Lost energy of photons

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Remminder

- some pythia stable photons lost a lot of energy after detector simulation and reconstruction.
- Because I didn't preserve the previous checking code for this part, completely rewrite the code for finding these photons

  so not 100% guarantee the results ....
- Solve a bug, so the "strange" photons are not as many as I said in the first day. But still can find some problematic photons.

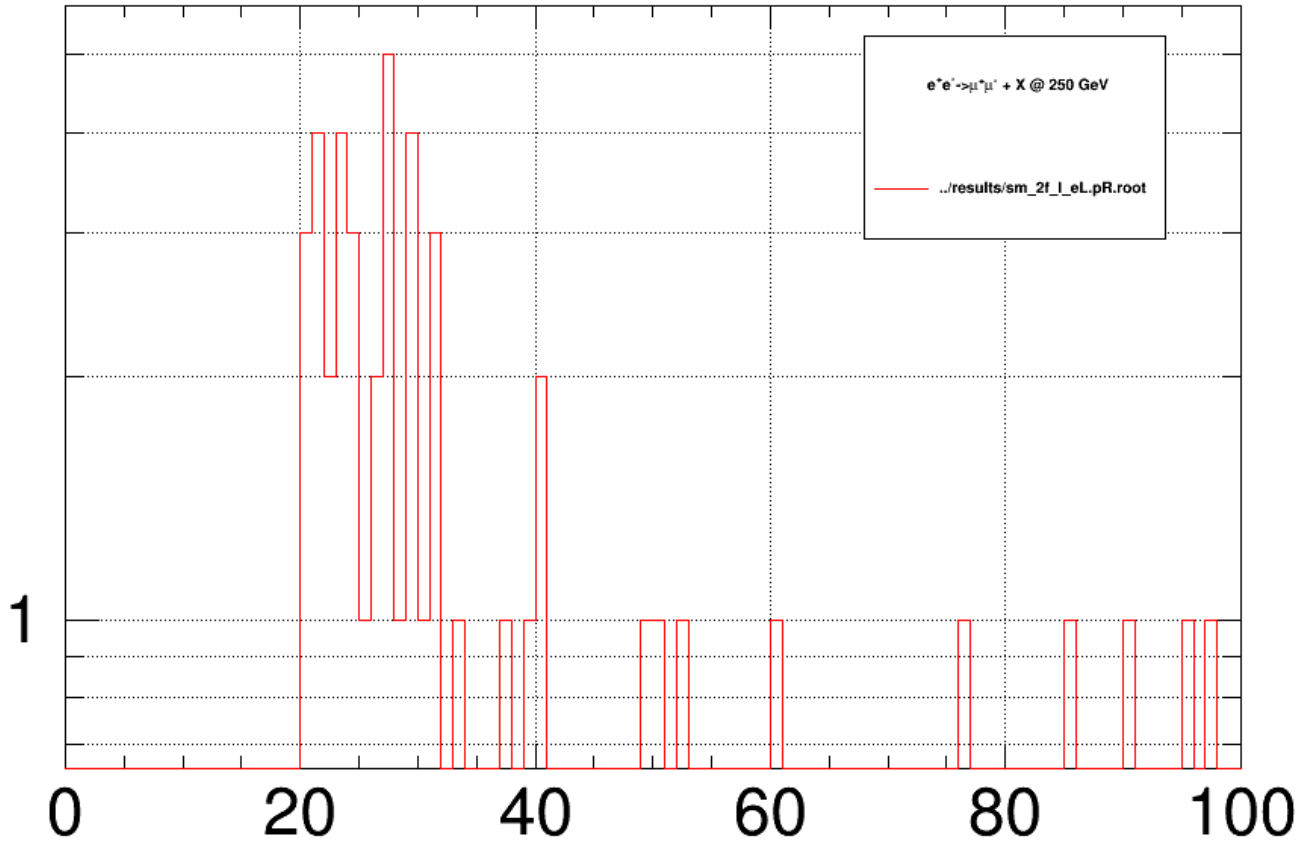
Event selection

- IS photon, make a cone around photon $cos\theta < 0.95$, $\frac{E_\gamma}{E_{cone}} > 0.9$.
- can be detected, $cos\theta > 0.98$
- Energetic photon $E_\gamma > 100$ GeV
- The lost energy is large, $E_\gamma^{pythia} - E_\gamma^{conversion} > 20$ GeV

