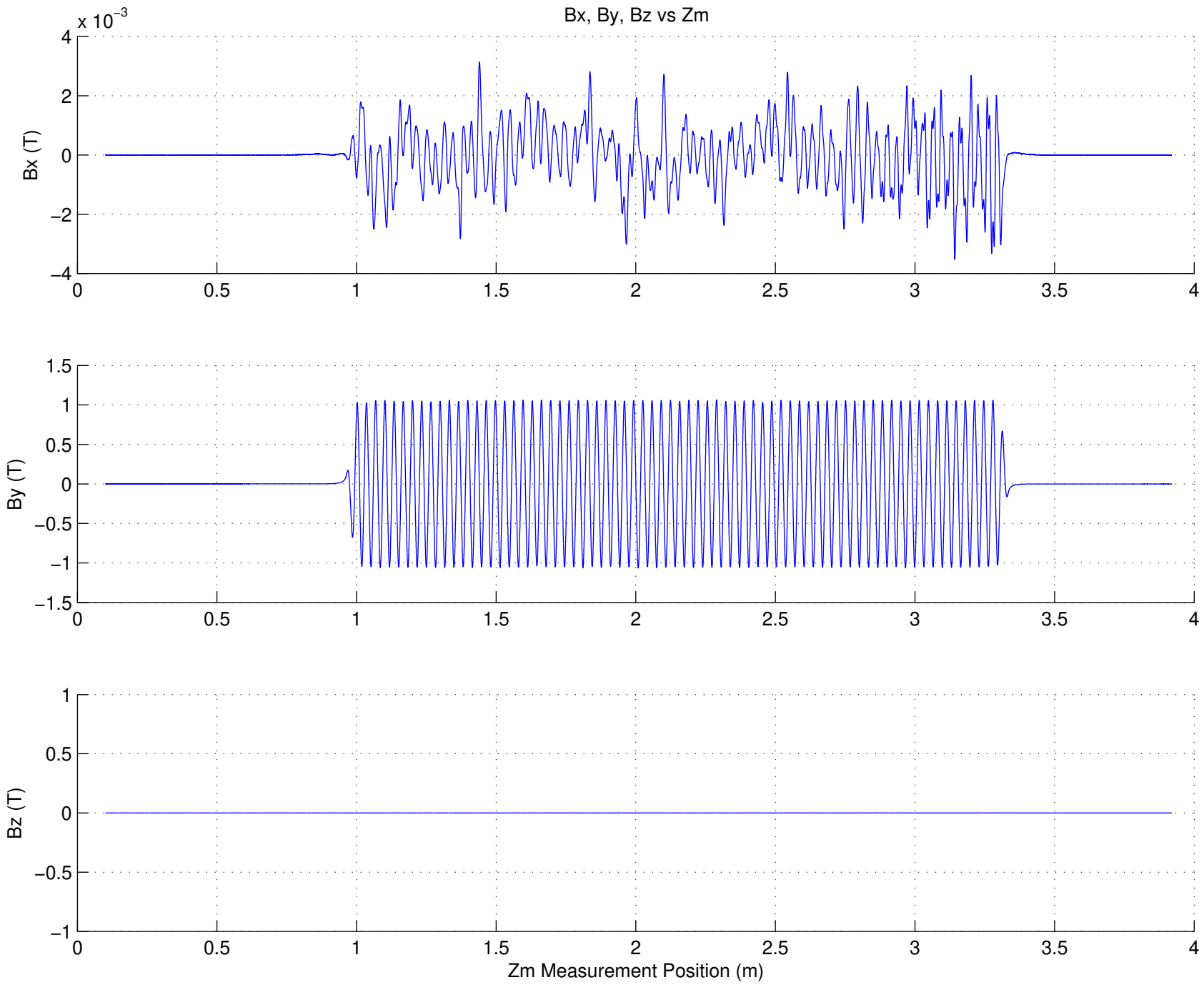
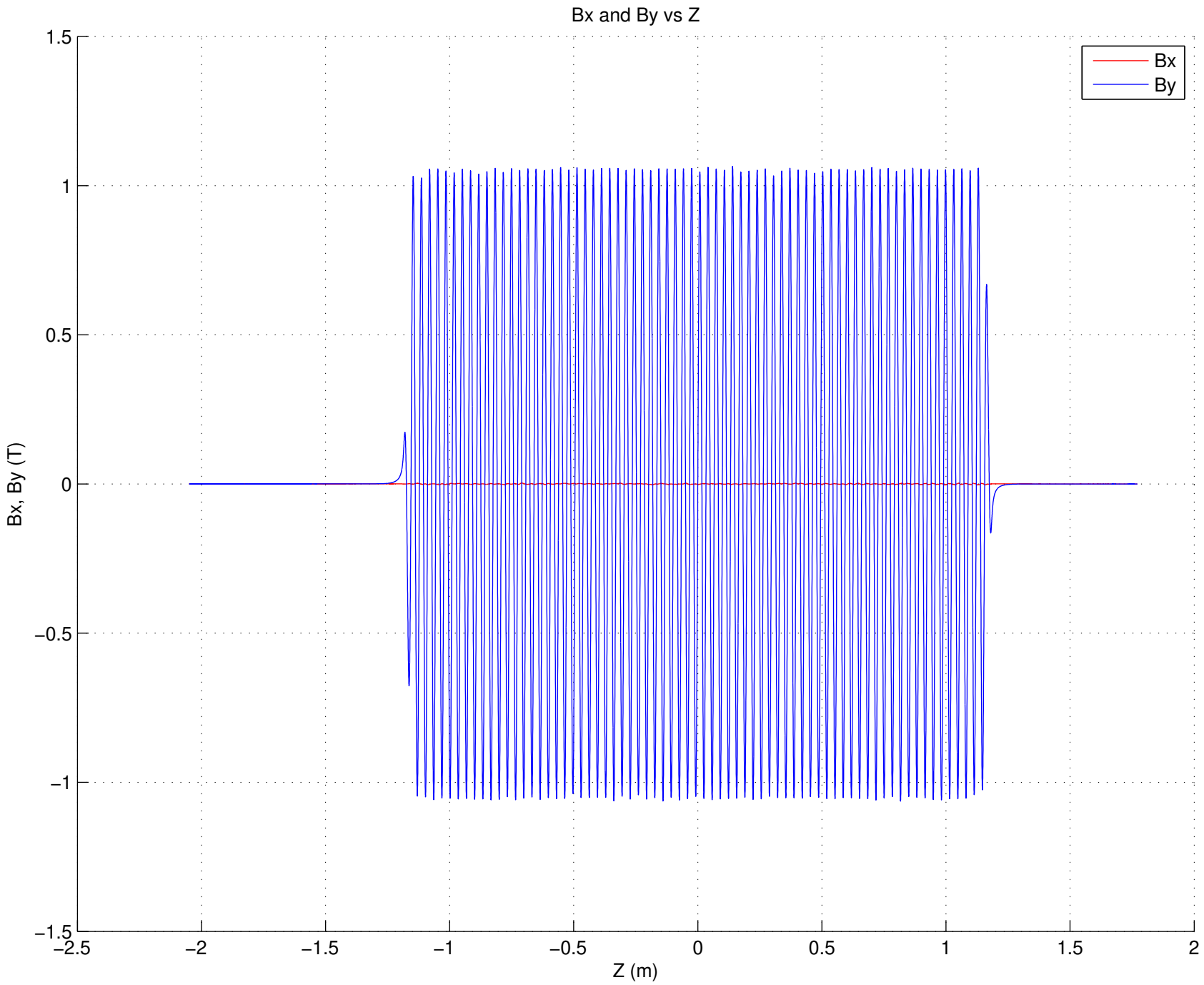
