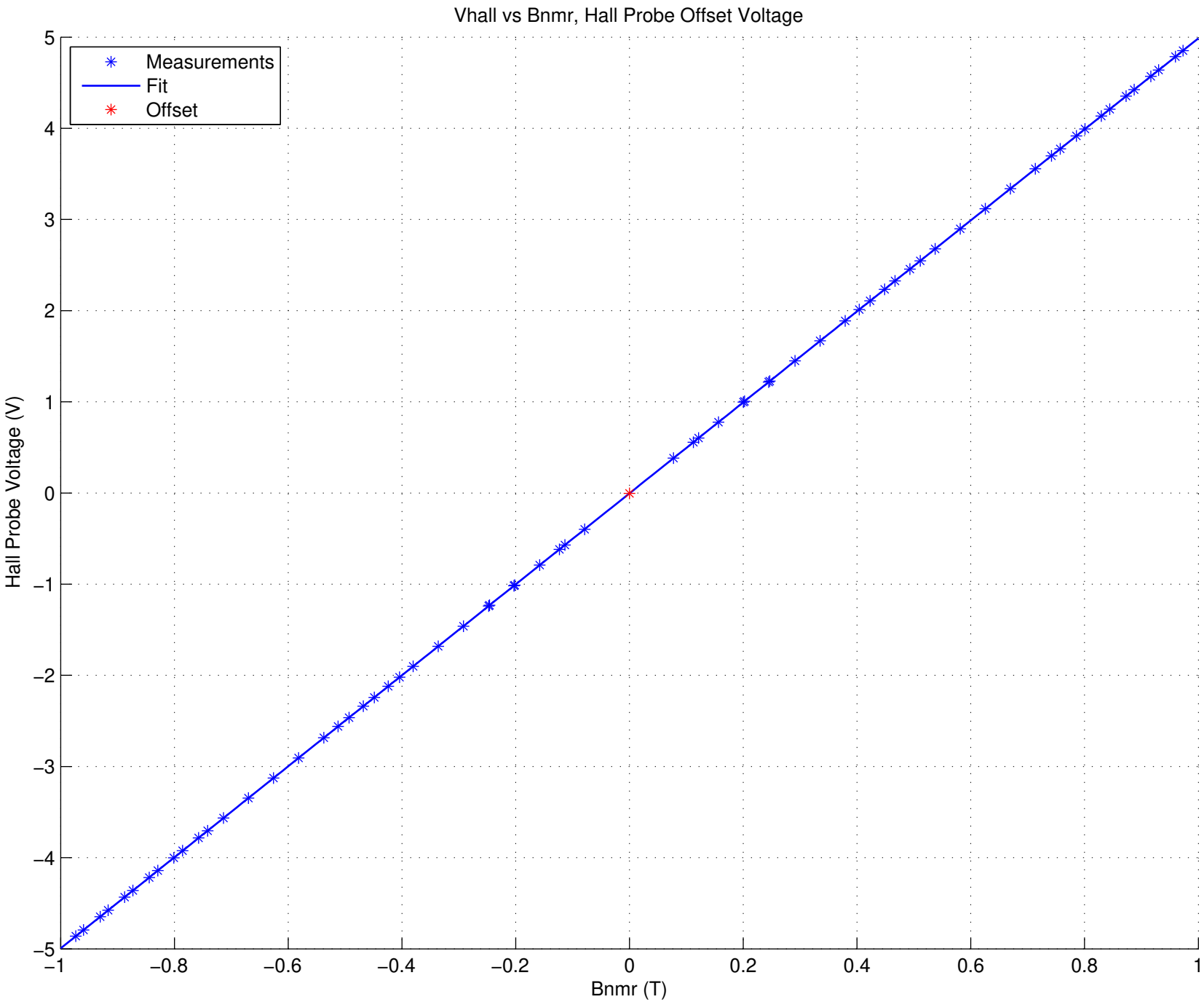
SLAC Magnetic Measurements
Hall Probe Calibration

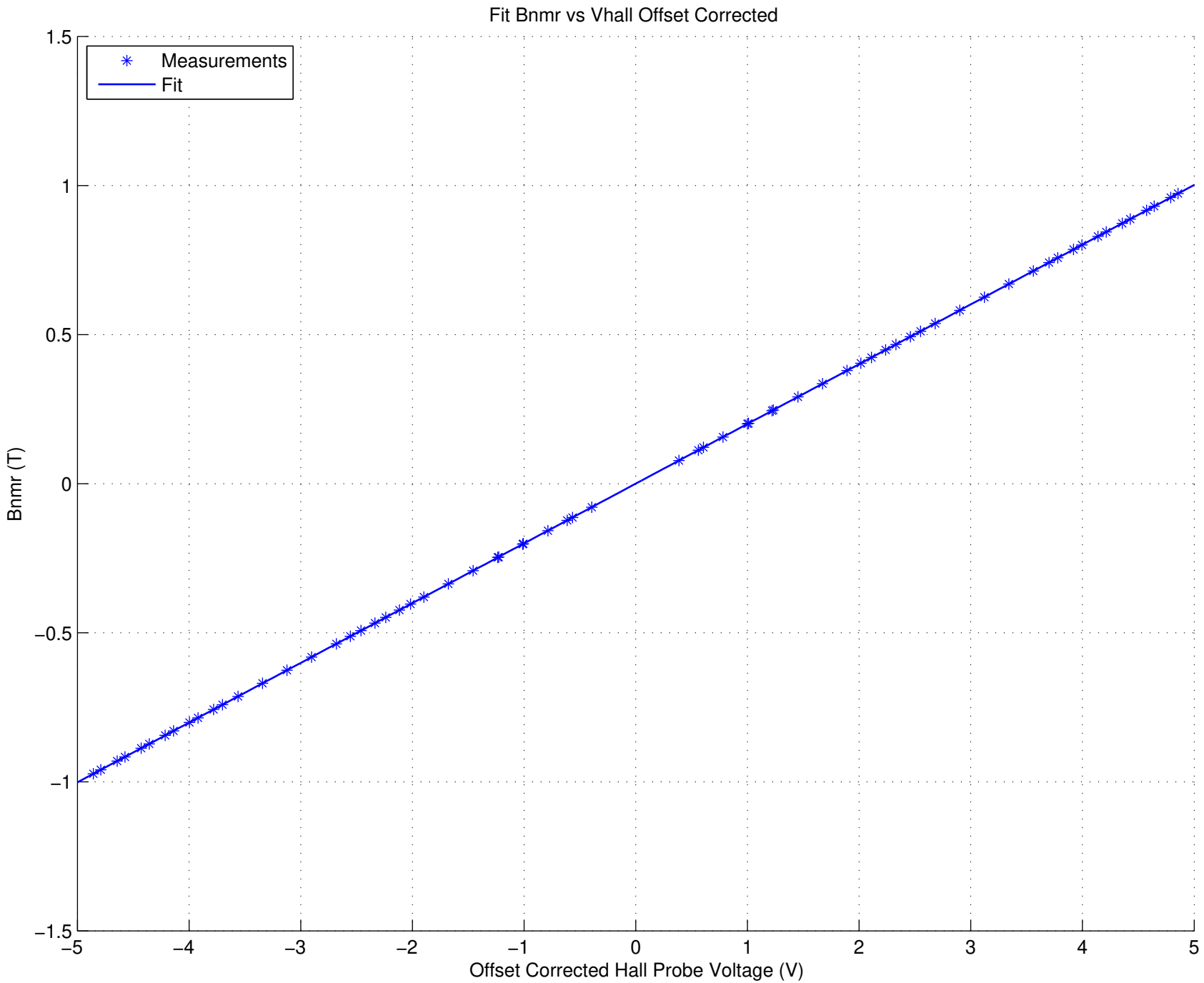
Header:
SLAC Magnetic Measurements
Date: 02−28−2013
Time: 09:54:22

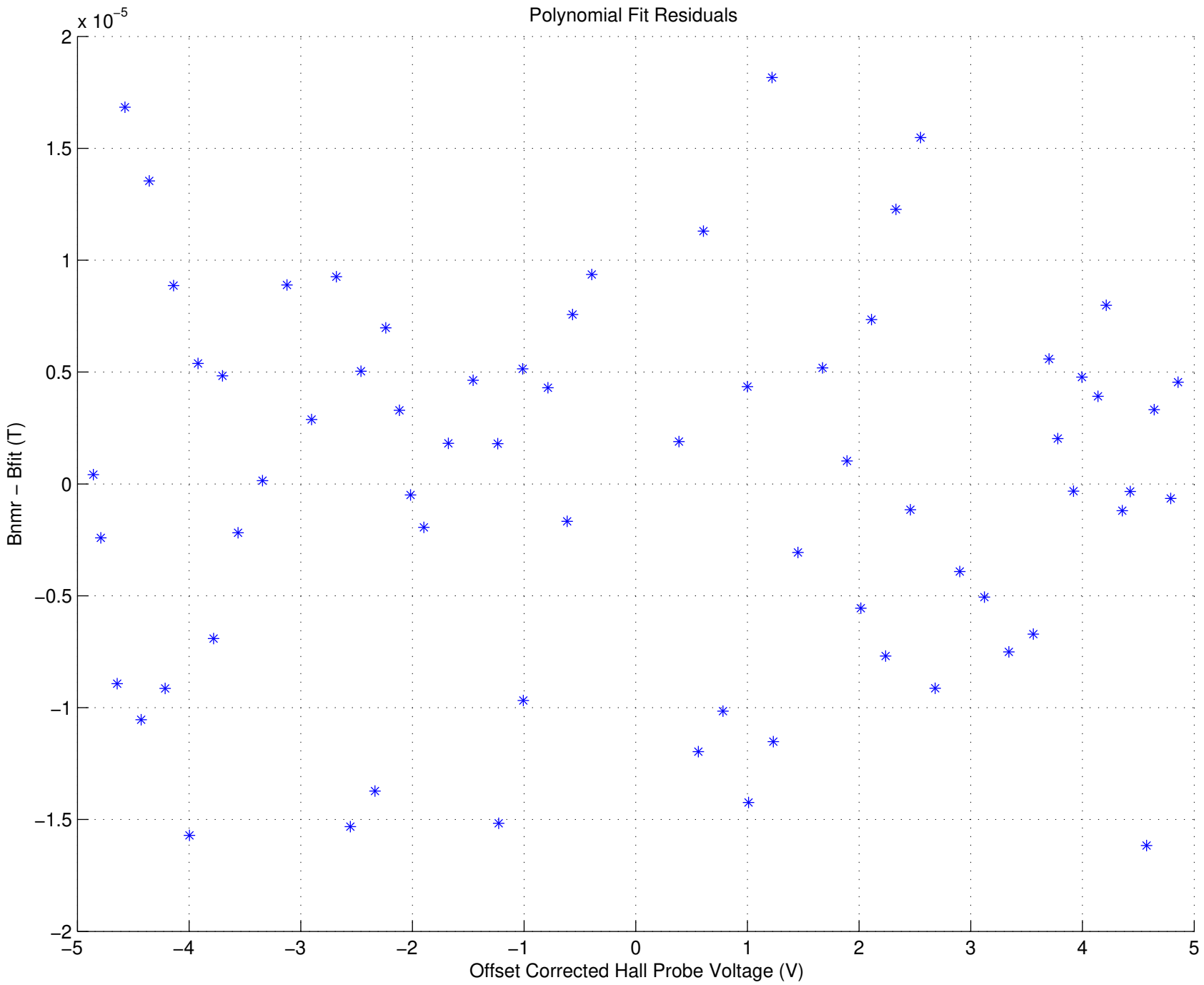
Project: LCLS
Device Type: Hall probe
