DIRC@EIC Simulation Updates

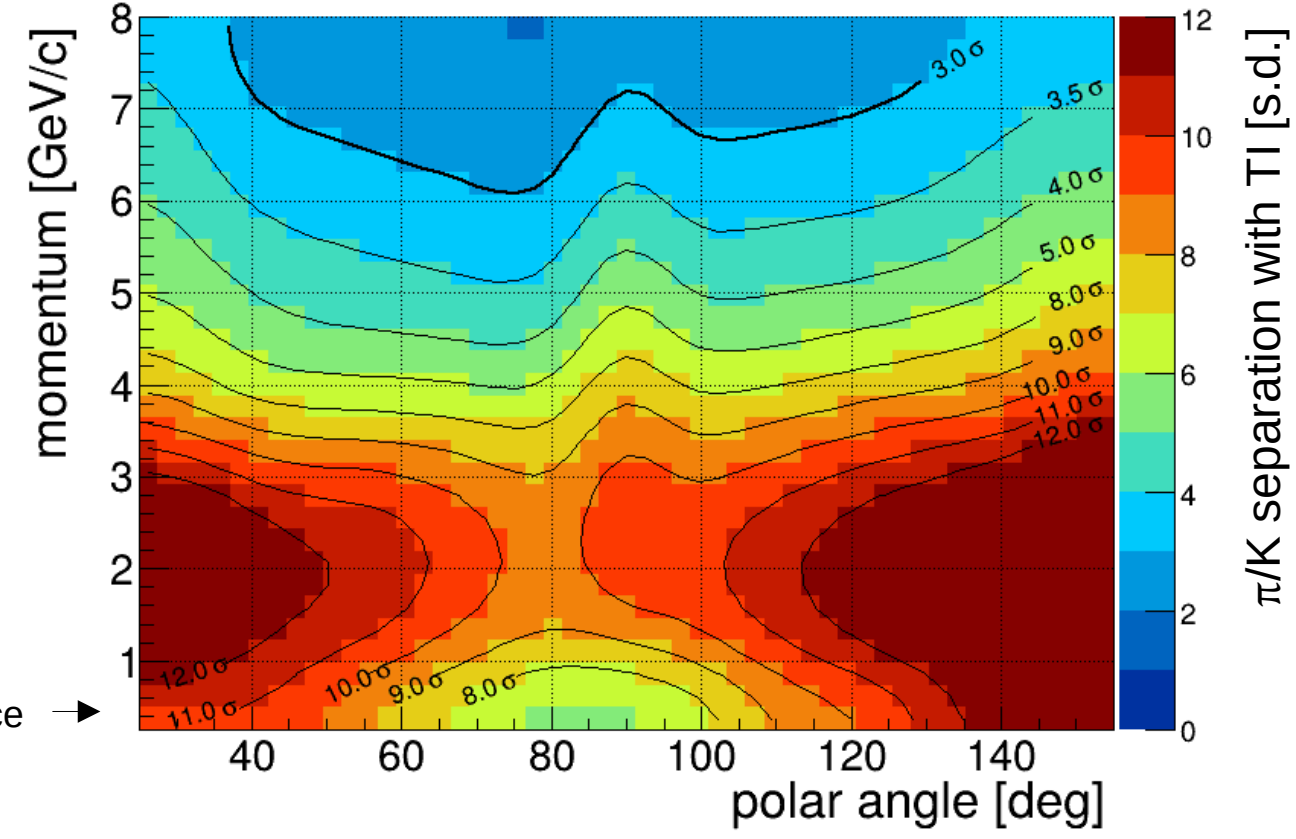
DIRC@EIC Annual Meeting

05.06.26

Roman Dzhygadlo GSI

Performance Map

hpDIRC standalone sim/reco.
MCP-PMTs, 0.5 mrad tracking



MS, yield difference →

Photon Yield Contribution to the LH

propagation time PDFs

constant noise

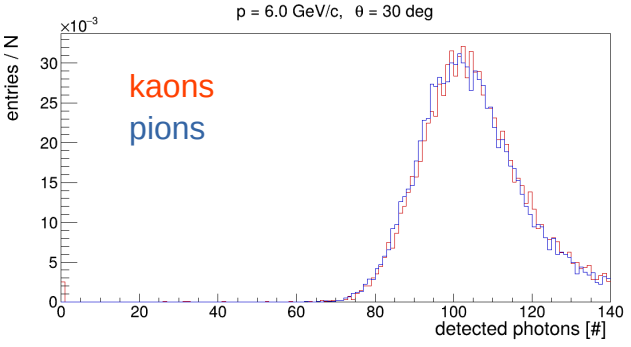
photon yield PDFs

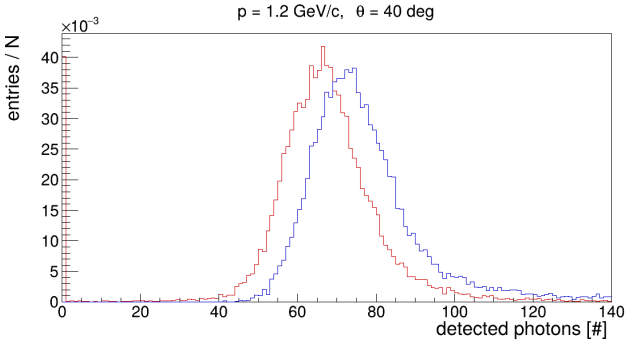
$$\log \mathcal{L}_h = \sum_{i=1}^{N} \log \left(S_h(p_i, t_i) + B(p_i) \right) + w \times \log P_h(N)$$

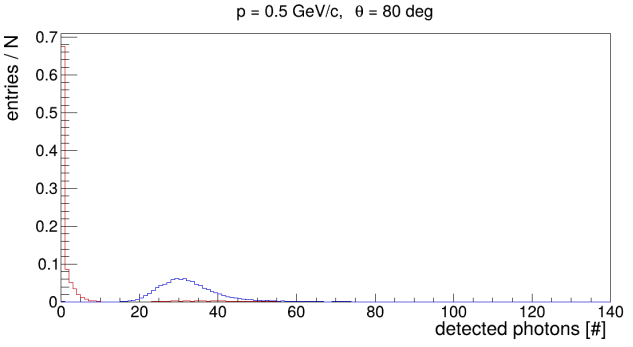
weighting factor

new

Examples of photon yield PDFs:

