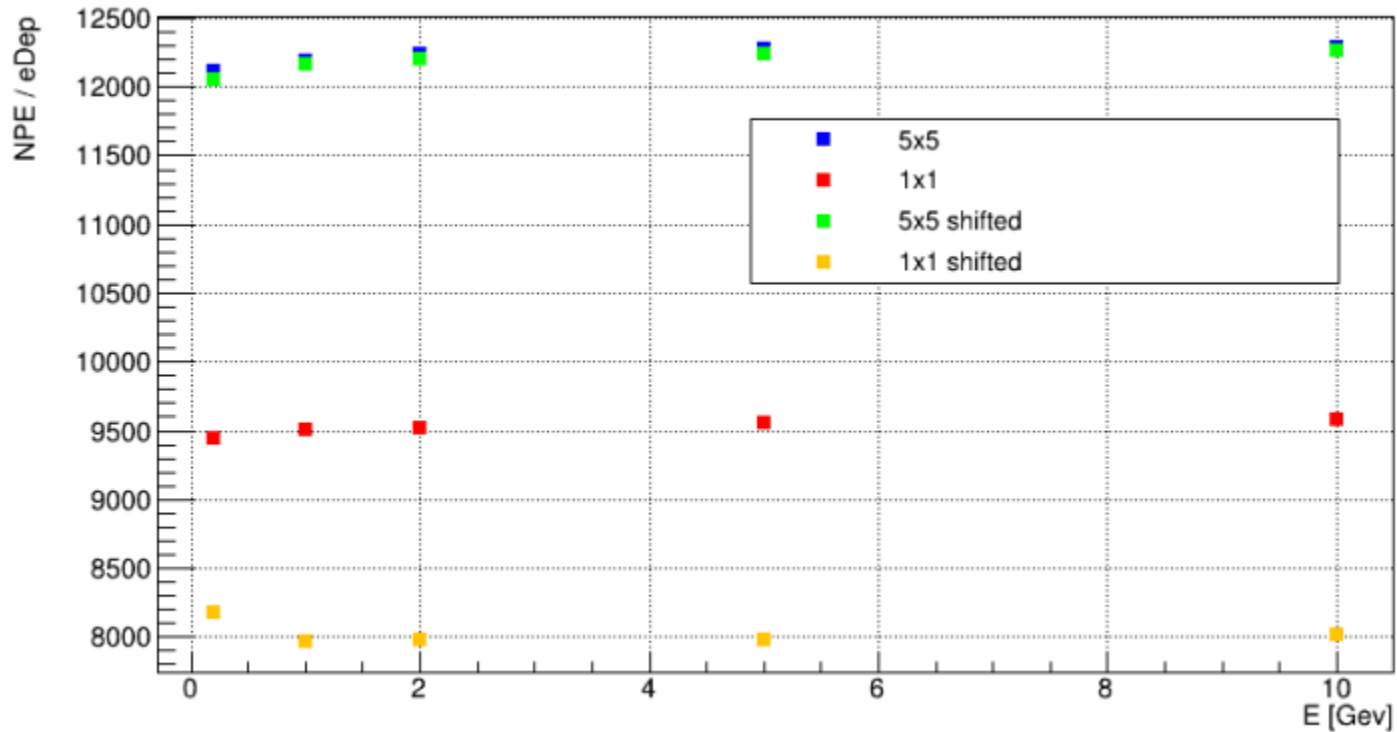


Instead of MuMetal

- without Material
- VM2000



Number of photons that reach the sensors per unit of energy deposited as a function of incident electron momentum, in All 5x5 Crystals [MuMetal](#)



Number of photons that reach the sensors per unit of energy deposited as a function of incident electron momentum, in All 5x5 Crystals different materials

