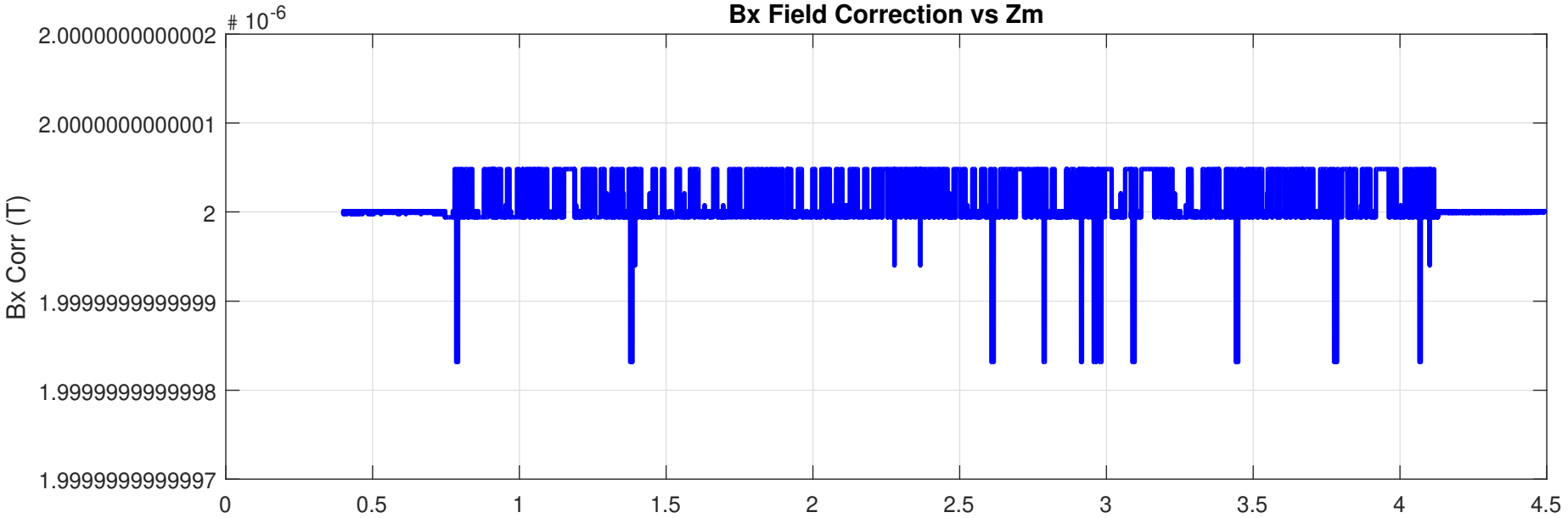
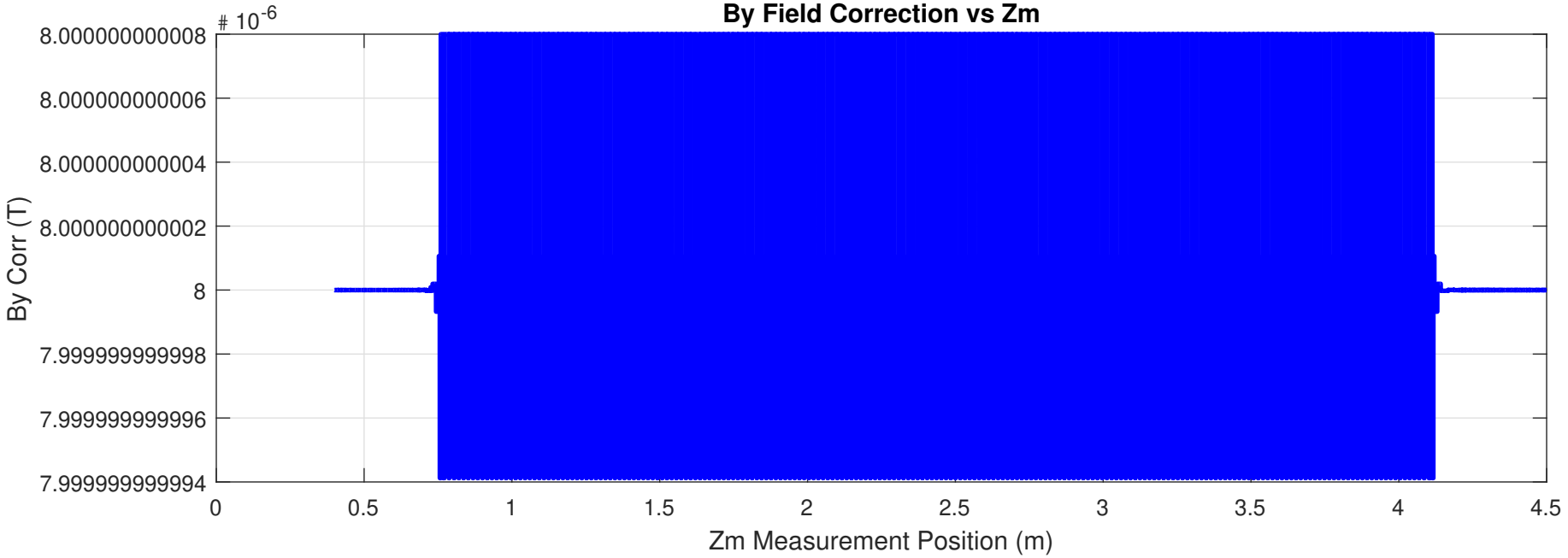
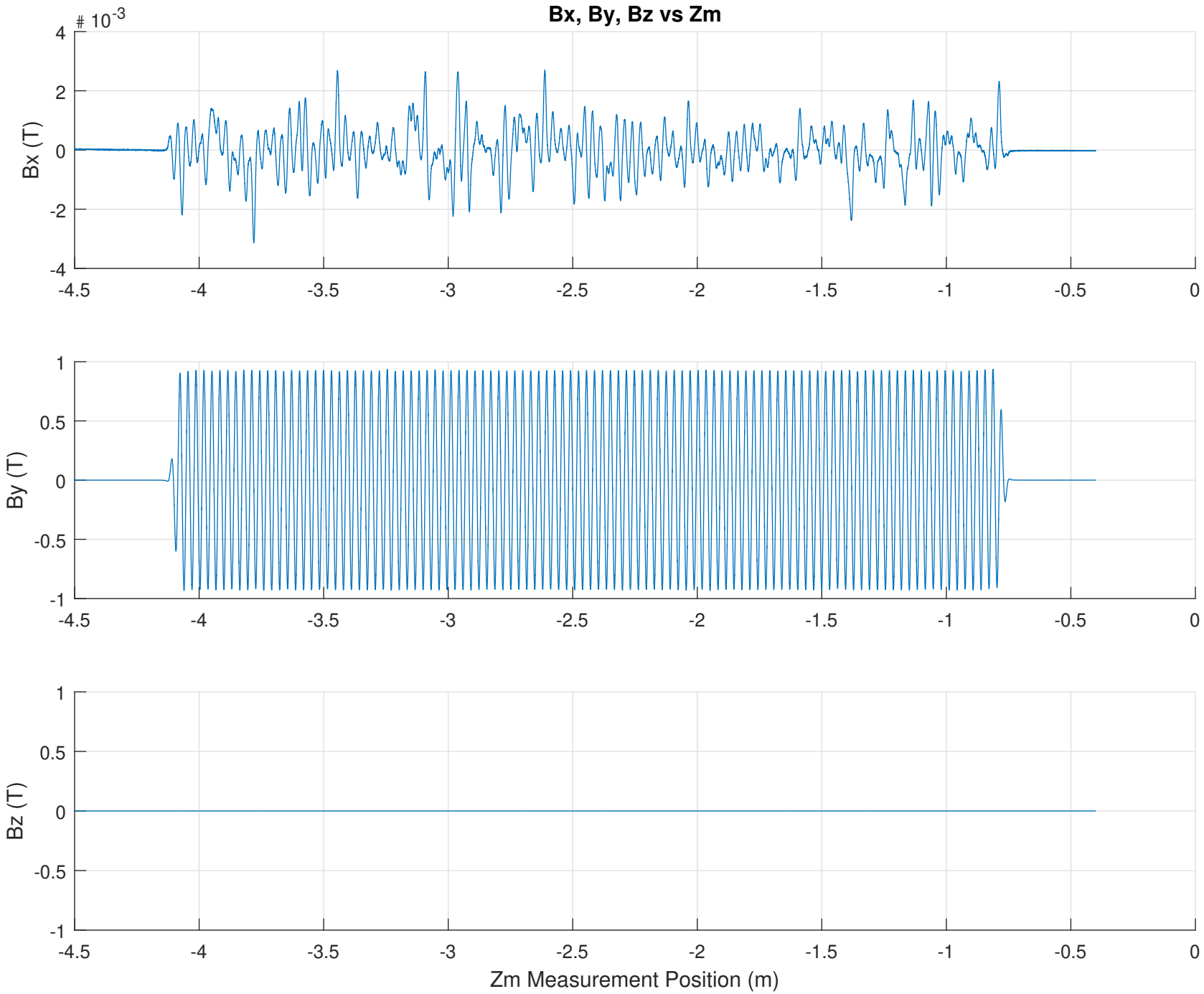
SLAC Magnetic Measurements

