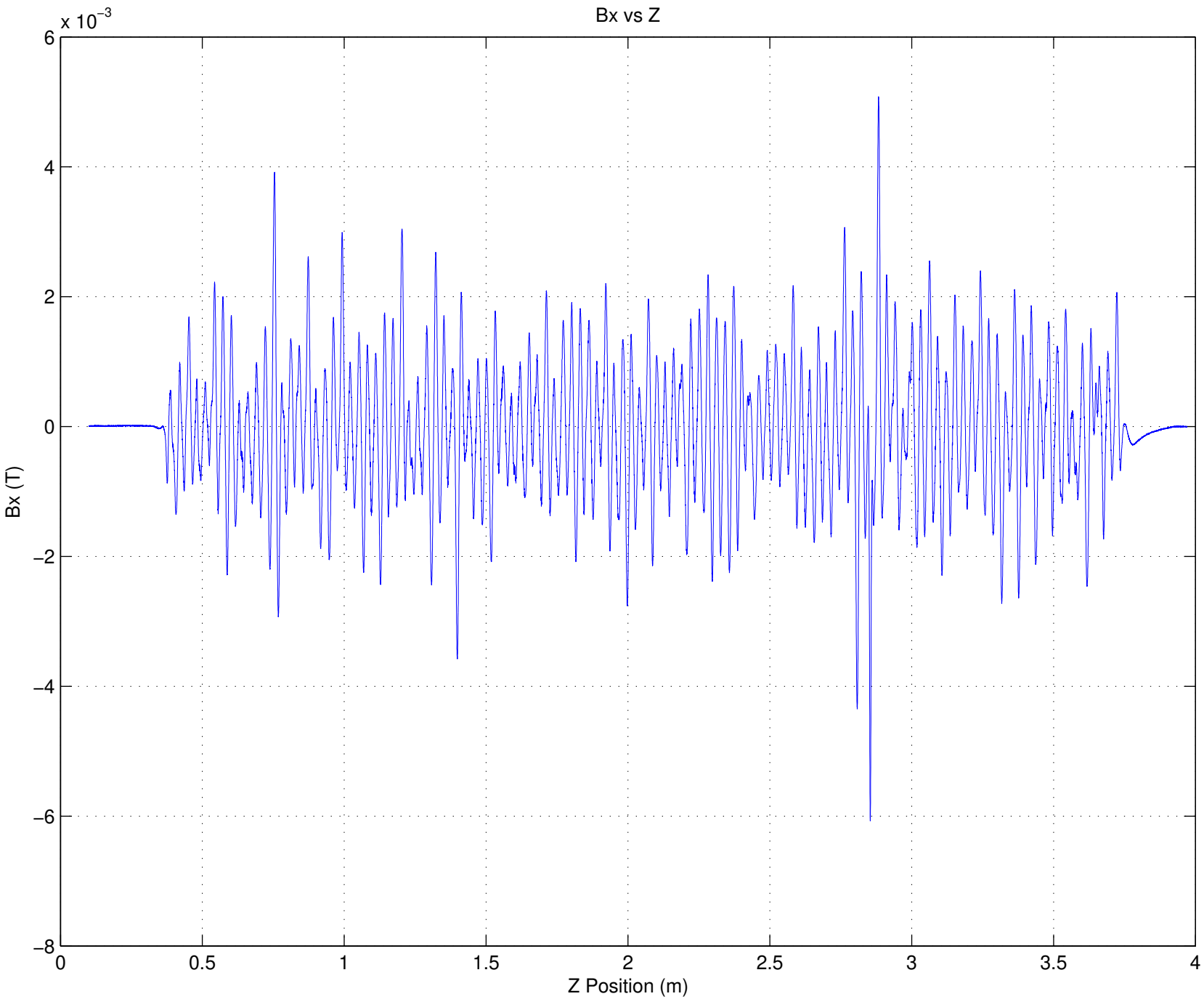
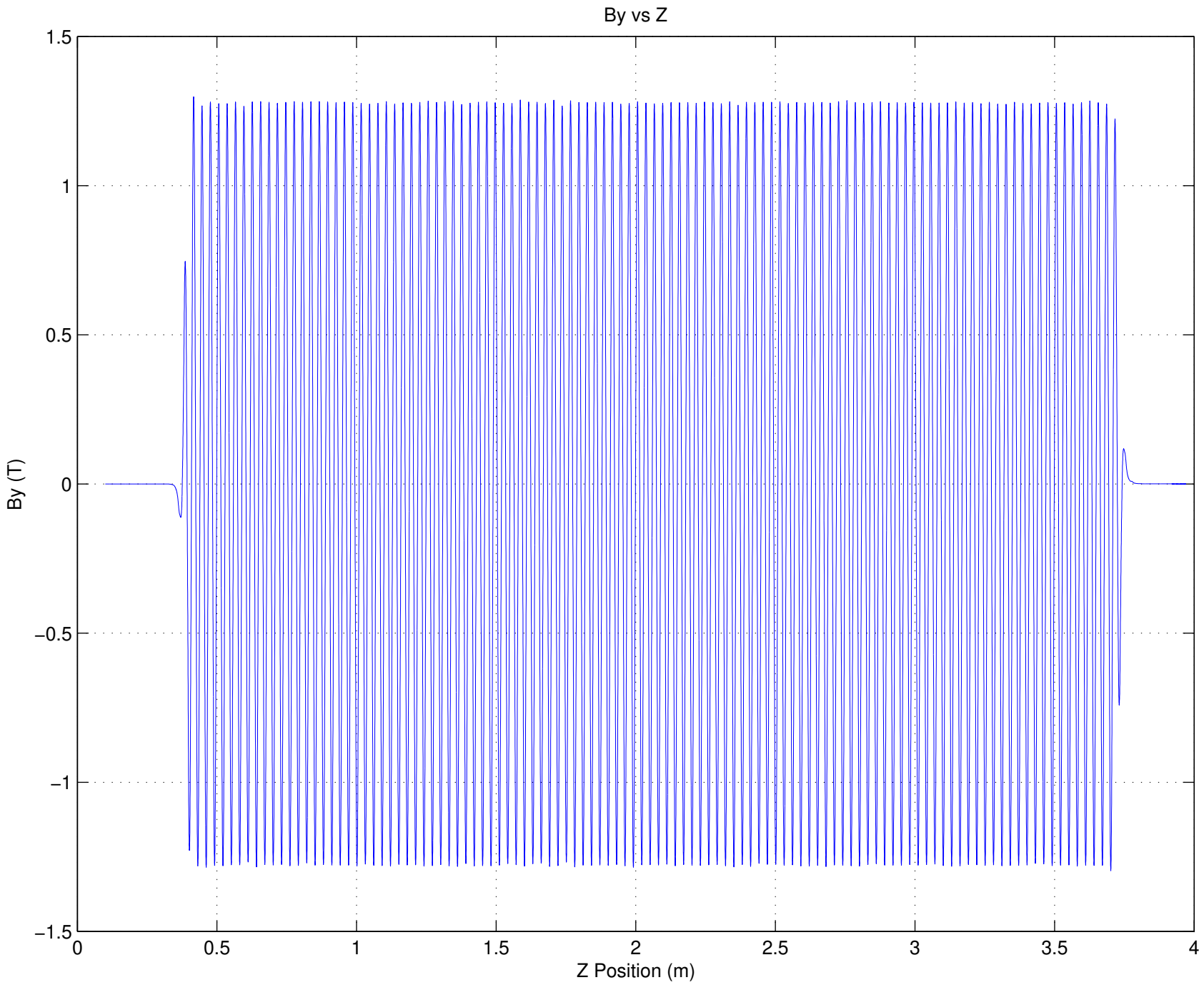
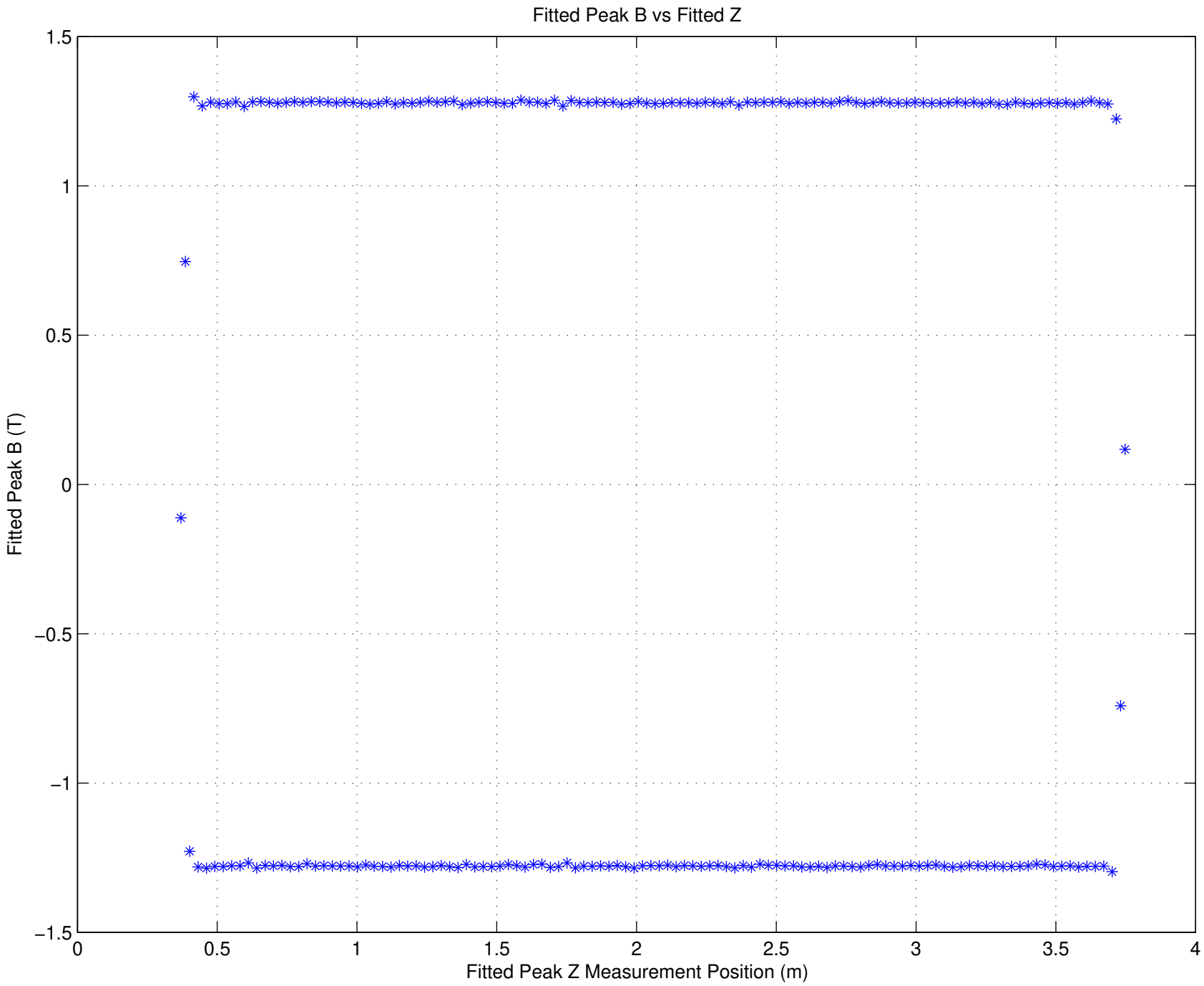
SLAC Magnetic Measurements
Date: 11−15−2006
Time: 10:13:20

