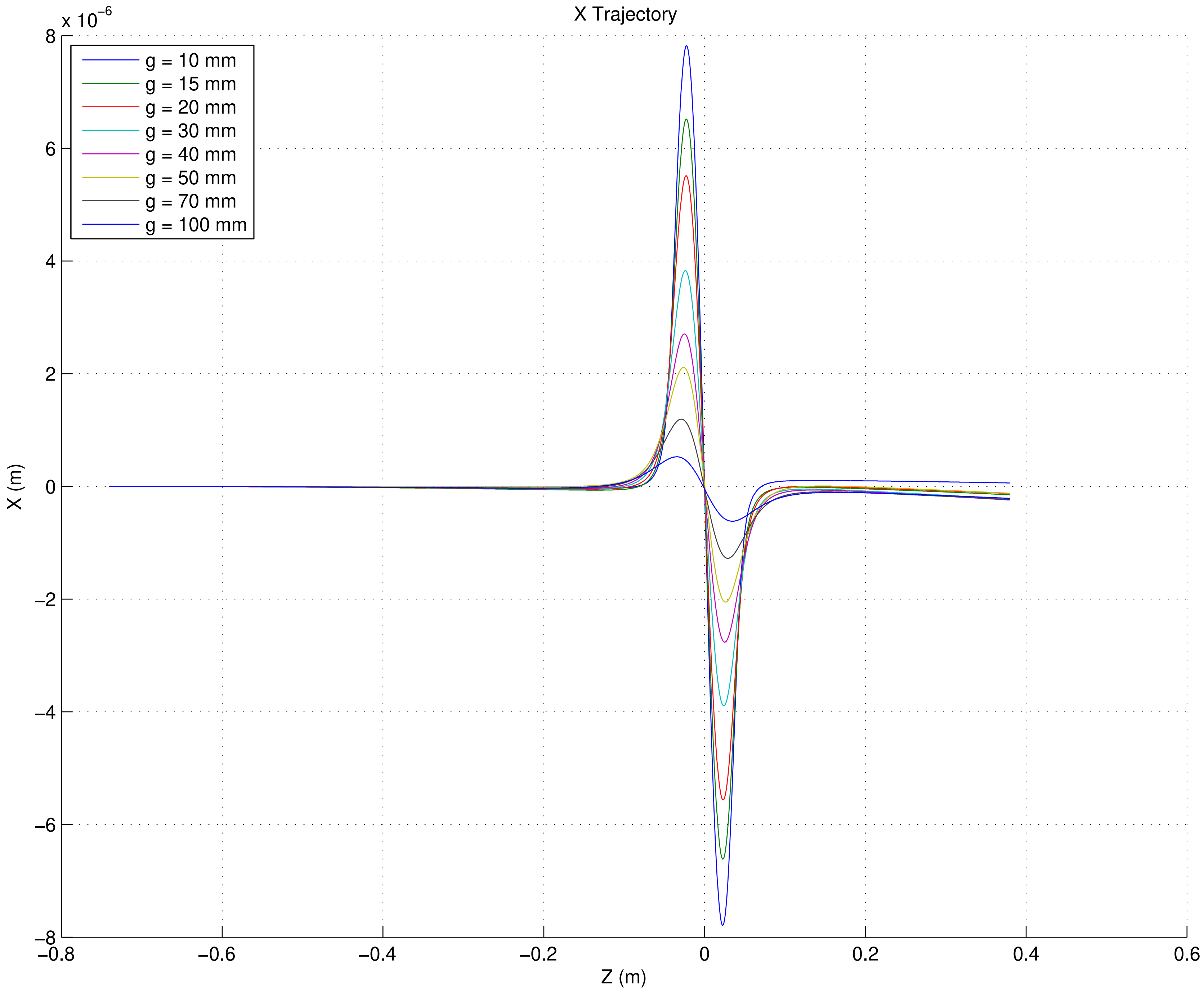
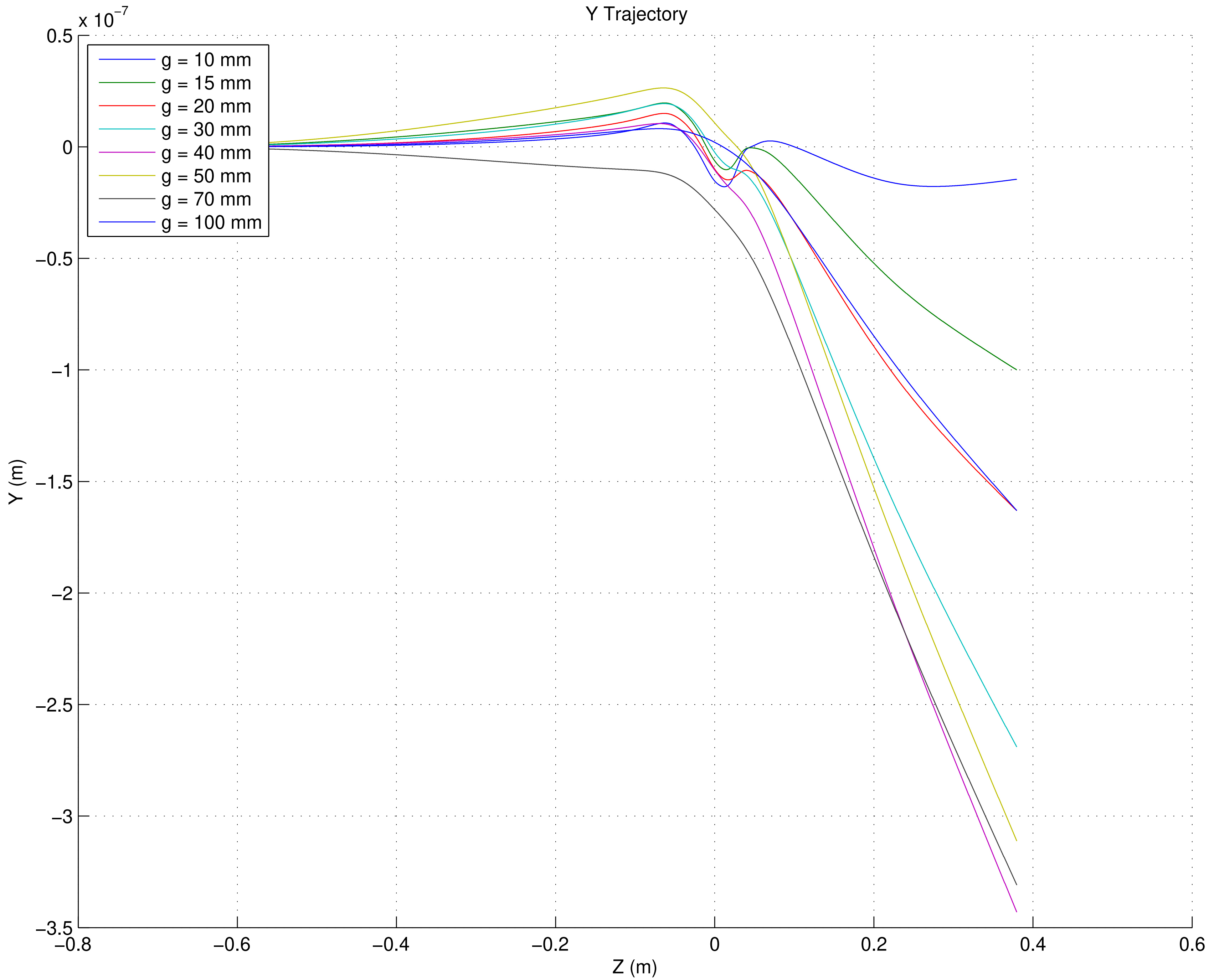
SLAC Magnetic Measurements
Phase Shifter Analysis Comparison

Title:
Prototype Phase Shifter At Different Gaps

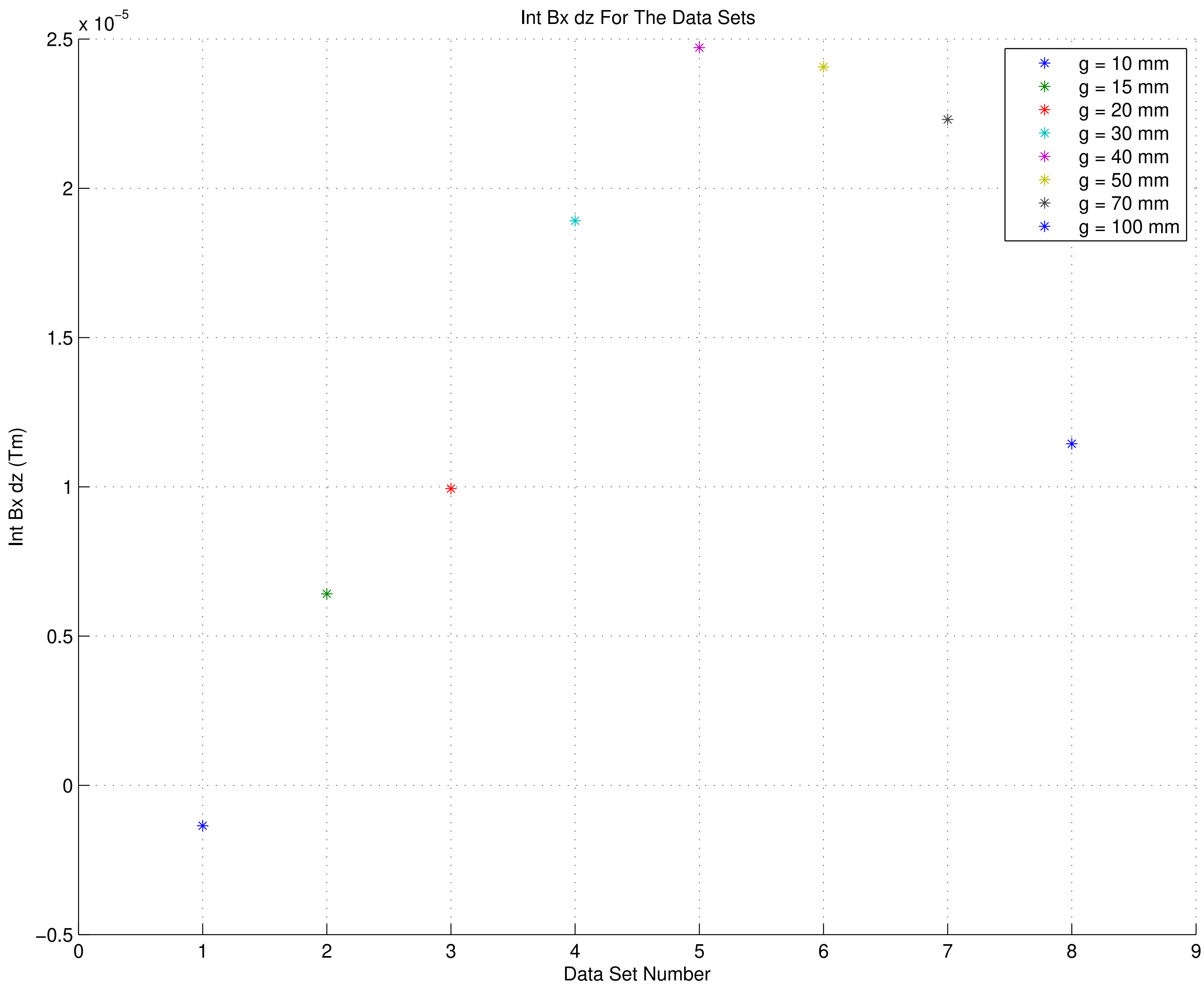
Input Files:
1) V:\MET\MagServe\MagData\LCLS\Undulator\PHASE_SHIFTER\DATASET0001\Rough Tuning\Z Scans\Run 035\phase_anal.
