SLAC Magnetic Measurements

Trajectory Analysis
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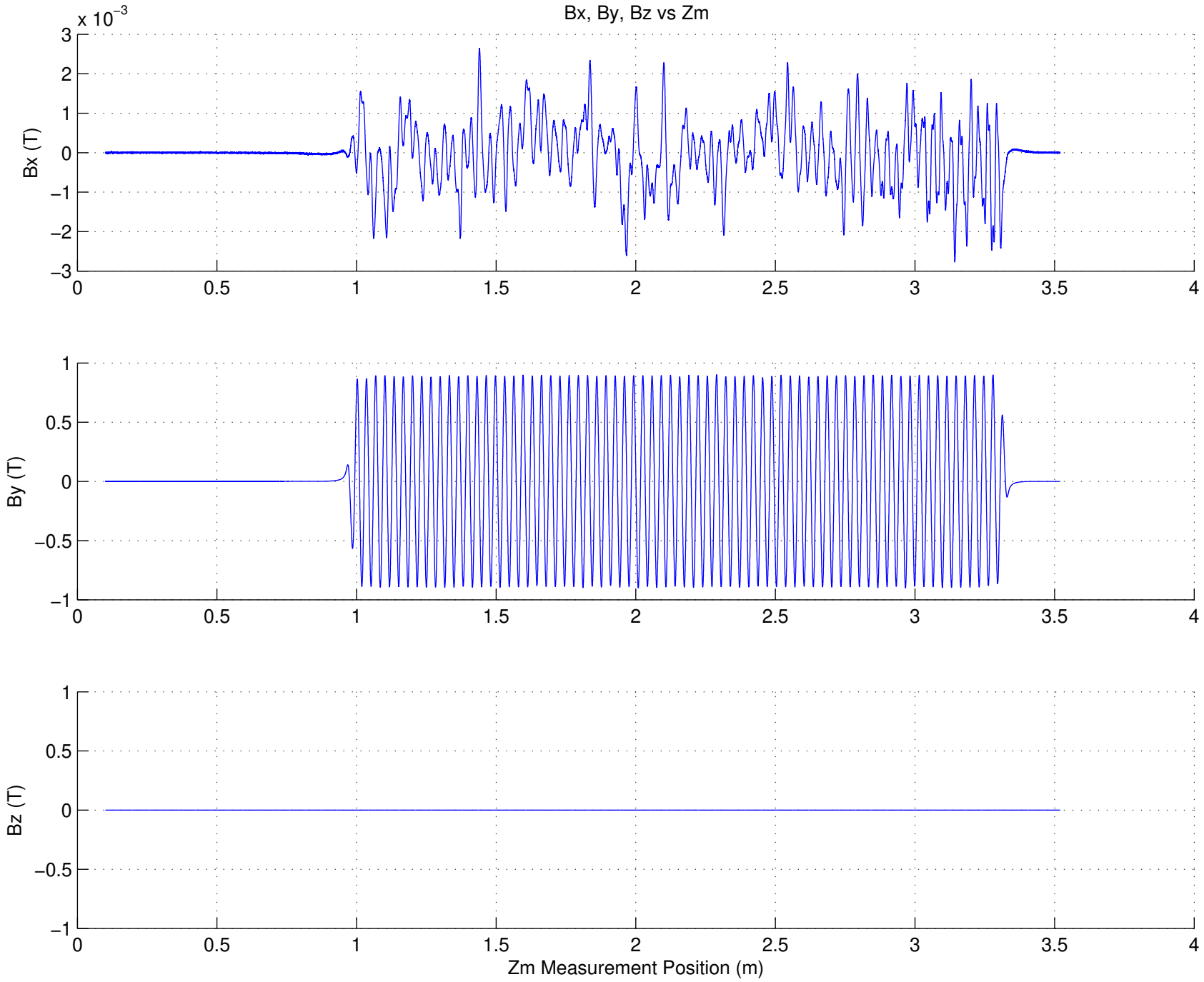
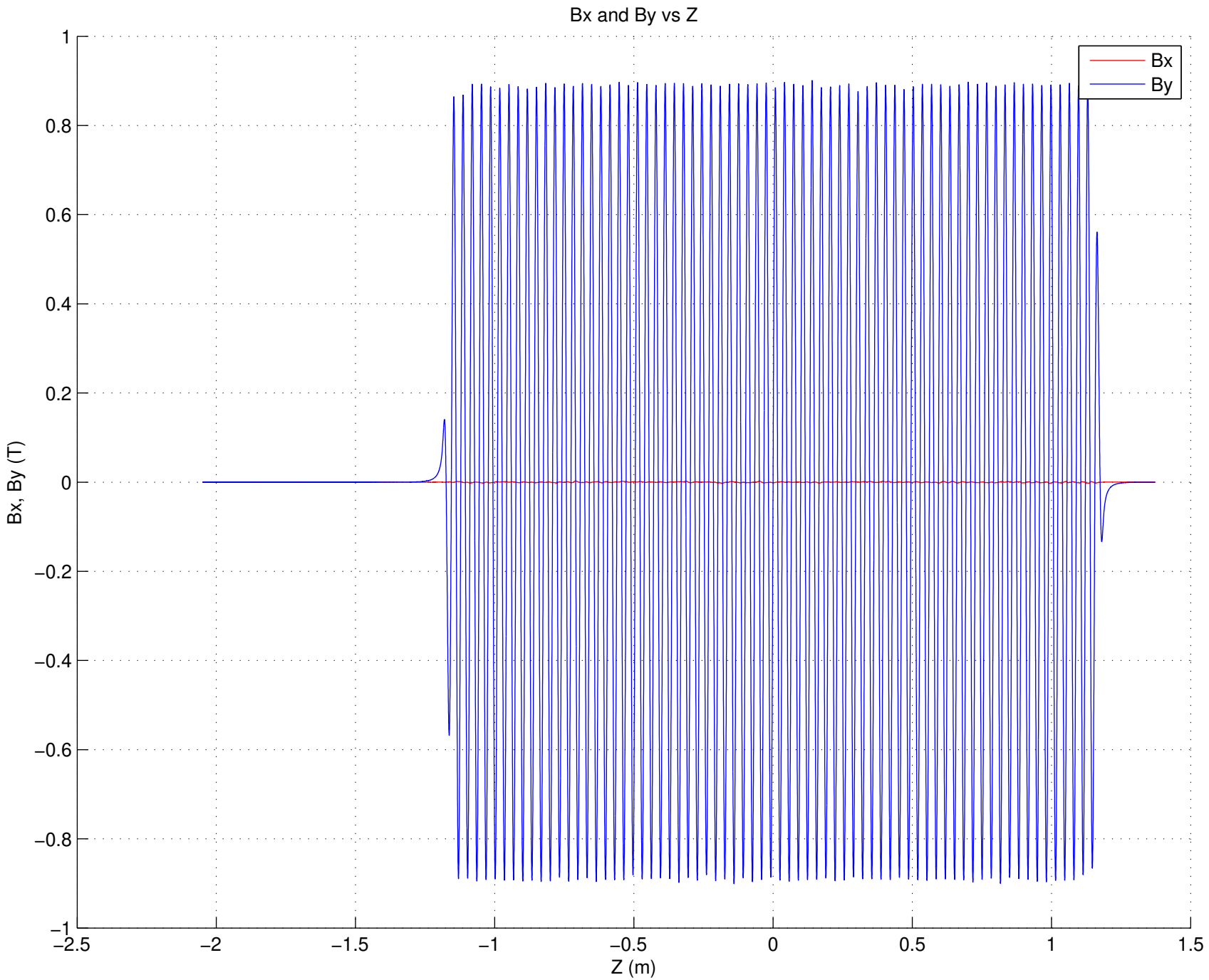
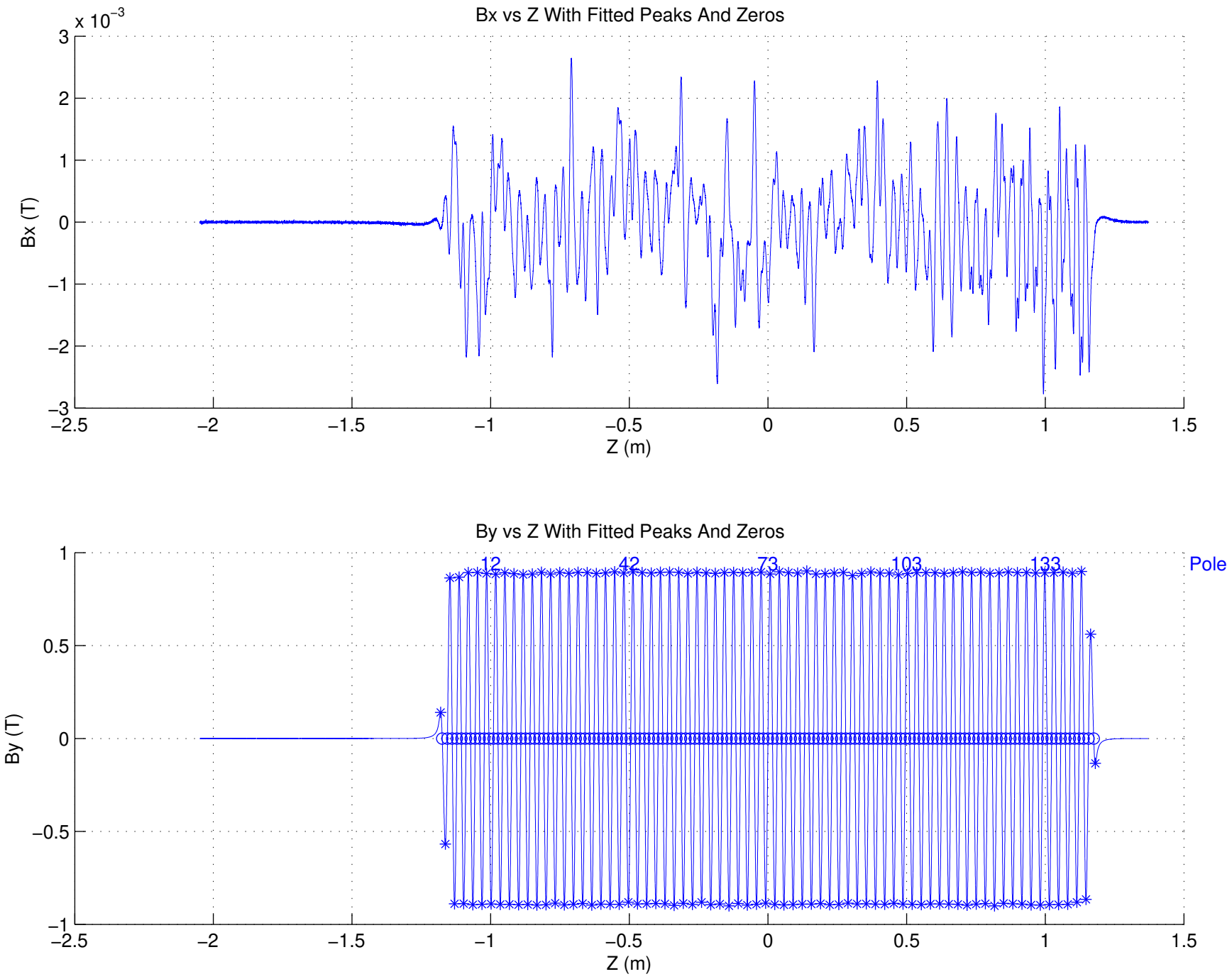
