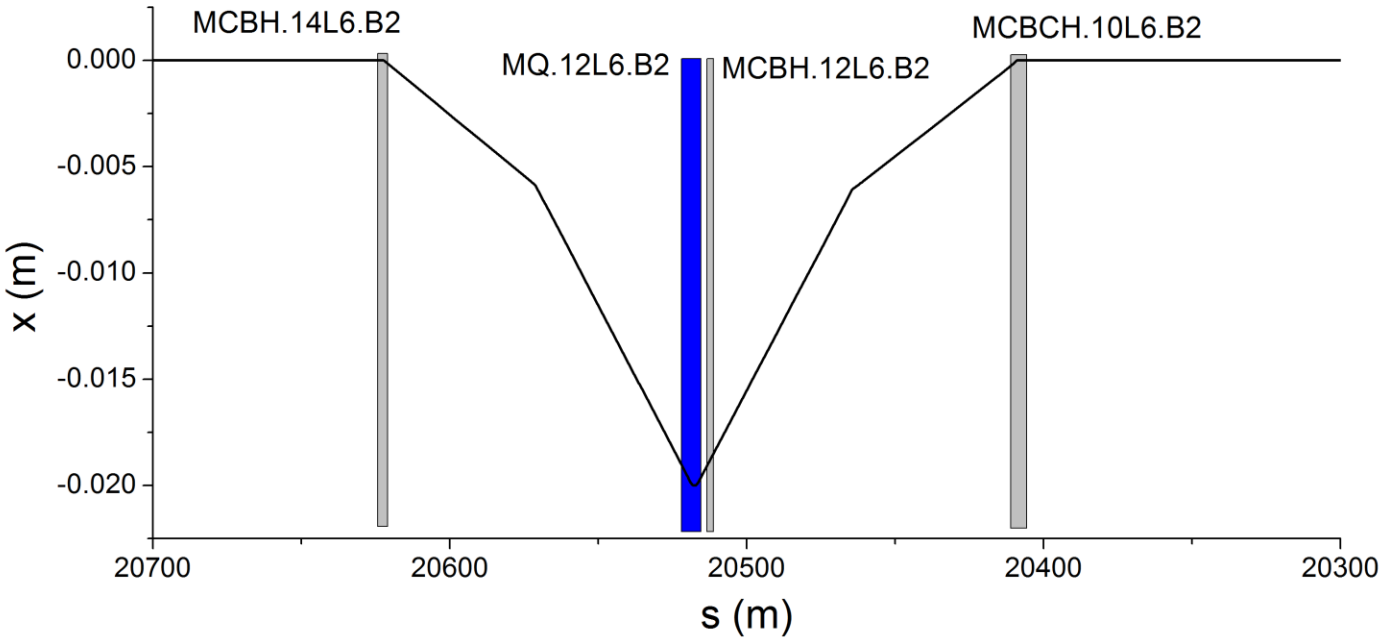
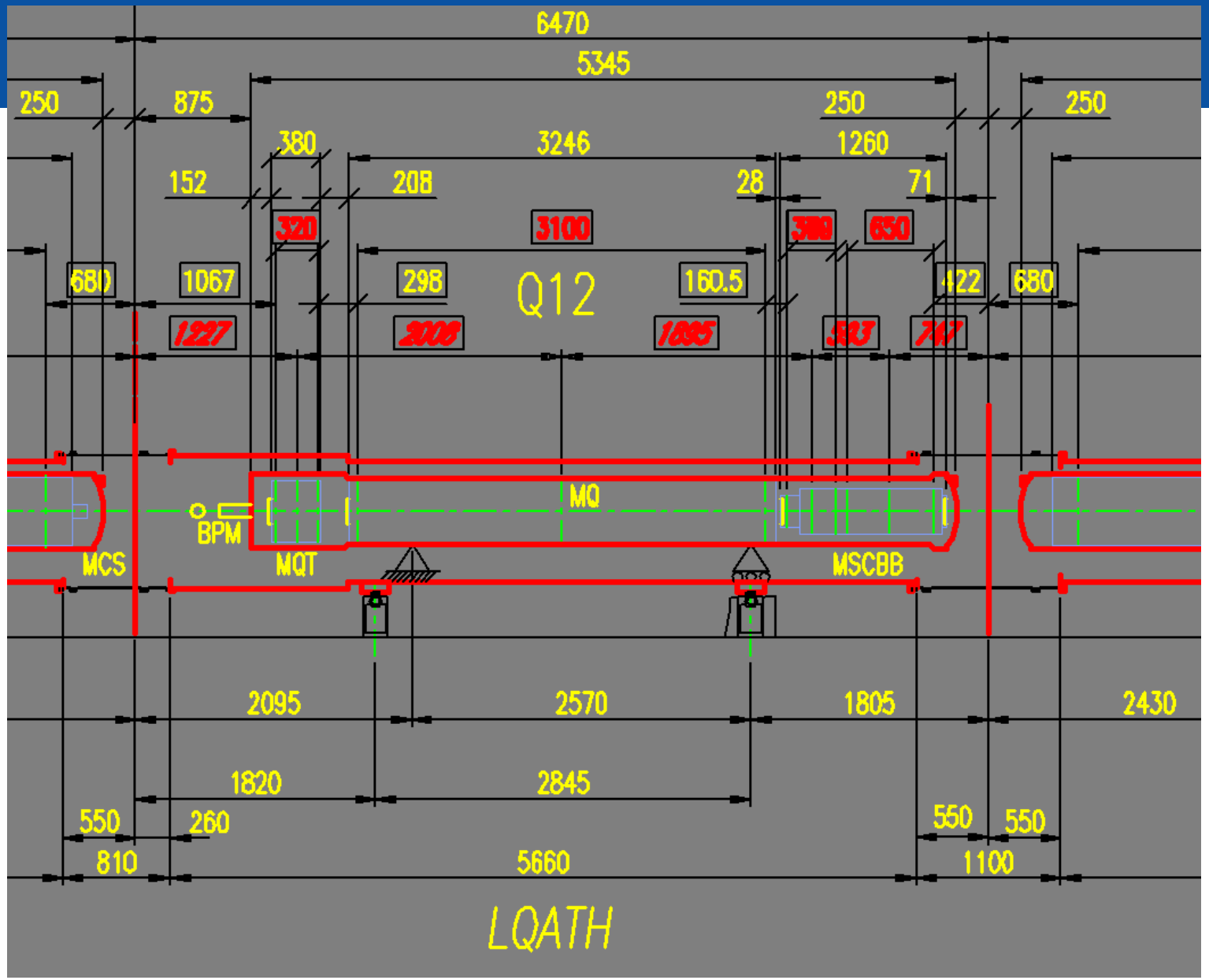
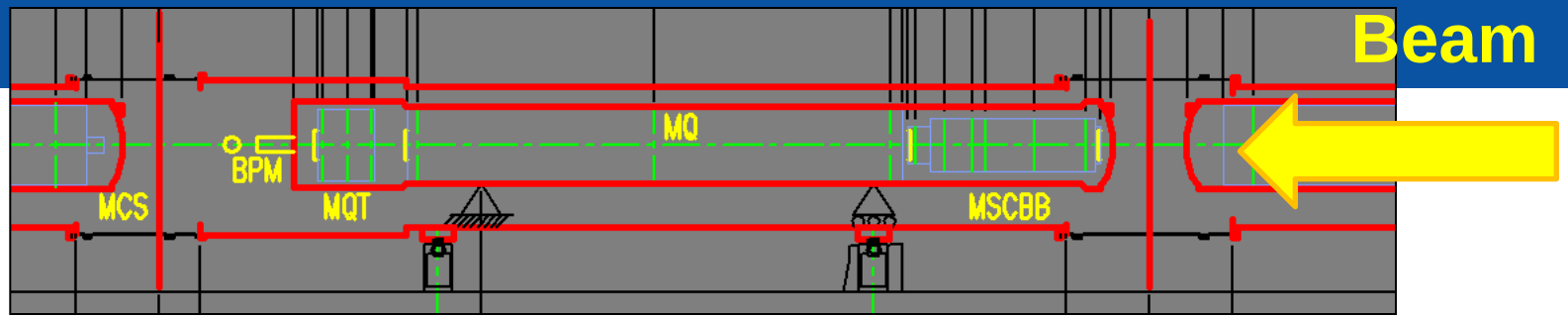
Preliminary results of MAD-X simulations for the fast losses quench test

