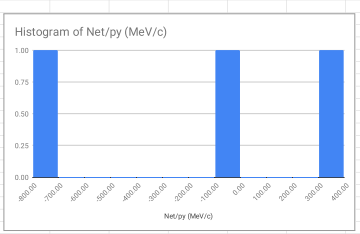
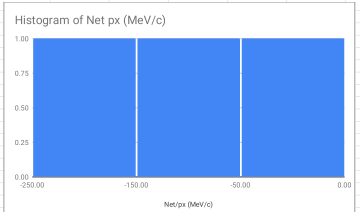
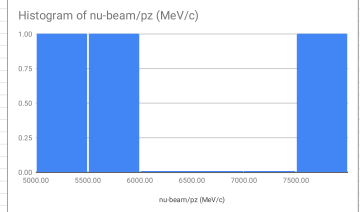


Numbers initially seen in Rows 6-12. Columns C-N are placeholders only. Please overwrite them as you enter actual data.

Cells below (Columns O, P, and Q) contain formulas. Do not overwrite!

merged Tuple	Background (enter a 1)	Signal Event Slice No.	Muon KE (MeV)	v/c	px (MeV/c)	py (MeV/c)	pz (MeV/c)	Proton KE (MeV)	v/c	px (MeV/c)	py (MeV/c)	pz (MeV/c)	Net px (MeV/c)	Net py (MeV/c)	nu-beam pz (MeV/c)	
1	0		11	4.82858	0.99977	61.89	574.73	4.86848	397.94	0.71	-301.50	-220.23	874.92	-239.61	354.50	5.77340
1	1		2	5.35006	0.99981	-8.00	-654.66	5.42577	1.35009	0.91	-3.06	212.24	2.07616	-11.86	-766.91	7.50193
1	2		16	4887.787697	0.9997788381	-567.3823686	-23.10738463	4959.279106	176.8625205	0.5404761351	467.3807506	-43.996279	377.7485949	-100.00	-67.10	5.33703
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No. bkg events = 0

delta px (MeV/c) (FWHM2) =

delta py (MeV/c) (FWHM2) =

delta x (fm) (simple calc) = #DIV/0!

delta y (fm) (simple calc) = #DIV/0!

delta x (fm) (Fermi gas) = #DIV/0!

delta y (fm) (Fermi gas) = #DIV/0!

Numbers initially seen in Rows 6-12. Columns C-V are placeholders only. Please overwrite them as you enter actual data.

merged Tuple	Entry	Background (enter a 1)	Signal Event Slice No.	Muon KE (MeV)	v/c	px (MeV/c)	py (MeV/c)	pz (MeV/c)	Proton KE (MeV)	v/c	px (MeV/c)	py (MeV/c)	pz (MeV/c)	Net px (MeV/c)	Net py (MeV/c)	nu-beam pz (MeV/c)	
26	0			11	4.628.60	0.99977	61.90	574.70	4.898.50	1.427.80	0.92	27.30	253.10	2.156.90	89.20	827.80	7.055.40
26	1			2	5.360.10	0.99981	-8.00	-554.70	5.425.80	1.350.10	0.91	-3.10	-212.20	2.076.20	-11.10	-766.90	7.502.00
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Cells below (Columns O, P, and Q) contain formulas. Do not overwrite!



No. bkg events = 0

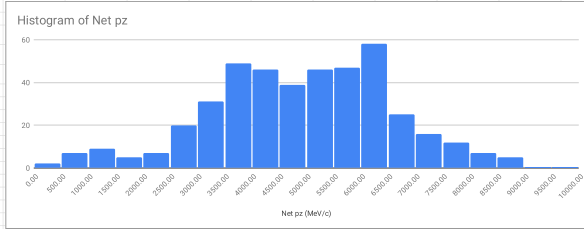
delta px (MeV/c) (FWHM/2) = <input type="text"/>	delta py (MeV/c) (FWHM/2) = <input type="text"/>
delta x (fm) (simple calc) = #DIV/0!	delta y (fm) (simple calc) = #DIV/0!
delta x (fm) (Fermi gas) = #DIV/0!	delta y (fm) (Fermi gas) = #DIV/0!