2) V:\MET\MagServe\MagData\LCLS\Undulator\PHASE_SHIFTER\DATASET0001\Rough Tuning\Z Scans\Run 036\phase_anal.
3) V:\MET\MagServe\MagData\LCLS\Undulator\PHASE_SHIFTER\DATASET0001\Rough Tuning\Z Scans\Run 037\phase_anal.
4) V:\MET\MagServe\MagData\LCLS\Undulator\PHASE_SHIFTER\DATASET0001\Rough Tuning\Z Scans\Run 038\phase_anal.
5) V:\MET\MagServe\MagData\LCLS\Undulator\PHASE_SHIFTER\DATASET0001\Rough Tuning\Z Scans\Run 039\phase_anal.
6) V:\MET\MagServe\MagData\LCLS\Undulator\PHASE_SHIFTER\DATASET0001\Rough Tuning\Z Scans\Run 040\phase_anal.
7) V:\MET\MagServe\MagData\LCLS\Undulator\PHASE_SHIFTER\DATASET0001\Rough Tuning\Z Scans\Run 041\phase_anal.
8) V:\MET\MagServe\MagData\LCLS\Undulator\PHASE_SHIFTER\DATASET0001\Rough Tuning\Z Scans\Run 042\phase_anal.



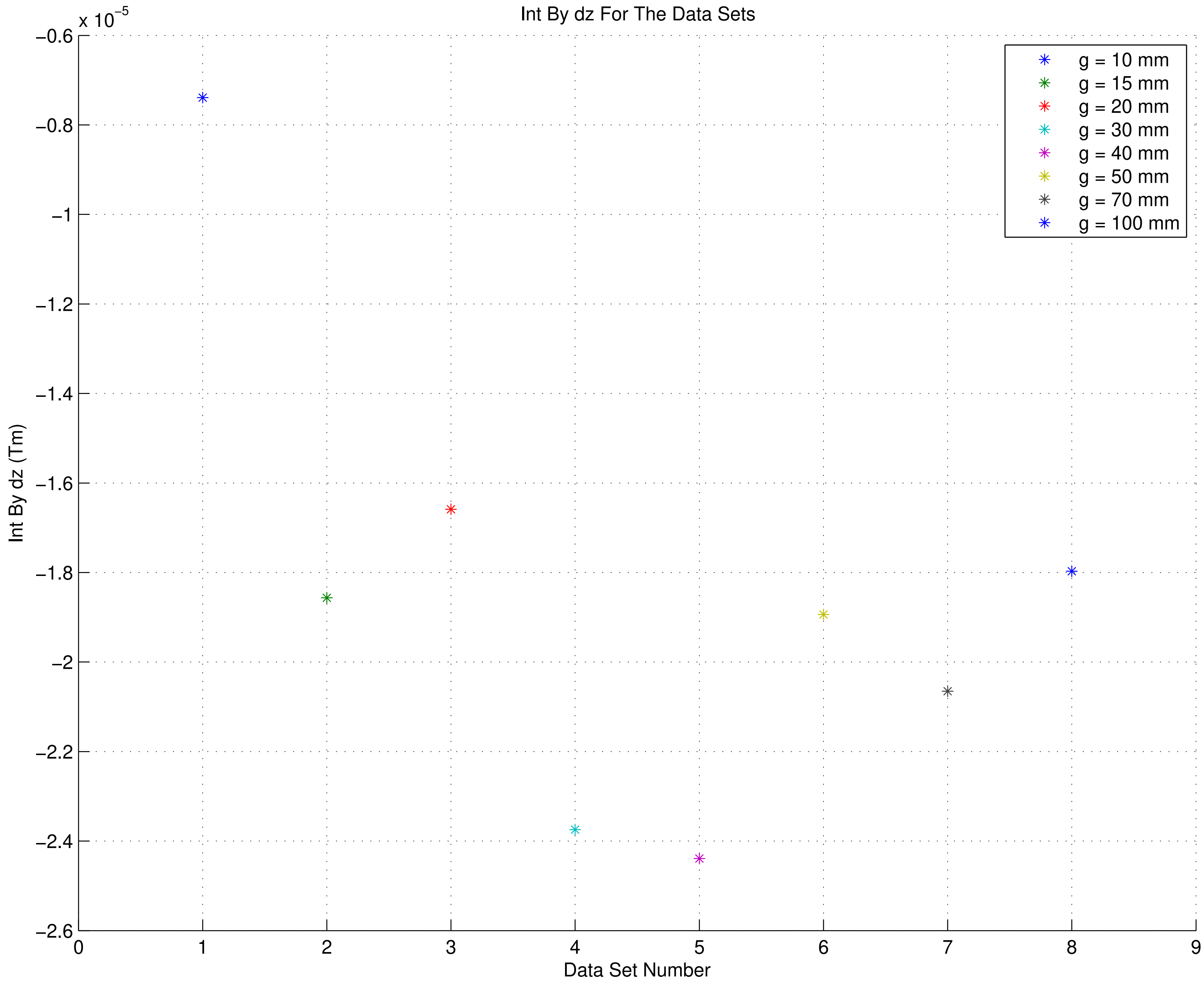
X Trajectory
x 10^−6
8
6
4
2
0
−2
−4
−6
−8
X (m)