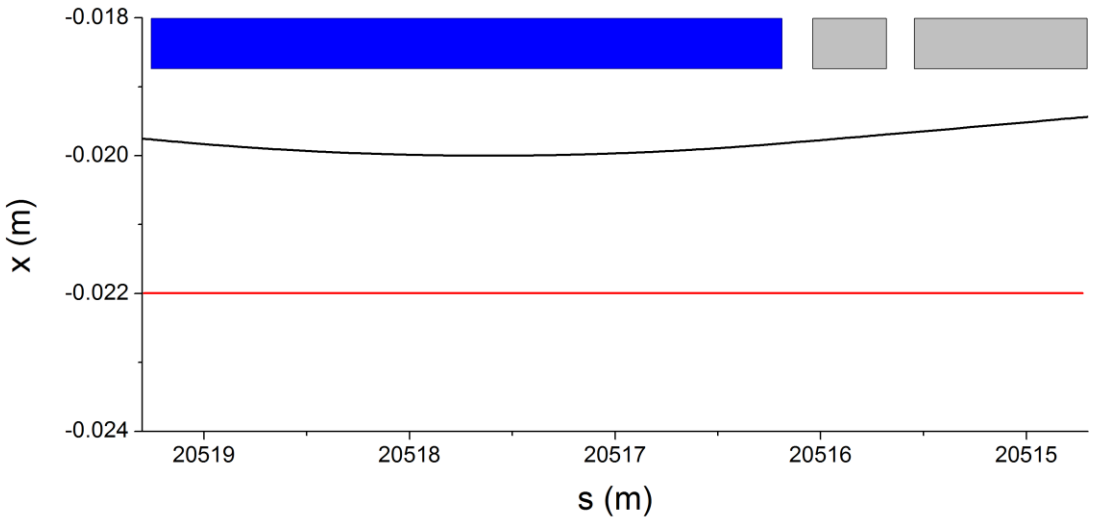


Beam

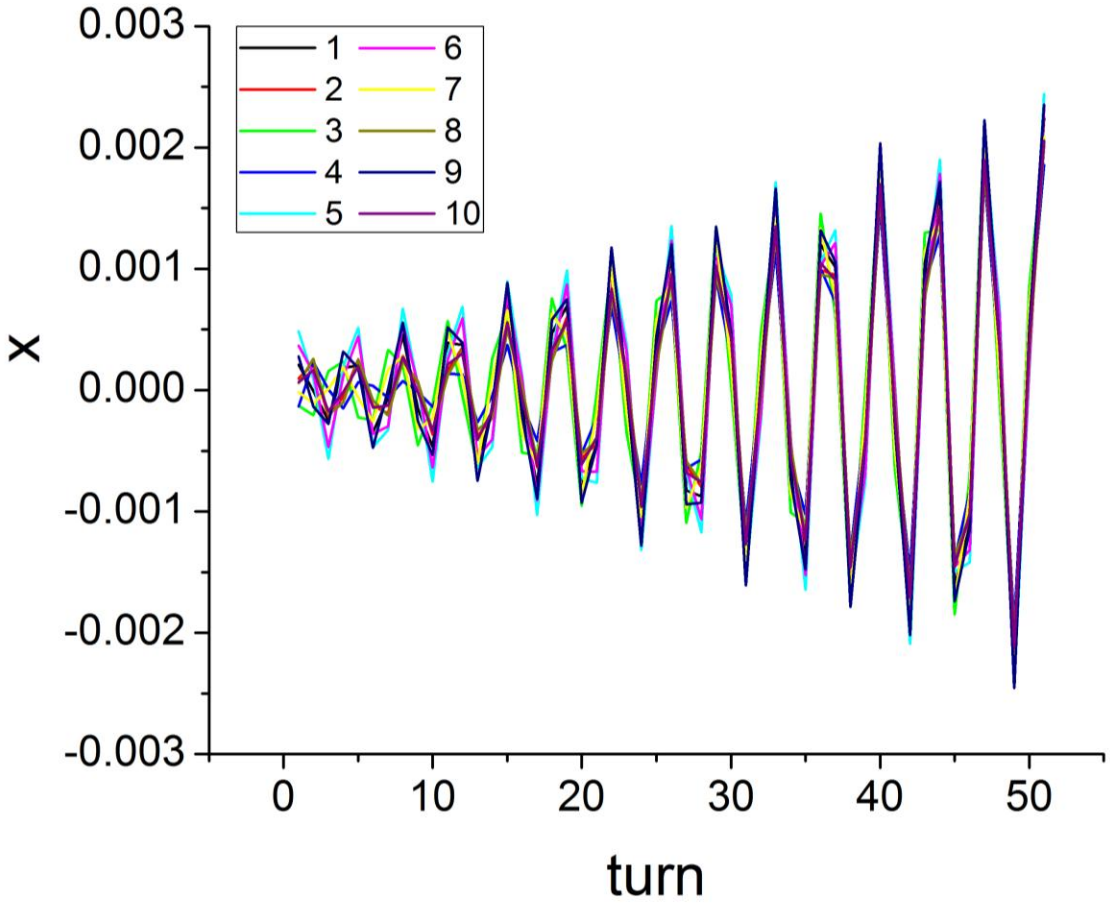
3-corrector orbital bump
Offset of the closed orbit position in the MQ.12L6: 2 cm


6470
5345
250
875
380
3246
1260
250
250
152
208
28
71
320
3100
650
680
1067
298
Q12
160.5
422
680
1227
2008
1805
MQ
BPM
MCS
MQT
MSCBB
2095
2570
1805
2430
1820
2845
550
260
550
550
810
5660
1100
LQATH

