SLAC Magnetic Measurements

Planar Insertion Device Analysis

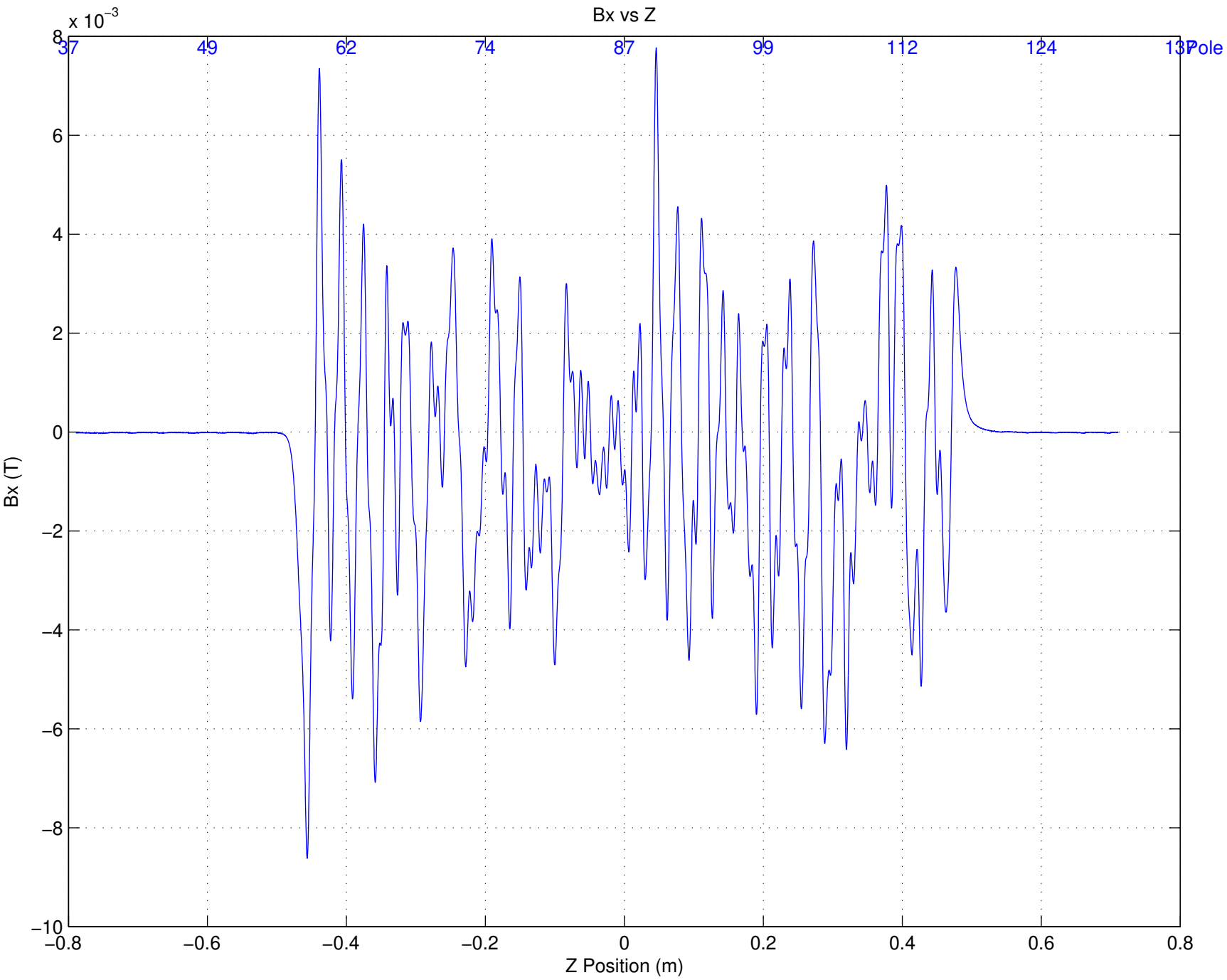
SLAC Magnetic Measurements
Date: 12−11−2012
Time: 09:18:30

