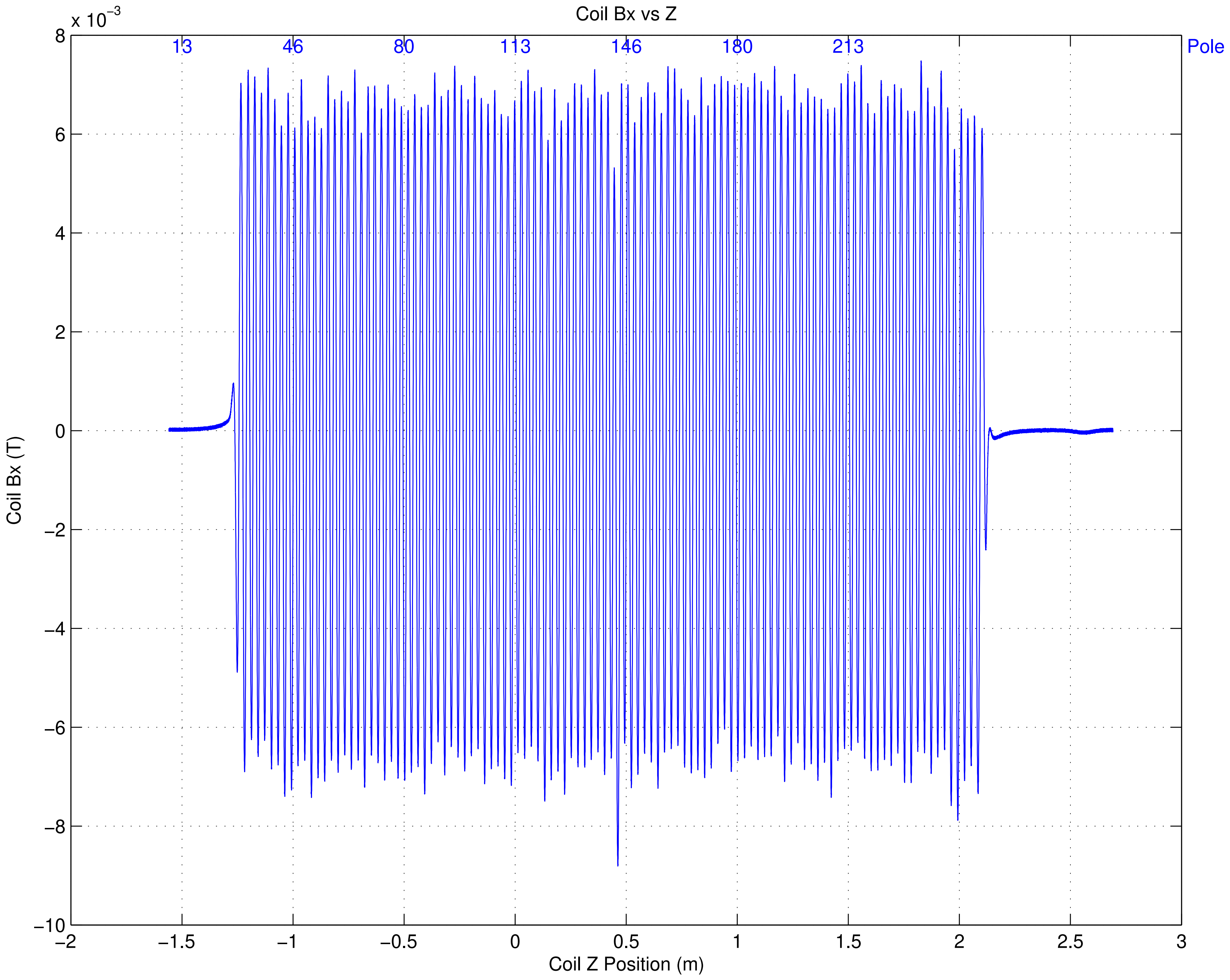
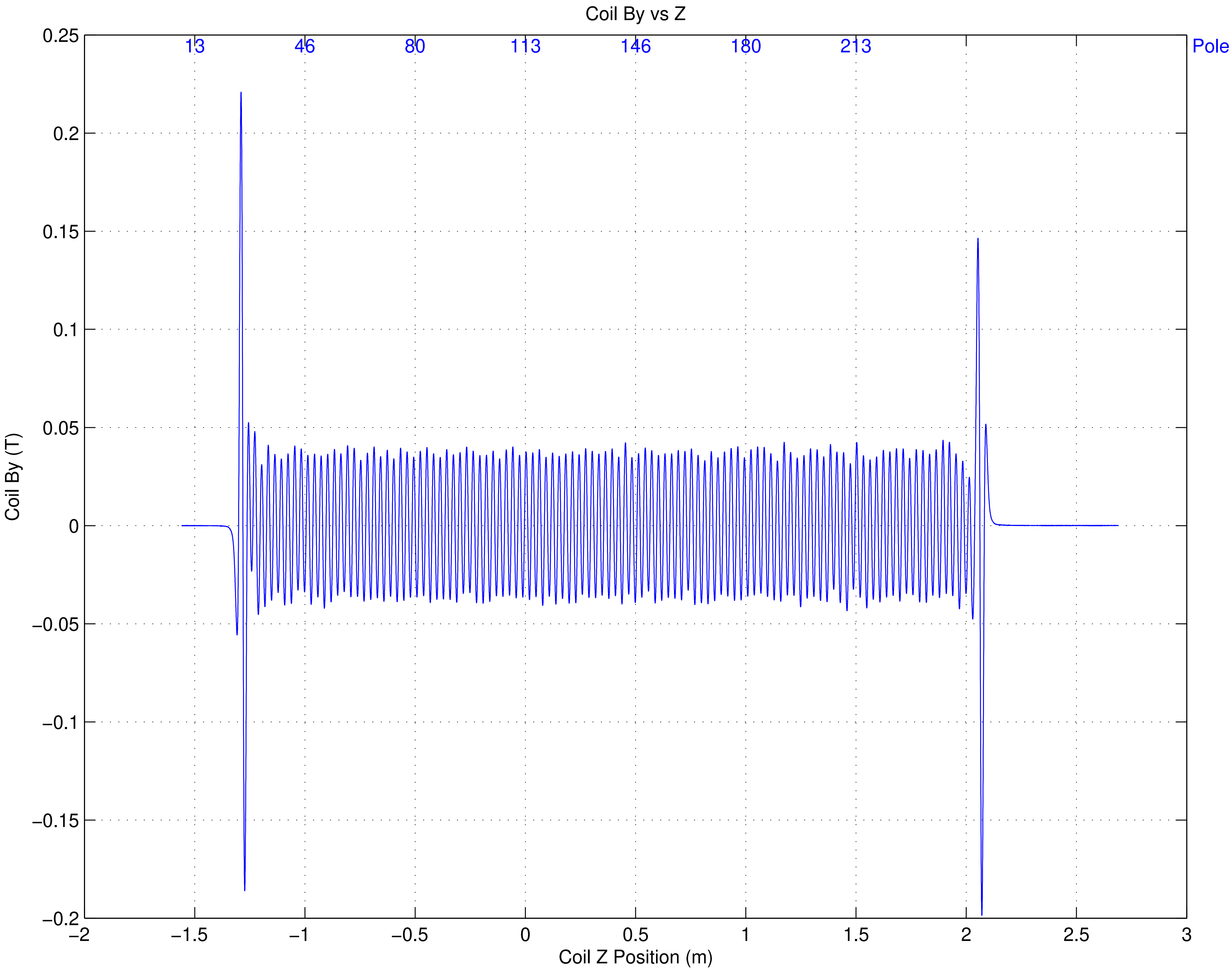
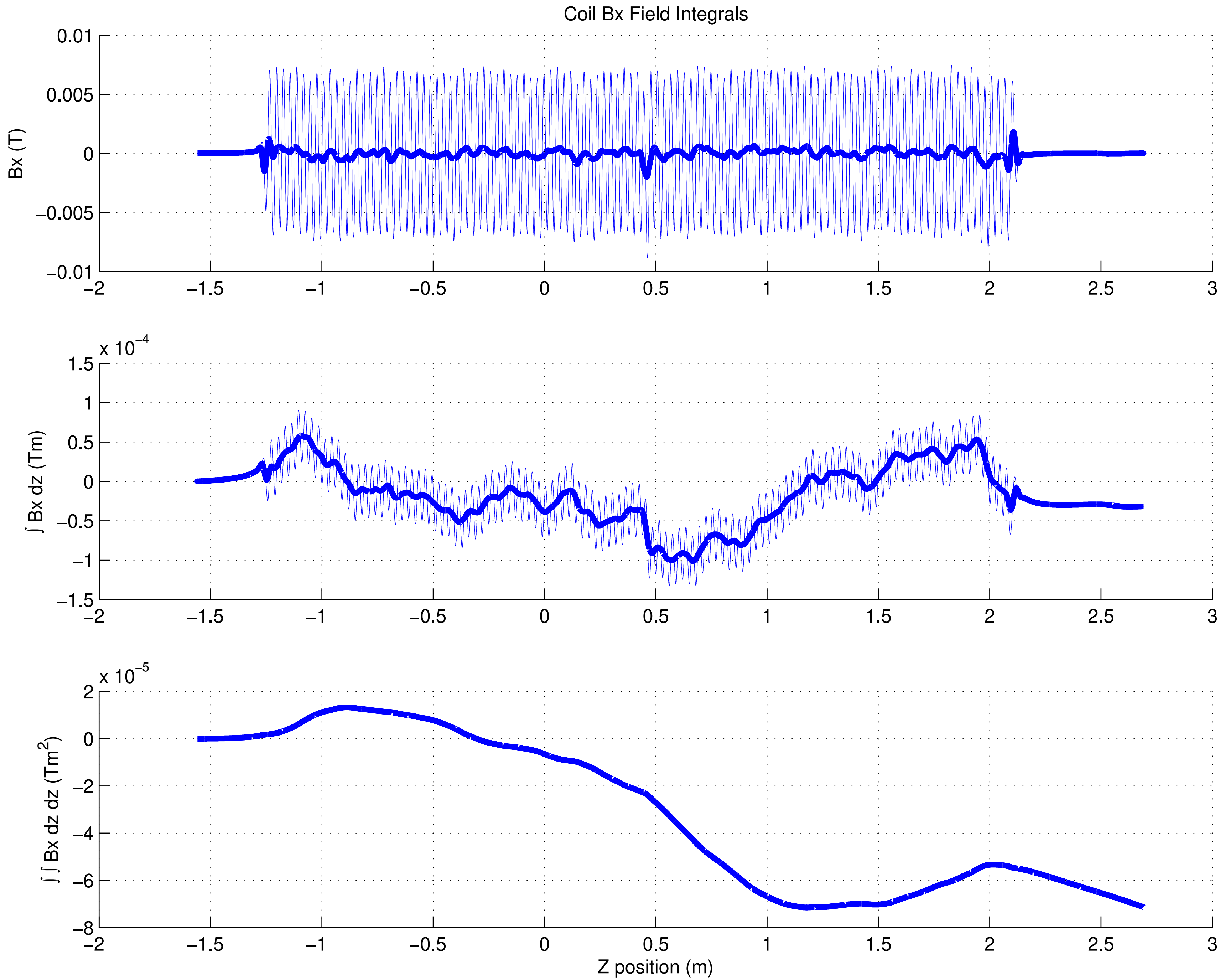
SLAC Magnetic Measurements

Coil Analysis

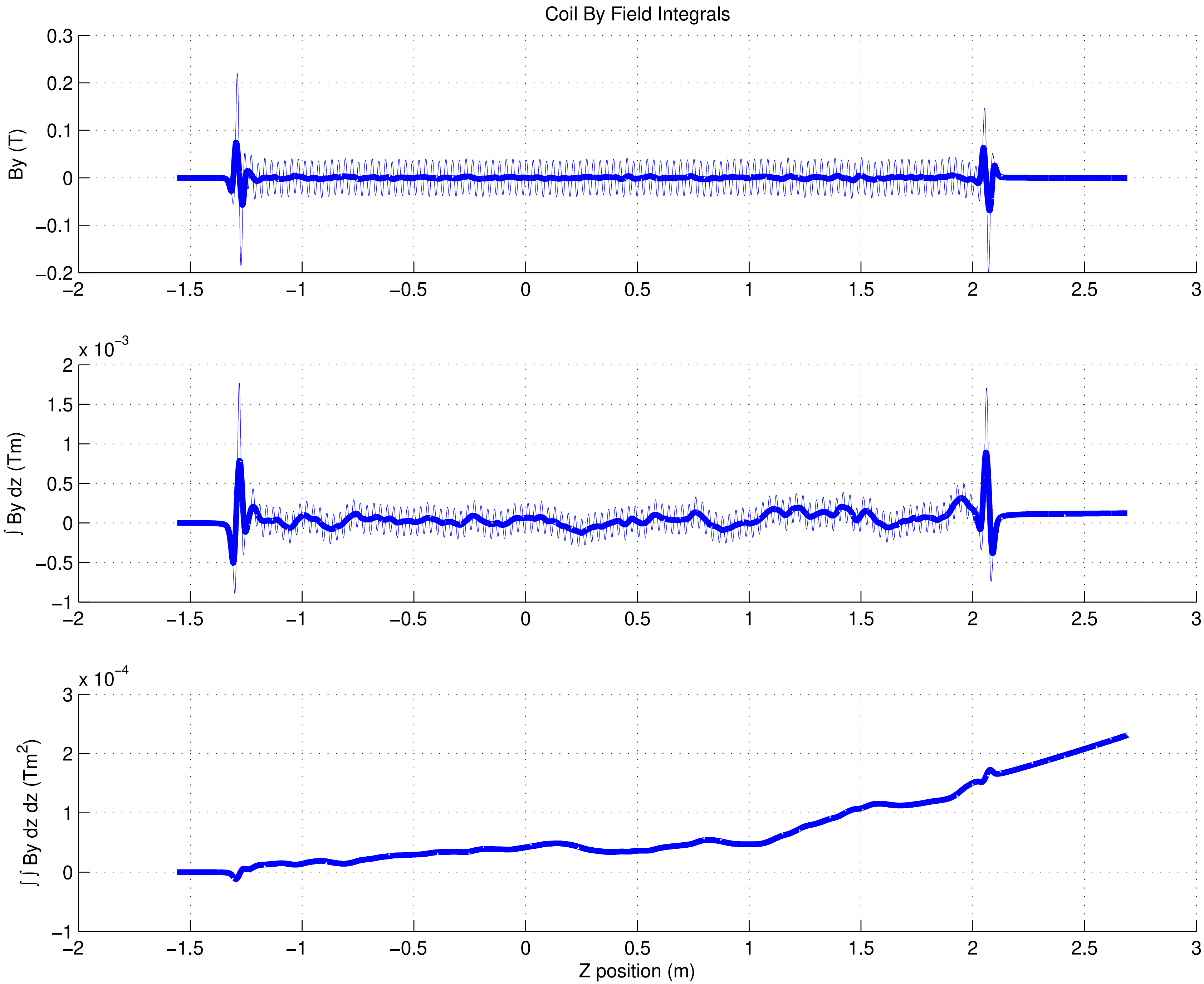
Parameters:
INPUT−FILE−DIR =s:\MagData\LCLS\Undulator\L143−112000−11\DATASET0001\Fine Tuning\Z Scans\Run 020\
INPUT−FILE−NAME =x+00000−y+000−bscanz.dat
INPUT−FILE−TYPE =ZVXYBXYC
GAMMA =26688.61
NOM−ZM−BXCOIL−AT−DEV−CTR =2.0589
NOM−ZM−BYCOIL−AT−DEV−CTR =2.0589
NOM−LAMBDA−U =0.03
NUM−POLES =226

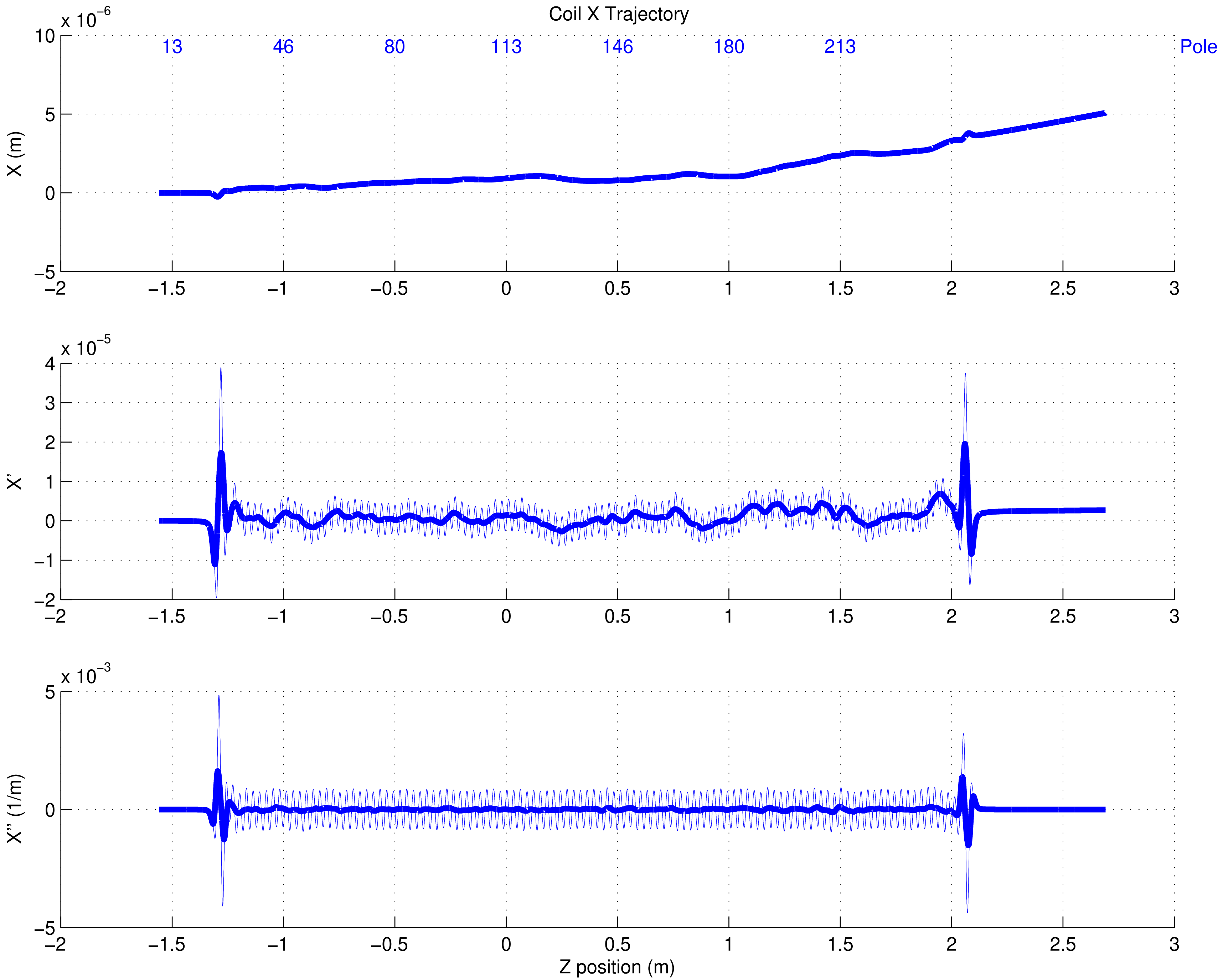

Coil Bx vs Z
x 10^−3
8
6
4
2
0
−2
−4
−6
−8
−10
Coil Bx (T)
13
46
80
113
146
180
213
Pole