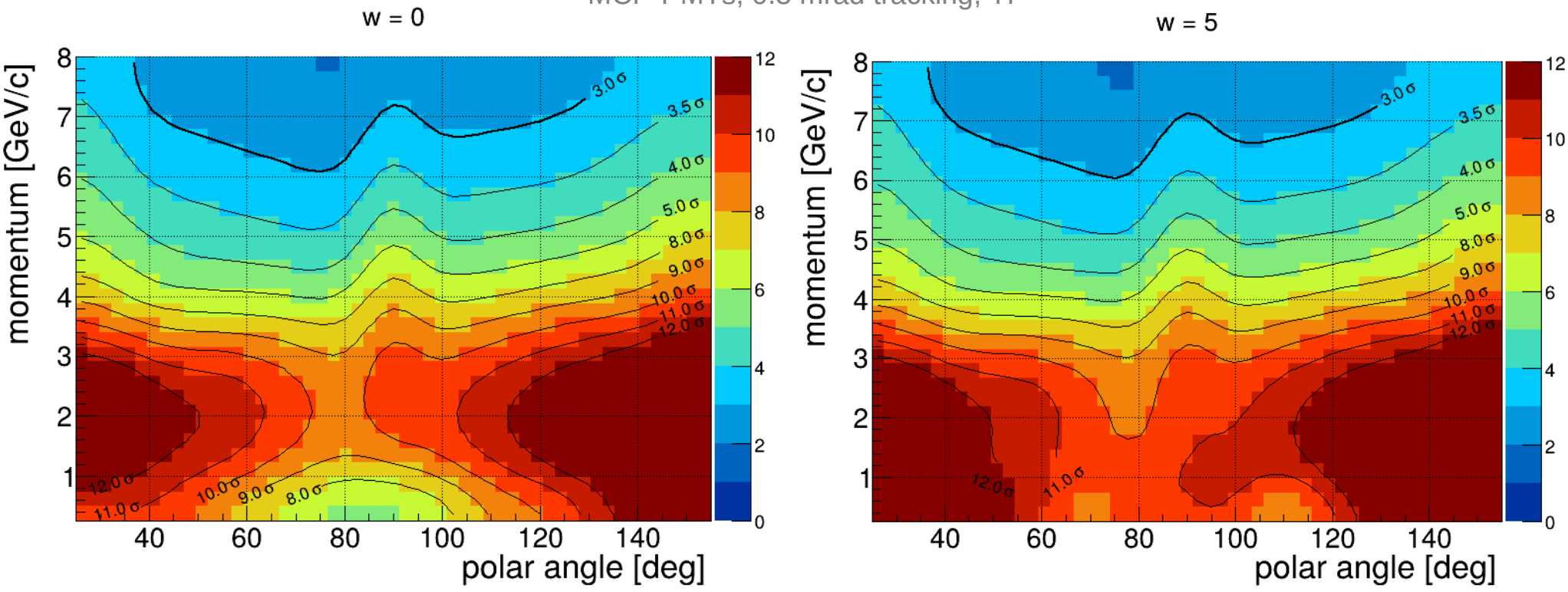






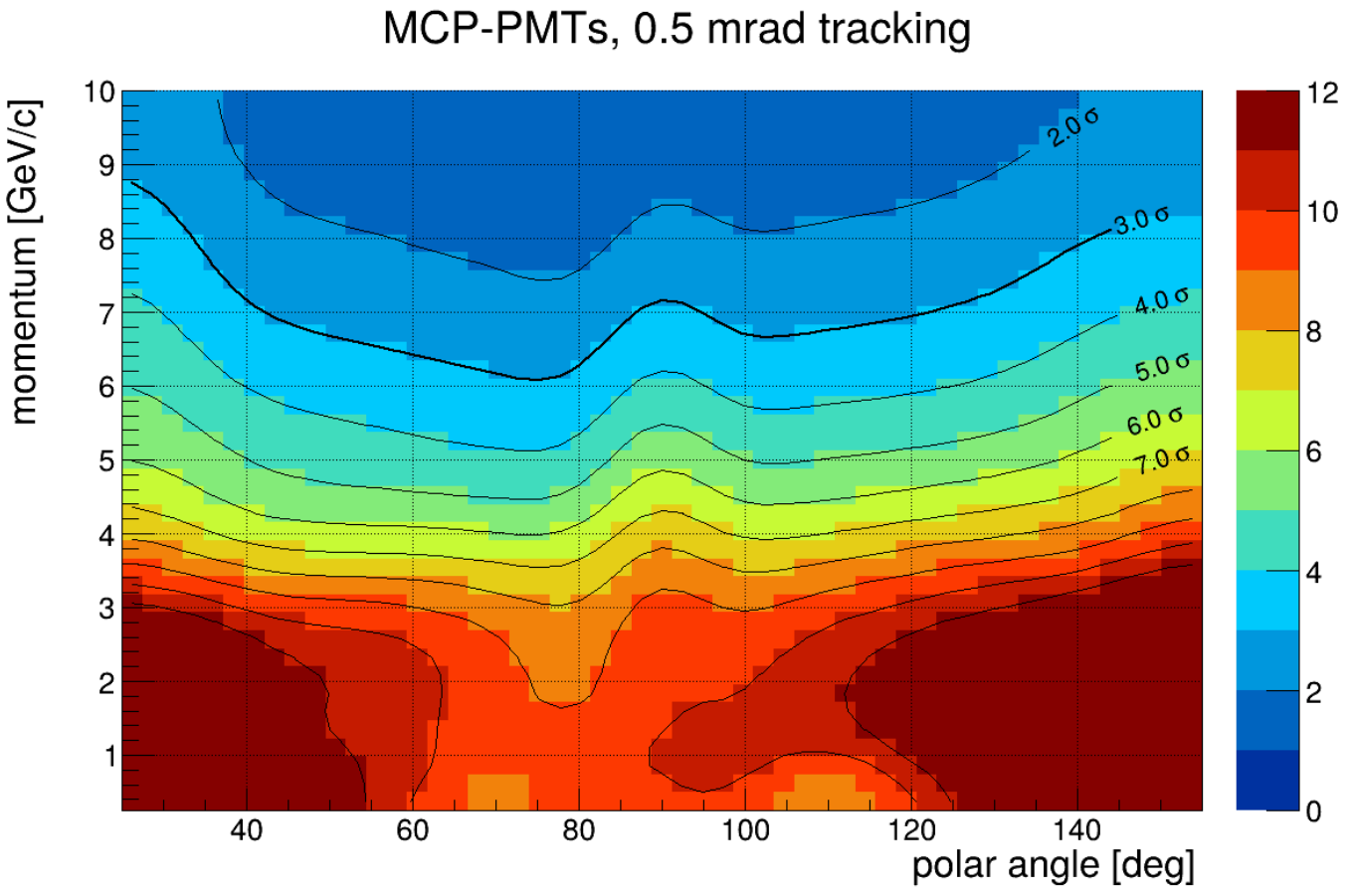
