CALO Crystal Layout Updates

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CALO Working Group

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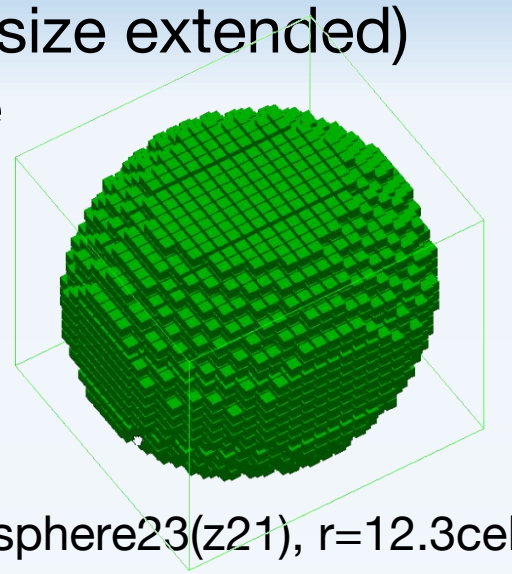
Spherical configuration

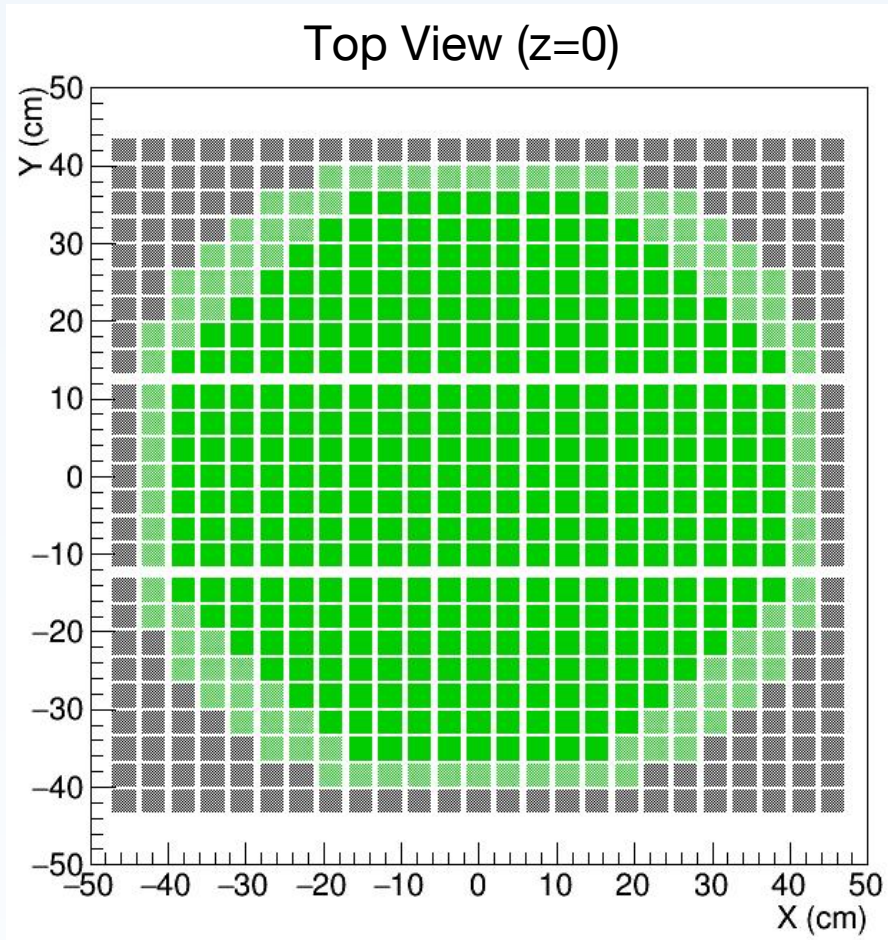
- Based on current crystal grid (size extended)
- Select crystals inside a sphere
- Limit # of layers to 21 or 23

