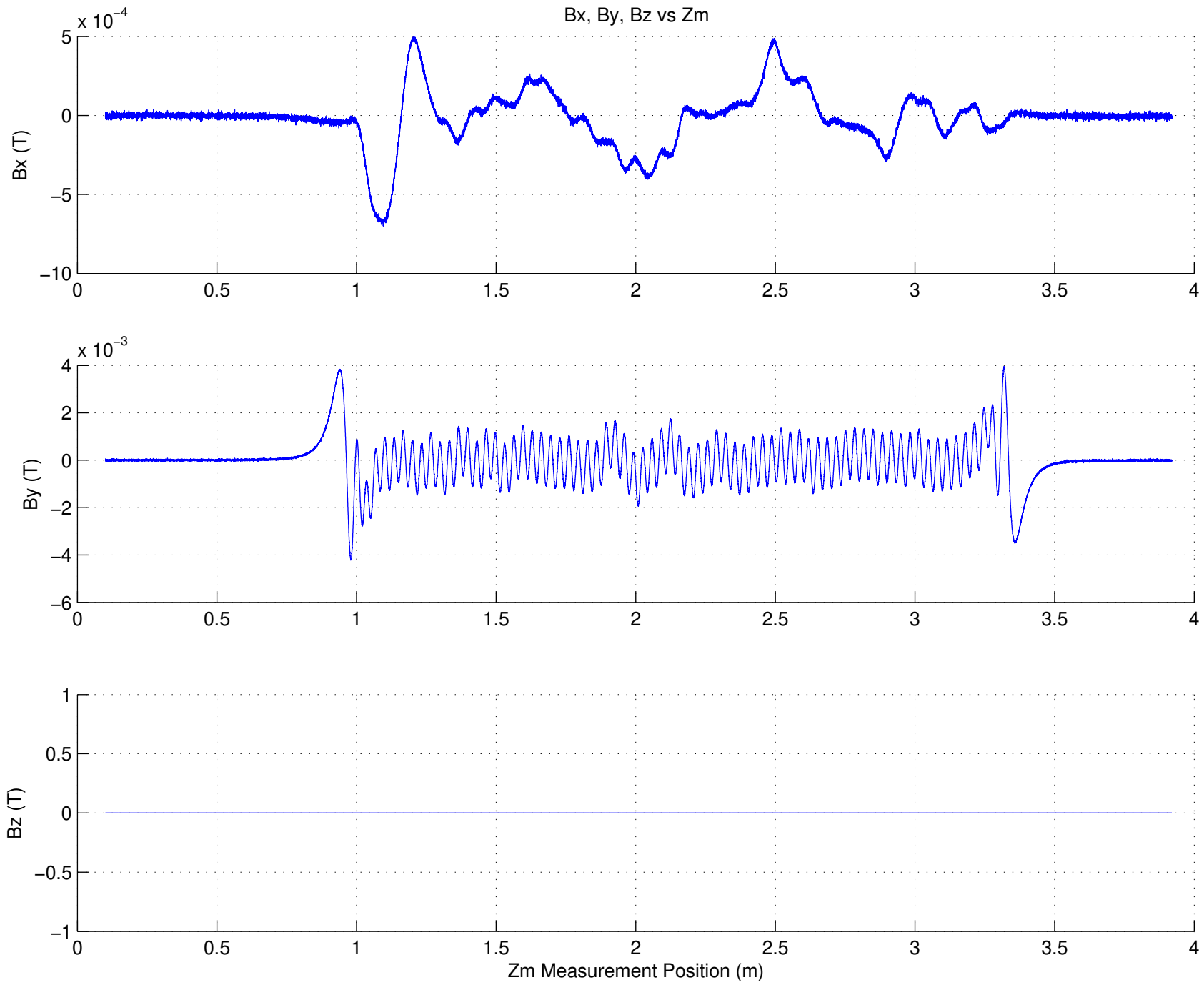
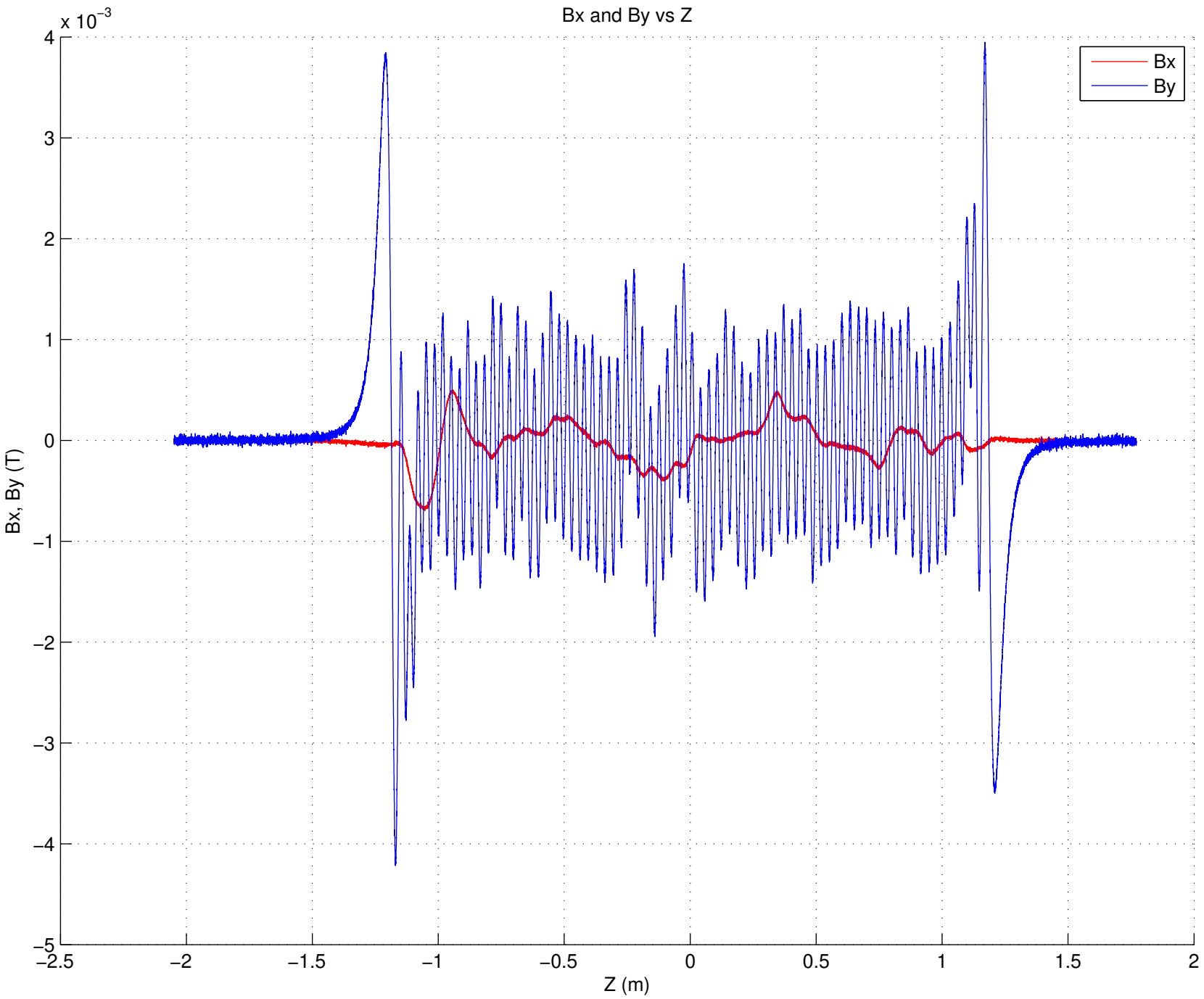
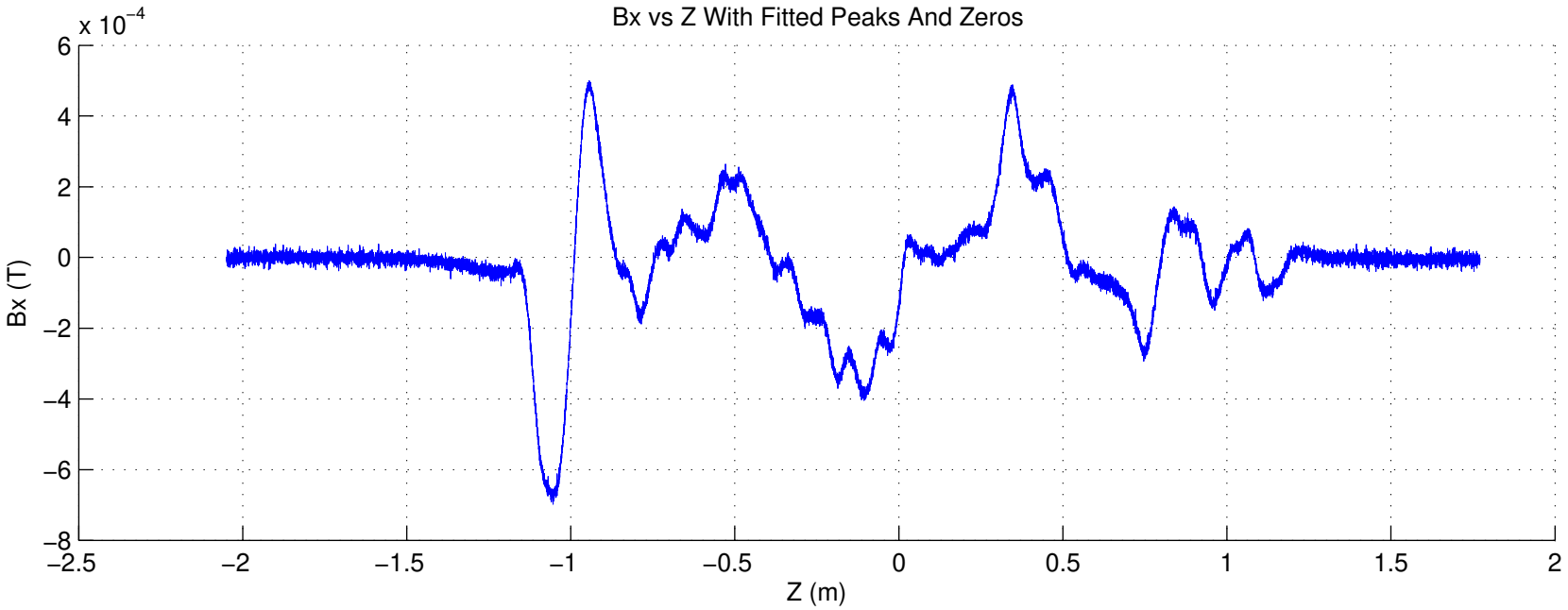
SLAC Magnetic Measurements

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

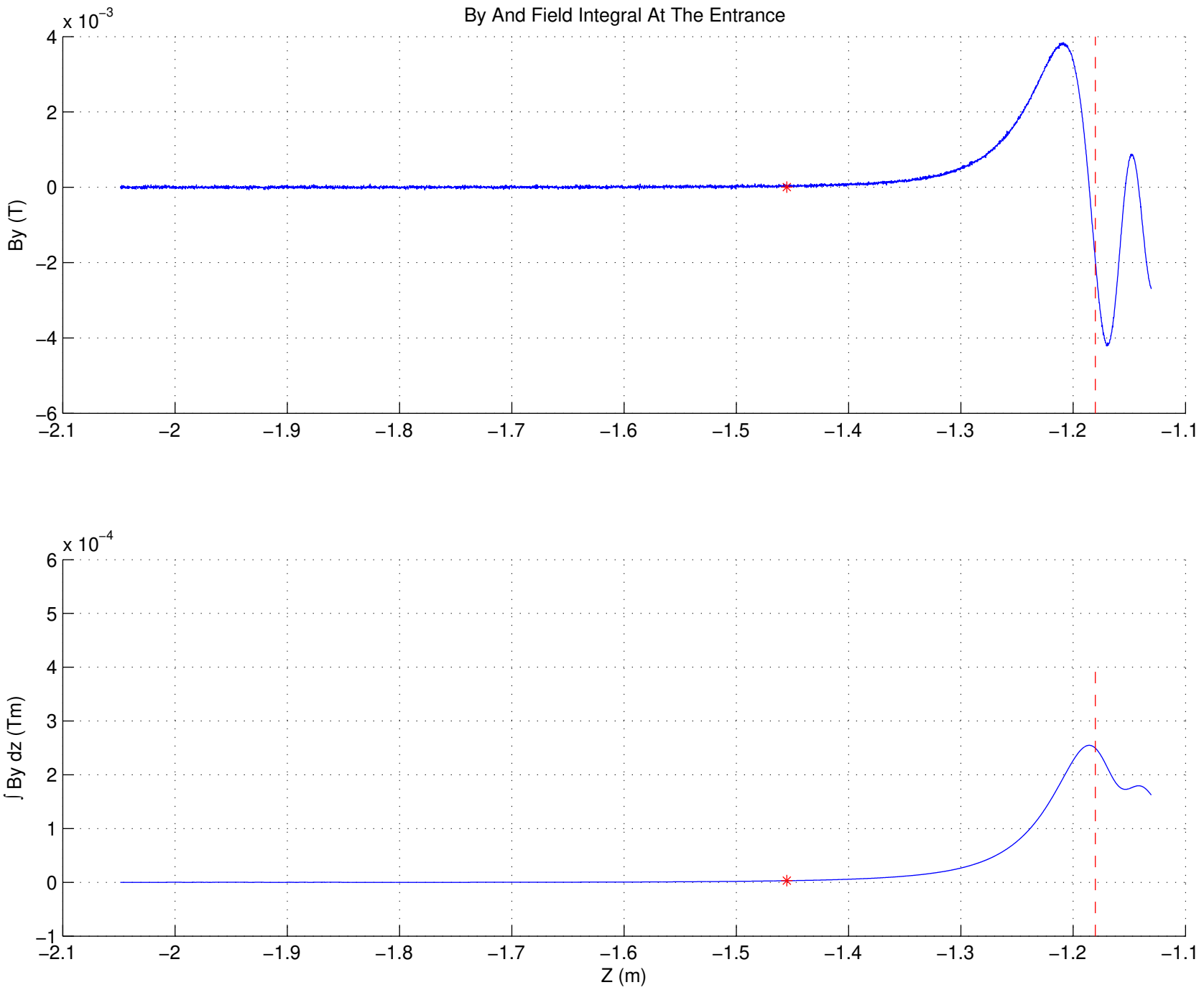
Parameters:
INPUT−FILE−DIR =S:\MagData\LCLS\Undulator\A1−ANL\DATASET0003\Rough Tuning\Z Scans\Run 054\
INPUT−FILE−NAME =x+00000−y+000−bscanz.dat
INPUT−FILE−TYPE =ZVXYBXYH
CORR−REQUIRED =0
GAMMA =26627.1
DEVICE CENTER POSITION ZM =2.1491 m
DEVICE ENTRANCE POSITION ZM =0.9688 m
DEVICE EXIT POSITION ZM =3.3294 m
NOM−LAMBDA−R =1.5e−010 m

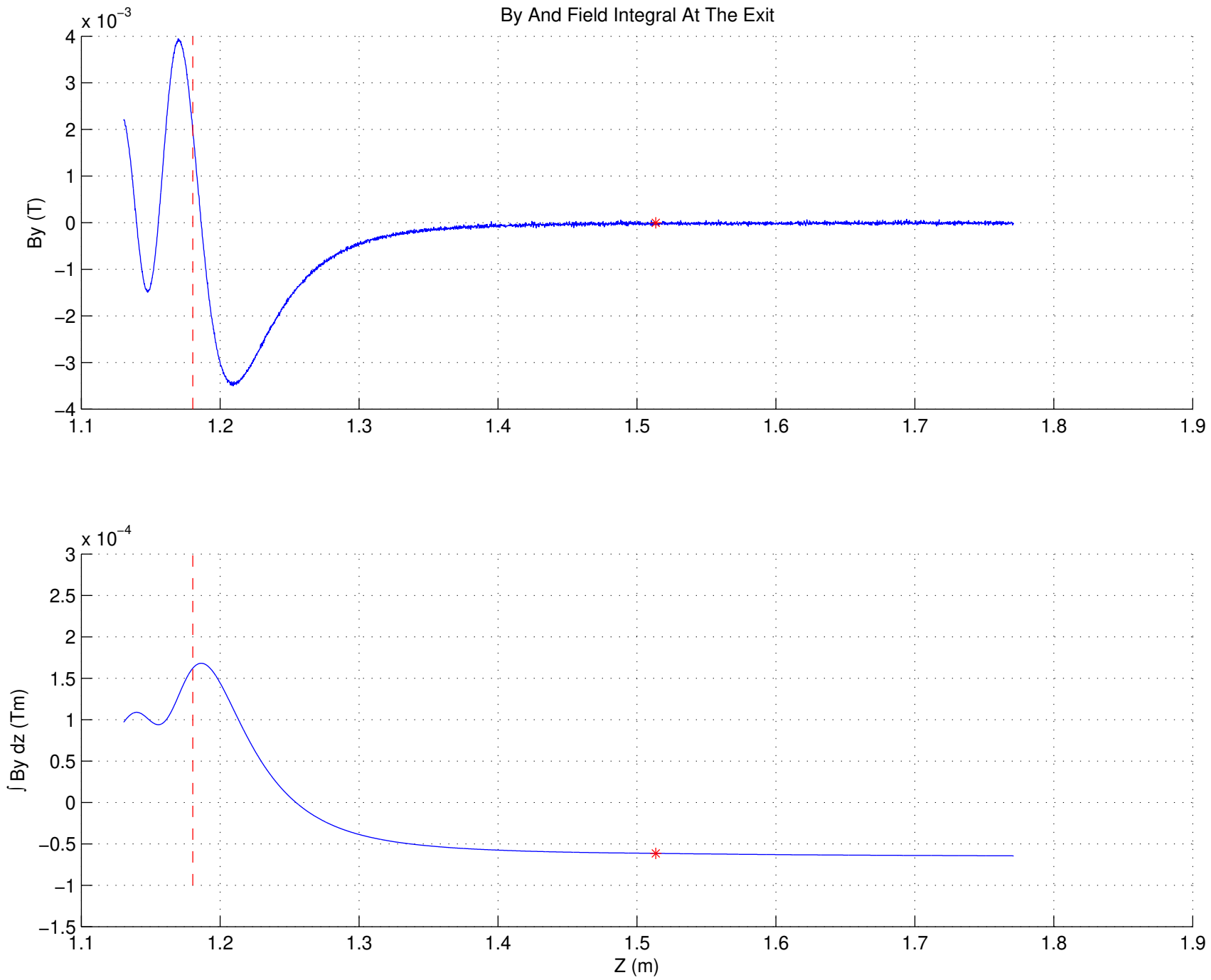

Bx, By, Bz vs Zm
x 10^-4
Bx (T)
5
0
−5
−10
0
0.5
1
1.5
2
2.5
3
3.5
4
x 10^-3
By (T)
4
2
0
−2
−4
−6
Bz (T)
1
0.5
0
−0.5
−1
Zm Measurement Position (m)