Efficiency

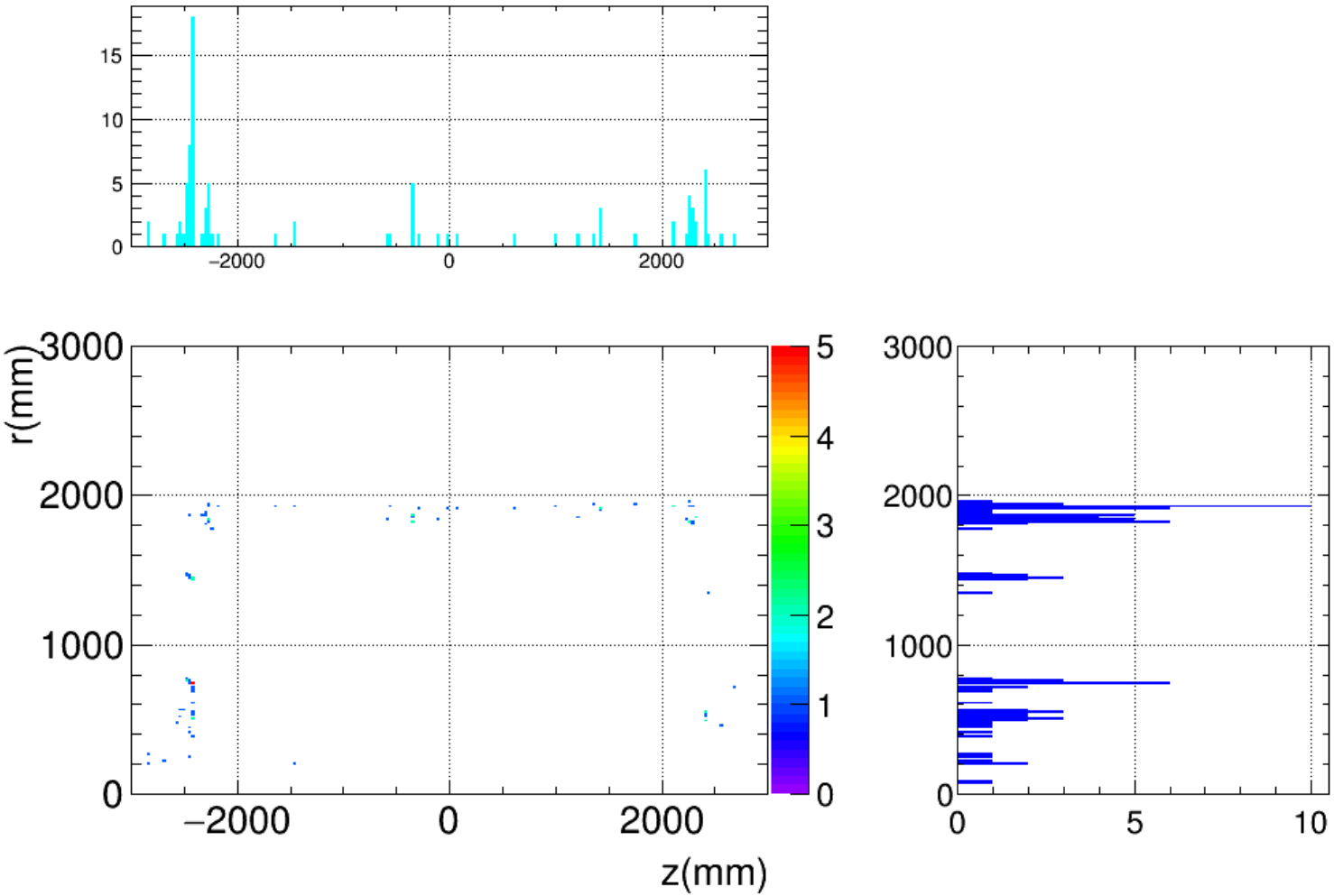
- totally input events: 29200
- events satisfied the first three cuts: 3200
- events lost energy: 47

