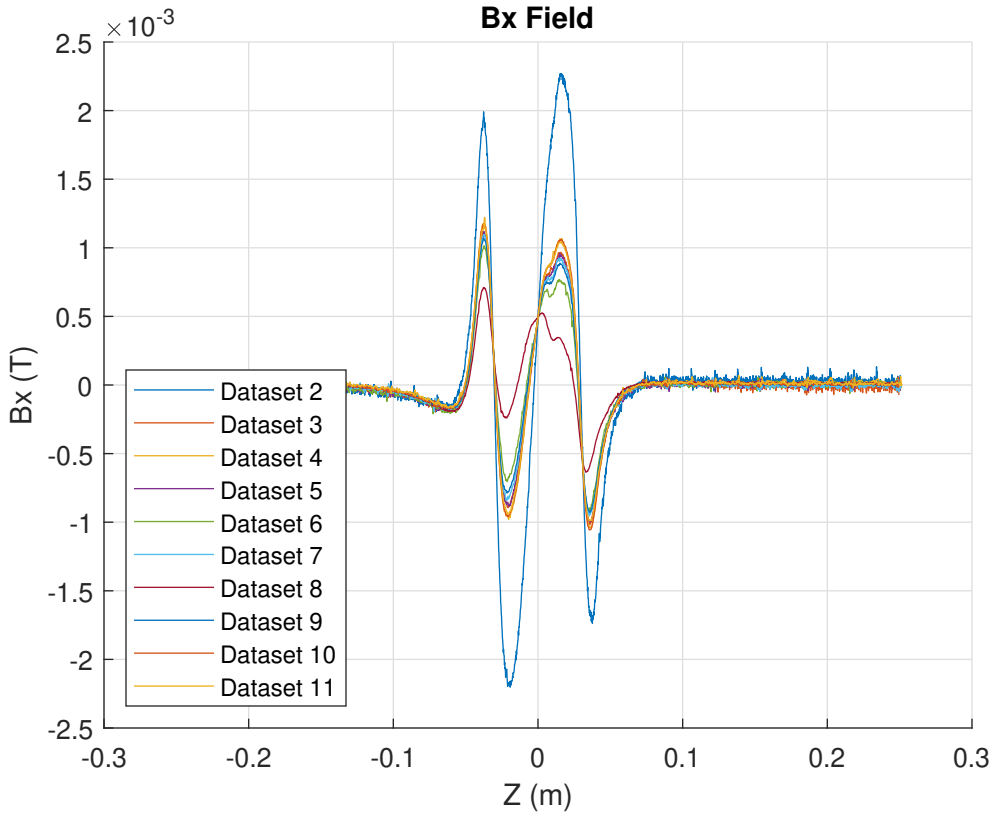
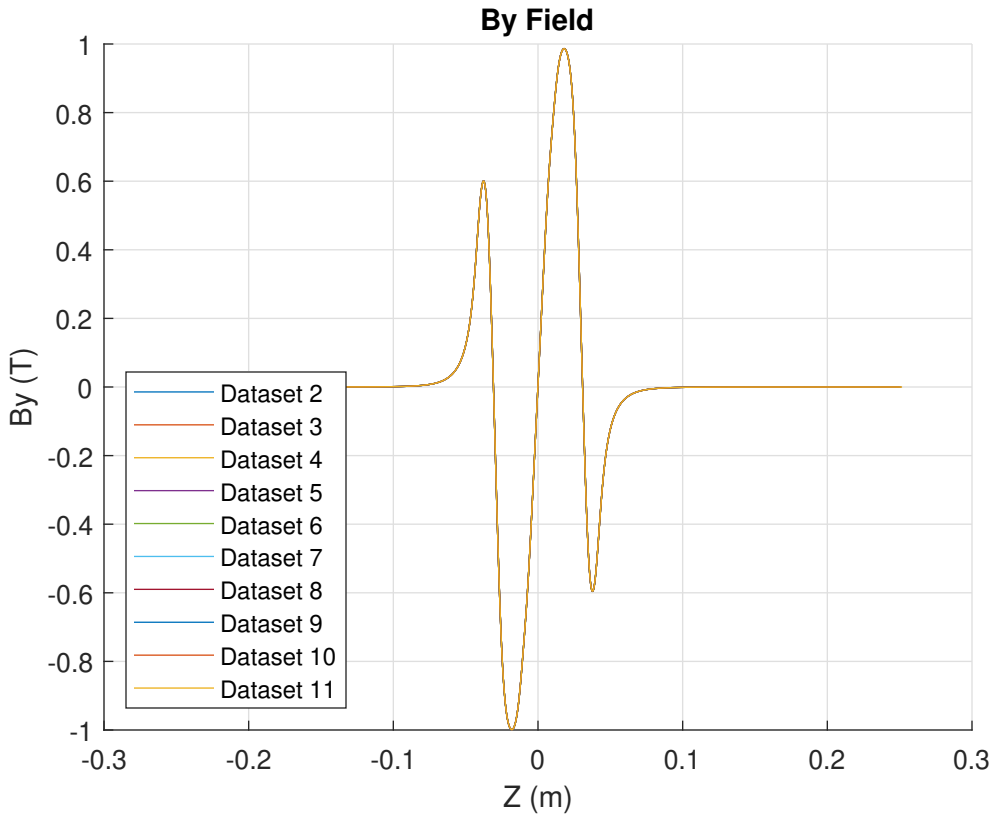
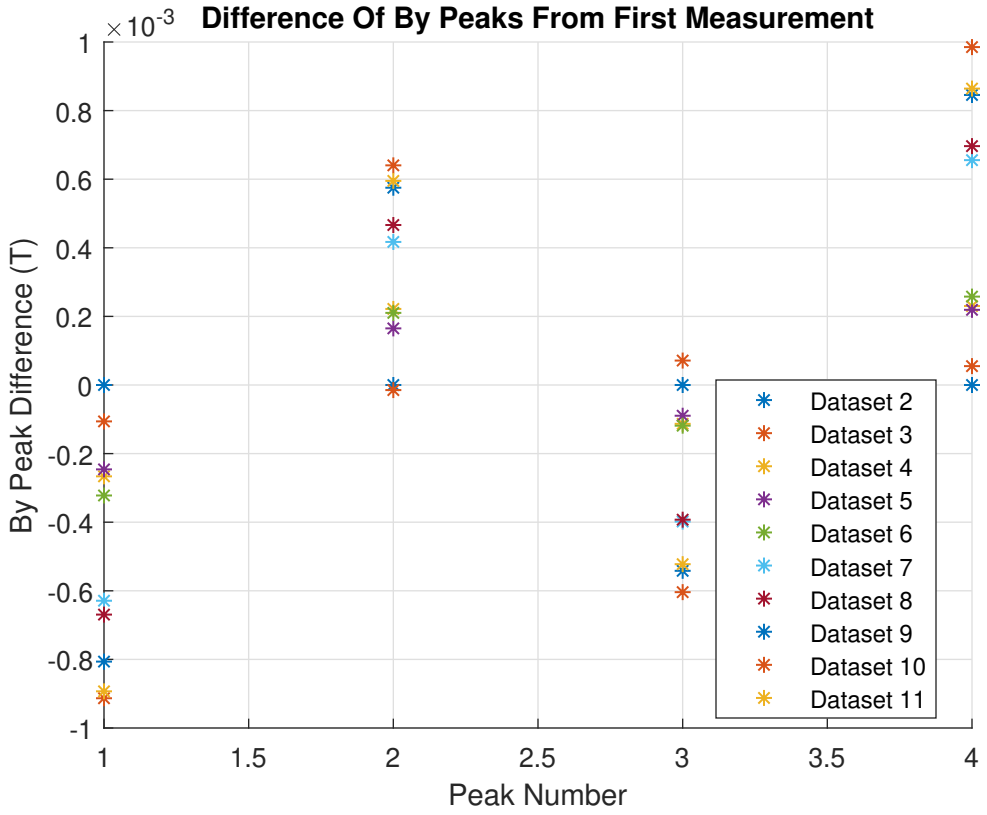
SLAC Magnetic Measurements
Phase Shifter Analysis Comparison

