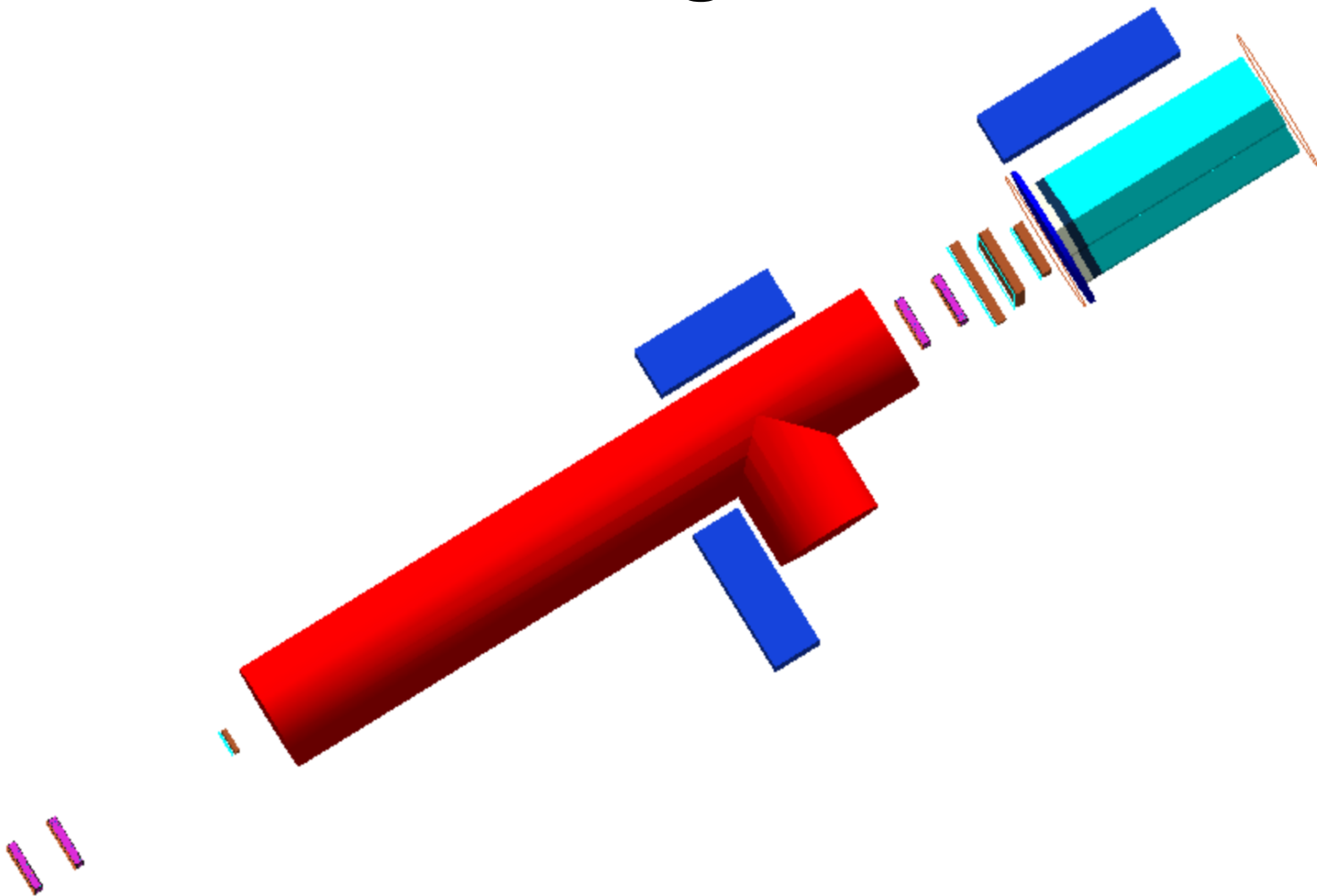


C-foil Target Simulation at 7 Degrees



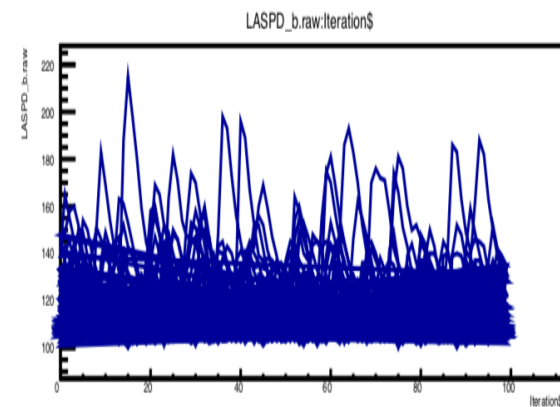
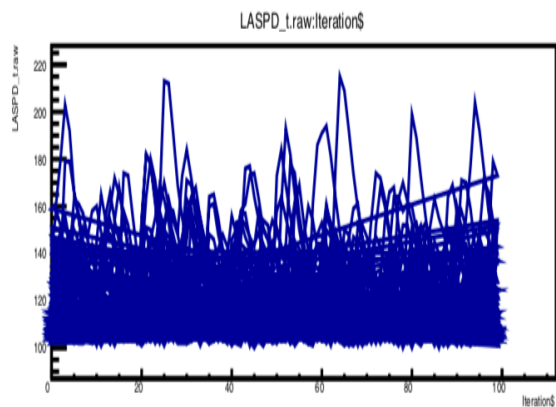
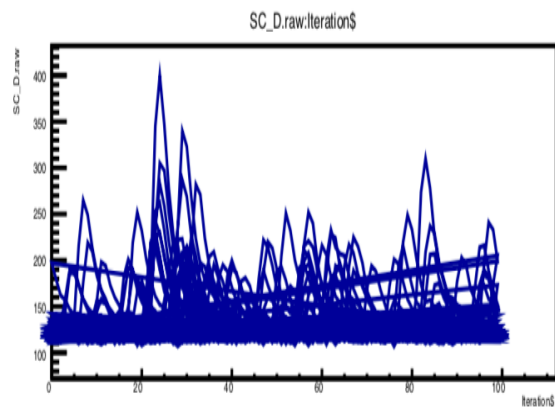
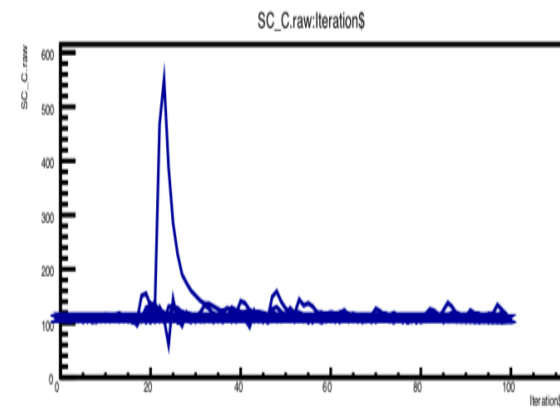
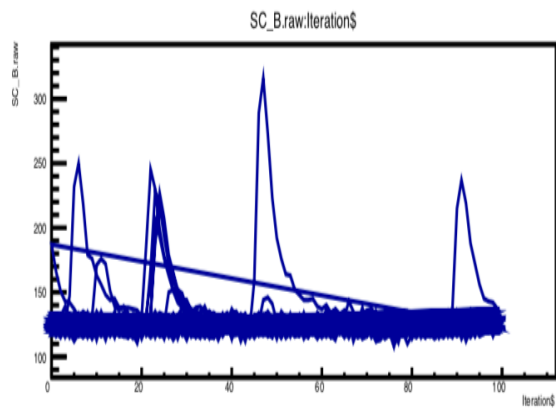
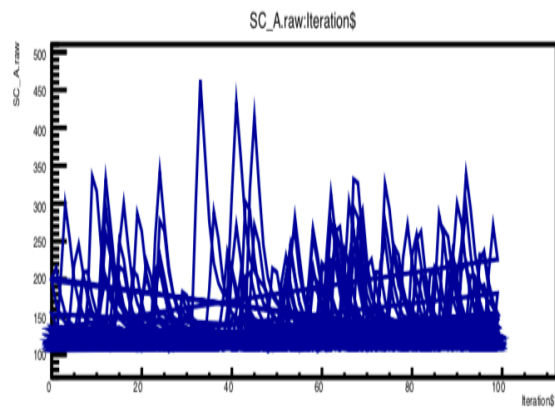
7-degrees Background

