SLAC Magnetic Measurements

Planar Insertion Device Analysis

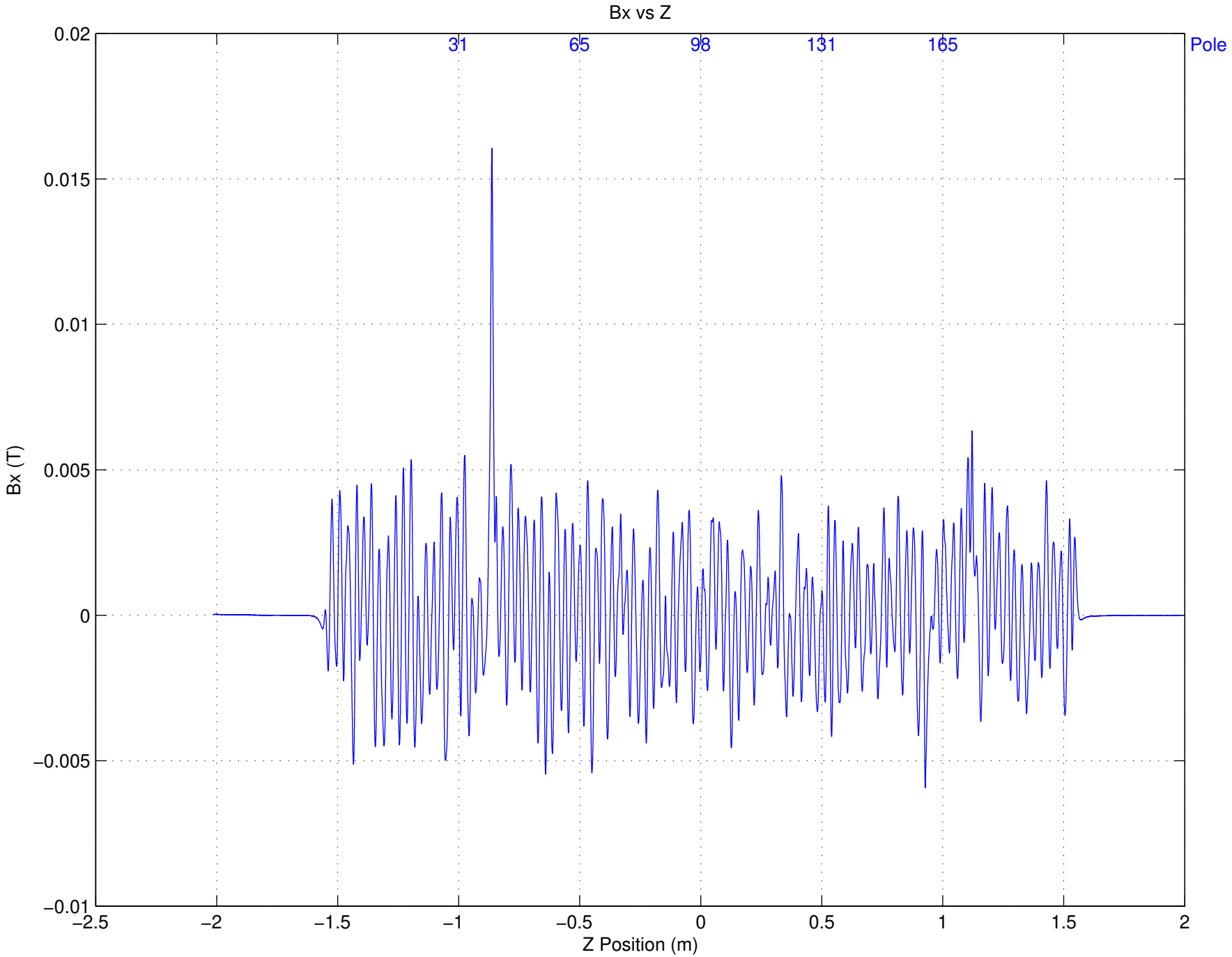
SLAC Magnetic Measurements
Date: 08−22−2014
Time: 12:02:19