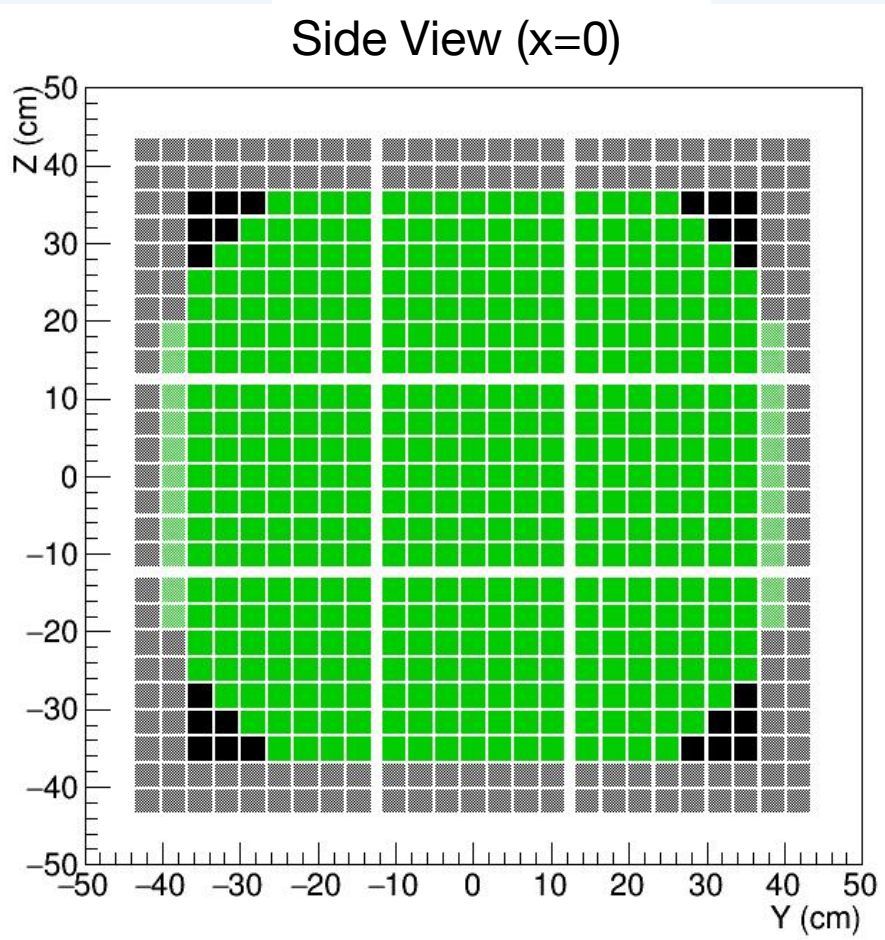


sphere23(z21), r=12.3cells

"baseline" calo envelop:
(crystal + structure)
$954 \times 954 \times 780 mm^3$

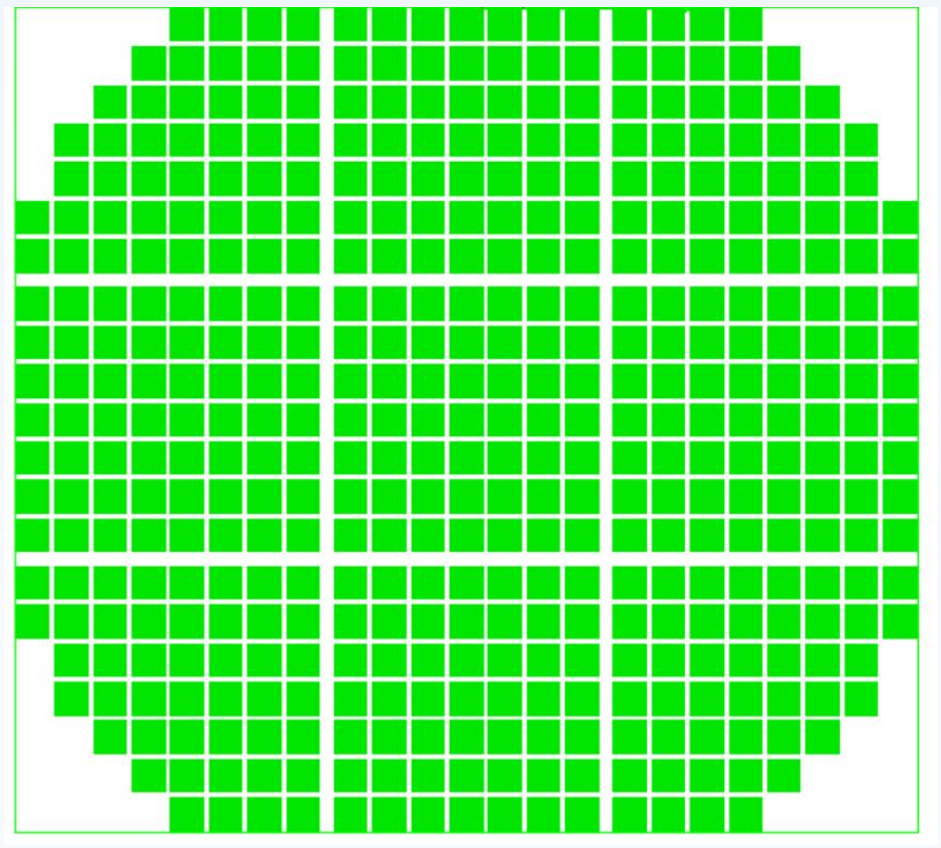
new calo envelop:
$964 \times 964 \times 778 mm^3$