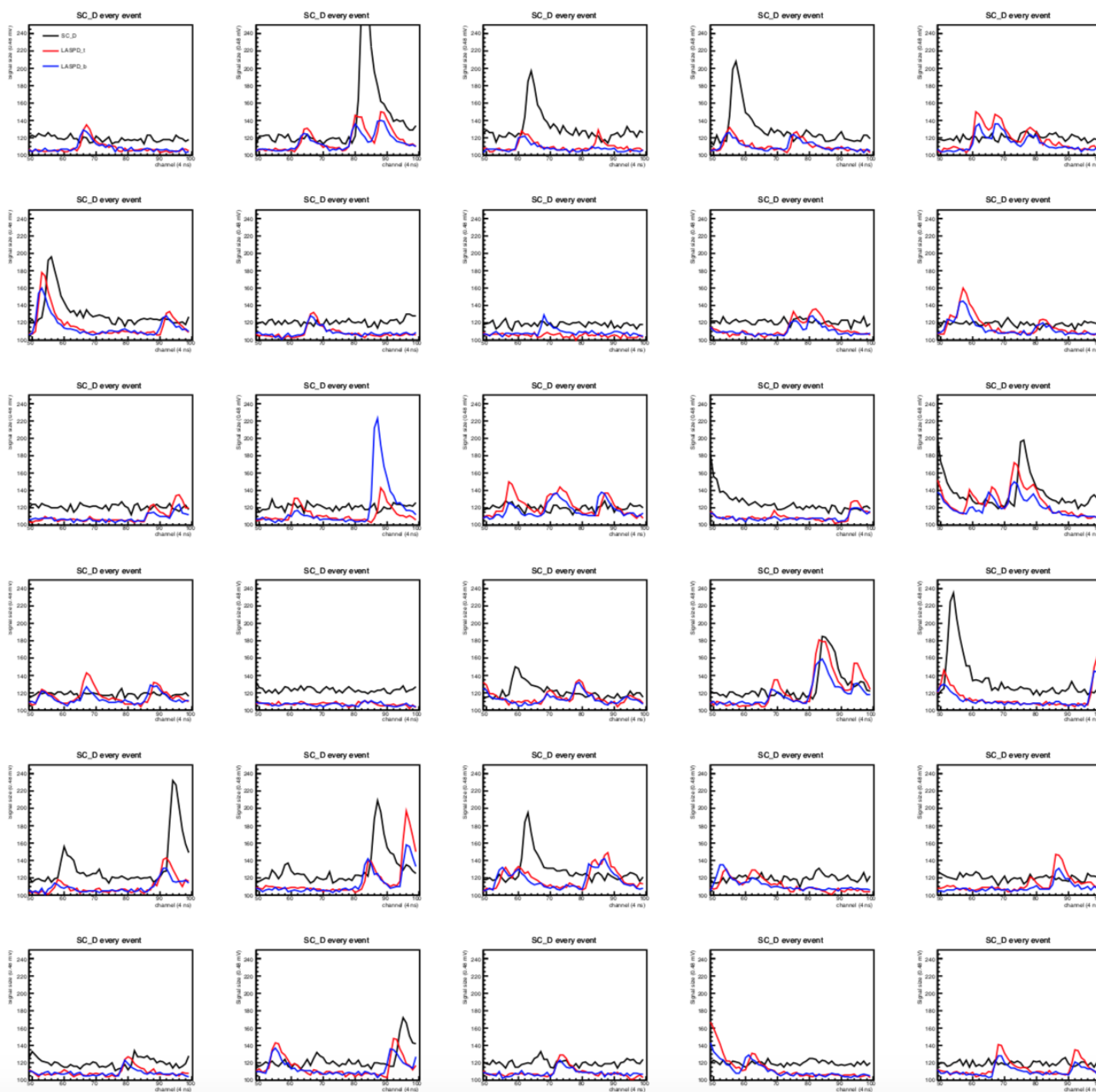
- 1) Moller electrons 60 MeV-----from the target
- 2) MIP energy γ ---from the beam line

Ecal Rates

Detector	Threshold	Rate. kHz/cm ²	Area cm ²	Total Rate MHz
F. Trigger (SC_A)	0.5 MIP	60	7x5	2.1
R. Trigger (SC_C)	0.5 MIP	34	5x20	3.4
F. GEM	0.5 MIP	39	100	3.9
R. GEM	0.5 MIP	19	100	1.9
LaSPD	0.5 MIP	15	560	8
LGC	3 PE	20	560	6
SPD	0.5 MIP	33	250	10
P. Shower	MIP	43	76	3
ECal	$\pi^\pm$ MIP	-	76	0.005
ECal	0.5 MIP	-	76	≈ 1
ECal	5 GeV	0.0004	76	0.03
ECal	7 GeV	-	76	0.2 Hz
End Scint (SC_B)	0.5 MIP	170	5x10	8.0
End Scint (SC_B)	$\pi^\pm$ 0.5 MIP	-	5x10	0.15 KHz