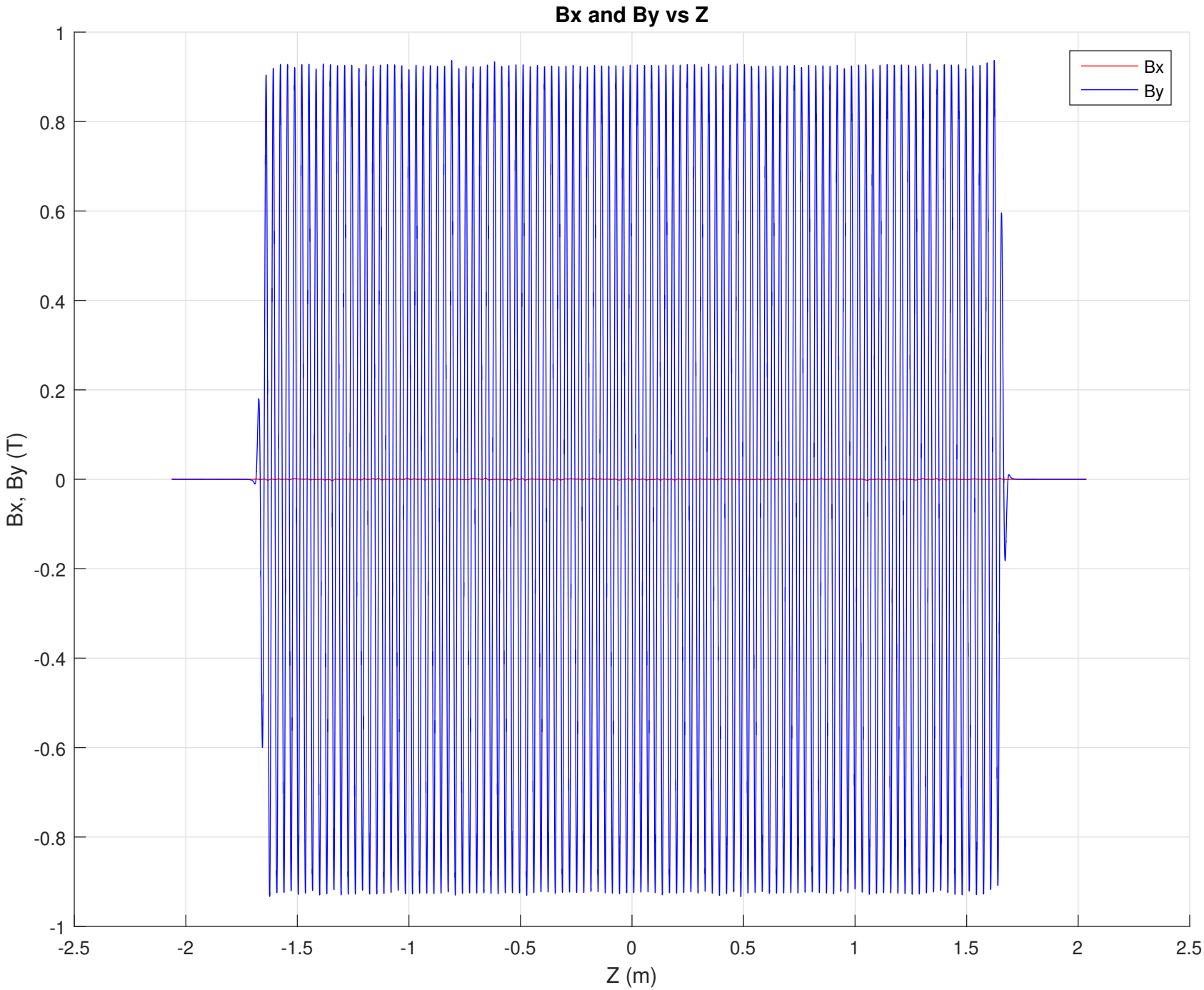
Trajectory Analysis

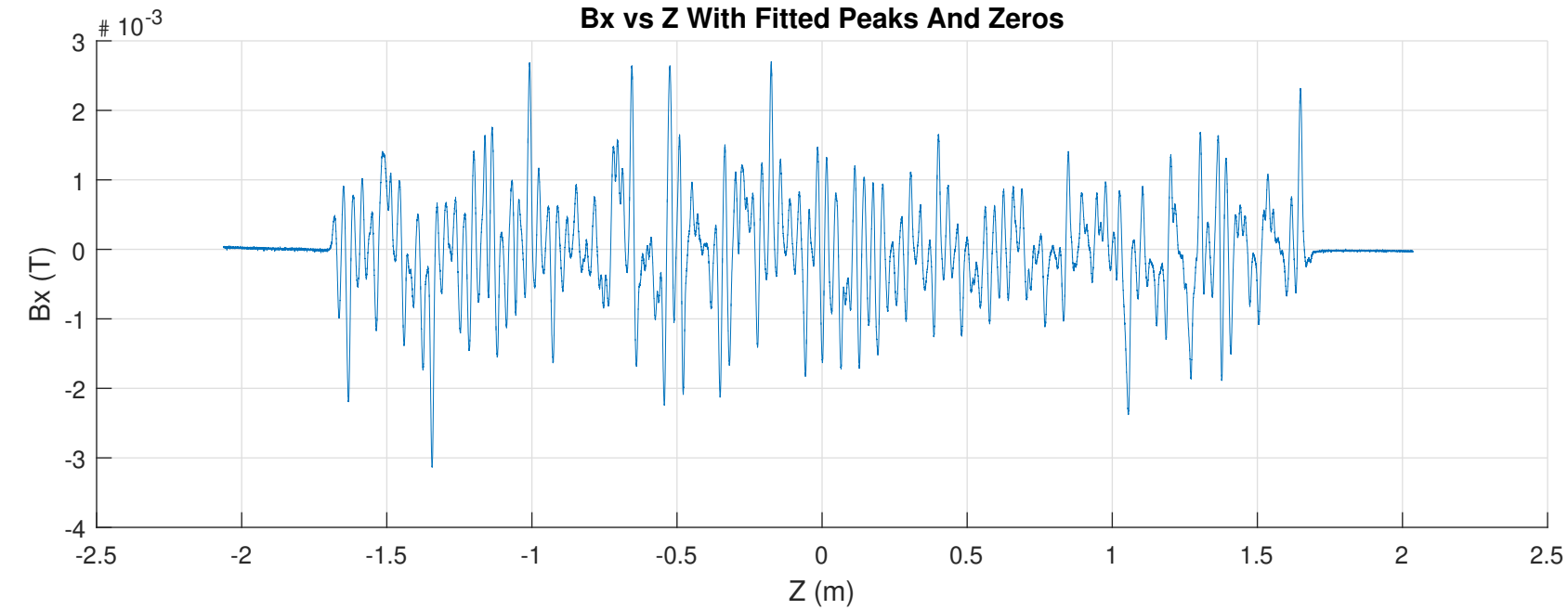
Parameters:
INPUT-FILE-DIR =S:\MagData\LCLS\Undulator\HXU-32\DATASET0001\Fine Tuning\Z Scans\Run 041\
INPUT-FILE-NAME =x+00000-y+000-bscanz.dat
INPUT-FILE-TYPE =ZVXYBXYH
CORR-REQUIRED =1
GAMMA =7827.79
DEVICE CENTER POSITION ZM =0 m