Performance Map

MCP-PMTs, 0.5 mrad tracking, TI

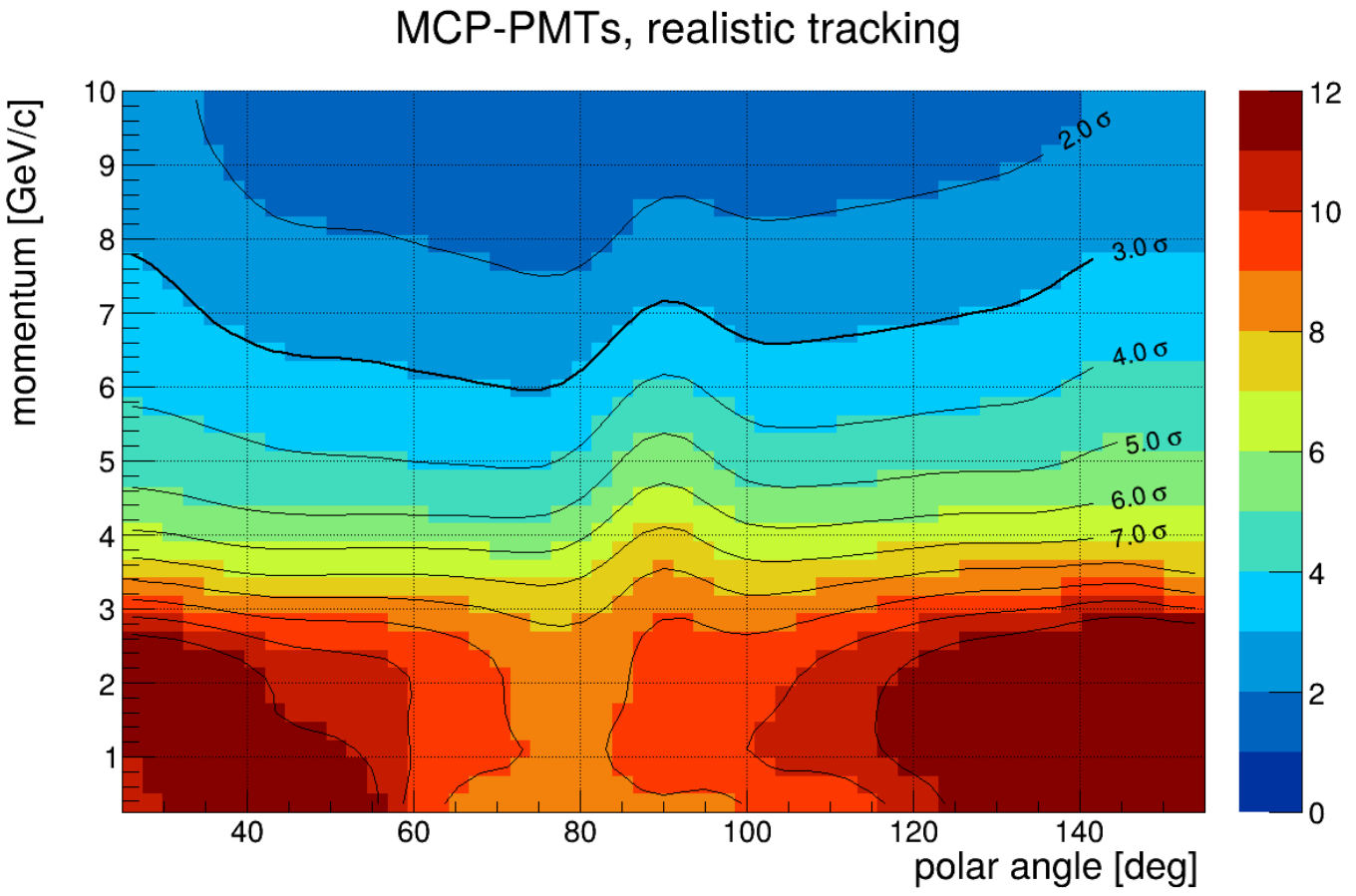


w-scan: https://web-docs.gsi.de/~rdzhigad/www/research/photon-yield-contribution-lh

