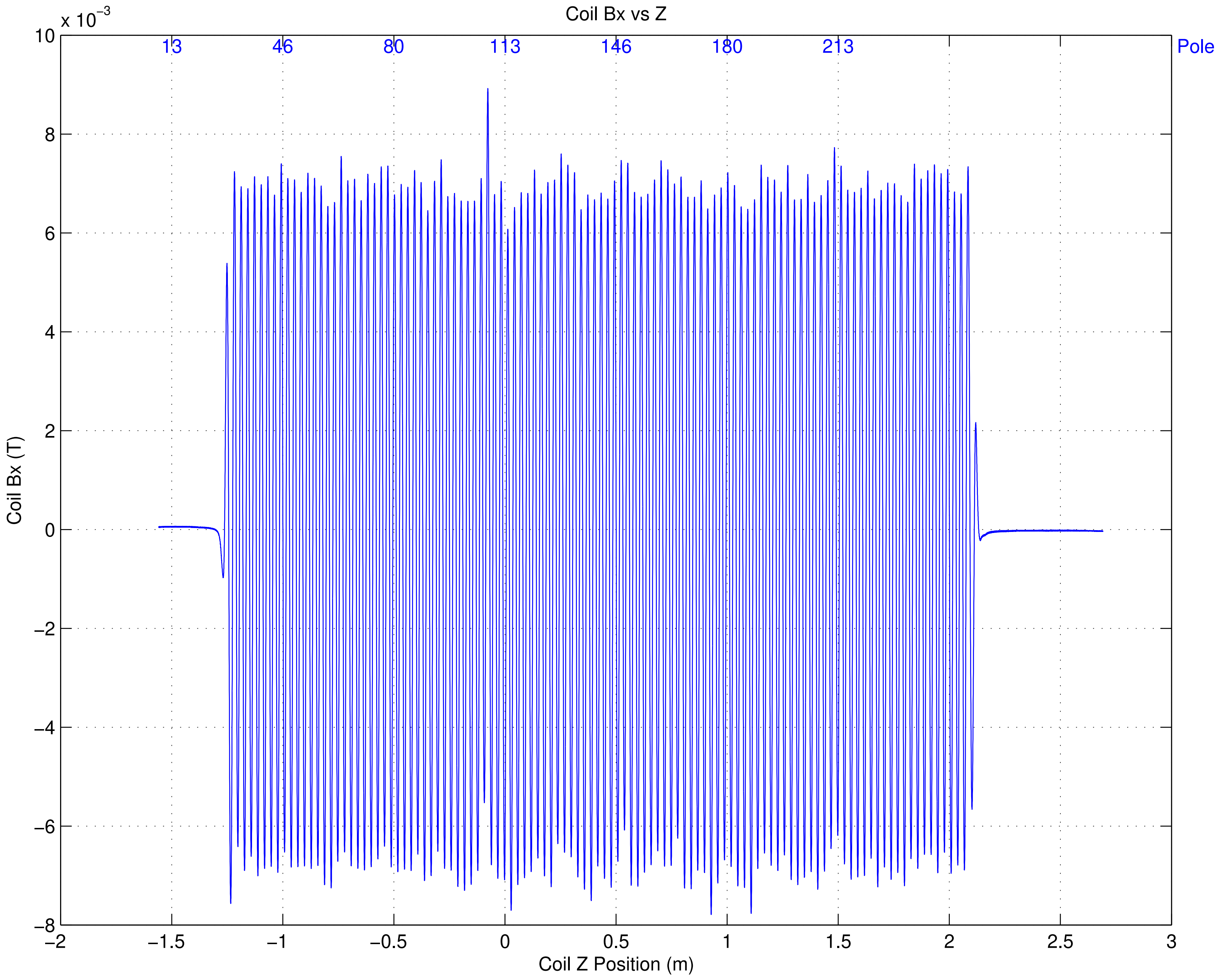
