

10 MeV Trigger Efficiencies

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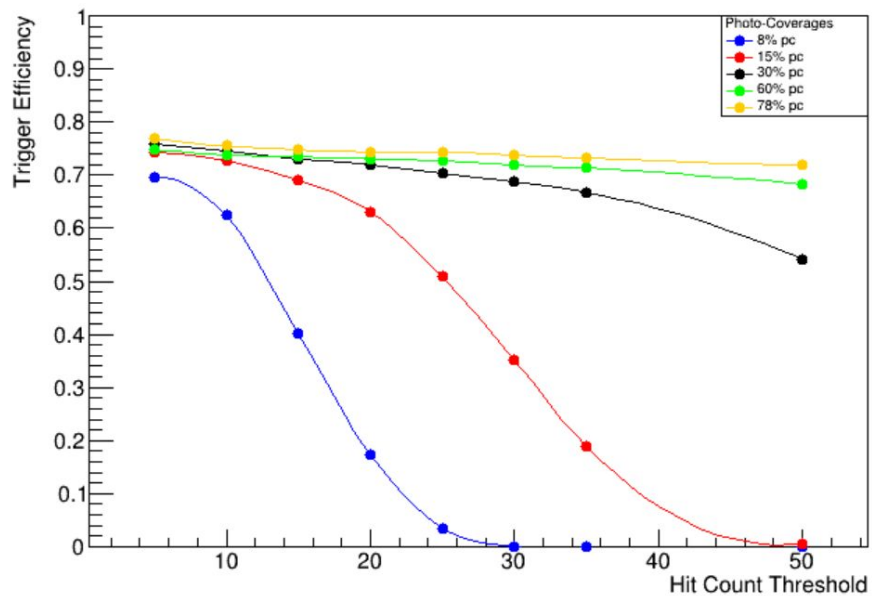
(1,000 generated particles for each pc and threshold)

Trigger Settings

- 15 ns trigger window
- -5 ns event pre-trigger window
- 200 ns event post-trigger window
- MultiDigitsPerTrigger == false (*saves only earliest hit on a PMT in the trigger window*)
- Constant dark noise of 300 Hz from t=0 to t=200 microseconds
- Particles generated uniformly everywhere in the tank

