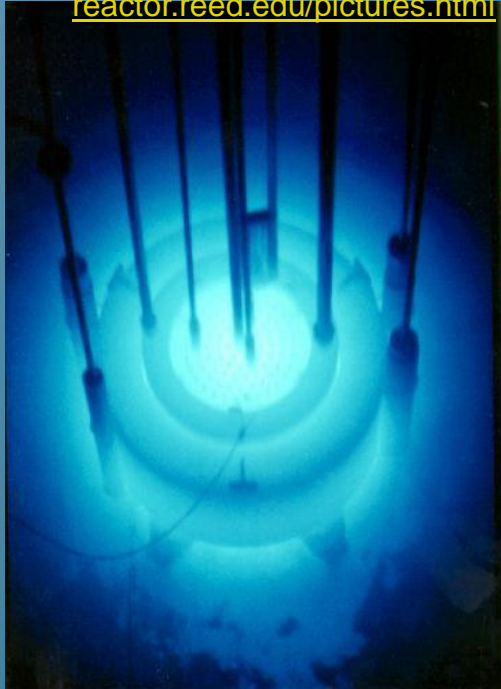


Reed Research Reactor  
[reactor.reed.edu/pictures.html](http://reactor.reed.edu/pictures.html)



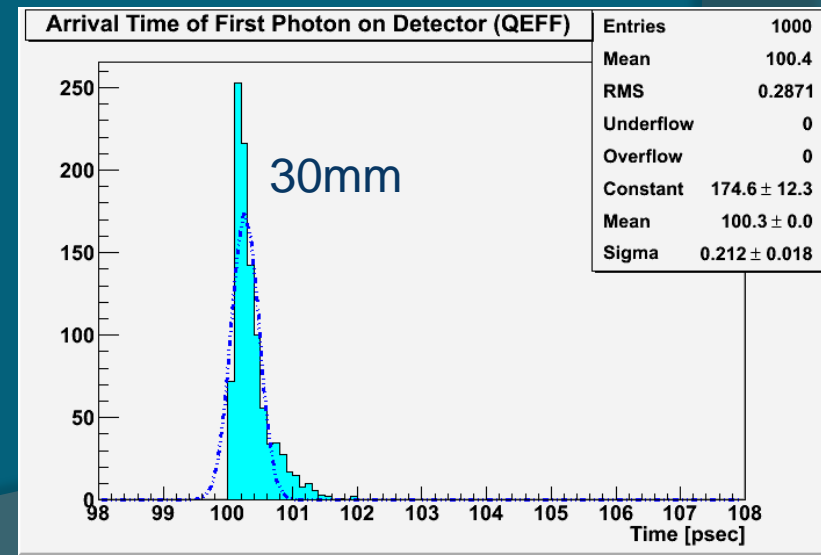