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
Z (m)
g = 10 mm
g = 15 mm
g = 20 mm
g = 30 mm
g = 40 mm
g = 50 mm
g = 70 mm
g = 100 mm

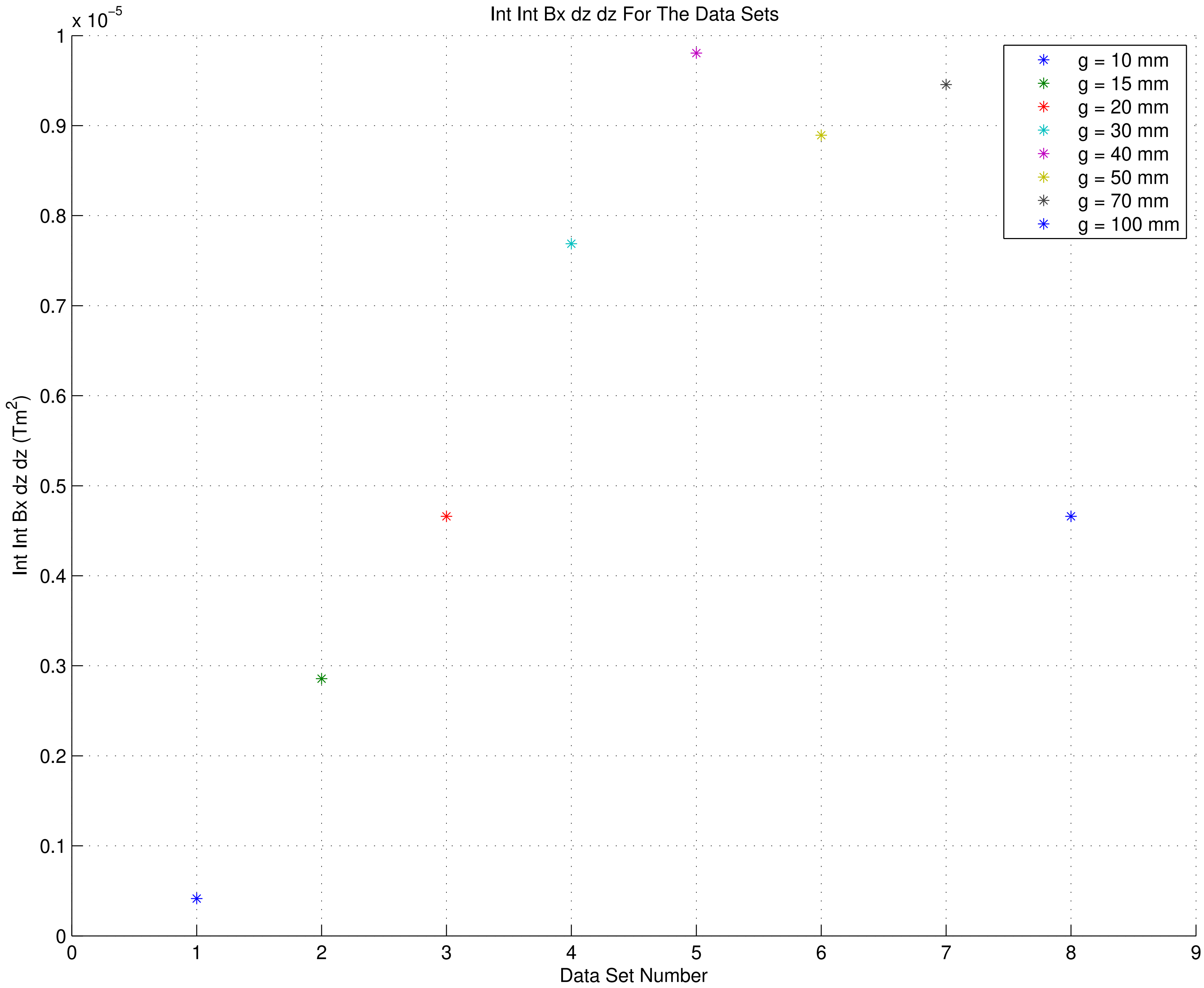


Y Trajectory
x 10^-7
0.5
0
−0.5
−1
−1.5
−2
−2.5
−3
−3.5
Y (m)
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
Z (m)
g = 10 mm
g = 15 mm
g = 20 mm
g = 30 mm
g = 40 mm
g = 50 mm
g = 70 mm
g = 100 mm

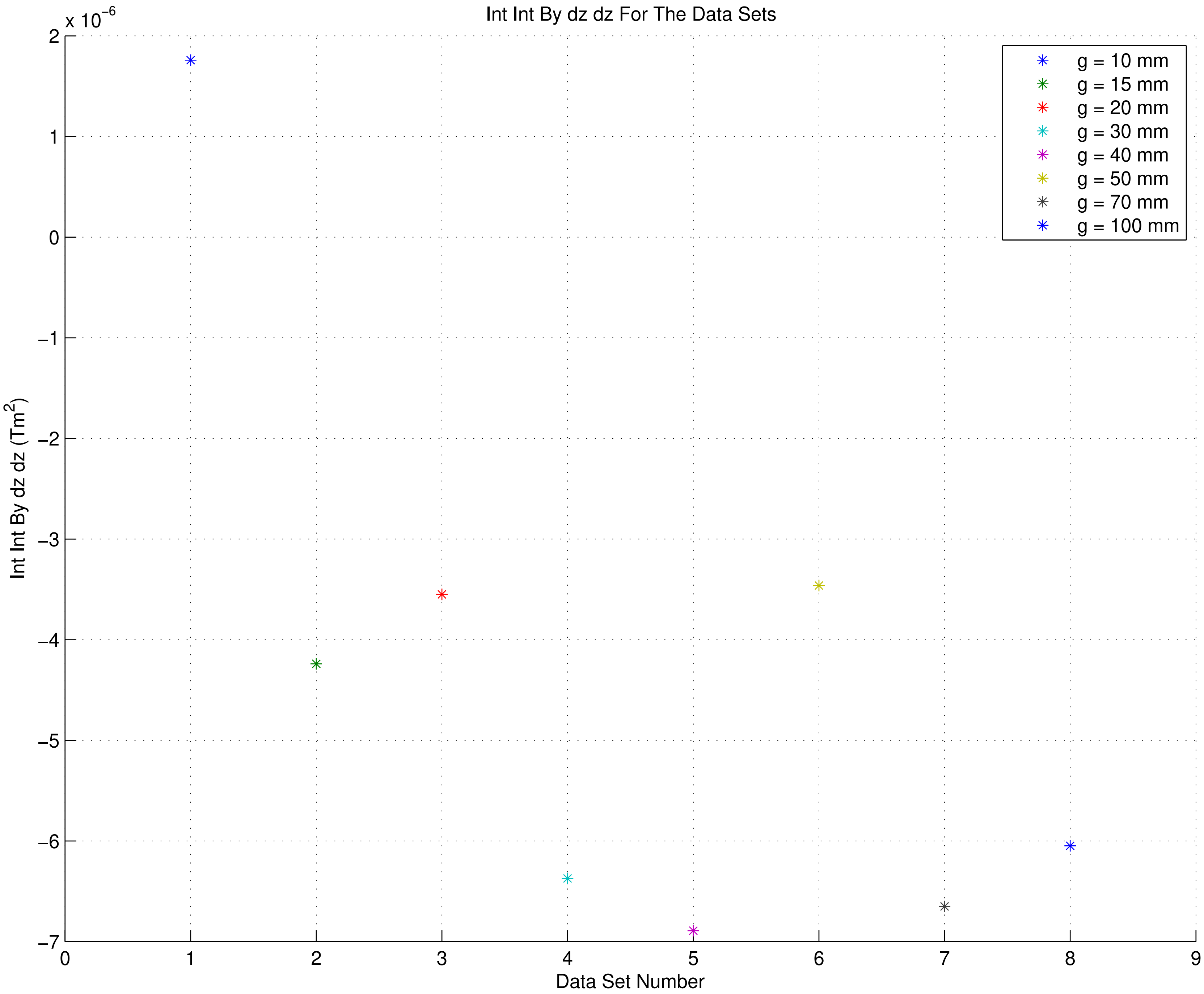


