SLAC Magnetic Measurements

EPU Analysis
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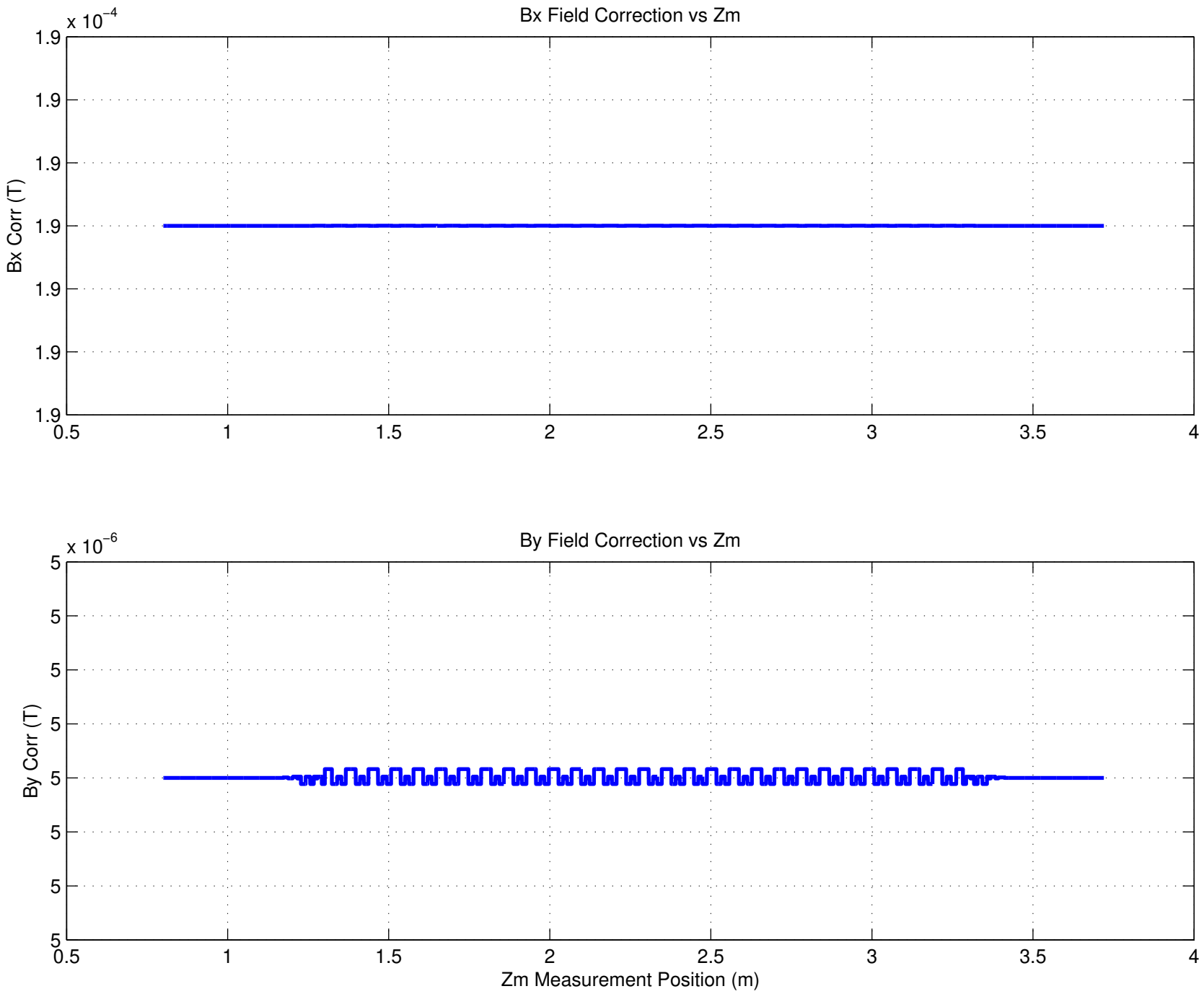
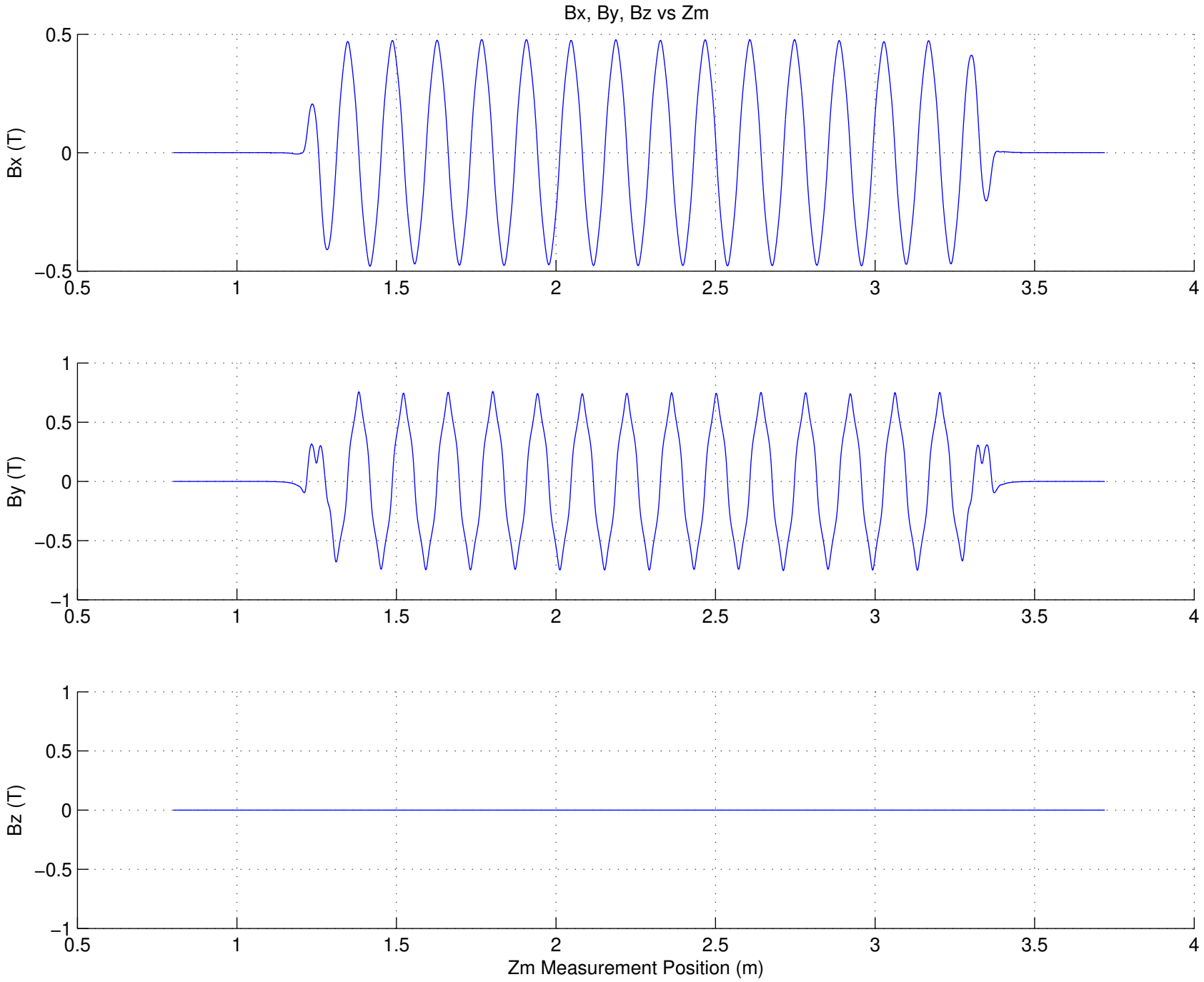
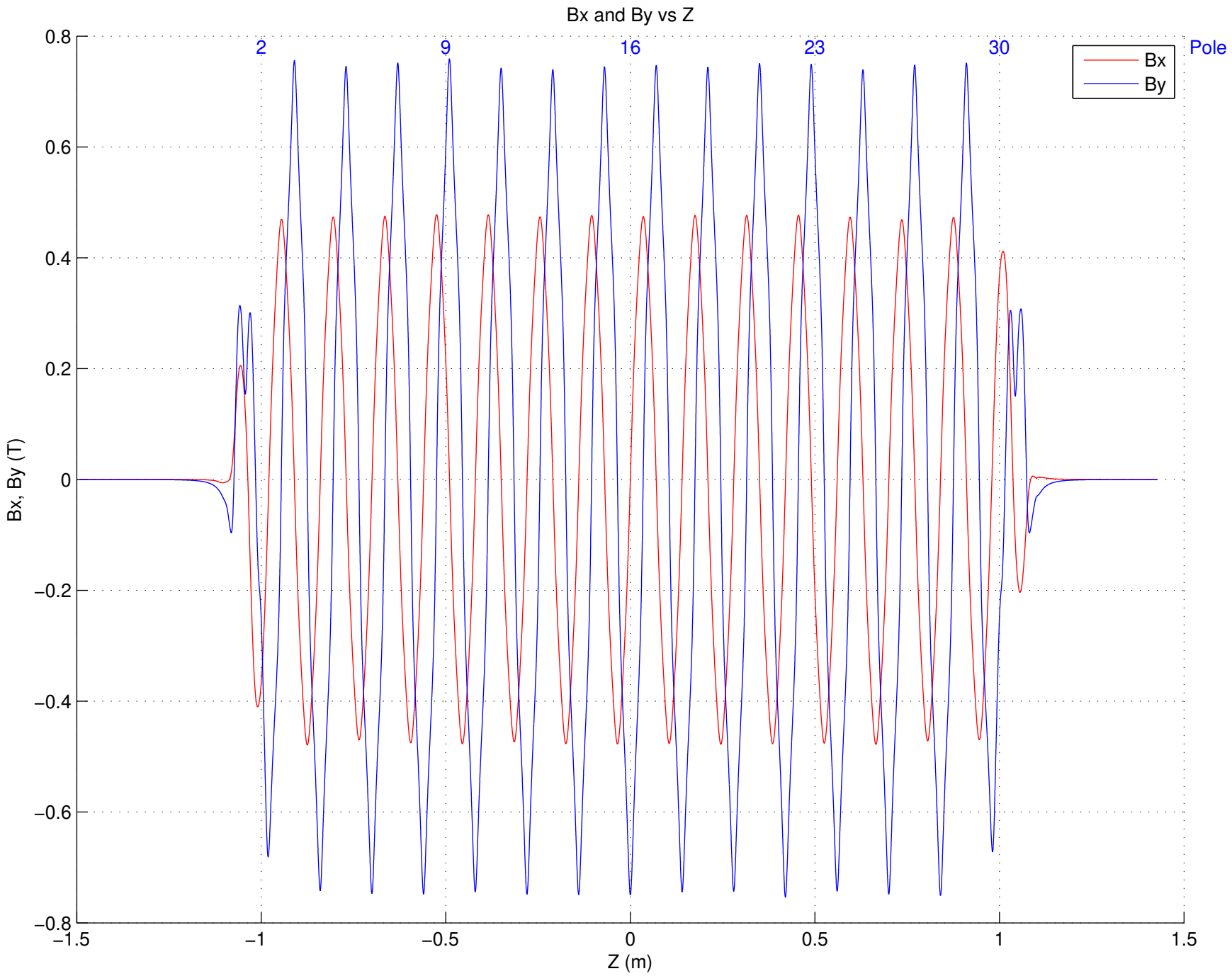