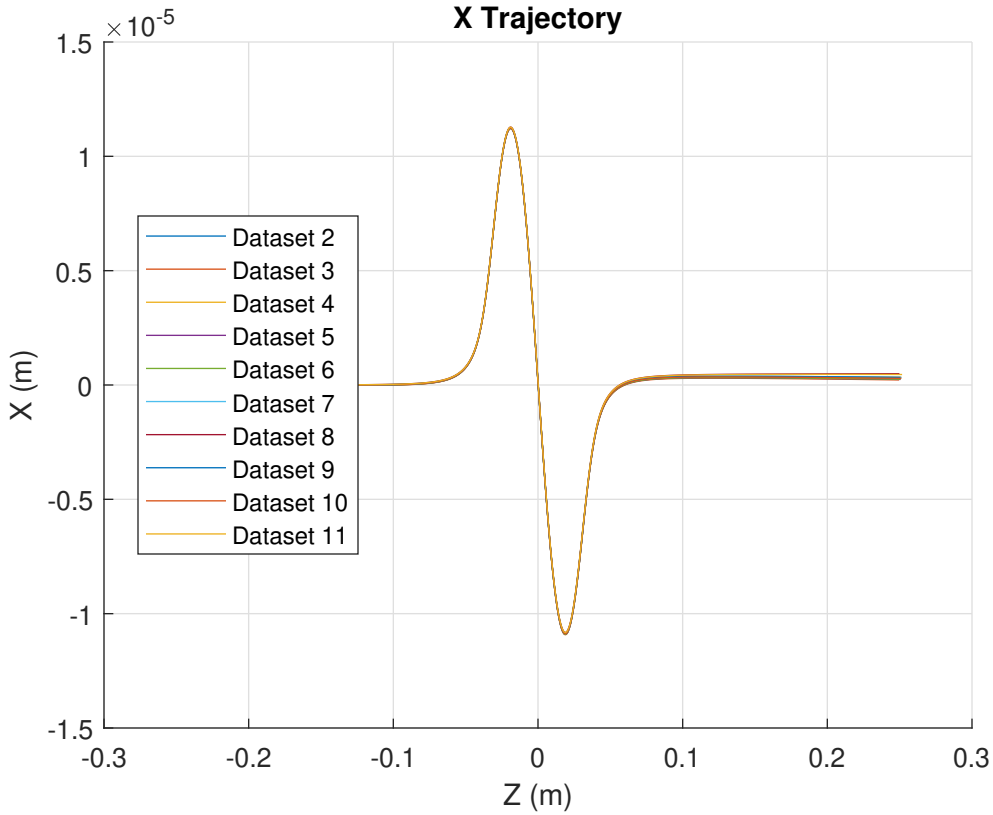
Title:
SXPS-16337 Reference Phase Shifter, Gap = 10 mm