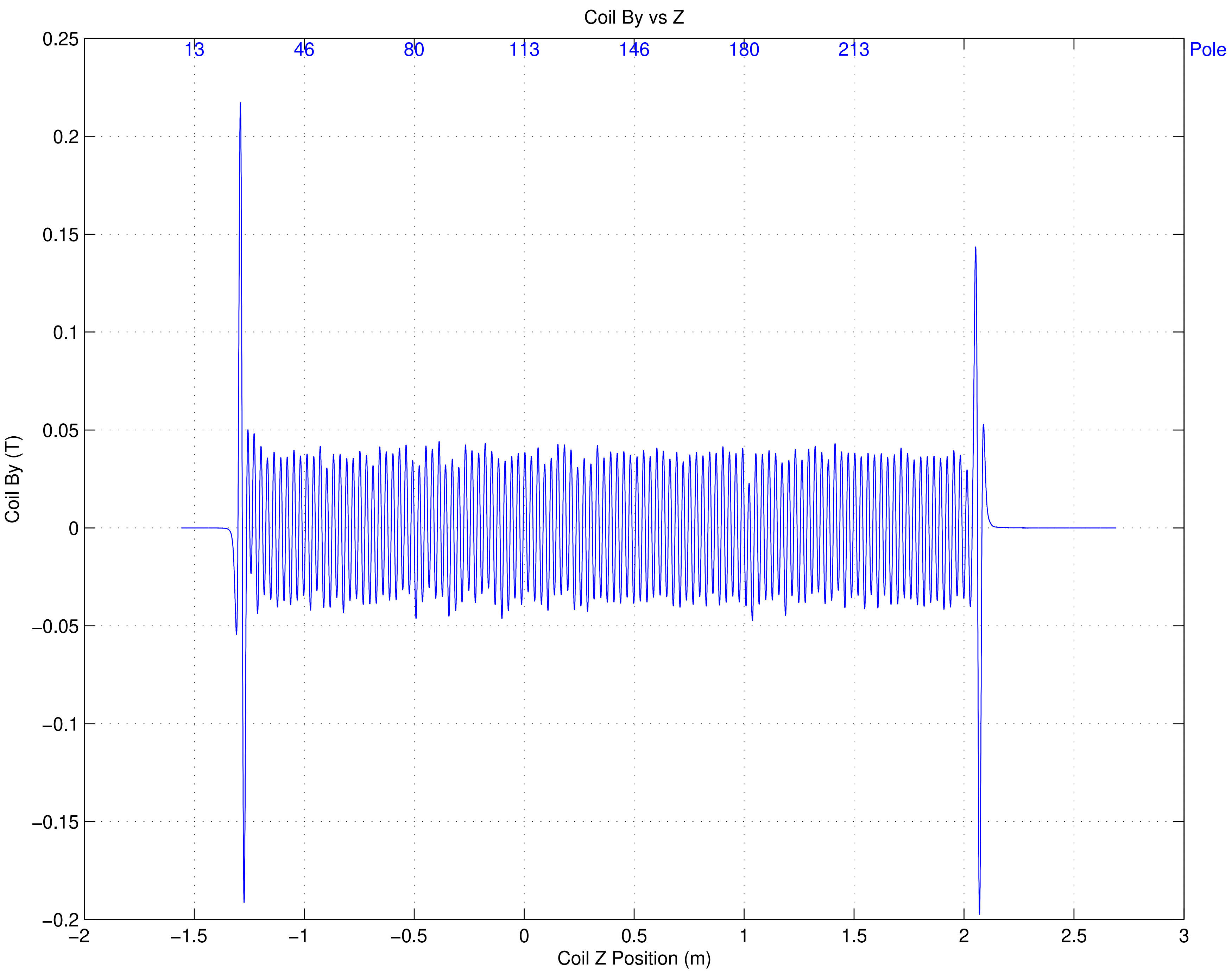
SLAC Magnetic Measurements