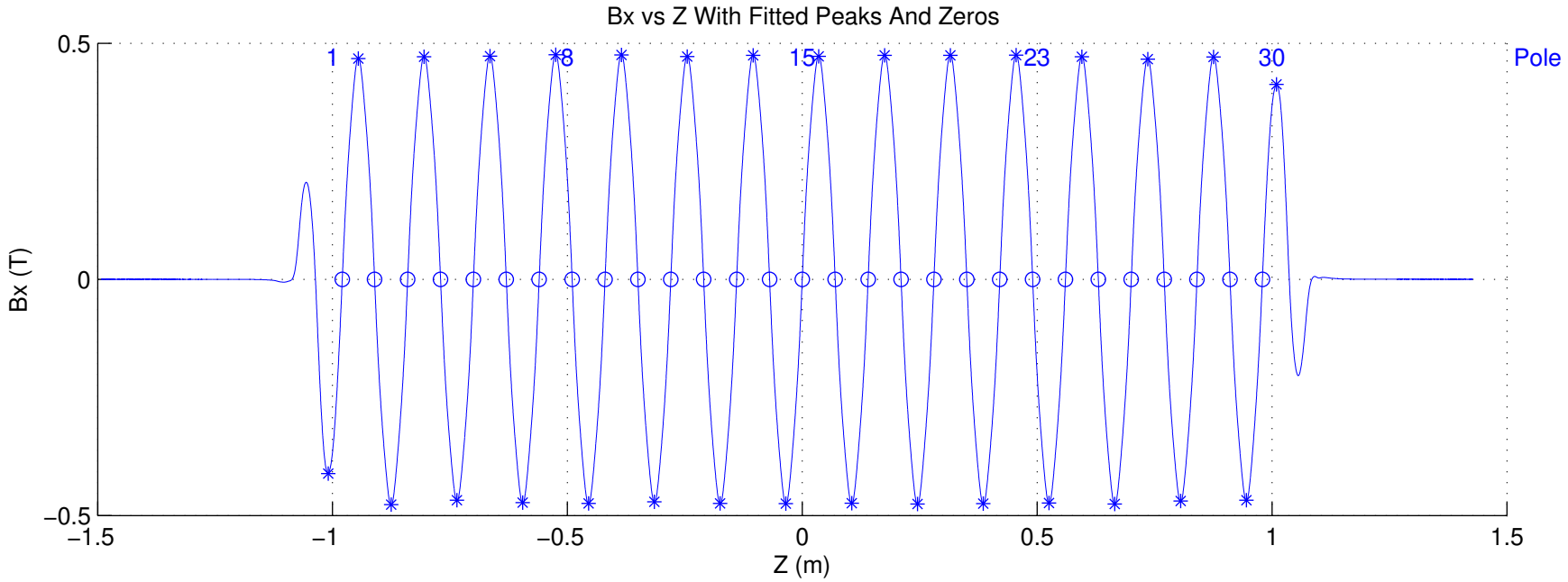
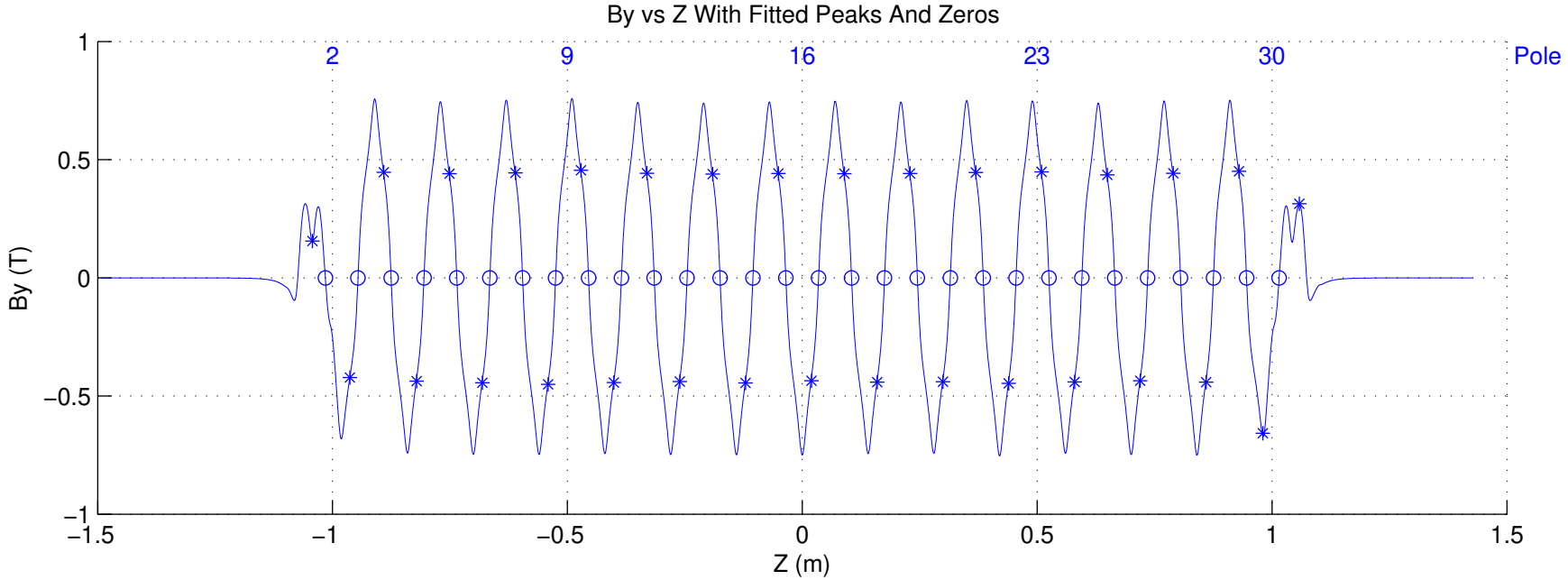
Parameters:
INPUT–FILE–DIR =S:\MagData\LCLS\Undulator\SSRL–BL5–EPU\DATASET0001\Rough Tuning\Z Scans\Run 018\
INPUT–FILE–NAME =x+10000–y+000–bscanz.dat
INPUT–FILE–TYPE =ZVXYBXYH
CORR–REQUIRED =1
GAMMA =5878
NOM–LAMBDA–U =140
NOM–K–VALUE =9
NOM–LAMBDA–R =0
NUM–POLES =31
NUM–END–POLES =4
CELL–LENGTH =3.126