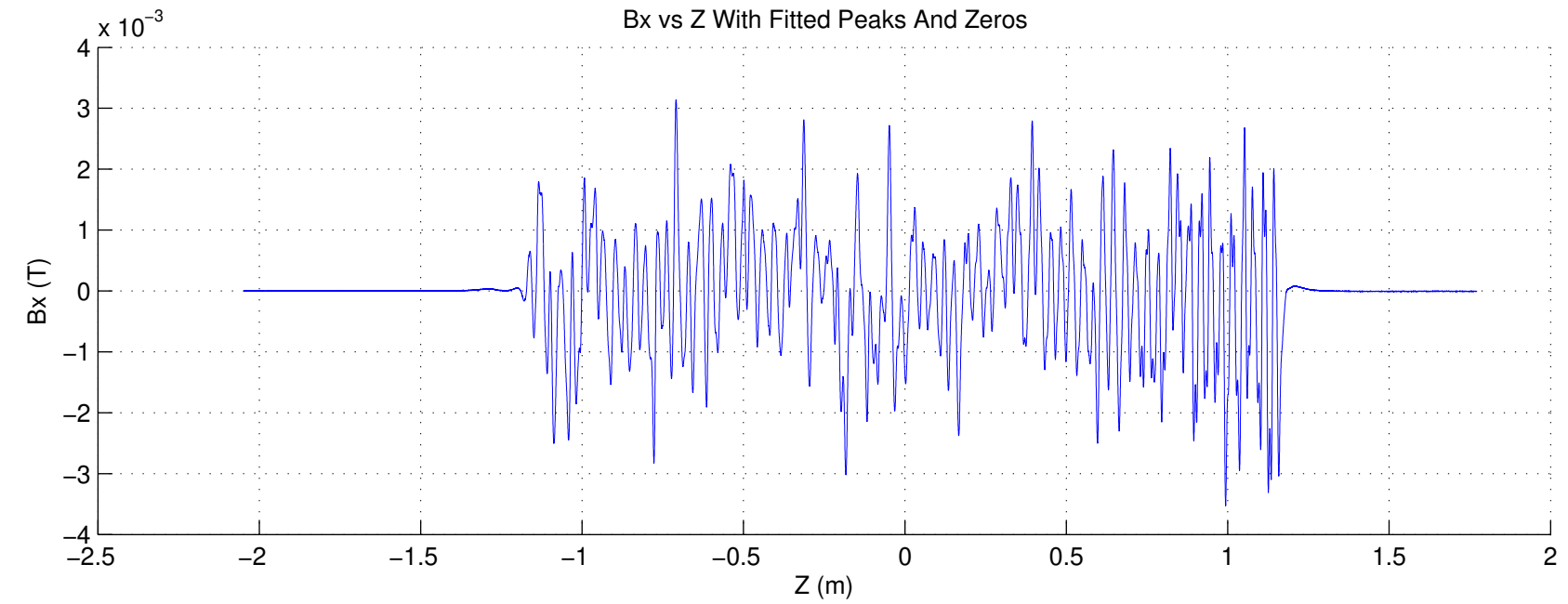
SLAC Magnetic Measurements