DEVICE ENTRANCE POSITION ZM =0 m
DEVICE EXIT POSITION ZM =0 m
NOM-LAMBDA-R =1.5e-10 m

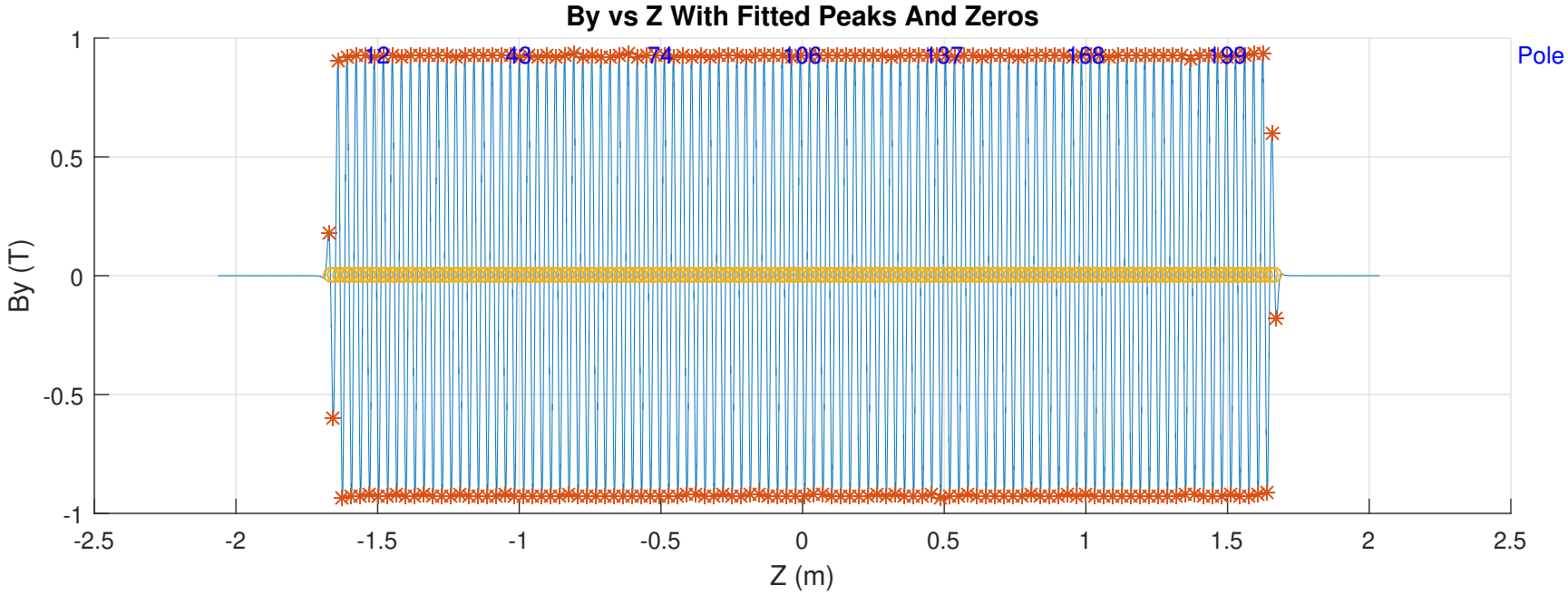

Bx Field Correction vs Zm
10^-6
2.0000000000002
2.0000000000001
2
1.9999999999999
1.9999999999998
1.9999999999997
Bx Corr (T)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5