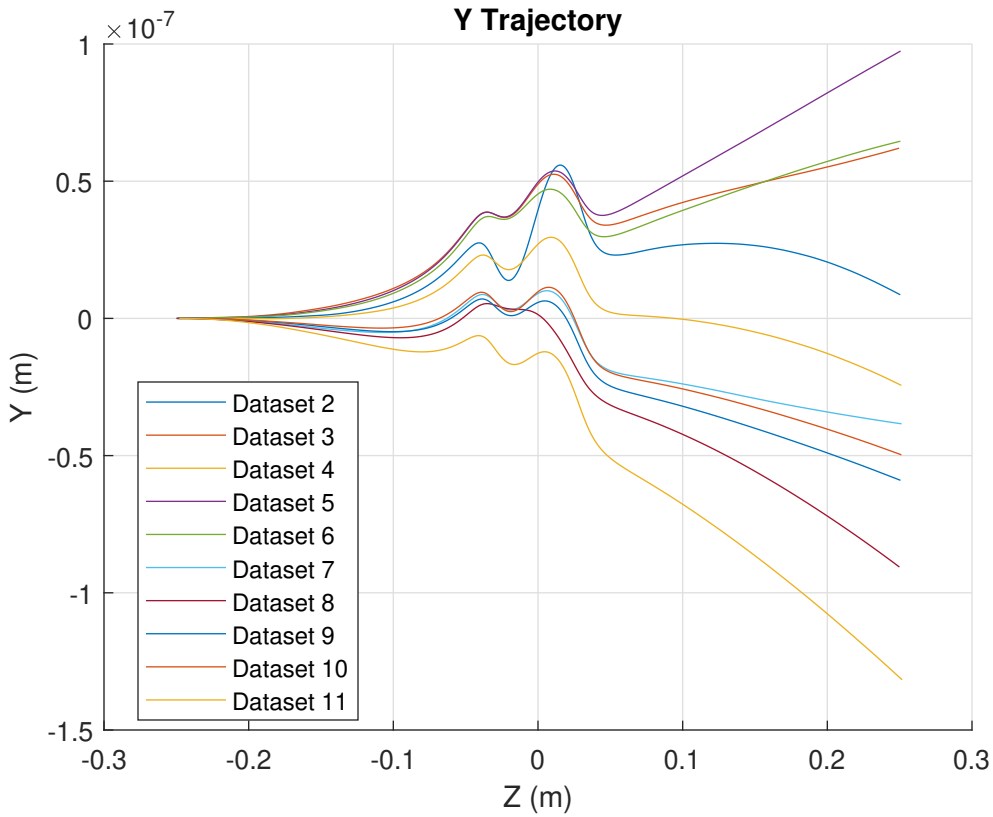
Input Files:
1) S:\magdata\LCLS-II\Phase Shifter\SXPS_16337\DATASET0002\Final Results\Z Scans\On Axis\001gap
2) S:\magdata\LCLS-II\Phase Shifter\SXPS_16337\DATASET0003\Final Results\Z Scans\On Axis\001gap
3) S:\magdata\LCLS-II\Phase Shifter\SXPS_16337\DATASET0004\Final Results\Z Scans\On Axis\001gap
4) S:\magdata\LCLS-II\Phase Shifter\SXPS_16337\DATASET0005\Final Results\Z Scans\On Axis\001gap
5) S:\magdata\LCLS-II\Phase Shifter\SXPS_16337\DATASET0006\Final Results\Z Scans\On Axis\001gap
6) S:\magdata\LCLS-II\Phase Shifter\SXPS_16337\DATASET0007\Final Results\Z Scans\On Axis\001gap
7) S:\magdata\LCLS-II\Phase Shifter\SXPS_16337\DATASET0008\Final Results\Z Scans\On Axis\001gap
8) S:\magdata\LCLS-II\Phase Shifter\SXPS_16337\DATASET0009\Final Results\Z Scans\On Axis\001gap
9) S:\magdata\LCLS-II\Phase Shifter\SXPS_16337\DATASET0010\Final Results\Z Scans\On Axis\001gap
10) S:\magdata\LCLS-II\Phase Shifter\SXPS_16337\DATASET0011\Final Results\Z Scans\On Axis\001ga