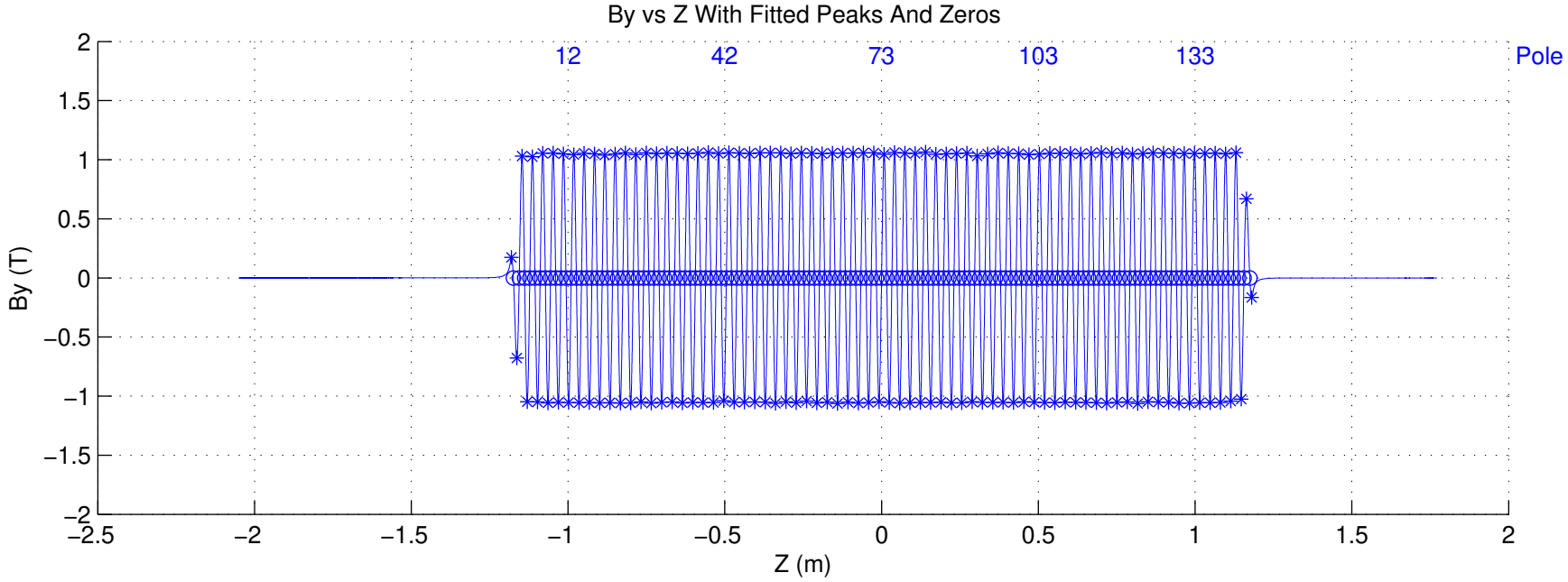
Trajectory Analysis
−−−−−−−−−−−−−−−−−−

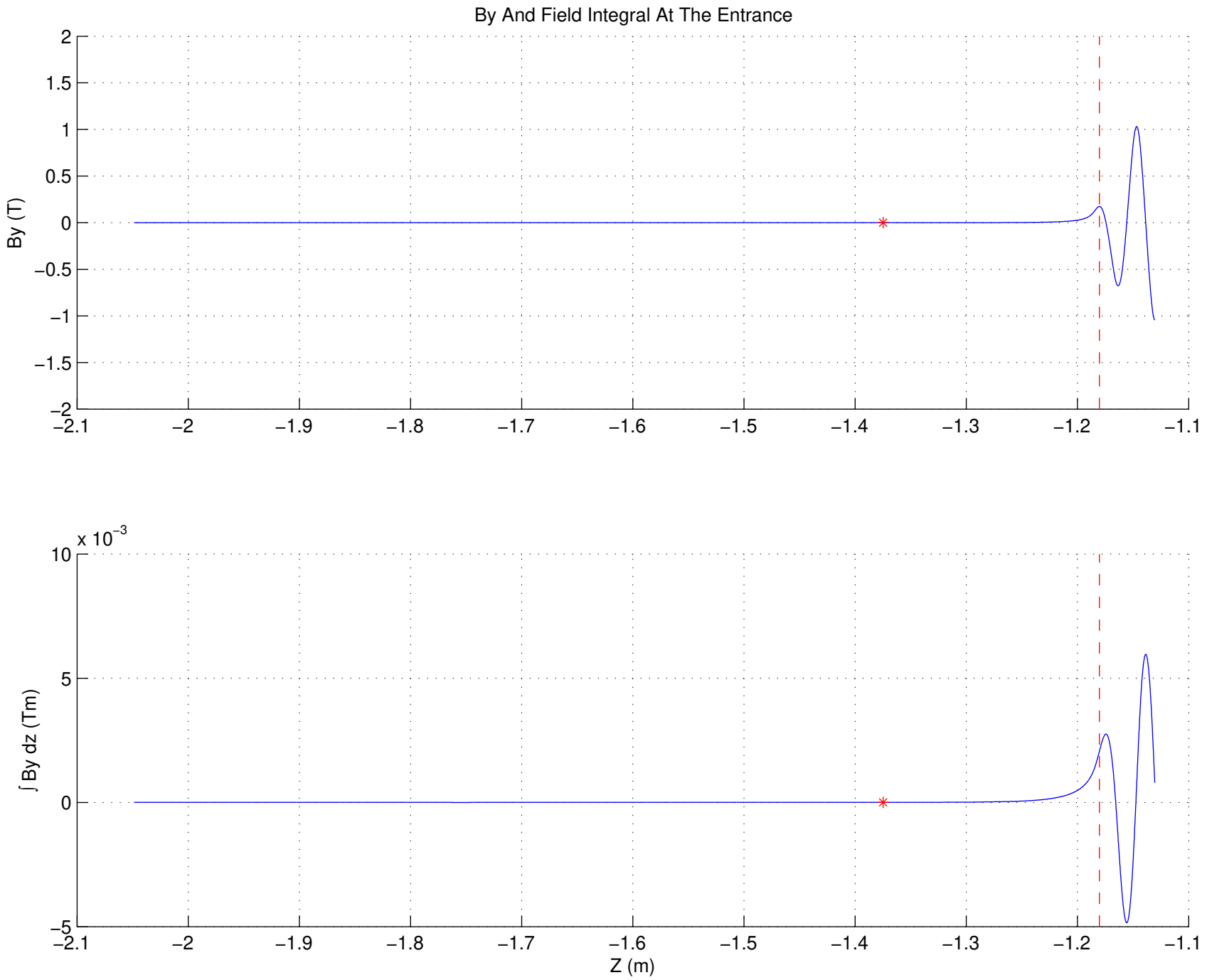
Parameters:
INPUT−FILE−DIR =S:\MagData\LCLS\Undulator\A1−ANL\DATASET0003\Rough Tuning\Z Scans\Run 026\
INPUT−FILE−NAME =x+00000−y+000−bscanz.dat
INPUT−FILE−TYPE =ZVXYBXYH
CORR−REQUIRED =0
GAMMA =26627.1
DEVICE CENTER POSITION ZM =2.1491 m
DEVICE ENTRANCE POSITION ZM =0.9688 m
DEVICE EXIT POSITION ZM =3.3294 m
NOM−LAMBDA−R =1.5e−010 m