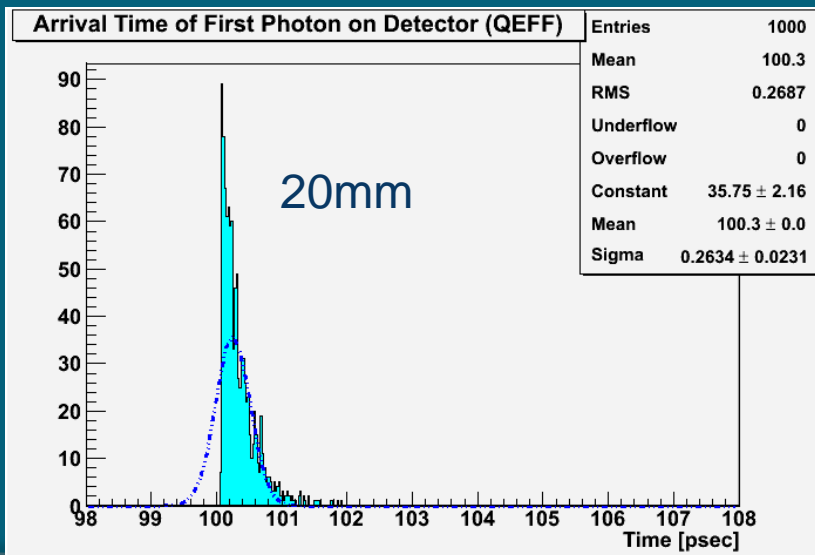
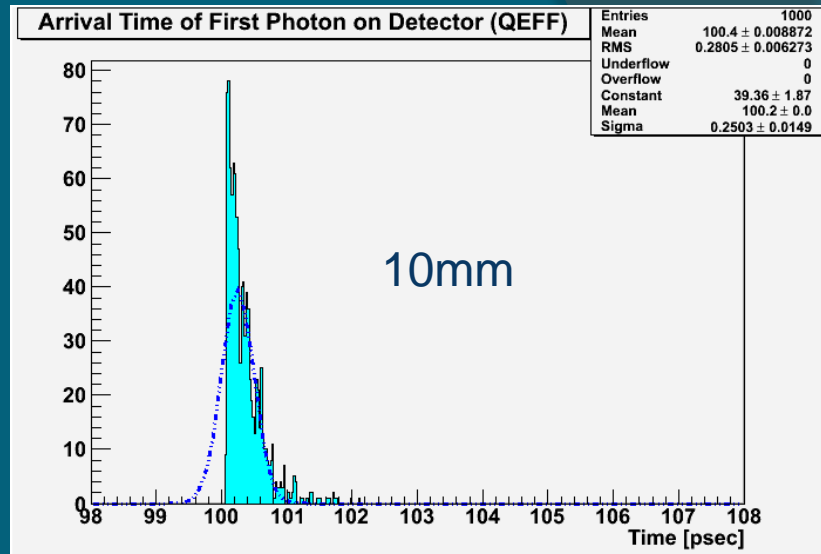
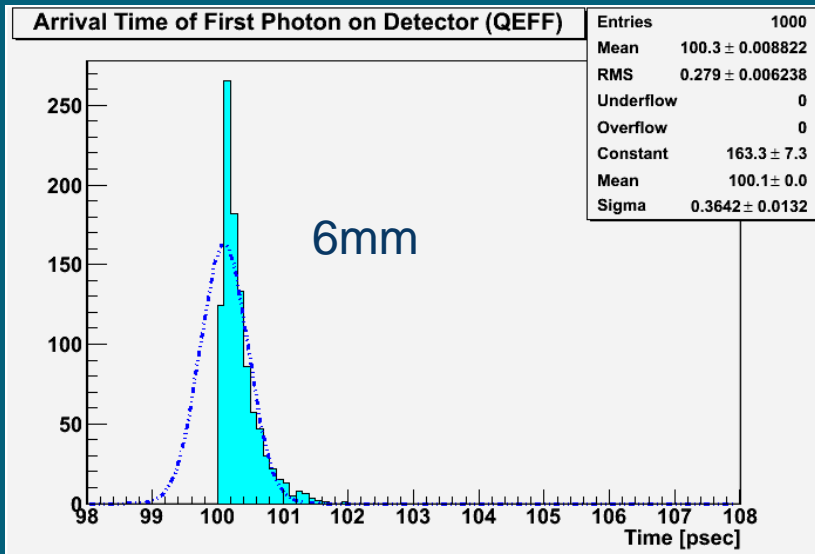
Moriah Tobin  
Advisor: Mike Albrow  
August 3, 2010

