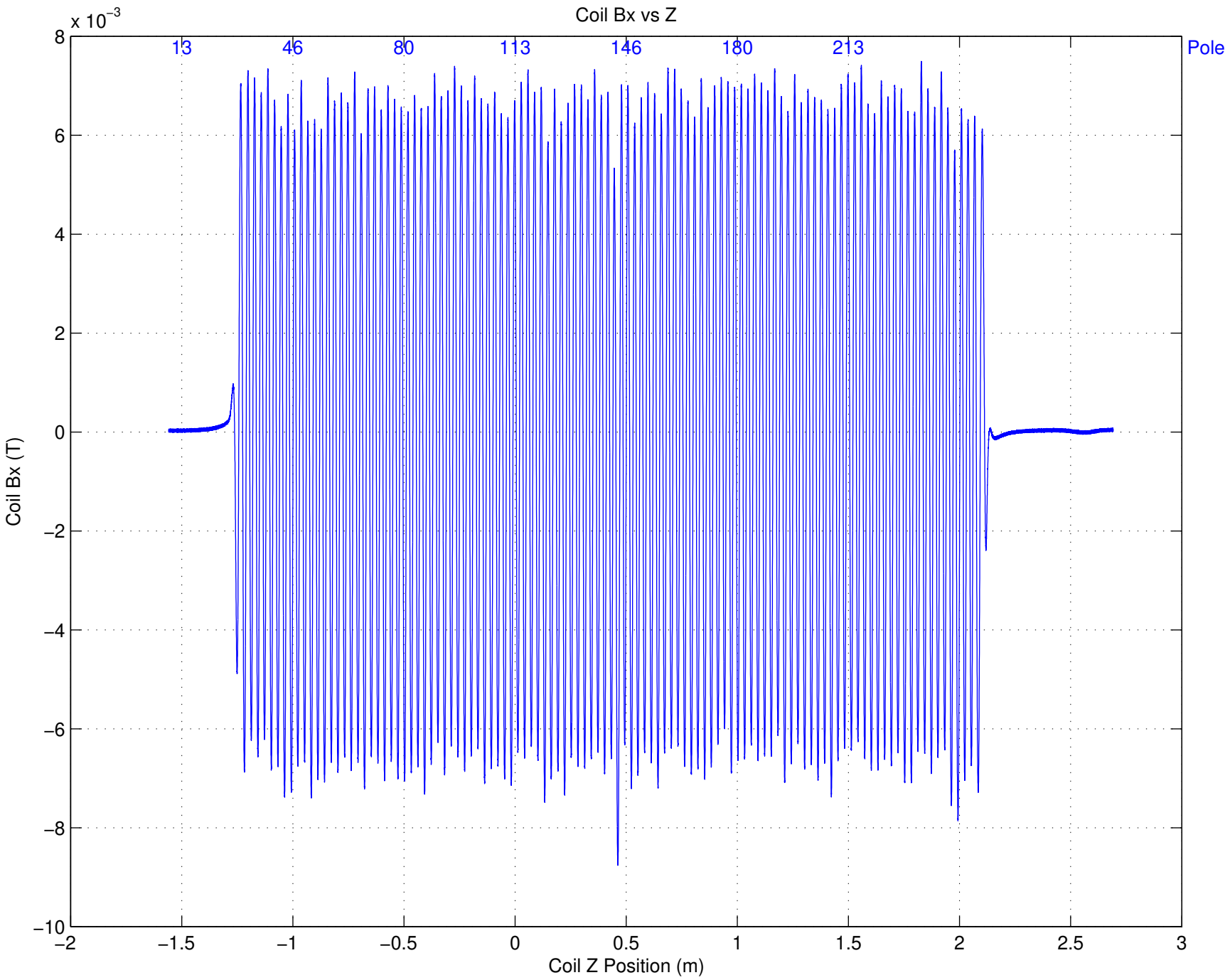
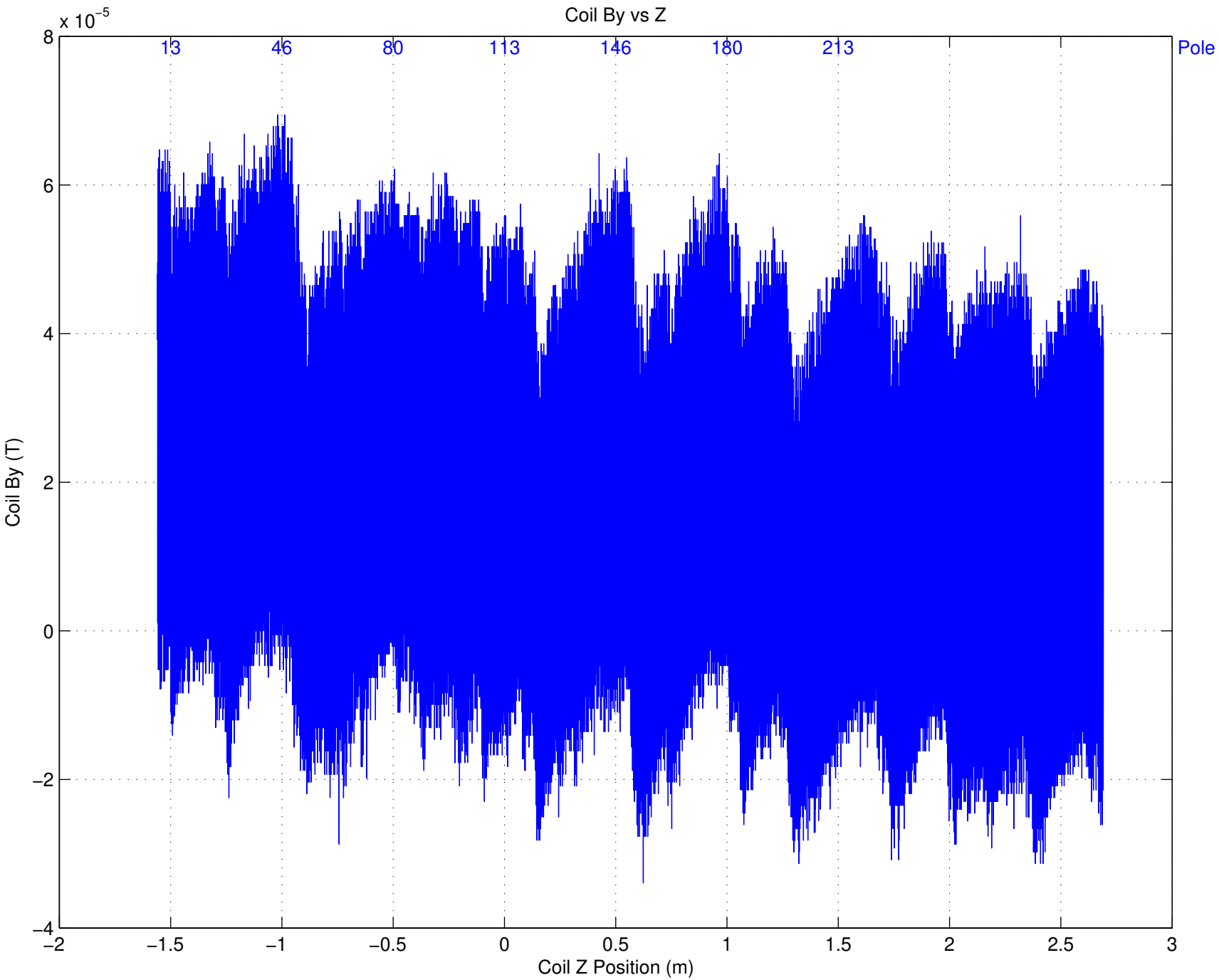
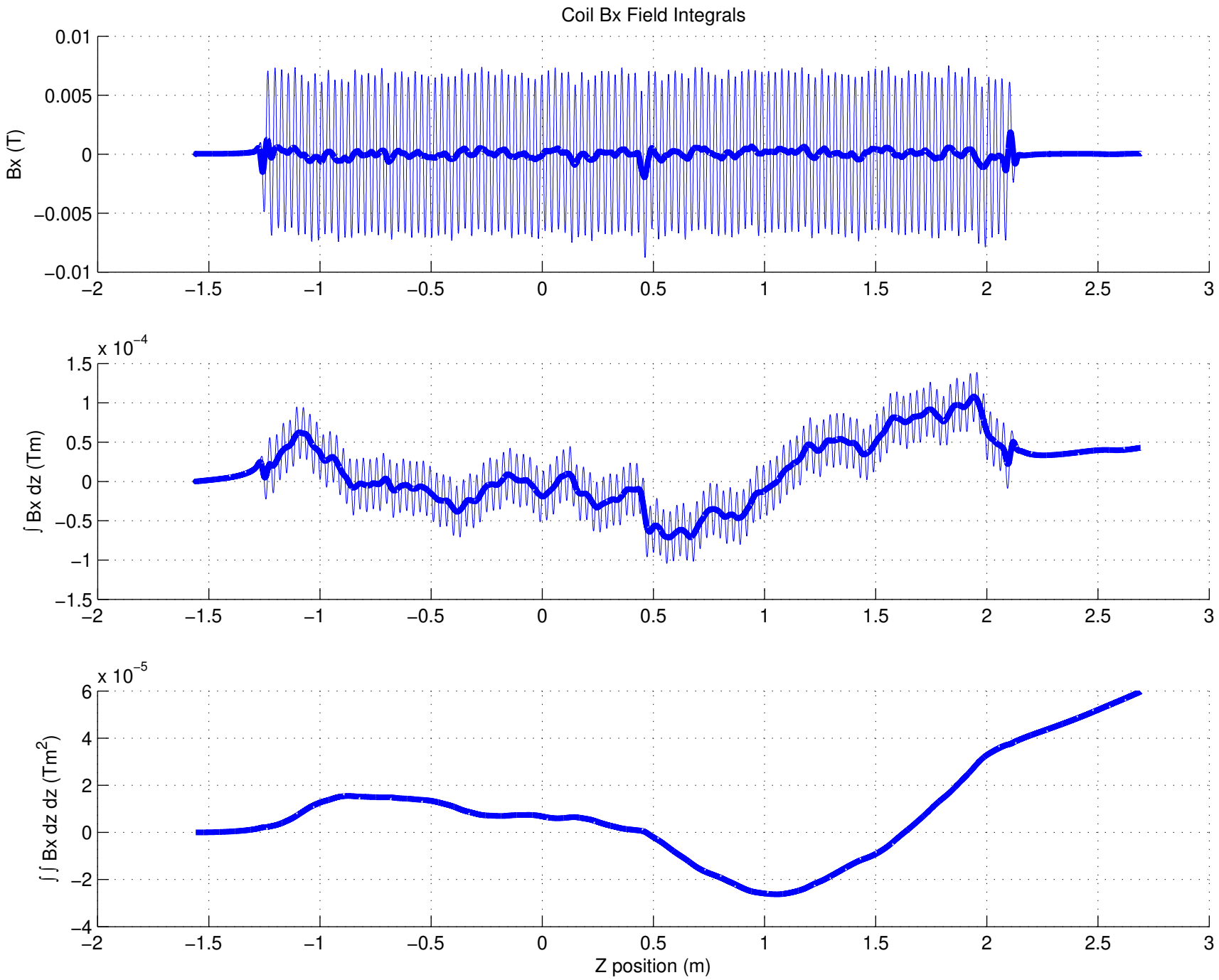
SLAC Magnetic Measurements

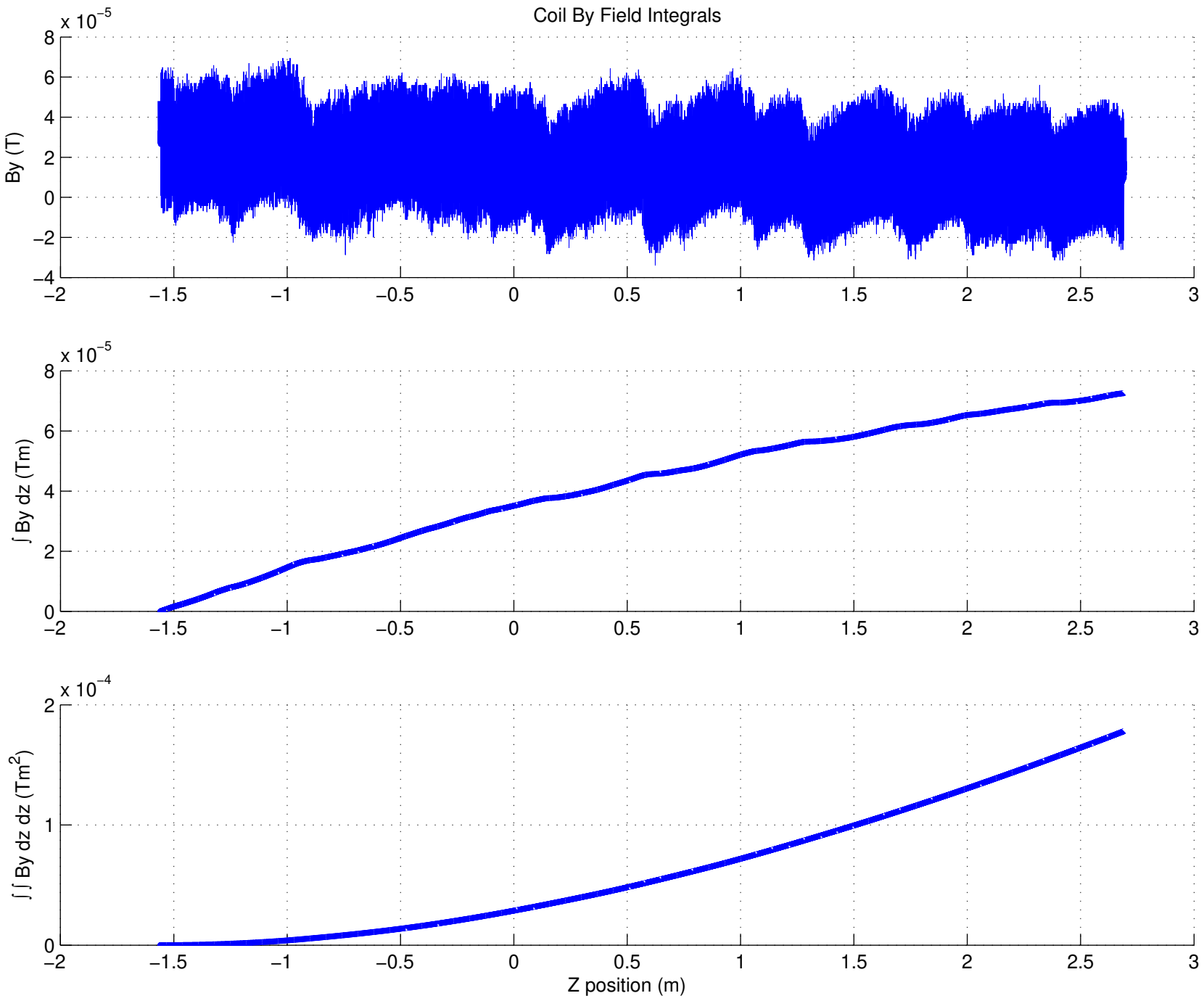
Coil Analysis

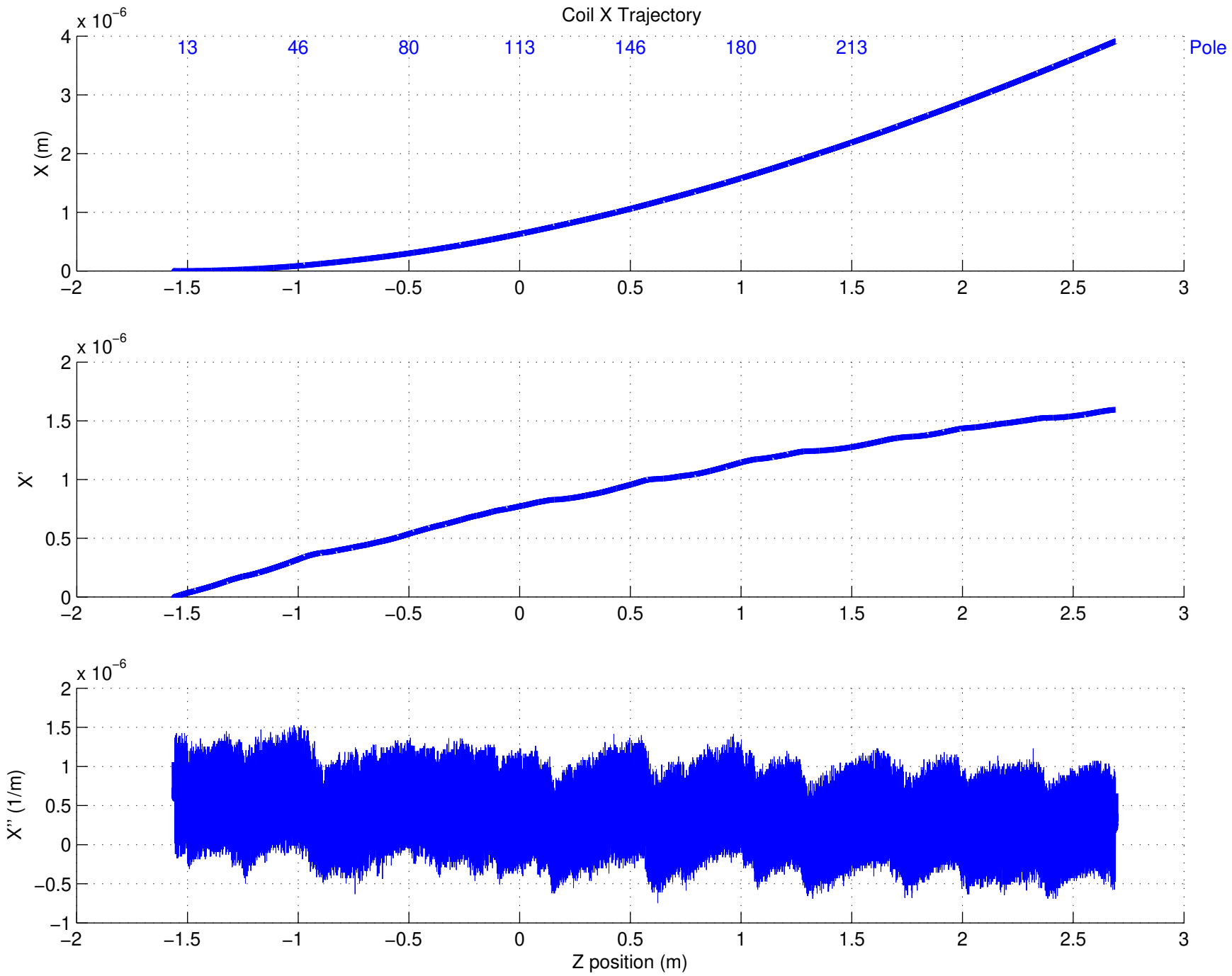