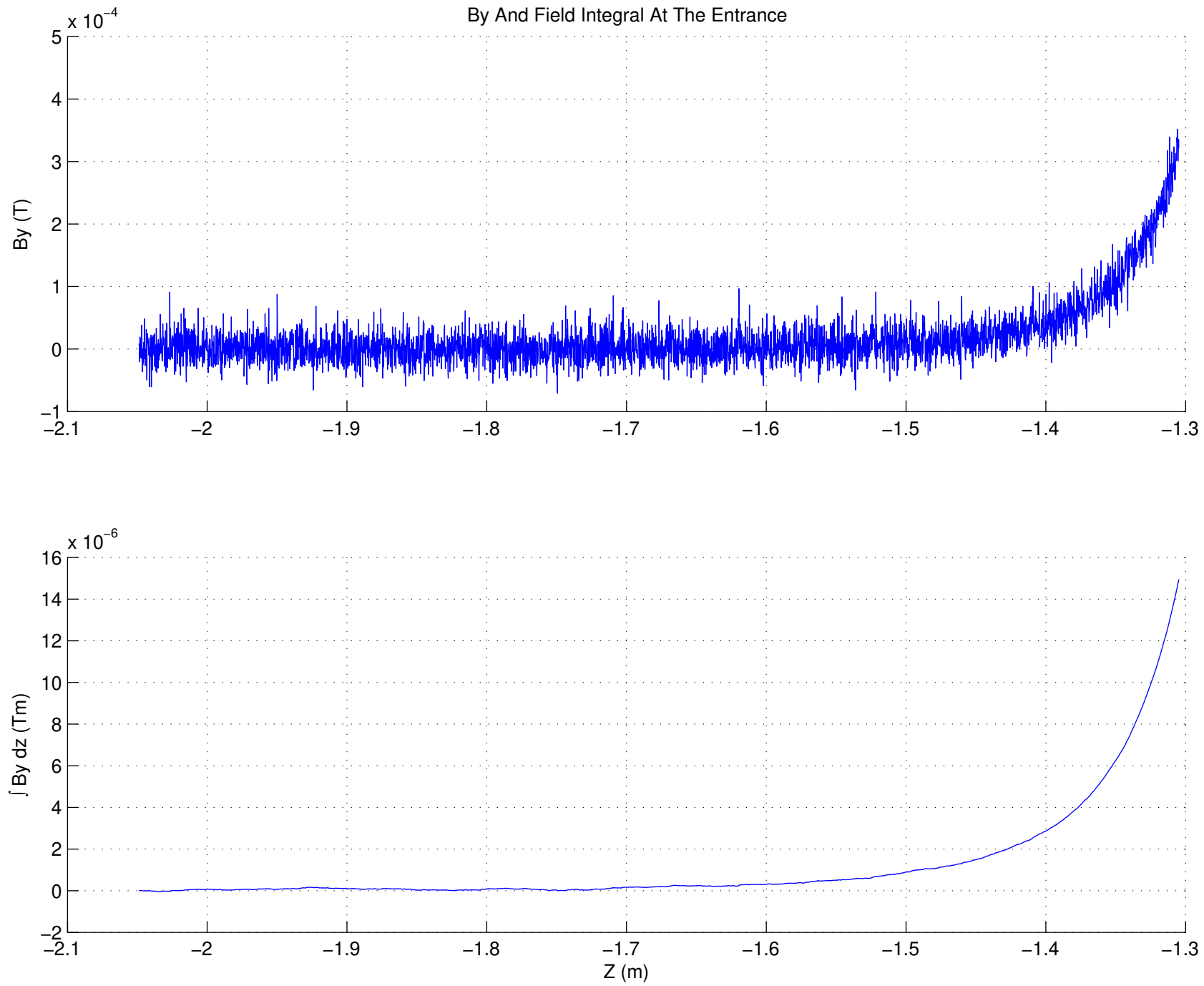
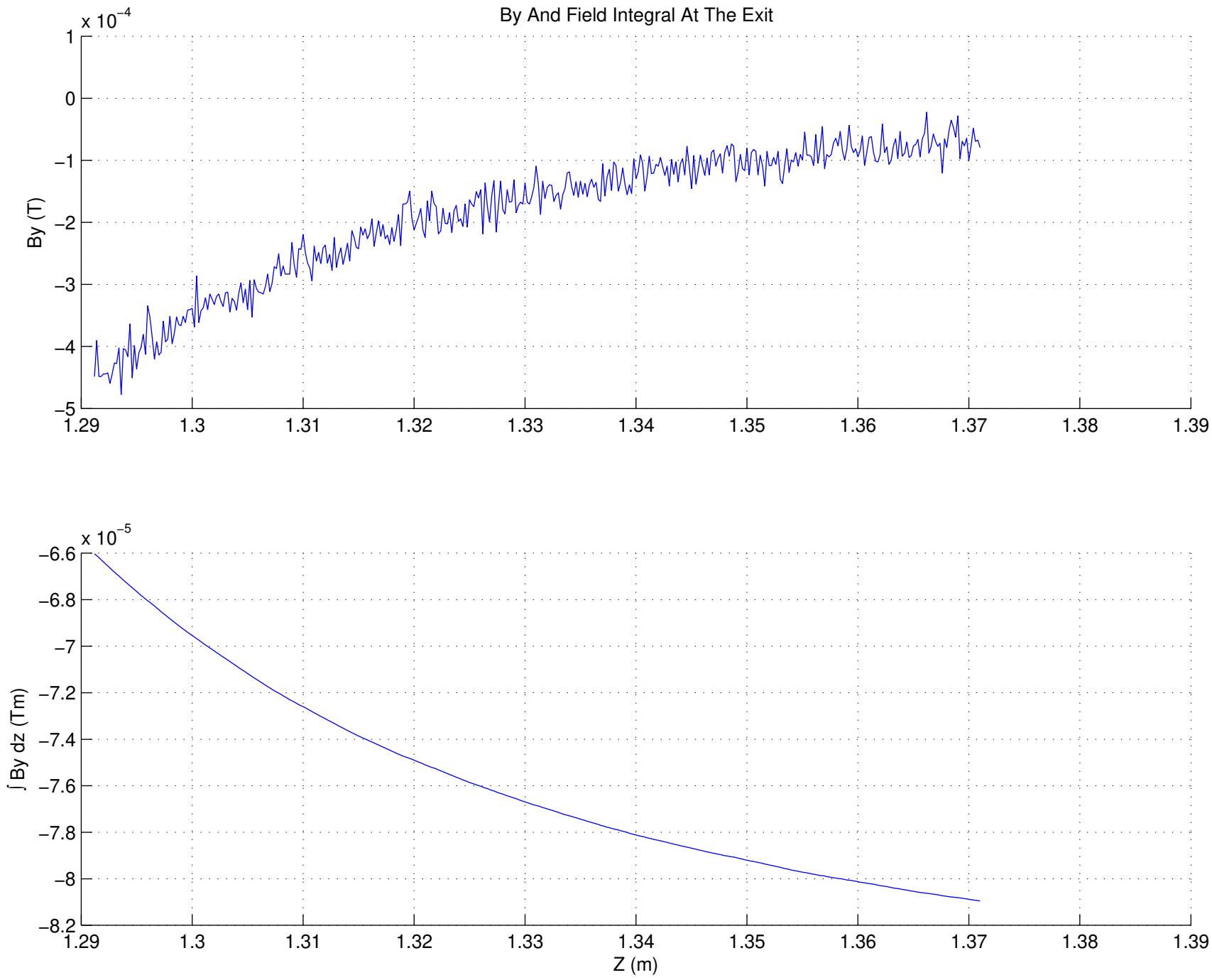
Parameters:
INPUT−FILE−DIR =S:\MagData\LCLS\Undulator\A1−ANL\DATASET0001\Rough Tuning\Z Scans\Run 036\
INPUT−FILE−NAME =x+00000−y+000−bscanz.dat
INPUT−FILE−TYPE =ZVXYBXYH