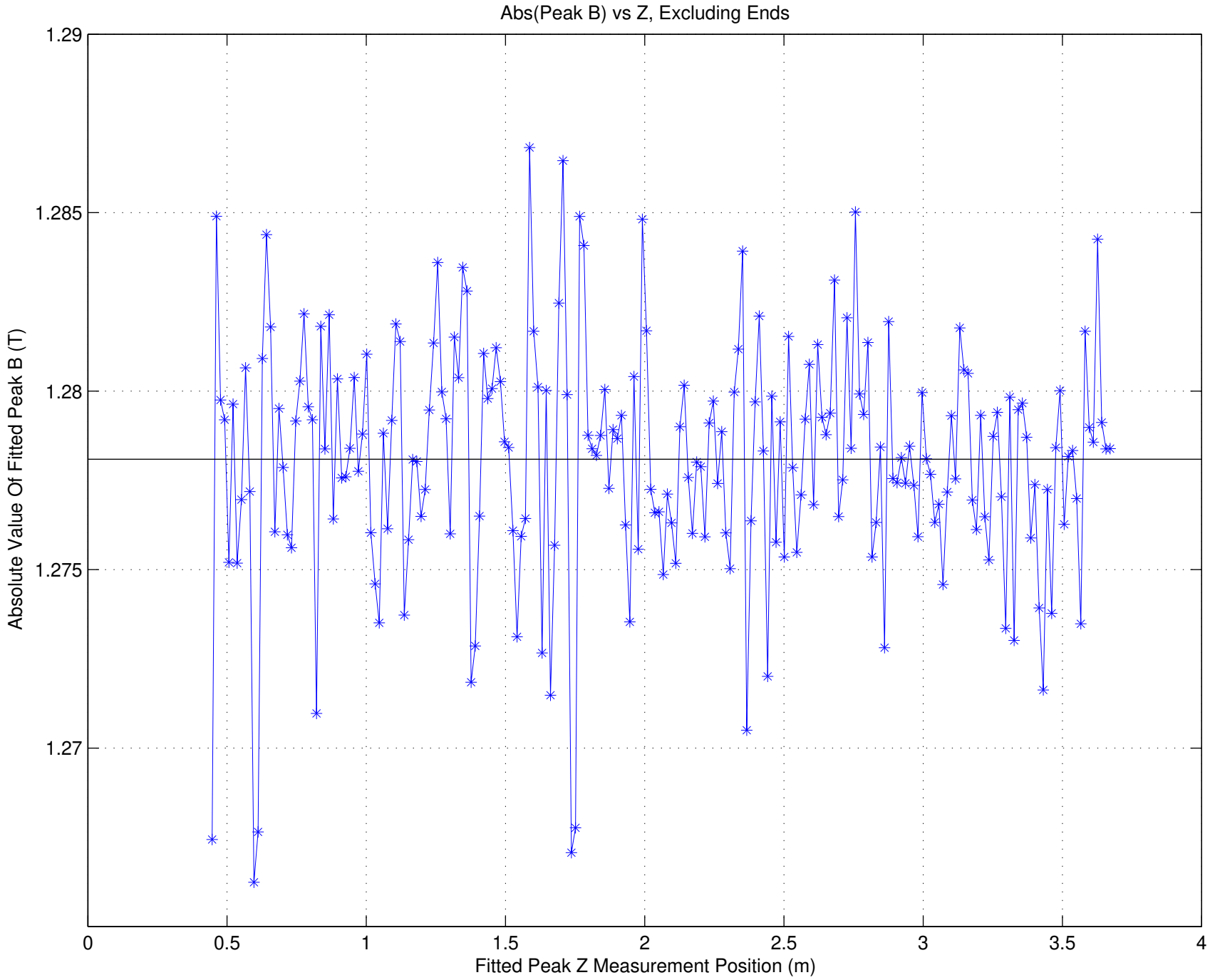
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: L143−112000−17
RMA Number: 1
Tuning Stage: Rough Tuning
Run Number: 42
Measurement Type: Z Scans
Operator: YL
Comment: Mu−shield correction test. Mu−shield OFF. 3 scans,