Run 4022





Coincidence Check

- LASPD and SC_D

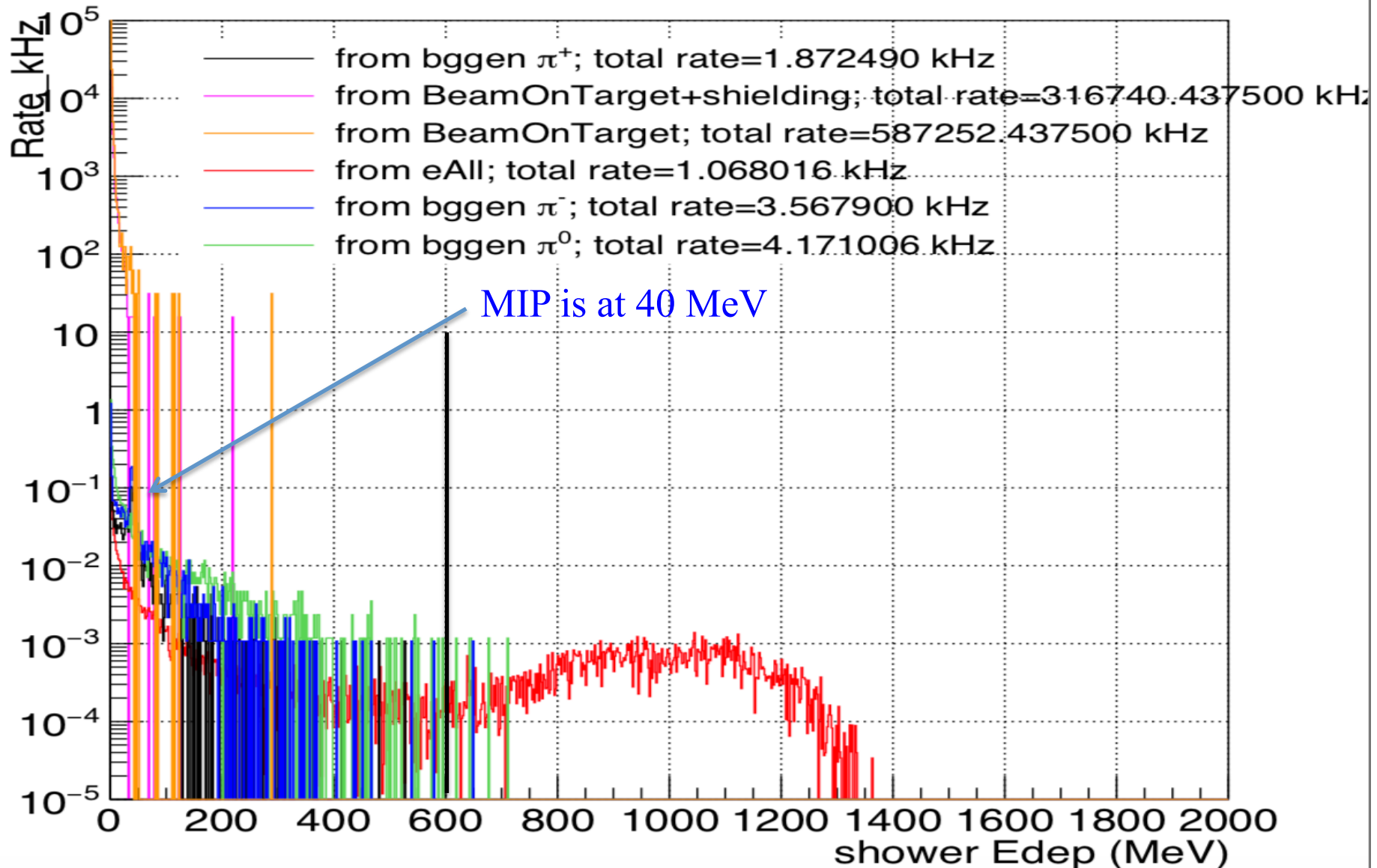
- ✓ Half coincidence
- ✓ Moller e^-

LASPD: 560 cm²
SC_D: 104.8cm²

Run 4022:
1.8 uA on He3 target
DAQ rate= 5.7kHz

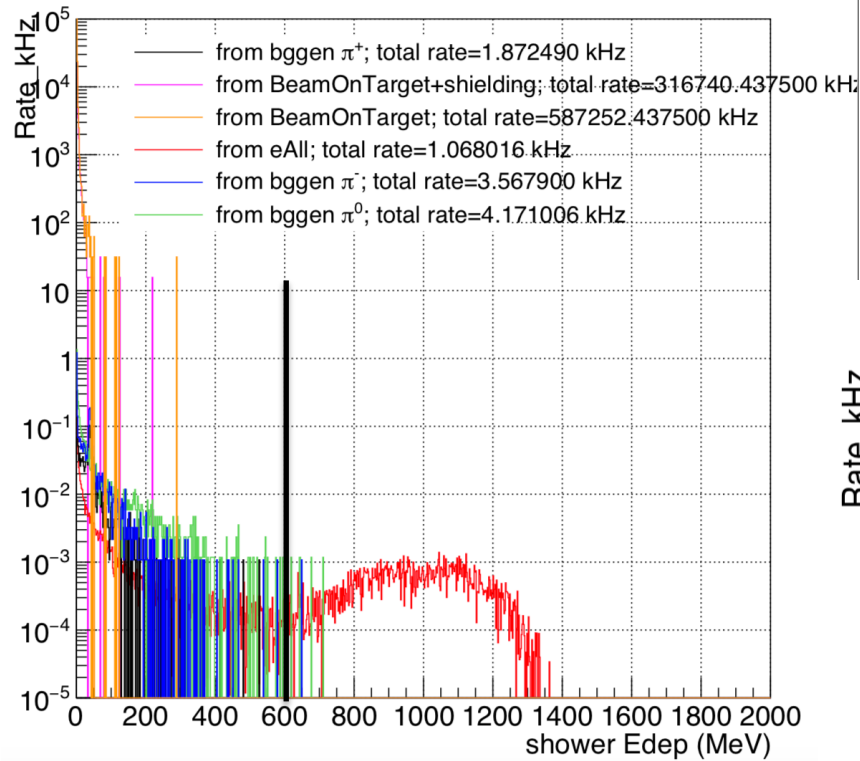