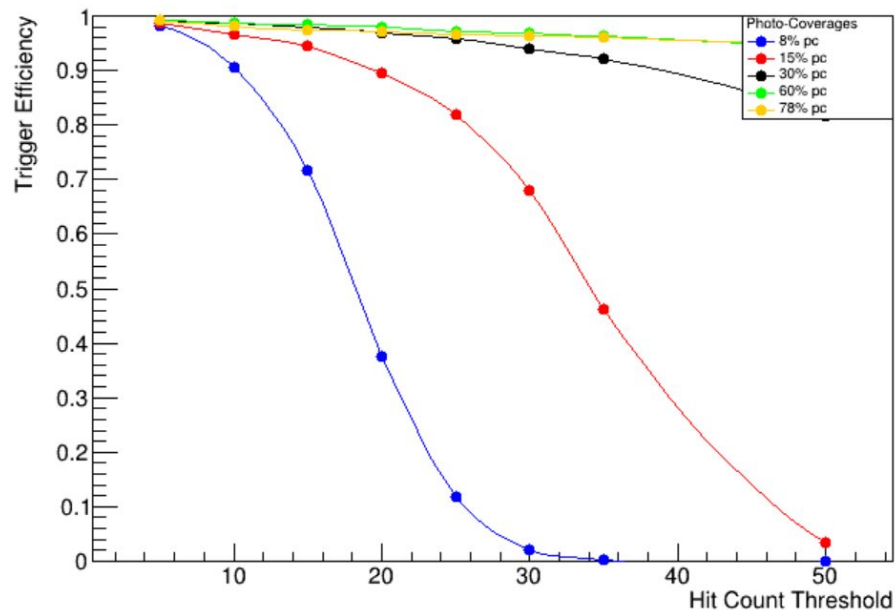
10 MeV Gamma

Trigger Efficiency vs Hit Threshold for Different Photo-Coverages



10 MeV Electron

Trigger Efficiency vs Hit Threshold for Different Photo-Coverages



Gamma 10 MeV

8% Number of Triggers per Threshold

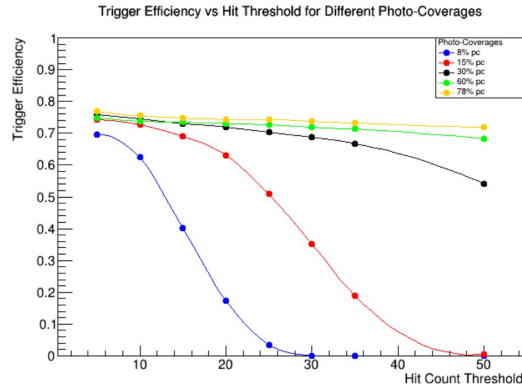
5 hits: 696 -> 0.696
10 hits: 624 -> 0.624
15 hits: 401 -> 0.401
20 hits: 173 -> 0.173
25 hits: 35 -> 0.035
30 hits: 1 -> 0.001
35 hits: 0 -> 0
50 hits: 0 -> 0

15% Number of Triggers per Threshold

5 hits: 744 -> 0.744
10 hits: 728 -> 0.728
15 hits: 691 -> 0.691
20 hits: 631 -> 0.631
25 hits: 508 -> 0.508
30 hits: 351 -> 0.351
35 hits: 188 -> 0.188
50 hits: 6 -> 0.006

60% Number of Triggers per Threshold

5 hits: 749 -> 0.749
10 hits: 738 -> 0.738
15 hits: 735 -> 0.735
20 hits: 731 -> 0.731
25 hits: 726 -> 0.726
30 hits: 719 -> 0.719
35 hits: 713 -> 0.713
50 hits: 683 -> 0.683



30% Number of Triggers per Threshold

5 hits: 758 -> 0.758
10 hits: 745 -> 0.745
15 hits: 731 -> 0.731
20 hits: 719 -> 0.719
25 hits: 703 -> 0.703
30 hits: 688 -> 0.688
35 hits: 668 -> 0.668
50 hits: 541 -> 0.541

78% Number of Triggers per Threshold

5 hits: 768 -> 0.768
10 hits: 755 -> 0.755
15 hits: 748 -> 0.748
20 hits: 744 -> 0.744
25 hits: 743 -> 0.743
30 hits: 737 -> 0.737
35 hits: 732 -> 0.732
50 hits: 718 -> 0.718

Electron 10 MeV

8% Number of Triggers per Threshold

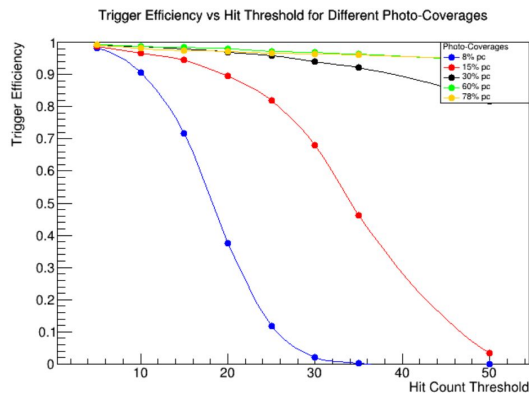
5 hits: 981 -> 0.981
10 hits: 906 -> 0.906
15 hits: 716 -> 0.716
20 hits: 376 -> 0.376
25 hits: 119 -> 0.119
30 hits: 21 -> 0.021
35 hits: 3 -> 0.003
50 hits: 0 -> 0

15% Number of Triggers per Threshold

5 hits: 987 -> 0.987
10 hits: 966 -> 0.966
15 hits: 944 -> 0.944
20 hits: 894 -> 0.894
25 hits: 818 -> 0.818
30 hits: 679 -> 0.679
35 hits: 462 -> 0.462
50 hits: 33 -> 0.033

60% Number of Triggers per Threshold

5 hits: 993 -> 0.993
10 hits: 987 -> 0.987
15 hits: 984 -> 0.984
20 hits: 980 -> 0.980
25 hits: 972 -> 0.972
30 hits: 968 -> 0.968
35 hits: 963 -> 0.963
50 hits: 942 -> 0.942



30% Number of Triggers per Threshold

5 hits: 992 -> 0.992
10 hits: 987 -> 0.987
15 hits: 979 -> 0.979
20 hits: 970 -> 0.970
25 hits: 959 -> 0.959
30 hits: 941 -> 0.941
35 hits: 921 -> 0.921
50 hits: 817 -> 0.817

78% Number of Triggers per Threshold

5 hits: 992 -> 0.992
10 hits: 981 -> 0.981
15 hits: 974 -> 0.974
20 hits: 972 -> 0.972
25 hits: 967 -> 0.967
30 hits: 963 -> 0.963
35 hits: 960 -> 0.960
50 hits: 950 -> 0.950