Parameters:
INPUT−FILE−DIR =C:\magdata\Lcls\Undulator\L143−112000−17\RMA0001\Rough Tuning\Z Scans\Run 042\
INPUT−FILE−NAME =bscanz−dat.002
INPUT−FILE−TYPE =SLAC−BXBYVSZ
GAMMA =26690.65
LAMBDA−U =0.03
IDEAL−K−VALUE =3.4996
NUM−POLES =226
NUM−END−POLES =5
CELL−LENGTH =3.656

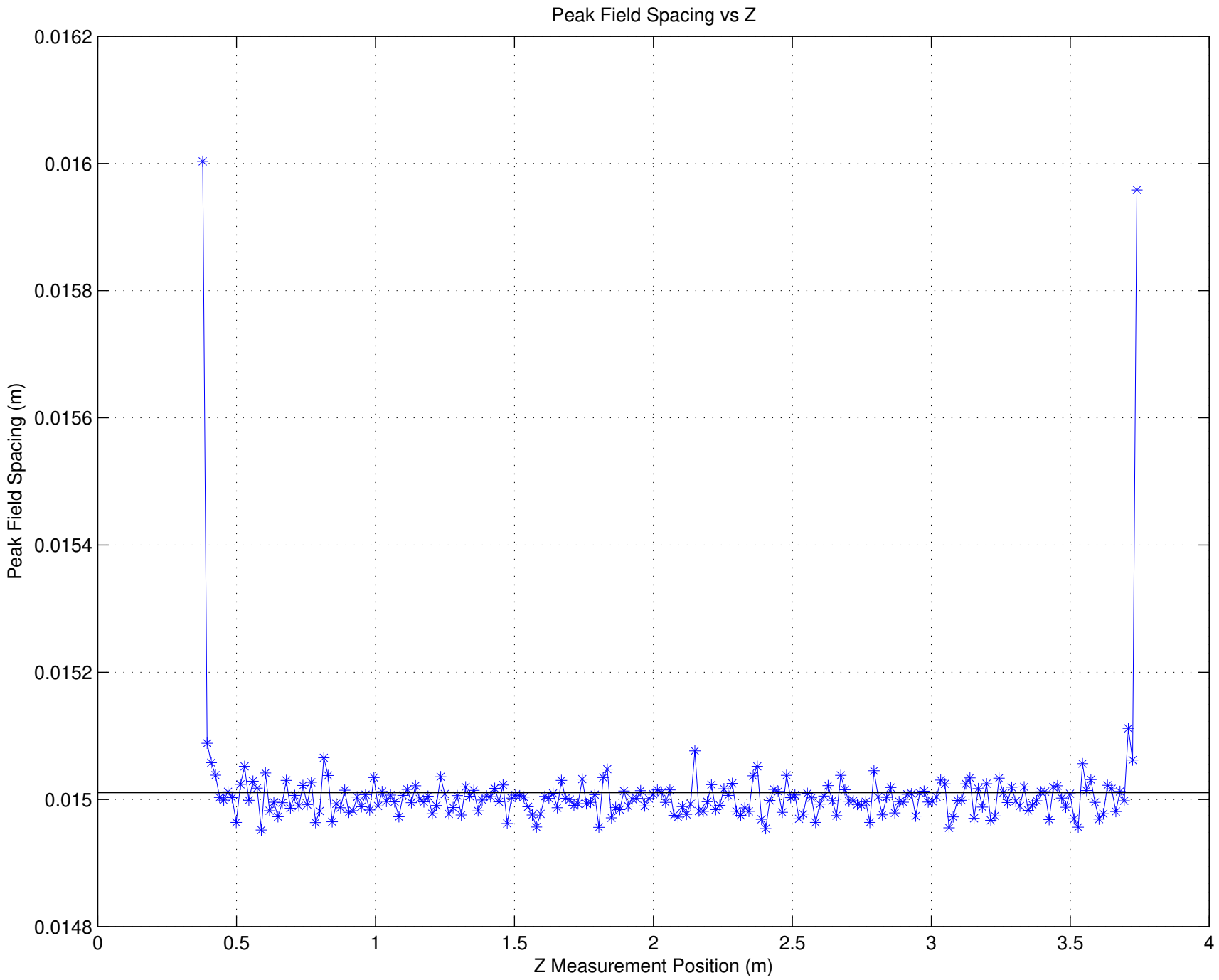

Bx vs Z
x 10^-3
6
4
2
0
−2
−4
−6
−8
Bx (T)
0
0.5
1
1.5
2
2.5
3
3.5
4
Z Position (m)