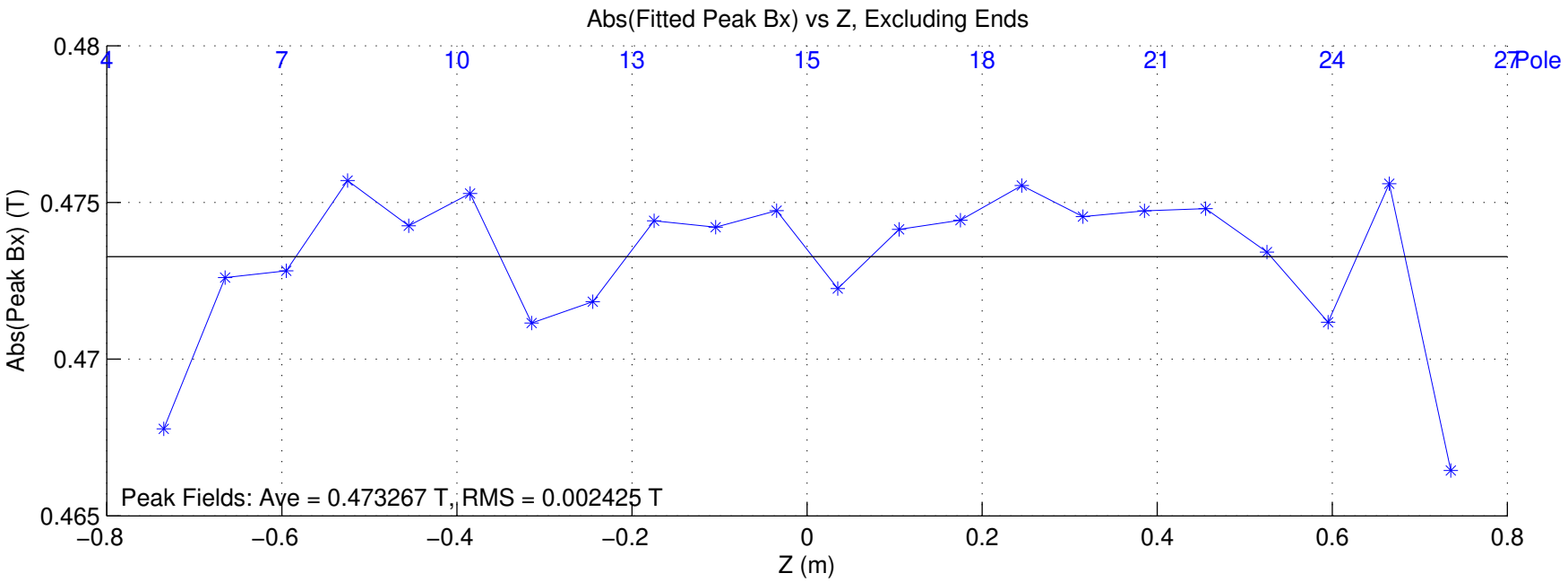

Bx Field Correction vs Zm
x 10^-4
Bx Corr (T)
1.9
0.5
1
1.5
2
2.5
3
3.5
4
By Field Correction vs Zm
x 10^-6
By Corr (T)
5
Zm Measurement Position (m)

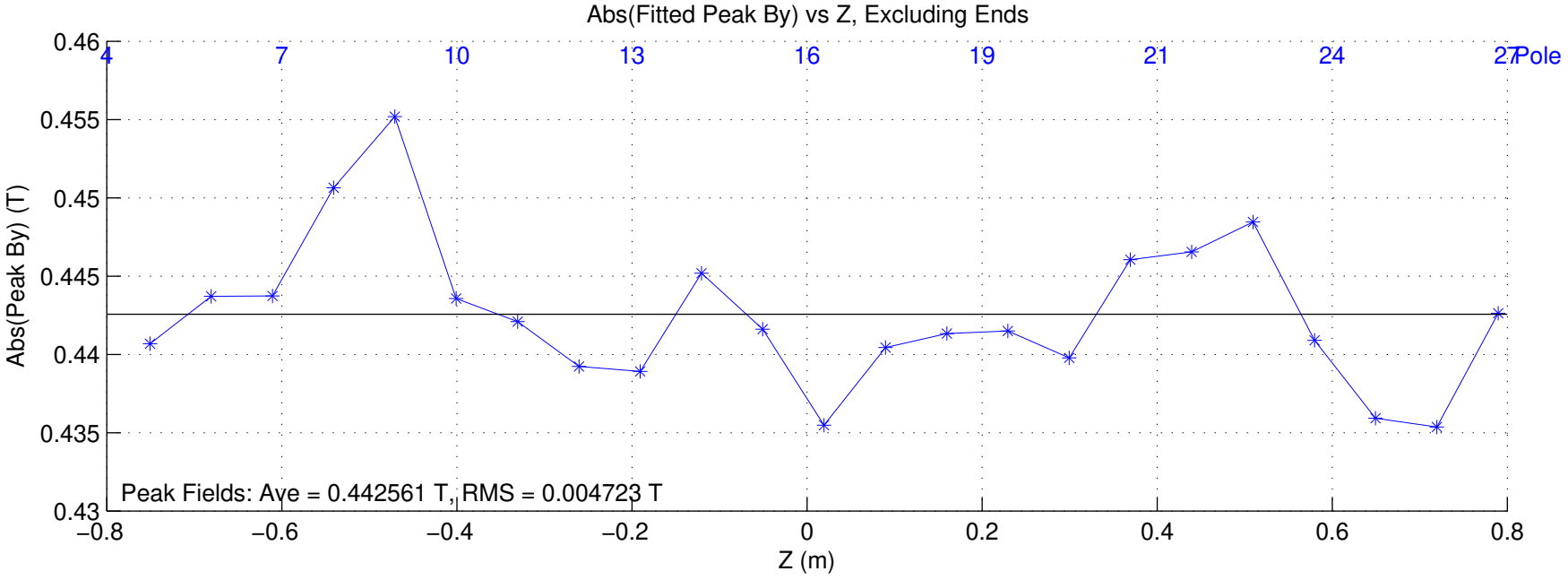

Bx, By, Bz vs Zm
Bx (T)
By (T)
Bz (T)
0.5
0
−0.5
1
−1
0.5
1
1.5
2
2.5
3
3.5
4
Zm Measurement Position (m)