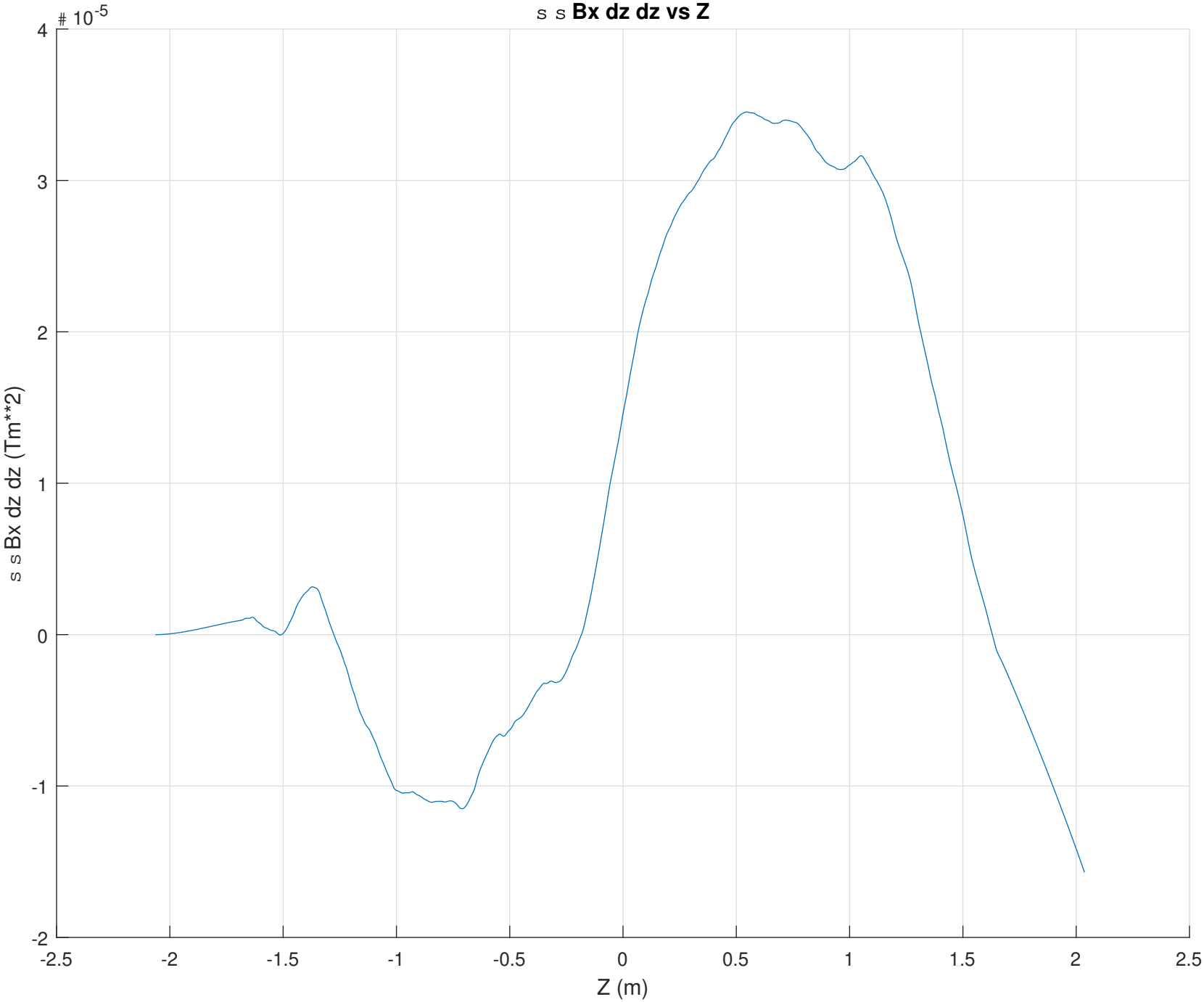

By Field Correction vs Zm
10^-6
8.000000000008
8.000000000006
8.000000000004
8.000000000002
8
7.999999999998
7.999999999996
7.999999999994
By Corr (T)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
Zm Measurement Position (m)