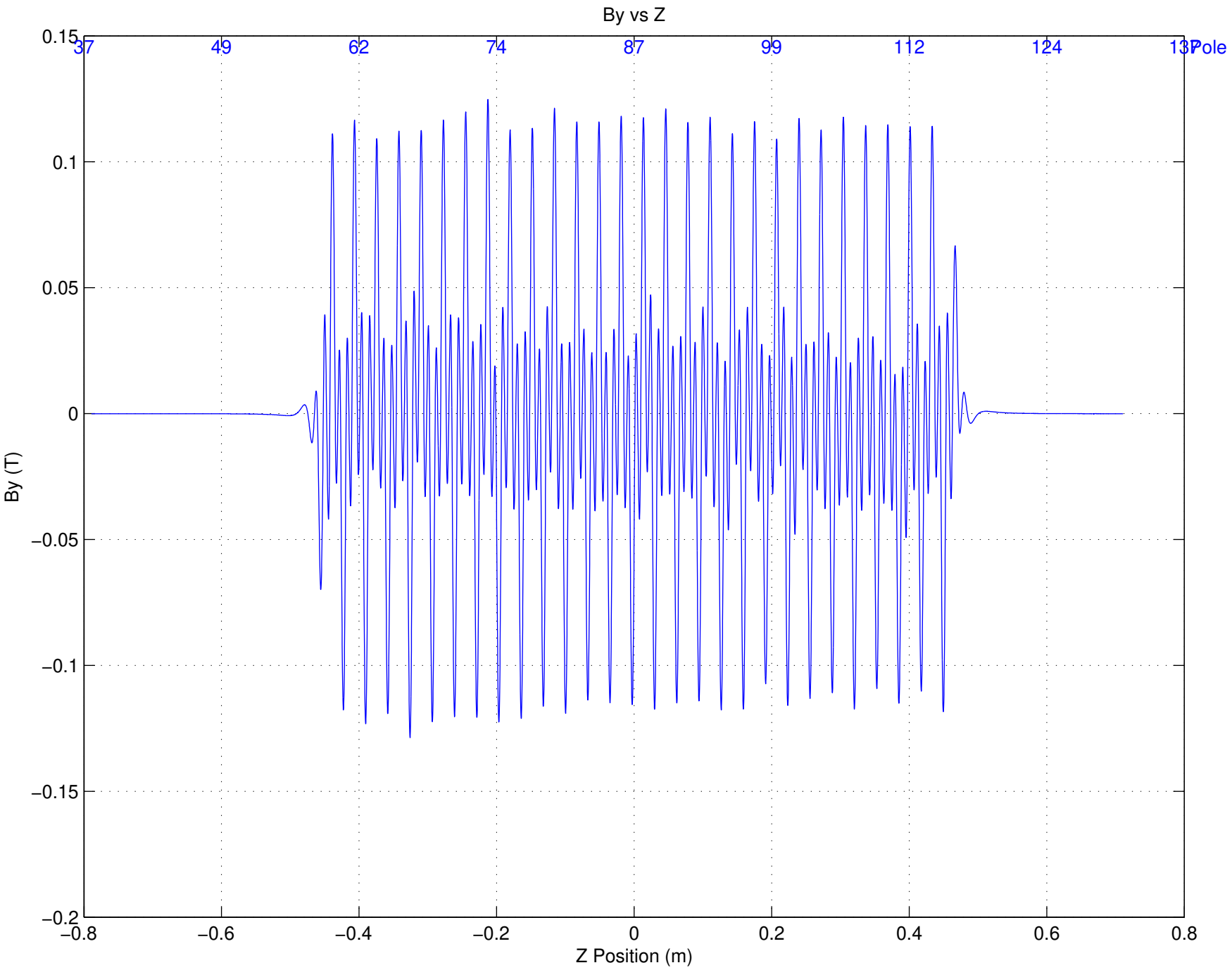
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: DELTA
DATASET Number: 1
Tuning Stage: Fine Tuning
Run Number: 4
Measurement Type: Z Scans
Operator: YL
Comment: find first pole position, quadrant 2
Session first run: 4
Measurement Device x:
Measurement Device y: $SENTRON_4$41