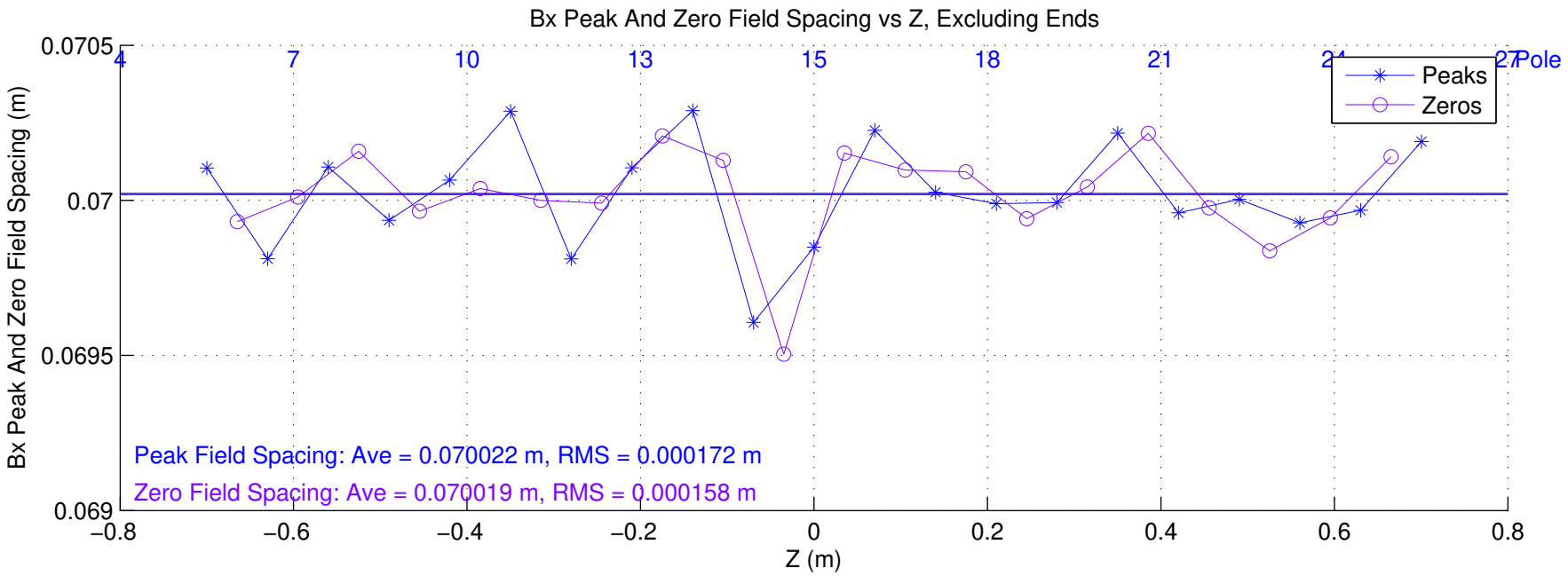

Bx and By vs Z
2
9
16
23
30
Pole
Bx
By
0.8
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
Bx, By (T)
−1.5
−1
−0.5
0
0.5
1
1.5
Z (m)

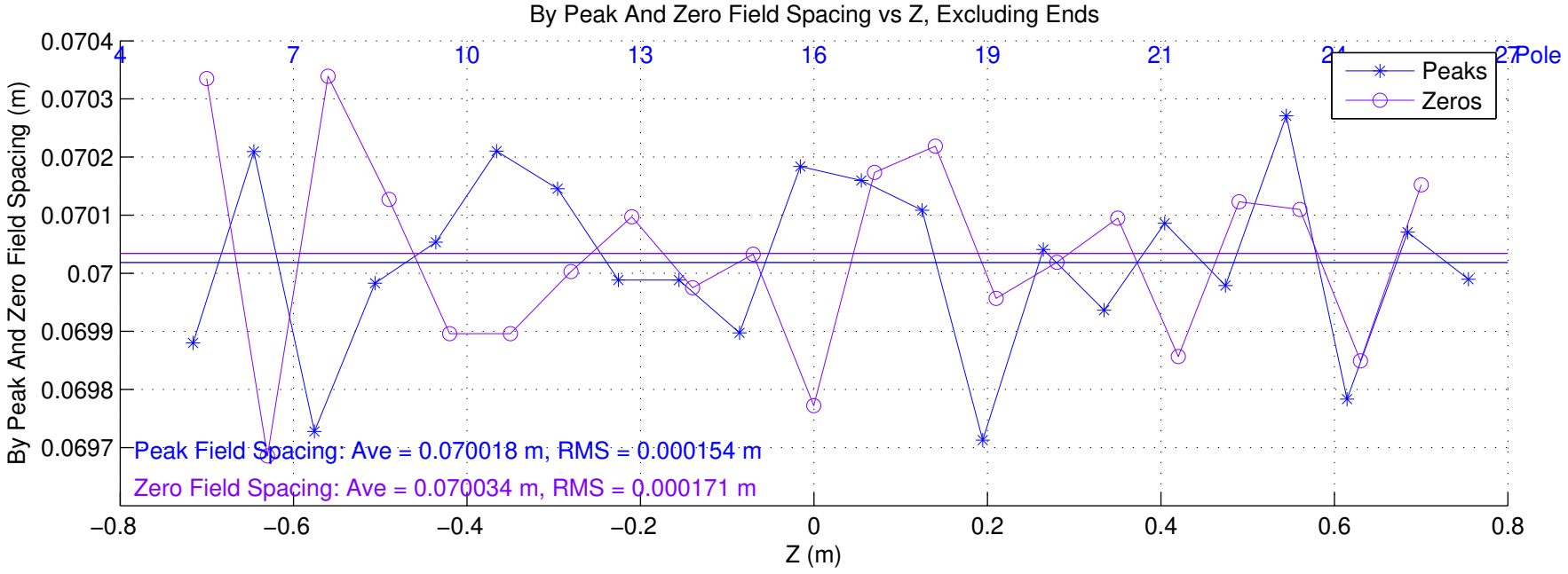

Bx vs Z With Fitted Peaks And Zeros
1
8
15
23
30
Pole
0.5
0
−0.5
Bx (T)
−1.5
−1
−0.5
0
0.5
1
1.5
Z (m)