Numbers initially seen in Rows 6-12. Columns C-N are placeholders only. Please overwrite them as you enter actual data. Cells below (Columns O, P, and Q) contain formulas. Do not overwrite!

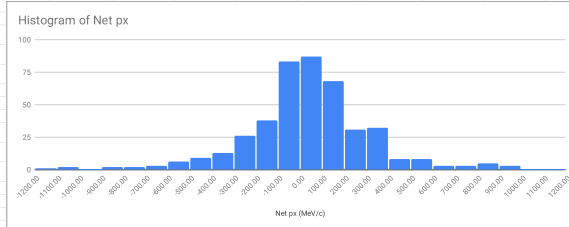
Table with 24 columns: merged Tuple, Entry, Background (enter a 1), Signal Event Slice No., Muon KE (MeV), v/c, px (MeV/c), py (MeV/c), pz (MeV/c), Proton KE (MeV), v/c, px (MeV/c), py (MeV/c), pz (MeV/c), Net px (MeV/c), Net py (MeV/c), Net pz (MeV/c), nu-beam px (MeV/c), nu-beam py (MeV/c), nu-beam pz (MeV/c). Rows 74-75 are highlighted in light blue.

Table with 24 columns: merged Tuple, Entry, Background (enter a 1), Signal Event Slice No., Muon KE (MeV), v/c, px (MeV/c), py (MeV/c), pz (MeV/c), Proton KE (MeV), v/c, px (MeV/c), py (MeV/c), pz (MeV/c), Net px (MeV/c), Net py (MeV/c), Net pz (MeV/c), nu-beam px (MeV/c), nu-beam py (MeV/c), nu-beam pz (MeV/c). Rows 75-76 are highlighted in light blue.

px	py	pz
267.20	-67.35	5,426.61
91.15	-66.71	3,591.44
-169.21	298.42	5,482.88
111.72	35.48	5,428.97
-168.35	-3.38	5,949.31
-7.89	12.45	6,247.78
127.37	-455.37	2,728.80
37.83	279.91	6,485.25
198.42	-1.22	5,426.60
-344.85	236.90	2,888.82
182.19	-88.82	3,768.46
254.87	-67.55	4,115.82
149.47	-115.29	5,458.94
-158.61		6,764.61
7.64	24.94	3,885.33
39.61	-76.85	4,217.83
-227.78	-498.15	6,566.85
-74.53	-115.68	4,536.27
-78.49		5,239.21
12.87	-131.89	4,437.59
-84.89	185.62	6,385.91
84.68	-222.94	5,548.28
15.95	189.54	4,345.71
158.48	421.12	1,652.62
47.78	-54.93	5,842.54
-198.64	-288.88	7,228.83
-397.88	159.89	4,877.73
352.81	-31.57	6,436.23
-7.89	-96.58	6,694.94
358.82	-453.59	1,393.96
-1,149.77	-1,476.18	6,973.58
-357.88	682.96	6,838.84
9.11	245.76	6,435.55
-473.42	1,889.73	3,615.83
-1.86	121.25	3,178.68
379.55	-621.68	8,342.65
-534.82	-1,236.42	8,599.15
977.51	-383.64	6,467.87
-585.27	-288.36	7,248.89
898.54	-881.19	4,838.38
698.59	9.31	6,581.48
283.48	-688.27	8,782.17
-882.51	-688.52	4,566.94
298.76	45.42	3,863.65
375.32	71.32	13,838.87
293.62	-12.46	8,615.84
393.27	-447.69	8,537.44
-21.68	-692.96	7,523.88
-347.33	-725.88	8,395.32
487.53	688.59	7,353.18
-269.88	-853.46	6,188.72
-425.45	-411.59	5,187.11
-1,889.26	88.75	5,228.25
-78.88	-831.88	6,288.22
-343.31	878.84	7,138.25
763.68	185.41	8,134.75
931.59	81.47	6,812.83
528.75	219.85	8,583.71
561.43	794.81	4,473.65
-238.15	-1,827.88	7,884.81
976.58	328.88	7,588.88
873.86	219.98	7,468.85
-641.81	512.57	5,972.81
-265.61	-572.83	7,399.39
467.71	-854.83	4,866.42
-628.46	333.74	6,188.88
848.14	228.58	7,568.85
-44.28	-785.81	5,938.41
533.76	714.91	5,864.48
-257.88	-273.21	6,822.28
315.91	-188.84	2,787.87
77.23	11.45	4,322.44
-216.93	73.83	3,526.37
182.83	233.57	4,712.21
27.76	88.23	4,257.63
-438.38	-337.95	3,389.75
-1.32	244.98	3,435.79
58.19	-79.55	6,382.87
127.94	-248.21	789.46
-181.25	86.72	6,159.32
-148.71	-85.84	5,818.21
152.53	3.68	4,575.15
-63.86	148.18	5,985.49
9.95	-81.78	5,421.21