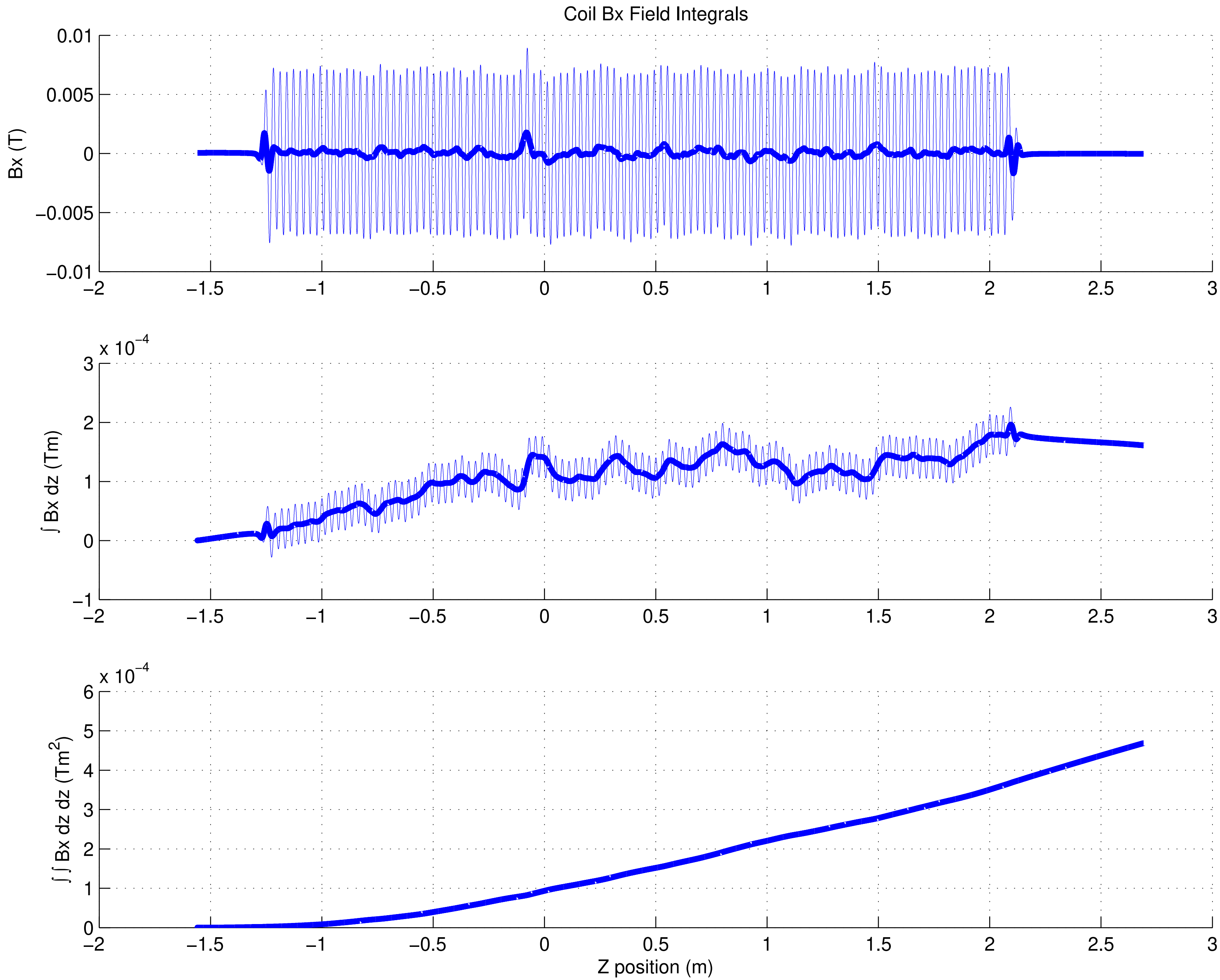
Coil Analysis

Parameters:

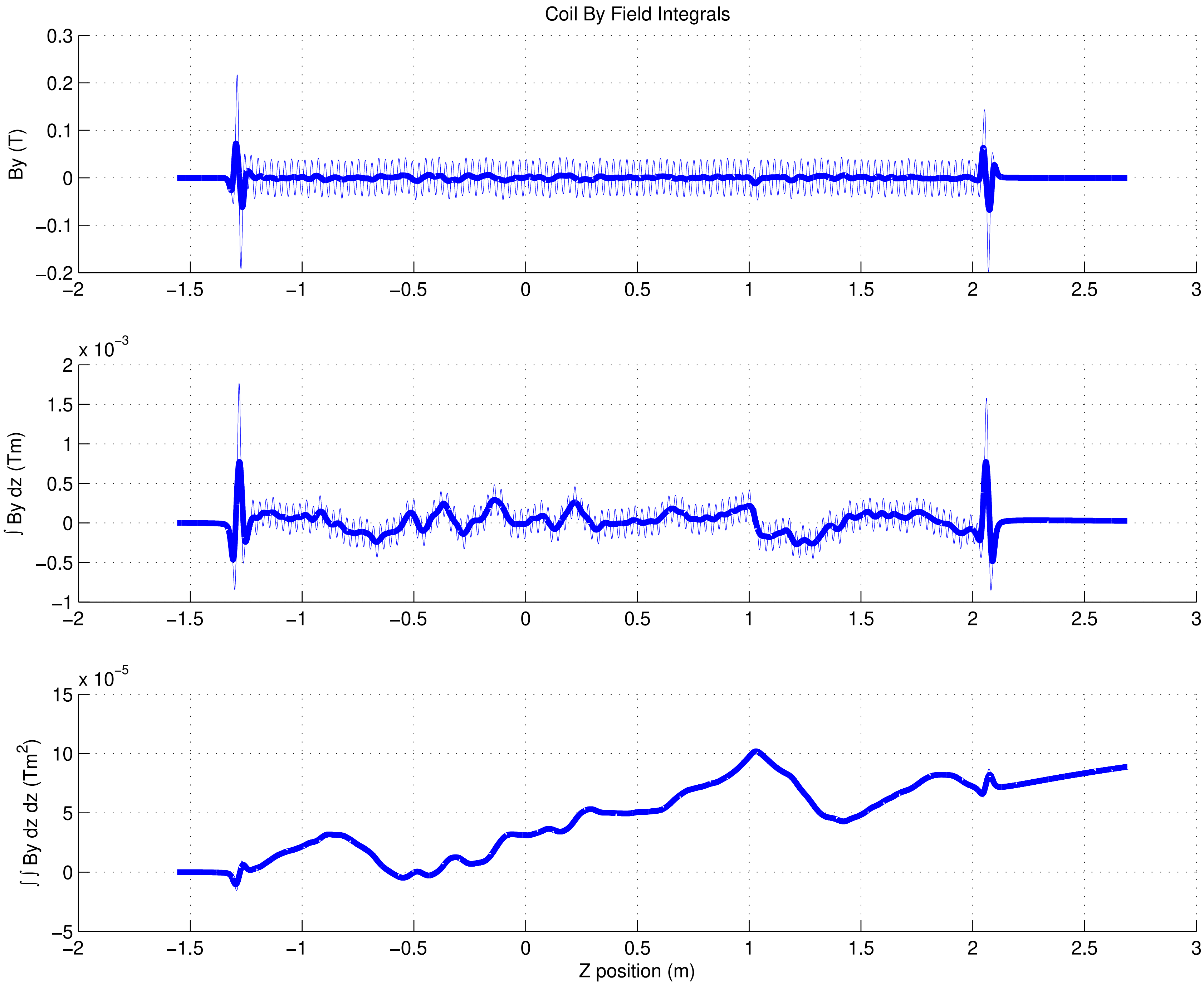
INPUT−FILE−DIR =C:\magdata\LCLS\Undulator\L143−112000−20\DATASET0001\Fine Tuning\Z Scans\Run 041\
INPUT−FILE−NAME =bscanz−dat.011
INPUT−FILE−TYPE =ZVXYBXYC
GAMMA =26625.06
NOM−ZM−BXCOIL−AT−DEV−CTR =2.0589
NOM−ZM−BYCOIL−AT−DEV−CTR =2.0589
NOM−LAMBDA−U =0.03
NUM−POLES =226


