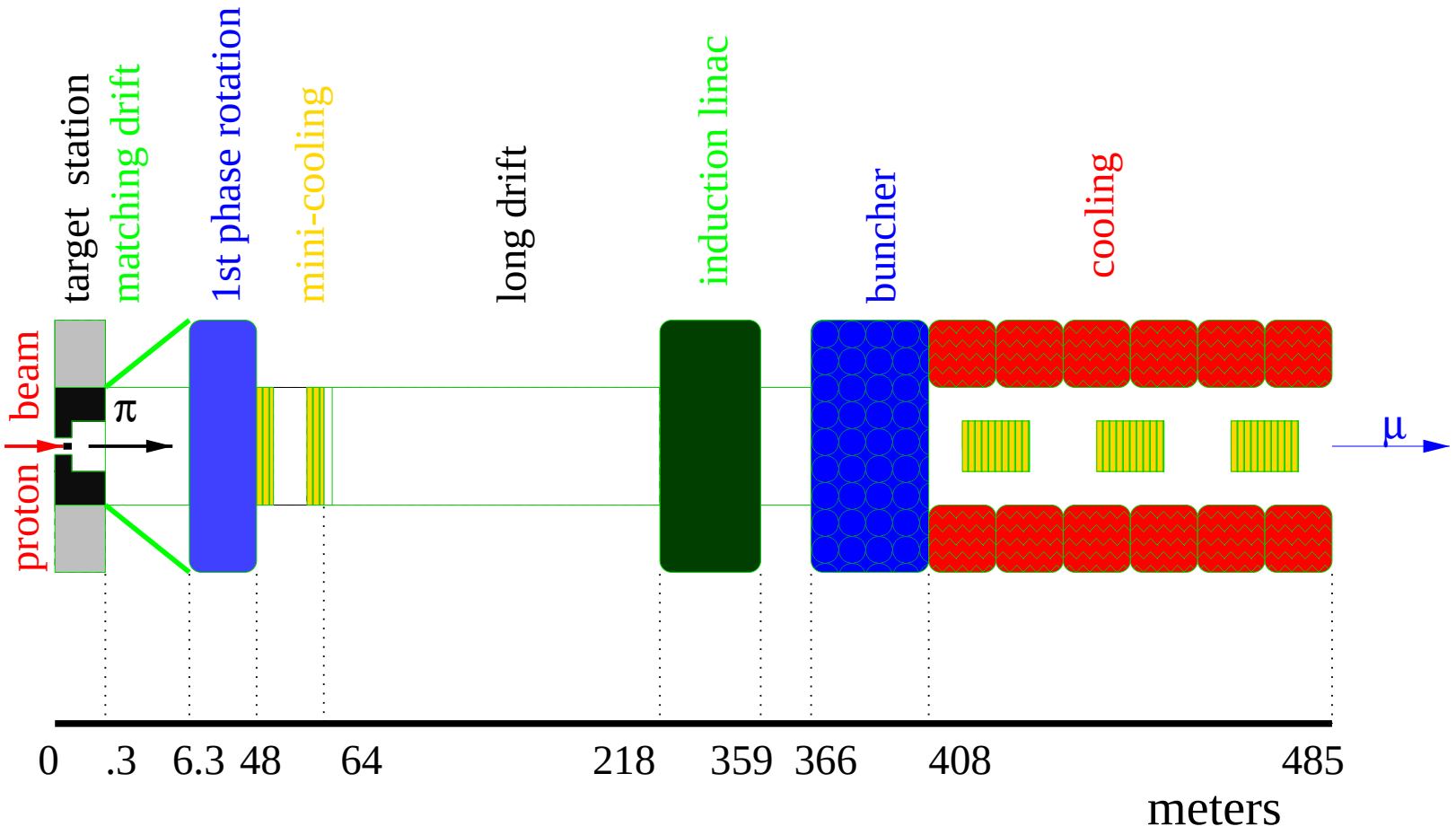
To Do List

1) Confirm that 60 cm Aperture, 1.25 T channel with 50cm period is acceptable – ICOOL