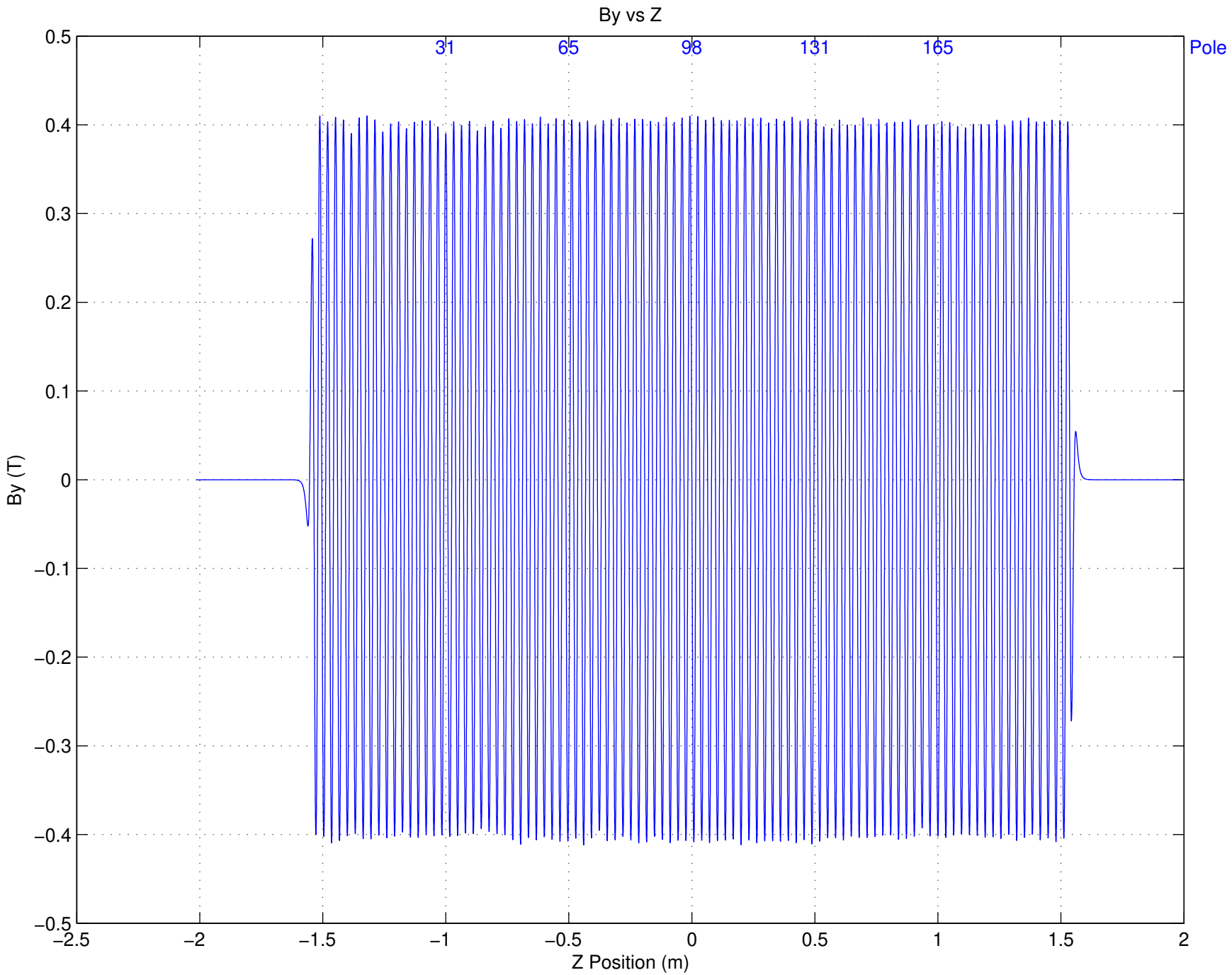
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: DELTA
DATASET Number: 4
Tuning Stage: Fine Tuning
Run Number: 2
Measurement Type: Z Scans
Operator: YL
Comment: magnet #80,84,88 moved −2, #150 −4, #92 +40mkm, #90 −40mkm
Session first run: 1
Measurement Device x:
Measurement Device y: $SENTRON_4$41