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
3
Coil Z Position (m)


Coil By vs Z
13
46
80
113
146
180
213
Pole
0.25
0.2
0.15
0.1
0.05
0
−0.05
−0.1
−0.15
−0.2
Coil By (T)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
3
Coil Z Position (m)

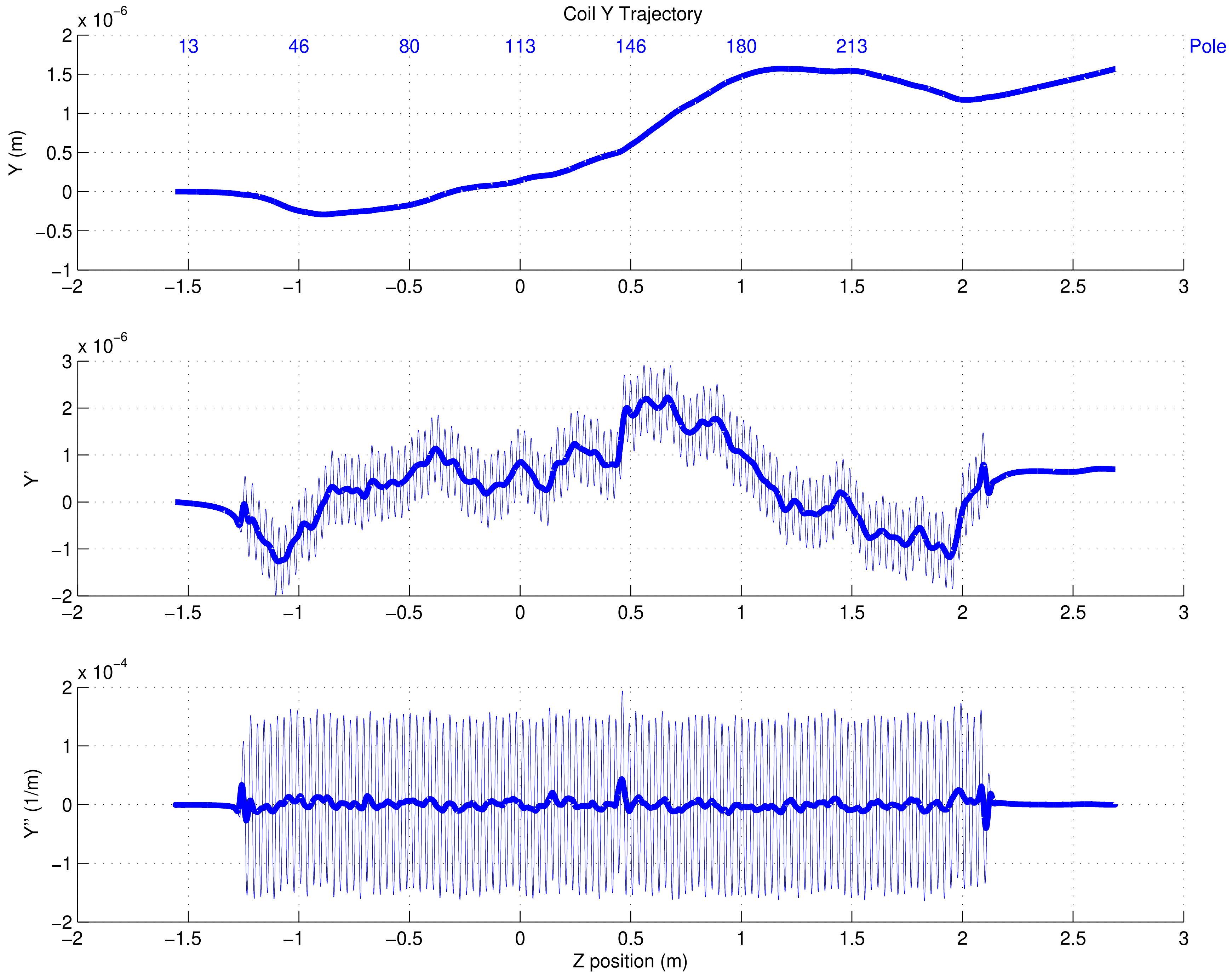


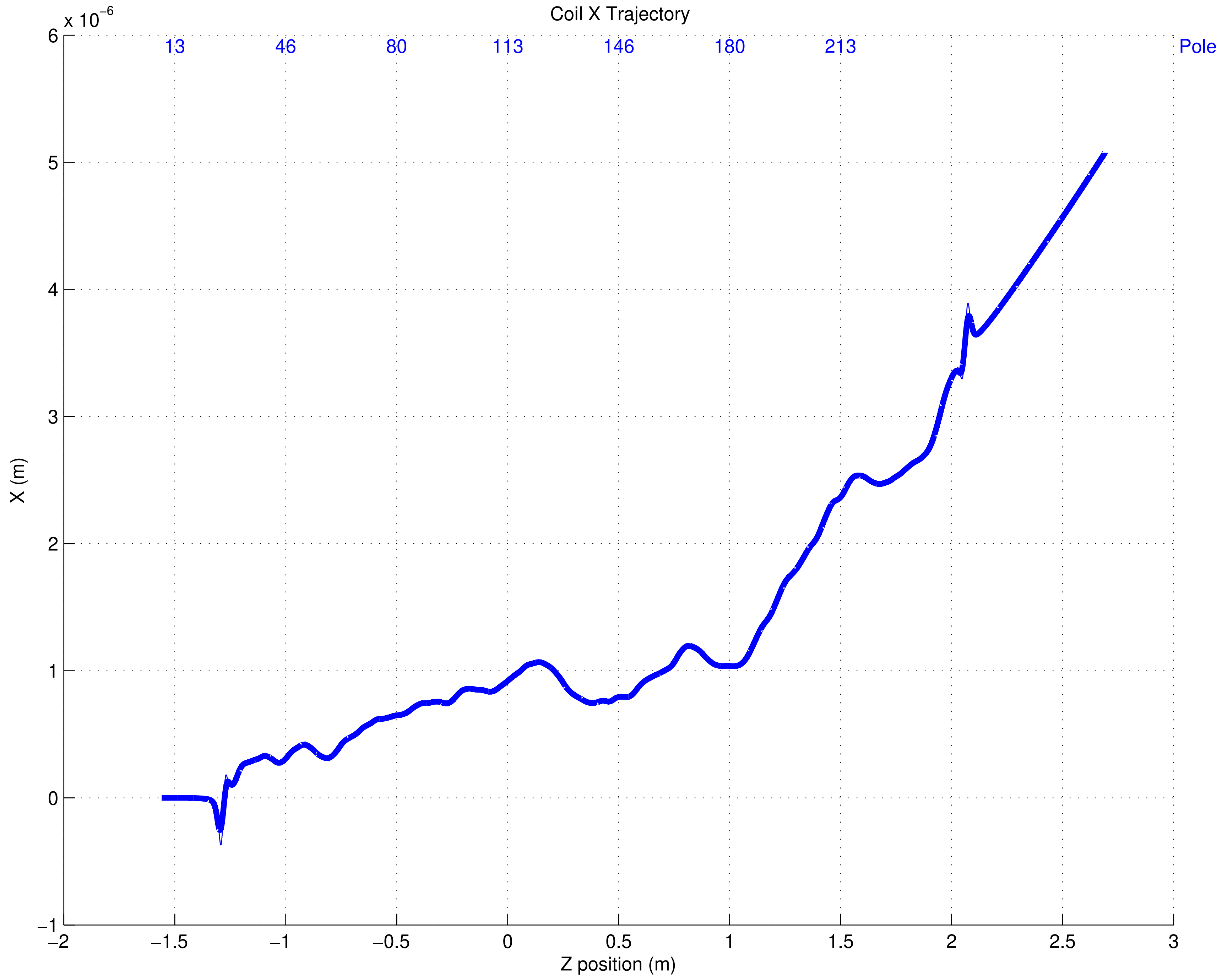
Coil Bx Field Integrals
Bx (T)
0.01
0.005
0
−0.005
−0.01
x 10−4
1.5
1
0.5
0
−0.5
−1
−1.5
∫ Bx dz (Tm)