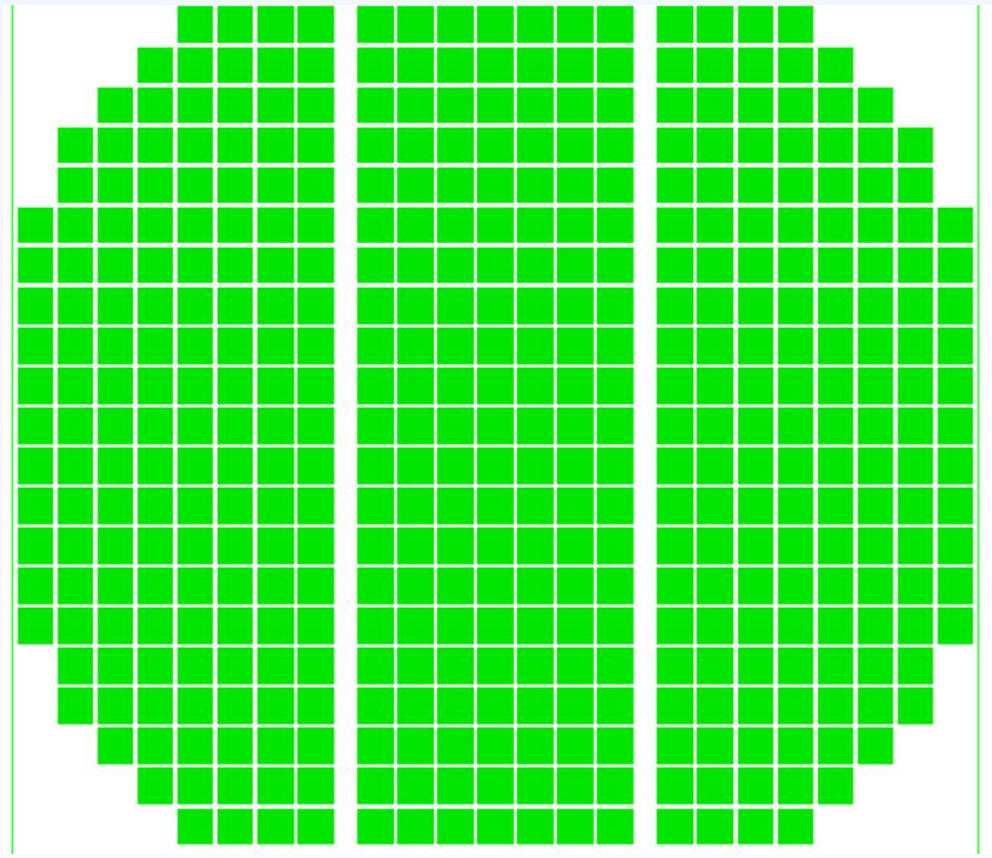




Updated crystal gaps

- The small gaps between crystal inside a tray (Y/Z) reduced from 4mm to 3mm
- The number of big gaps inside the tray reduced from 4 to 2, but bigger