Parameters:
INPUT−FILE−DIR =s:\MagData\LCLS\Undulator\L143−112000−11\DATASET0001\Fine Tuning\Z Scans\Run 021\
INPUT−FILE−NAME =x+00000−y+000−bscanz.dat
INPUT−FILE−TYPE =ZVXYBXYC
GAMMA =26688.61
NOM−ZM−BXCOIL−AT−DEV−CTR =2.0589
NOM−ZM−BYCOIL−AT−DEV−CTR =2.0589
NOM−LAMBDA−U =0.03
NUM−POLES =226

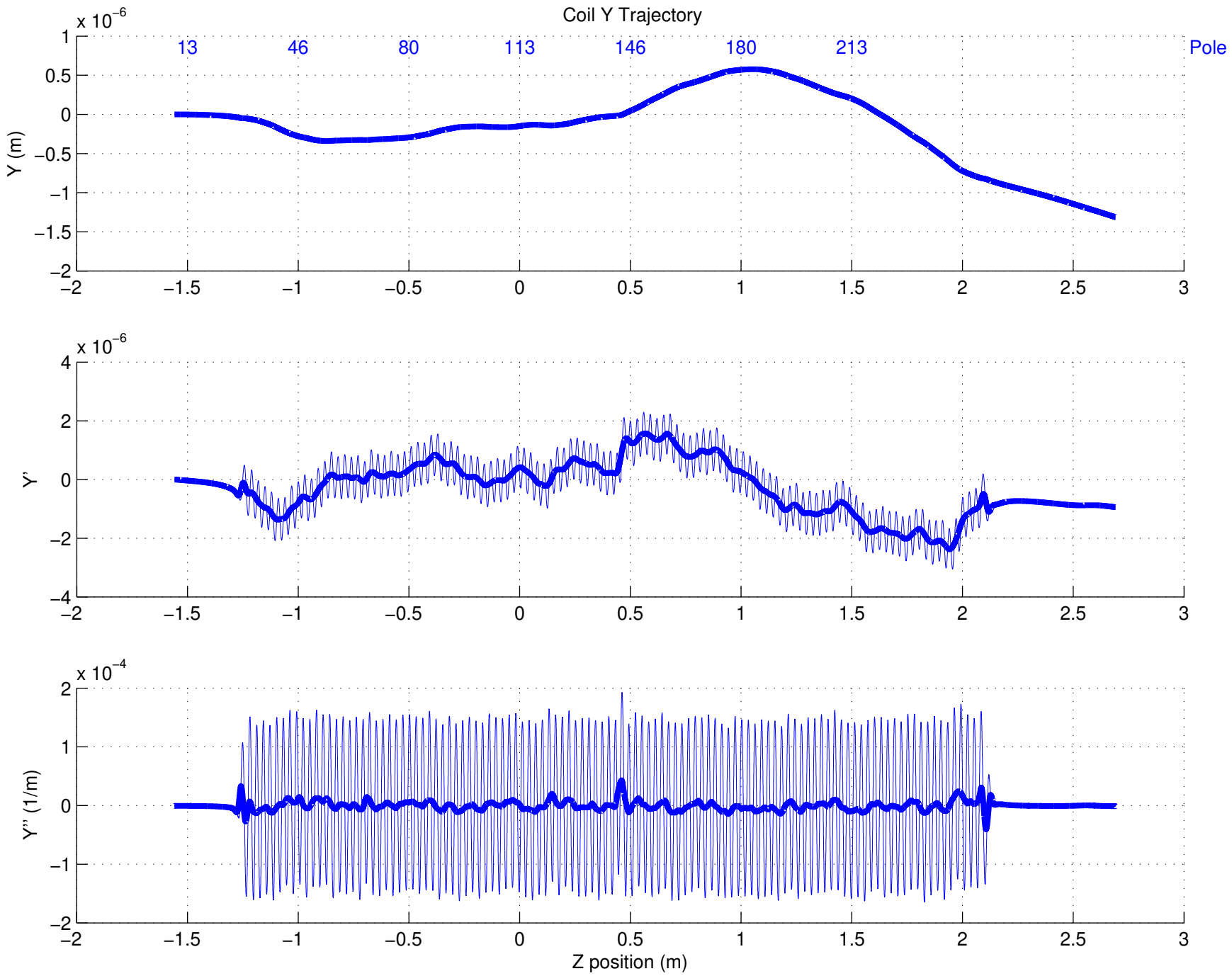

Coil Bx vs Z
x 10^-3
8
6
4
2
0
−2
−4
−6
−8
−10
13
46
80
113
146
180
213
Pole
Coil Bx (T)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