CORR−REQUIRED =0
GAMMA =26627.1
DEVICE CENTER POSITION ZM =2.1492 m
DEVICE ENTRANCE POSITION ZM =0.9685 m
DEVICE EXIT POSITION ZM =3.3299 m
NOM−LAMBDA−R =1.5e−010 m

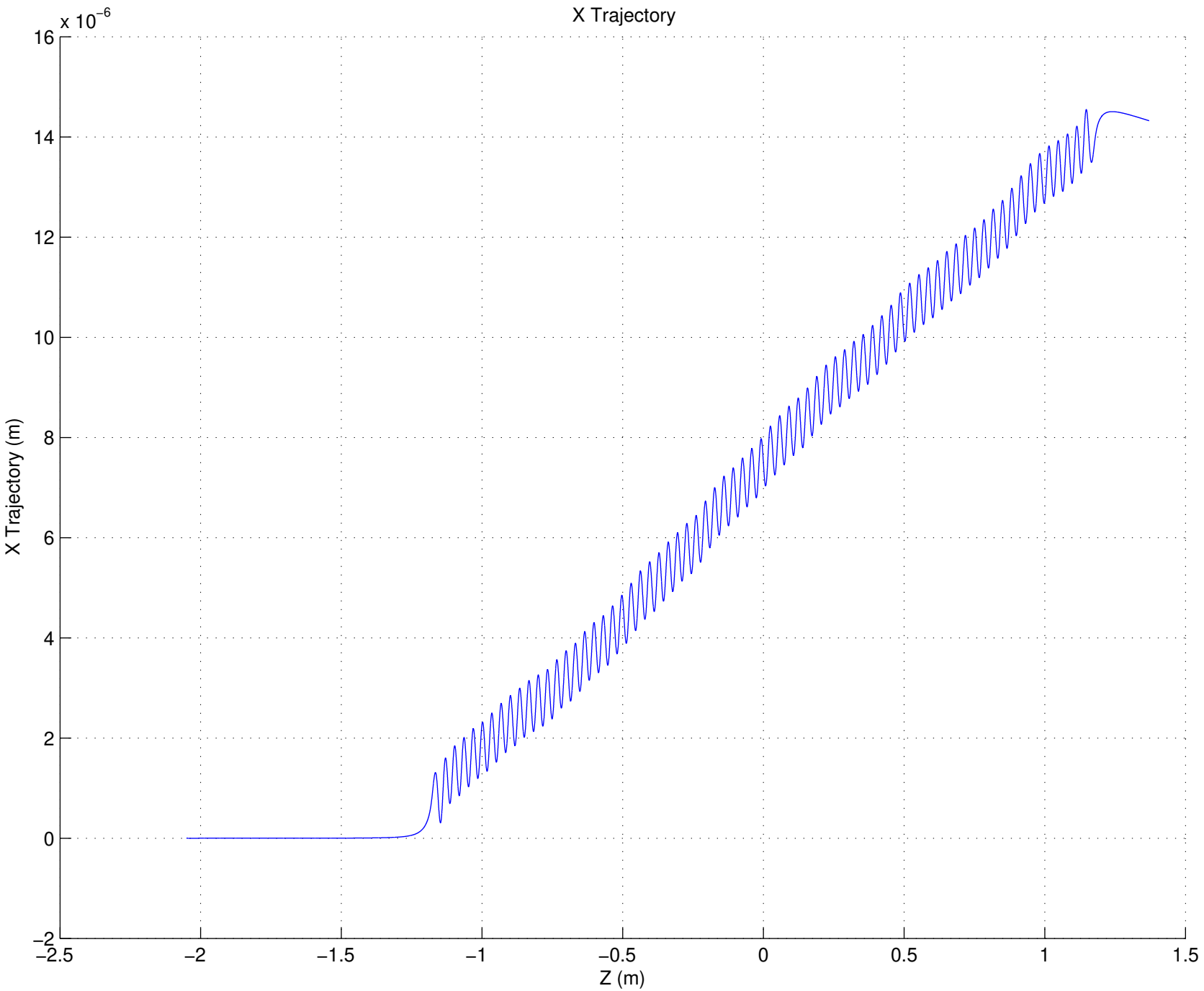

Bx, By, Bz vs Zm
x 10^-3
Bx (T)