19.5mm

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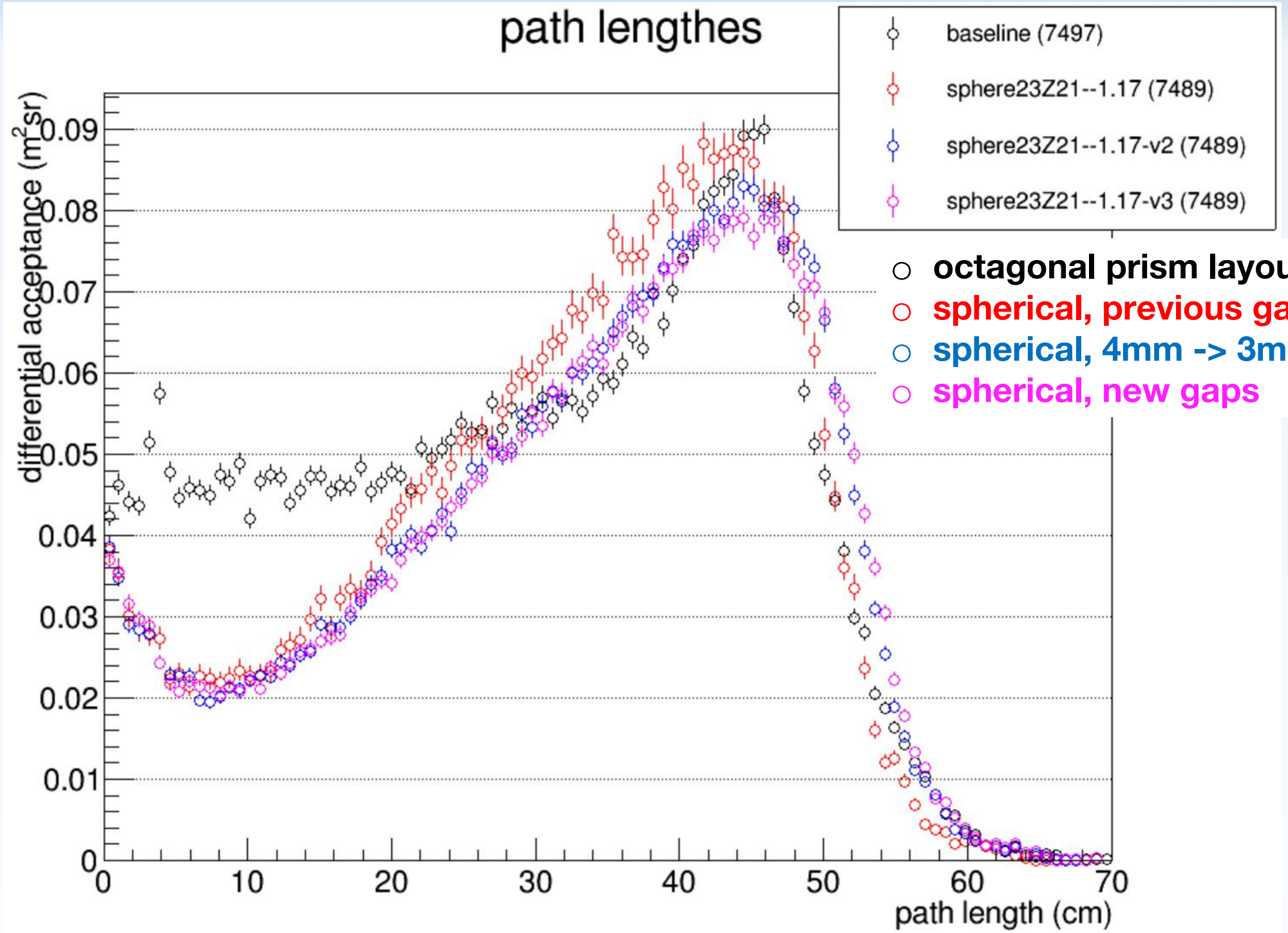