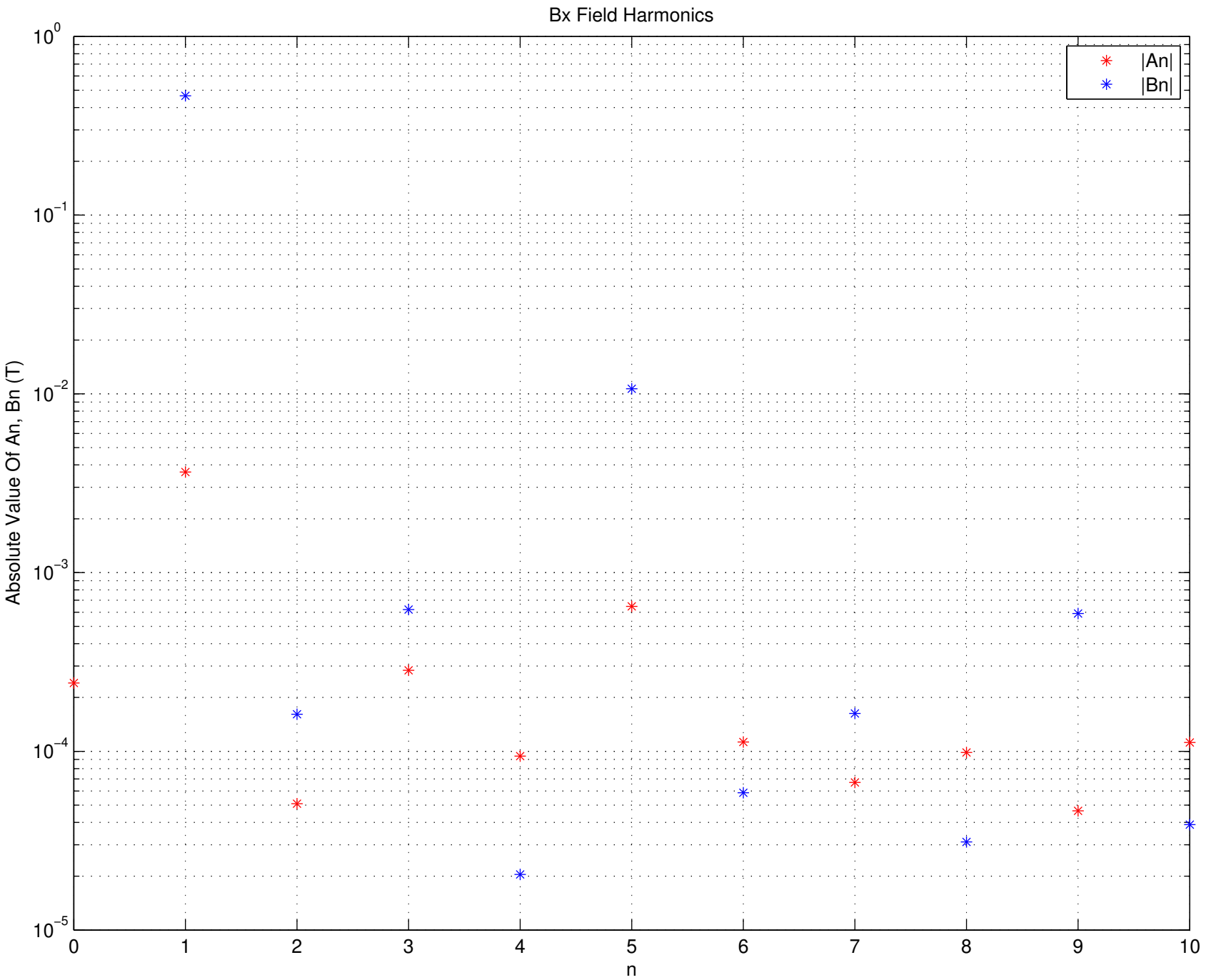

By vs Z With Fitted Peaks And Zeros
2
9
16
23
30
Pole
1
0.5
0
−0.5
−1
By (T)
−1.5
−1
−0.5
0
0.5
1
1.5
Z (m)

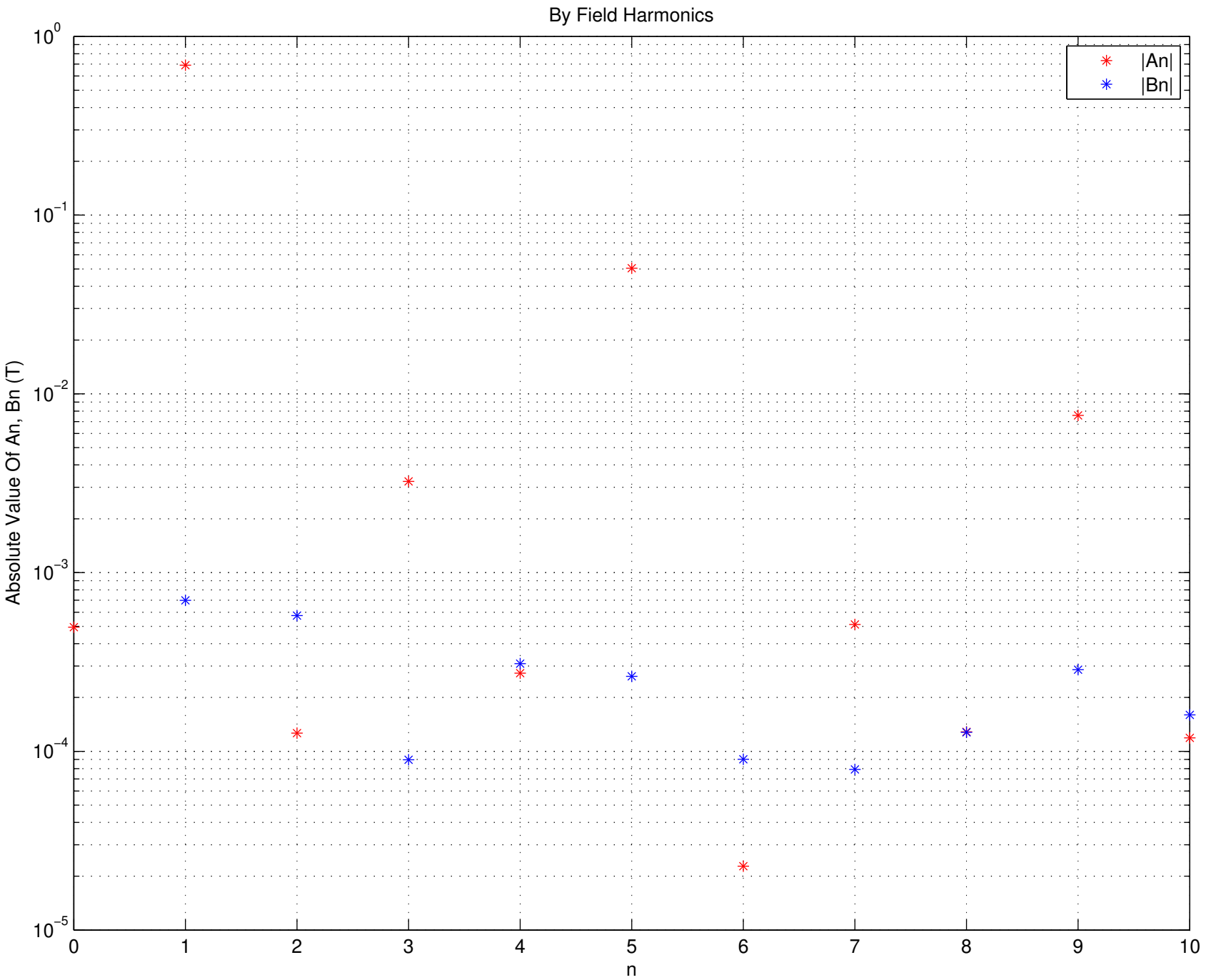

Abs(Fitted Peak Bx) vs Z, Excluding Ends
Abs(Peak Bx) (T)
0.48
0.475
0.47
0.465
4
7
10
13
15
18
21
24
27
Pole
Peak Fields: Ave = 0.473267 T, RMS = 0.002425 T
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
Z (m)