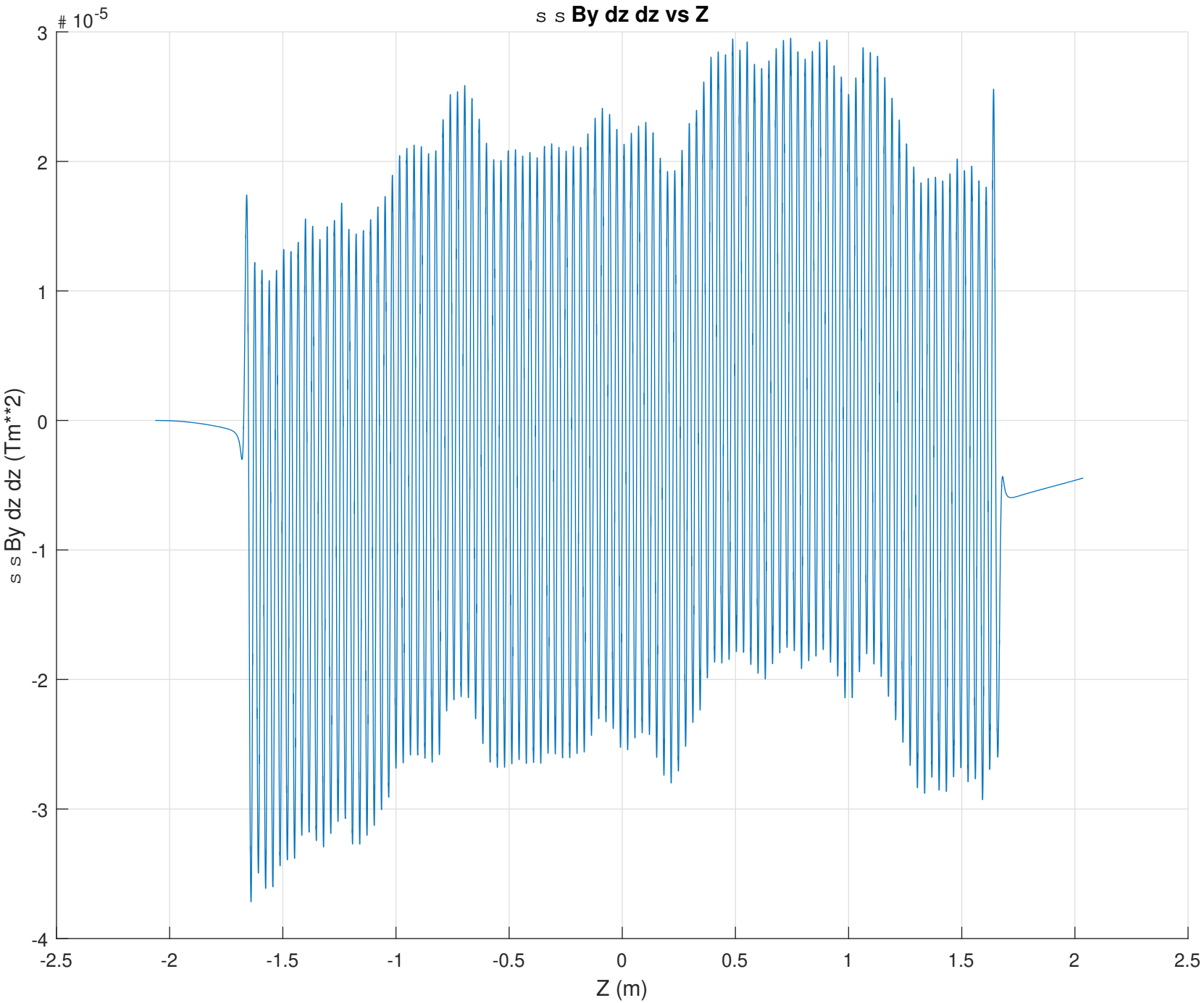

Bx, By, Bz vs Zm
10^-3
Bx (T)
By (T)
Bz (T)
Zm Measurement Position (m)
4
2
0
-2
-4
1
0.5
0
-0.5
-1
-4.5
-4
-3.5
-3
-2.5
-2
-1.5
-1
-0.5
0

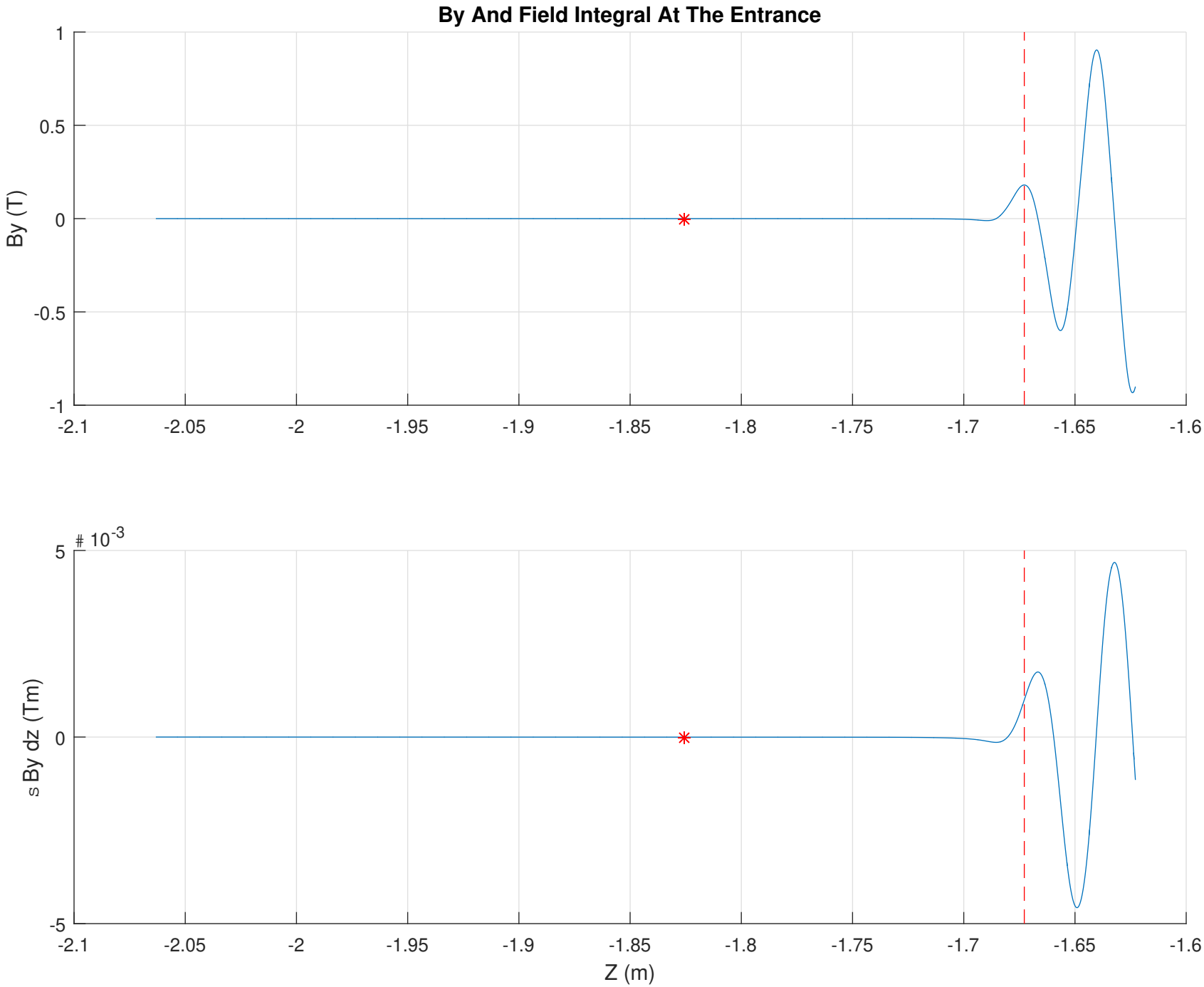

Bx and By vs Z
Bx
By
Bx, By (T)
Z (m)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
-2.5
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2
2.5