Data Type: y
Serial Number: SENTRON−441
Run Number: 79
Measurement Type: HPCS
Operator: YL
Comment: alignment

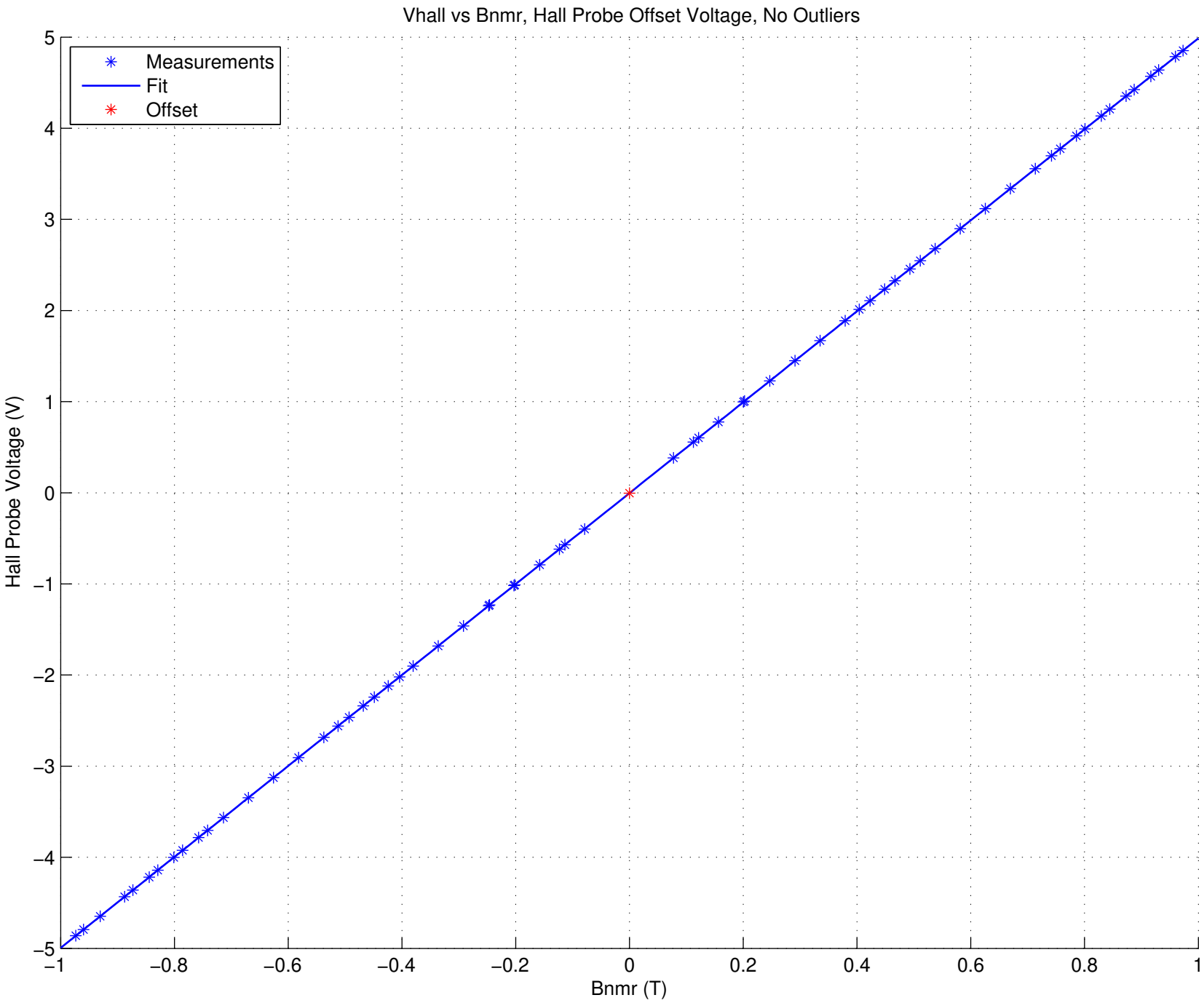