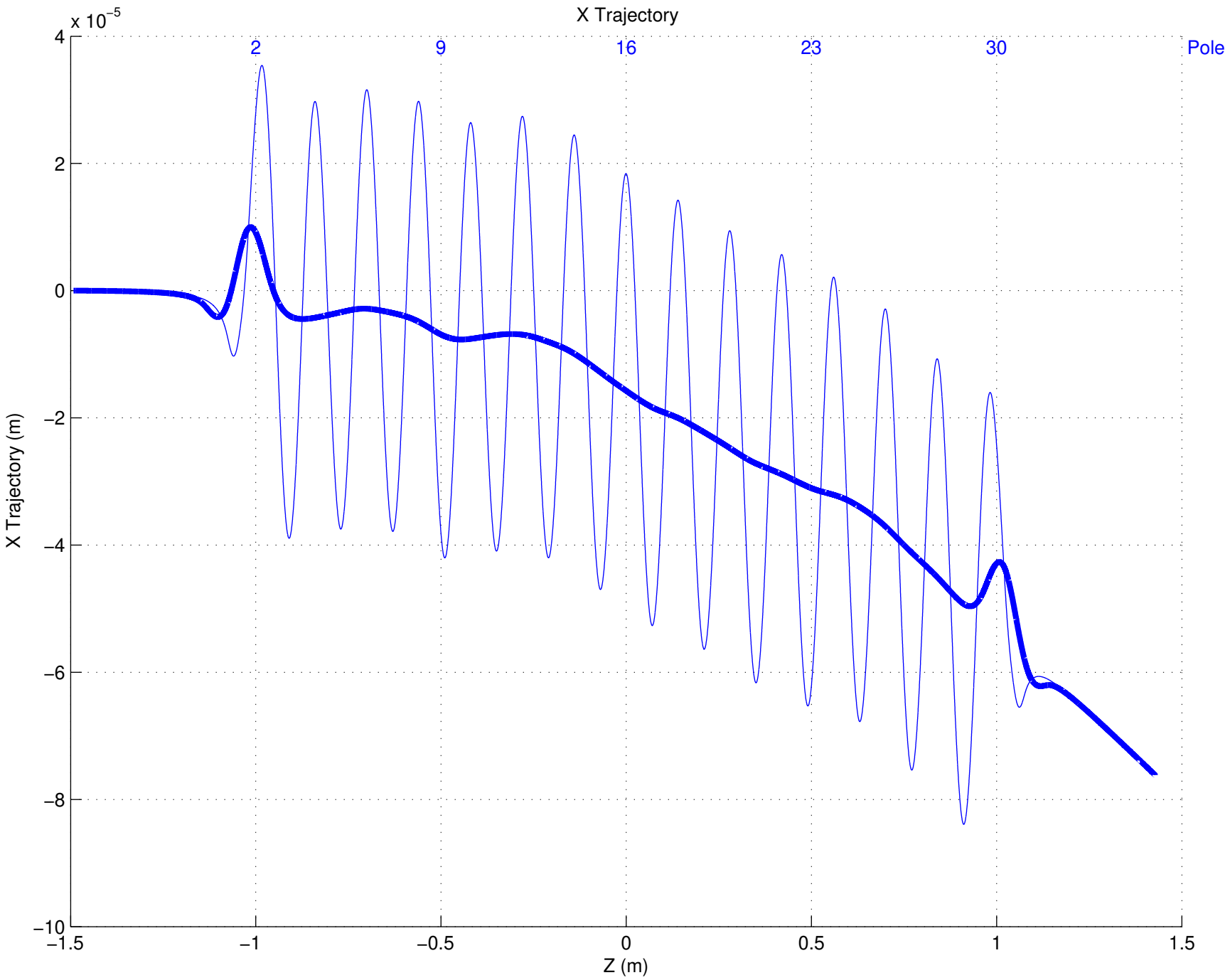

Abs(Fitted Peak By) vs Z, Excluding Ends
Abs(Peak By) (T)
0.46
0.455
0.45
0.445
0.44
0.435
0.43
4
7
10
13
16
19
21
24
27
Pole
Peak Fields: Ave = 0.442561 T, RMS = 0.004723 T
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
Z (m)