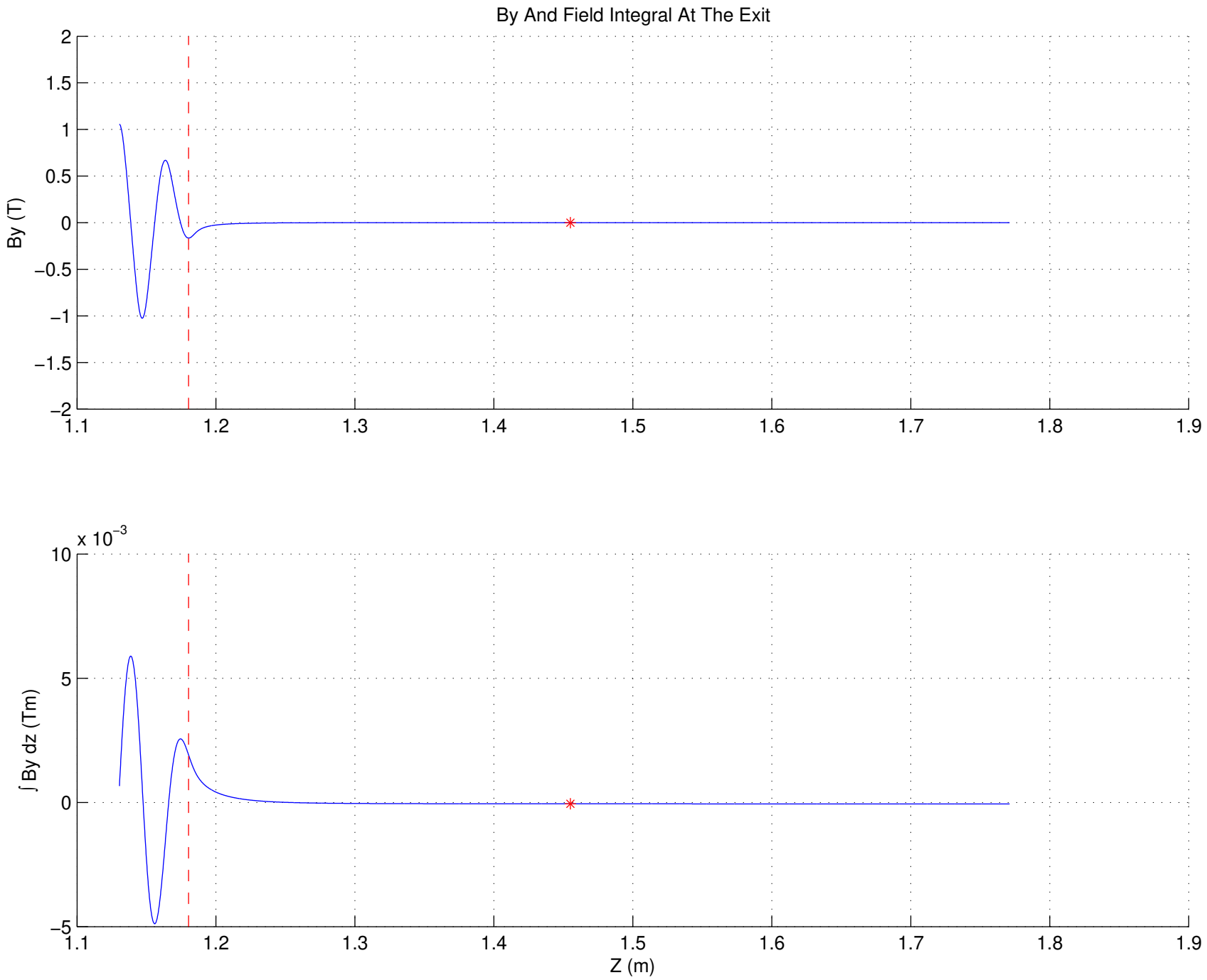

Bx, By, Bz vs Zm
x 10^-3
Bx (T)
By (T)
Bz (T)
Zm Measurement Position (m)