Potential High Energy e^- Clean Signal

ShowerSum {rate*(ShowerSum>0)}

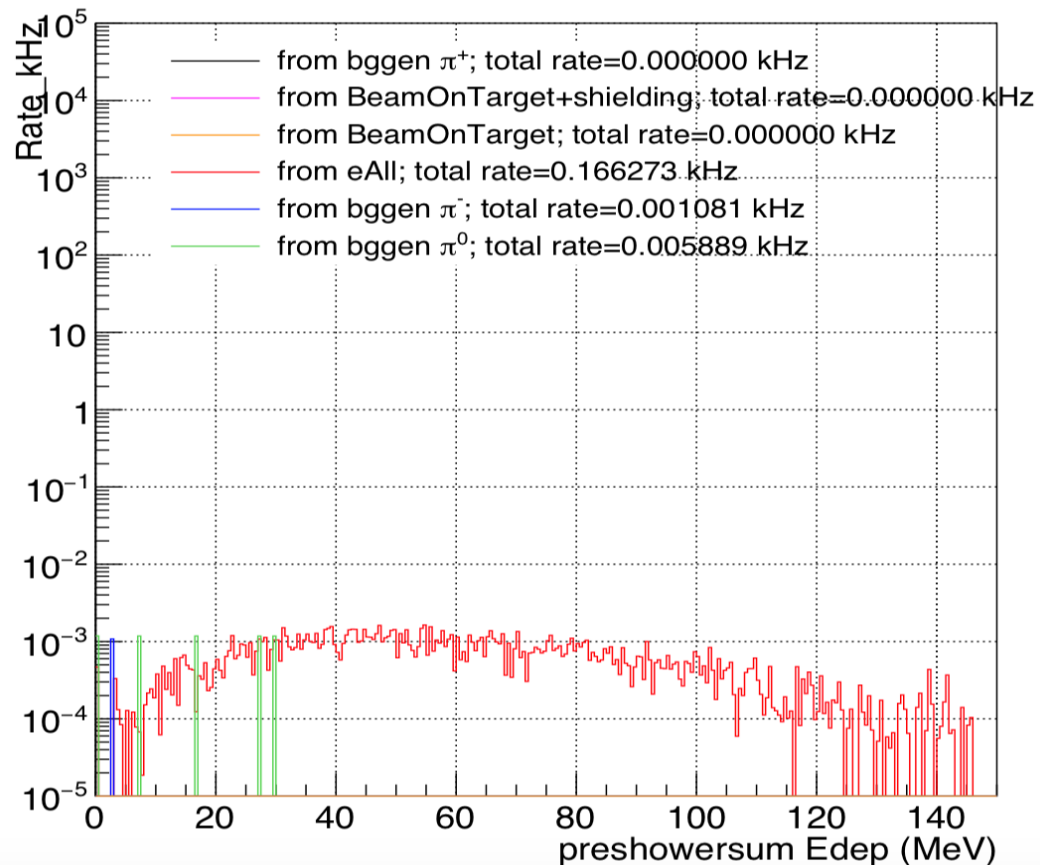


Potential High Energy e^- Clean Signal

ShowerSum {rate*(ShowerSum>0)}

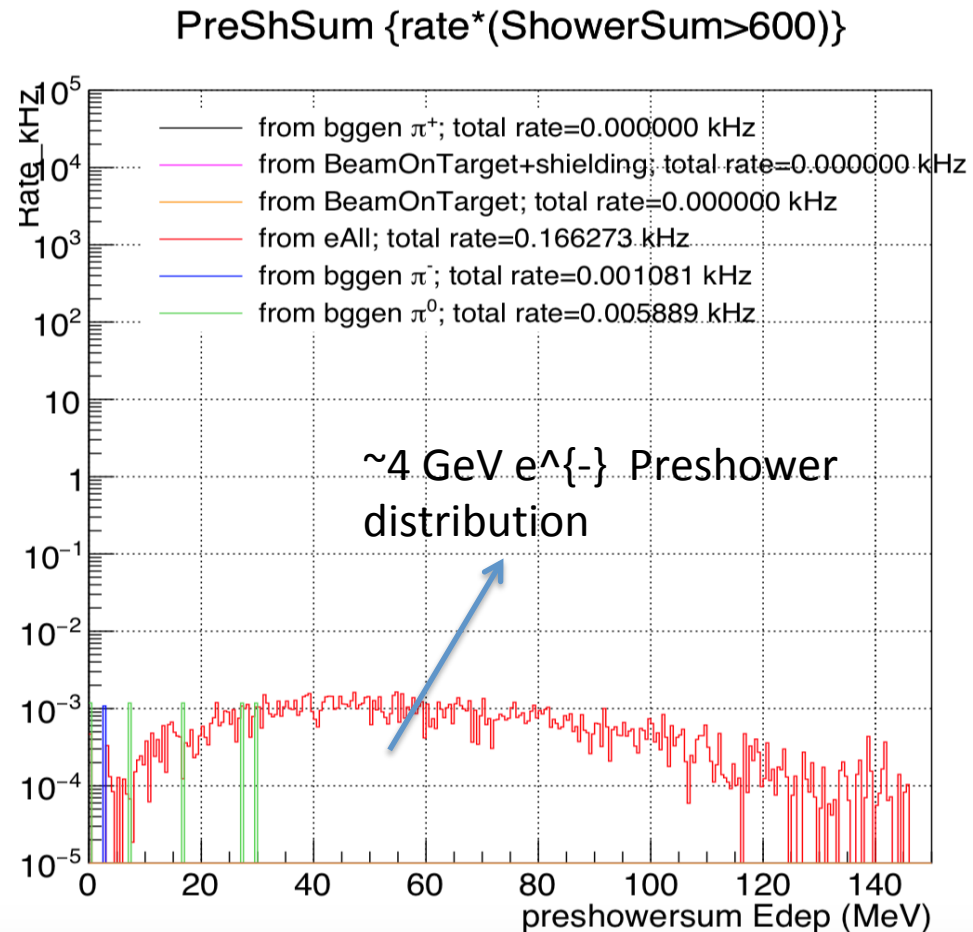
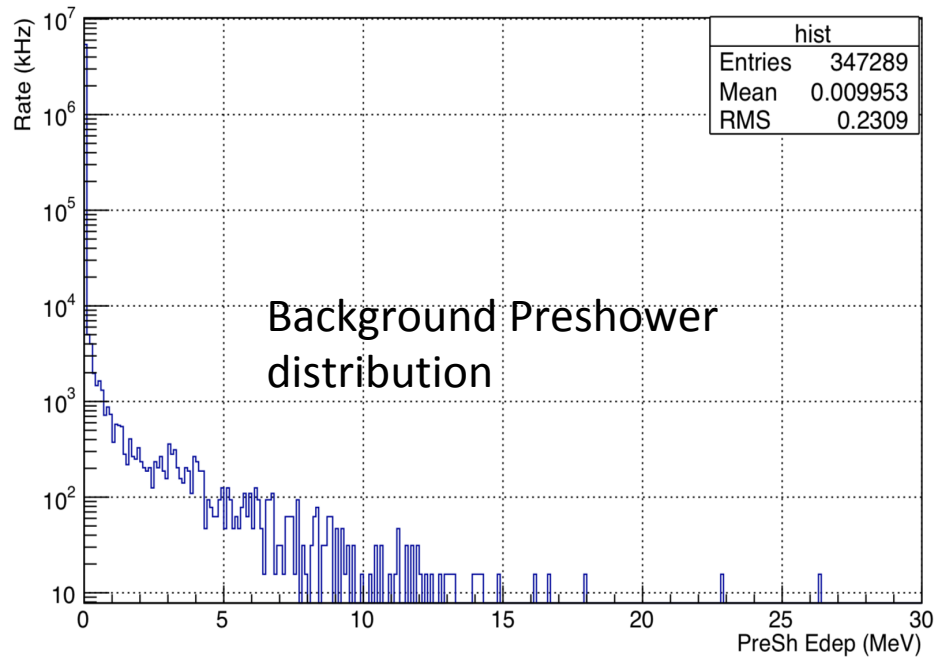