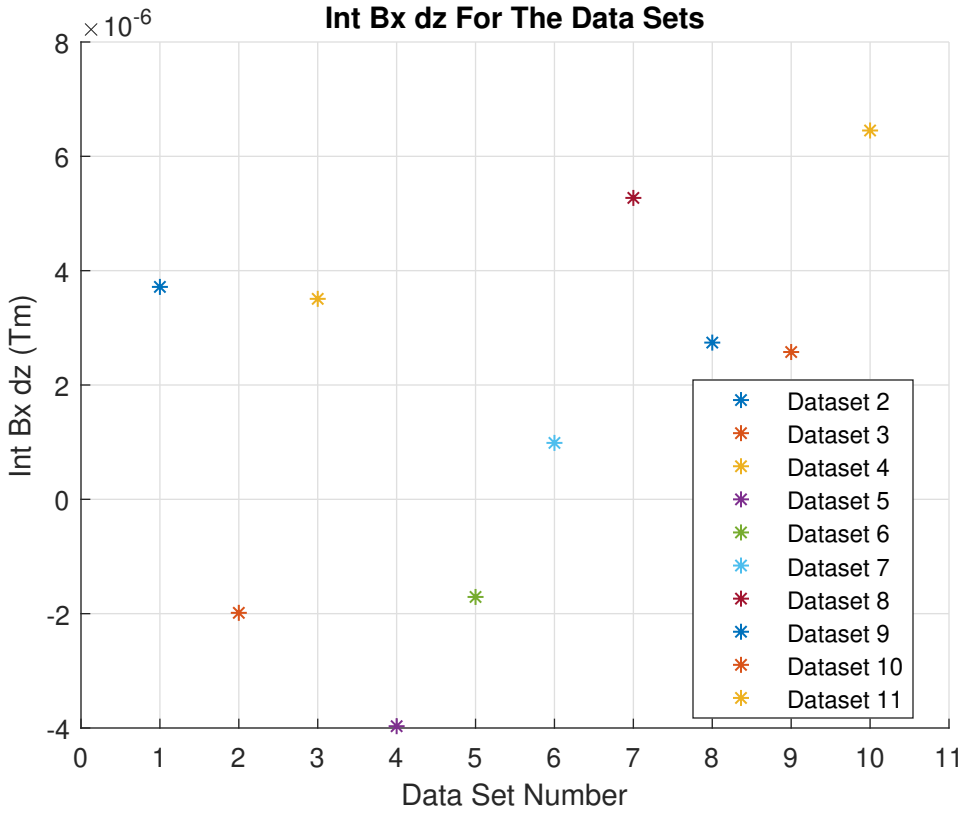

Bx Field
×10-3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
Bx (T)
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
Z (m)
Dataset 2
Dataset 3
Dataset 4
Dataset 5
Dataset 6
Dataset 7
Dataset 8
Dataset 9
Dataset 10
Dataset 11