By vs Z
By (T)
Z Position (m)
1.5
1
0.5
0
−0.5
−1
−1.5
0
0.5
1
1.5
2
2.5
3
3.5
4

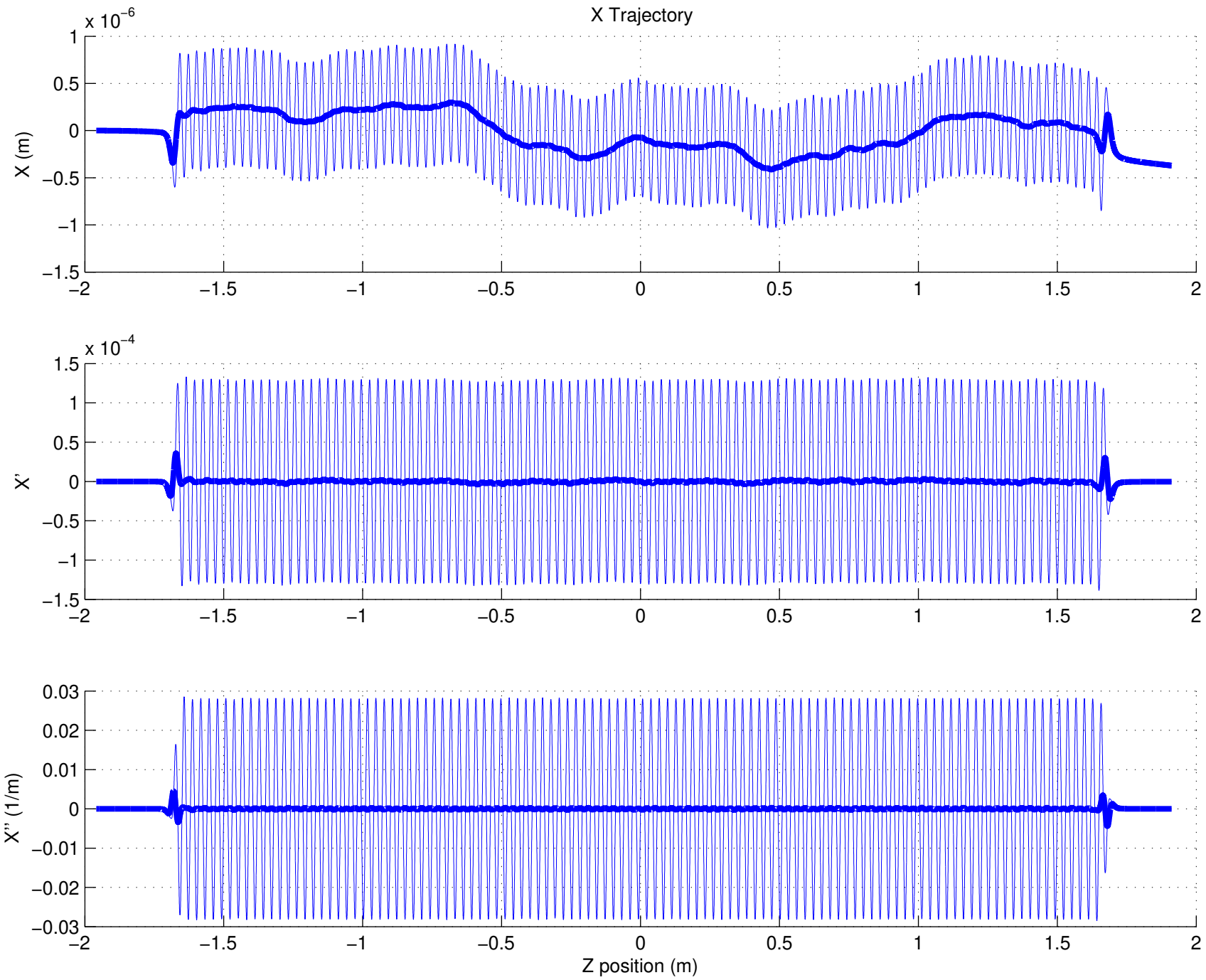

Fitted Peak B vs Fitted Z
Fitted Peak B (T)
Fitted Peak Z Measurement Position (m)
1.5
1
0.5
0
−0.5
−1
−1.5
0
0.5
1
1.5
2
2.5
3
3.5
4

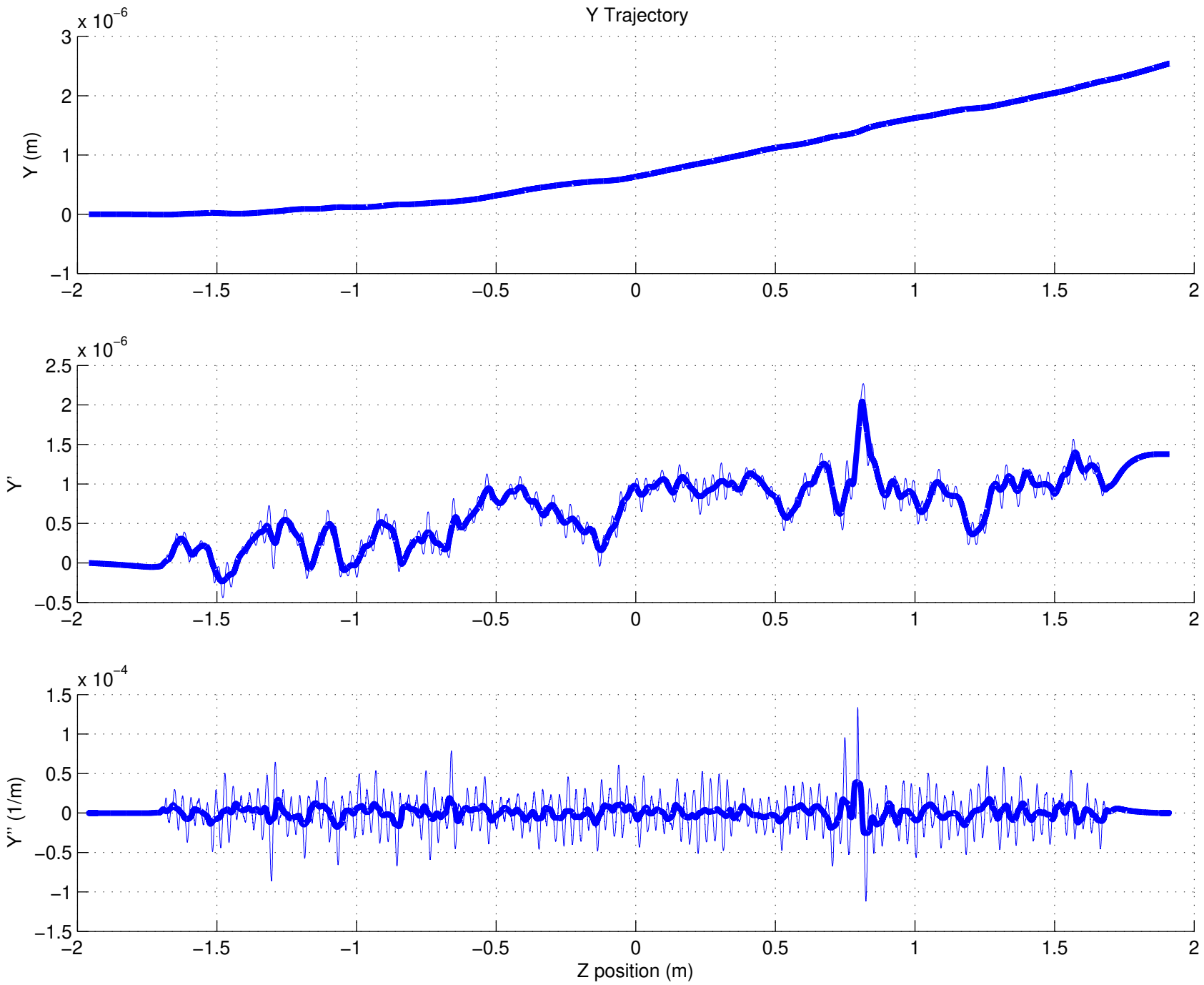


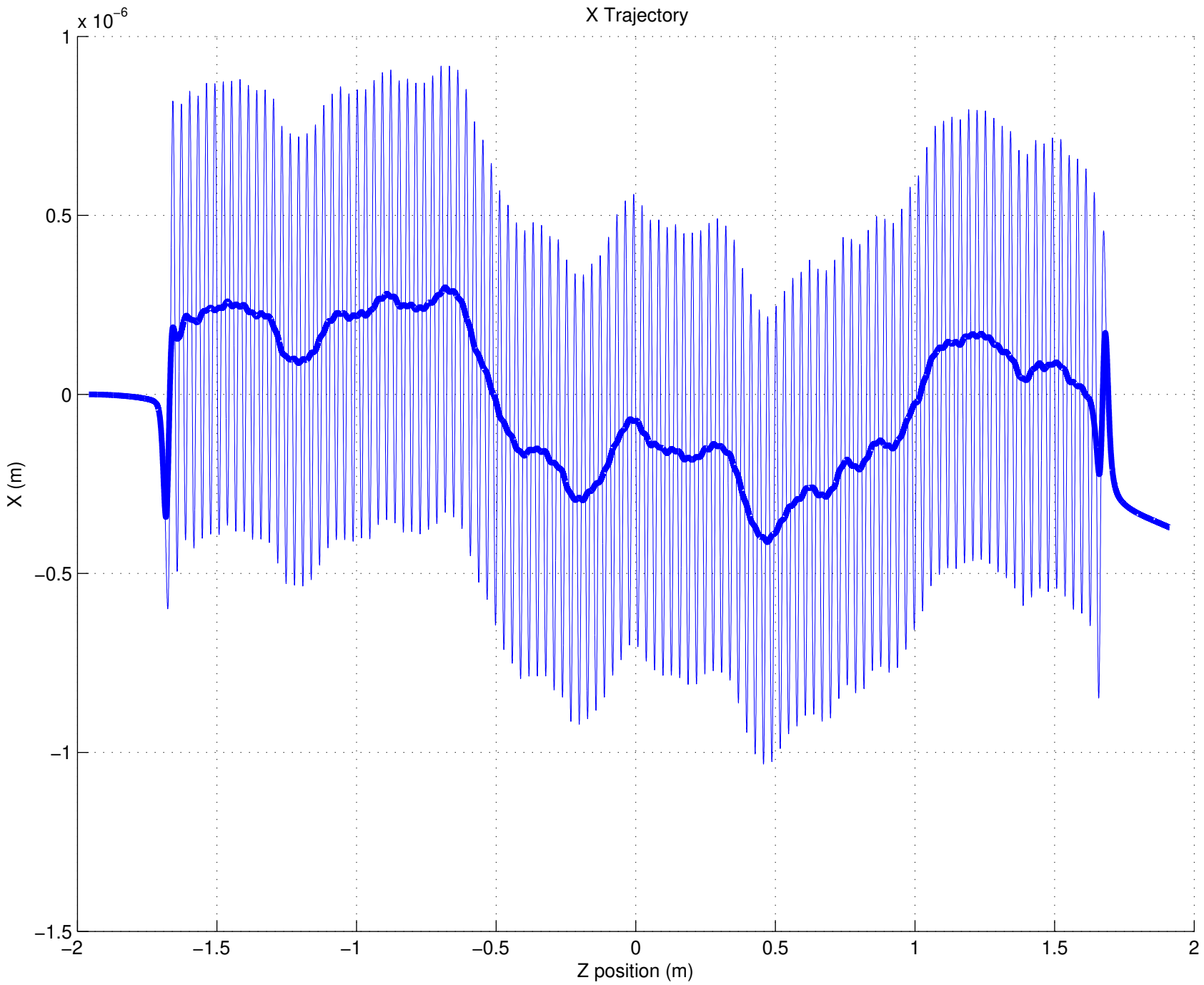
Peak Fields: Ave = 1.278093 T, RMS = 0.003359 T