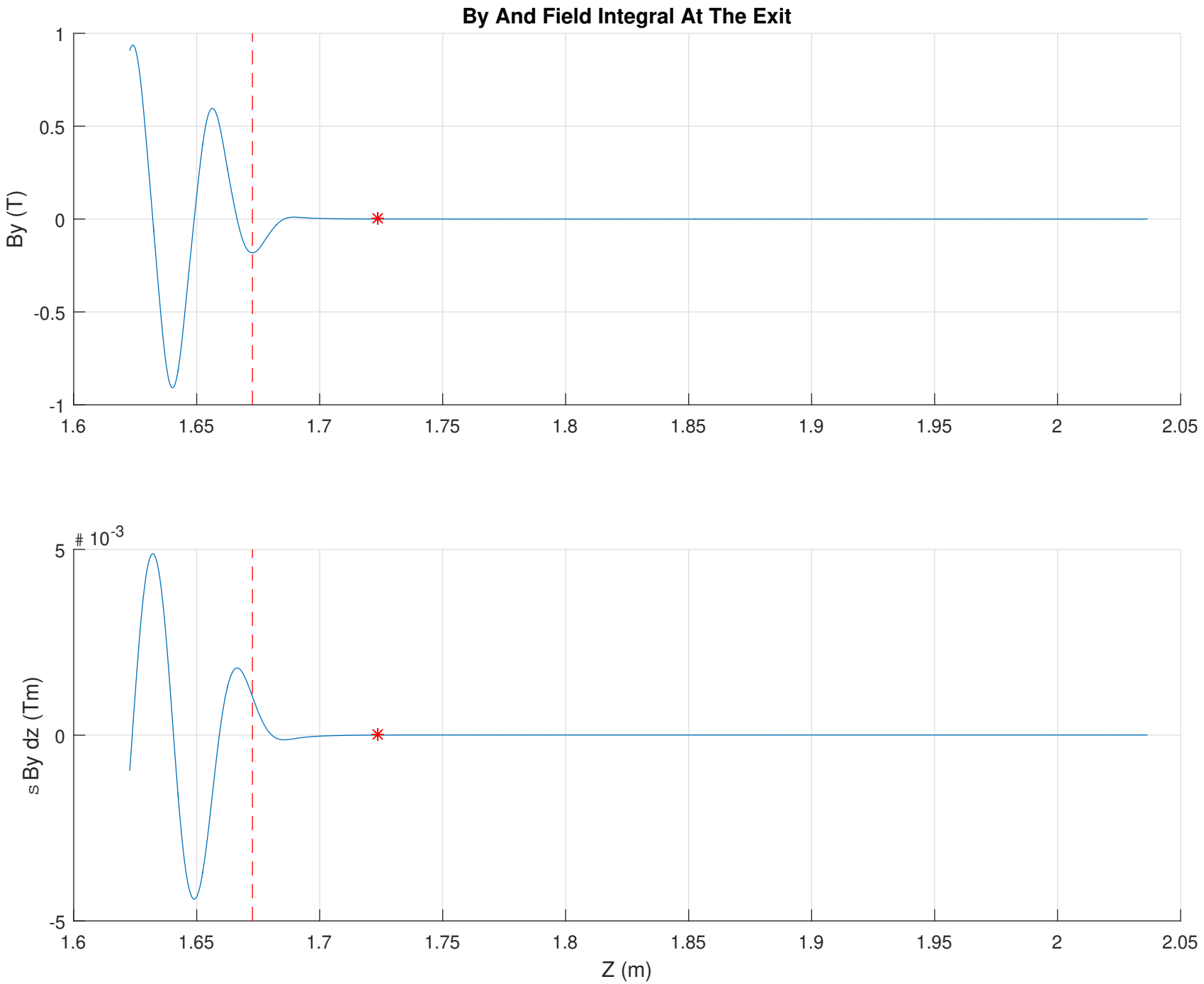

Bx vs Z With Fitted Peaks And Zeros
10^-3
Bx (T)
Z (m)

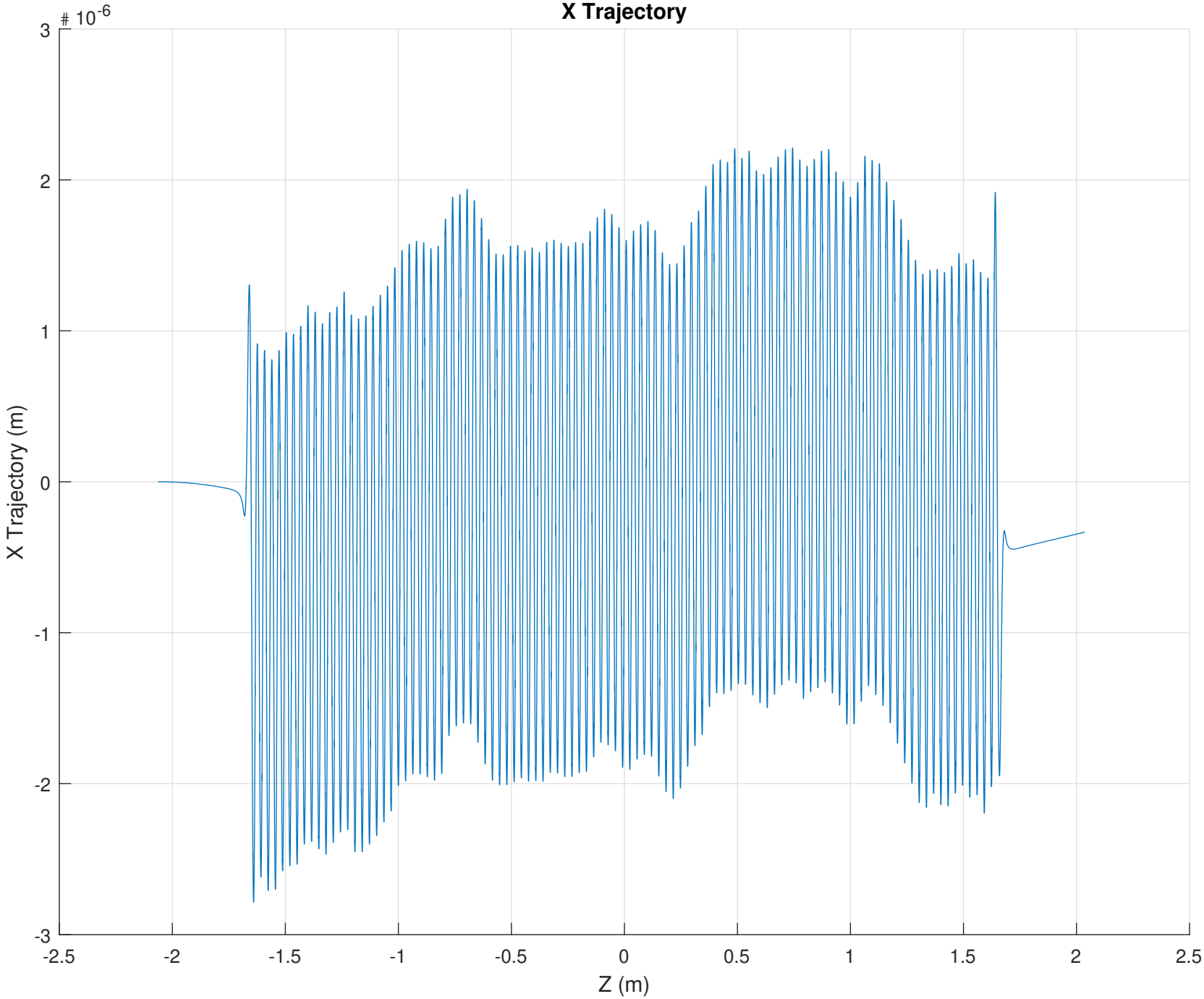

By vs Z With Fitted Peaks And Zeros
12
43
74
106
137
168
199
Pole
By (T)
Z (m)