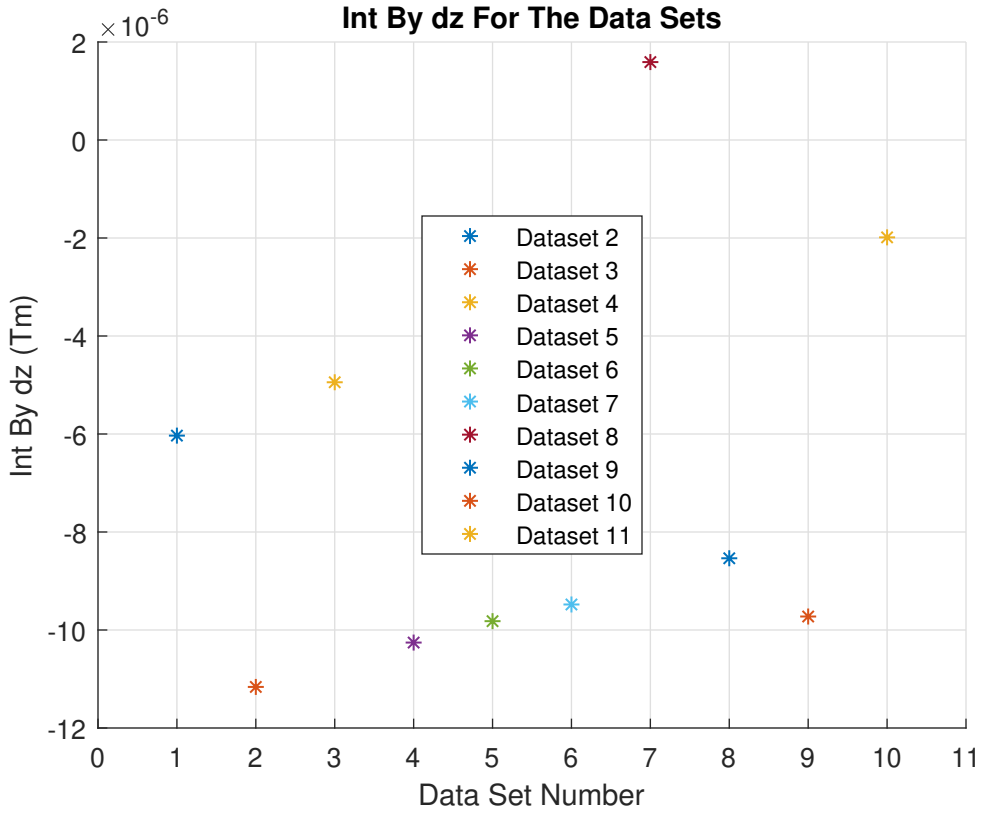

By Field
By (T)
Z (m)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
Dataset 2
Dataset 3
Dataset 4
Dataset 5
Dataset 6
Dataset 7
Dataset 8
Dataset 9
Dataset 10
Dataset 11

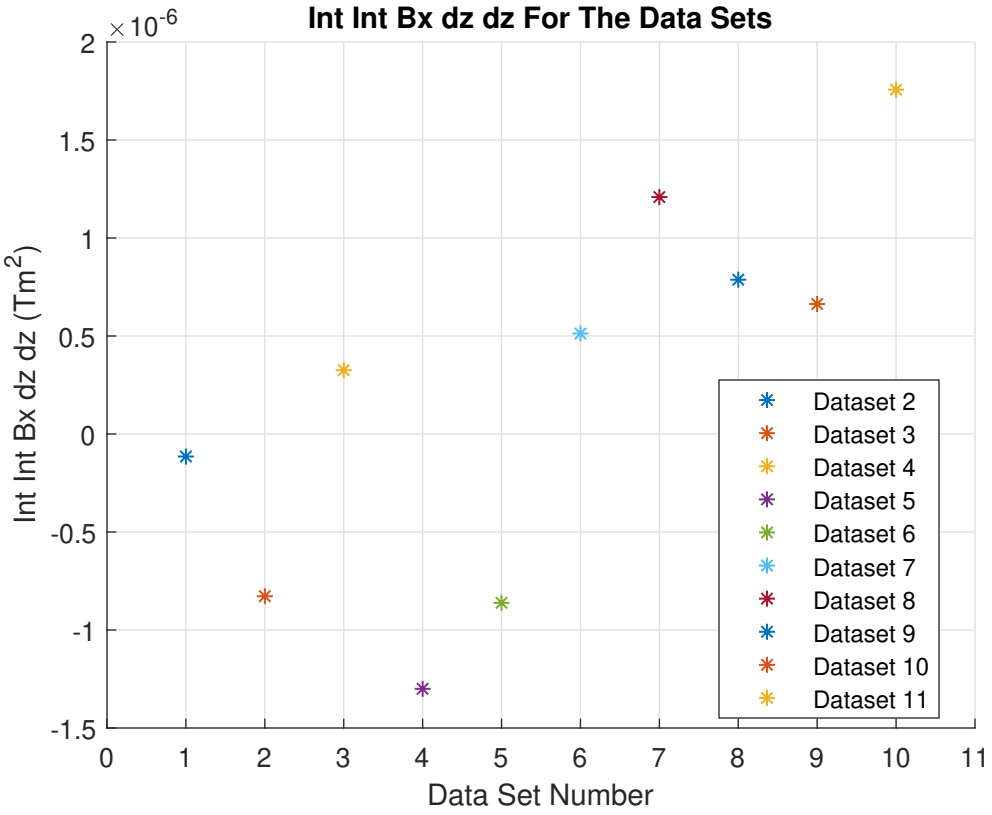

Difference Of By Peaks From First Measurement
×10^-3
By Peak Difference (T)
Peak Number
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
1
1.5
2
2.5
3
3.5
4
Dataset 2
Dataset 3
Dataset 4
Dataset 5
Dataset 6
Dataset 7
Dataset 8
Dataset 9
Dataset 10
Dataset 11