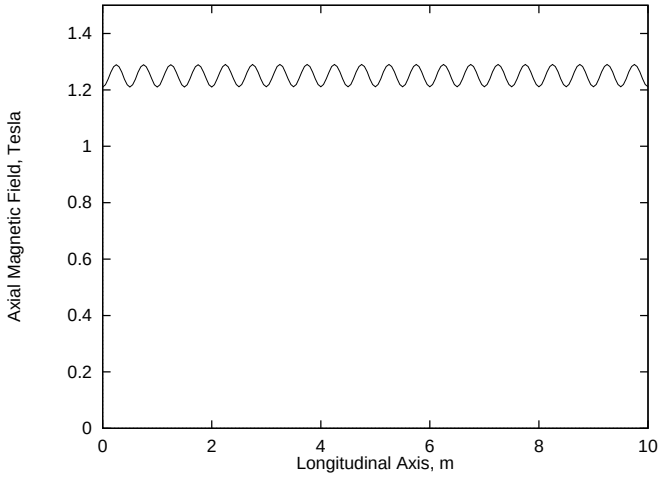
2) Calculate neutron flux at Mini-cool station – MARS

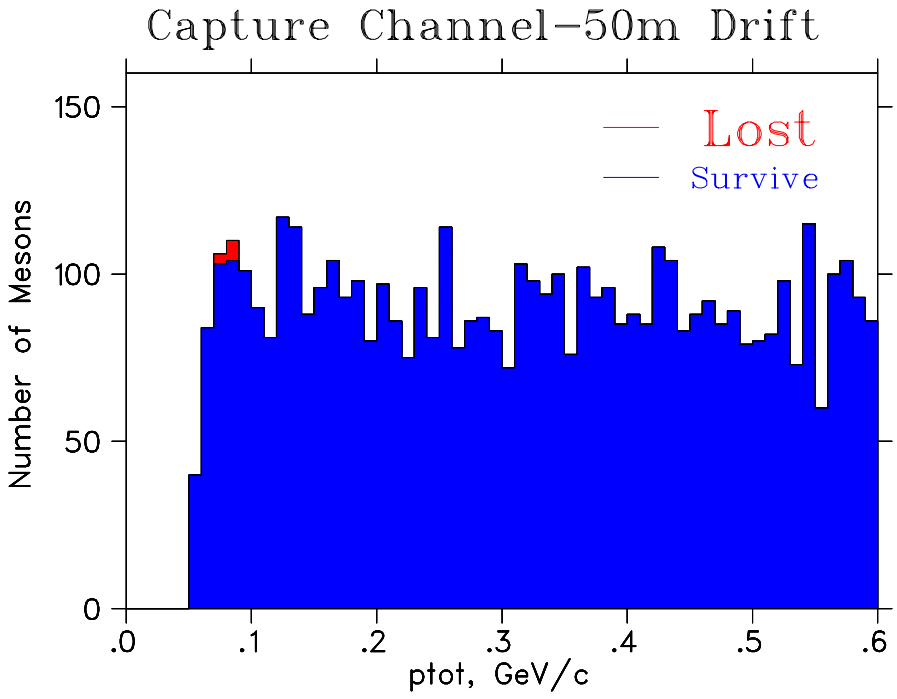
3) Determine off-sign pions/muons flux at Mini-cool station – MARS/ICOOL