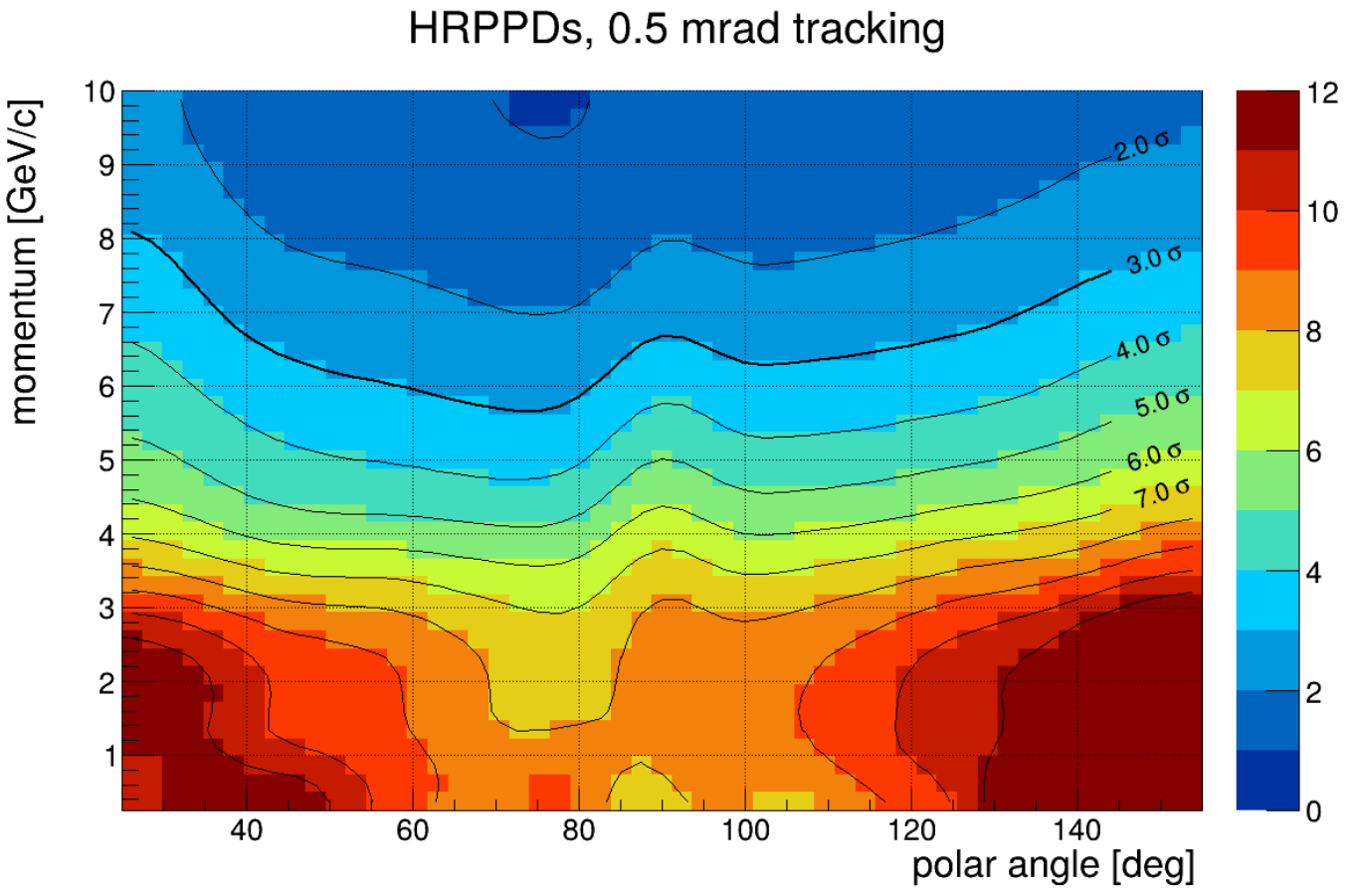
Performance Map



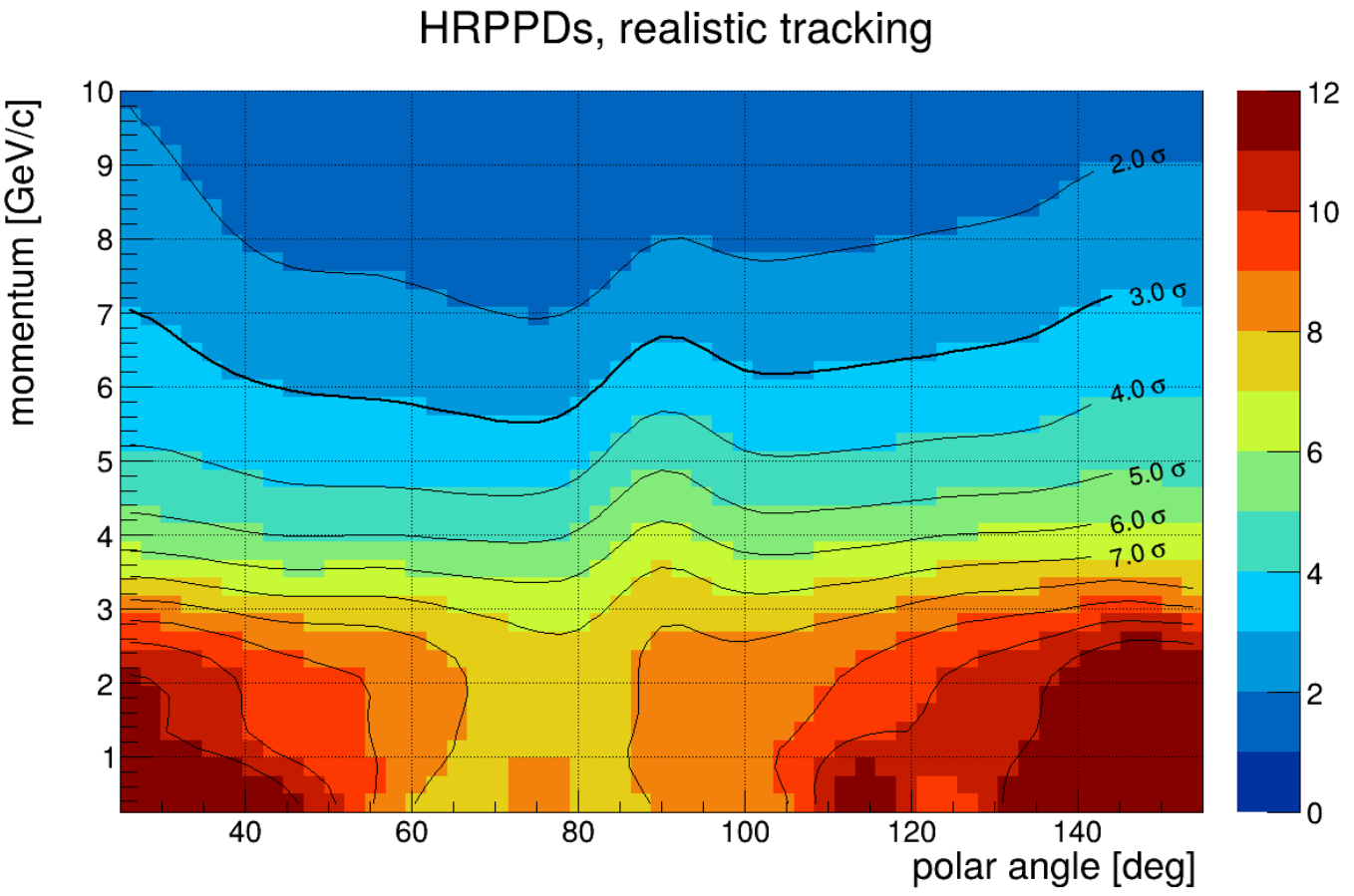
Performance Map



Performance Map

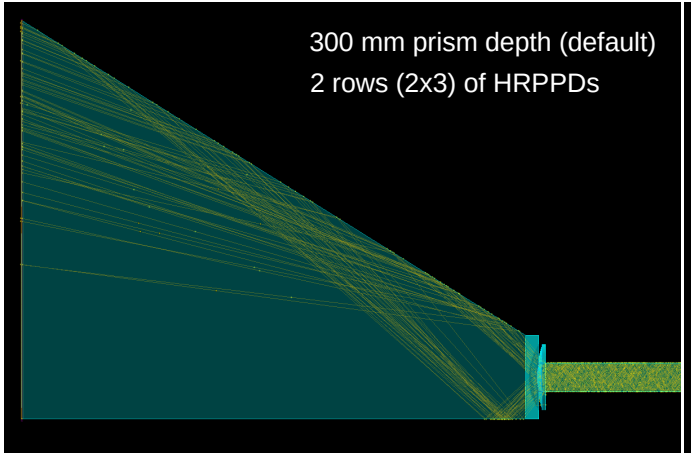