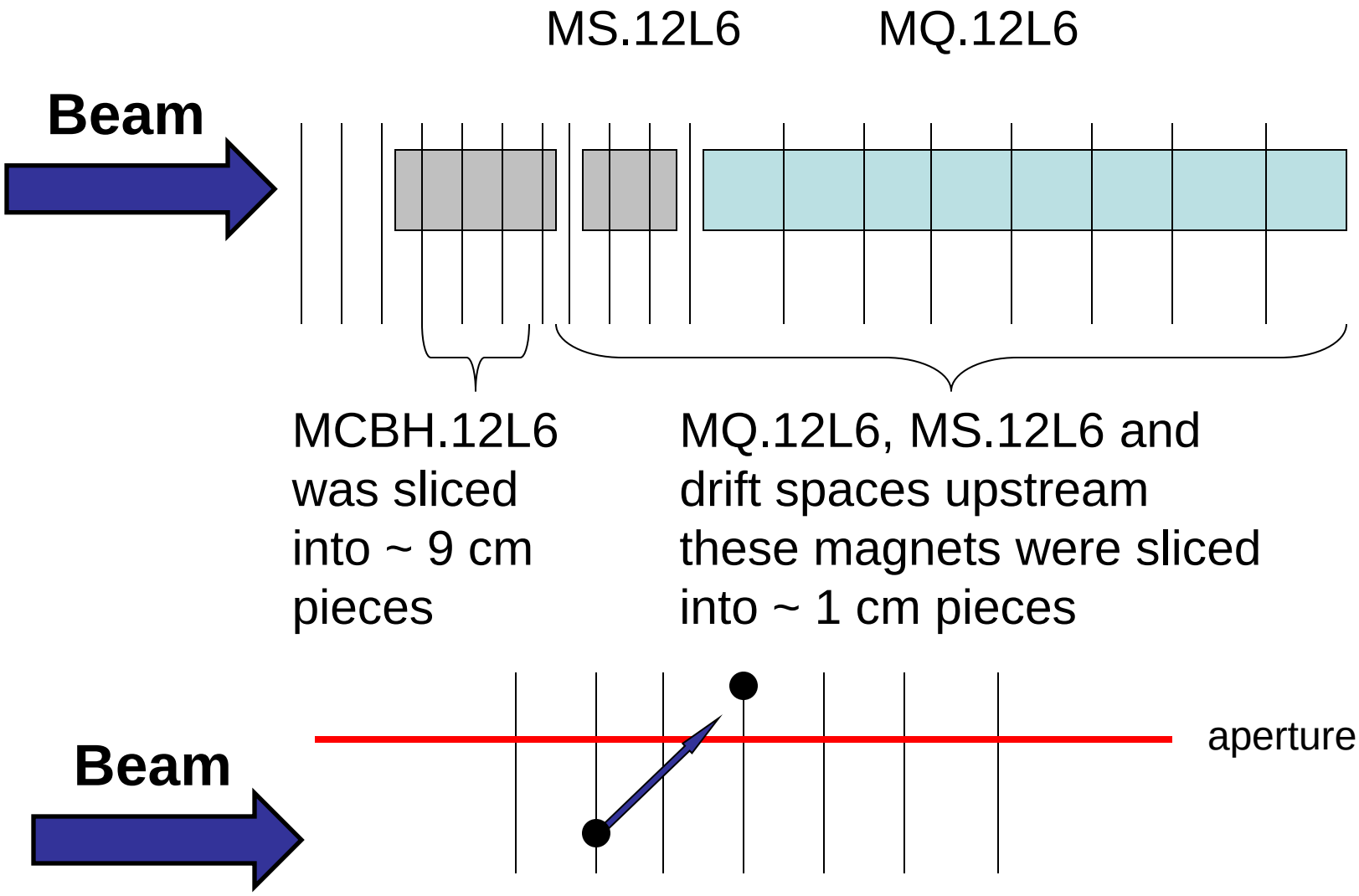


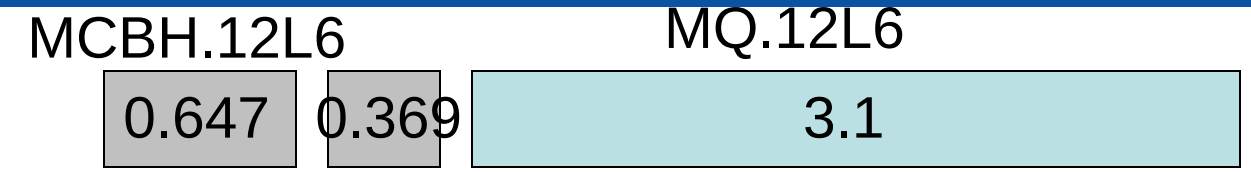


Closed orbit in MCBH.12L6, MS.12L6 and MQ.12L6



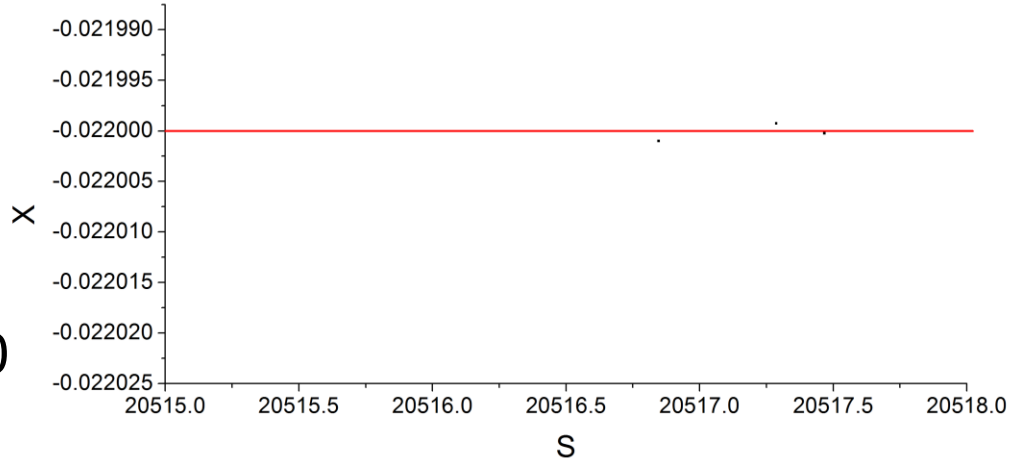
Particle tracking (marker after ADT):
Orbital bump (10 turns) + MKQ kick (1 turn) + ADT kick


MS.12L6
MQ.12L6
Beam
MCBH.12L6 was sliced into ~ 9 cm pieces
MQ.12L6, MS.12L6 and drift spaces upstream these magnets were sliced into ~ 1 cm pieces
Beam
aperture



