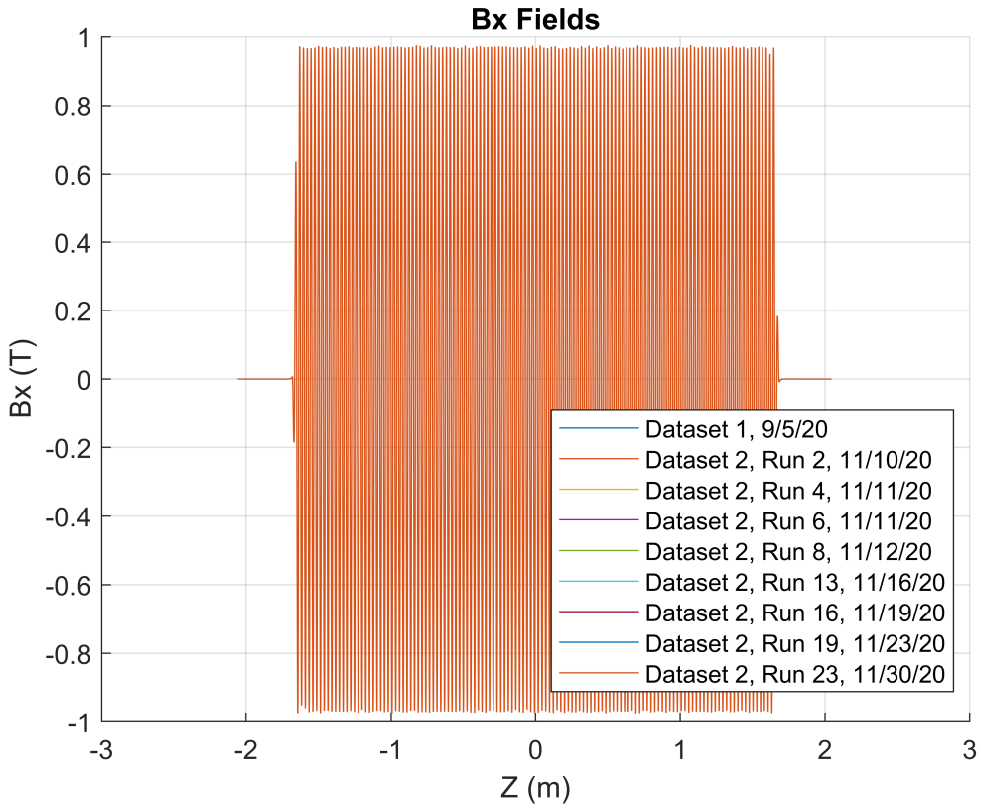
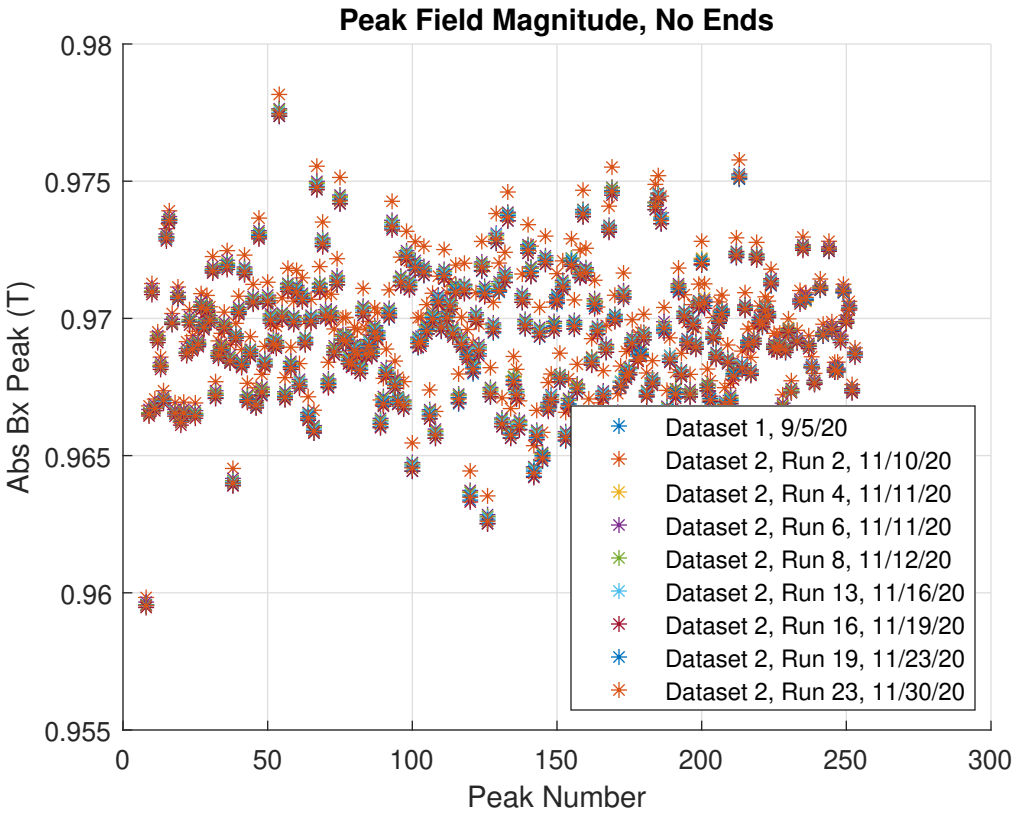