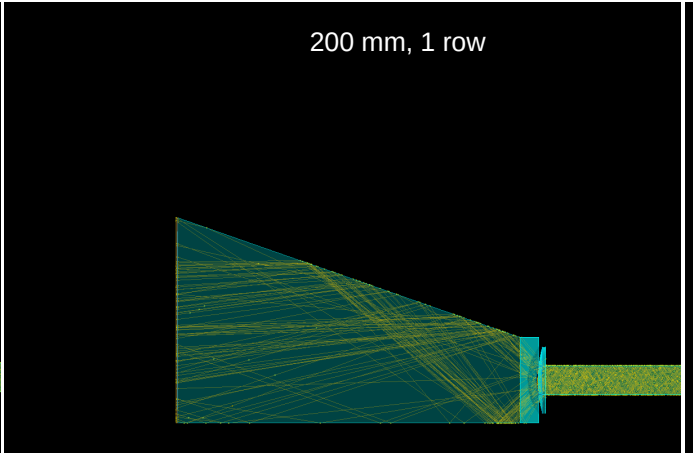
Performance Map

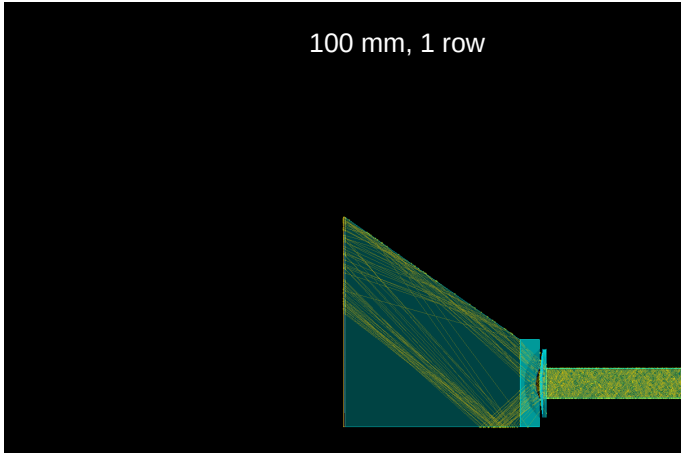


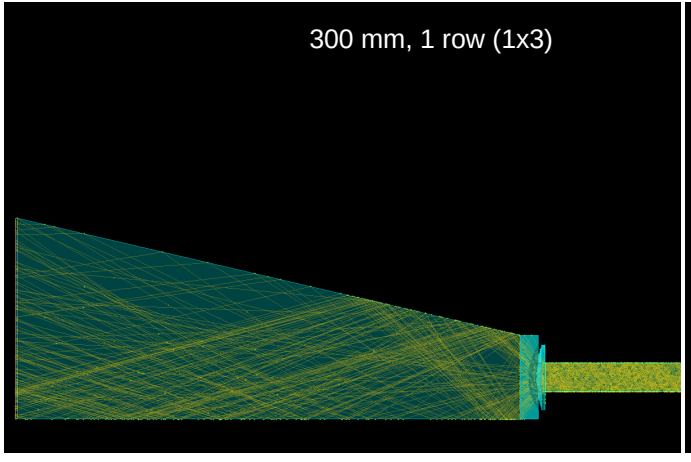
Performance with Smaller EV

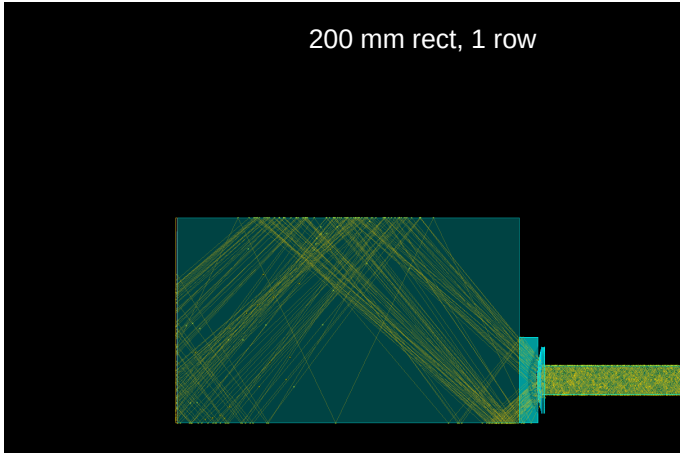