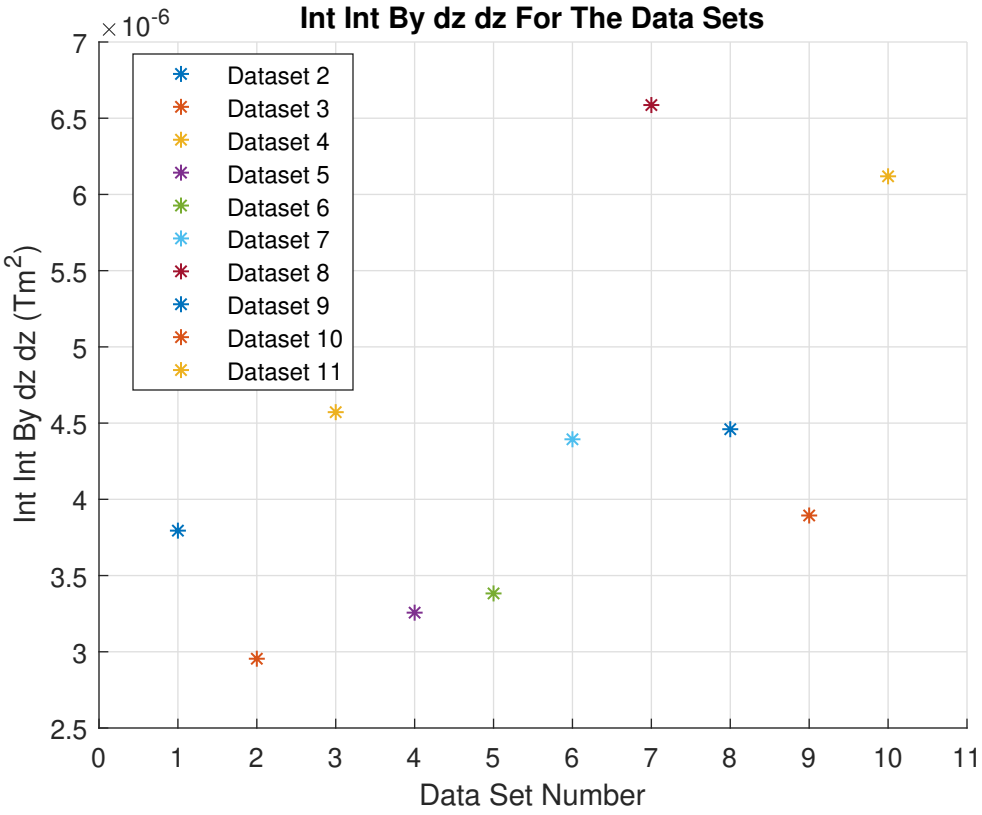

X Trajectory
×10-5
1.5
1
0.5
0
-0.5
-1
-1.5
X (m)
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
Z (m)
Dataset 2
Dataset 3
Dataset 4
Dataset 5
Dataset 6
Dataset 7
Dataset 8
Dataset 9
Dataset 10
Dataset 11