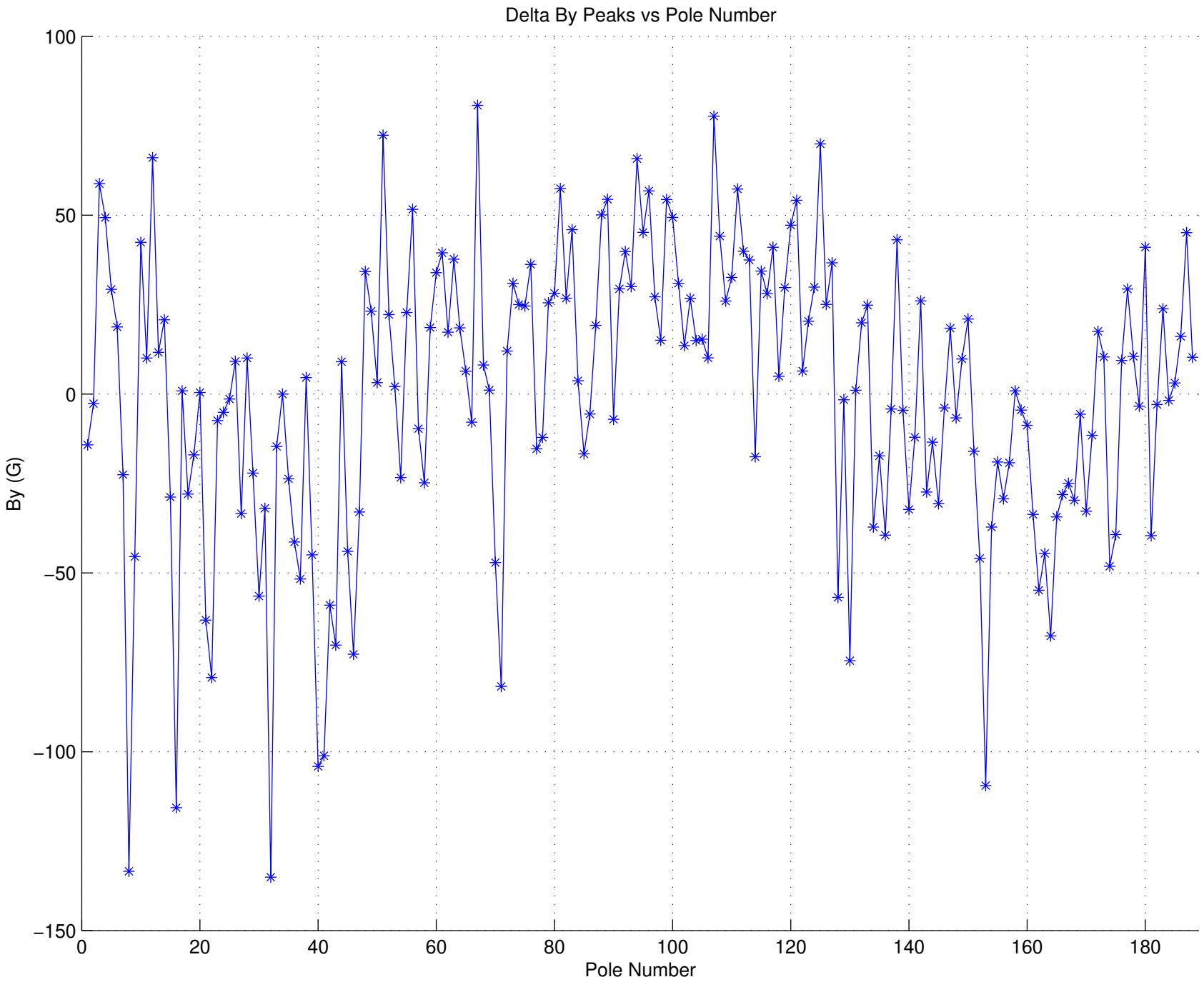
Data File: s:\magdata\LCLS\Undulator\DELTA\DATASET0004\Fine Tuning\Z Scans\Run 002\bscanz.dat