Smaller EV







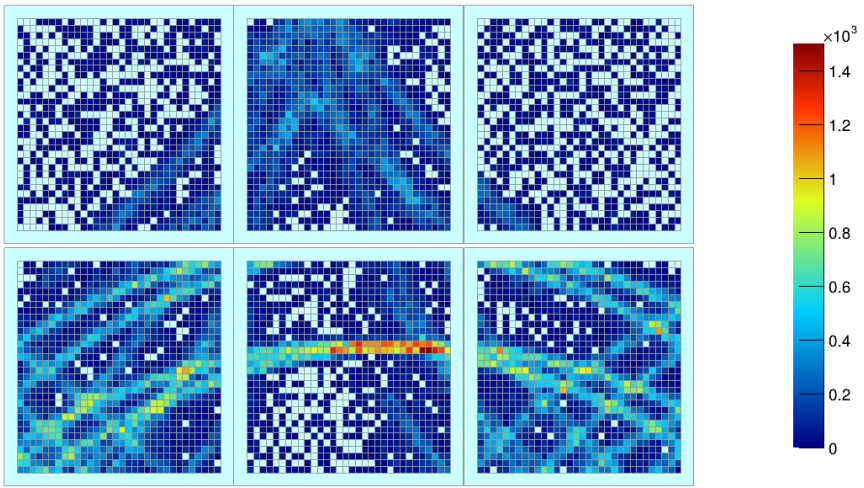




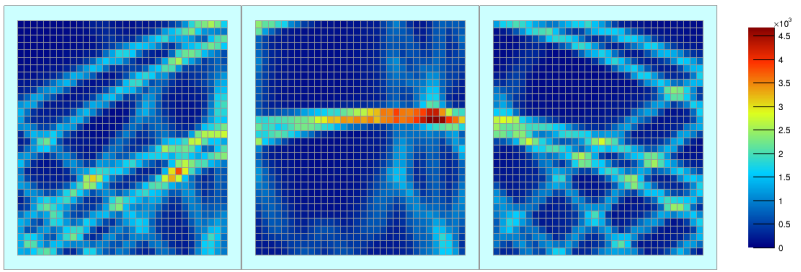
- Lens re-optimized for each depth
- https://web-docs.gsi.de/~rdzhigad/www/research/smaller-ev

Example of Hit Pattern

300 mm prism depth; 2 rows of HRPPDs; 30 degree



300 mm prism depth; 1 row of HRPPDs; 30 degree



Performance

MCP-PMTs, 0.5 mrad tracking