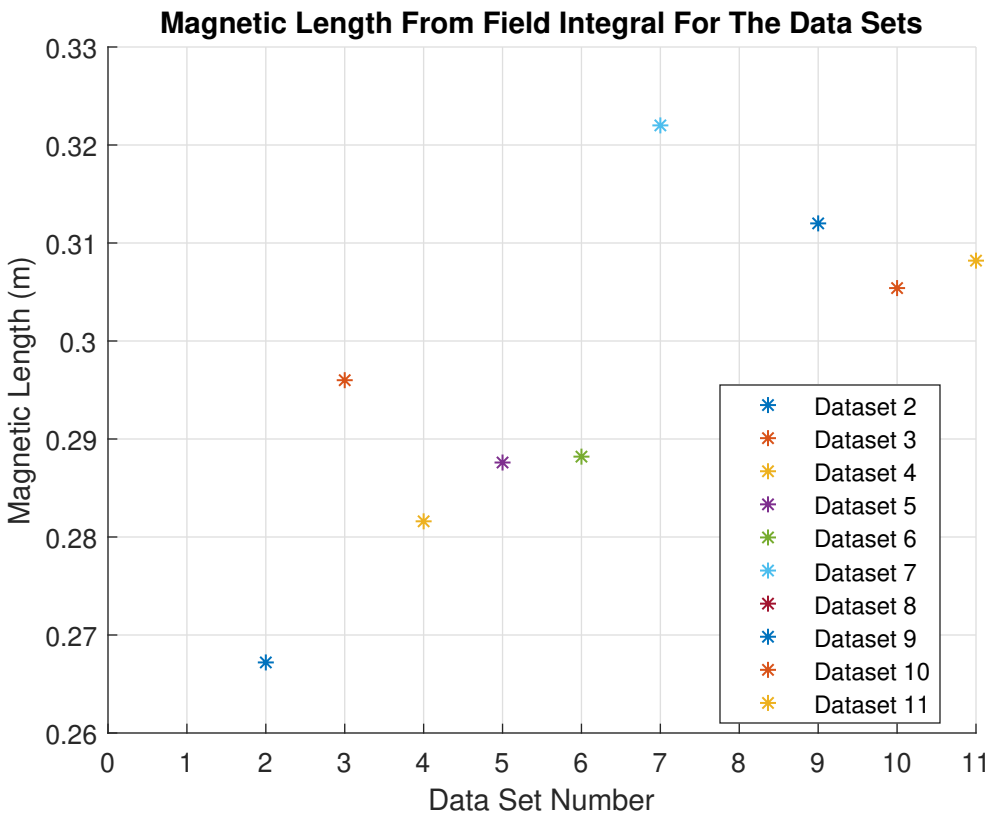

Y Trajectory
×10^-7
1
0.5
0
-0.5
-1
-1.5
Y (m)
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
Z (m)
Dataset 2
Dataset 3
Dataset 4
Dataset 5
Dataset 6
Dataset 7
Dataset 8
Dataset 9
Dataset 10
Dataset 11

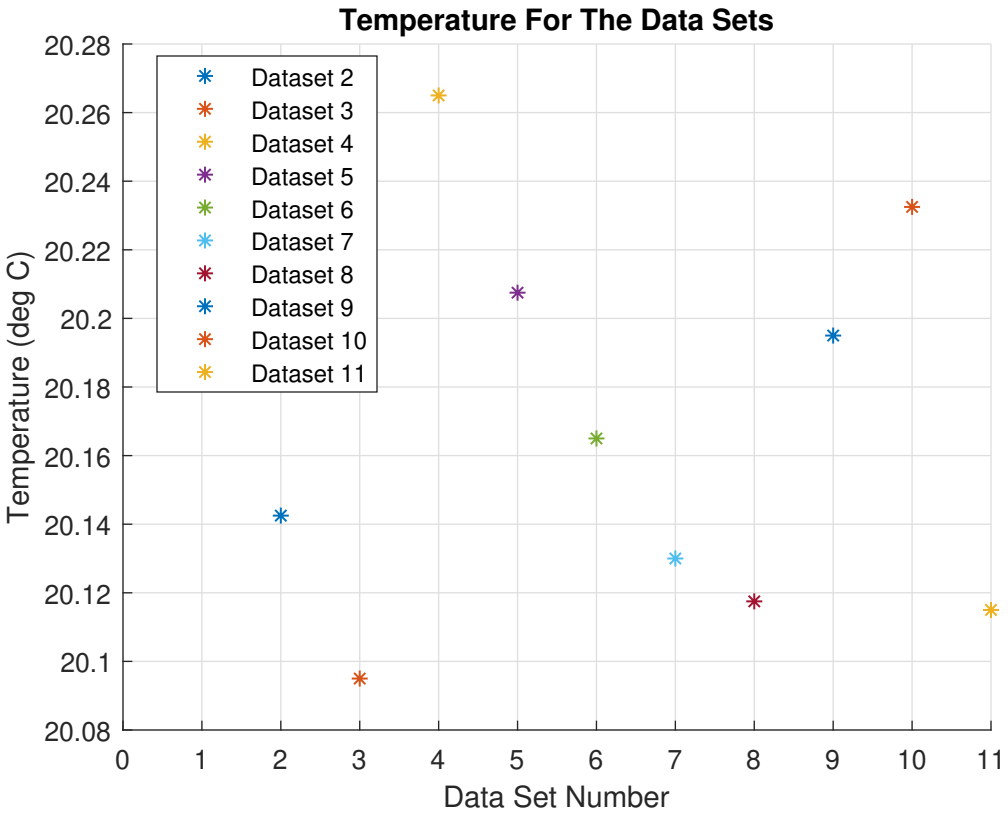

Int Bx dz For The Data Sets
×10-6
8
6
4
2
0
-2
-4
Int Bx dz (Tm)
0
1
2
3
4
5
6
7
8
9
10
11
Data Set Number
Dataset 2
Dataset 3
Dataset 4
Dataset 5
Dataset 6
Dataset 7
Dataset 8
Dataset 9
Dataset 10
Dataset 11