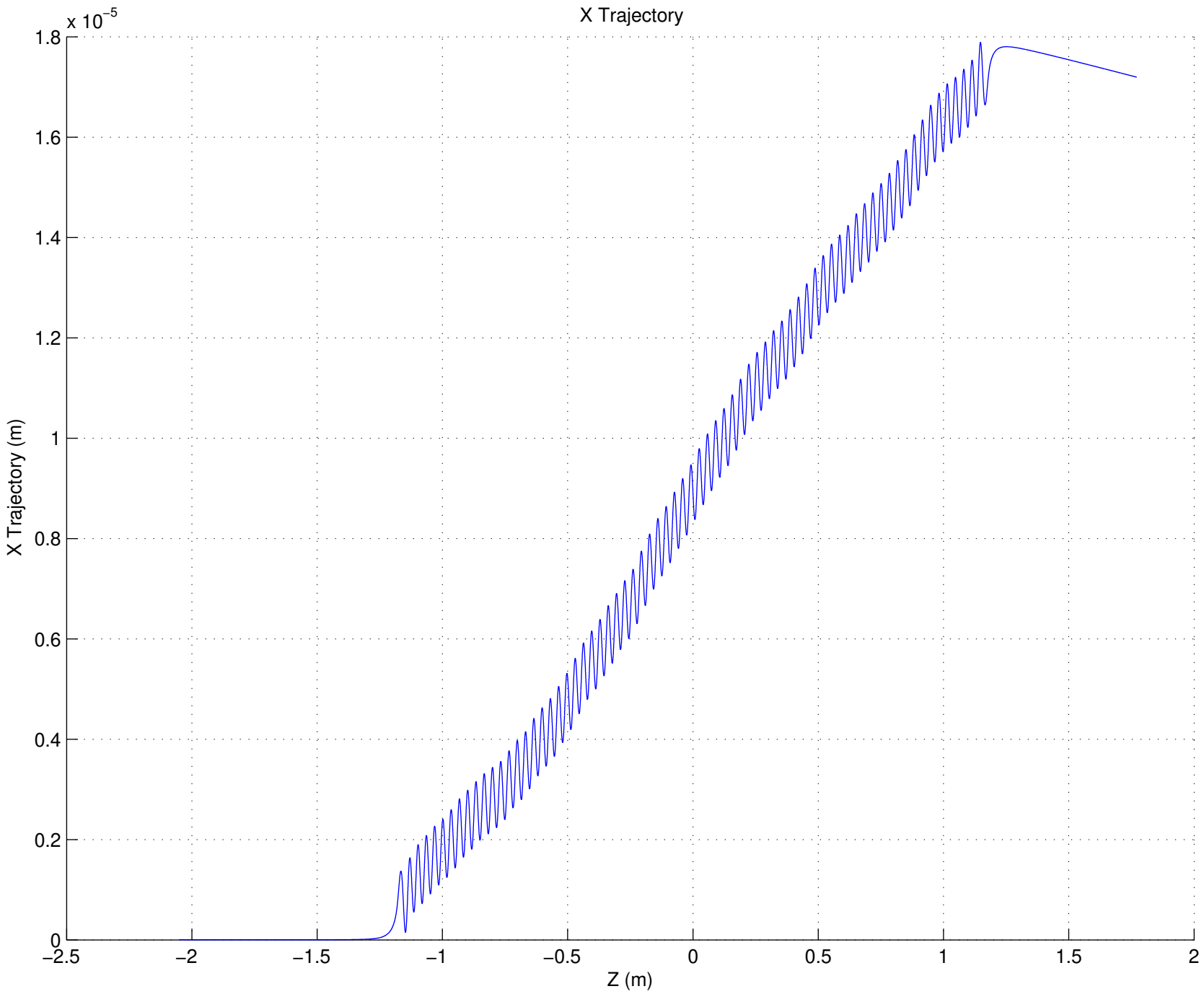

Bx and By vs Z
Bx
By
Bx, By (T)
Z (m)
1.5
1
0.5
0
−0.5
−1
−1.5
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2