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

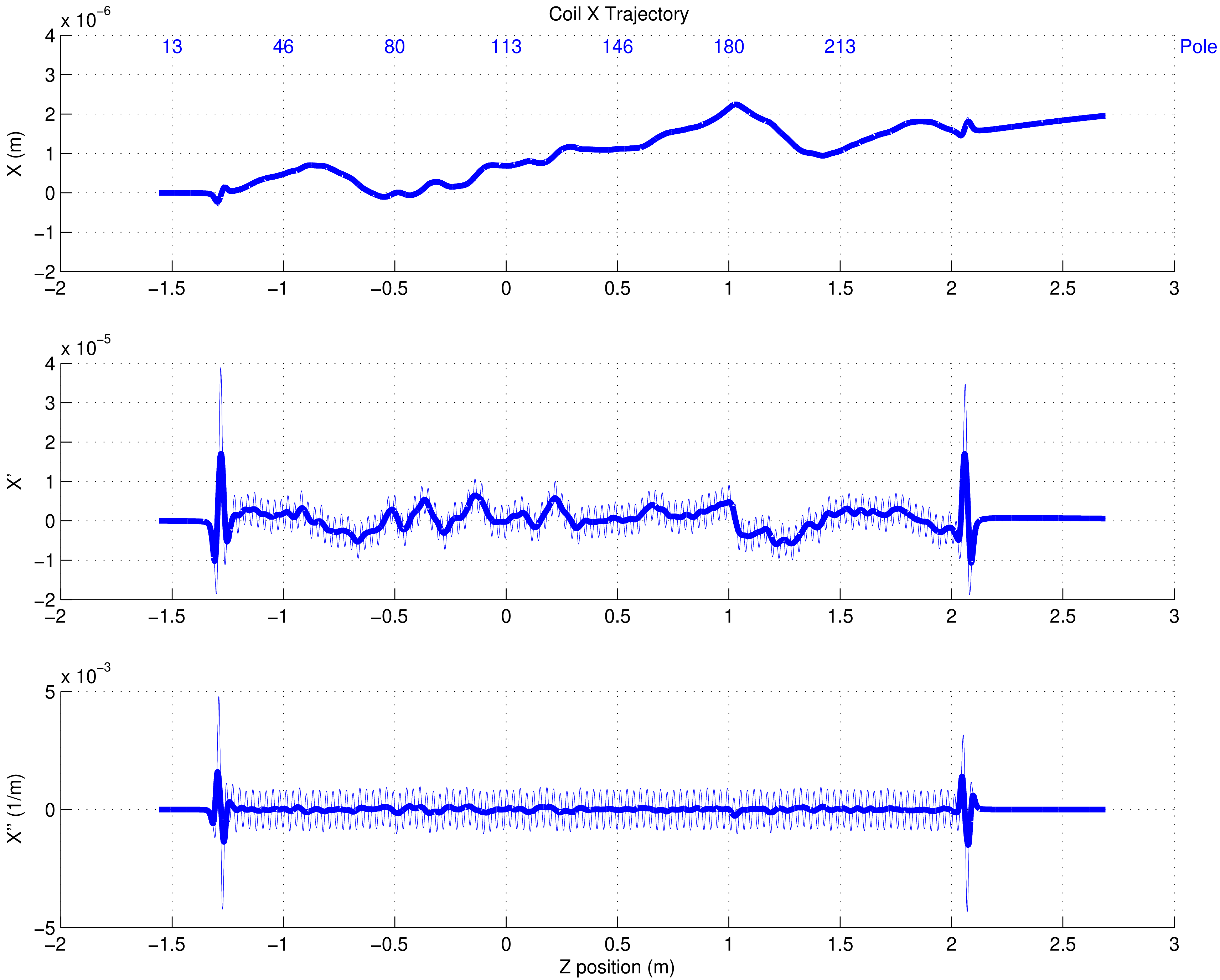

Coil By vs Z
Coil By (T)
Coil Z Position (m)
Pole
13
46
80
113
146
180
213
0.25
0.2
0.15
0.1
0.05
0
−0.05
−0.1
−0.15
−0.2
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
3

