TOF simulation

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Makoto Sasaki

Purpose of this simulation

- To determine a shape of a light guide
  - If we put a layer underneath the TOF counter to support, a light guide should be the same thickness of a scintillator.

Conditions of the simulation

- Using the guide-7 simulator
- Scintillator size is

  Thickness: 10mm, Length: 1000mm,
  Cross-section: top 96.5mm, bottom 95.2mm

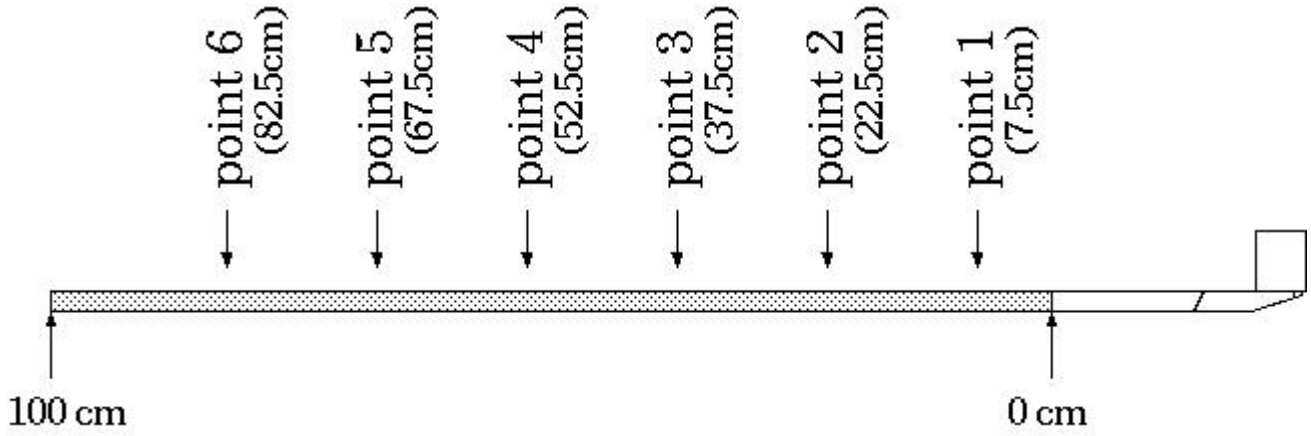
- See

  http://lheawww.gsfc.nasa.gov/~sasaki/gd7.html

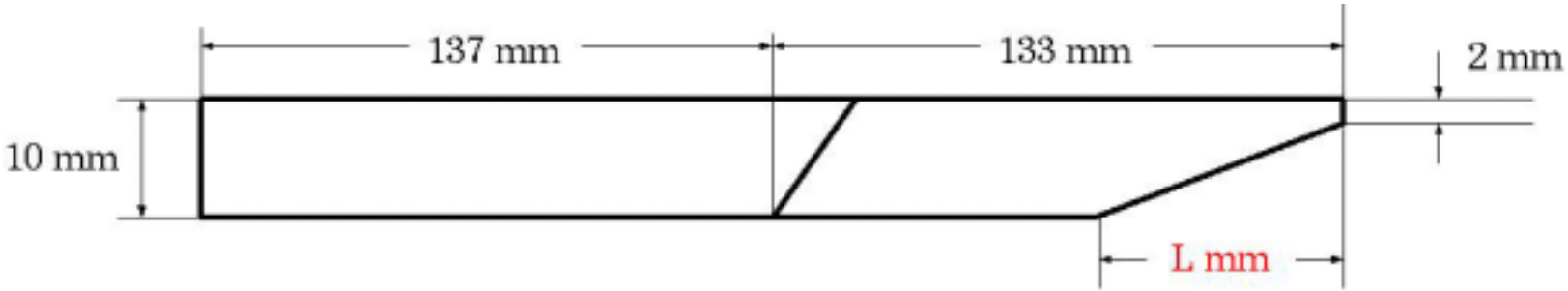
  for more detailed conditions.

Points of incident particles

3000 events for each points.