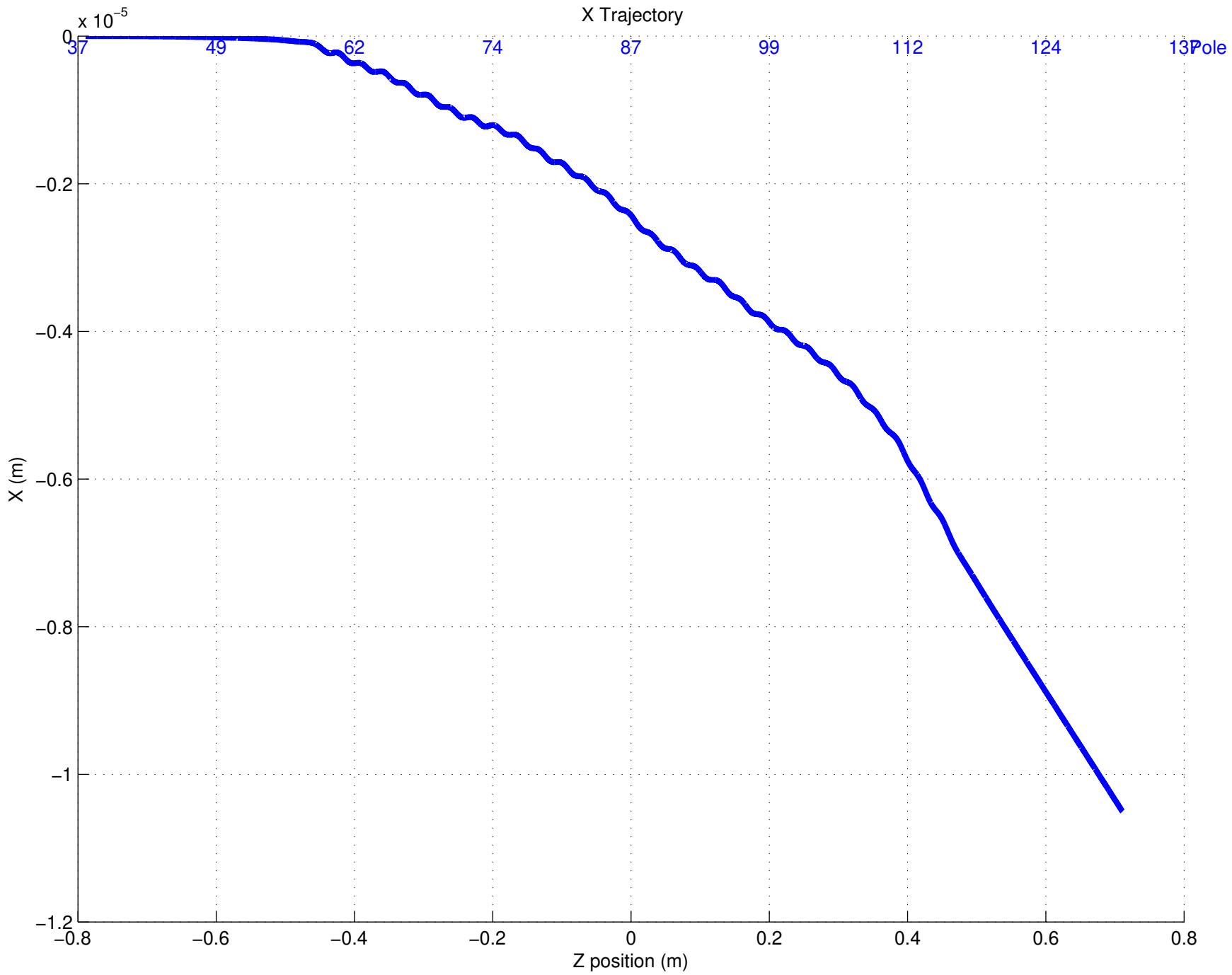
Data File: s:\magdata\LCLS\Undulator\DELTA\DATASET0001\Fine Tuning\Z Scans\Run 004\bscanz.dat