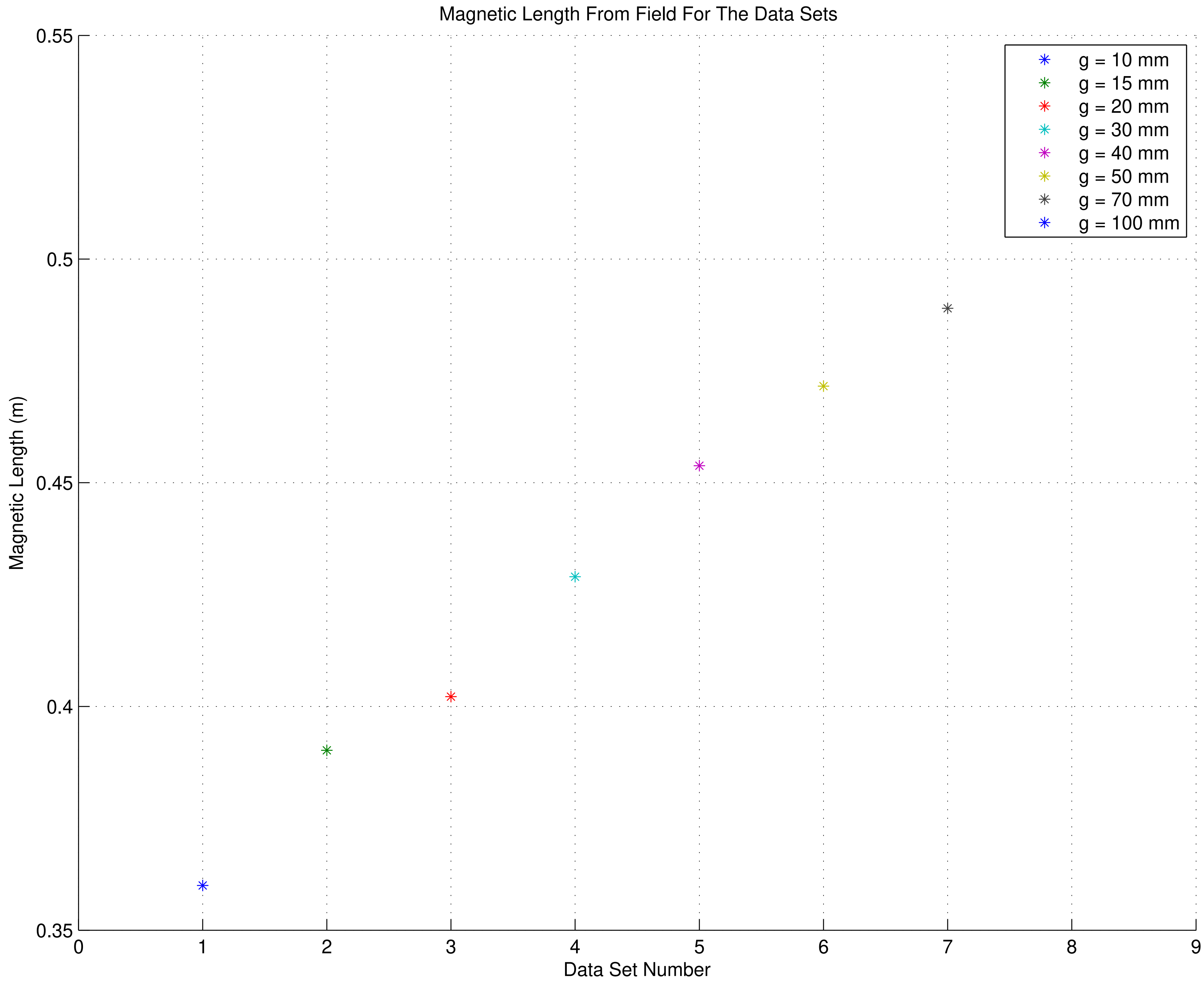
Int Bx dz For The Data Sets
x 10^-5
2.5
2
1.5
1
0.5
0
−0.5
Int Bx dz (Tm)
0
1
2
3
4
5
6
7
8
9
Data Set Number
g = 10 mm
g = 15 mm
g = 20 mm
g = 30 mm
g = 40 mm
g = 50 mm
g = 70 mm
g = 100 mm


Int By dz For The Data Sets
x 10^-5
Int By dz (Tm)
Data Set Number
g = 10 mm
g = 15 mm
g = 20 mm
g = 30 mm
g = 40 mm
g = 50 mm
g = 70 mm
g = 100 mm
–0.6
–0.8