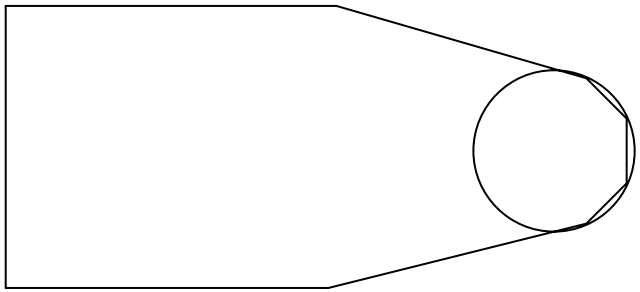


Shape of the light guide

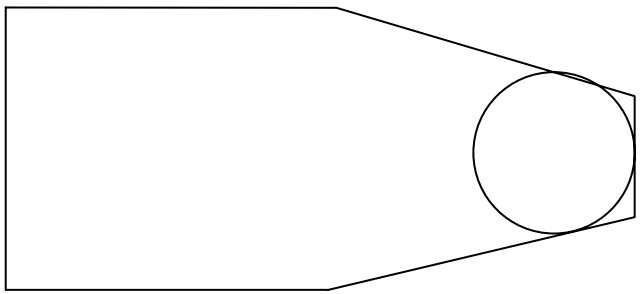


Two models for a light guide

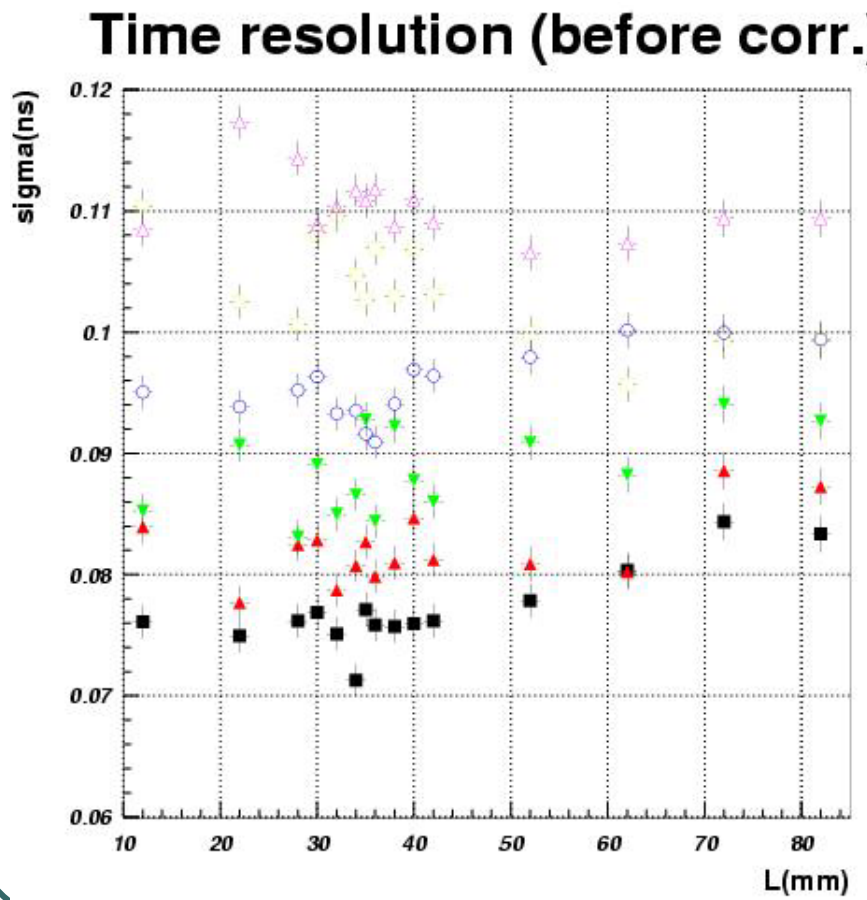
- Model 1 (S-type)