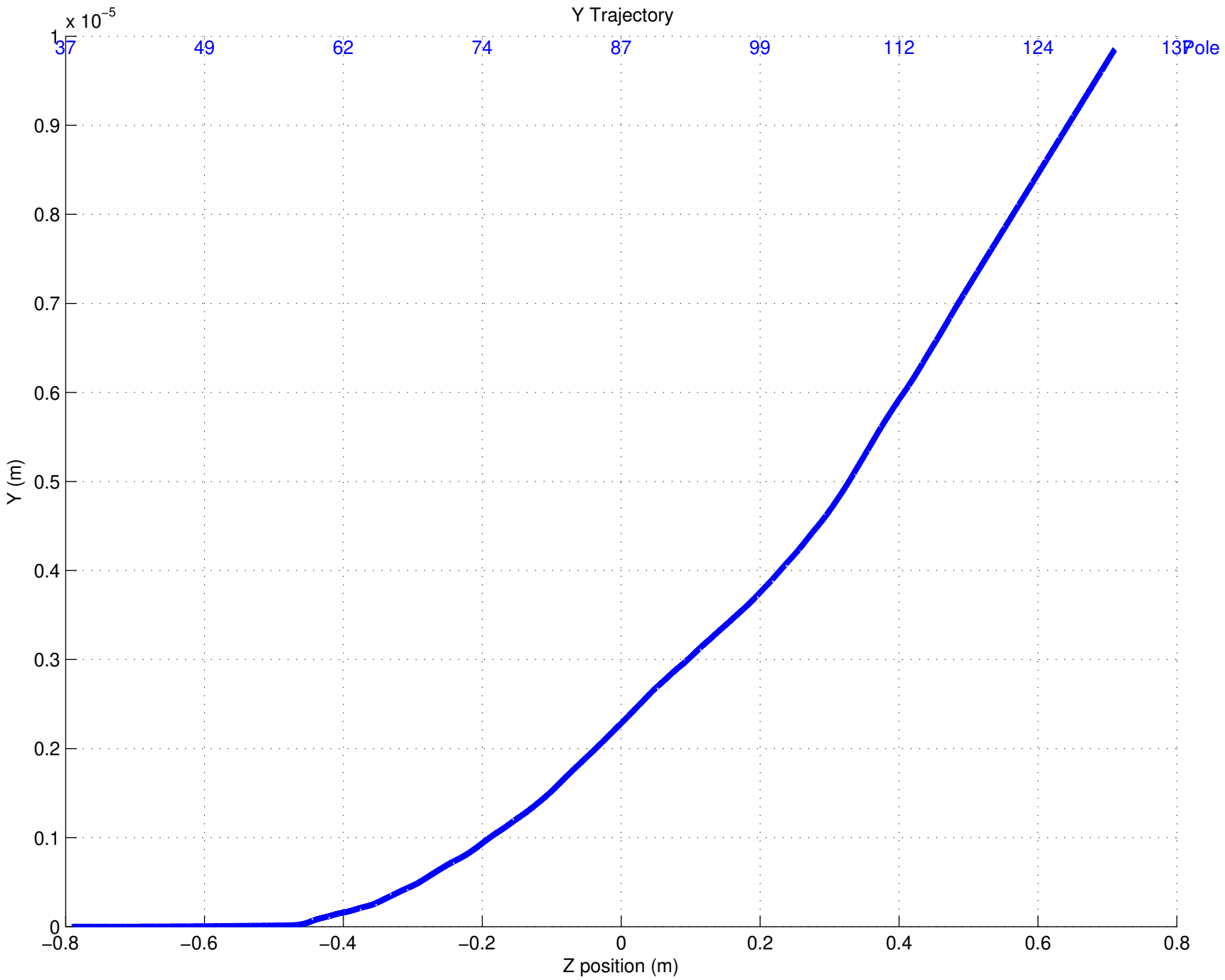
Temperature (C)
DELTA:−−> T1 20.04 −−> T2 20.01 −−> T5 19.91 −−> T3 20.00 −−> Air 19.97 −−> T4 19.91