# Modeling Quartz Cherenkov Detector

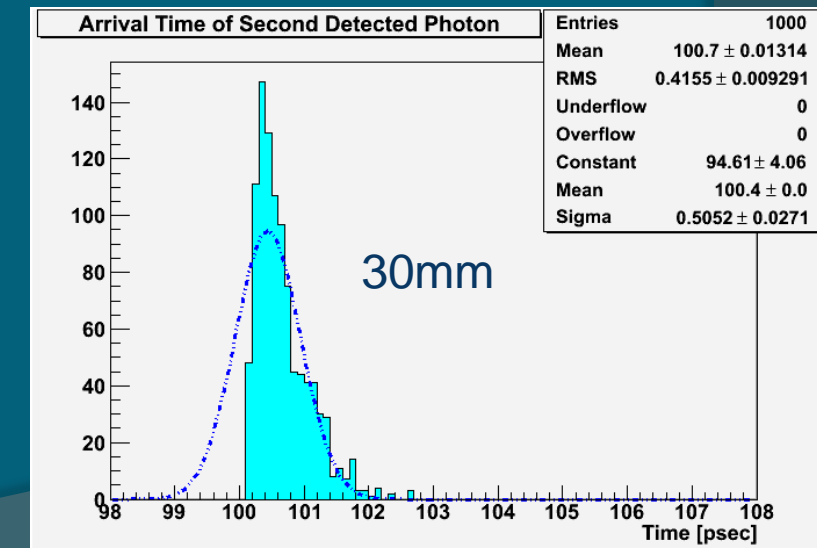
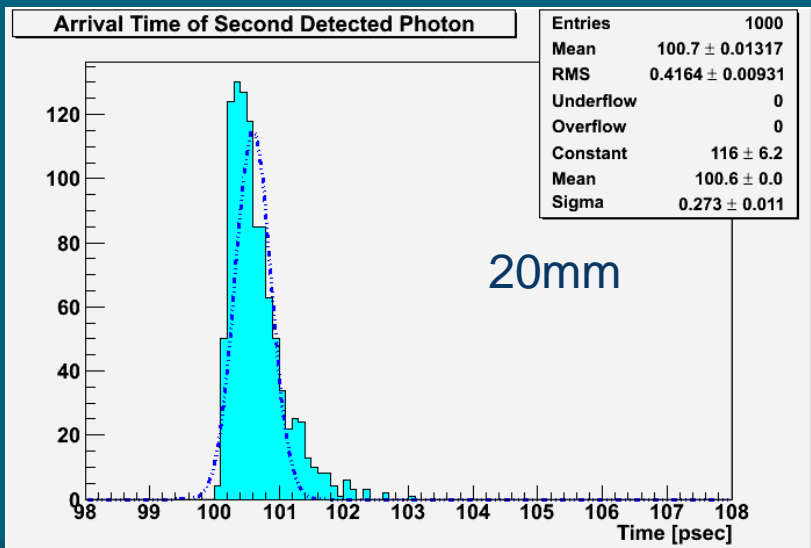
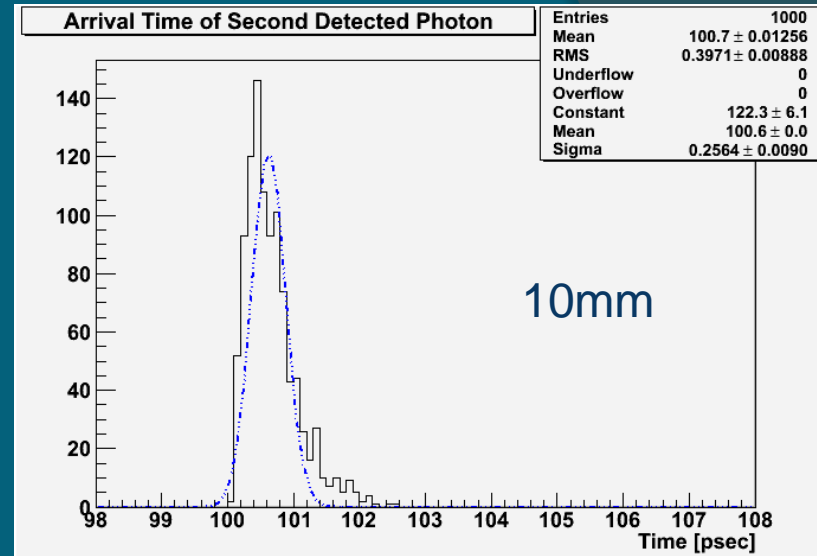
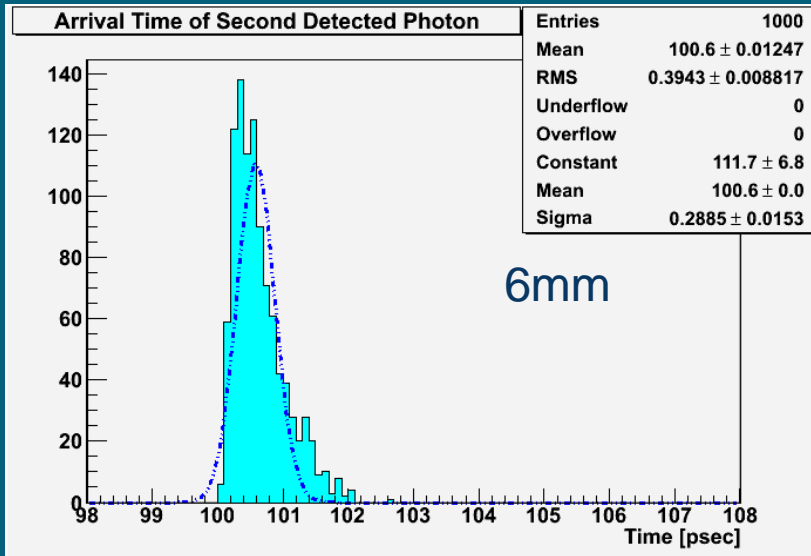
# Outline