3
Coil Z Position (m)

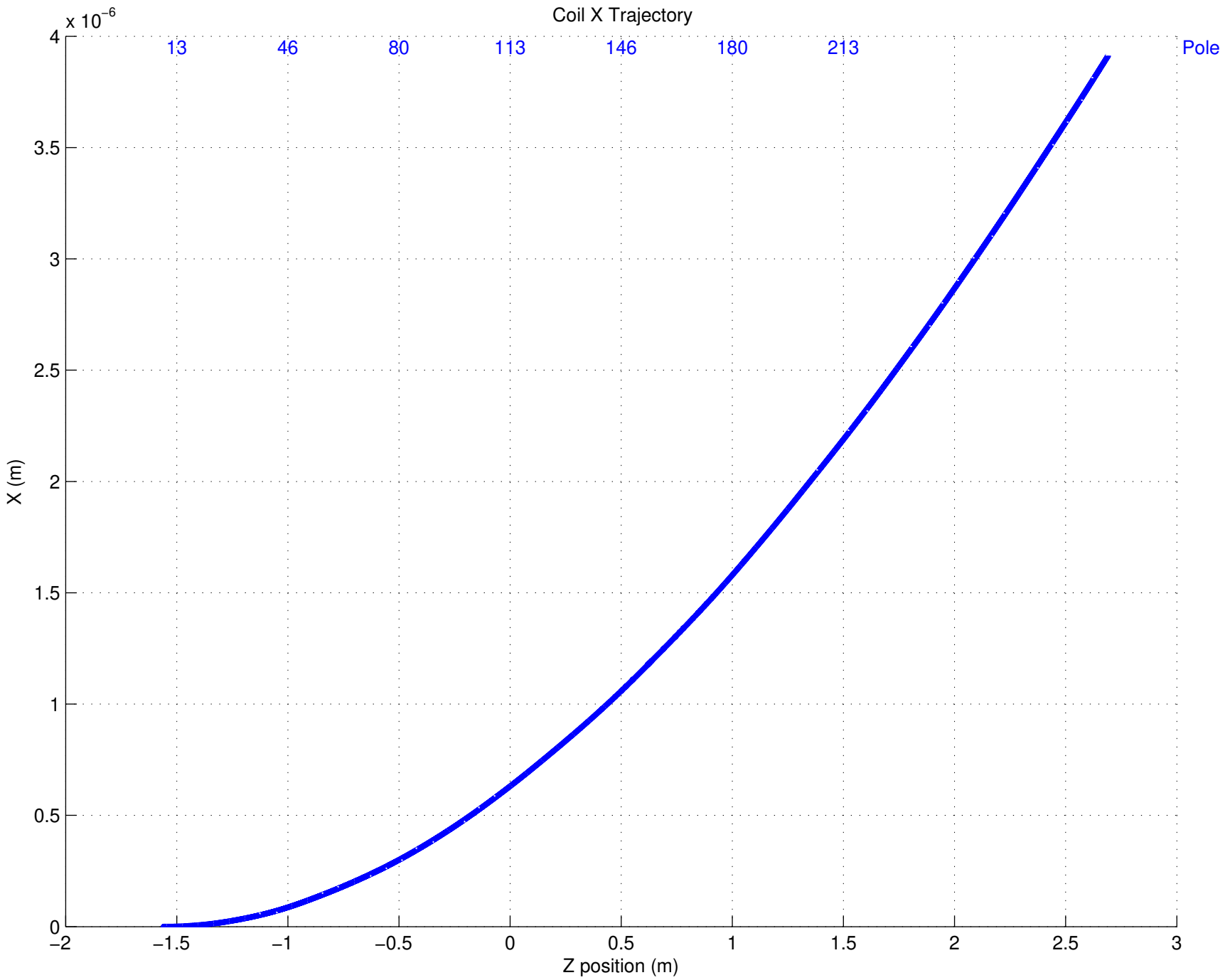

Coil By vs Z
x 10^-5
13
46
80
113
146
180
213
Pole
8
6
4
2
0
−2
−4
Coil By (T)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
3
Coil Z Position (m)