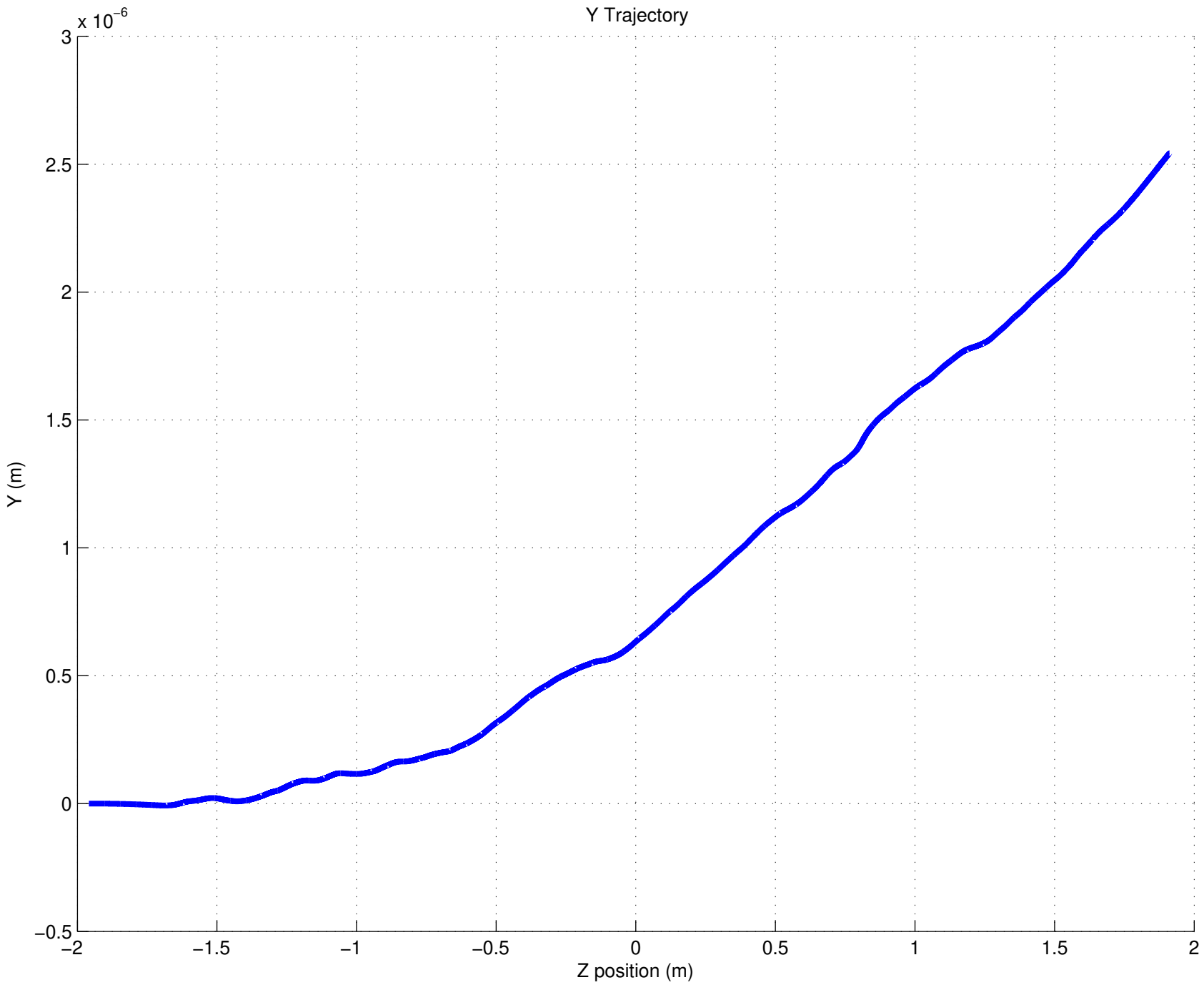


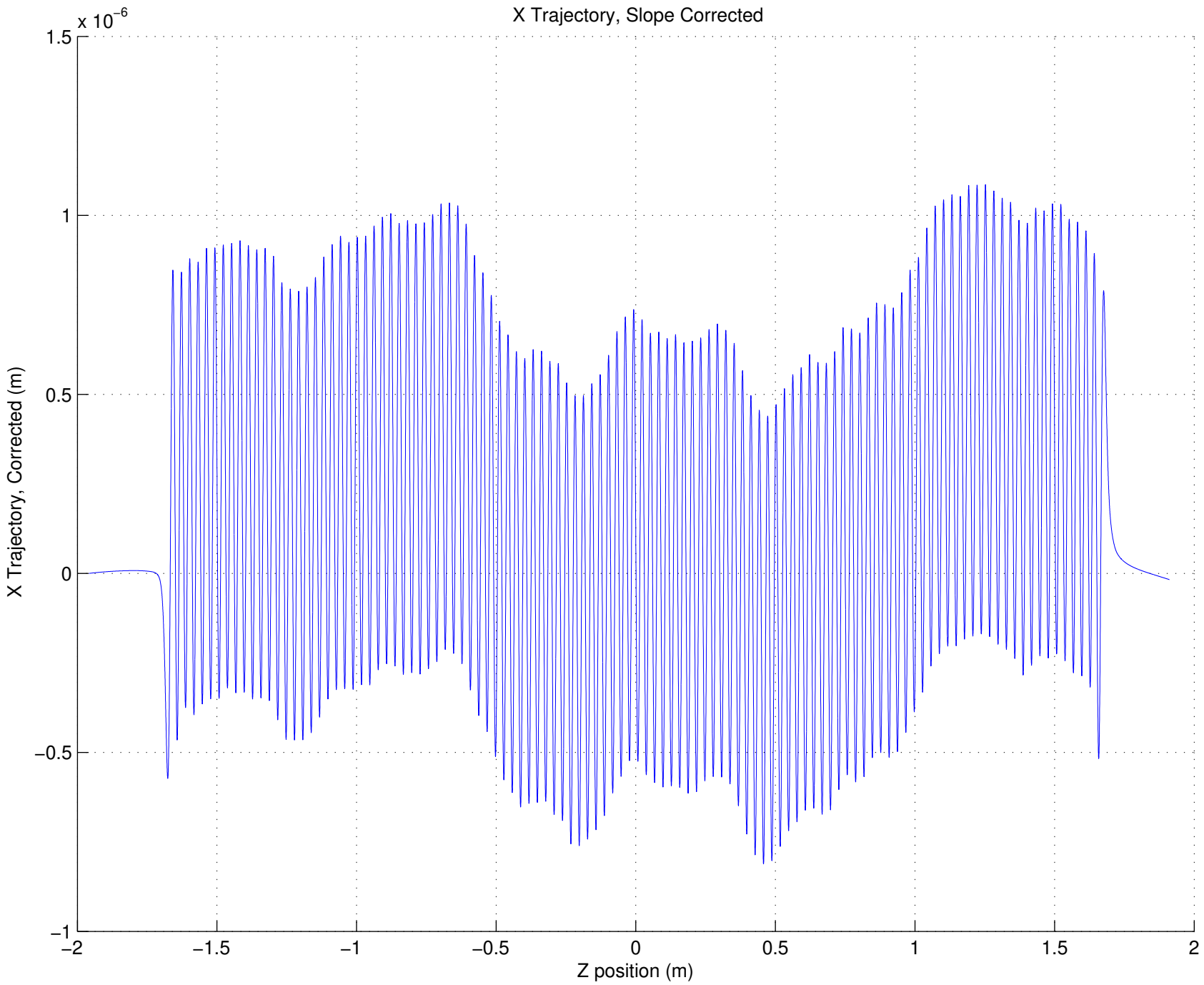
Peak Field Spacing: Ave = 0.015011 m, RMS = 0.000095 m