Beam

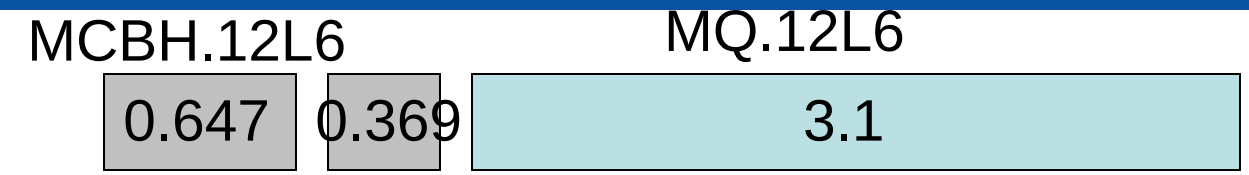
Intensity: 10000



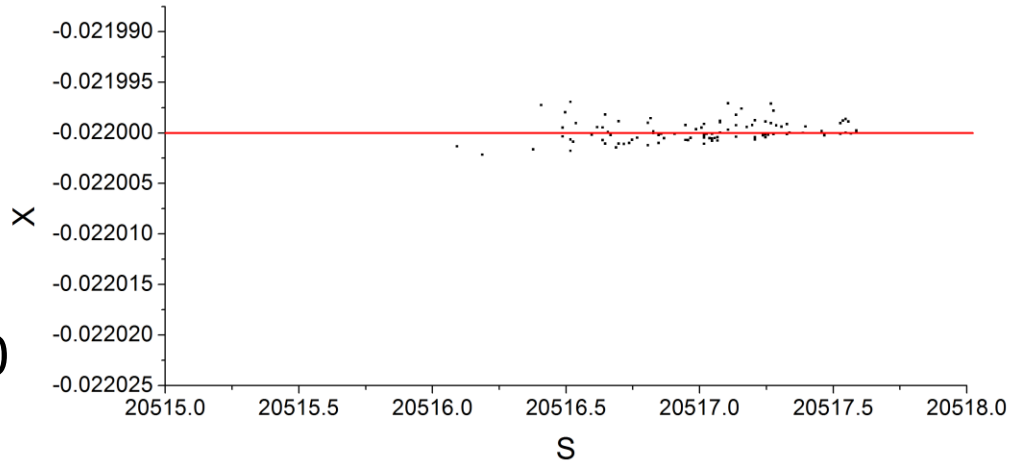
Turn # 33

Particles lost: 3 (0.03%)

Total lost: 3 (0.03%)



Beam

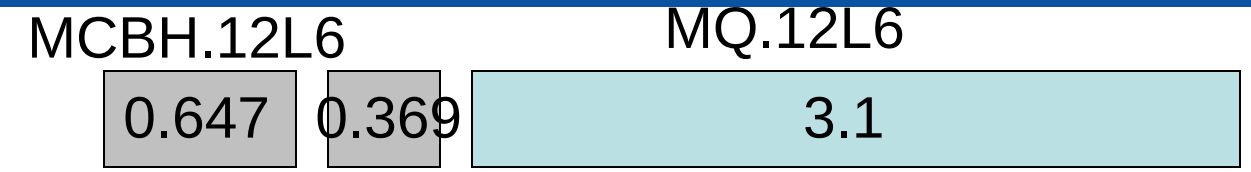


Intensity: 10000

Turn # 40

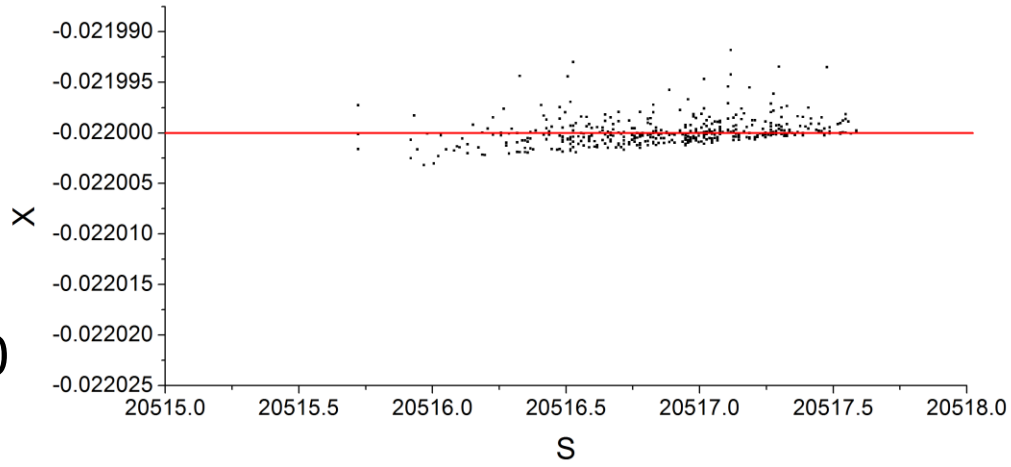
Particles lost: 94 (0.94%)

Total lost: 97 (0.97%)



Beam

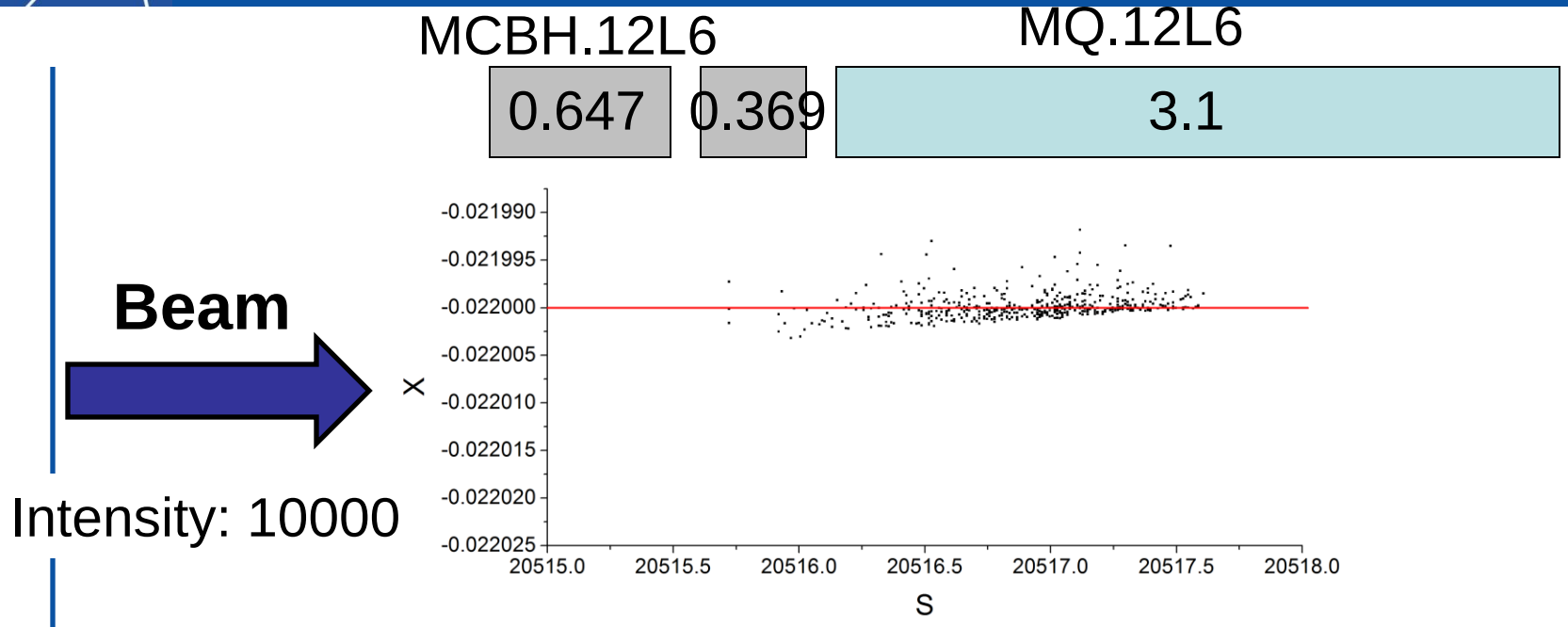
Intensity: 10000



Turn # 44

Particles lost: 341 (3.41%)