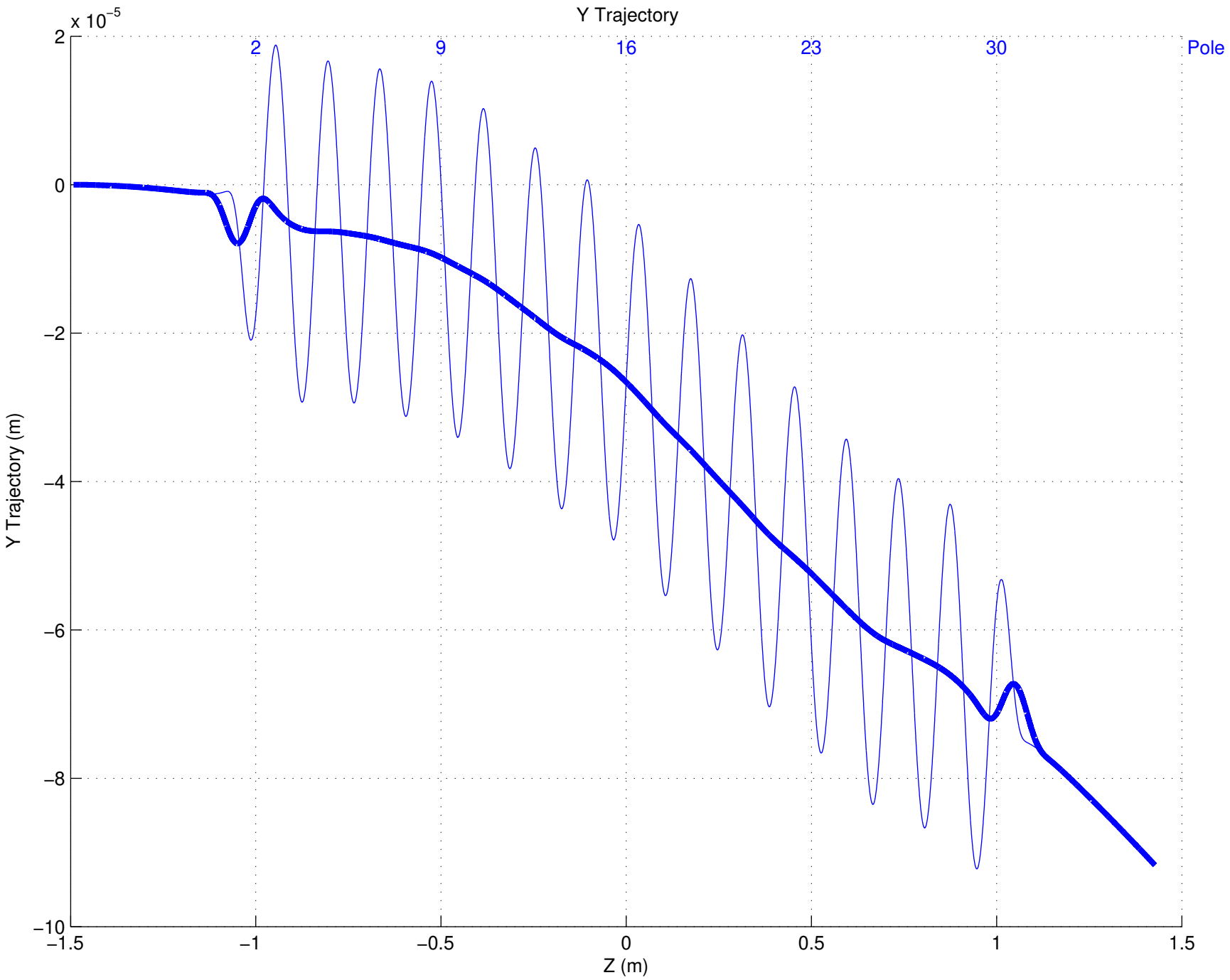

Bx Peak And Zero Field Spacing vs Z, Excluding Ends
Bx Peak And Zero Field Spacing (m)
Z (m)
Pole
Peaks
Zeros
Peak Field Spacing: Ave = 0.070022 m, RMS = 0.000172 m
Zero Field Spacing: Ave = 0.070019 m, RMS = 0.000158 m

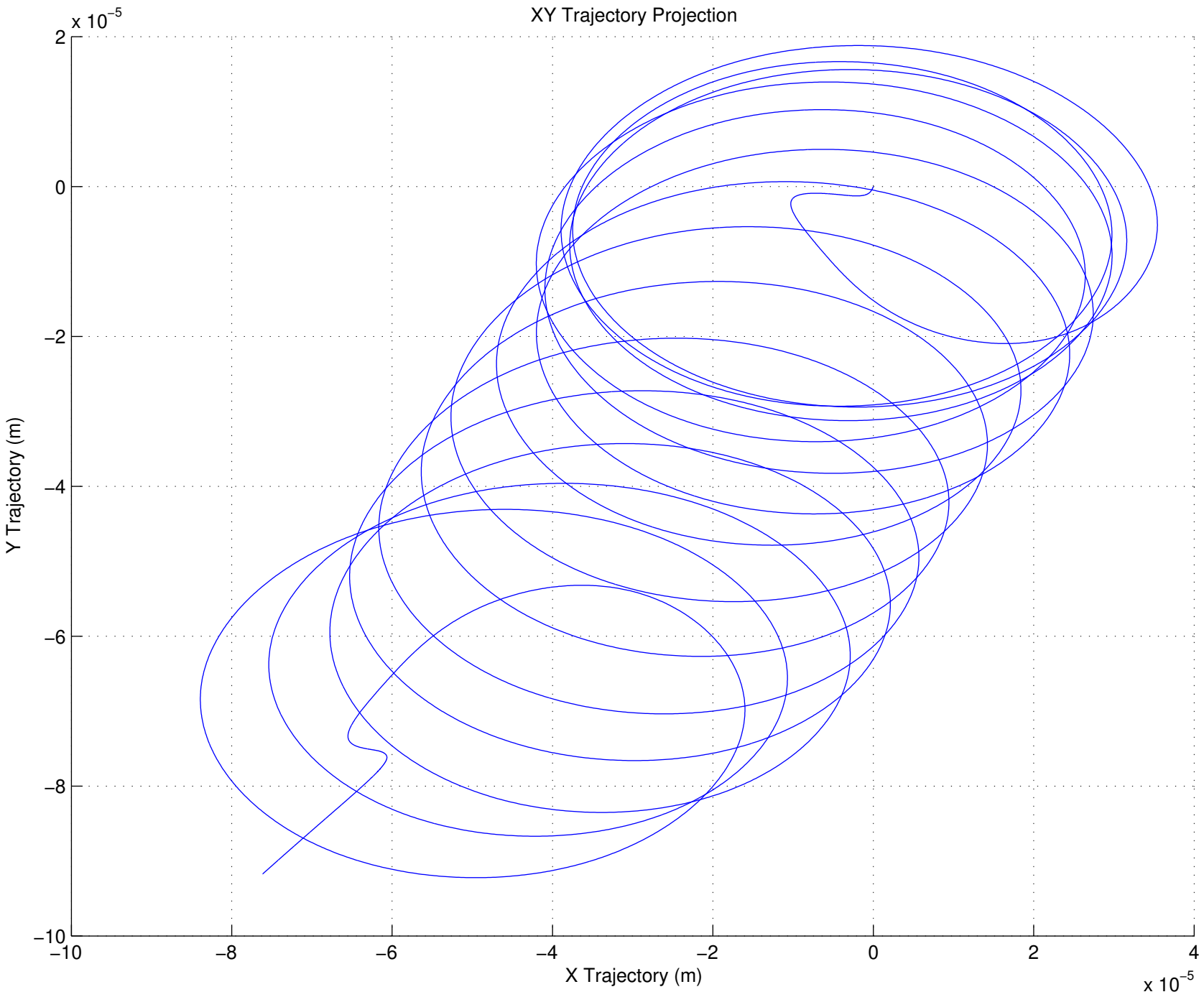

By Peak And Zero Field Spacing vs Z, Excluding Ends
By Peak And Zero Field Spacing (m)
Z (m)
Pole
Peaks
Zeros
Peak Field Spacing: Ave = 0.070018 m, RMS = 0.000154 m
Zero Field Spacing: Ave = 0.070034 m, RMS = 0.000171 m


Bx Field Harmonics
|An|
|Bn|
Absolute Value Of An, Bn (T)
n
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
1
2
3
4
5
6
7
8
9
10


By Field Harmonics
|An|
|Bn|
Absolute Value Of An, Bn (T)
n
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
1
2
3
4
5
6
7
8
9
10


X Trajectory
x 10^-5
4
2
0
−2
−4
−6
−8
−10
2
9
16
23
30
Pole
X Trajectory (m)
−1.5
−1
−0.5
0
0.5
1
1.5
Z (m)


Y Trajectory
x 10^-5
2
0
−2
−4
−6
−8
−10
2
9
16
23
30
Pole
Y Trajectory (m)
−1.5
−1
−0.5
0
0.5
1
1.5
Z (m)


XY Trajectory Projection
x 10^-5
2
0
−2
−4
−6
−8
−10
Y Trajectory (m)
−10
−8
−6
−4
−2
0
2
4
X Trajectory (m)
x 10^-5