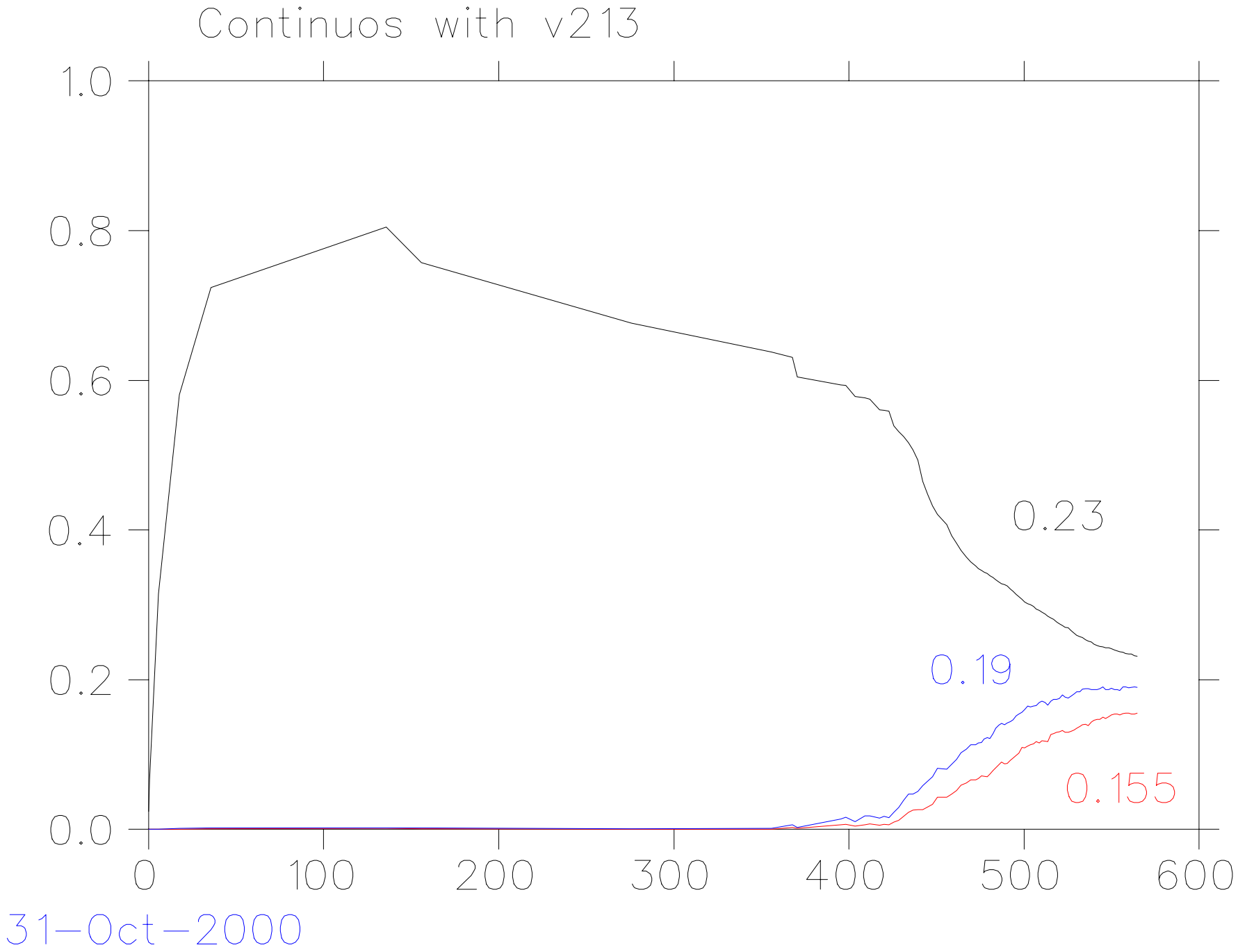
4) Determine proton flux at Mini-cool station – MARS/ICOOL