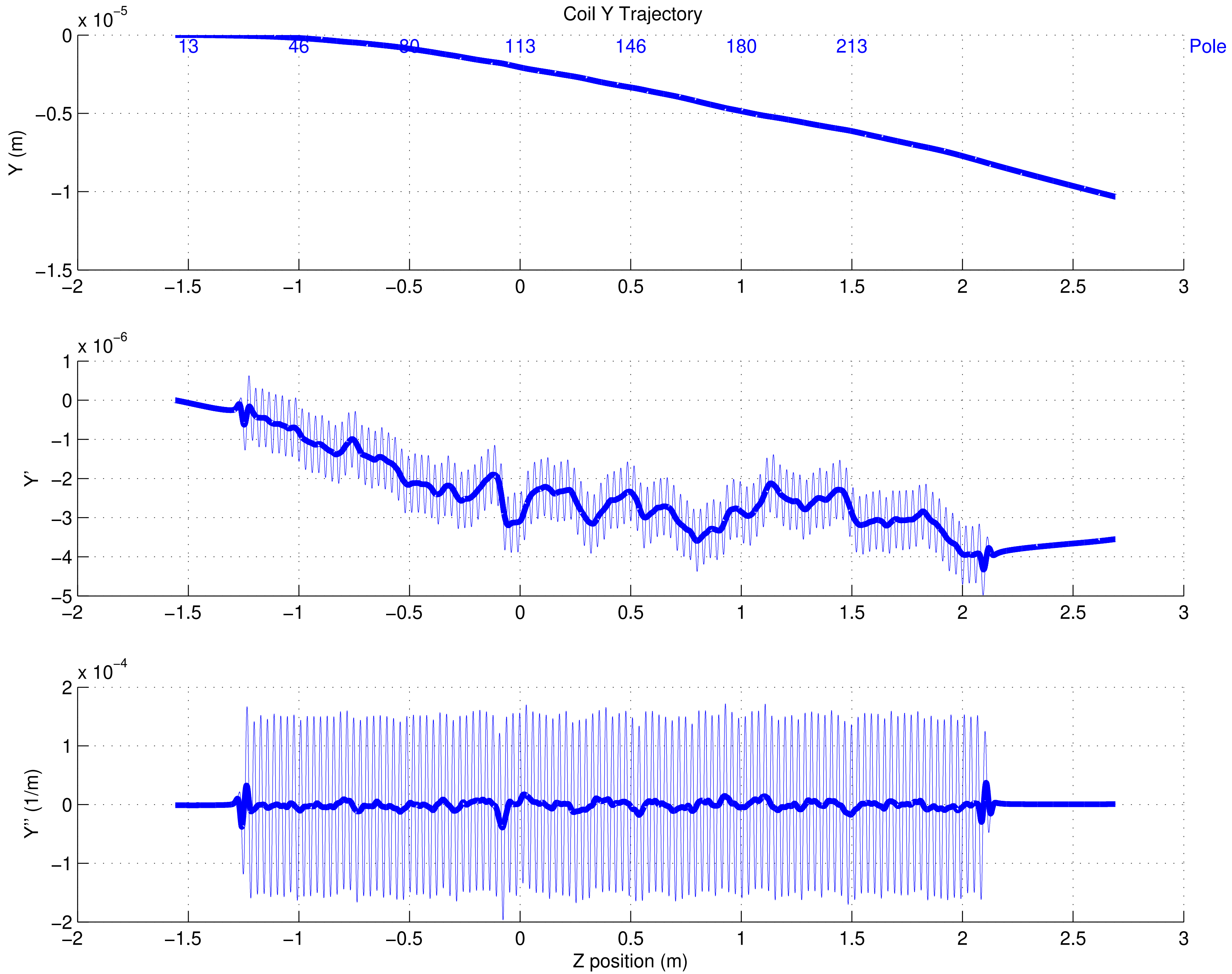


Coil Bx Field Integrals
Bx (T)
0.01
0.005
0
−0.005
−0.01
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
3
x 10^−4
3
2
1
0
−1
∫ Bx dz (Tm)
x 10^−4
6
5
4
3
2
1
0
∫ ∫ Bx dz dz (Tm^2)
Z position (m)