By (T)
Bz (T)
Zm Measurement Position (m)

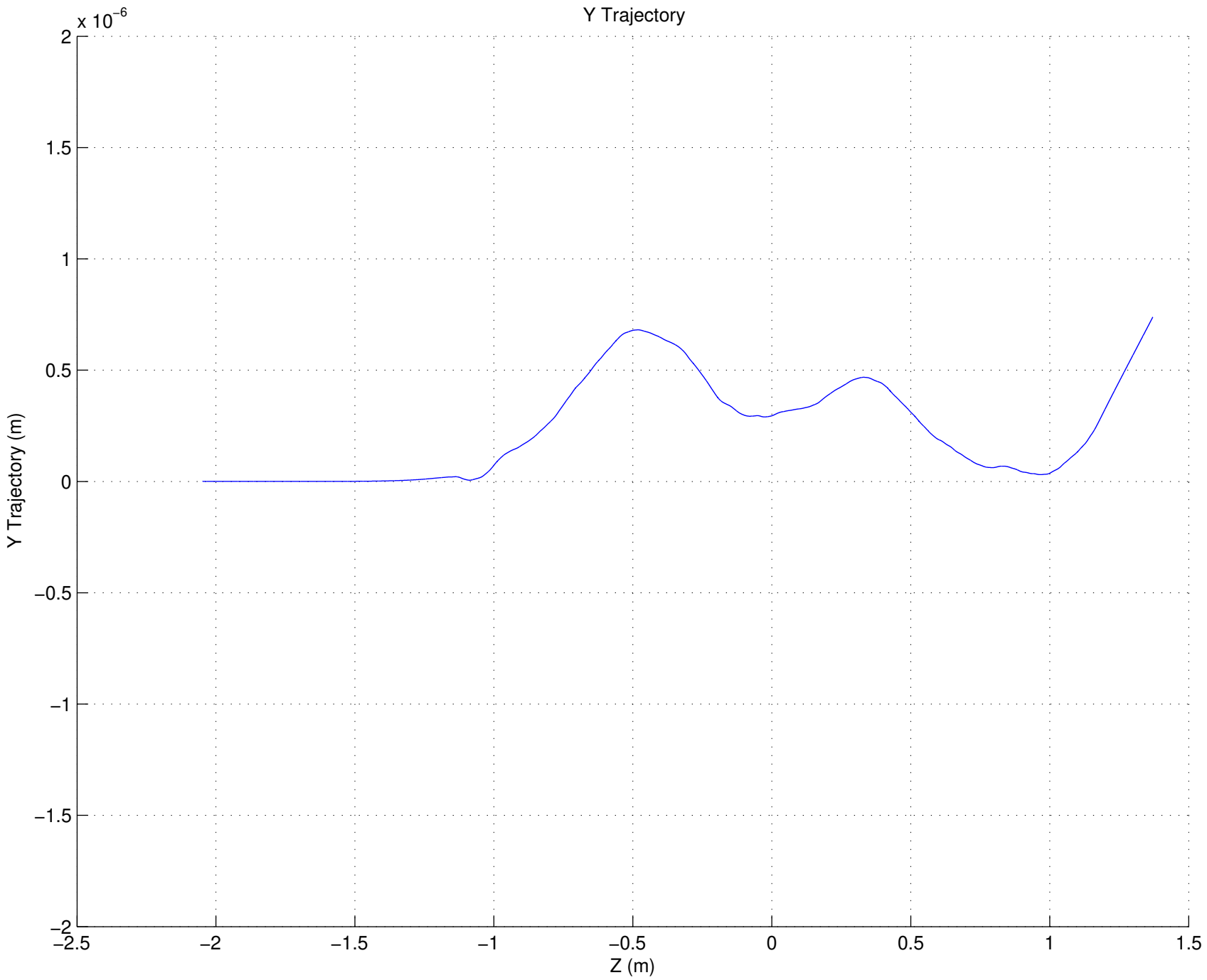

Bx and By vs Z
Bx
By
Bx, By (T)
Z (m)
1
0.8
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
−1
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5