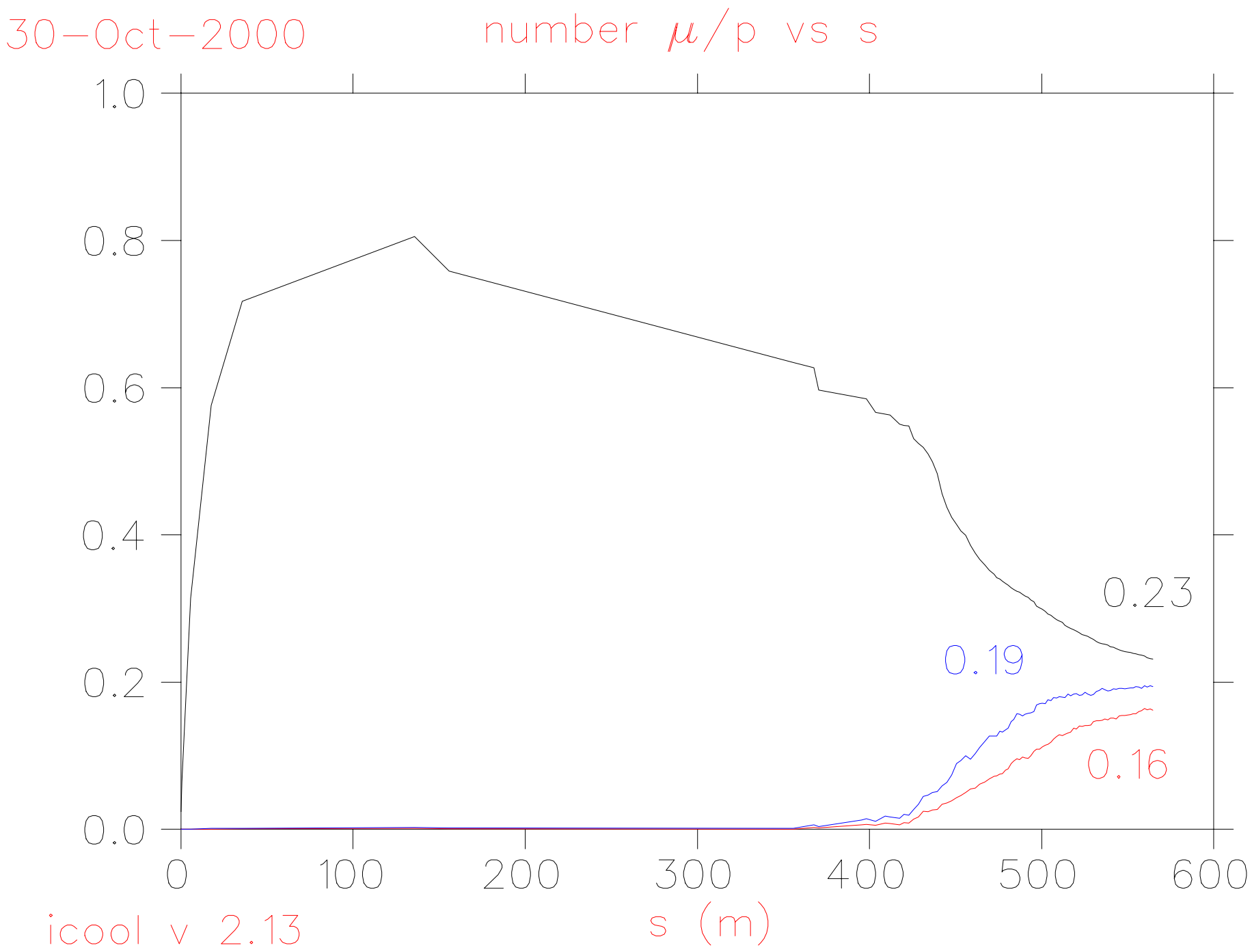

target station
matching drift
1st phase rotation
mini-cooling
long drift
induction linac
buncher
cooling
proton beam
π
μ
0
.3
6.3
48
64
218
359
366
408
485
meters

1.25 T channel with two 14cm gaps






Continuos with v213
1.0
0.8
0.6
0.4
0.2
0.0
0
100
200
300
400
500
600
0.23
0.19
0.155
31-Oct-2000


30-Oct-2000
number μ/p vs s
1.0
0.8
0.6
0.4
0.2
0.0
0
100
200
300
400
500
600
0.23
0.19
0.16
icool v 2.13
s (m)

Mars Simulation Results

1cm diameter, 30cm long Hg Target

Tablular protons are secondary protons only

Particles crossing downstream plane of target

	Particles/Incoming protons				
	e	μ	π	K	p
positives	0	0.02	1.76	0.05	0.73
negatives	0	0.03	1.11	0.02	-