–1
–1.2
–1.4
–1.6
–1.8
–2
–2.2
–2.4
–2.6
0
1
2
3
4
5
6
7
8
9

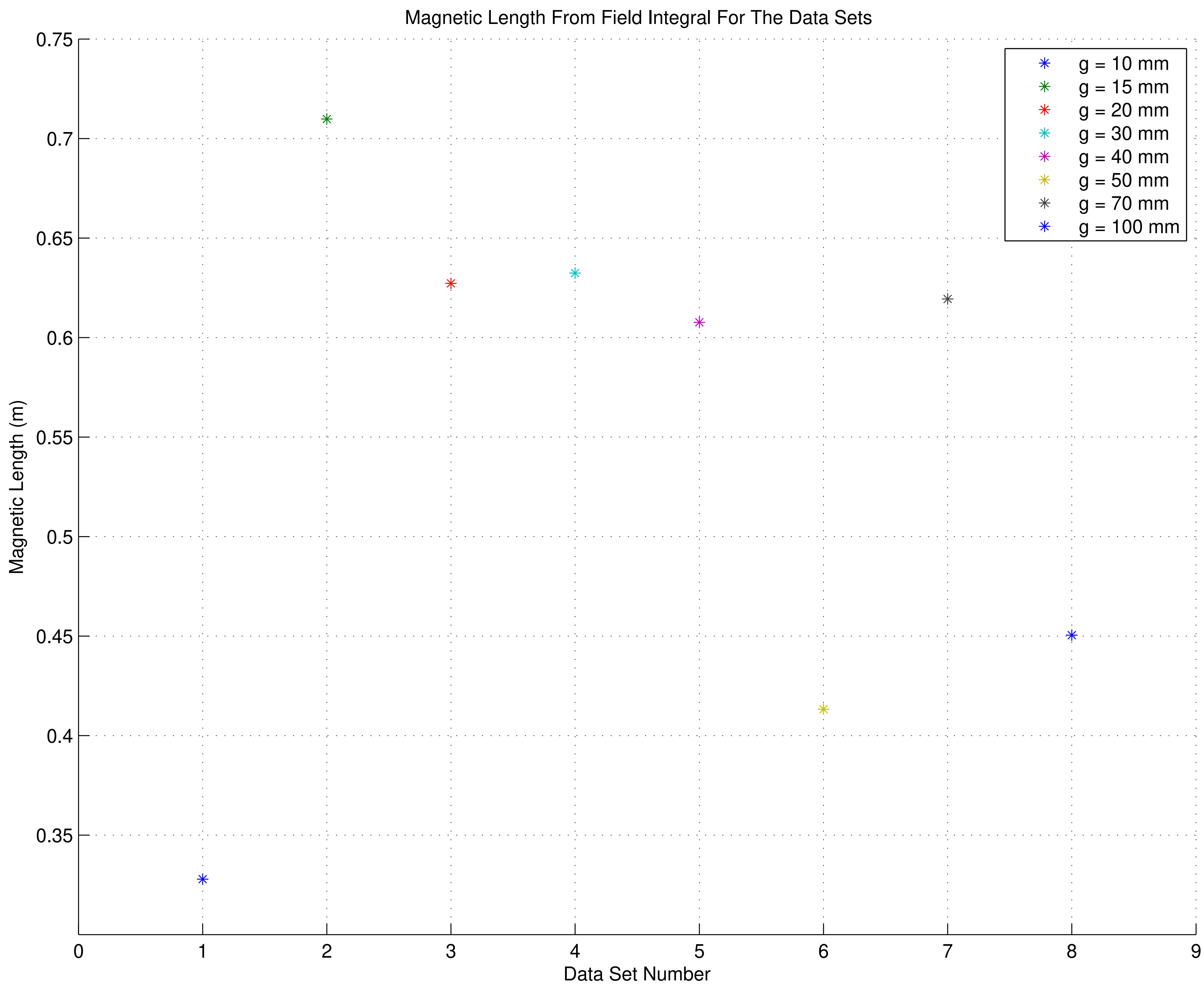


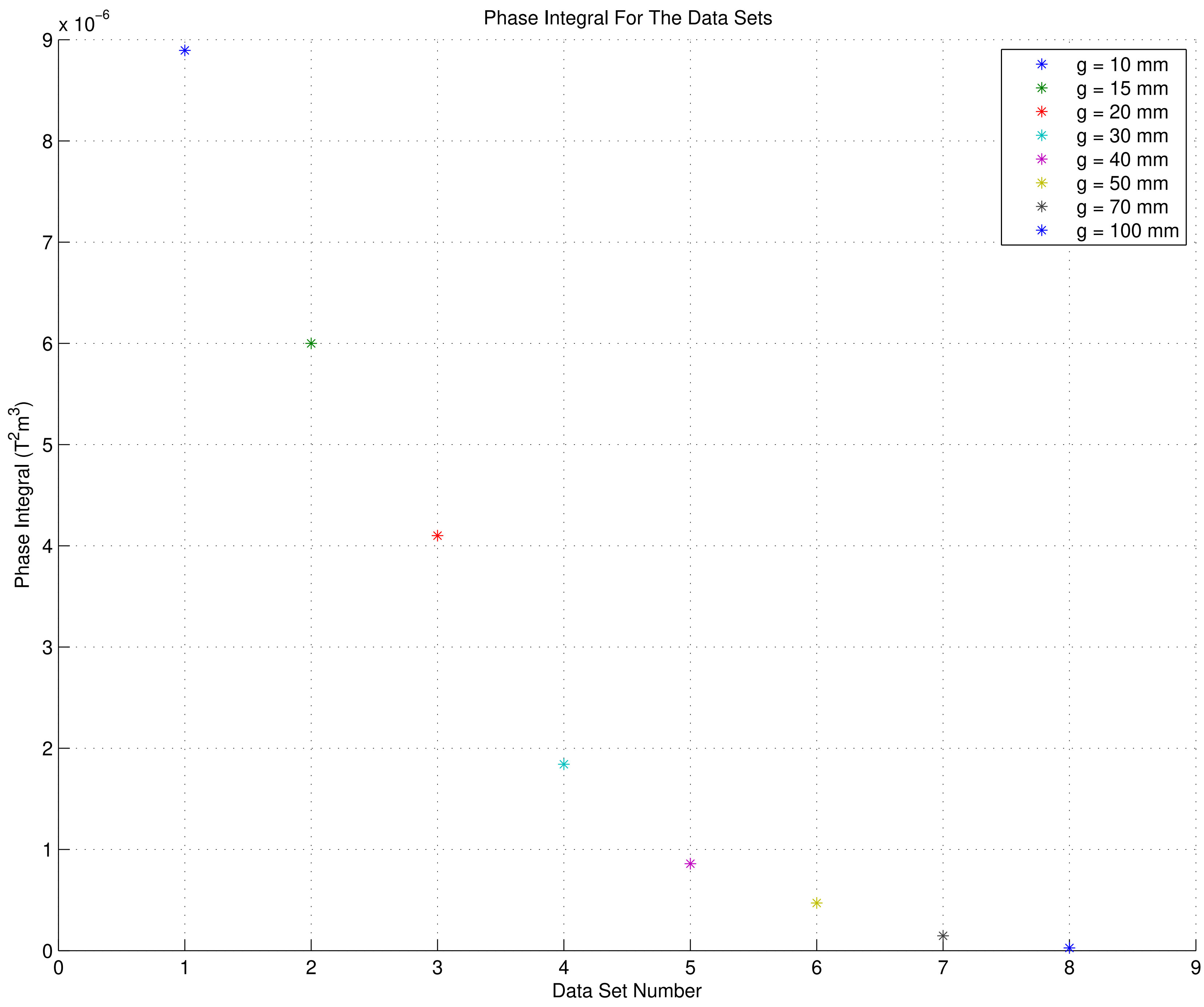
Int Int Bx dz dz For The Data Sets
x 10^-5
Int Int Bx dz dz (Tm^2)
Data Set Number
g = 10 mm
g = 15 mm
g = 20 mm
g = 30 mm
g = 40 mm
g = 50 mm
g = 70 mm
g = 100 mm
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
1
2
3
4
5
6
7
8
9


Int Int By dz dz For The Data Sets