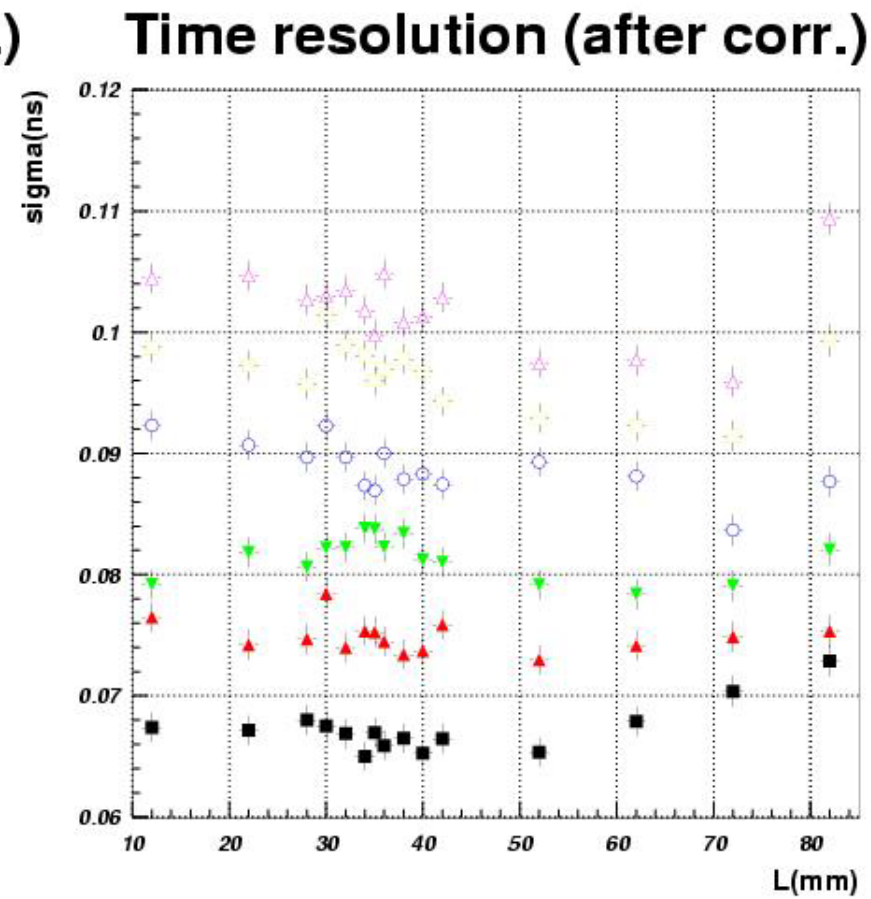


- Model 2 (M-type)