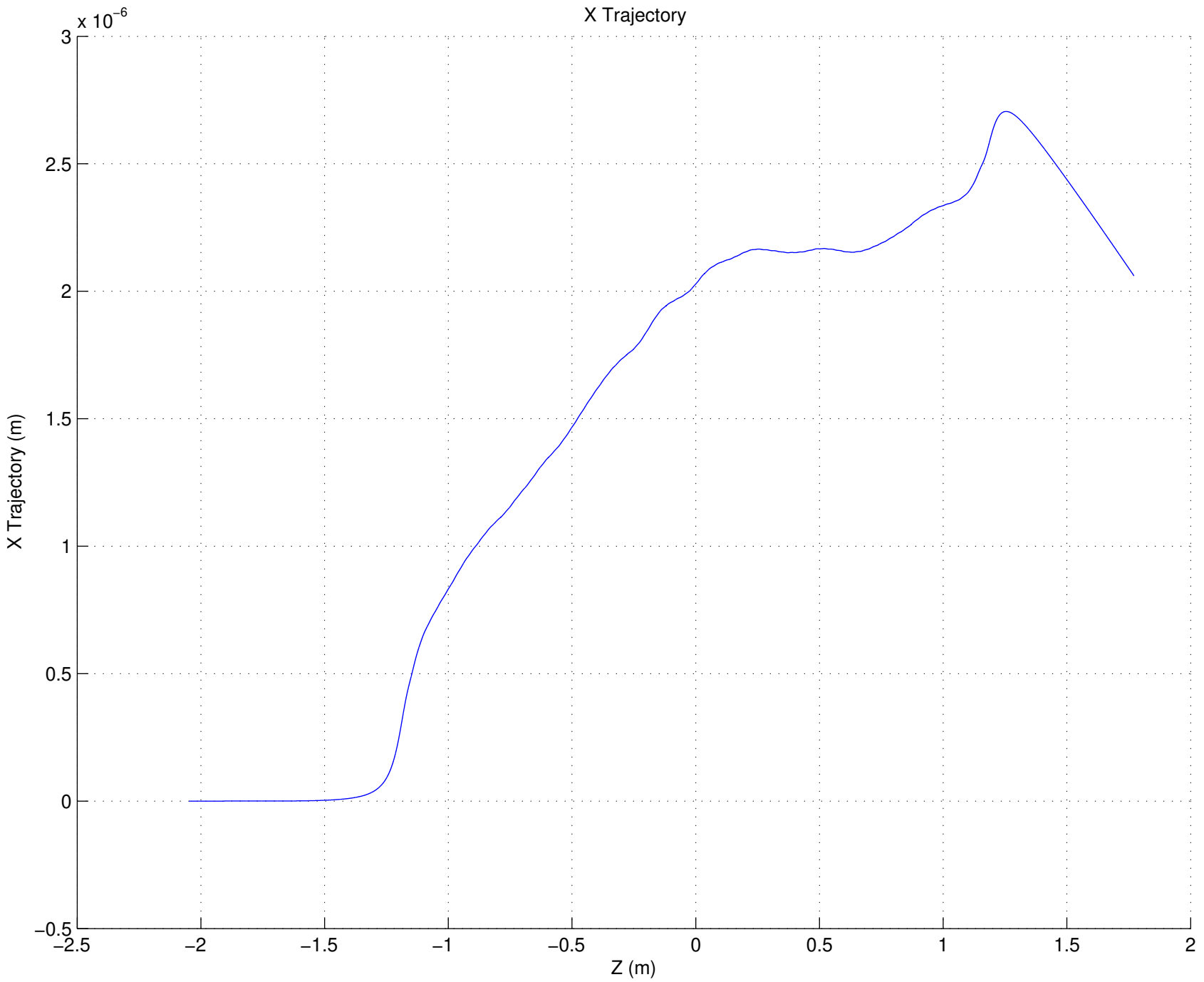

Bx and By vs Z
x 10^-3
4
3
2
1
0
−1
−2
−3
−4
−5
Bx, By (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z (m)
Bx
By

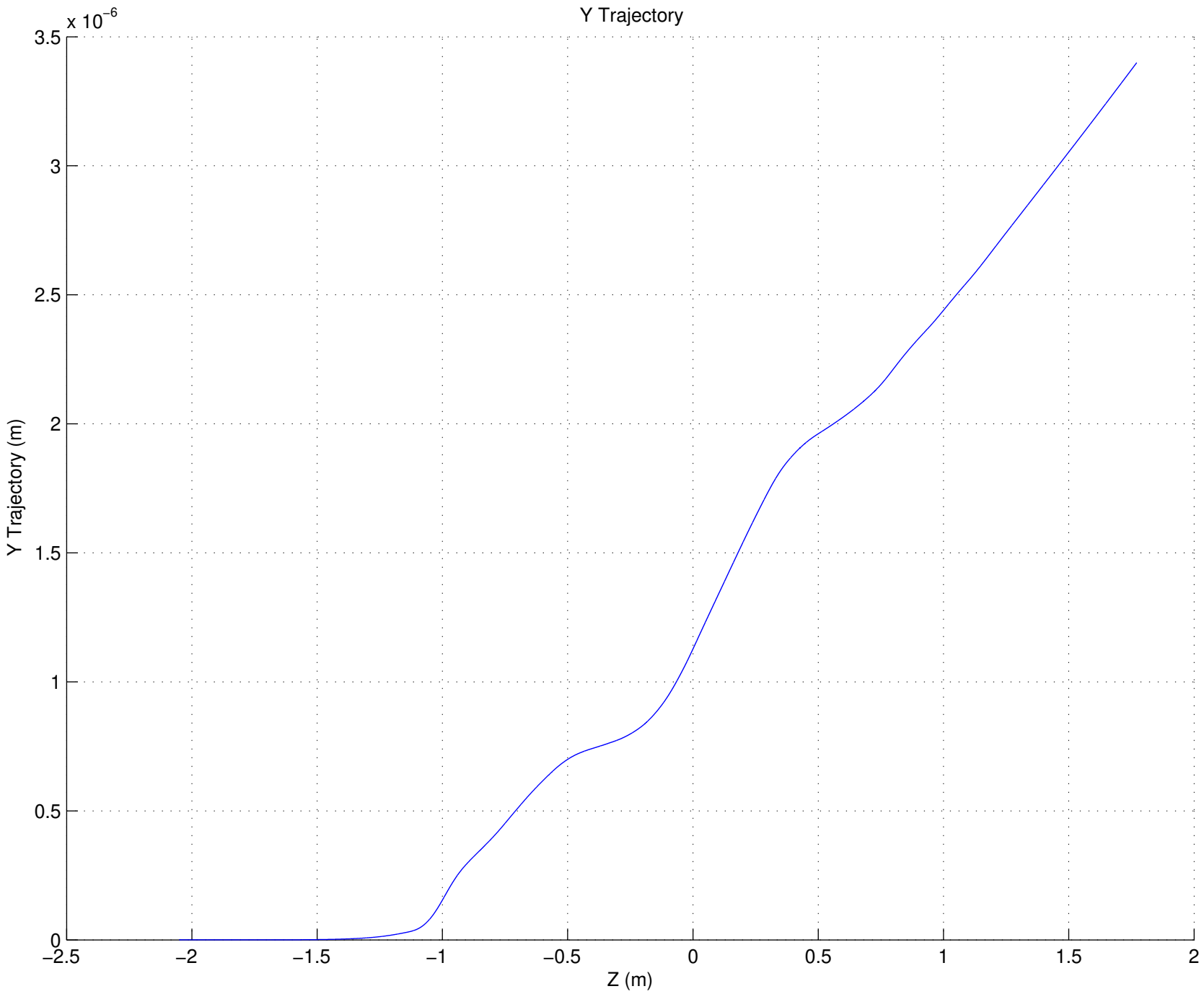

Bx vs Z With Fitted Peaks And Zeros
x 10^-4
Bx (T)
Z (m)
6
4