Avg pz = 5,089.42 MeV
 Med pz = 5,019.30 MeV
 StdDev= 3411.450

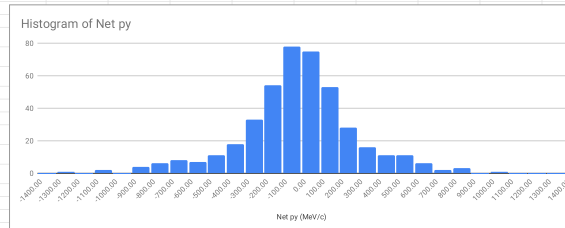


Calculated:
 Std Dev = 487.15 MeV/c
 delta-x = 0.21 fm (Heisenberg)
 delta-x = 0.62 fm (Fermi Gas)

$$\Delta x \Delta p \geq \frac{\hbar}{4\pi}$$

Δx = uncertainty in position
 Δp = uncertainty of momentum
 \hbar = Planck's constant
 π = pi

Visual: (FWHM/2) =
 Std Dev = 200.00
 delta-x = 0.75 fm (Heisenberg)
 delta-x = 1.50 fm (Fermi Gas)



Calculated:
 Std Dev = 528.45 MeV/c
 delta-y = 0.19 fm (Heisenberg)
 delta-y = 0.57 fm (Fermi Gas)

Visual: (FWHM/2) =
 Std Dev =
 delta-x = #DIV/0!
 delta-x = #DIV/0!

77.26	-107.65	4,073.31	
87.64	153.73	6,487.28	
186.01	-480.04	6,498.08	
183.12	118.45	3,328.27	
134.12	0.49	6,427.04	
-64.37	-83.32	7,206.06	
46.27	138.27	5,868.59	
-17.33	166.28	3,899.30	
127.73	-176.86	6,572.02	
-65.35	-124.81	6,371.66	
-4.84	-133.95	4,667.45	
173.91	177.83	2,871.42	
85.91	184.13	6,082.65	
-8.05	97.94	4,214.85	
-100.15	91.05	3,533.20	
194.76	16.40	2,952.59	
113.37	-221.71	4,366.62	
-387.47	-392.54	758.88	
-248.43	189.93	1,407.43	
-340.56	-697.79	3,821.39	
-45.06	186.28	7,424.89	
143.35	185.15	3,522.82	
145.63	-194.46	5,016.62	
419.92	-60.82	8,371.62	
278.26	381.82	6,161.36	
189.87	146.88	2,806.32	
299.71	241.22	5,013.93	
-199.17	-201.86	5,781.58	
-27.32	6.56	2,069.11	
-510.91	425.33	6,759.97	
112.70	93.83	6,282.00	
-433.86	-323.32	4,529.65	
106.92	115.39	6,181.73	
317.04	61.91	5,583.00	
-133.87	-113.93	6,107.67	
-181.28	-552.73	4,144.21	
258.89	-61.53	2,797.27	
344.52	-82.40	5,093.58	
31.24	-380.42	3,729.34	
43.53	122.79	3,313.66	
80.37	-193.45	4,637.43	
152.27	-222.25	5,854.42	
352.17	501.87	3,801.06	
-29.20	161.10	6,029.12	
-47.10	-246.89	5,246.74	
84.82	-74.29	6,261.49	
-161.26	176.14	3,548.36	
-190.07	52.82	7,037.16	
-266.14	2.24	1,236.95	
45.40	-13.93	5,796.18	
182.22	-175.95	2,971.86	
91.33	-42.76	5,031.38	
-261.35	19.30	4,695.99	
7.37	-125.82	4,840.26	
303.20	-241.26	6,180.86	
-220.06	522.97	4,000.47	
-275.96	-129.79	5,098.81	
299.39	10.27	5,777.36	
170.36	178.27	6,362.36	
80.25	-95.91	3,458.71	
225.44	181.58	4,251.23	
3.62	235.40	3,529.92	
352.17	501.87	3,801.06	
-117.44	42.07	2,885.16	