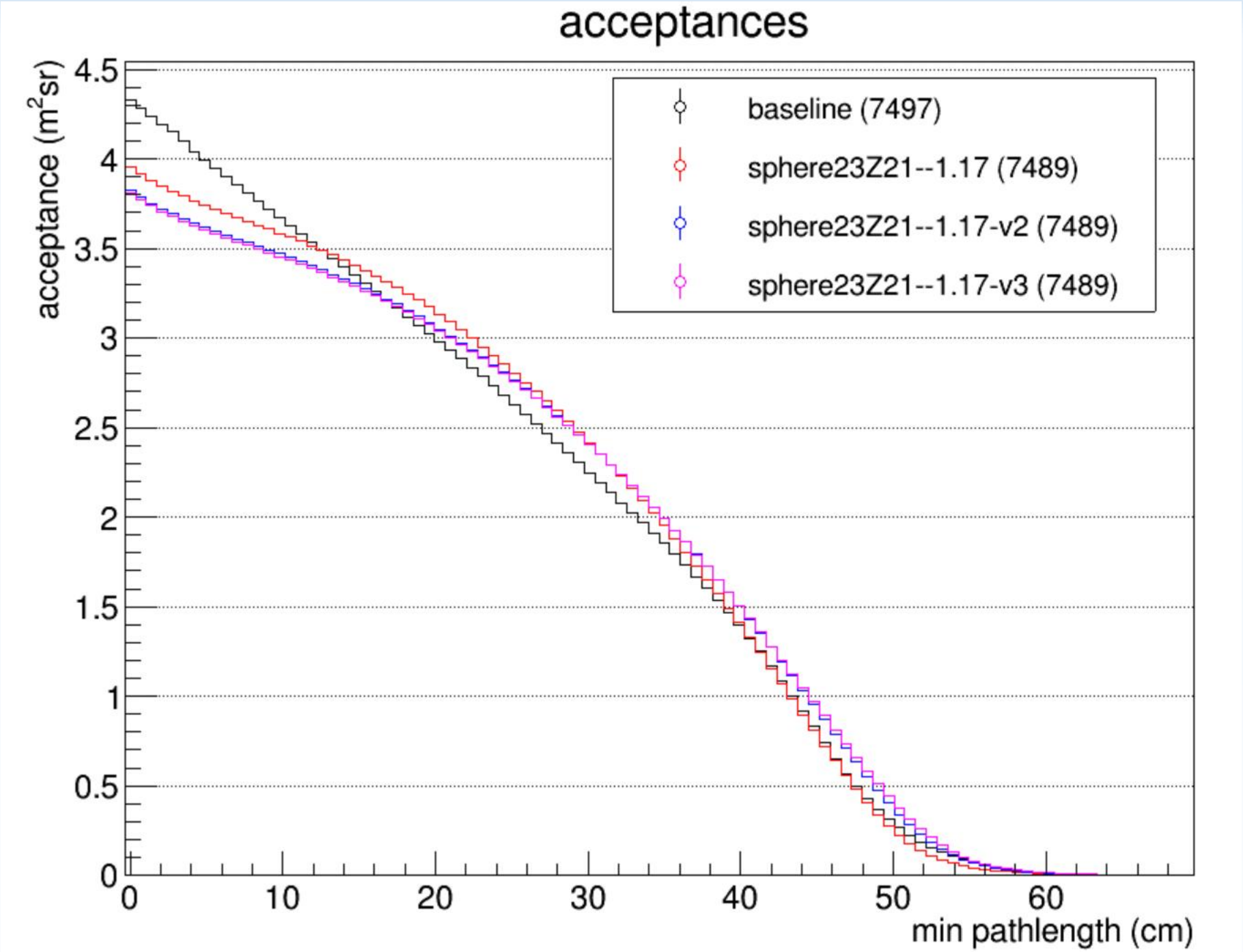
Acceptances v.s. path length in crystal