Total lost: 438 (4.38%)

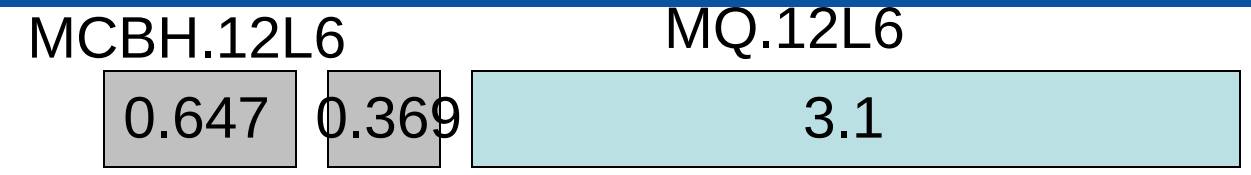


Intensity: 10000

Turn # 47

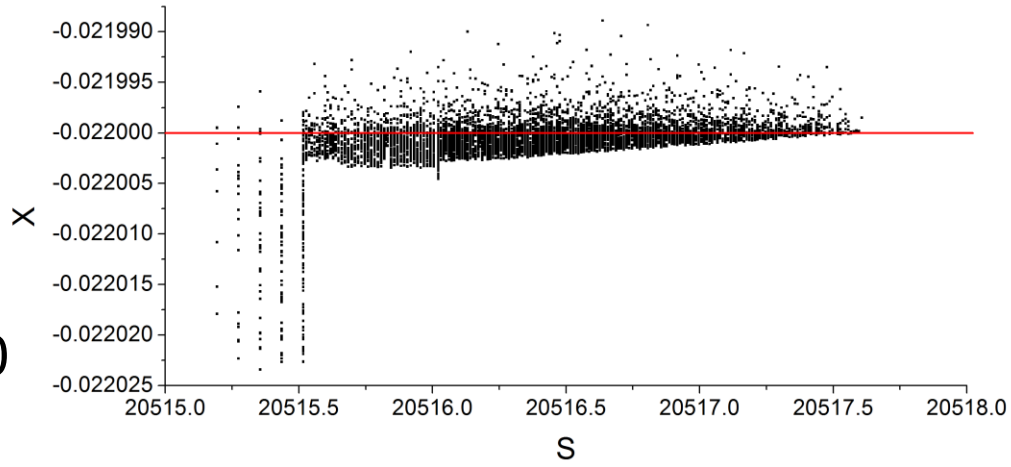
Particles lost: 48 (0.48%)

Total lost: 486 (4.86%)



Beam

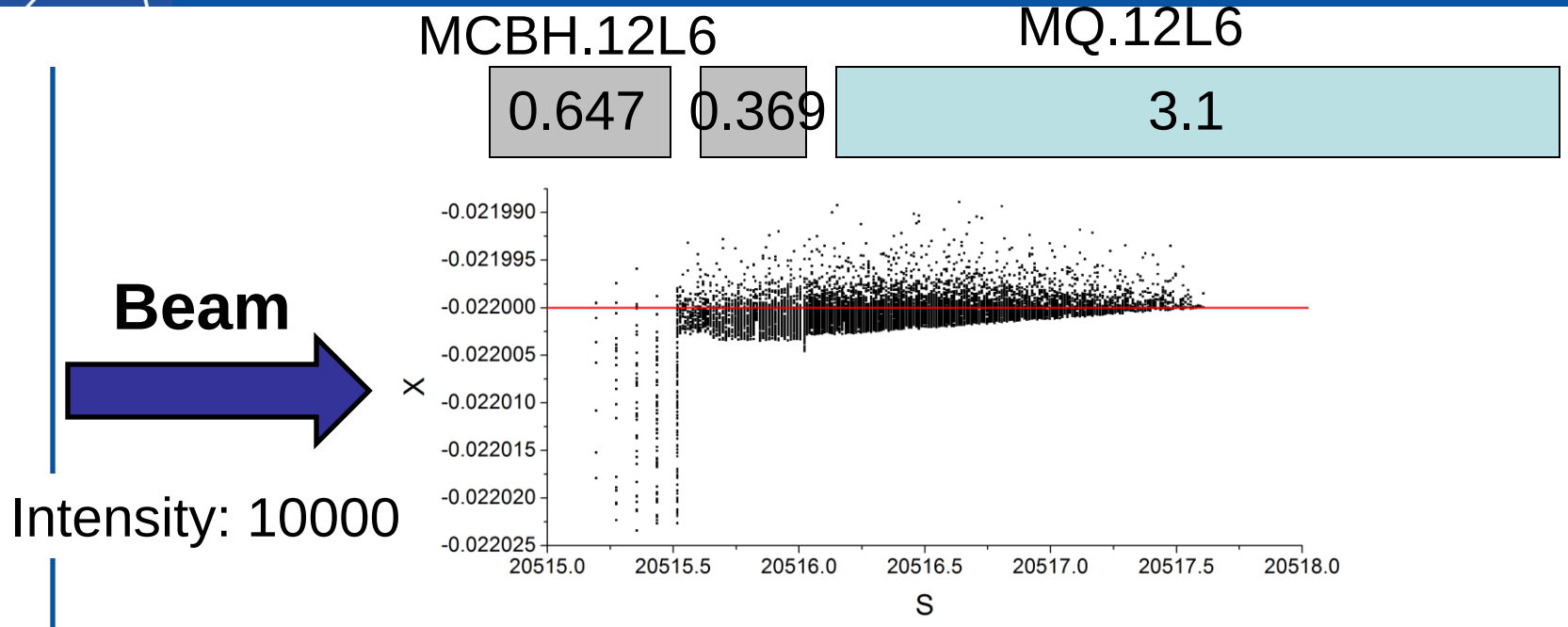
Intensity: 10000



Turn # 51

Particles lost: 6363 (63.63%)

Total lost: 6849 (68.49%)