ICOOL Simulation Results

Induction Linac Phase Rotation

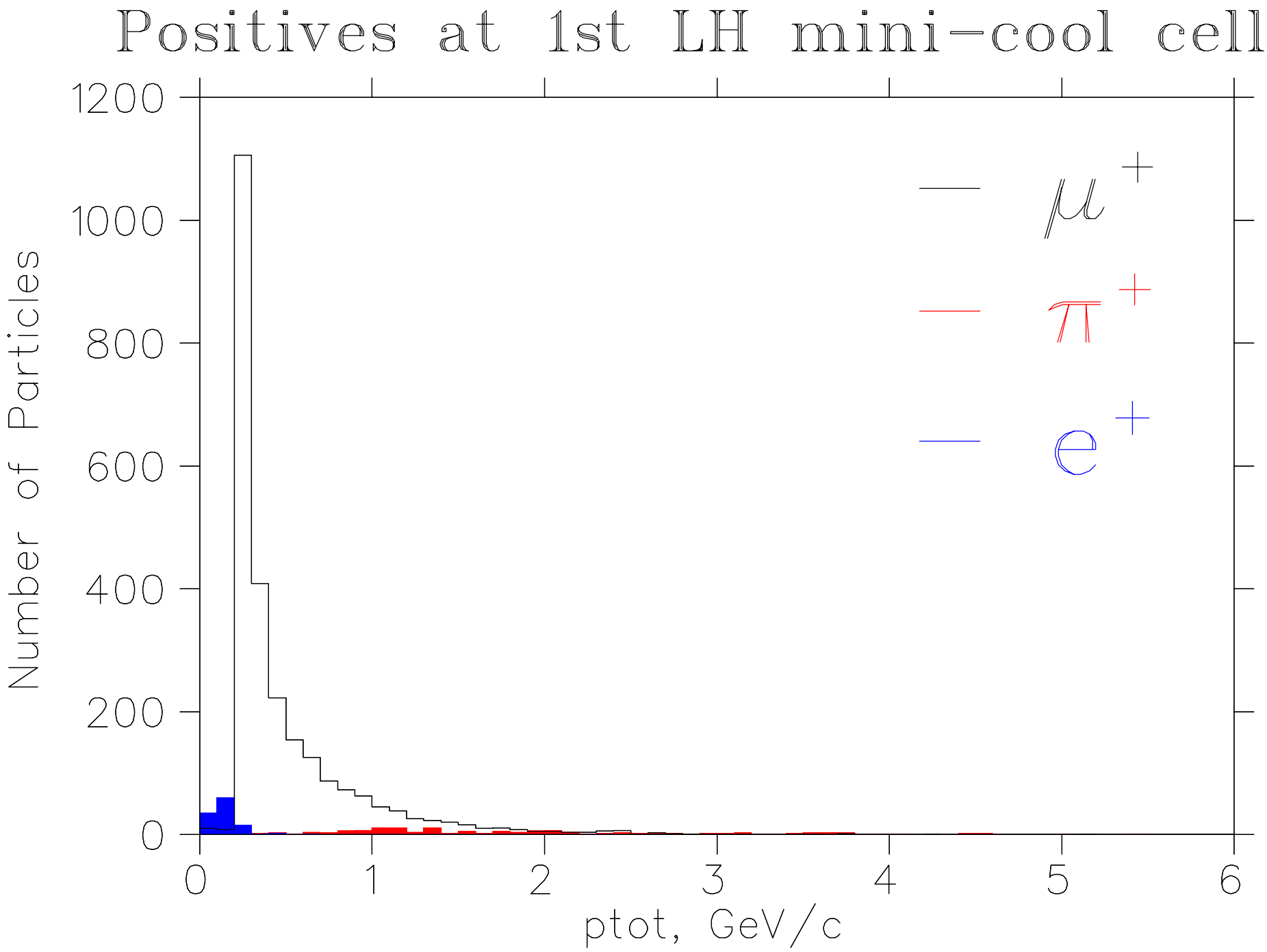
Particles entering 1st mini-cool LH cell