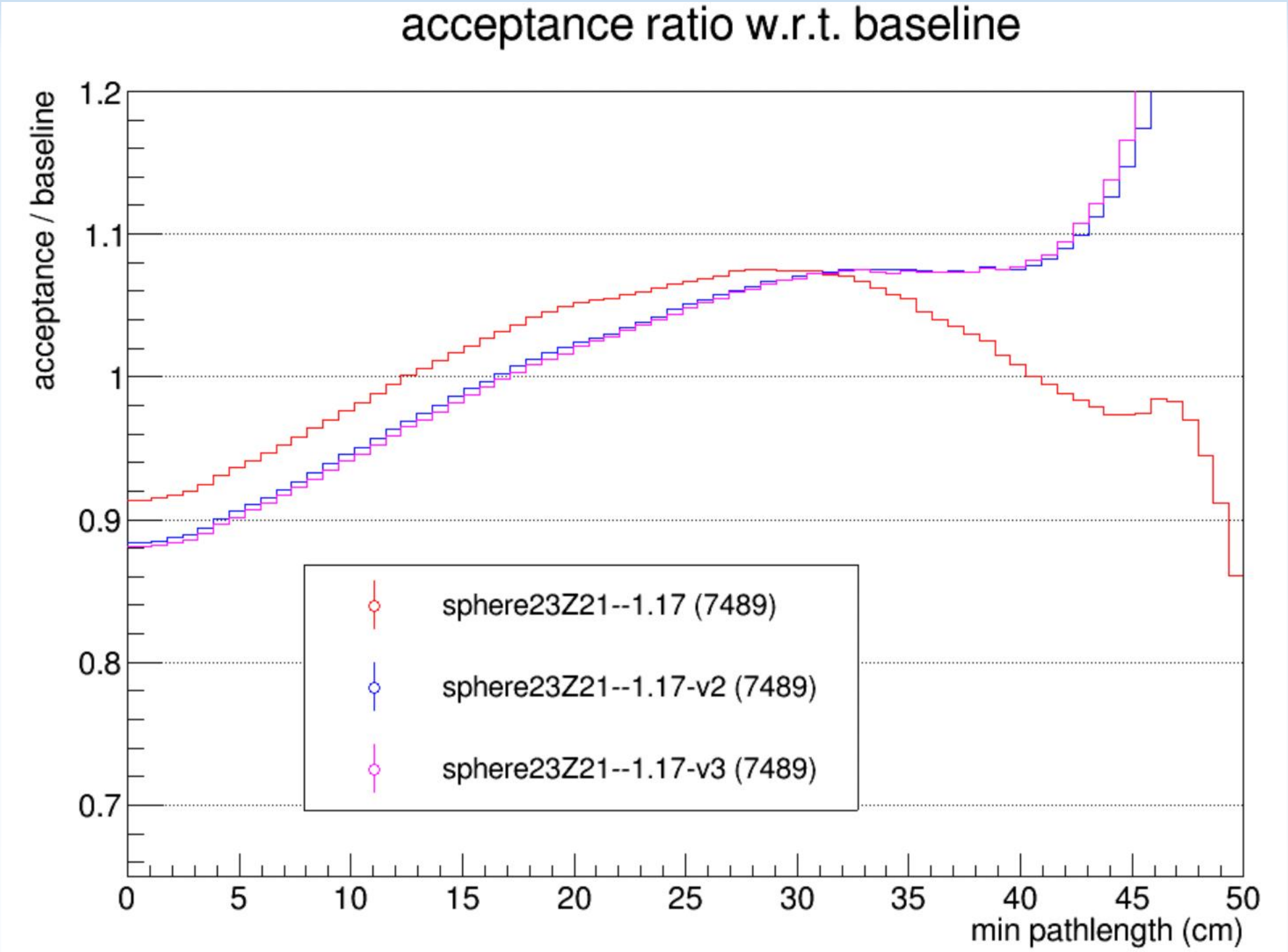


- octagonal prism layout
- spherical, previous gaps
- spherical, 4mm -> 3mm
- spherical, new gaps