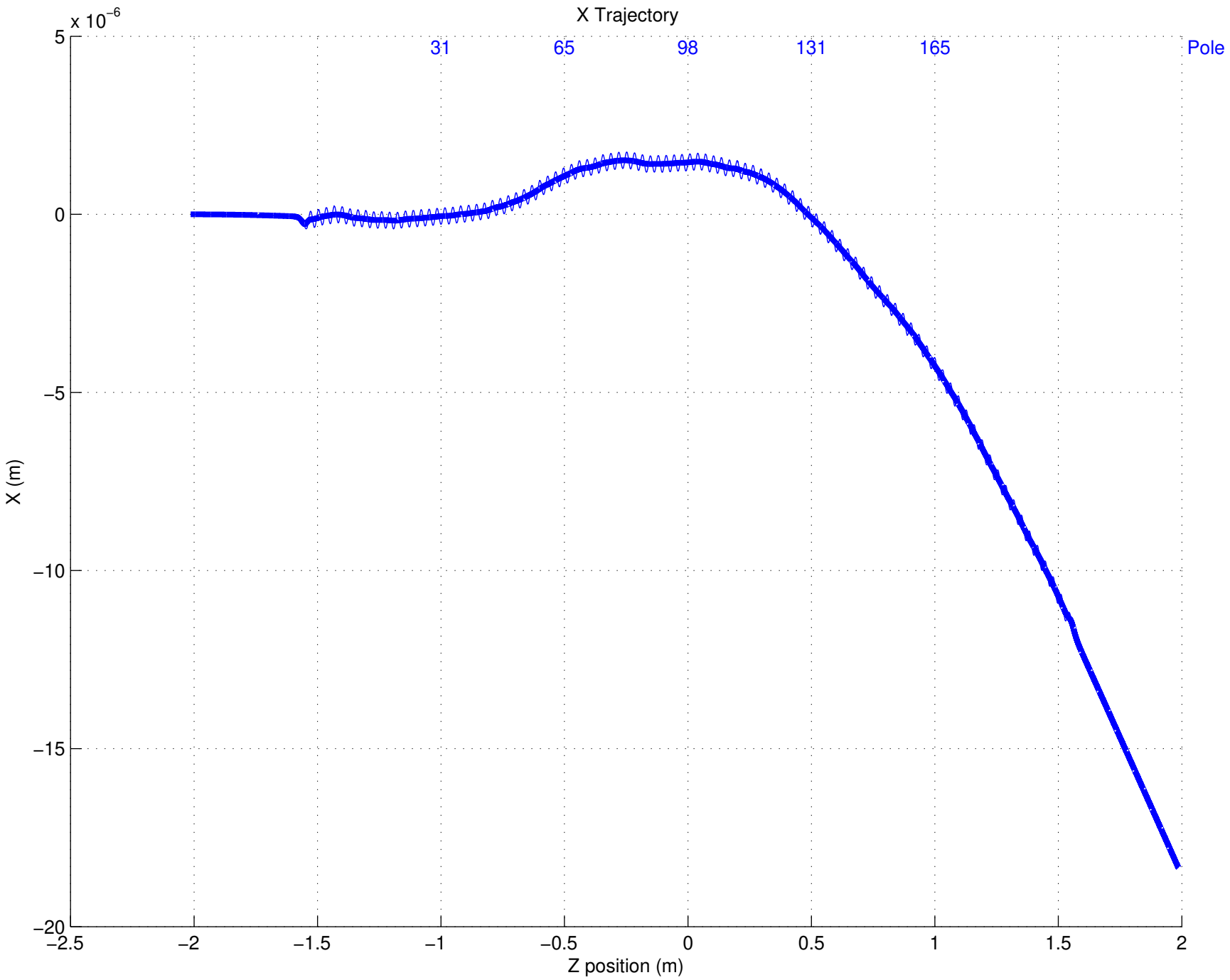
Temperature (C)
DELTA:−−> T1 20.01 −−> T2 20.00 −−> T5 19.91 −−> T3 19.98 −−> Air 19.94 −−> T4 19.99