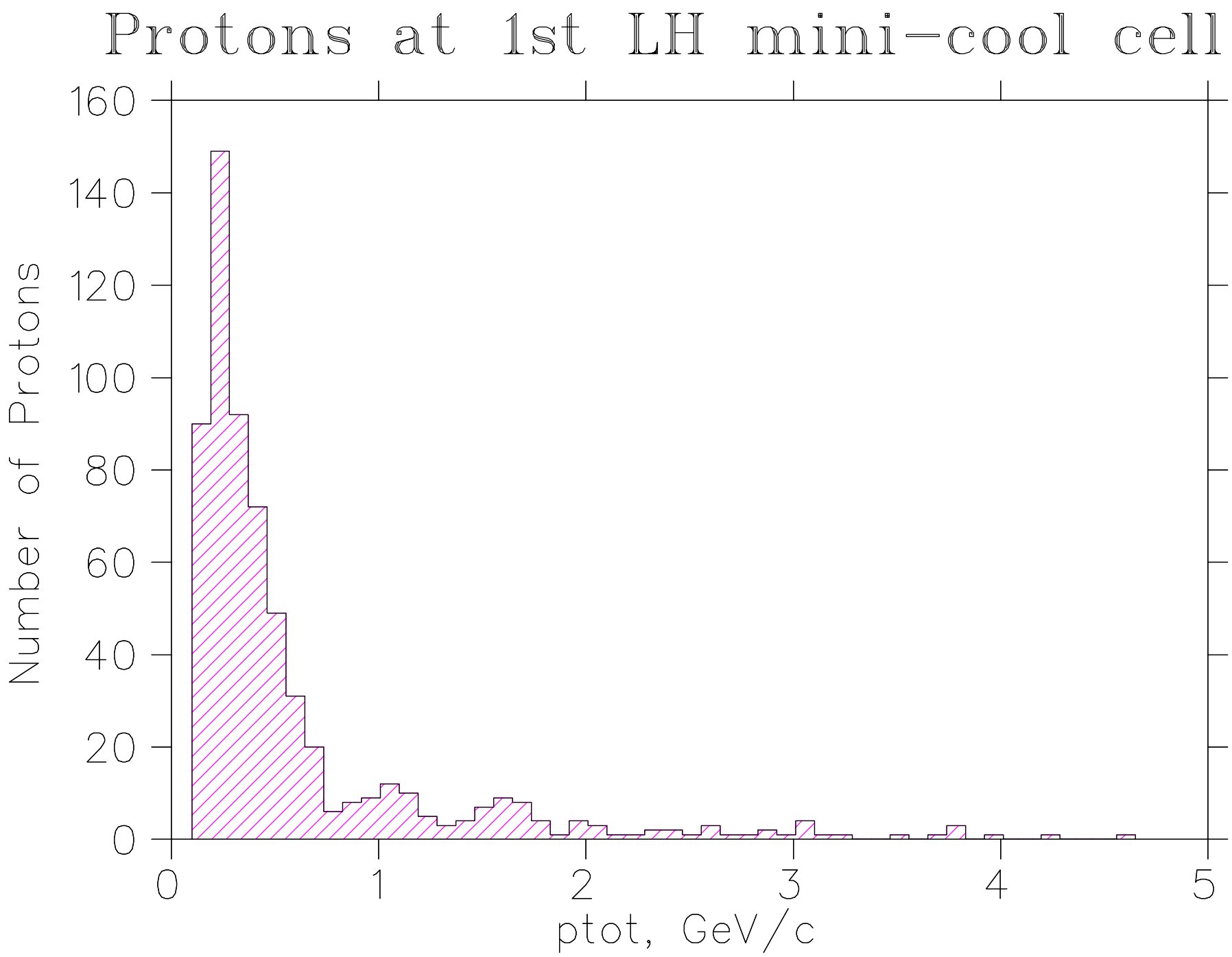
Positive muon collection

	Particles/Incoming protons				
	e	μ	π	K	p
positives	0.04	0.95	0.05	0	0.38
negatives	0.02	0.57	0.01	0	-

Negative muon collection

	Particles/Incoming protons				
	e	μ	π	K	p
positives	0.03	0.73	0.05	0	0.38
negatives	0.04	0.79	0.01	0	-


Positives at 1st LH mini-cool cell
Number of Particles
1200
1000
800
600
400
200
0
0
1
2
3
4
5
6
ptot, GeV/c
μ+
π+
e+


Protons at 1st LH mini-cool cell
Number of Protons
ptot, GeV/c
0
20
40
60
80
100
120
140
160
0
1
2
3
4
5

Power deposition in Mini-cool cells

Assume:

1 MW 24 GeV proton beam

175 cm Mini-cool LH cell

Positive muon collection

	dE/dx , kJ/sec
positives	12.04
negatives	1.25
total	13.29

Negative muon collection

	dE/dx , kJ/sec
positives	11.56
negatives	1.75
total	13.31