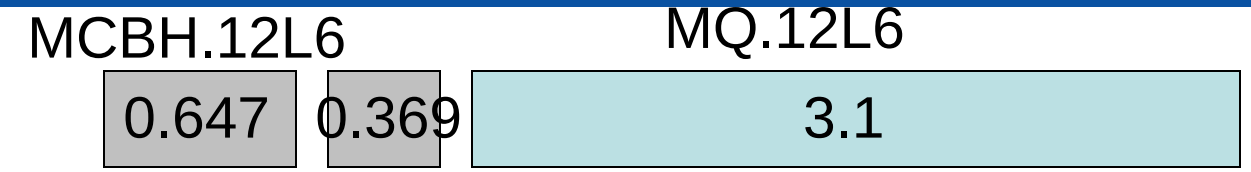


Intensity: 10000

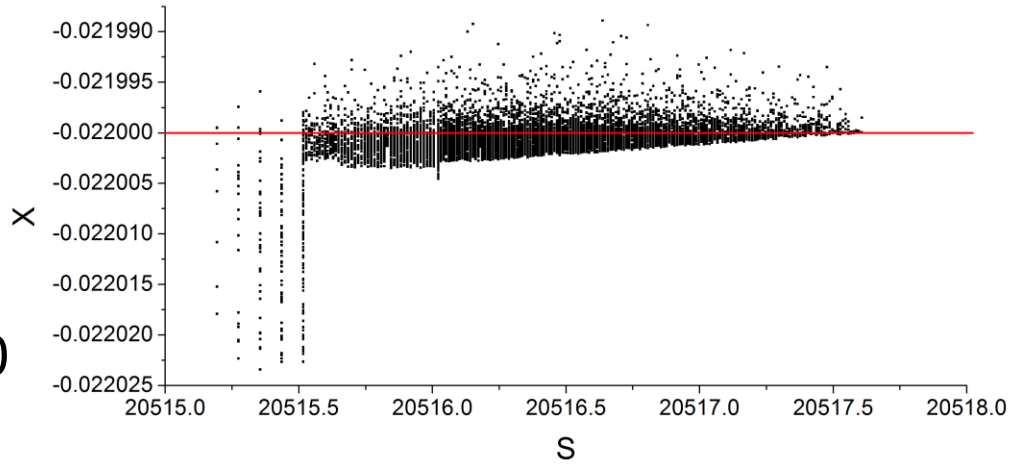
Turn # 58

Particles lost: 2846 (28.46%)

Total lost: 9695 (96.95%)



Beam

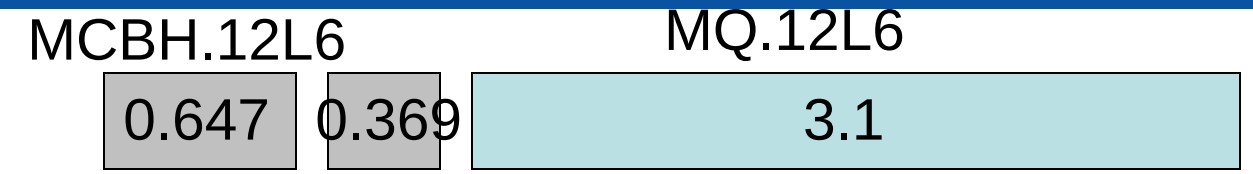


Intensity: 10000

Turn # 62

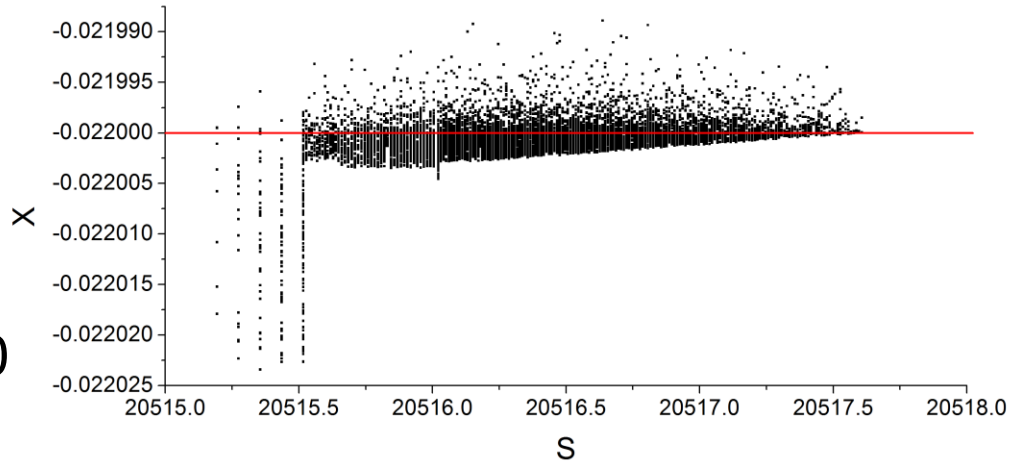
Particles lost: 66 (0.66%)

Total lost: 9761 (97.61%)



Beam

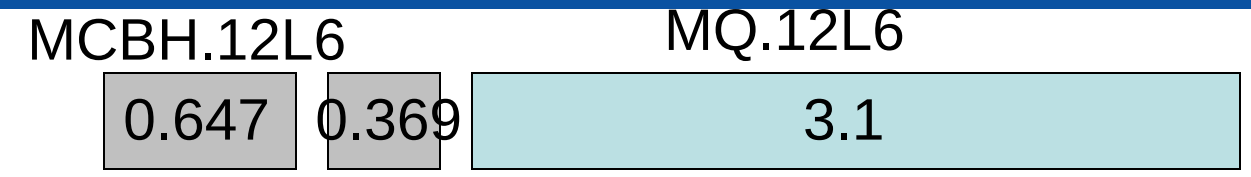
Intensity: 10000



Turn # 65

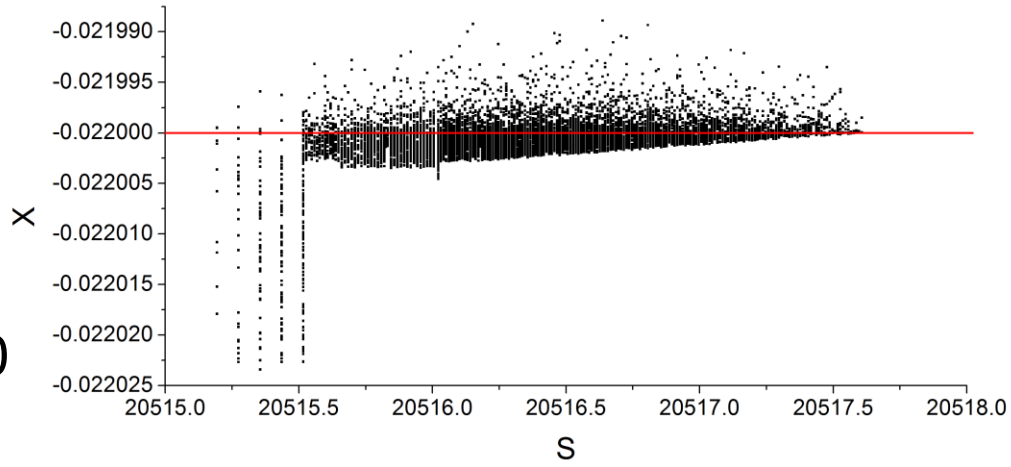
Particles lost: 112 (1.12%)