lost energy

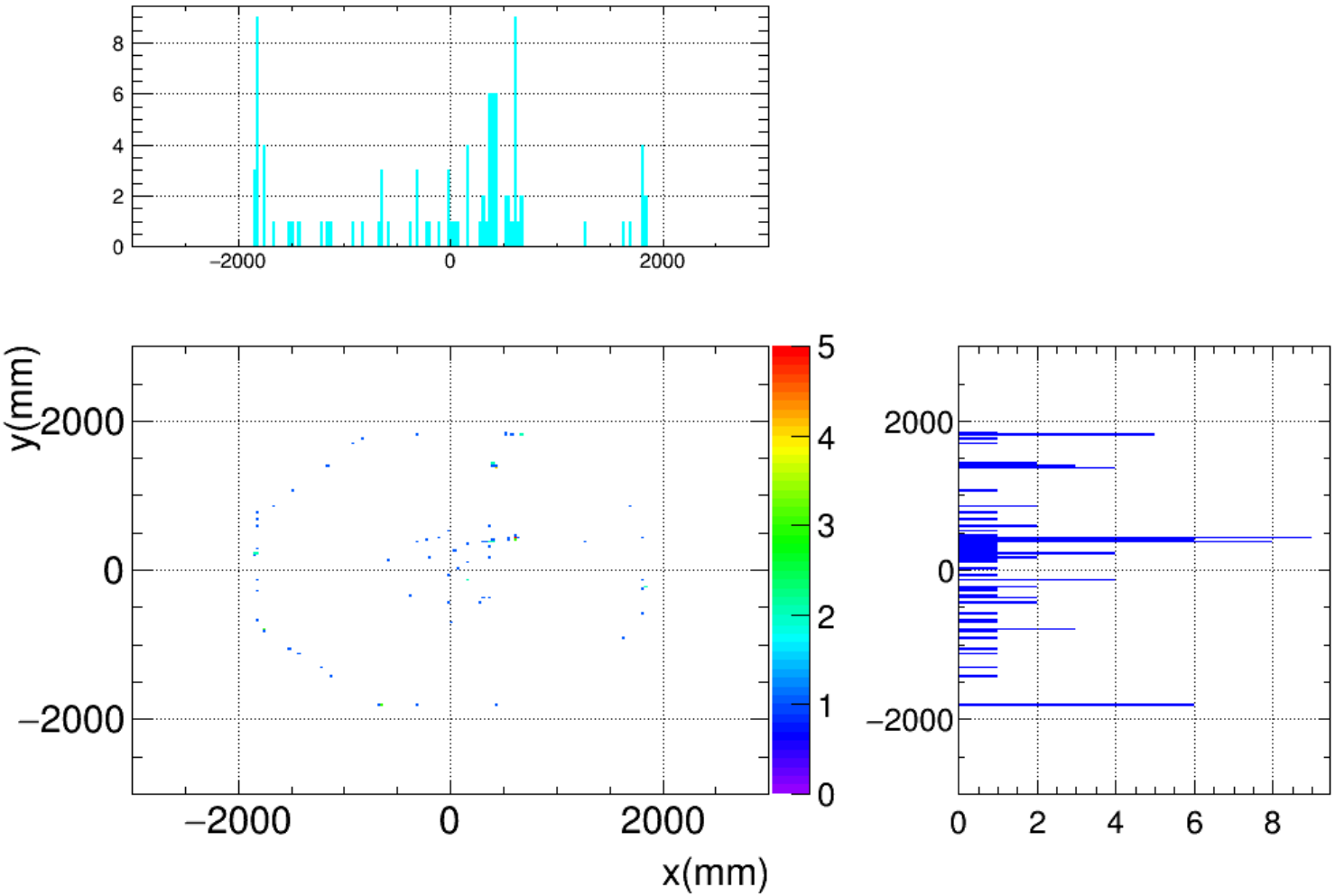


x-axis —- how much energy is lost

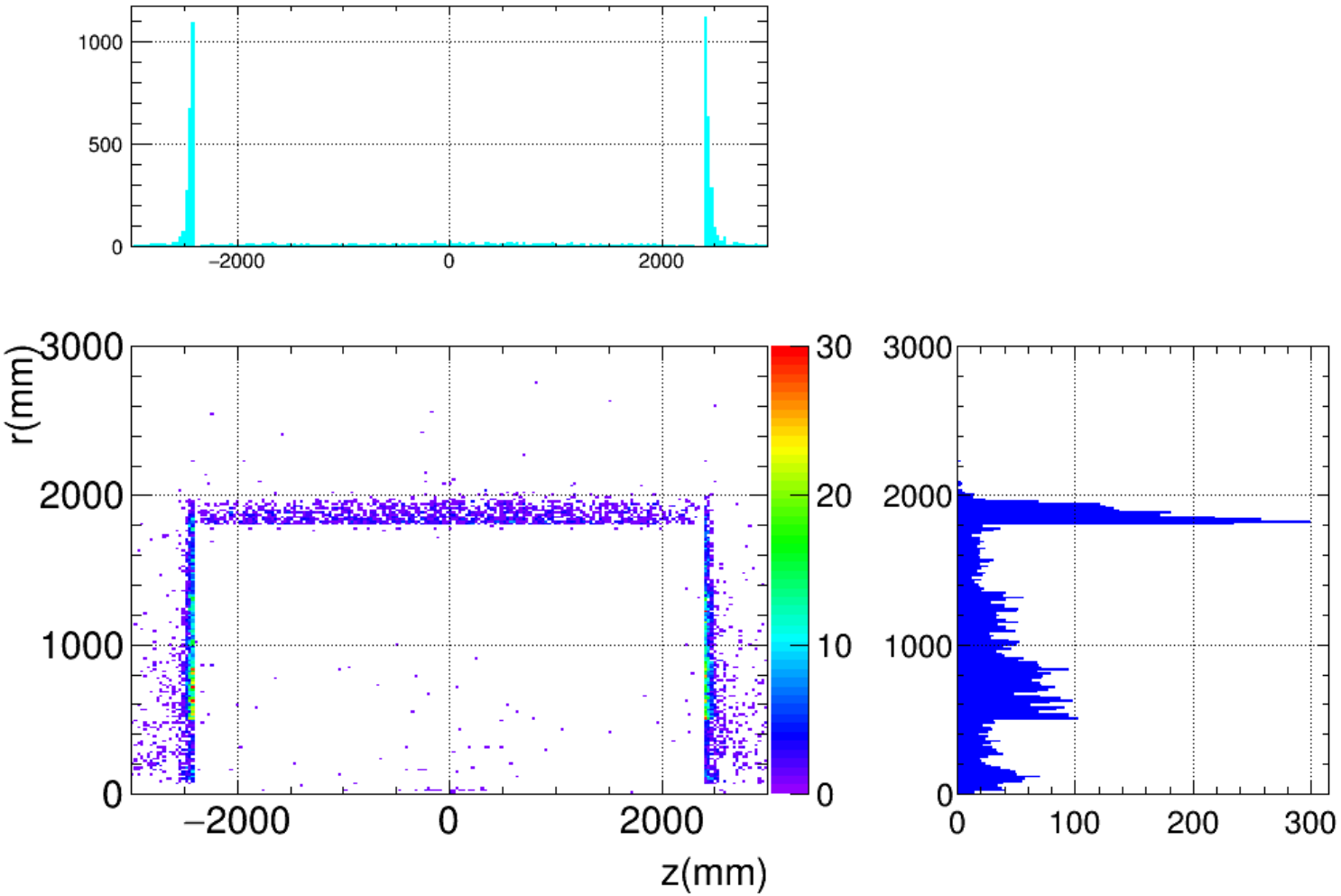