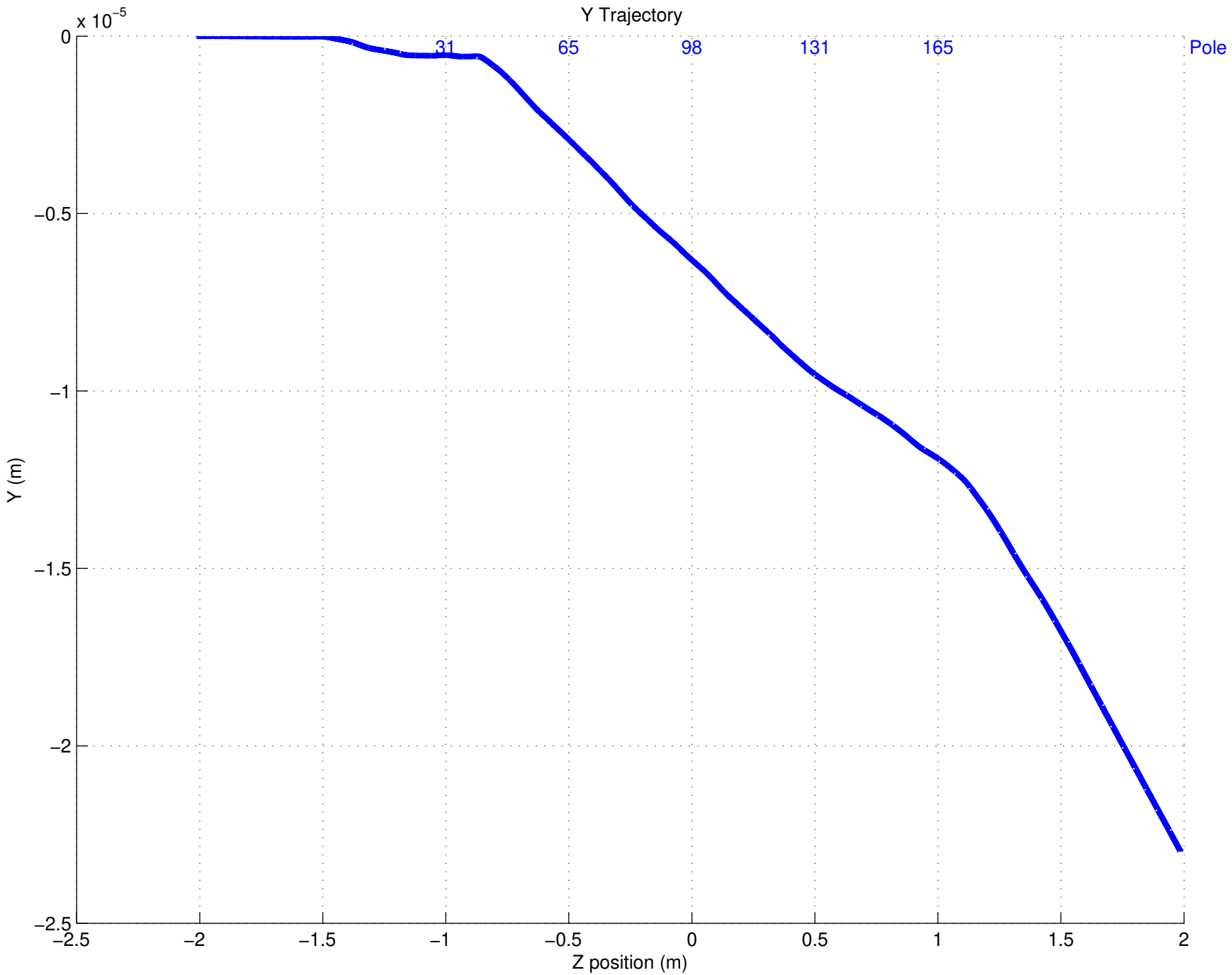
Axes position (m) X:0.021643 Y:0.000194
Initial Hall Probe Zero Measurements:
Vx_0i = 0.001258 V
Vy_0i = −0.002854 V