45.71	-83.03	6,578.05
-8.93	92.05	6,149.54
92.45	-71.67	7,168.27
-1,045.57	641.75	5,175.61
-131.15	-65.22	4,106.42
-493.45	433.14	3,736.34
49.39	49.25	3,955.66
307.05	88.95	1,491.82
89.98	174.89	6,806.45
126.95	-49.62	5,385.62
314.86	58.19	5,473.16
-76.59	454.76	6,294.77
-59.64	-158.18	4,876.85
158.03	38.95	3,711.61
48.01	-15.86	5,293.92
-68.08	-135.93	3,121.93
-64.46	-172.38	6,463.76
-118.92	-99.12	5,719.78
-53.82	335.04	3,471.96
174.13	184.89	3,786.88
284.58	58.19	3,862.63
169.53	-16.01	3,348.68
-6.31	-48.23	2,548.18
-221.94	-138.26	1,787.89
-6.23	-146.25	3,675.66
167.95	-285.19	3,834.14
46.46	88.69	4,686.98
-526.14	-187.29	3,433.81
148.87	-154.63	3,679.18
-89.27	3.48	7,295.74
289.17	229.89	5,142.61
331.86	-163.61	4,963.51
-425.99	-174.42	4,966.64
118.38	381.98	4,787.46
72.23	-187.88	4,381.35
168.19	55.12	5,676.59
185.75	98.84	3,752.49
-11.87	-111.14	2,668.76
74.38	-184.14	4,747.65
888.54	-38.66	7,428.89
32.19	-599.97	4,644.24
368.81	378.83	3,998.97
-186.55	82.11	5,871.78
546.98	-1,038.93	3,296.18
-329.12	-284.01	10,138.16
161.72	-289.83	6,319.38
383.84	-23.66	6,442.39
-26.26	-65.94	6,434.64
289.56	-298.86	5,415.86
-14.48	496.88	6,688.85
-78.64	328.77	3,641.12
345.13	-388.87	3,281.71
-417.46	-488.22	5,982.28
-281.27	-197.63	3,864.89
-53.67	-54.47	4,886.72
-73.89	92.93	5,962.48
55.86	-5.81	5,992.17
382.84	-232.89	4,287.16
-46.31	-45.38	3,828.19
133.78	86.73	952.97
-21.38	325.37	4,112.58
-368.68	681.29	4,871.93
-29.68	-87.42	2,959.65
-518.48	169.98	1,288.69
257.13	-523.72	4,128.17
146.86	395.37	6,135.95
328.99	161.11	7,636.22
-318.17	178.38	5,373.88
-184.28	4.49	4,943.88
-141.49	143.12	3,871.27
26.19	548.88	3,785.65
-892.71	286.17	3,744.48
368.33	1.68	3,348.97
358.65	-566.88	4,244.85
-259.98	563.18	6,895.89
-11.79	-1.38	5,157.38
188.86	581.58	7,893.57

89.20	827.80	7,055.40
-11.10	-766.90	7,502.00