Total lost: 9873 (98.73%)



Beam

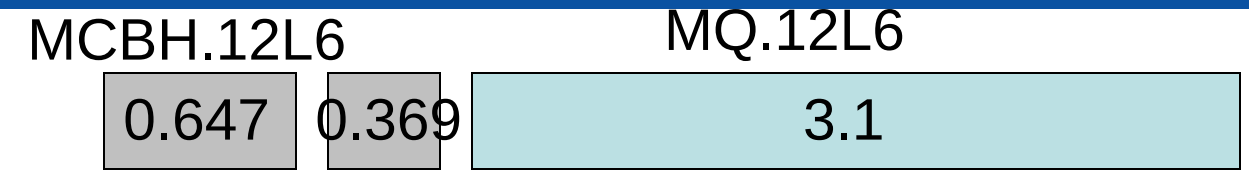
Intensity: 10000



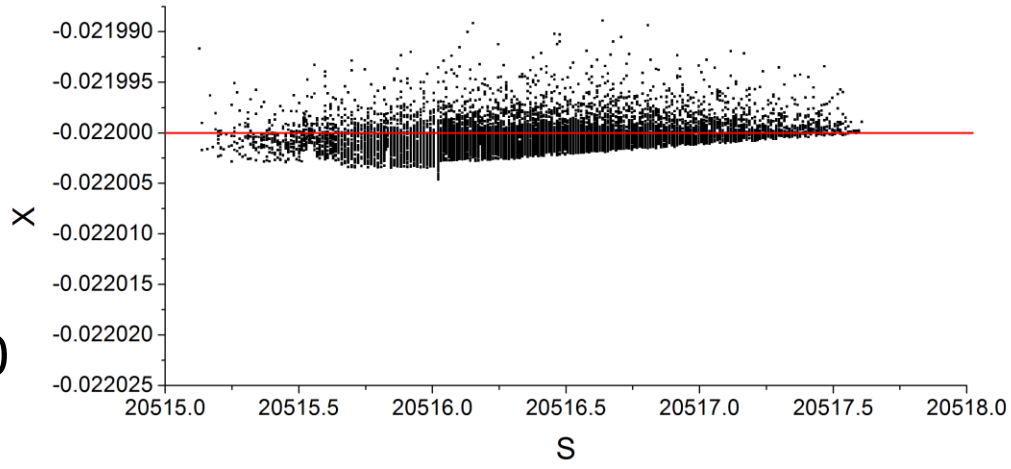
Turn # 69

Particles lost: 127 (1.27%)

Total lost: 10000 (100%)



Beam



Intensity: 10000

Turn # 69

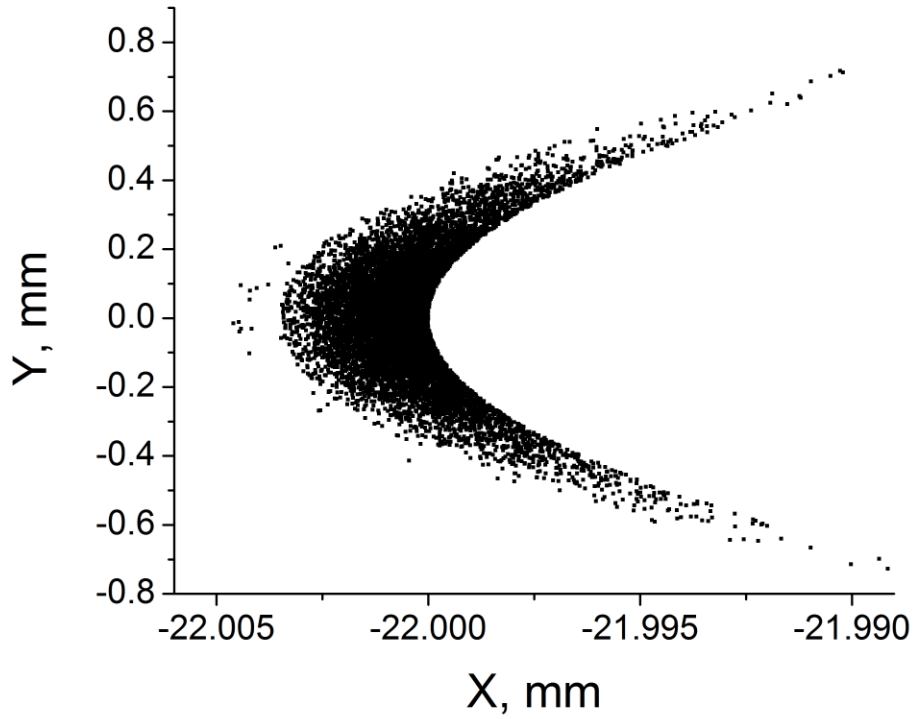
Particles lost: 127 (1.27%)

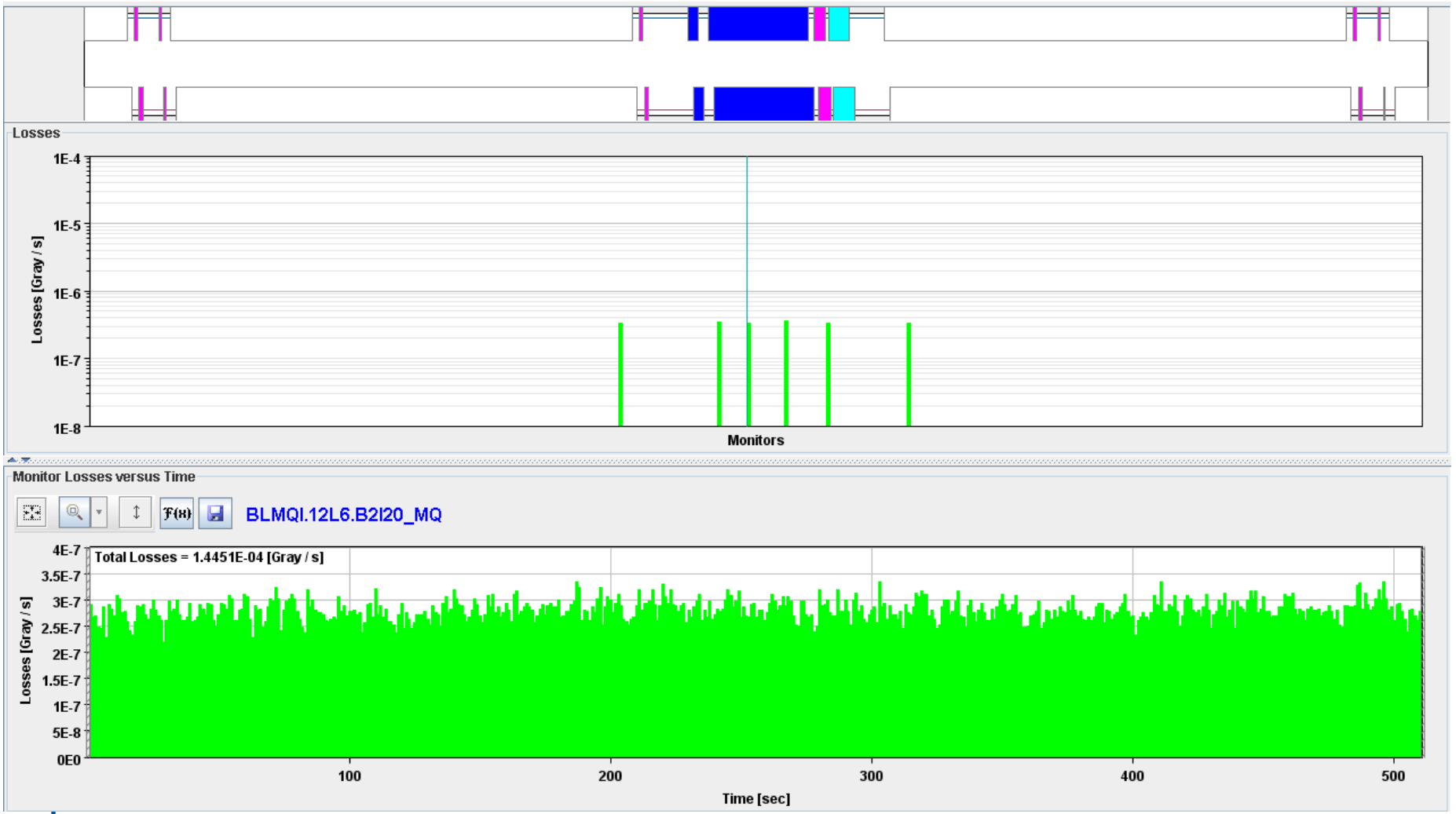
Total lost: 10000 (100%)