PreShSum {rate*(ShowerSum>600)}

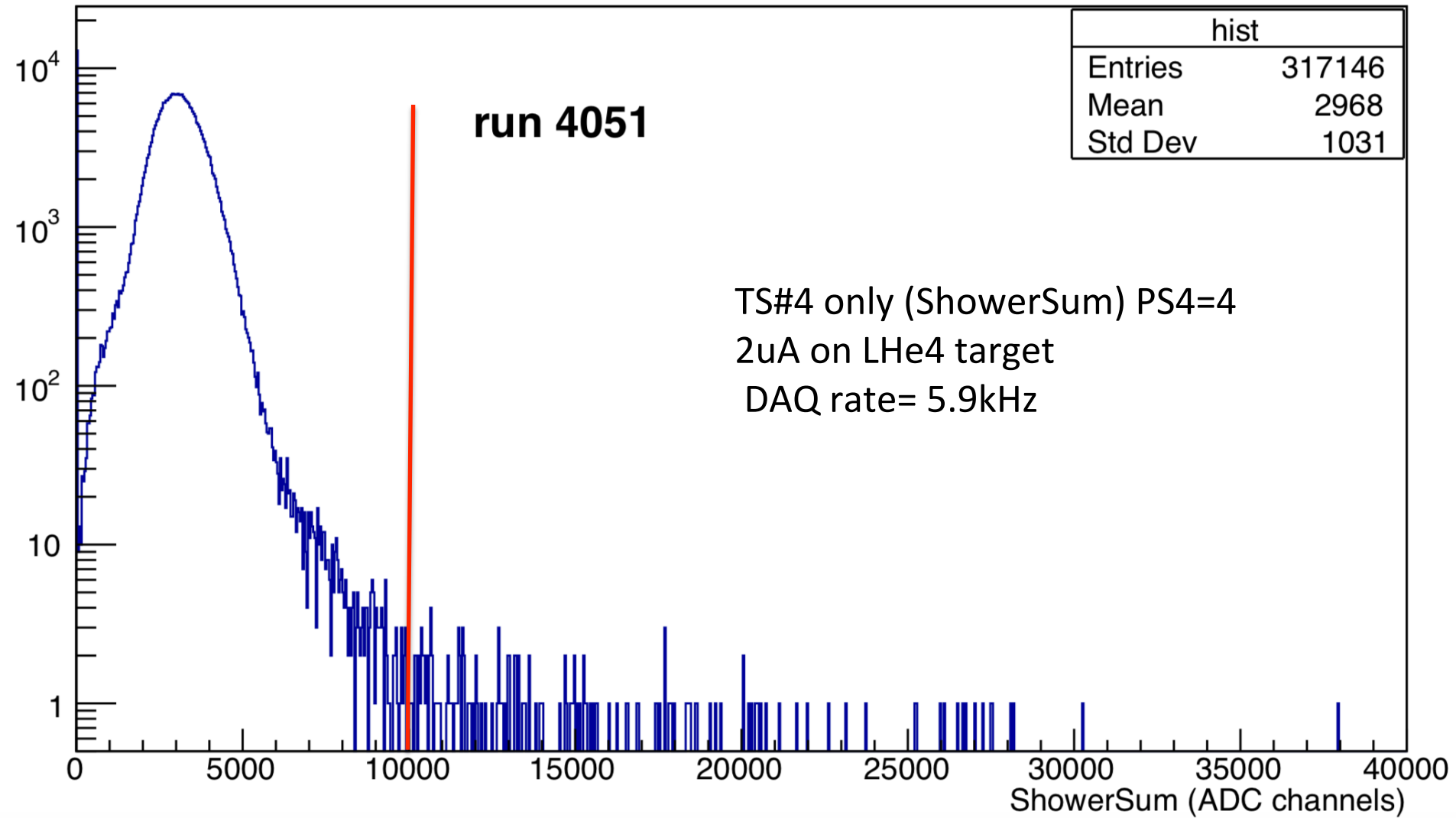


Potential High Energy e^- Clean Signal

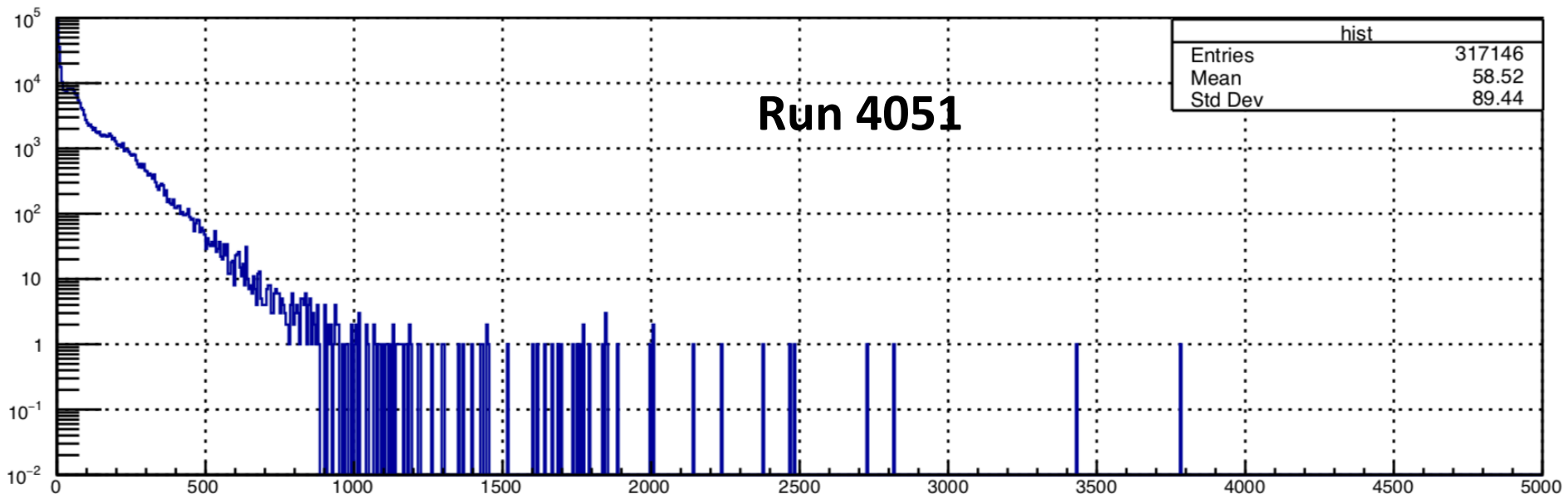
from BeamOnTarget



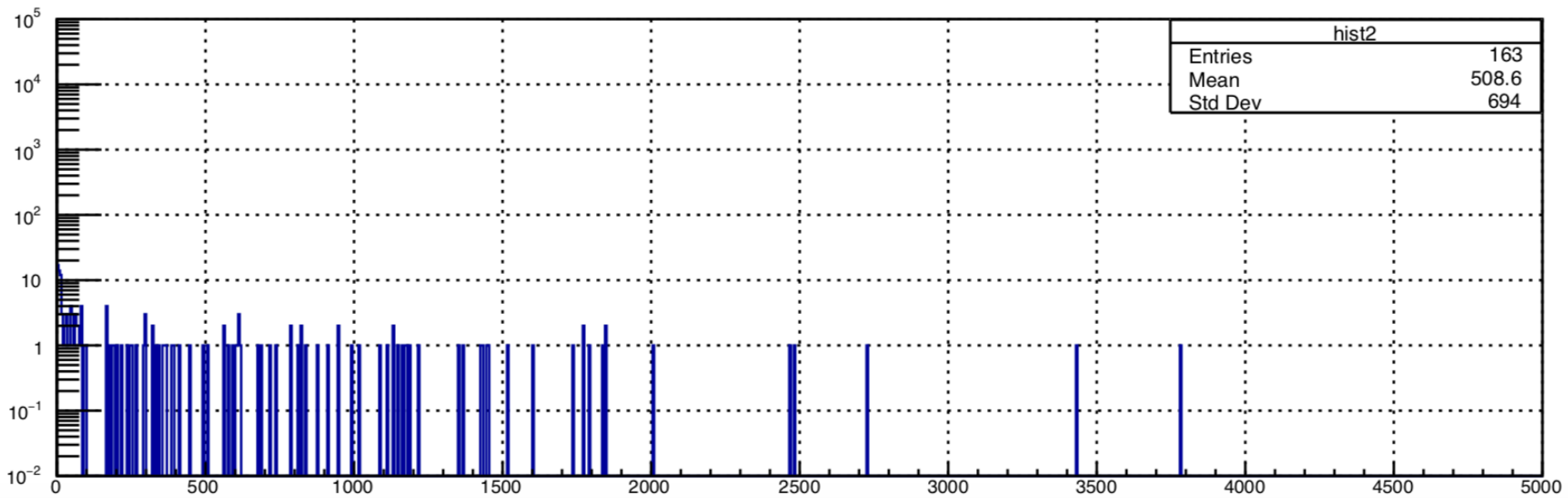
ShowerSum



PreShSum



PreShSum {ShowerSum>10000}



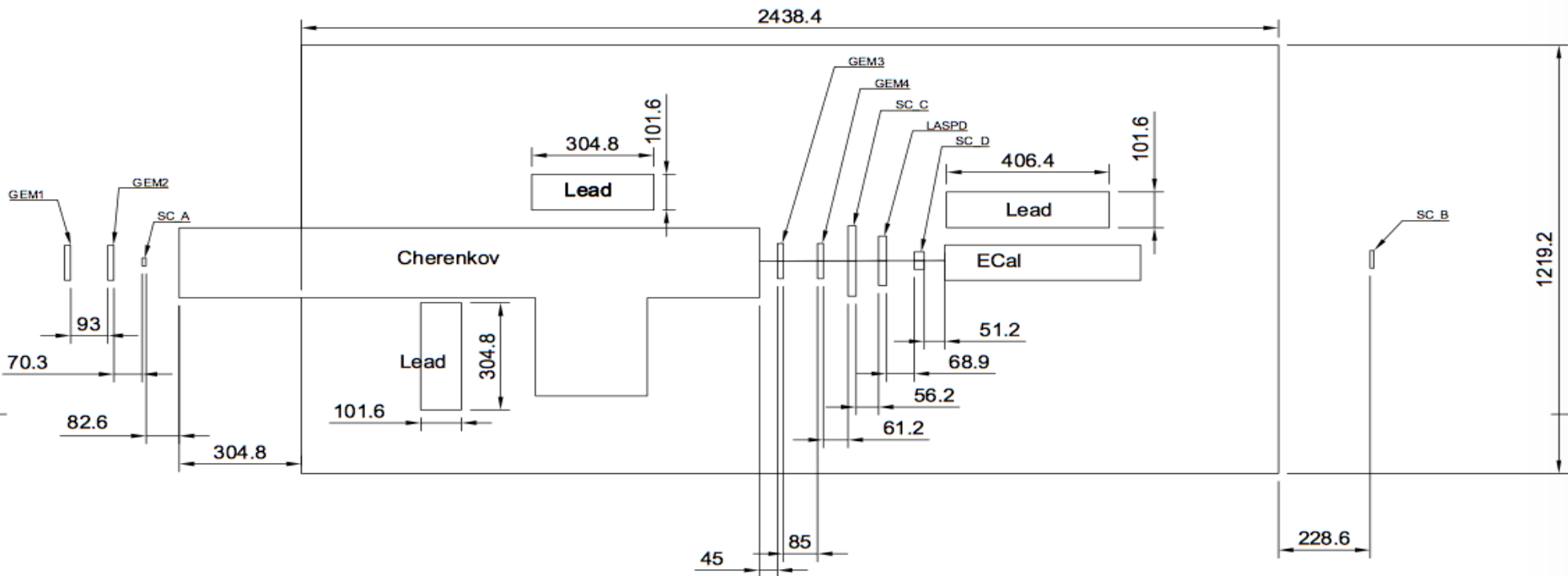
Summary

For the TS#4 only runs:

- increase the threshold of the ShowerSum further to reduce the DAQ rate
- get trustable pulses to see the response of SCs.

Summary

Backup



ECal
Lead 11 mm
Preshower 20 mm
Aluminium 20 mm

Detector area
SC_A 50 mm wide 75 mm tall
SC_C 180 mm wide ~45 mm tall
SC_D hexigon 63.5 mm per side
LASPD 140 mm wide 400 mm tall

Dept.	Technical reference	Created by Jimmy Caylor	1/12/2023		Approved by	
		Document type		Document status		
		Title SoLID_test_stand_7_degree		DWG No.		
		Rev.	Date of issue		Sheet 1/1	