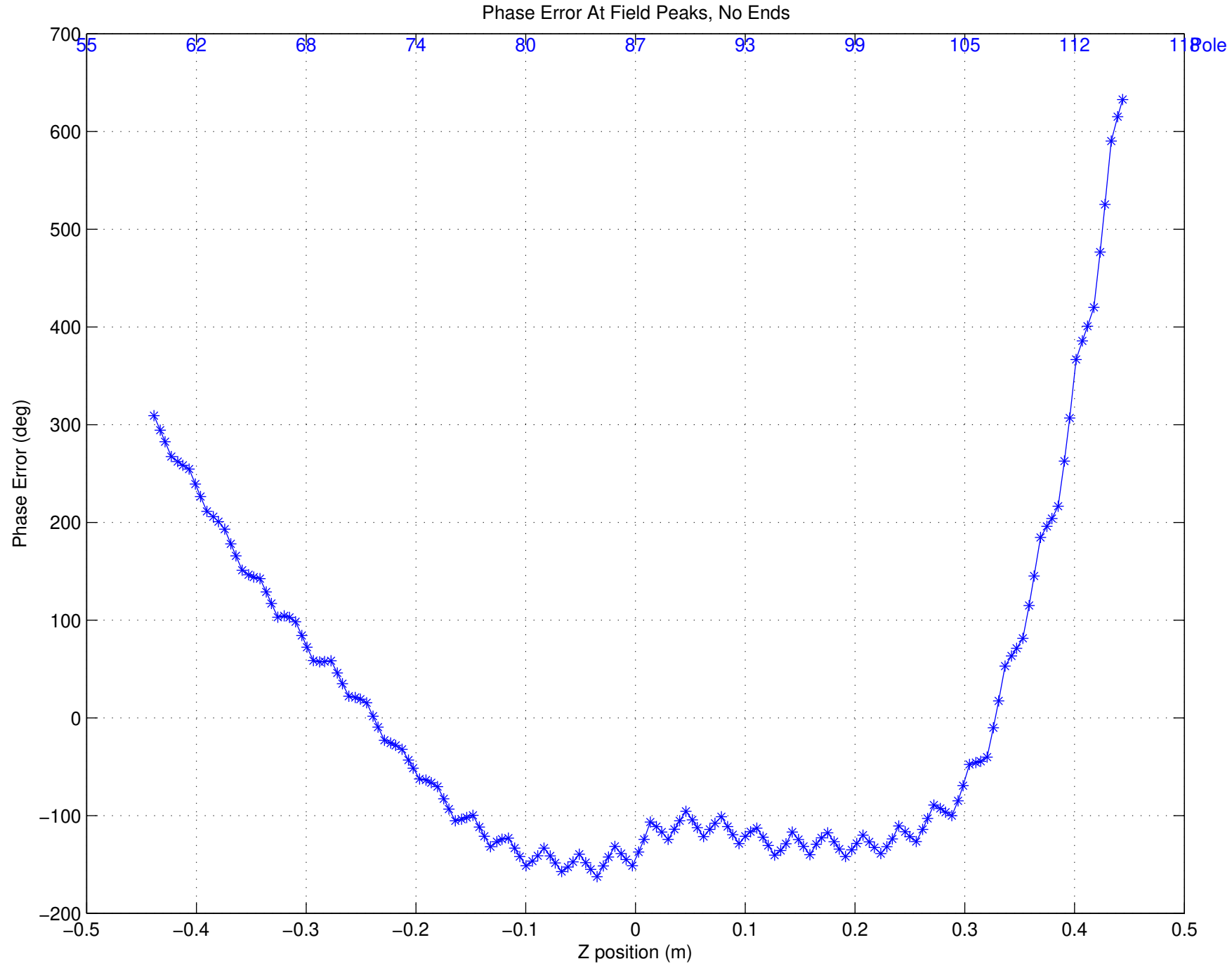
Axes position (m) X:0.030000 Y:−0.000100
Initial Hall Probe Zero Measurements:
Vx_0i = 0.001011 V
Vy_0i = −0.003508 V


Bx vs Z
x 10^-3
8
6
4
2
0
−2
−4
−6
−8
−10
Bx (T)
37
49
62
74
87
99
112
124
137
Pole
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
Z Position (m)