- Third Photon Cuts
- Comparison of SiPM and MCP Timing Resolution

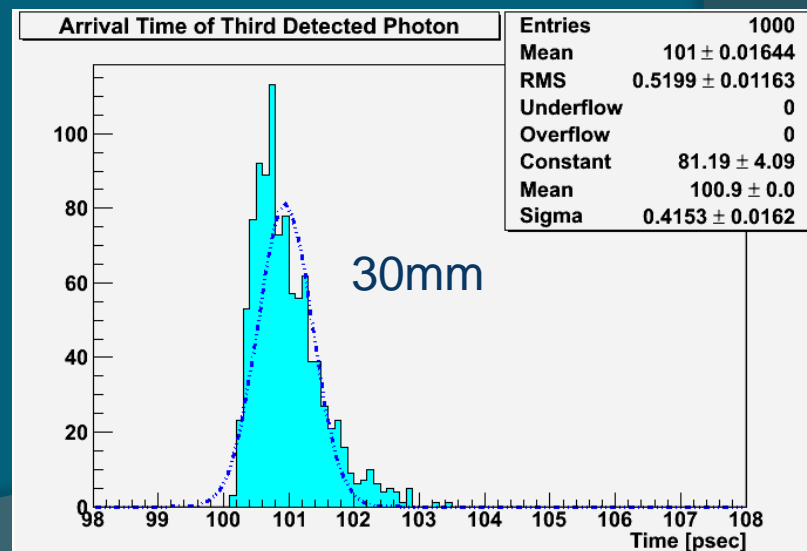
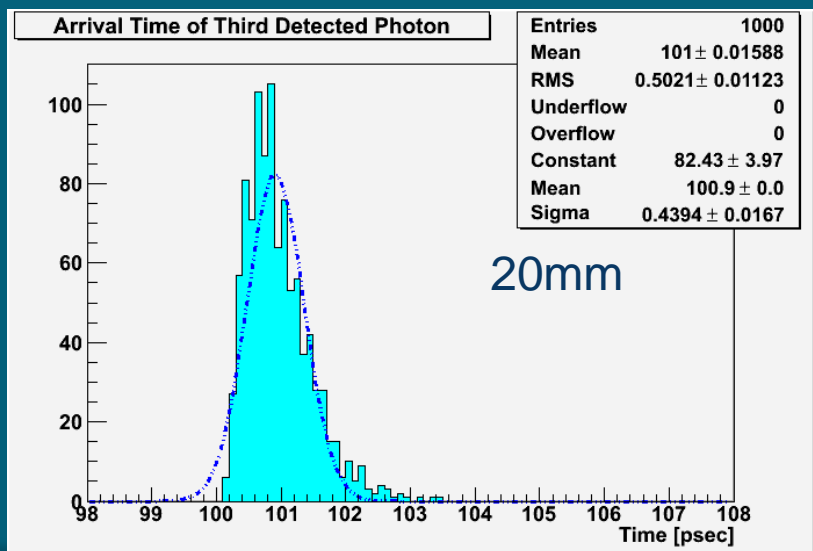
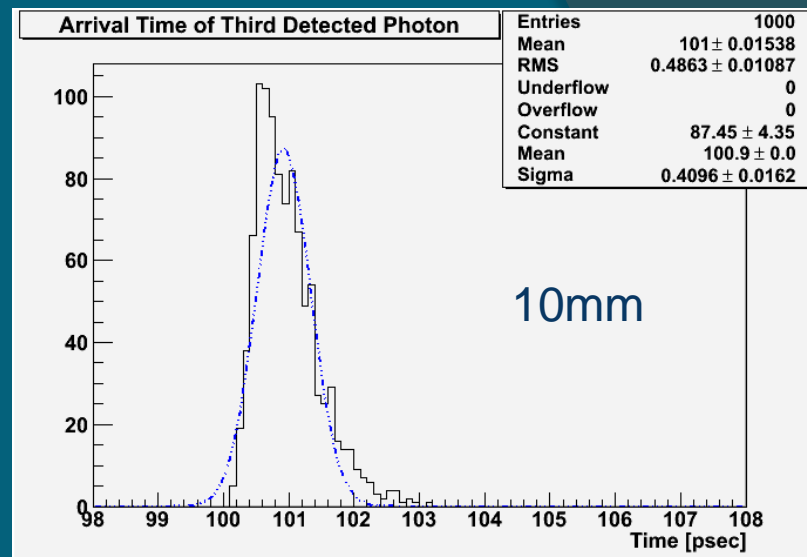
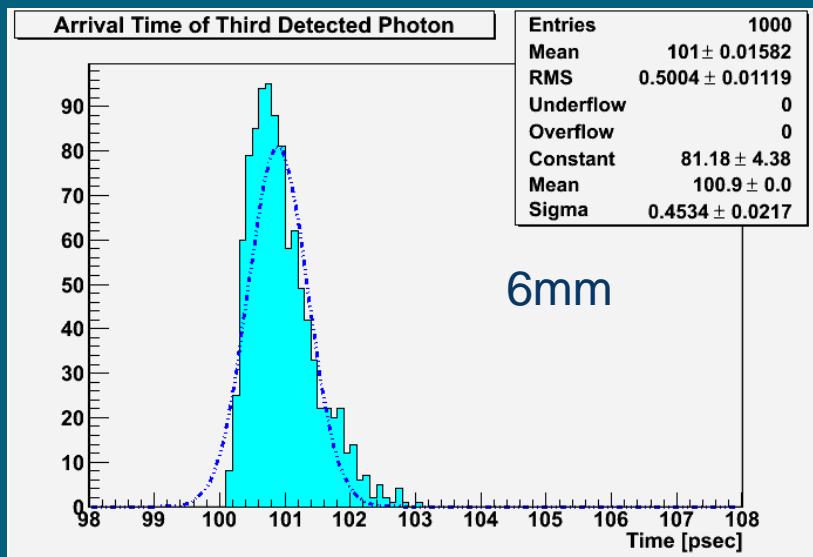
# First Detected Photon Times