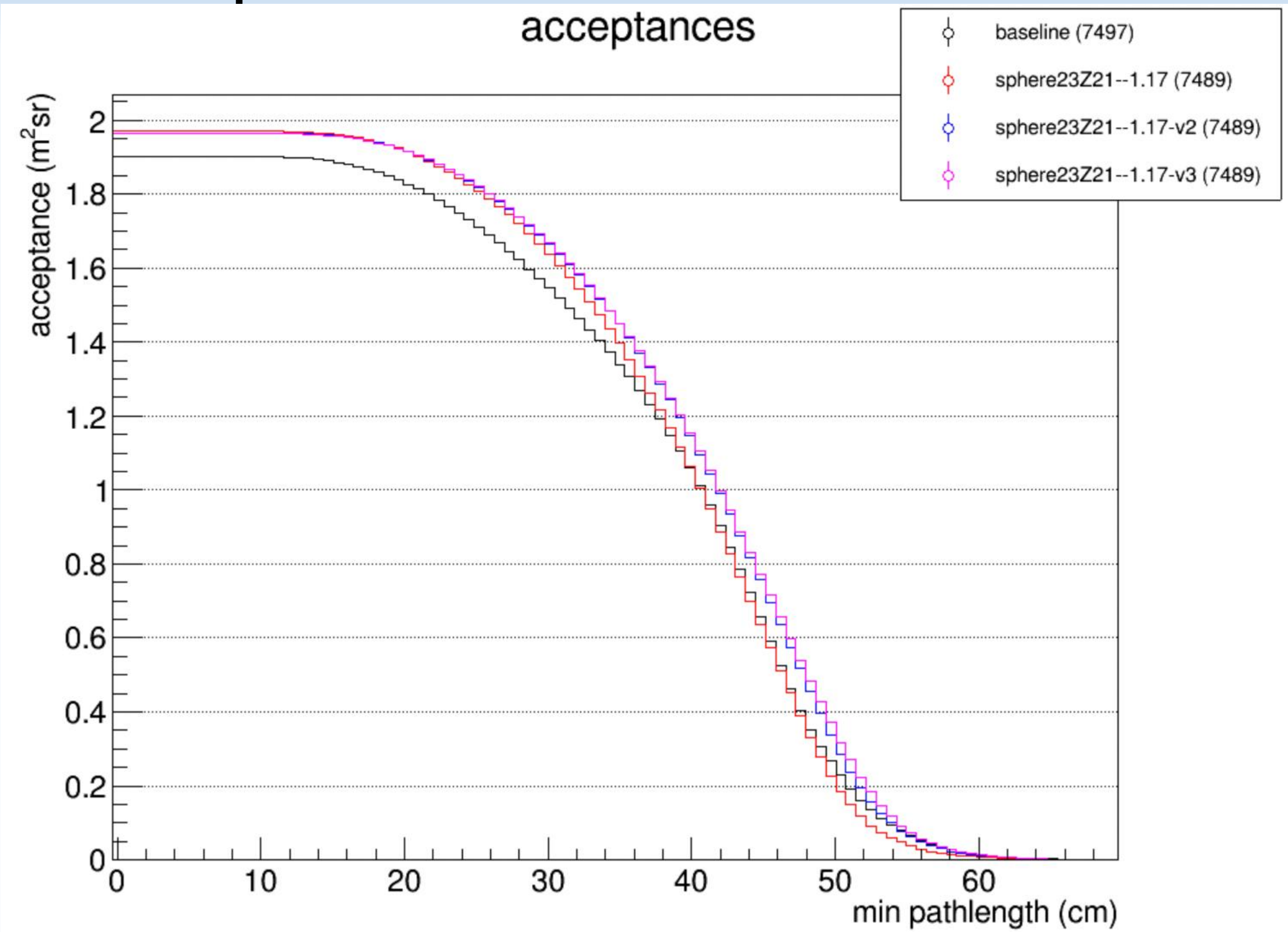
Acceptances vs min-pathlength



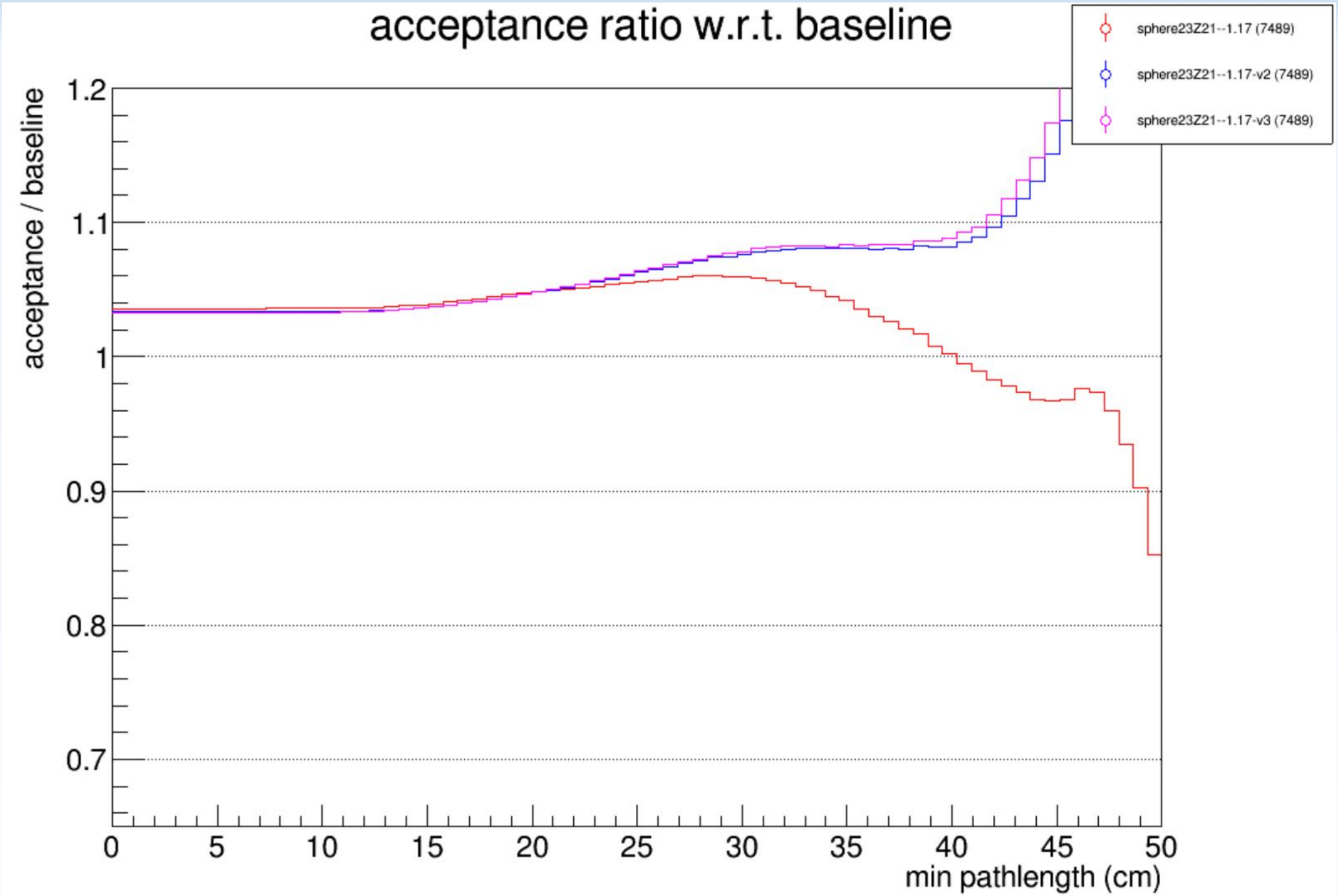
relative acceptances



Acceptances vs min-pathlength for ~10TeV protons



relative acceptances for ~10TeV protons



Summary

- In term of effective acceptance
  based on minimum path lengthes in crystals
  the new gaps shows minor differences
  slightly better on large path length requirement
- Further studies will be performed base on full MC