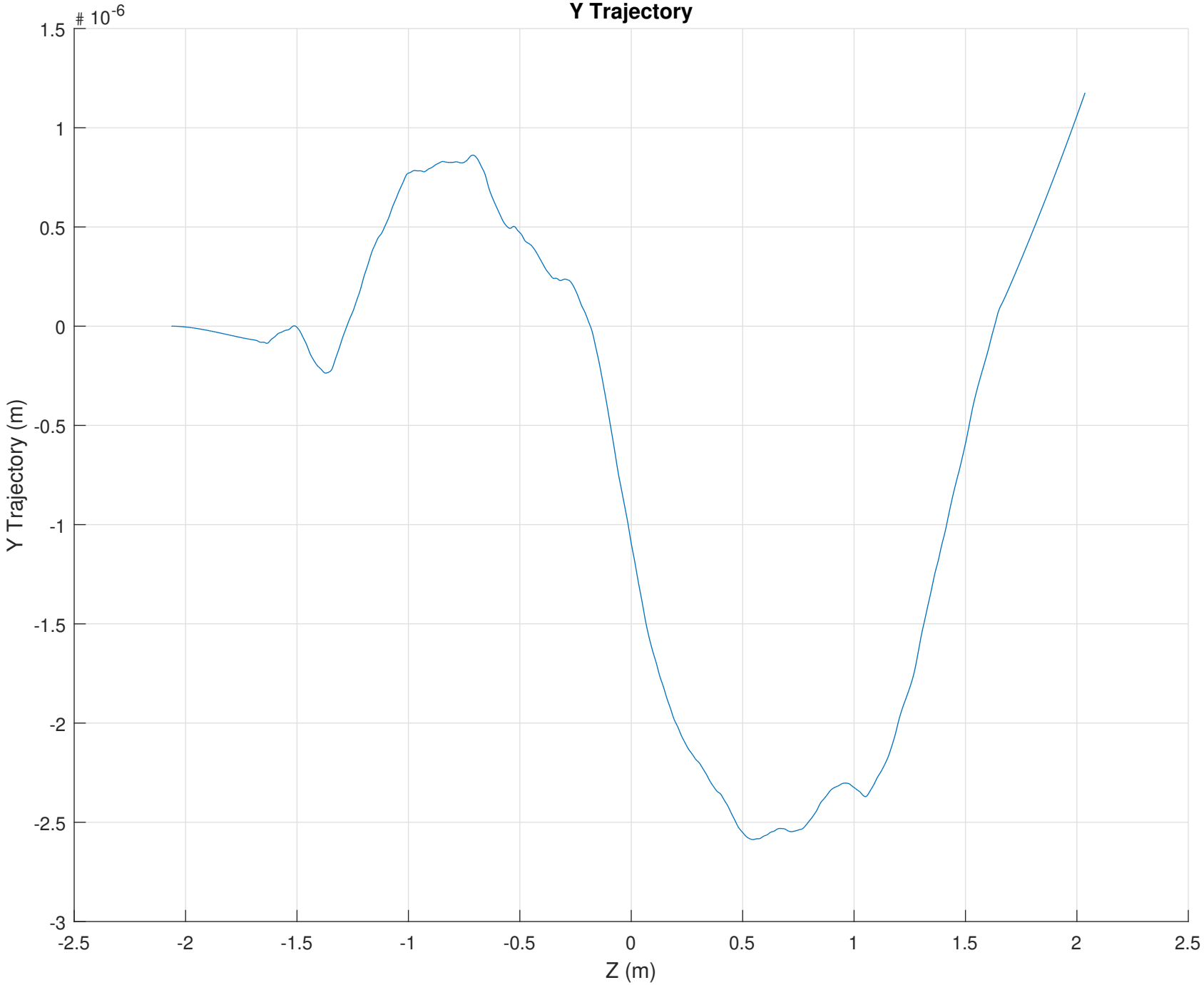

s s Bx dz dz vs Z
10^-5
4
3
2
1
0
-1
-2
s s Bx dz dz (Tm**2)
-2.5
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2
2.5
Z (m)