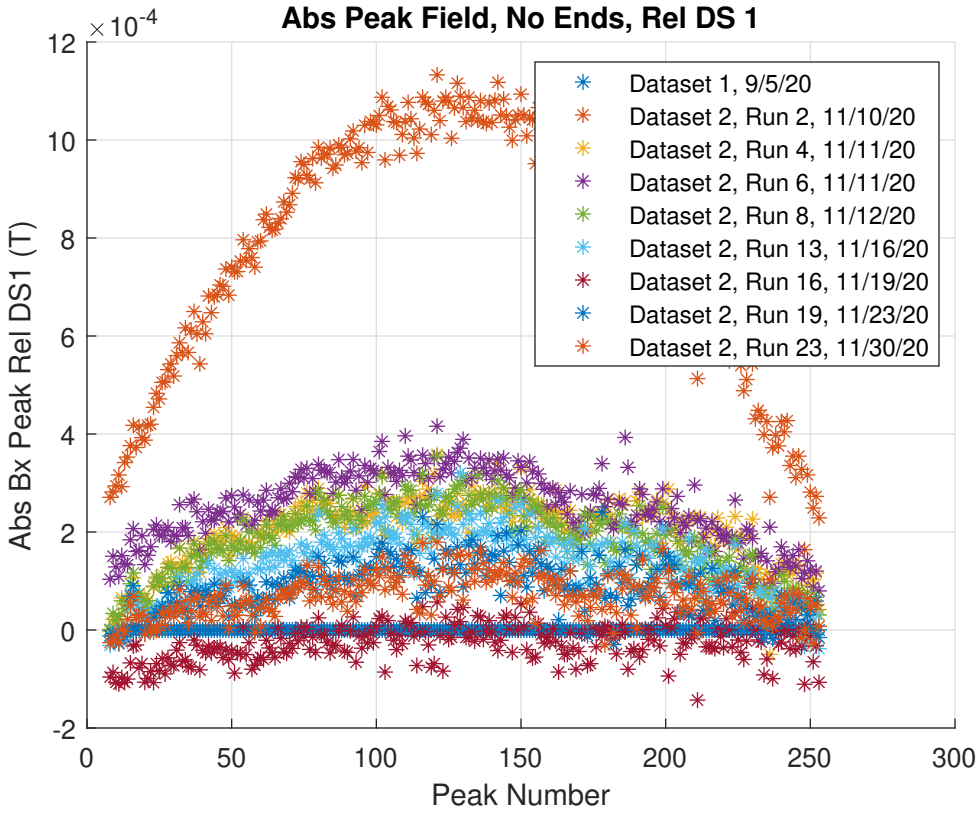
SLAC Magnetic Measurements
Undulator Analysis Comparison