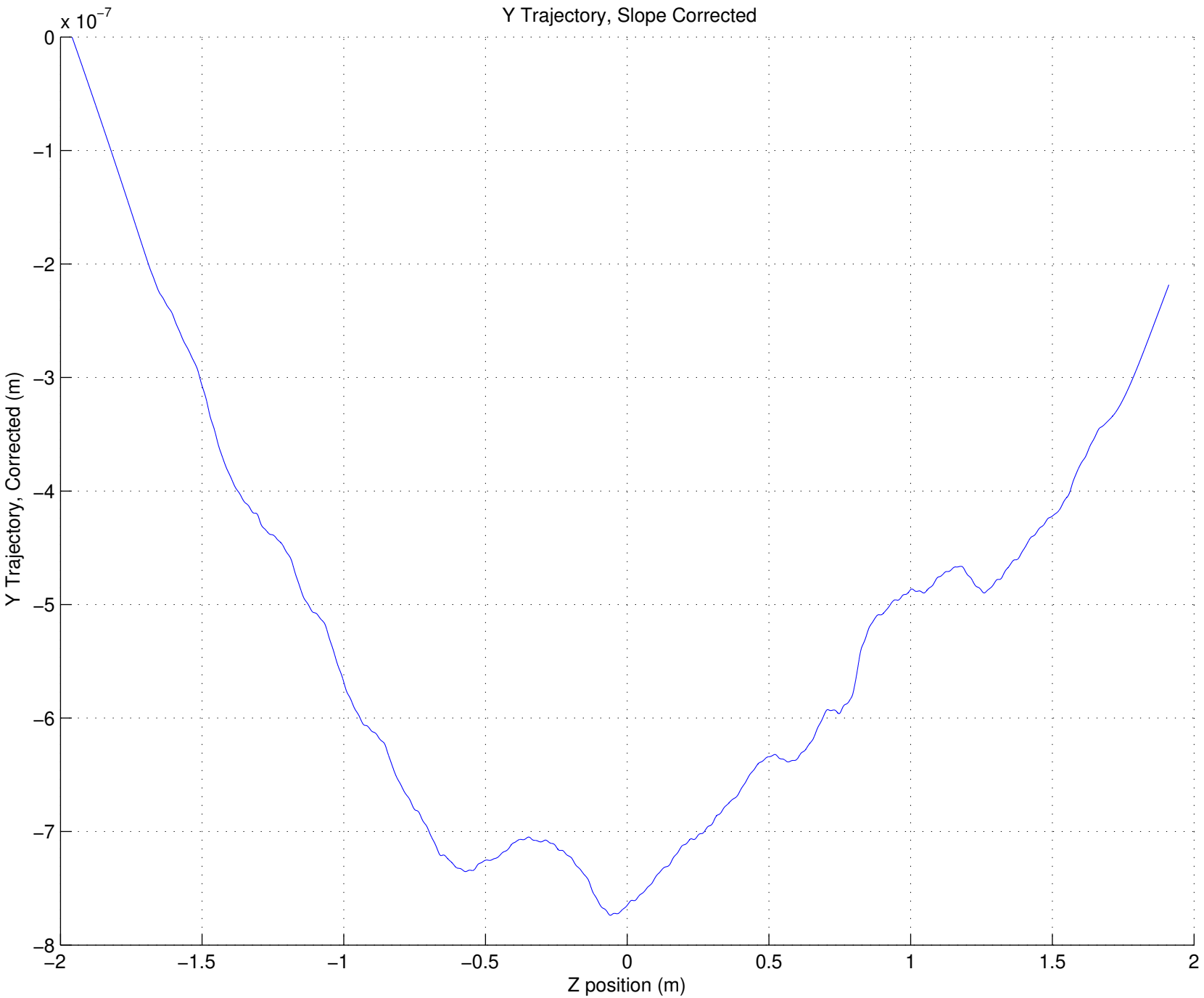

X Trajectory
x 10^-6
X (m)
1
0.5
0
−0.5
−1
−1.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
x 10^-4
X'
1.5
1
0.5
0
−0.5
−1
−1.5
X'' (1/m)
0.03
0.02
0.01
0
−0.01
−0.02
−0.03
Z position (m)