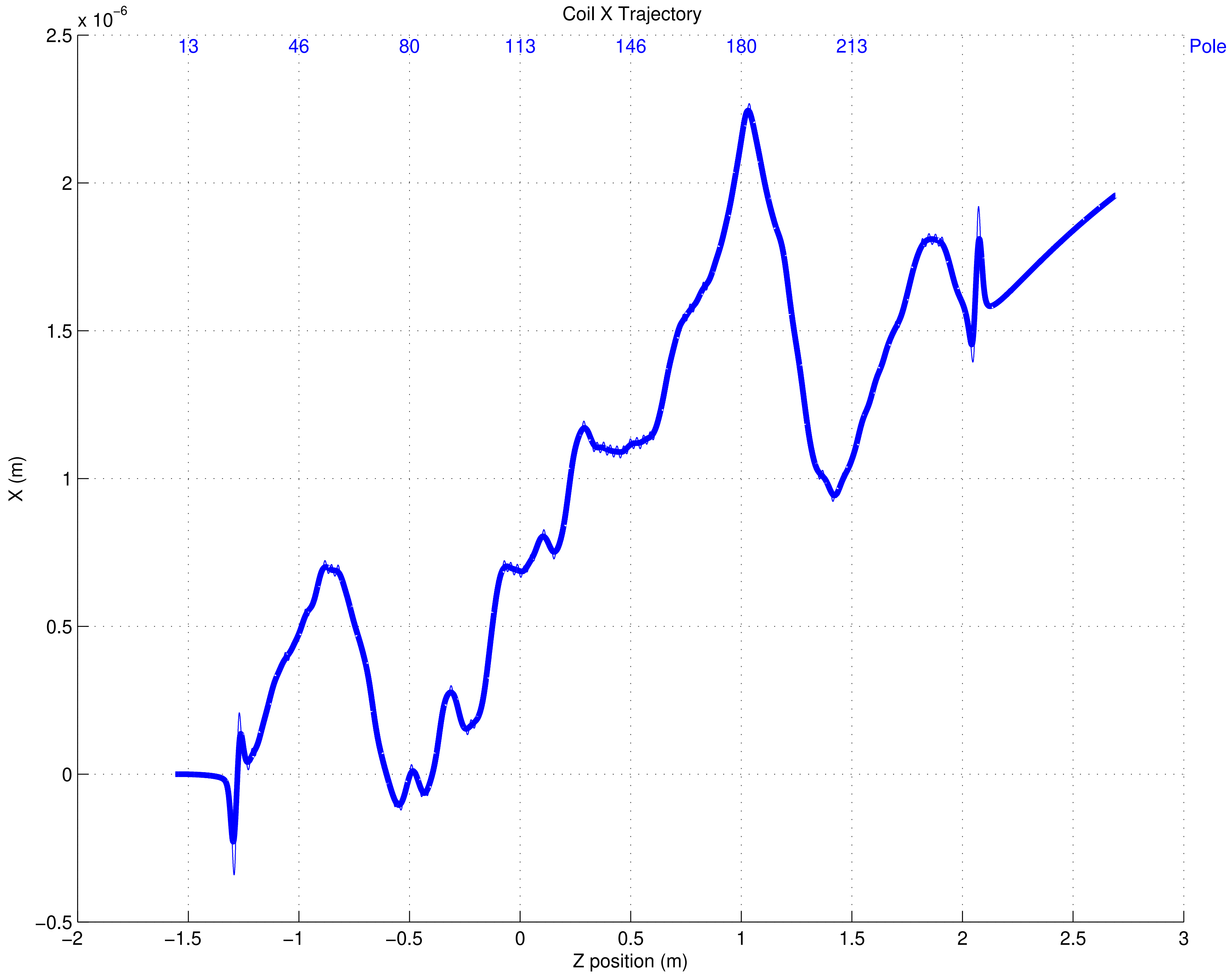


Coil By Field Integrals
By (T)
∫ By dz (Tm)
x 10^−3
∫∫ By dz dz (Tm^2)
x 10^−5
Z position (m)