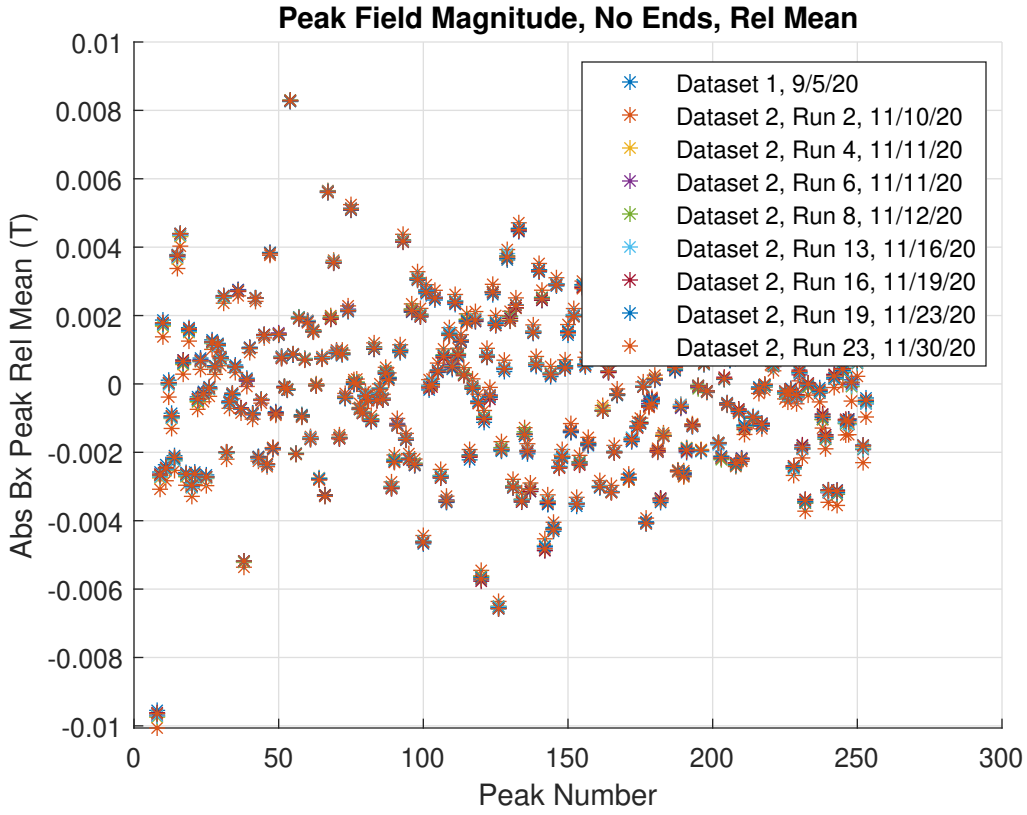
Title:
HXU-016 Commissioning Gap

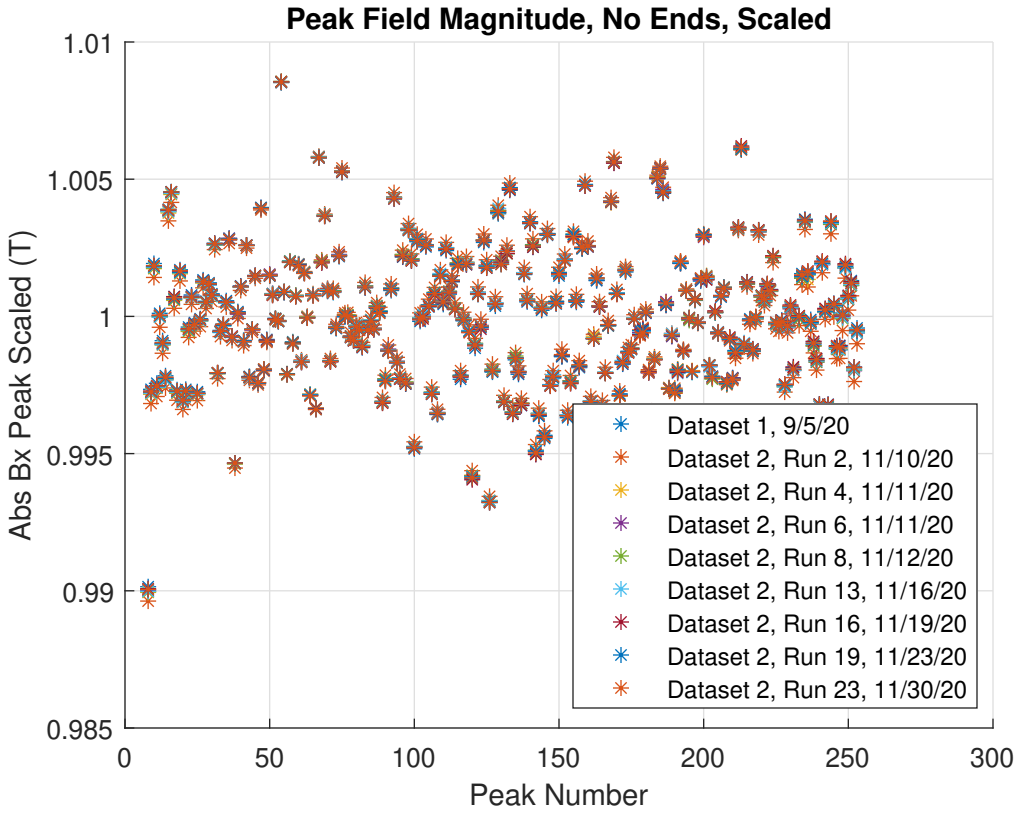
Input Files:
1) S:\magdata\LCLS-II\Undulator\HXU_016\DATASET0001\Final Results\Z Scans\Commissioning Gap\00
2) S:\magdata\LCLS-II\Undulator\HXU_016\DATASET0002\Tuning\Z Scans\Run 002\001gap007.942x+00
3) S:\magdata\LCLS-II\Undulator\HXU_016\DATASET0002\Tuning\Z Scans\Run 004\001gap007.942x+00
4) S:\magdata\LCLS-II\Undulator\HXU_016\DATASET0002\Tuning\Z Scans\Run 006\001gap007.942x+00
5) S:\magdata\LCLS-II\Undulator\HXU_016\DATASET0002\Tuning\Z Scans\Run 008\001gap007.942x+00
6) S:\magdata\LCLS-II\Undulator\HXU_016\DATASET0002\Tuning\Z Scans\Run 013\001gap007.942x+00
7) S:\magdata\LCLS-II\Undulator\HXU_016\DATASET0002\Tuning\Z Scans\Run 016\001gap007.942x+00
8) S:\magdata\LCLS-II\Undulator\HXU_016\DATASET0002\Tuning\Z Scans\Run 019\001gap007.942x+00
9) S:\magdata\LCLS-II\Undulator\HXU_016\DATASET0002\Tuning\Z Scans\Run 023\001gap007.942x+00