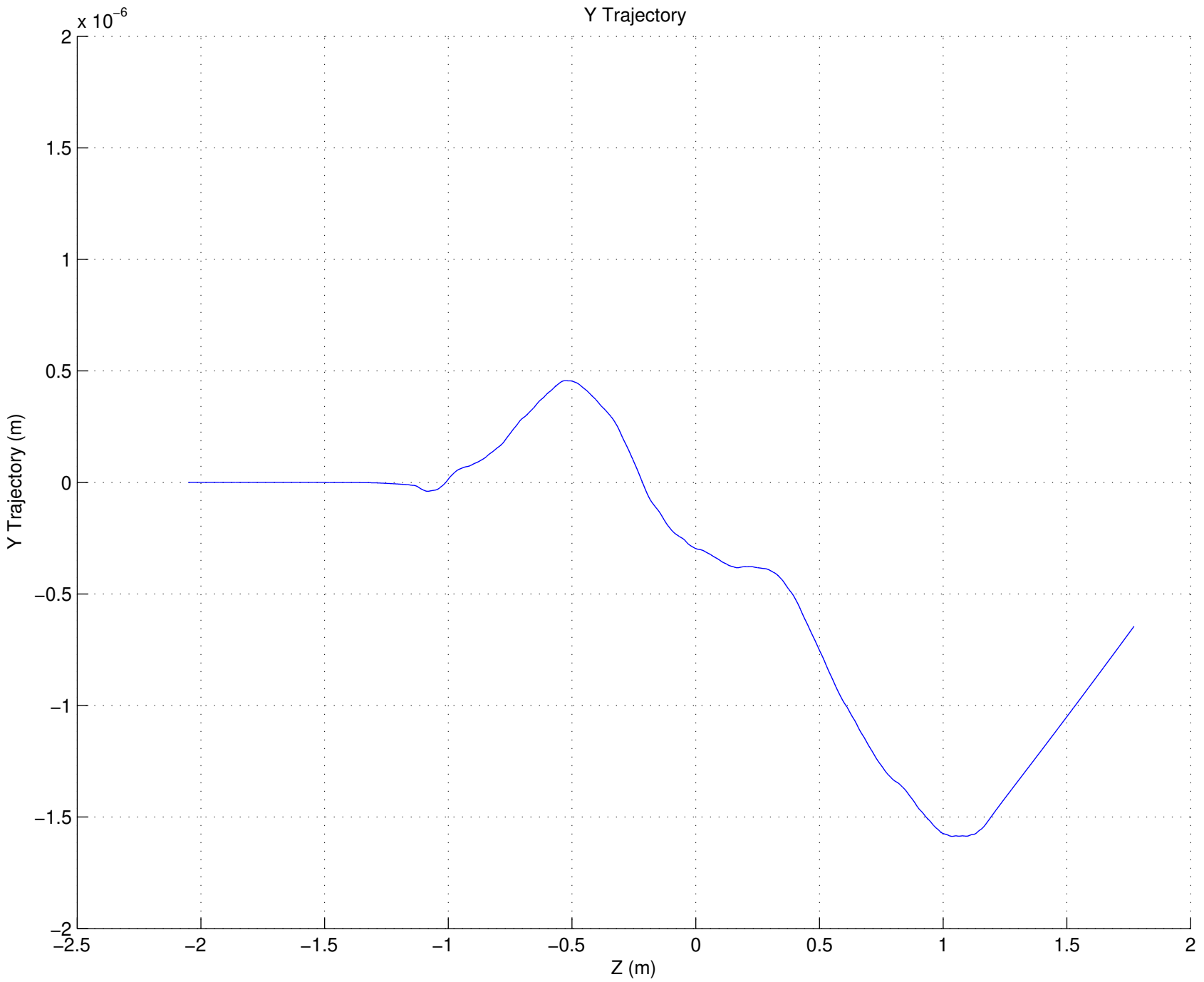

Bx vs Z With Fitted Peaks And Zeros
x 10^-3
Bx (T)
Z (m)