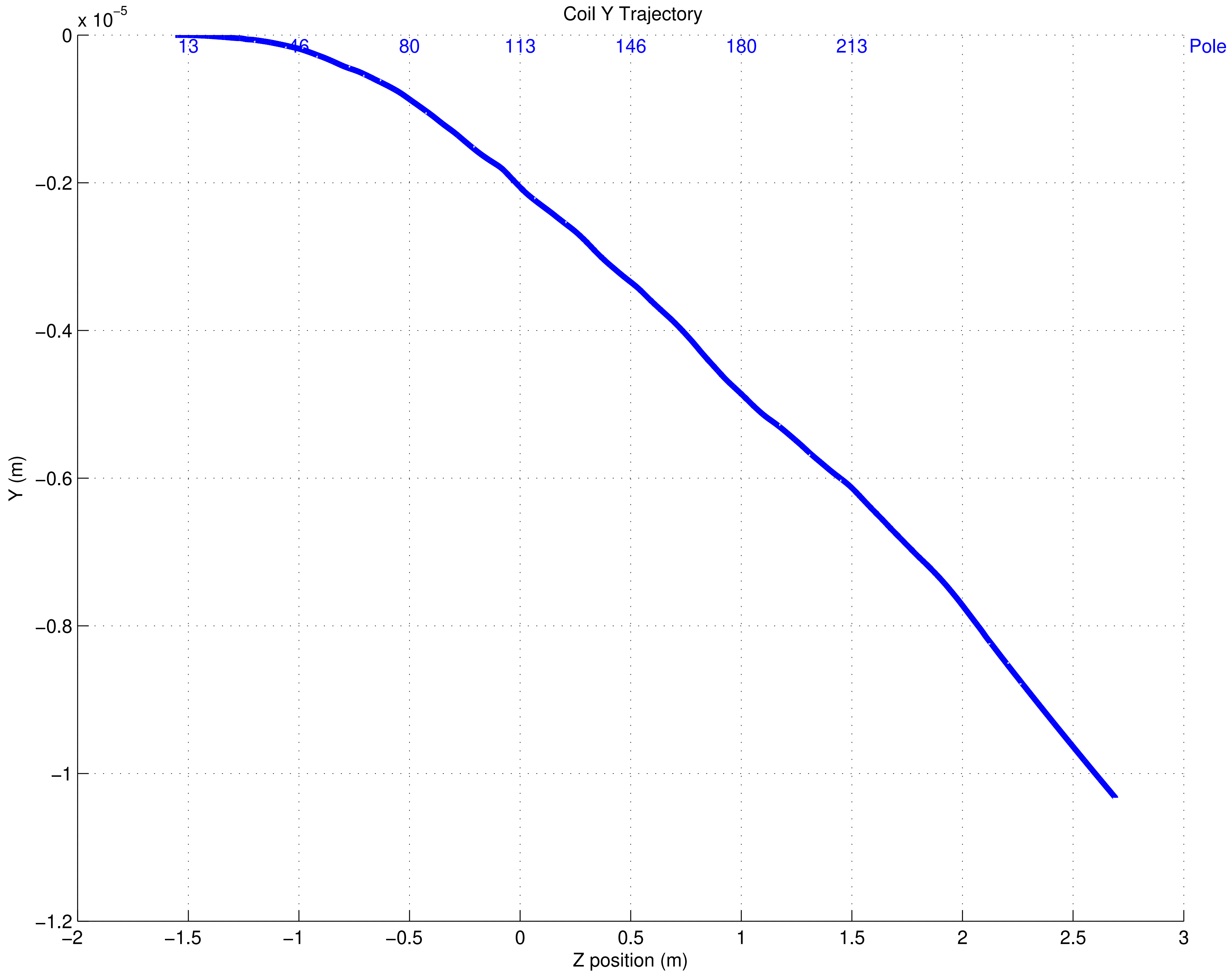

Coil X Trajectory
x 10^−6
13
46
80
113
146
180
213
Pole
X (m)
x 10^−5
X'
x 10^−3
X'' (1/m)
Z position (m)



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



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



Coil Y Trajectory
x 10^−5
0
−0.2
−0.4
−0.6
−0.8
−1
−1.2
Y (m)
13
46
80
113
146
180
213
Pole
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
3
Z position (m)