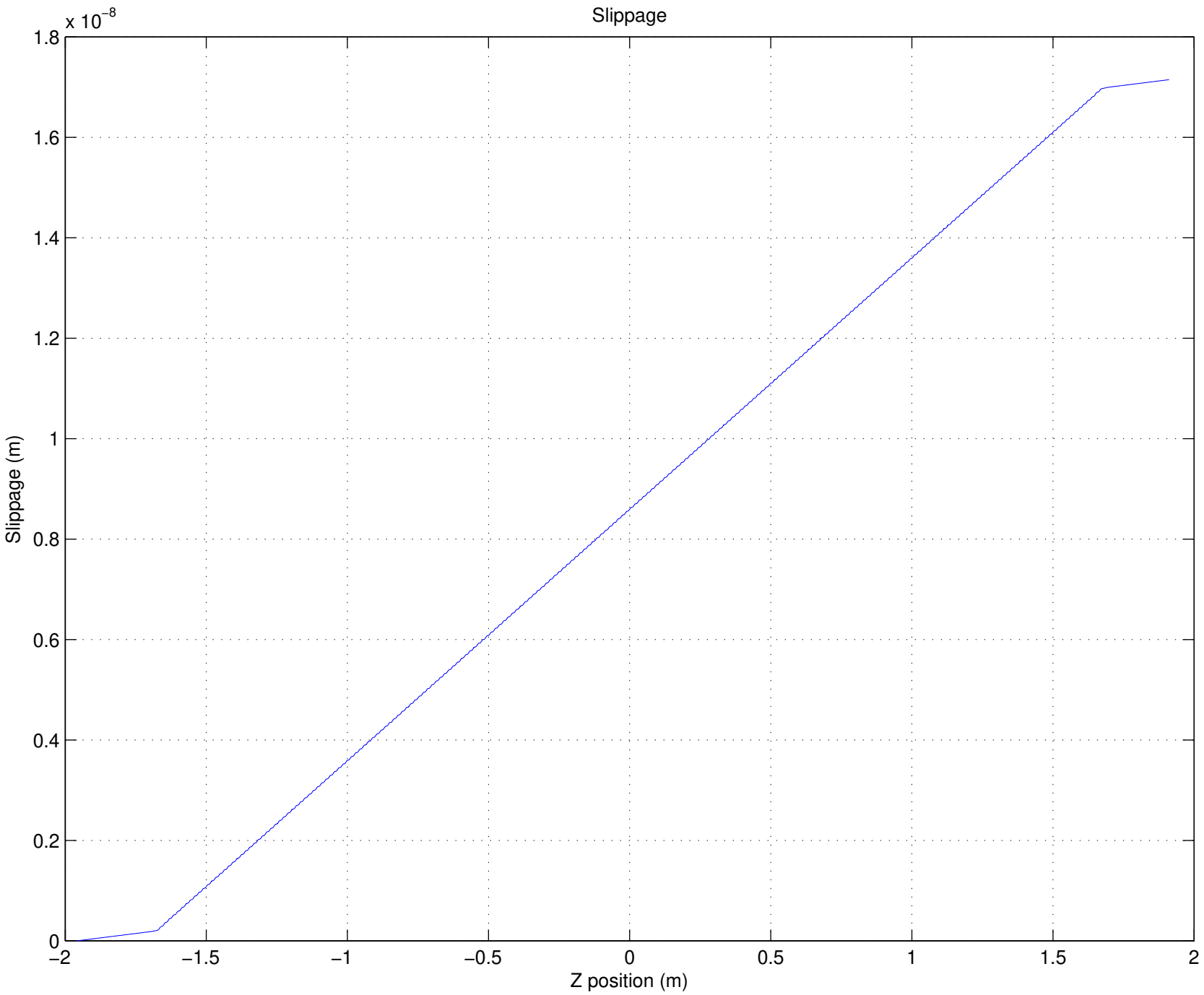

Y Trajectory
x 10^-6
Y (m)
3
2
1
0
−1
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
x 10^-6
Y'
2.5
2
1.5
1
0.5
0
−0.5
x 10^-4
Y'' (1/m)
1.5
1
0.5
0
−0.5
−1
−1.5
Z position (m)

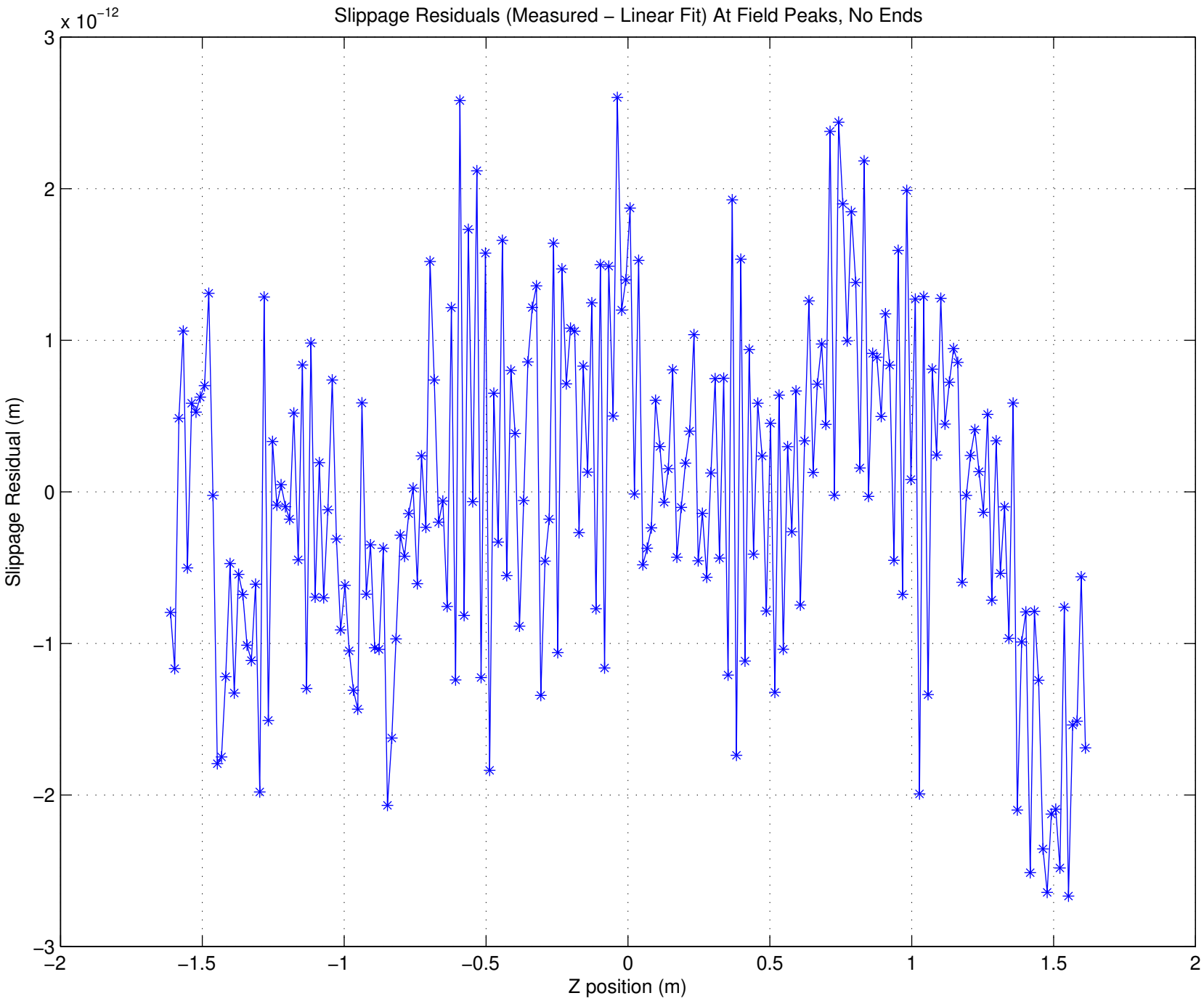

X Trajectory
x 10^-6
1
0.5
0
−0.5
−1
−1.5
X (m)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)