x 10^−6
2
1
0
−1
−2
−3
−4
−5
−6
−7
Int Int By dz dz (Tm^2)
0
1
2
3
4
5
6
7
8
9
Data Set Number
g = 10 mm
g = 15 mm
g = 20 mm
g = 30 mm
g = 40 mm
g = 50 mm
g = 70 mm
g = 100 mm



Magnetic Length From Field For The Data Sets
g = 10 mm
g = 15 mm
g = 20 mm
g = 30 mm
g = 40 mm
g = 50 mm
g = 70 mm
g = 100 mm
Magnetic Length (m)
0.55
0.5
0.45
0.4
0.35
0
1
2
3
4
5
6
7
8
9
Data Set Number


Magnetic Length From Field Integral For The Data Sets
Magnetic Length (m)
Data Set Number
0.75
0.7
0.65
0.6
0.55
0.5
0.45
0.4
0.35
0
1
2
3
4
5
6
7
8
9
g = 10 mm
g = 15 mm
g = 20 mm
g = 30 mm
g = 40 mm
g = 50 mm
g = 70 mm
g = 100 mm



Phase Integral For The Data Sets
x 10^-6
Phase Integral (T^2m^3)
Data Set Number
g = 10 mm
g = 15 mm
g = 20 mm
g = 30 mm
g = 40 mm
g = 50 mm
g = 70 mm
g = 100 mm
0
1
2
3
4
5
6
7
8
9