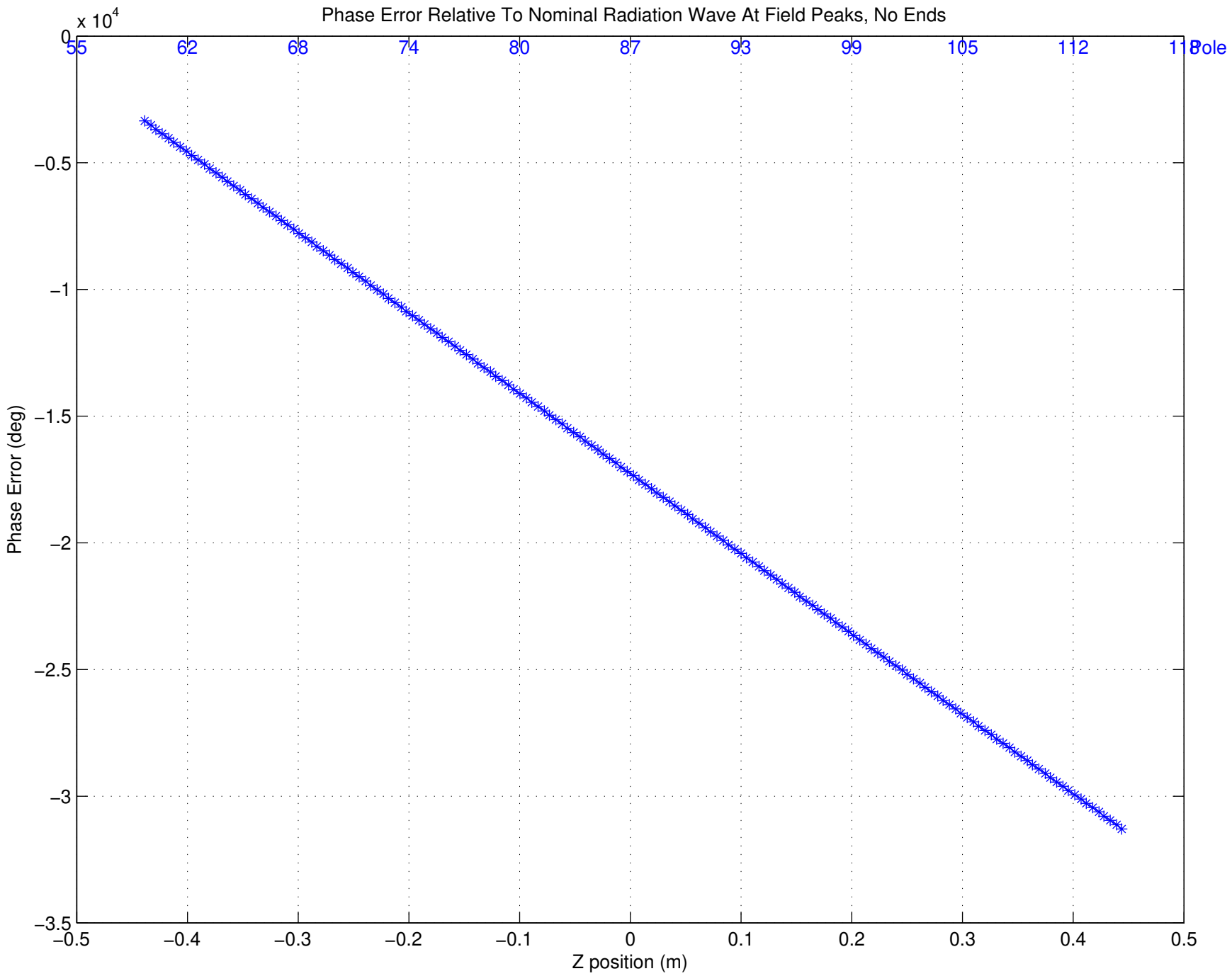

By vs Z
37
49
62
74
87
99
112
124
137
Pole
0.15
0.1
0.05
0
−0.05
−0.1
−0.15
−0.2
By (T)
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
Z Position (m)


X Trajectory
x 10^-5
0
−0.2
−0.4
−0.6
−0.8
−1
−1.2
X (m)
37
49
62
74
87
99
112
124
137
Pole
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
Z position (m)


Y Trajectory
x 10^-5
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Y (m)
37
49
62
74
87
99
112
124
137
Pole
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
Z position (m)



Phase Error: Ave = 0.000000 deg, RMS = 176.416004 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
−3
−3.5
55
62
68
74
80
87
93
99
105
112
118
Pole
Phase Error (deg)
−0.5
−0.4
−0.3
−0.2
−0.1
0
0.1
0.2
0.3
0.4
0.5
Z position (m)