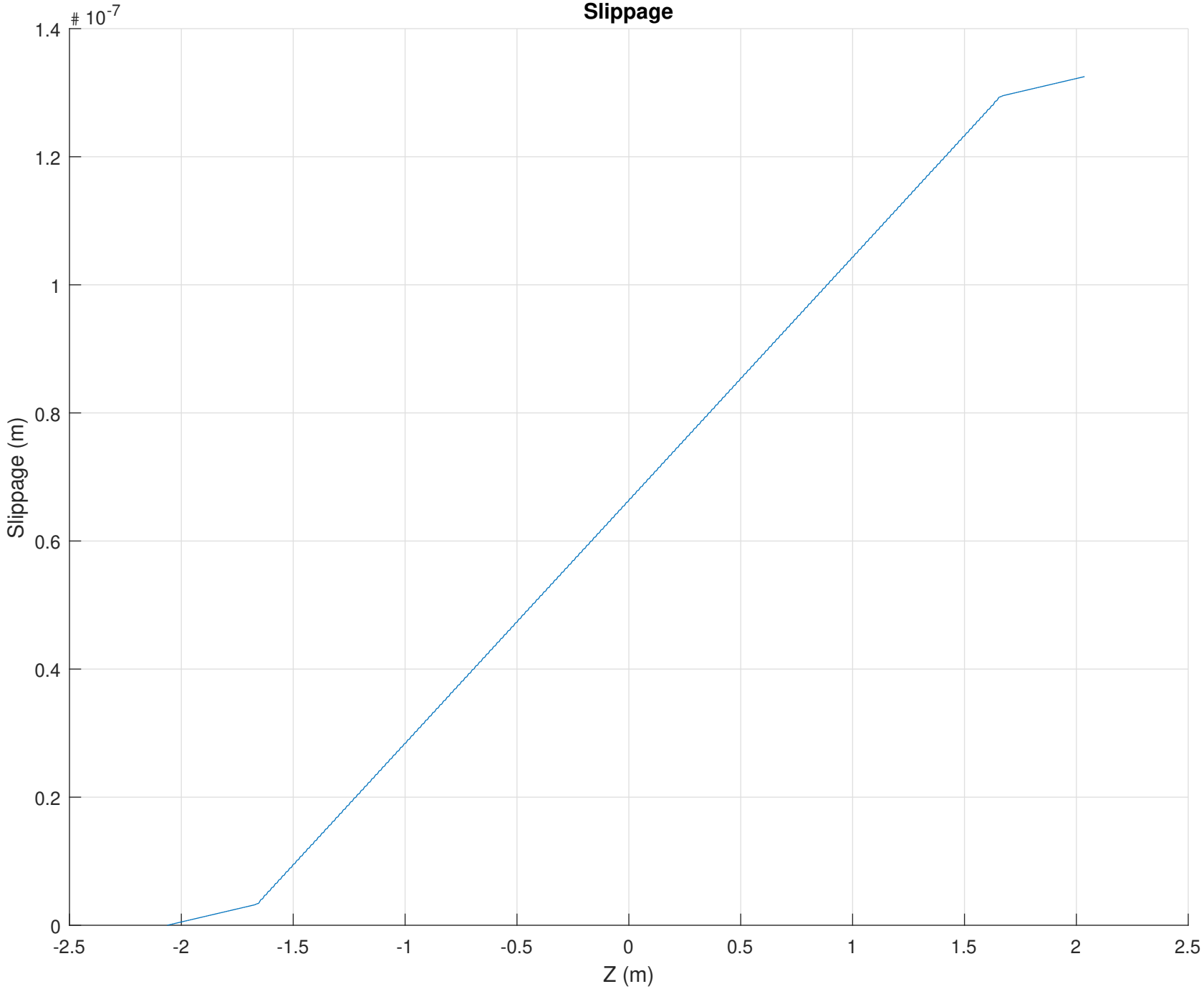

s s By dz dz vs Z
10^-5
3
2
1
0
-1
-2
-3
-4
s s By dz dz (Tm**2)
-2.5
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2
2.5
Z (m)

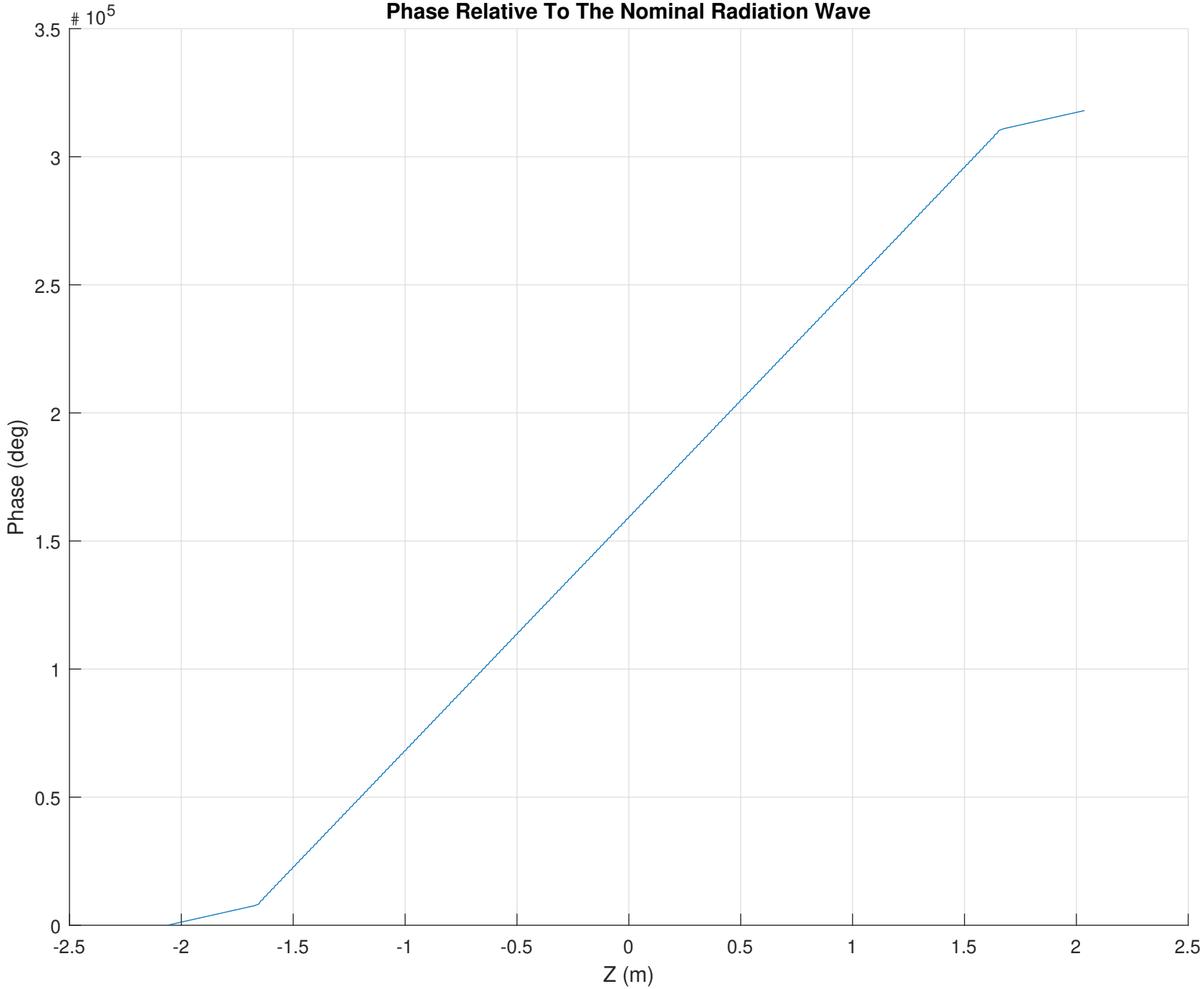

By And Field Integral At The Entrance
By (T)
1
0.5
0
-0.5
-1
-2.1
-2.05
-2
-1.95
-1.9
-1.85
-1.8
-1.75
-1.7
-1.65
-1.6
10-3
s By dz (Tm)
5
0
-5
Z (m)


By And Field Integral At The Exit
By (T)
1
0.5
0
-0.5
-1
1.6
1.65
1.7
1.75
1.8
1.85
1.9
1.95
2
2.05
10^-3
s By dz (Tm)
5
0
-5
Z (m)


X Trajectory
10^-6
3
2
1
0
-1
-2
-3
X Trajectory (m)
-2.5
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2
2.5
Z (m)


Y Trajectory
10^-6
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
Y Trajectory (m)
-2.5
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2
2.5
Z (m)


Slippage
10^-7
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Slippage (m)
-2.5
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2
2.5
Z (m)


Phase Relative To The Nominal Radiation Wave
10^5
3.5
3
2.5
2
1.5
1
0.5
0
Phase (deg)
-2.5
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2
2.5
Z (m)