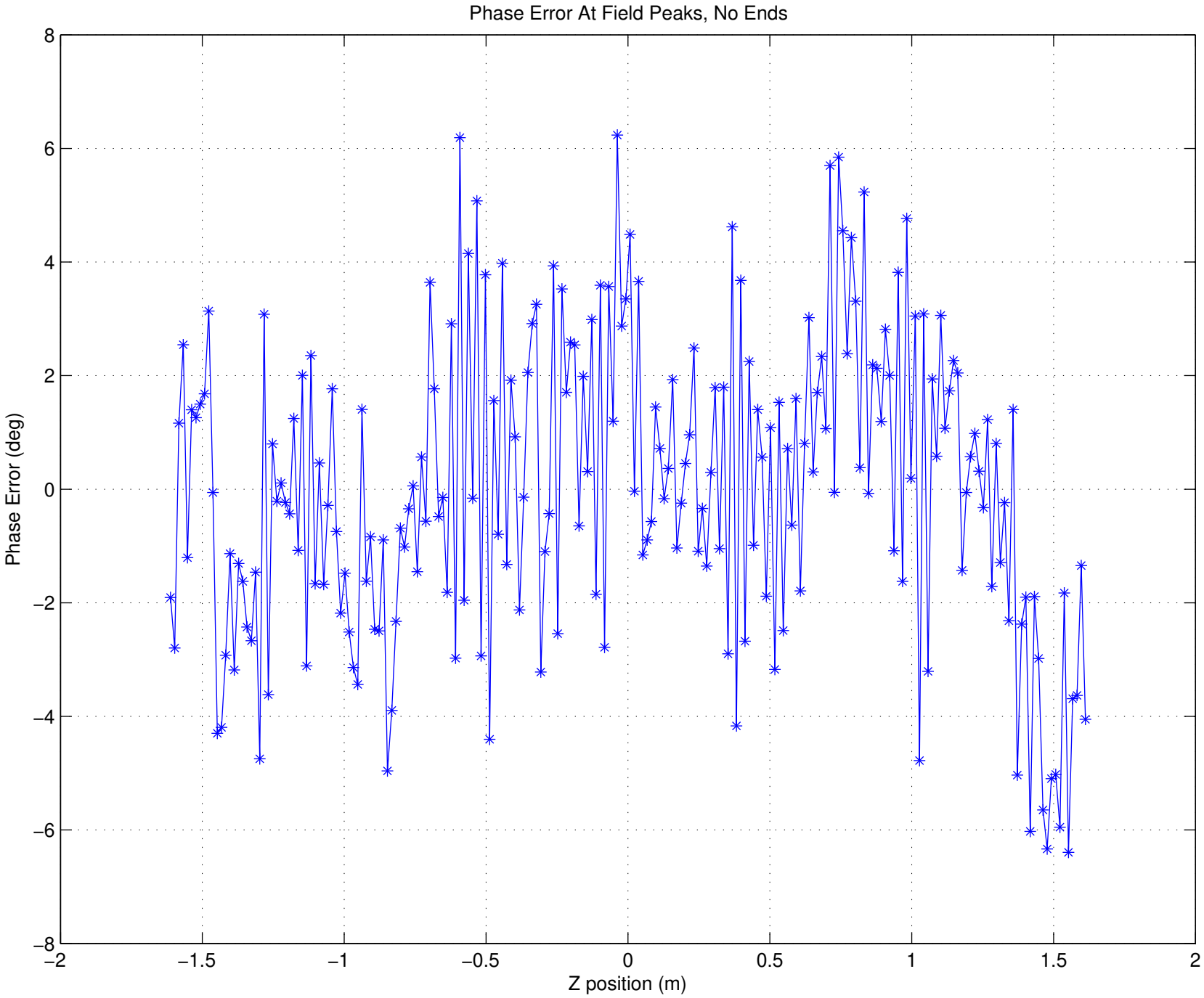

Y Trajectory
x 10^-6
3
2.5
2
1.5
1
0.5
0
−0.5
Y (m)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)


X Trajectory, Slope Corrected
x 10^-6
1.5
1
0.5
0
−0.5
−1
X Trajectory, Corrected (m)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)

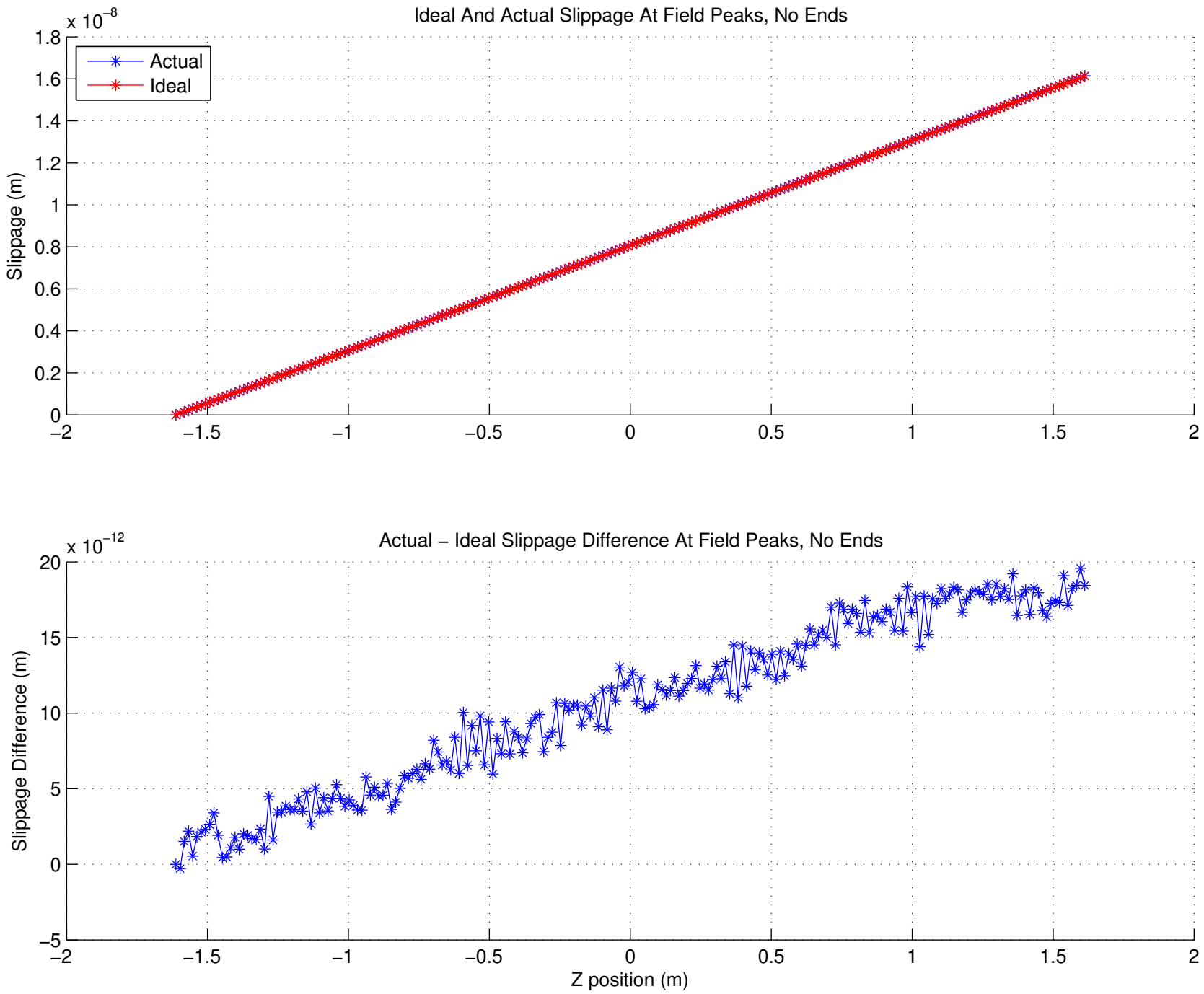

Y Trajectory, Slope Corrected
x 10^-7
0
−1
−2
−3
−4
−5
−6
−7
−8
Y Trajectory, Corrected (m)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)


Slippage
x 10^-8
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Slippage (m)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)


Slippage Residuals (Measured – Linear Fit) At Field Peaks, No Ends
x 10^−12
Slippage Residual (m)
Z position (m)
3
2
1
0
−1
−2
−3
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2



Phase Error: Ave = −0.000000 deg, RMS = 2.654296 deg


Ideal And Actual Slippage At Field Peaks, No Ends
x 10^-8
Actual
Ideal
Slippage (m)
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Actual − Ideal Slippage Difference At Field Peaks, No Ends
x 10^-12
Slippage Difference (m)
20
15
10
5
0
−5
Z position (m)