2
0
−2
−4
−6
−8
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2

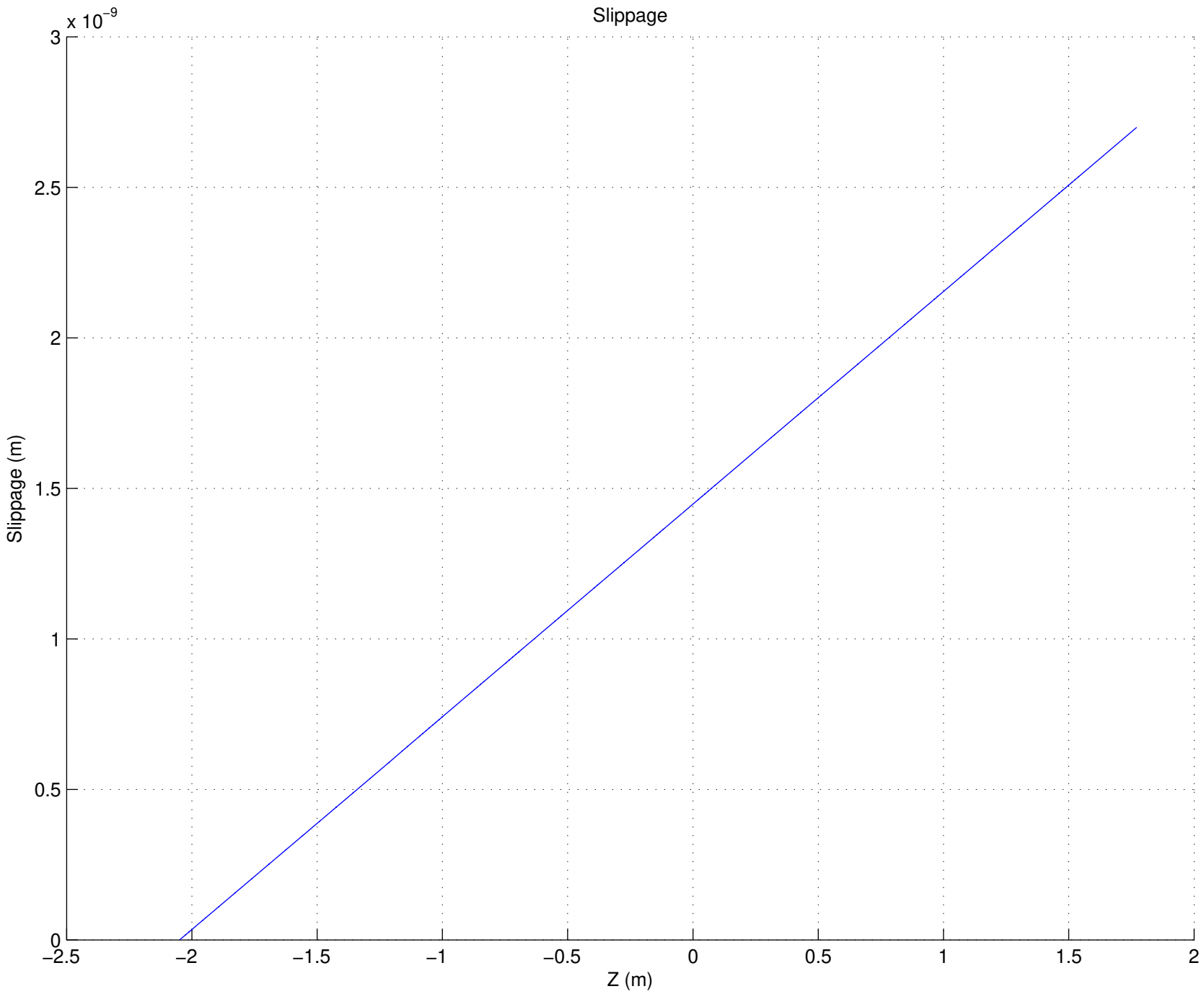
By vs Z With Fitted Peaks And Zeros
x 10^-3
By (T)
Z (m)
4
3
2
1
0
−1
−2
−3
−4
−5
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2