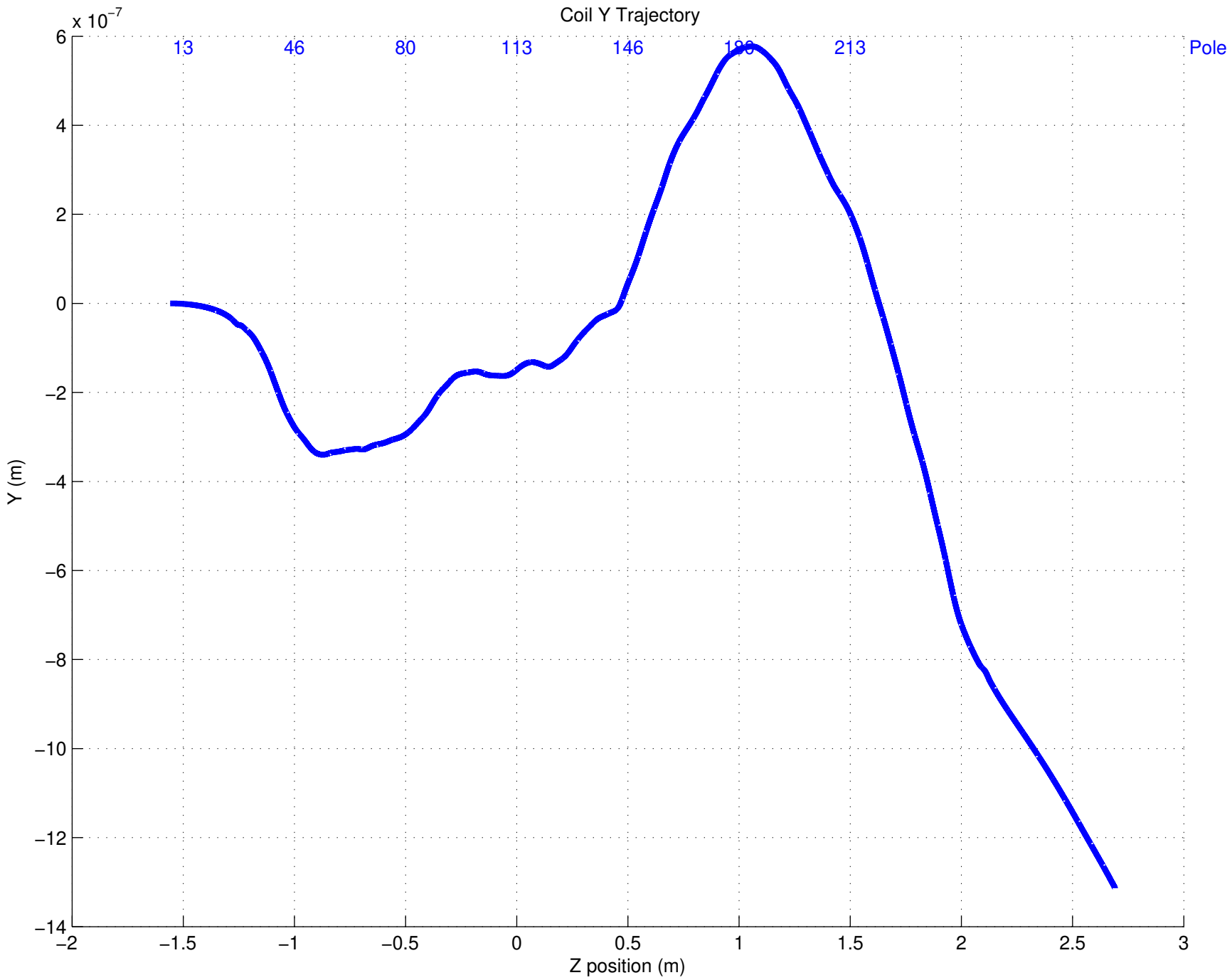

Coil Bx Field Integrals
Bx (T)
0.01
0.005
0
−0.005
−0.01
∫ Bx dz (Tm)
x 10^−4
1.5
1
0.5
0
−0.5
−1
−1.5
∫∫ Bx dz dz (Tm^2)
x 10^−5
6
4
2
0
−2
−4
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
3
Z position (m)


Coil By Field Integrals
x 10^-5
By (T)
8
6
4
2
0
−2
−4
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
3
x 10^-5
∫ By dz (Tm)
8
6
4
2
0
x 10^-4
∫ ∫ By dz dz (Tm^2)
2
1
0
Z position (m)


Coil X Trajectory
x 10^-6
13
46
80
113
146
180
213
Pole
X (m)
X'
X'' (1/m)
Z position (m)


Coil Y Trajectory
x 10^-6
13
46
80
113
146
180
213
Pole
Y (m)
x 10^-6
Y'
x 10^-4
Y'' (1/m)
Z position (m)


Coil X Trajectory
x 10^-6
13
46
80
113
146
180
213
Pole
4
3.5
3
2.5
2
1.5
1
0.5
0
X (m)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
3
Z position (m)


Coil Y Trajectory
x 10^-7
13
46
80
113
146
180
213
Pole
6
4
2
0
−2
−4
−6
−8
−10
−12
−14
Y (m)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
3
Z position (m)