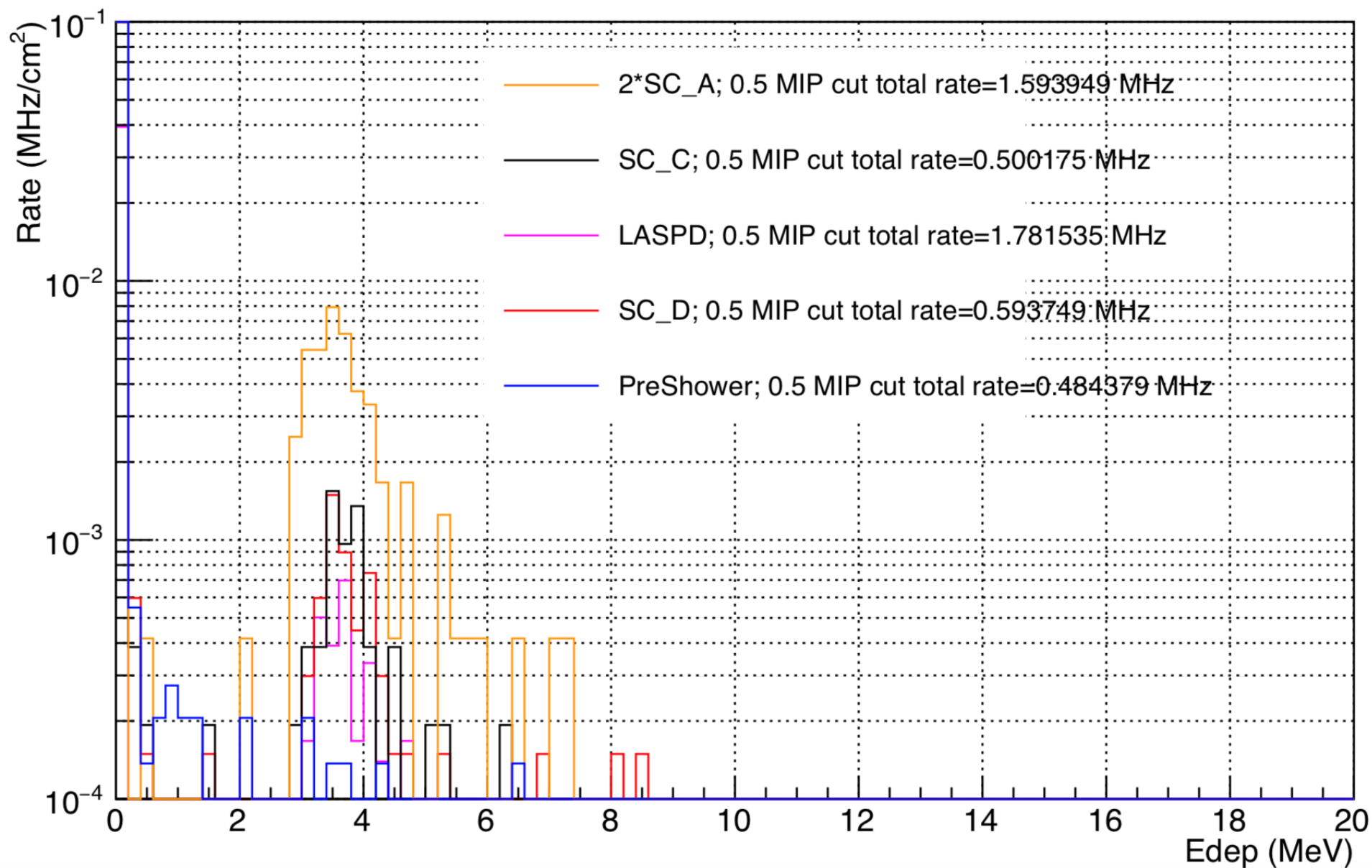
Simulation Rate @ 5uA 100mg/cm2 C-foil target

Rate MHz/cm2	GEM00	GEM01	GEM10	GEM11
7 deg full	0.26	0.27	0.12	0.14

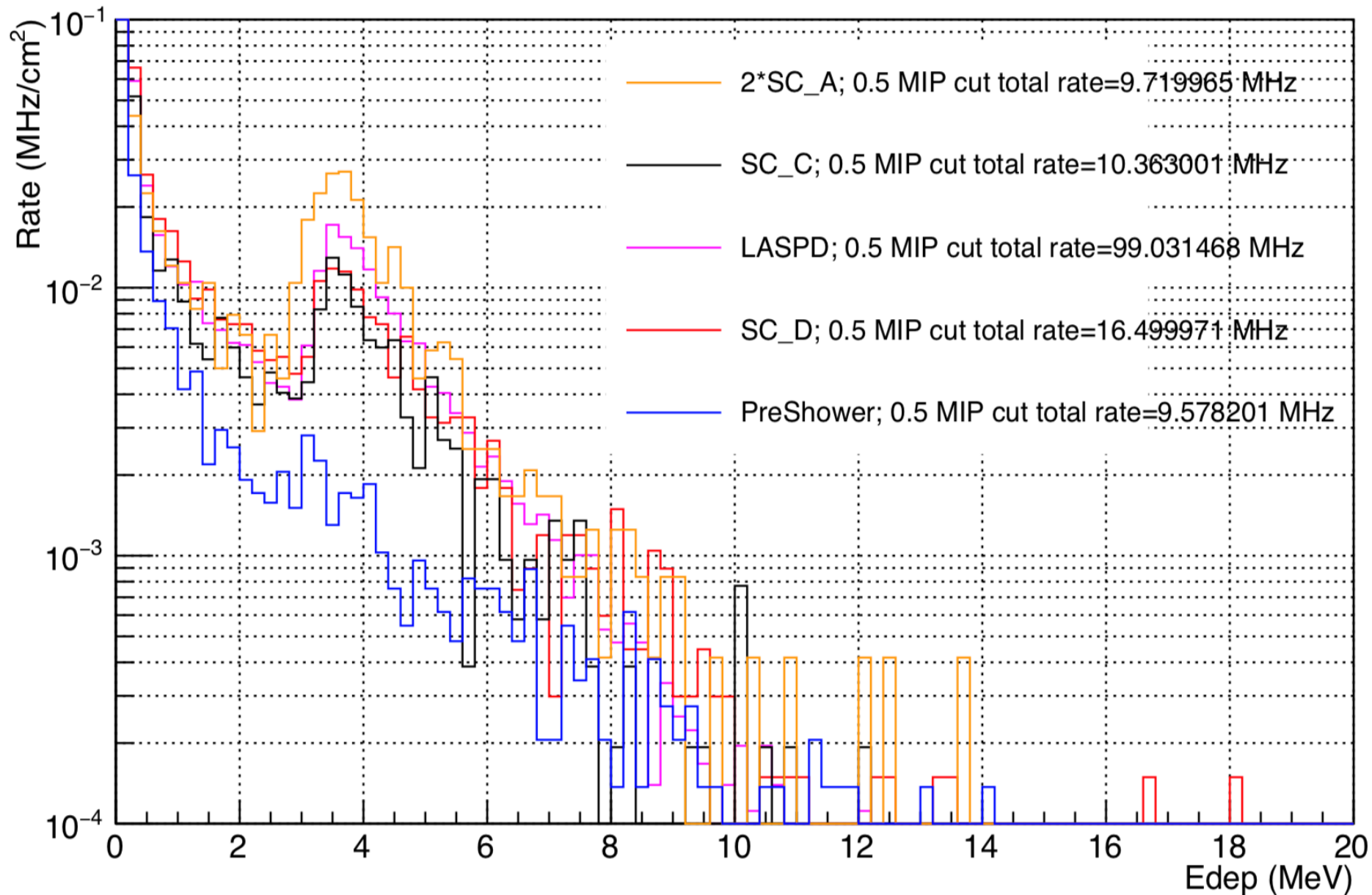
Detector	Threshold	Rate kHz/cm2	Area cm2	Total Rate MHz
SC_A	0.5 MIP	42.5	7.5x5	1.6
SC_C	0.5 MIP	6.2	4.5x18	0.5
GEM00	0.5MIP	9.4	100	0.94
GEM10	0.5MIP	3.6	100	0.36
LASPD	0.5MIP	3.17	560	1.78
LGC	3PE	17	294.6	5.1
P.Shower	MIP	28.4	76	2.0
ECal	Pion MIP	-	76	0.005
ECal	0.5 MIP	2.74	76	0.21
ECal	5 GeV	0.00033	76	0.03 kHz
ECal	7 GeV	-	76	0.2 Hz
SC_B	0.5 MIP	160	5x10	8
SC_B	Pion 0.5 MIP	-	5x10	0.15 kHz