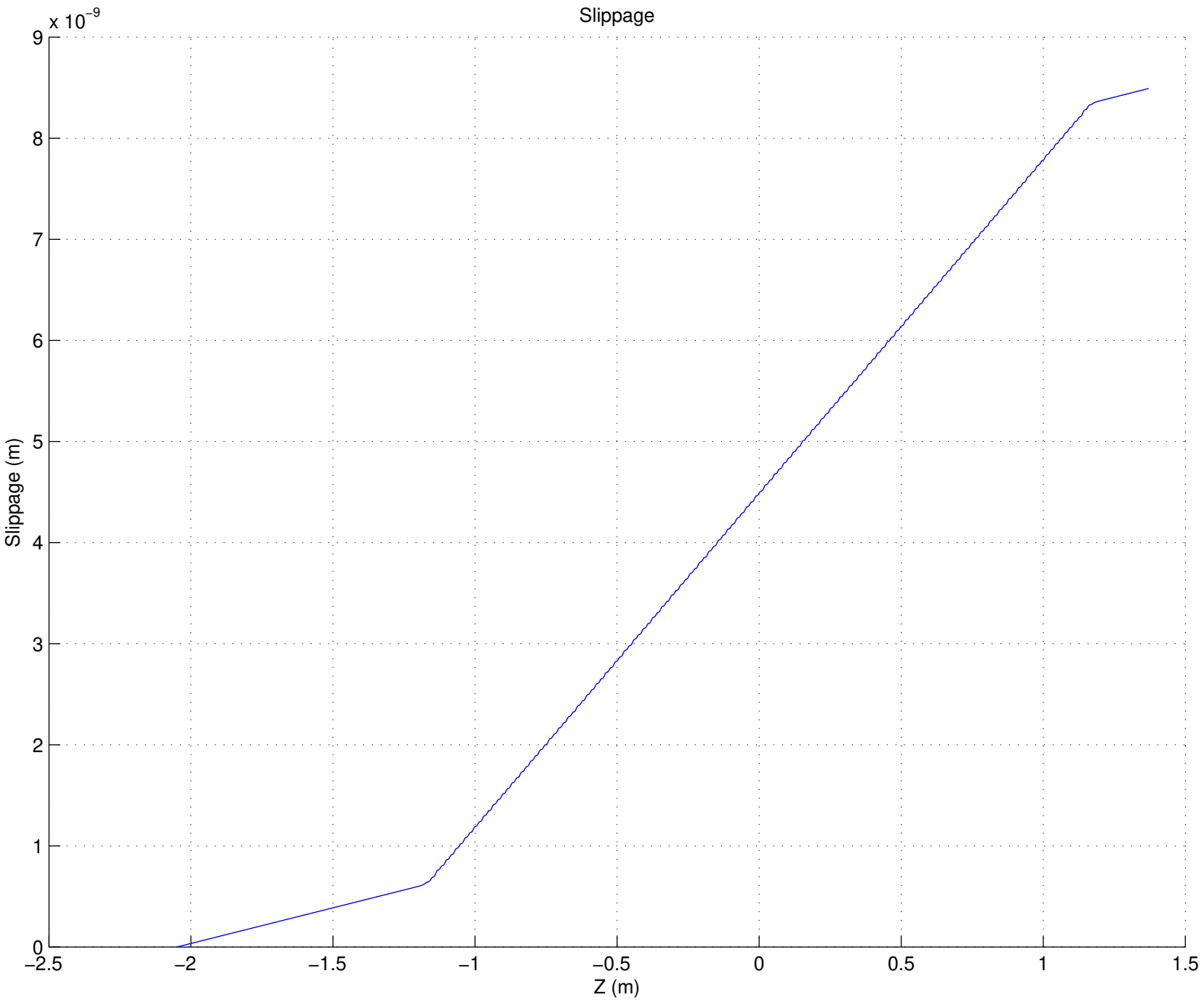

Bx vs Z With Fitted Peaks And Zeros
x 10^-3
Bx (T)
Z (m)
By vs Z With Fitted Peaks And Zeros
By (T)
Z (m)
12
42
73
103
133
Pole

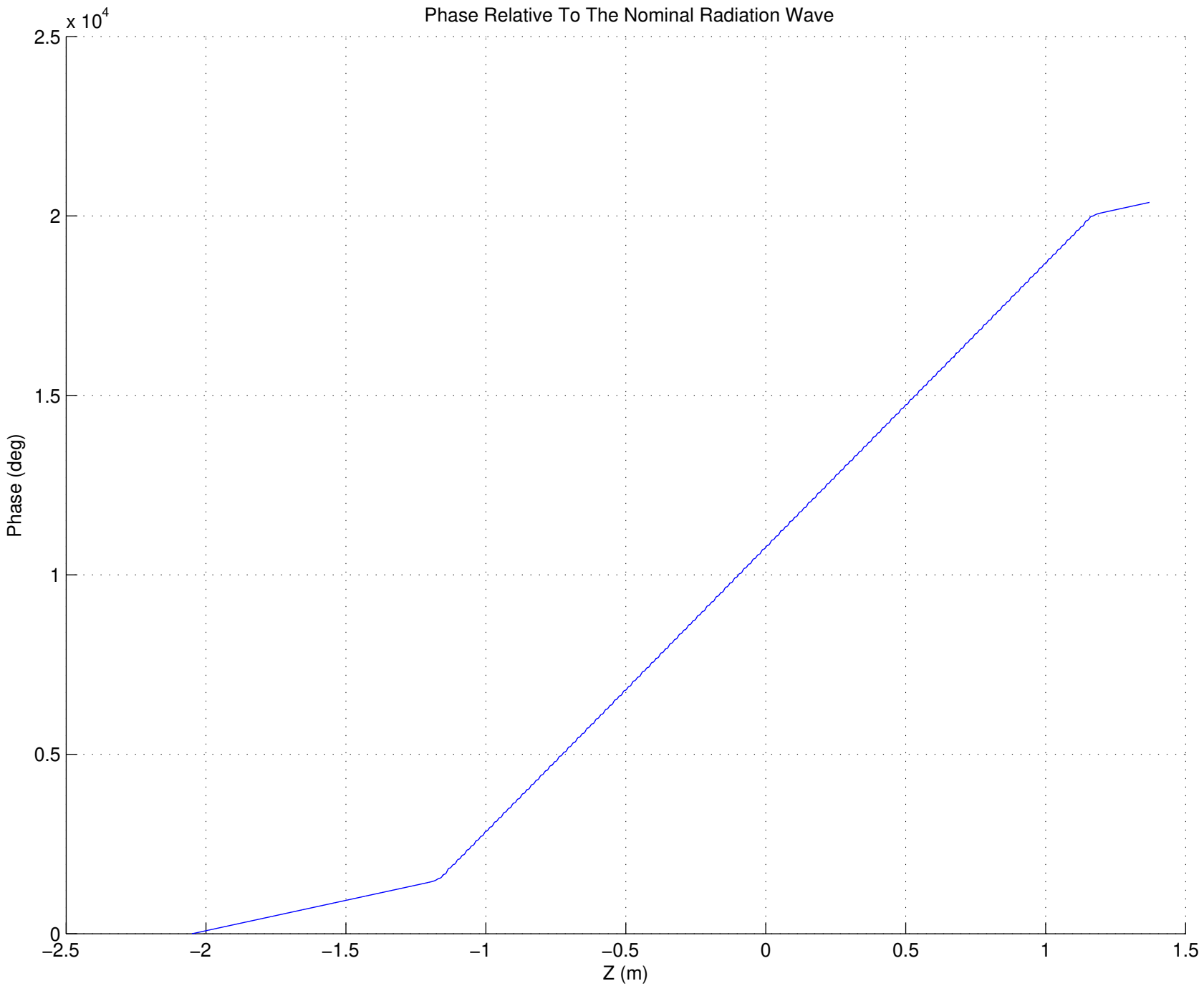

By And Field Integral At The Entrance
x 10^-4
5
4
3
2
1
0
−1
By (T)
−2.1
−2
−1.9
−1.8
−1.7
−1.6
−1.5
−1.4
−1.3
x 10^-6
16
14
12
10
8
6
4
2
0
−2
∫ By dz (Tm)
−2.1
−2
−1.9
−1.8
−1.7
−1.6
−1.5
−1.4
−1.3
Z (m)


By And Field Integral At The Exit
x 10^-4
By (T)
1
0
−1
−2
−3
−4
−5
1.29
1.3
1.31
1.32
1.33
1.34
1.35
1.36
1.37
1.38
1.39
x 10^-5
∫ By dz (Tm)
−6.6
−6.8
−7
−7.2
−7.4
−7.6
−7.8
−8
−8.2
Z (m)


X Trajectory
x 10^-6
16
14
12
10
8
6
4
2
0
−2
X Trajectory (m)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
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
Z (m)


Slippage
x 10^-9
Slippage (m)
Z (m)
9
8
7
6
5
4
3
2
1
0
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5


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