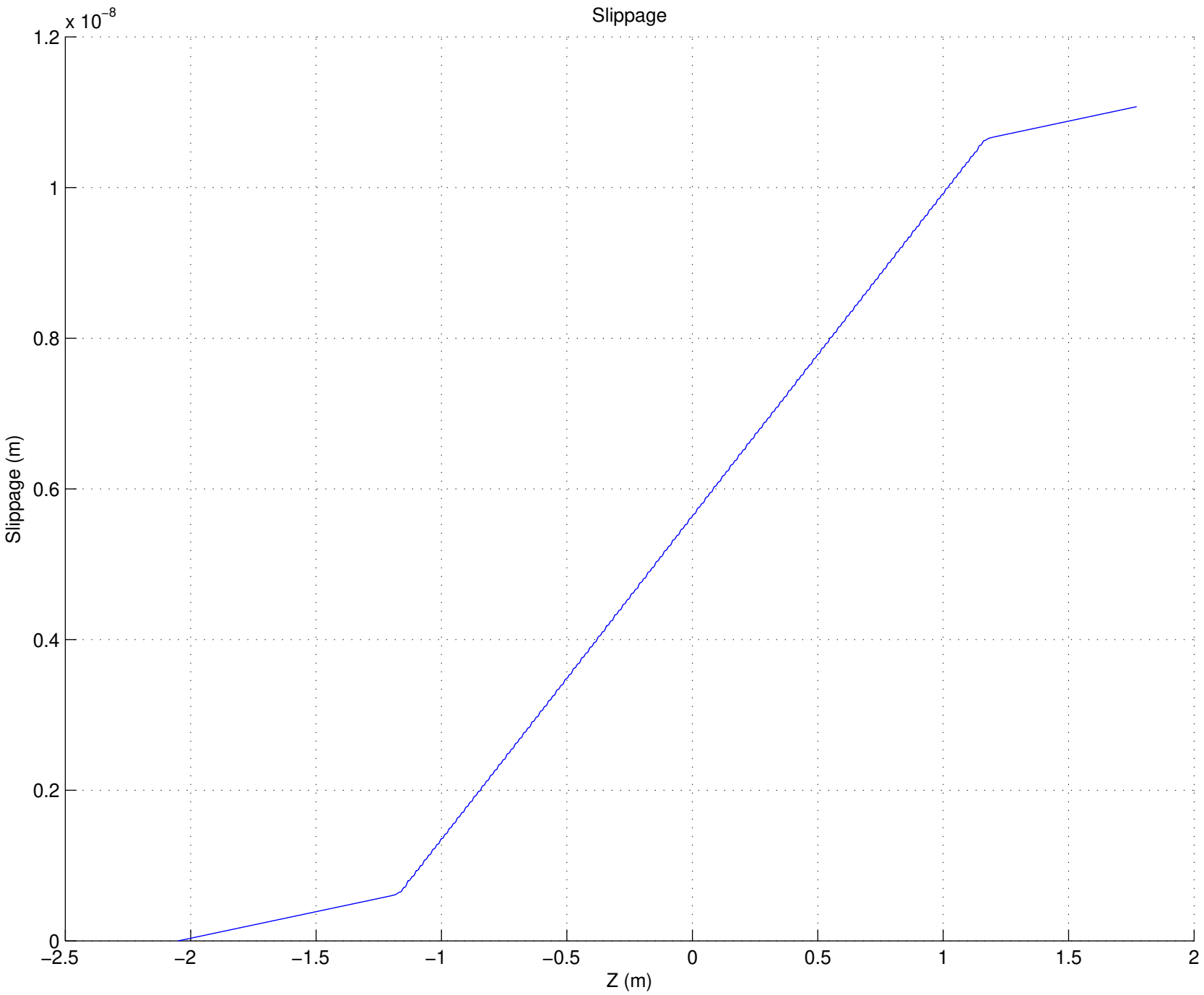

By vs Z With Fitted Peaks And Zeros
12
42
73
103
133
Pole
By (T)
Z (m)