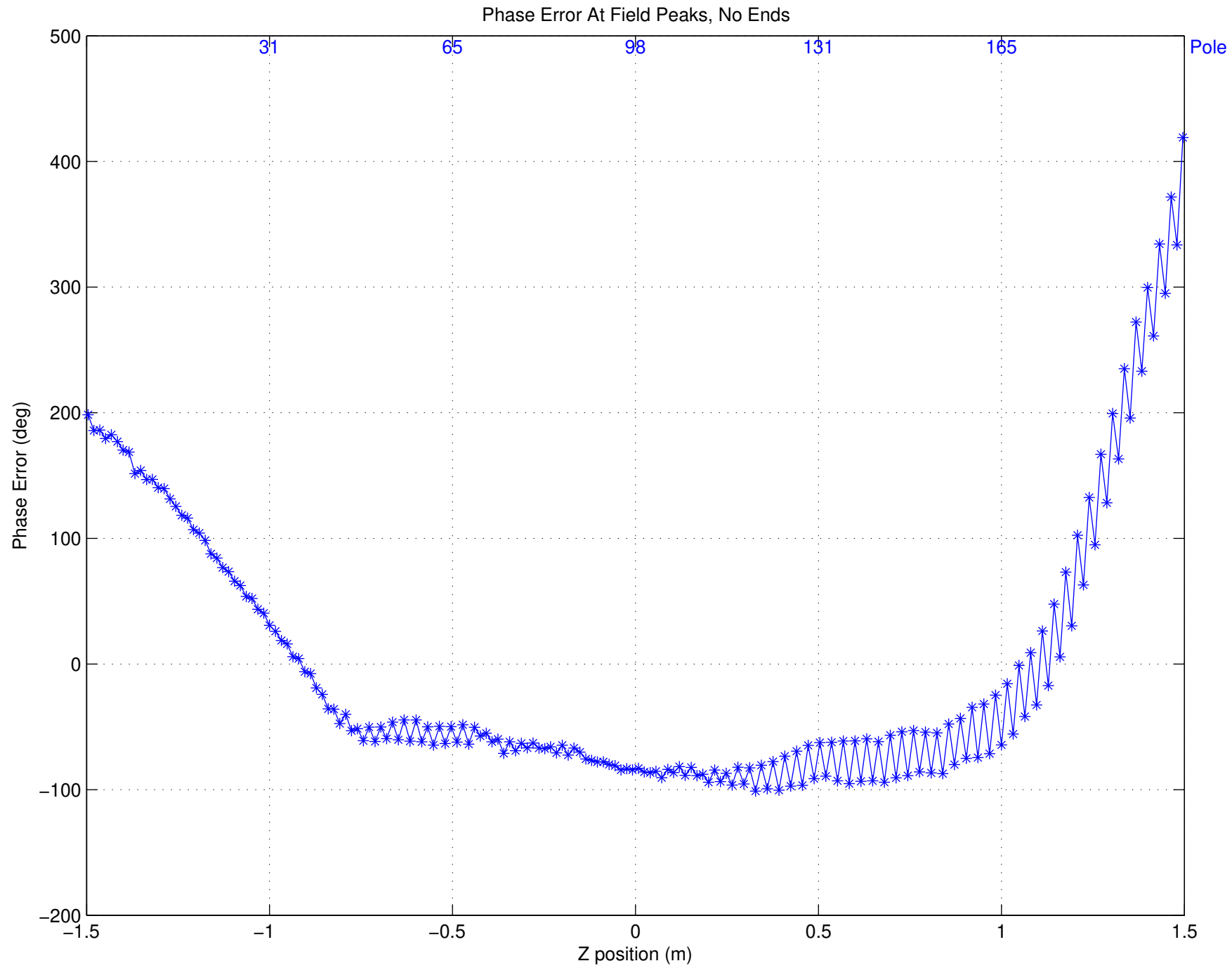

Bx vs Z
31
65
98
131
165
Pole
0.02
0.015
0.01
0.005
0
−0.005
−0.01
Bx (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z Position (m)


By vs Z
31
65
98
131
165
Pole
0.5
0.4
0.3
0.2
0.1
0
−0.1
−0.2
−0.3
−0.4
−0.5
By (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z Position (m)