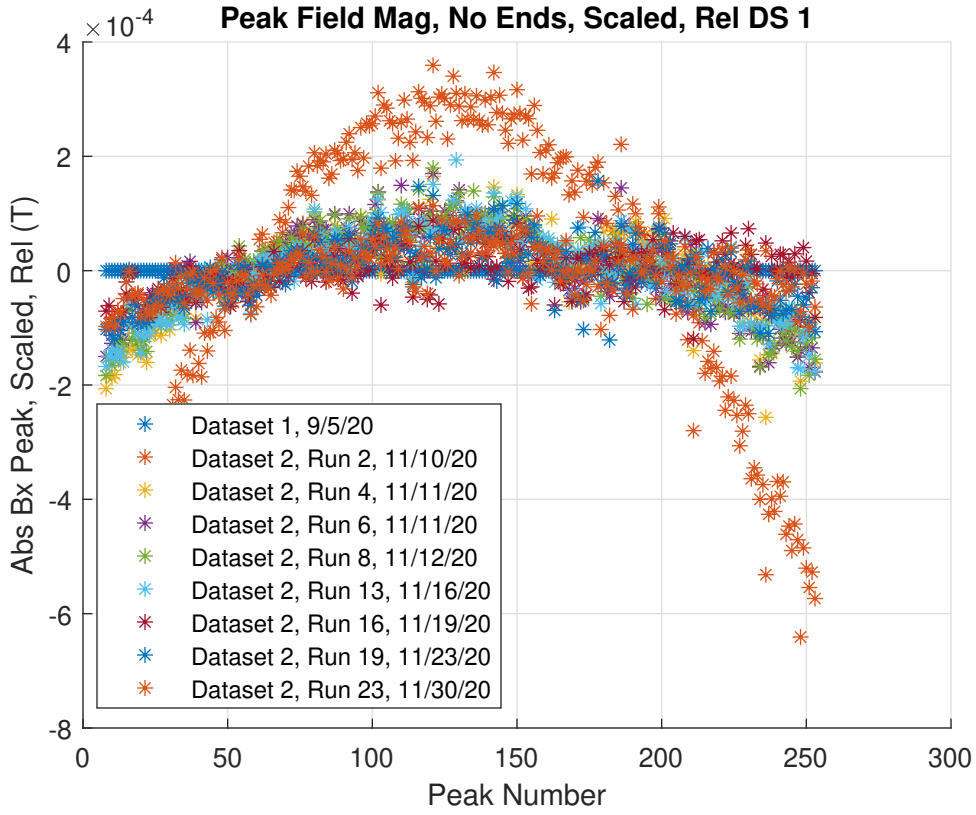

Bx Fields
Bx (T)
Z (m)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
-3
-2
-1
0
1
2
3
Dataset 1, 9/5/20
Dataset 2, Run 2, 11/10/20
Dataset 2, Run 4, 11/11/20
Dataset 2, Run 6, 11/11/20
Dataset 2, Run 8, 11/12/20
Dataset 2, Run 13, 11/16/20
Dataset 2, Run 16, 11/19/20
Dataset 2, Run 19, 11/23/20
Dataset 2, Run 23, 11/30/20