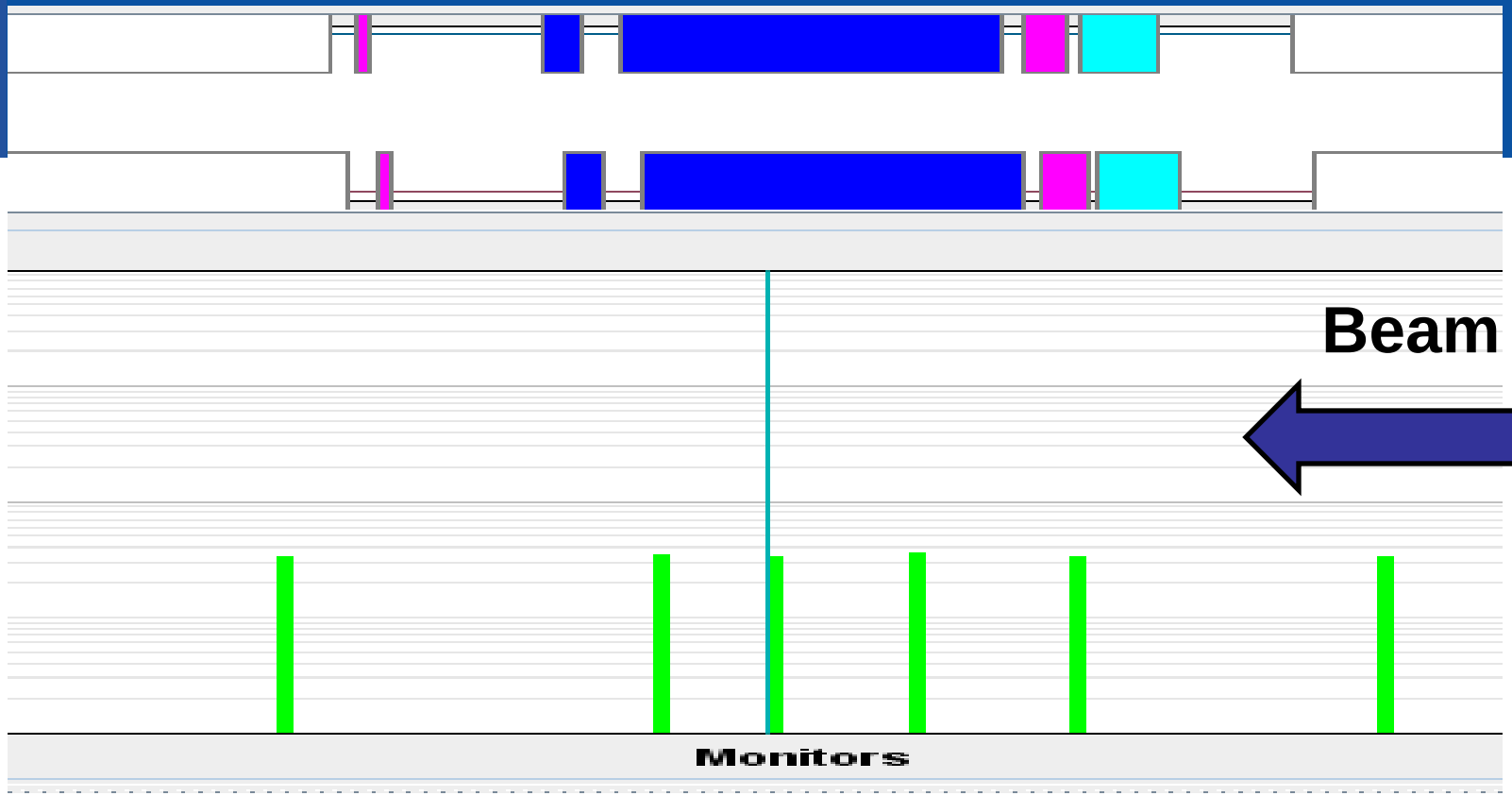
Primary beam:

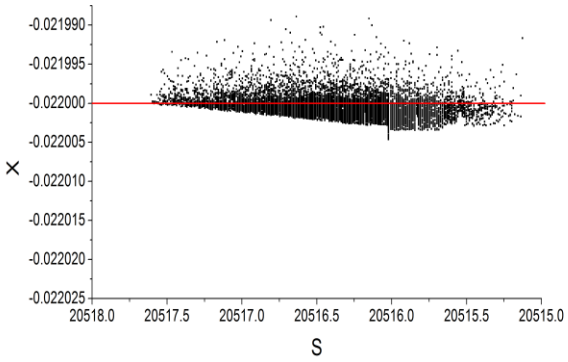
ε_n (x) = 1.75e-6

ε_n (y) = 10.0e-6




Losses
1E-4
1E-5
1E-6
1E-7
1E-8
Losses [Gray / s]
Monitors
Monitor Losses versus Time
BLMQI.12L6.B2I20_MQ
Total Losses = 1.4451E-04 [Gray / s]
4E-7
3.5E-7
3E-7
2.5E-7
2E-7
1.5E-7
1E-7
5E-8
0E0
Losses [Gray / s]
100
200
300
400
500
Time [sec]


Beam
Monitors


-0.021990
-0.021995
-0.022000
-0.022005
-0.022010
-0.022015
-0.022020
-0.022025
X
20518.0
20517.5
20517.0
20516.5
20516.0
20515.5
20515.0
S