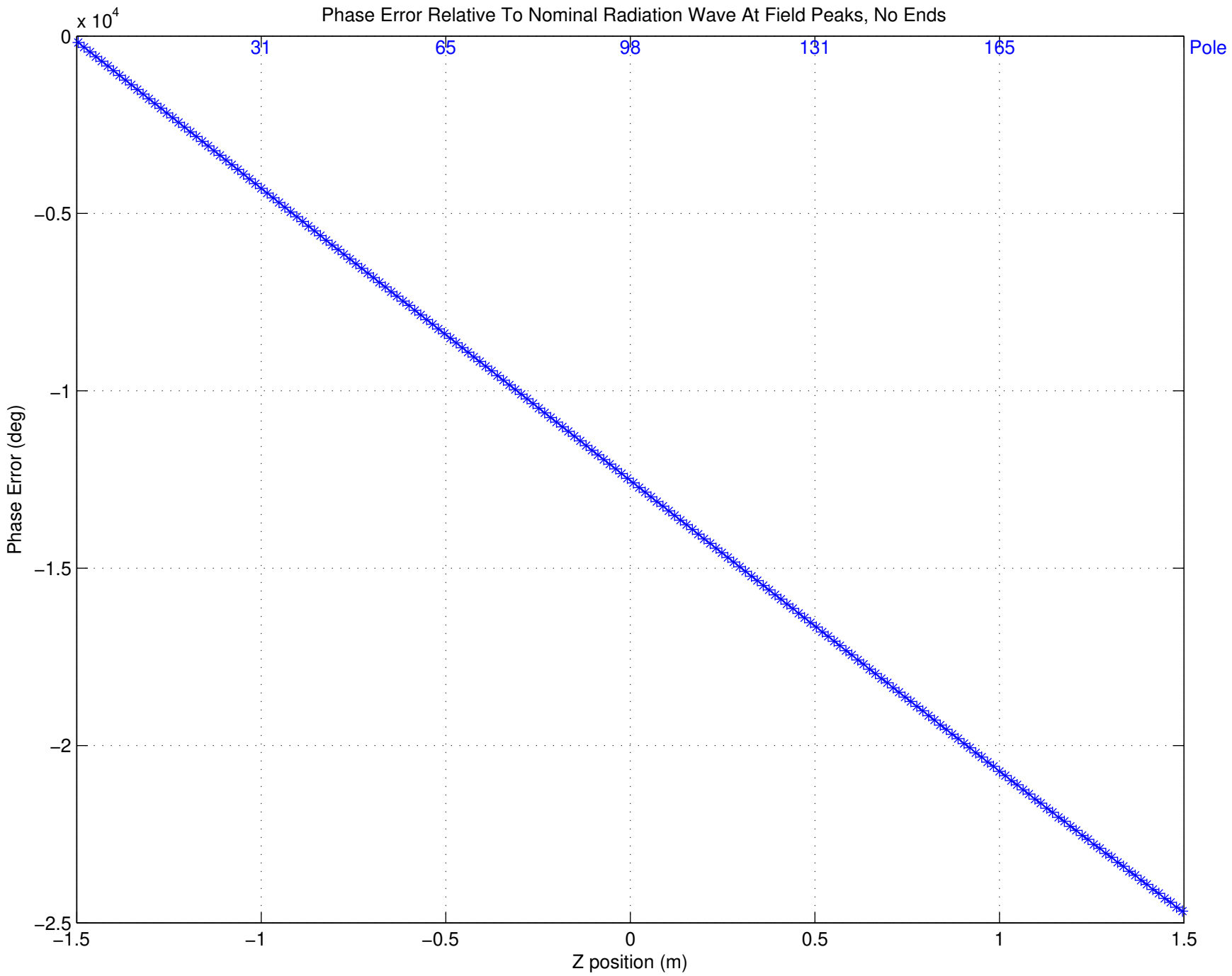

Delta By Peaks vs Pole Number
By (G)
Pole Number
100
50
0
−50
−100
−150
0
20
40
60
80
100
120
140
160
180


X Trajectory
x 10^-6
5
0
−5
−10
−15
−20
X (m)
31
65
98
131
165
Pole
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)


Y Trajectory
x 10^-5
0
−0.5
−1
−1.5
−2
−2.5
Y (m)
31
65
98
131
165
Pole
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)



Phase Error: Ave = −0.000000 deg, RMS = 111.140727 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
x 10^4
0
−0.5
−1
−1.5
−2
−2.5
Phase Error (deg)
31
65
98
131
165
Pole
−1.5
−1
−0.5
0
0.5
1
1.5
Z position (m)