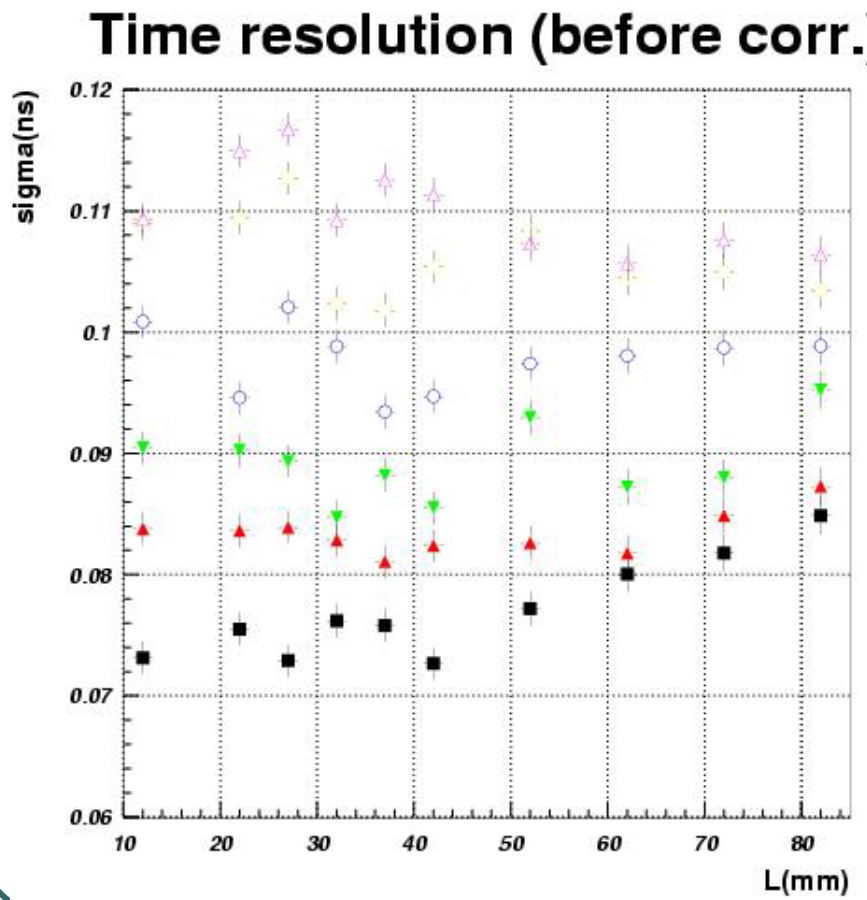


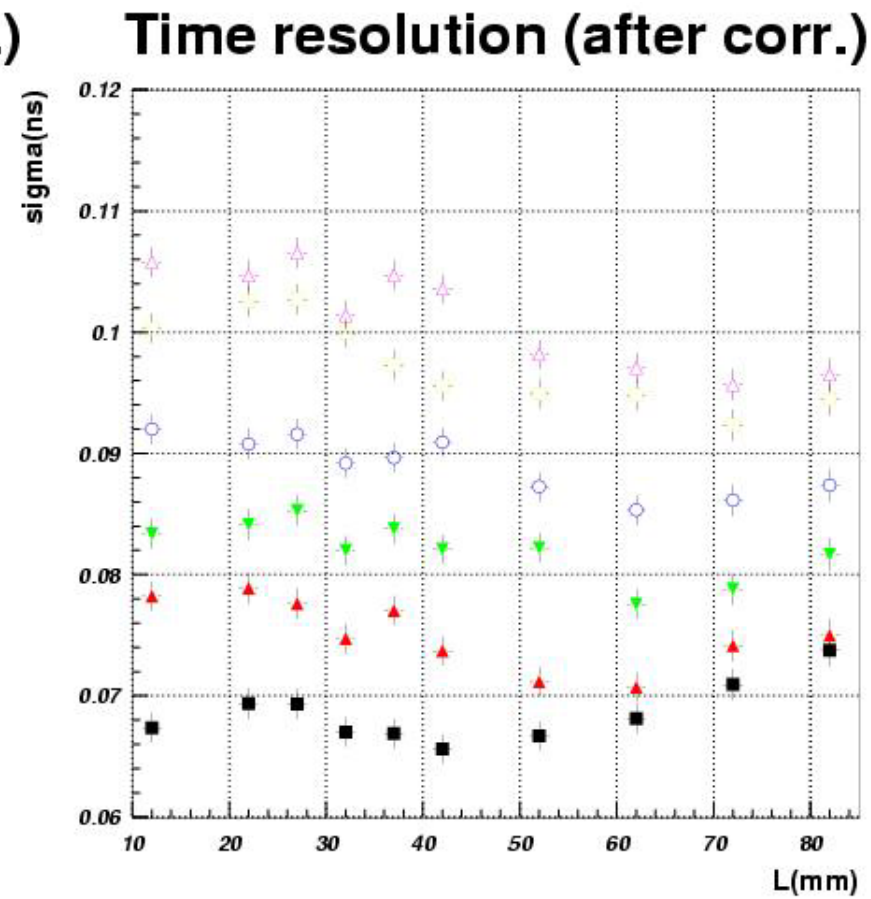
Time resolution (model 1)