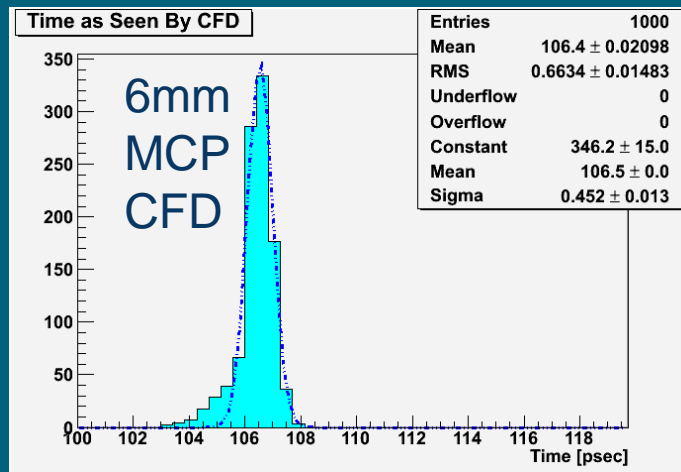
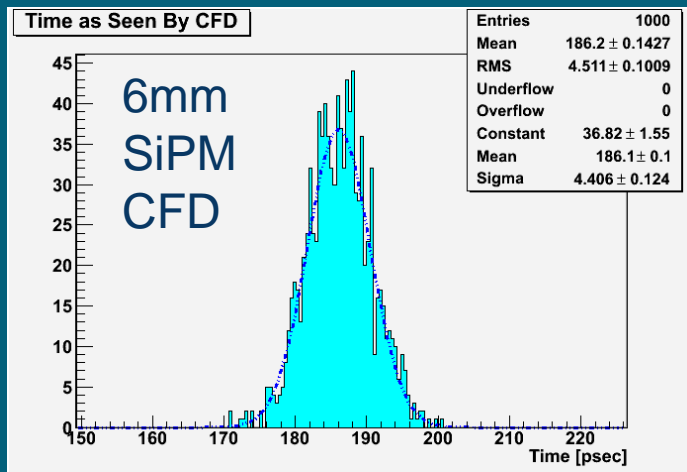
# Second Detected Photon Times



# Third Detected Photon Times



# Comparison of SiPM and MCP Timing



Fraction	0.1	0.1	0.2	0.2	0.4
Protons	1000	1000	1000	1000	1000
Detector	SiPM	MCP	SiPM	MCP	MCP
Timing ( $\pm 0.18/0.015$ psec) 6mm (SiPM/MCP)	4.511	0.6634	4.017	0.6391	0.6773
Timing ( $\pm 0.08/0.022$ psec) 10mm (SiPM/MCP)	2.819	0.906	3.251	0.8933	0.8949
Timing ( $\pm 0.07/0.03$ psec) 20mm (SiPM/MCP)	3.003	1.396	2.745	1.382	1.388
Timing ( $\pm 0.07/0.05$ psec) 30mm (SiPM/MCP)	2.377	1.783	2.296	1.773	1.793

# Coming Soon

- Quartz PbF<sub>2</sub> Comparisons
- Q-Bar Setup

Mike Albrow  
Hans Wenzel  
Earle Wilson

Thank You