endpoint of the "problematic" photon



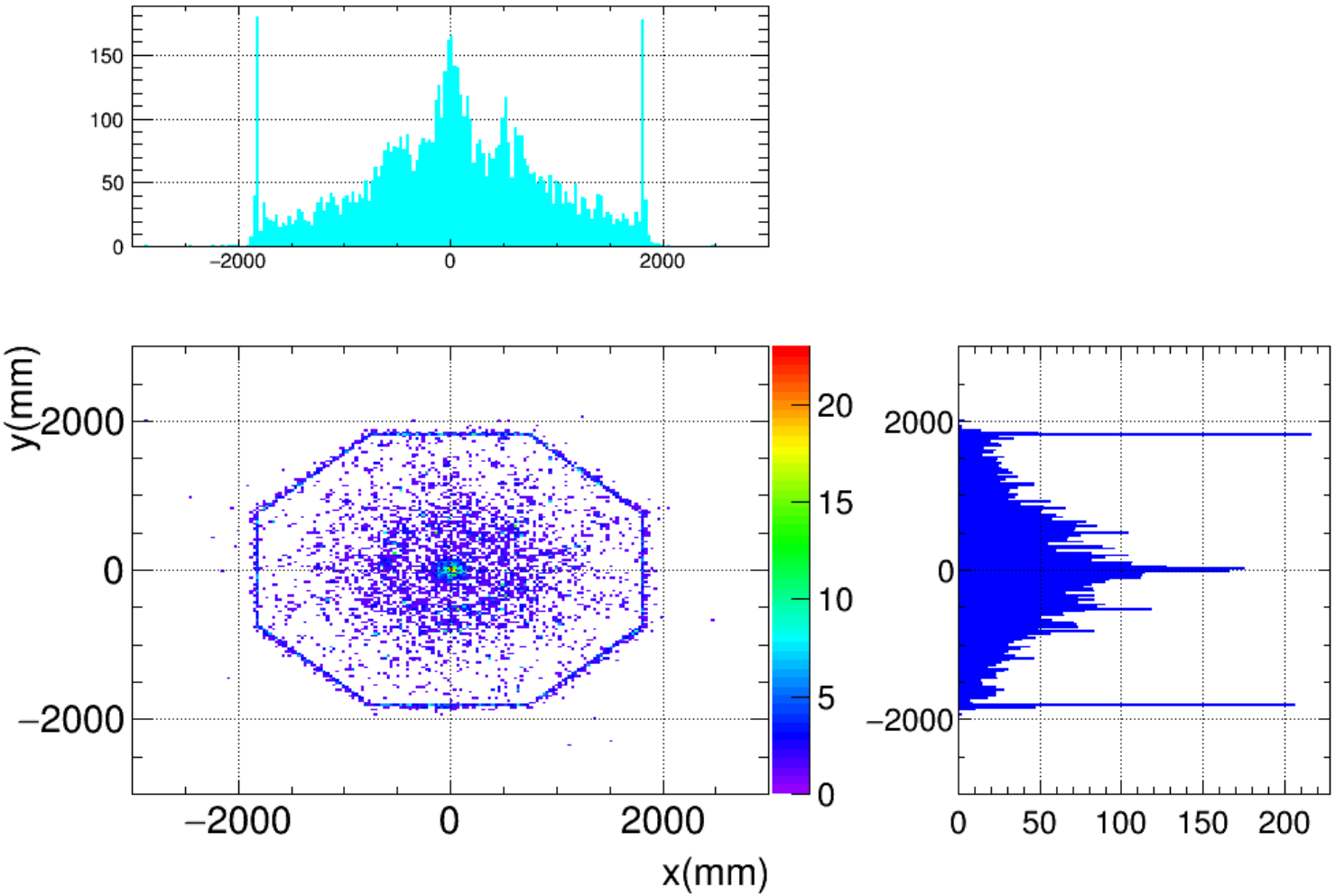
endpoint of the "problematic" photon



endpoint of the "correct" photon



endpoint of the correct photon



the ratio of the "problematic" photons of correct photons in the z direction