x 10−5
2
0
−2
−4
−6
−8
∫ ∫ Bx dz dz (Tm2)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
3
Z position (m)


Coil By Field Integrals
By (T)
∫ By dz (Tm)
x 10^-3
∫ ∫ By dz dz (Tm^2)
x 10^-4
Z position (m)

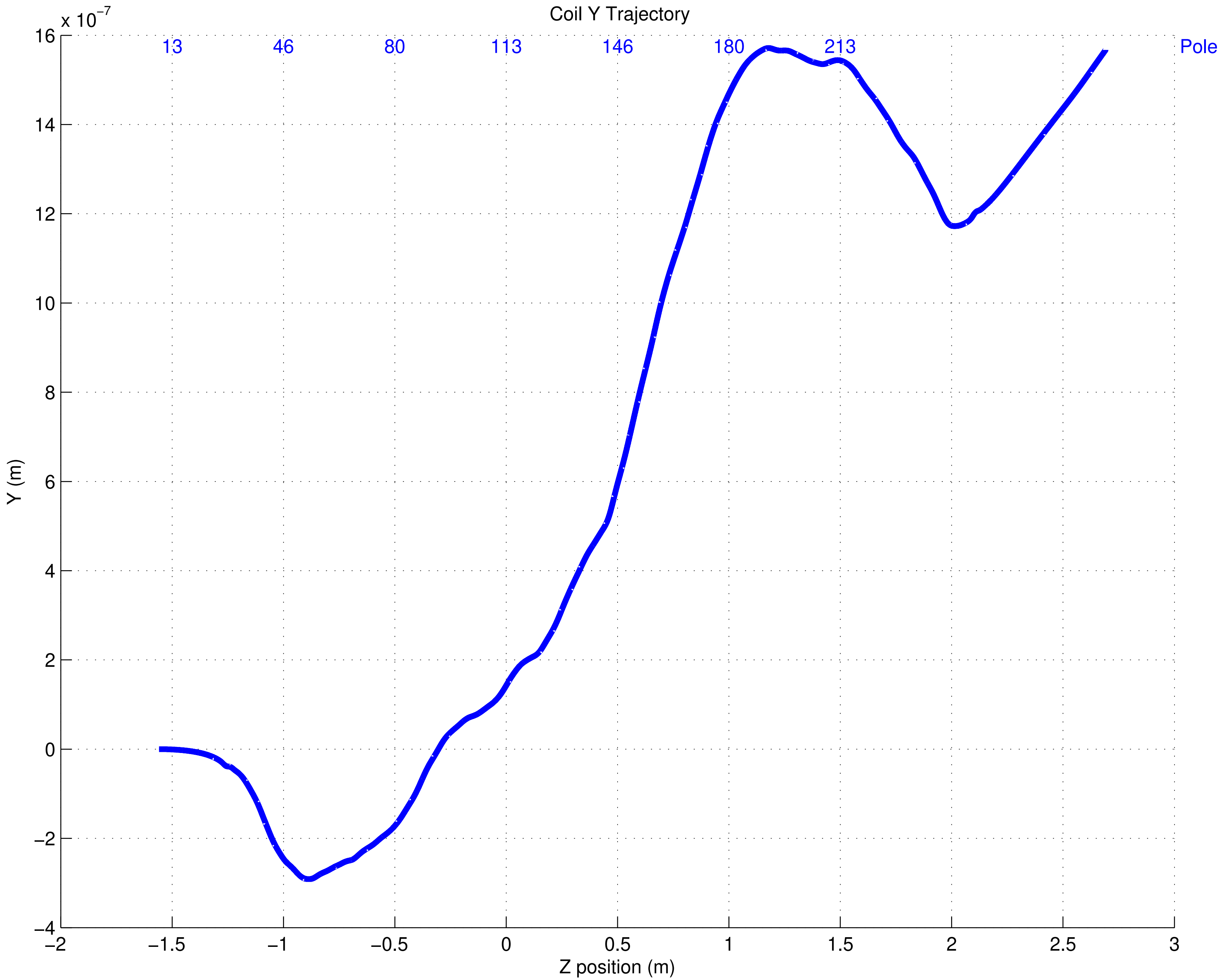


Coil X Trajectory
x 10^−6
13
46
80
113
146
180
213
Pole
X (m)
x 10^−5
X'
x 10^−3
X'' (1/m)
Z position (m)


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



Coil X Trajectory
x 10^-6
13
46
80
113
146
180
213
Pole
6
5
4
3
2
1
0
−1
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
16
14
12
10
8
6
4
2
0
−2
−4
Y (m)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
3
Z position (m)