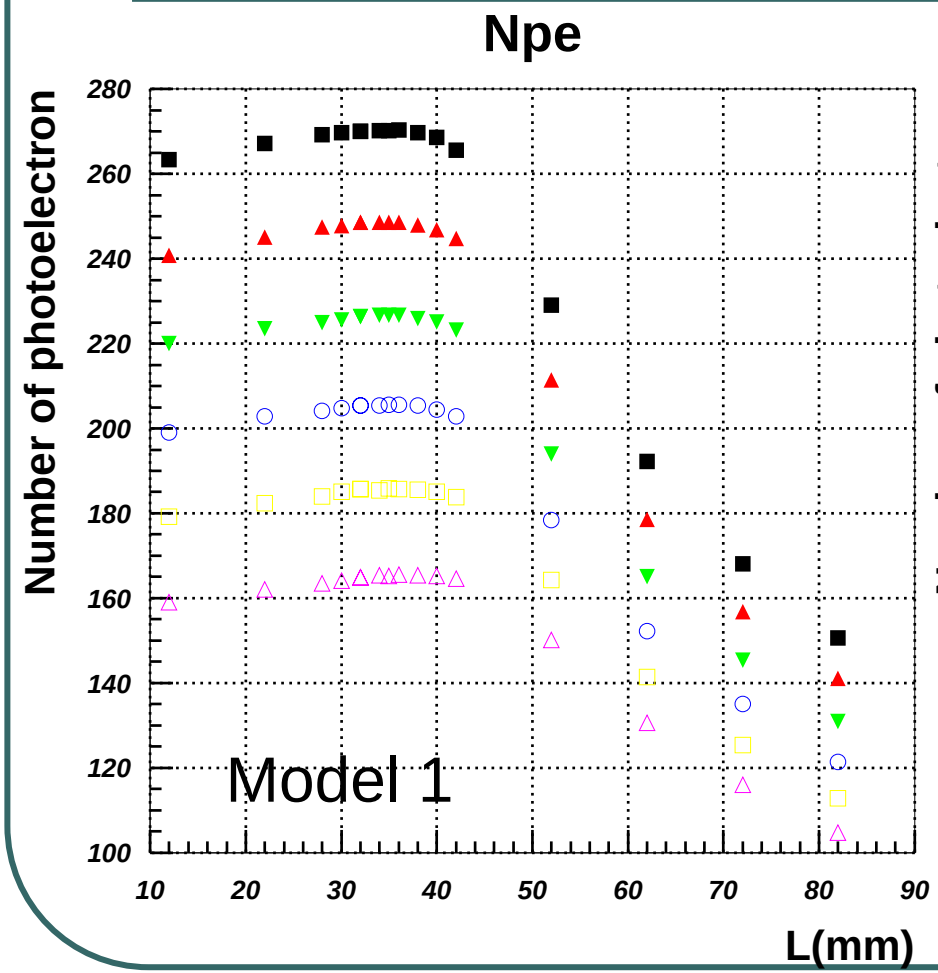


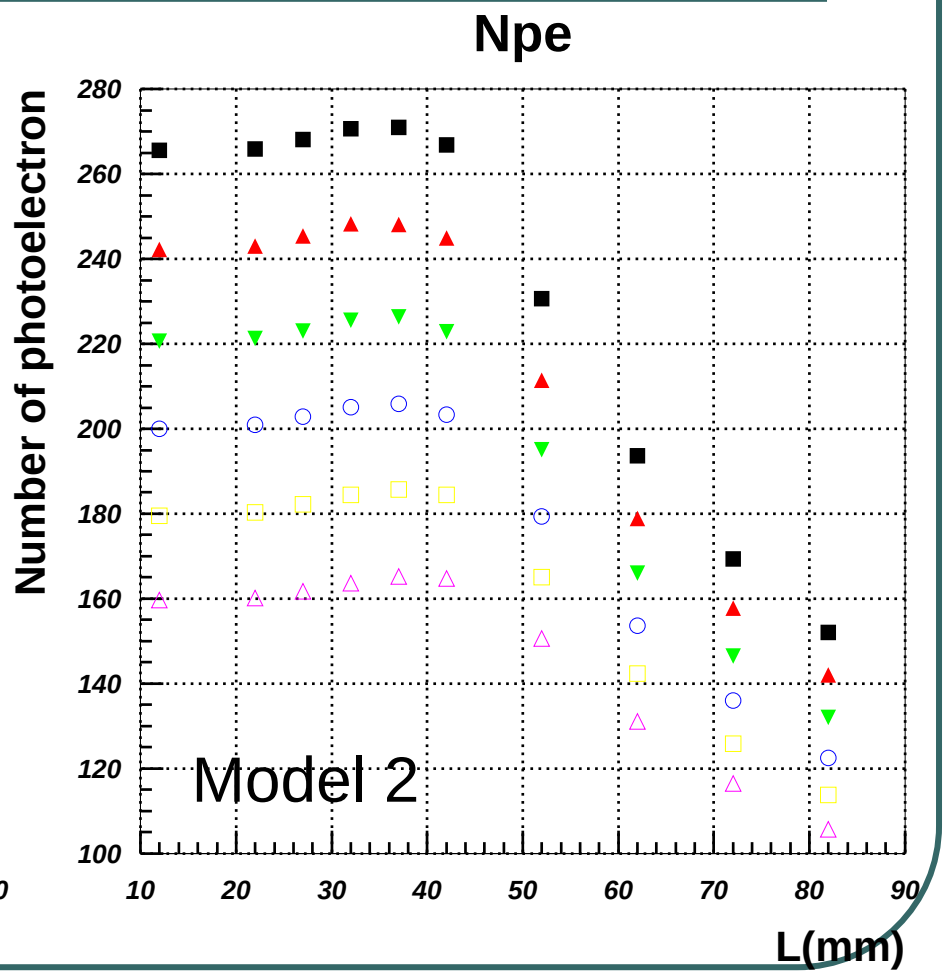
Time resolution (model 2)





Number of photoelectron





Conclusion

- For both time resolution and number of photoelectron, there is no significant difference between model-1 and model-2.
- The angle is not so important for time resolution.
- We will choose L=30~40(mm).
- You can see more clear figures on

  http://lheawww.gsfc.nasa.gov/~sasaki/gd7.html