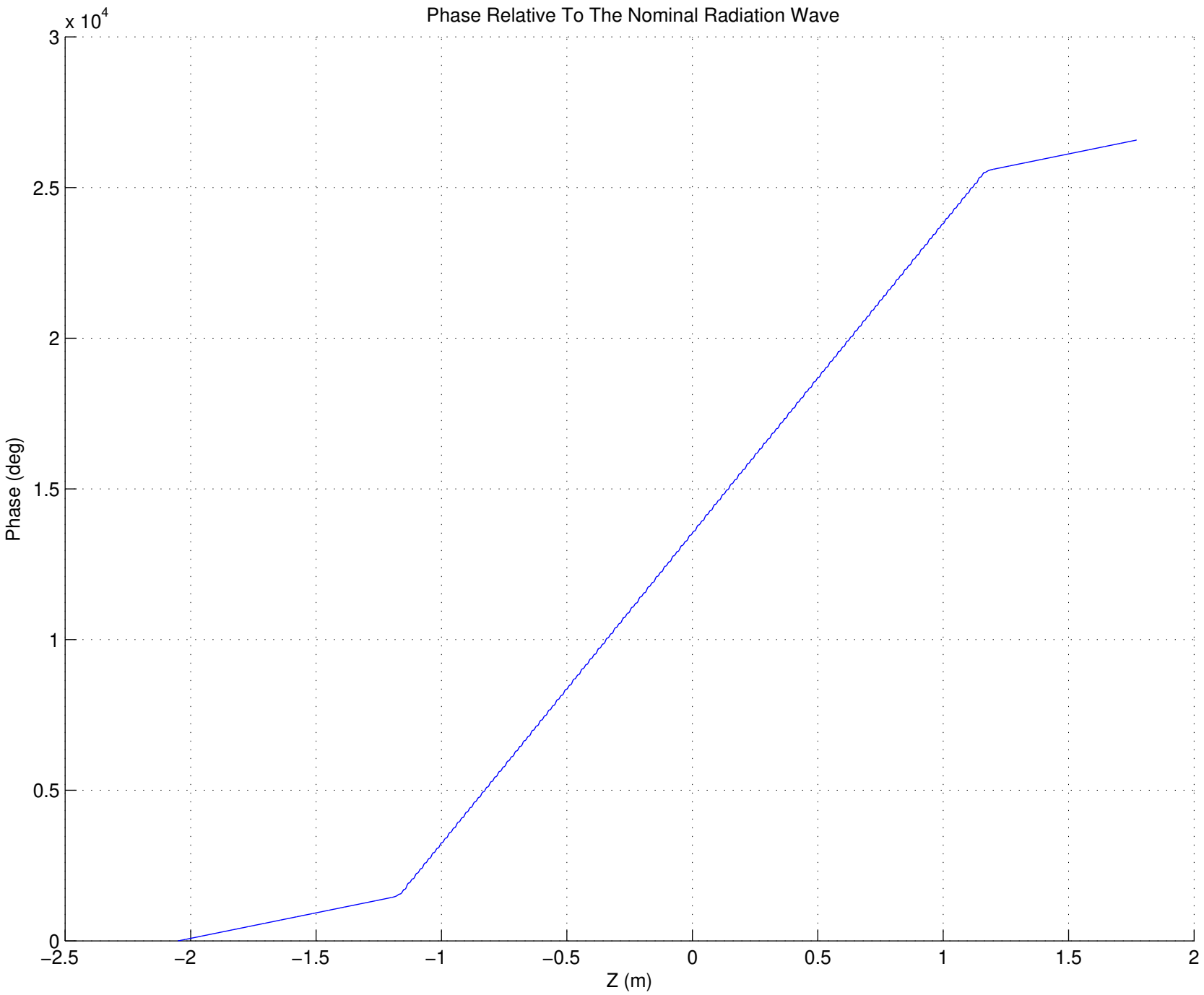

By And Field Integral At The Entrance
By (T)
2
1.5
1
0.5
0
−0.5
−1
−1.5
−2
−2.1
−2
−1.9
−1.8
−1.7
−1.6
−1.5
−1.4
−1.3
−1.2
−1.1
x 10^−3
∫ By dz (Tm)
10
5
0
−5
Z (m)


By And Field Integral At The Exit
By (T)
2
1.5
1
0.5
0
−0.5
−1
−1.5
−2
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
x 10^−3
∫ By dz (Tm)
10
5
0
−5
Z (m)


X Trajectory
x 10^-5
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
X Trajectory (m)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z (m)


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


Slippage
x 10^-8
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
Z (m)


Phase Relative To The Nominal Radiation Wave
x 10^4
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
Z (m)