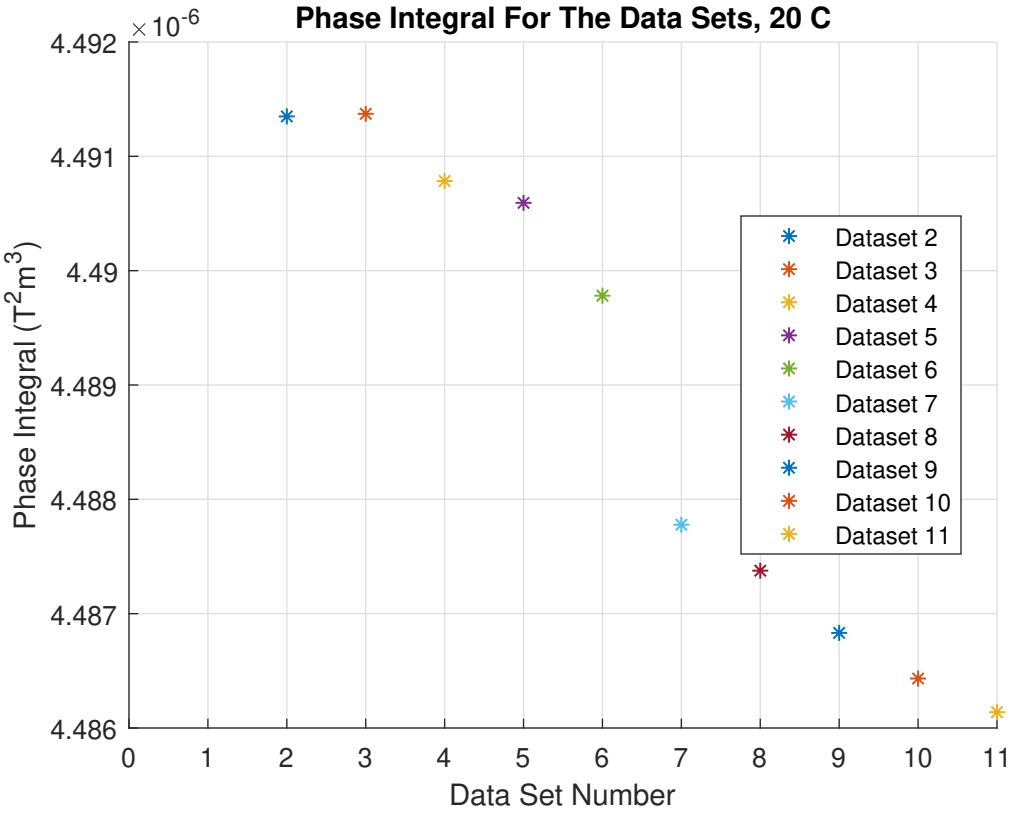

Int By dz For The Data Sets
×10-6
2
0
-2
-4
-6
-8
-10
-12
Int By dz (Tm)
0
1
2
3
4
5
6
7
8
9
10
11
Data Set Number
Dataset 2
Dataset 3
Dataset 4
Dataset 5
Dataset 6
Dataset 7
Dataset 8
Dataset 9
Dataset 10
Dataset 11


Int Int Bx dz dz For The Data Sets
×10-6
2
1.5
1
0.5
0
-0.5
-1
-1.5
Int Int Bx dz dz (Tm2)
0
1
2
3
4
5
6
7
8
9
10
11
Data Set Number
Dataset 2
Dataset 3
Dataset 4
Dataset 5
Dataset 6
Dataset 7
Dataset 8
Dataset 9
Dataset 10
Dataset 11


Int Int By dz dz For The Data Sets
×10^-6
7
6.5
6
5.5
5
4.5
4
3.5
3
2.5
Int Int By dz dz (Tm^2)
0
1
2
3
4
5
6
7
8
9
10
11
Data Set Number
Dataset 2
Dataset 3
Dataset 4
Dataset 5
Dataset 6
Dataset 7
Dataset 8
Dataset 9
Dataset 10
Dataset 11


Magnetic Length From Field Integral For The Data Sets
Magnetic Length (m)
Data Set Number
0.33
0.32
0.31
0.3
0.29
0.28
0.27
0.26
0
1
2
3
4
5
6
7
8
9
10
11
Dataset 2
Dataset 3
Dataset 4
Dataset 5
Dataset 6
Dataset 7
Dataset 8
Dataset 9
Dataset 10
Dataset 11


Temperature For The Data Sets
Dataset 2
Dataset 3
Dataset 4
Dataset 5
Dataset 6
Dataset 7
Dataset 8
Dataset 9
Dataset 10
Dataset 11
Temperature (deg C)
20.28
20.26
20.24
20.22
20.2
20.18
20.16
20.14
20.12
20.1
20.08
0
1
2
3
4
5
6
7
8
9
10
11
Data Set Number


Phase Integral For The Data Sets, 20 C
×10-6
4.492
4.491
4.49
4.489
4.488
4.487
4.486
Phase Integral (T2m3)
0
1
2
3
4
5
6
7
8
9
10
11
Data Set Number
Dataset 2
Dataset 3
Dataset 4
Dataset 5
Dataset 6
Dataset 7
Dataset 8
Dataset 9
Dataset 10
Dataset 11