Detector	Threshold	Rate. kHz/cm ²	Area cm ²	Total Rate MHz
F. Trigger (SC_A)	0.5 MIP	60	7x5	2.1
R. Trigger (SC_C)	0.5 MIP	34	5x20	13.4
F. GEM	0.5 MIP	39	100	3.9
R. GEM	0.5 MIP	19	100	1.9
LaSPD	0.5 MIP	15	560	8
LGC	3 PE	20	560	6
SPD	0.5 MIP	33	250	10
P. Shower	MIP	43	76	3
ECal	$\pi^\pm$ MIP	-	76	0.005
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End Scint (SC_B)	0.5 MIP	170	5x10	8.0
End Scint (SC_B)	$\pi^\pm$ 0.5 MIP	-	5x10	0.15 KHz

e^- hit at the front of GEM00 from BeamOnTarget

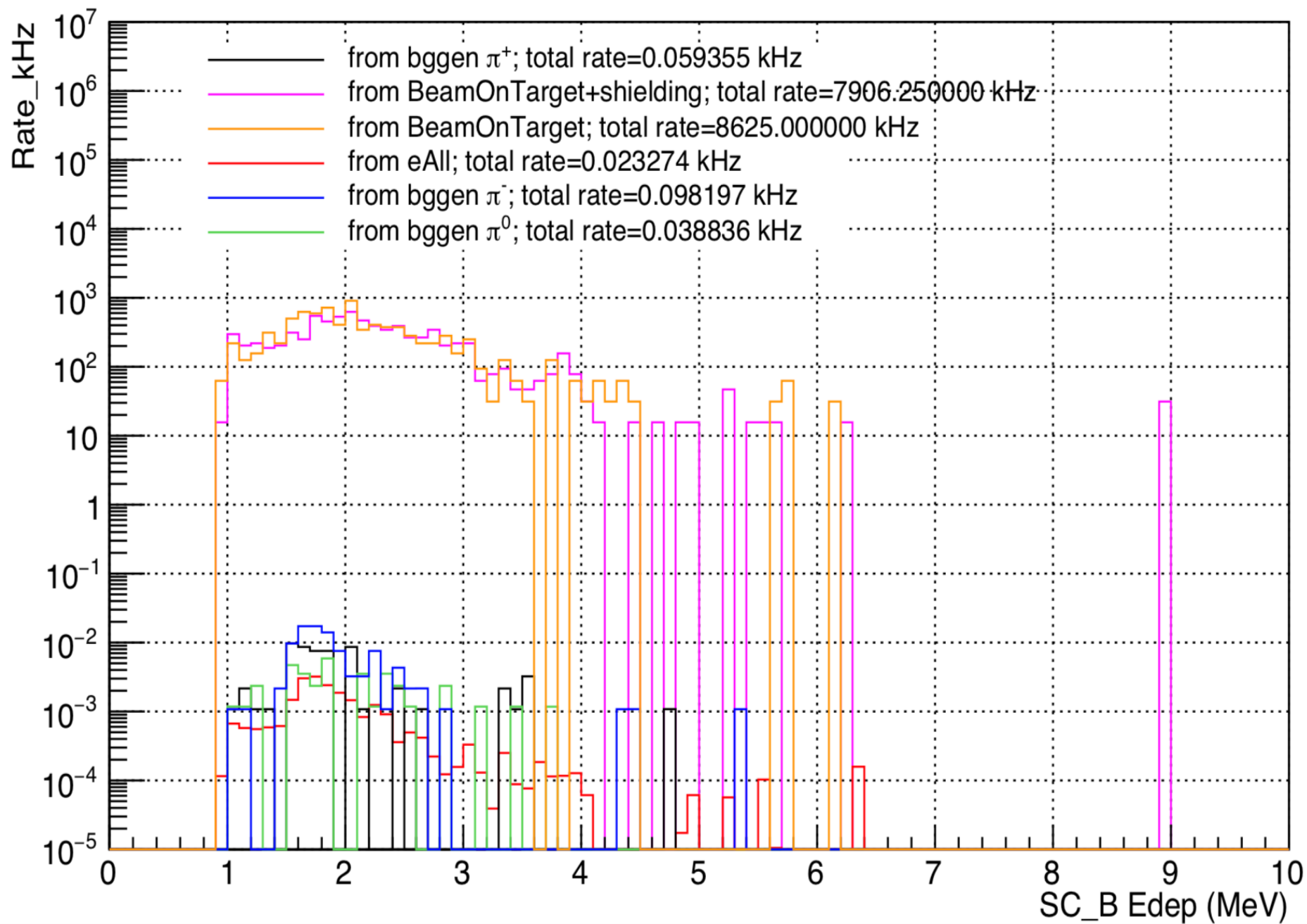


everything from BeamOnTarget



Detector	Threshold	Rate kHz/cm2	Area cm2	Total Rate MHz
SC_A	0.5 MIP	42.5	7.5x5	1.6
SC_C	0.5 MIP	6.2	4.5x18	0.5
GEM00	0.5MIP	9.4	100	0.94
GEM10	0.5MIP	3.6	100	0.36
LASPD	0.5MIP	3.17	560	1.78
LGC	3PE	17	294.6	5.1
P.Shower	MIP	28.4	76	2.0
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ECal	5 GeV	0.00033	76	0.03 kHz
ECal	7 GeV	-	76	0.2 Hz
SC_B	0.5 MIP	160	5x10	8
SC_B	Pion 0.5 MIP	-	5x10	0.15 kHz

SC_B_Eendsum {rate*(SC_B_Eendsum>0.99)}



SC_B_Eendsum {rate*(SC_B_Eendsum>0.99&& ShowerSum>20 && SC_D_Eendsum>1.75)}