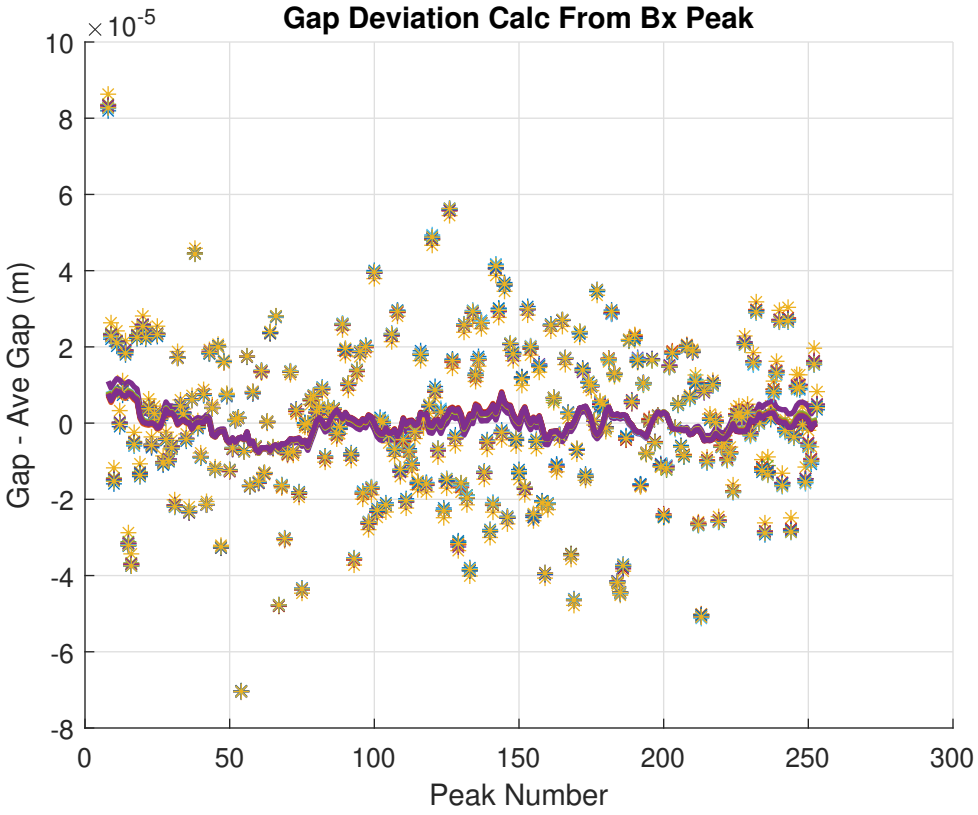

Peak Field Magnitude, No Ends
Abs Bx Peak (T)
Peak Number
0.98
0.975
0.97
0.965
0.96
0.955
0
50
100
150
200
250
300
Dataset 1, 9/5/20
Dataset 2, Run 2, 11/10/20
Dataset 2, Run 4, 11/11/20
Dataset 2, Run 6, 11/11/20
Dataset 2, Run 8, 11/12/20
Dataset 2, Run 13, 11/16/20
Dataset 2, Run 16, 11/19/20
Dataset 2, Run 19, 11/23/20
Dataset 2, Run 23, 11/30/20


Abs Peak Field, No Ends, Rel DS 1
×10^-4
12
10
8
6
4
2
0
-2
Abs Bx Peak Rel DS1 (T)
0
50
100
150
200
250
300
Peak Number
Dataset 1, 9/5/20
Dataset 2, Run 2, 11/10/20
Dataset 2, Run 4, 11/11/20
Dataset 2, Run 6, 11/11/20
Dataset 2, Run 8, 11/12/20
Dataset 2, Run 13, 11/16/20
Dataset 2, Run 16, 11/19/20
Dataset 2, Run 19, 11/23/20
Dataset 2, Run 23, 11/30/20


Peak Field Magnitude, No Ends, Rel Mean
Abs Bx Peak Rel Mean (T)
Peak Number
0.01
0.008
0.006
0.004
0.002
0
-0.002
-0.004
-0.006
-0.008
-0.01
0
50
100
150
200
250
300
Dataset 1, 9/5/20
Dataset 2, Run 2, 11/10/20
Dataset 2, Run 4, 11/11/20
Dataset 2, Run 6, 11/11/20
Dataset 2, Run 8, 11/12/20
Dataset 2, Run 13, 11/16/20
Dataset 2, Run 16, 11/19/20
Dataset 2, Run 19, 11/23/20
Dataset 2, Run 23, 11/30/20


Peak Field Magnitude, No Ends, Scaled
Abs Bx Peak Scaled (T)
Peak Number
1.01
1.005
1
0.995
0.99
0.985
0
50
100
150
200
250
300
Dataset 1, 9/5/20
Dataset 2, Run 2, 11/10/20
Dataset 2, Run 4, 11/11/20
Dataset 2, Run 6, 11/11/20
Dataset 2, Run 8, 11/12/20
Dataset 2, Run 13, 11/16/20
Dataset 2, Run 16, 11/19/20
Dataset 2, Run 19, 11/23/20
Dataset 2, Run 23, 11/30/20


Peak Field Mag, No Ends, Scaled, Rel DS 1
×10^-4
4
2
0
-2
-4
-6
-8
Abs Bx Peak, Scaled, Rel (T)
0
50
100
150
200
250
300
Peak Number
Dataset 1, 9/5/20
Dataset 2, Run 2, 11/10/20
Dataset 2, Run 4, 11/11/20
Dataset 2, Run 6, 11/11/20
Dataset 2, Run 8, 11/12/20
Dataset 2, Run 13, 11/16/20
Dataset 2, Run 16, 11/19/20
Dataset 2, Run 19, 11/23/20
Dataset 2, Run 23, 11/30/20


Gap Deviation Calc From Bx Peak
×10^-5
10
8
6
4
2
0
-2
-4
-6
-8
Gap - Ave Gap (m)
0
50
100
150
200
250
300
Peak Number