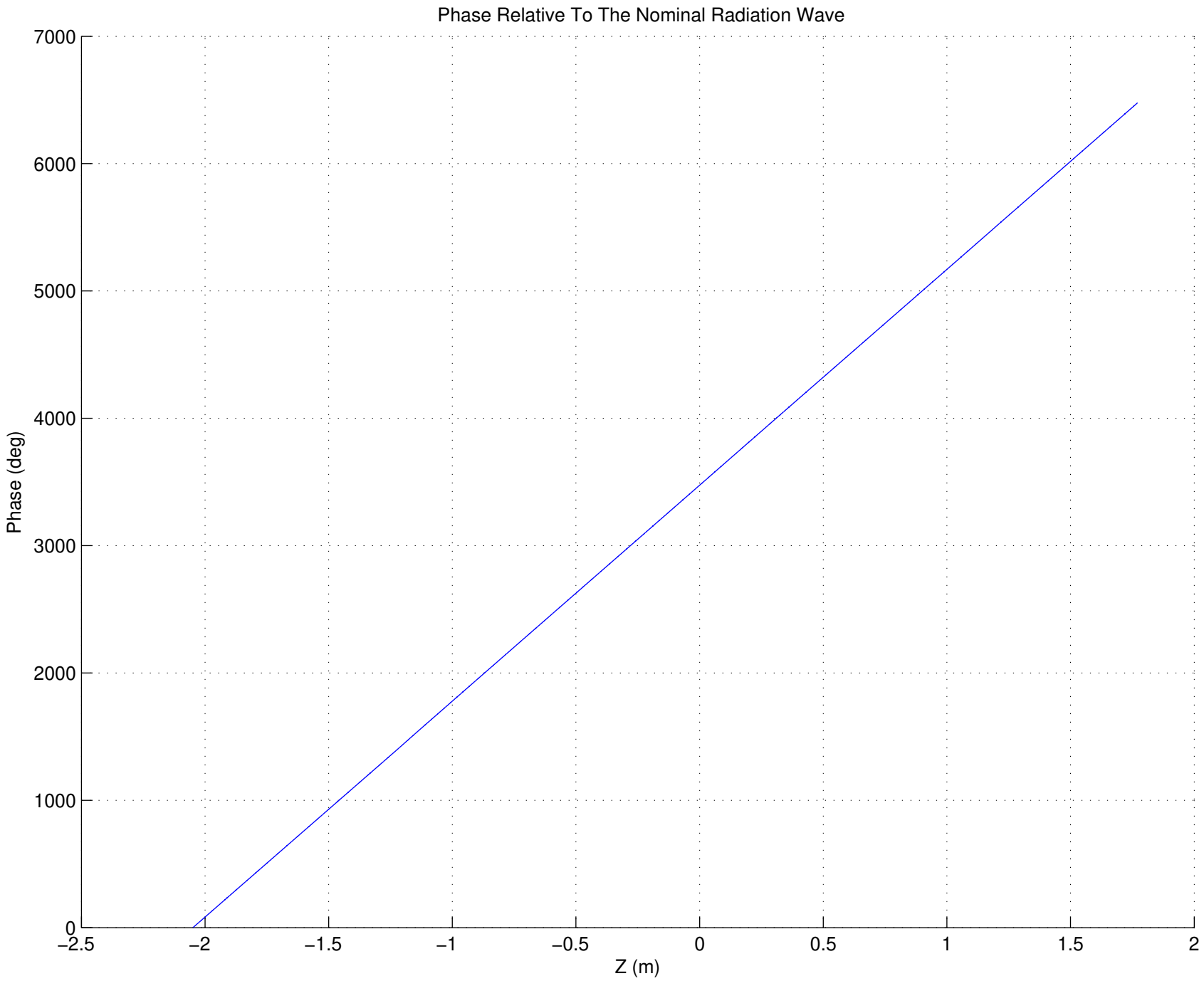

By And Field Integral At The Entrance
x 10^-3
4
2
0
−2
−4
−6
By (T)
−2.1
−2
−1.9
−1.8
−1.7
−1.6
−1.5
−1.4
−1.3
−1.2
−1.1
x 10^-4
6
5
4
3
2
1
0
−1
∫ By dz (Tm)
Z (m)


By And Field Integral At The Exit
x 10^-3
By (T)
4
3
2
1
0
−1
−2
−3
−4
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
x 10^-4
∫ By dz (Tm)
3
2.5
2
1.5
1
0.5
0
−0.5
−1
−1.5
Z (m)


X Trajectory
x 10^-6
3
2.5
2
1.5
1
0.5
0
−0.5
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
3.5
3
2.5
2
1.5
1
0.5
0
Y Trajectory (m)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z (m)


Slippage
x 10^-9
3
2.5
2
1.5
1
0.5
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
Phase (deg)
Z (m)
7000
6000
5000
4000
3000
2000
1000
0
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2