Current(A) T(C) Est. Field(T) Voltage Field

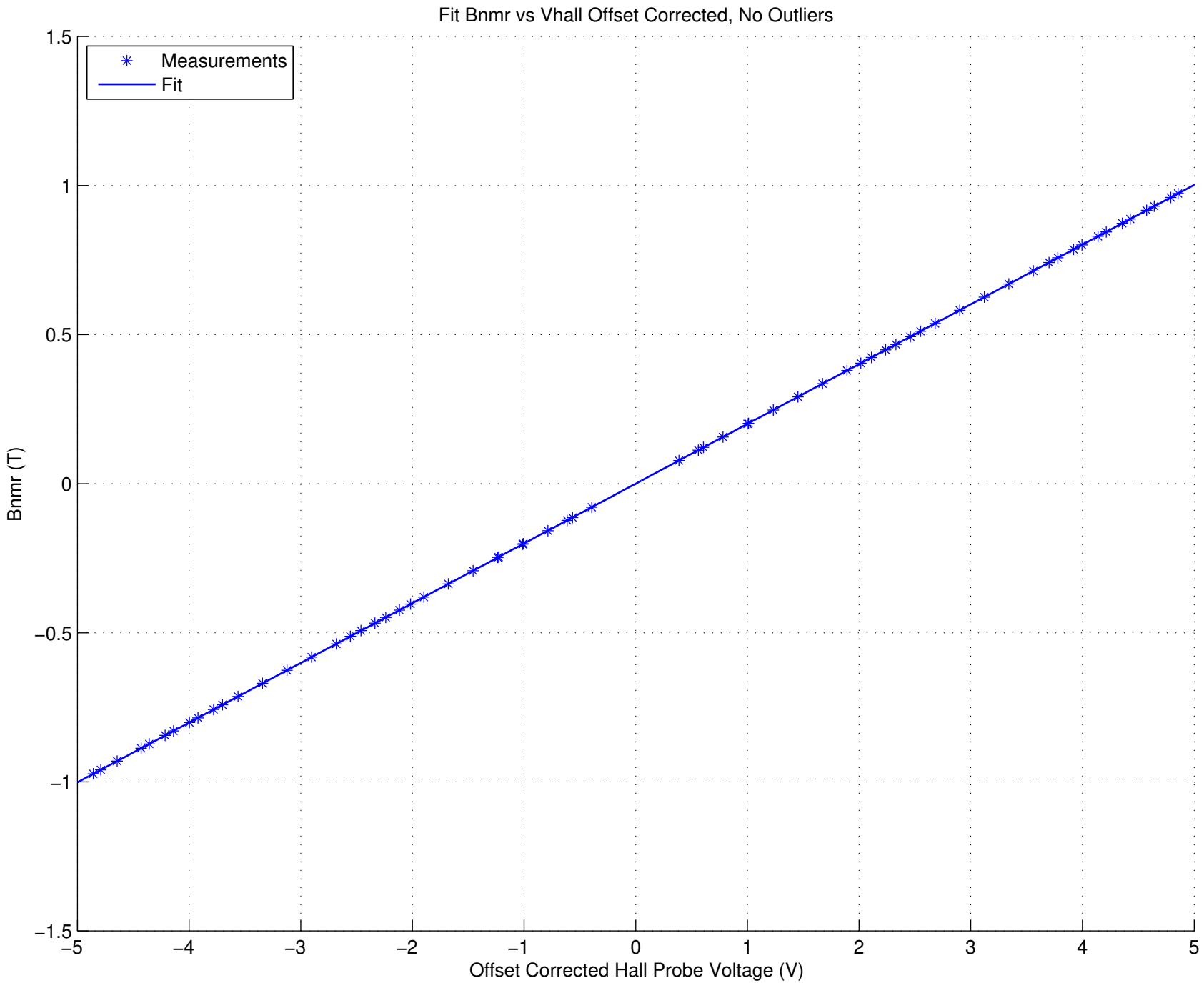
Parameters:
INPUT−FILE−DIR =s:\MagData\LCLS\Hall probe\Sentron−441\HPCS−079\
INPUT−FILE−NAME =hpcs−dat.001
POLY−FIT−ORDER =10
NUM−SIG−OUTLIER =2
NOM−CALIB−CONST =0.2
MAX−B−NMR−FIT =1

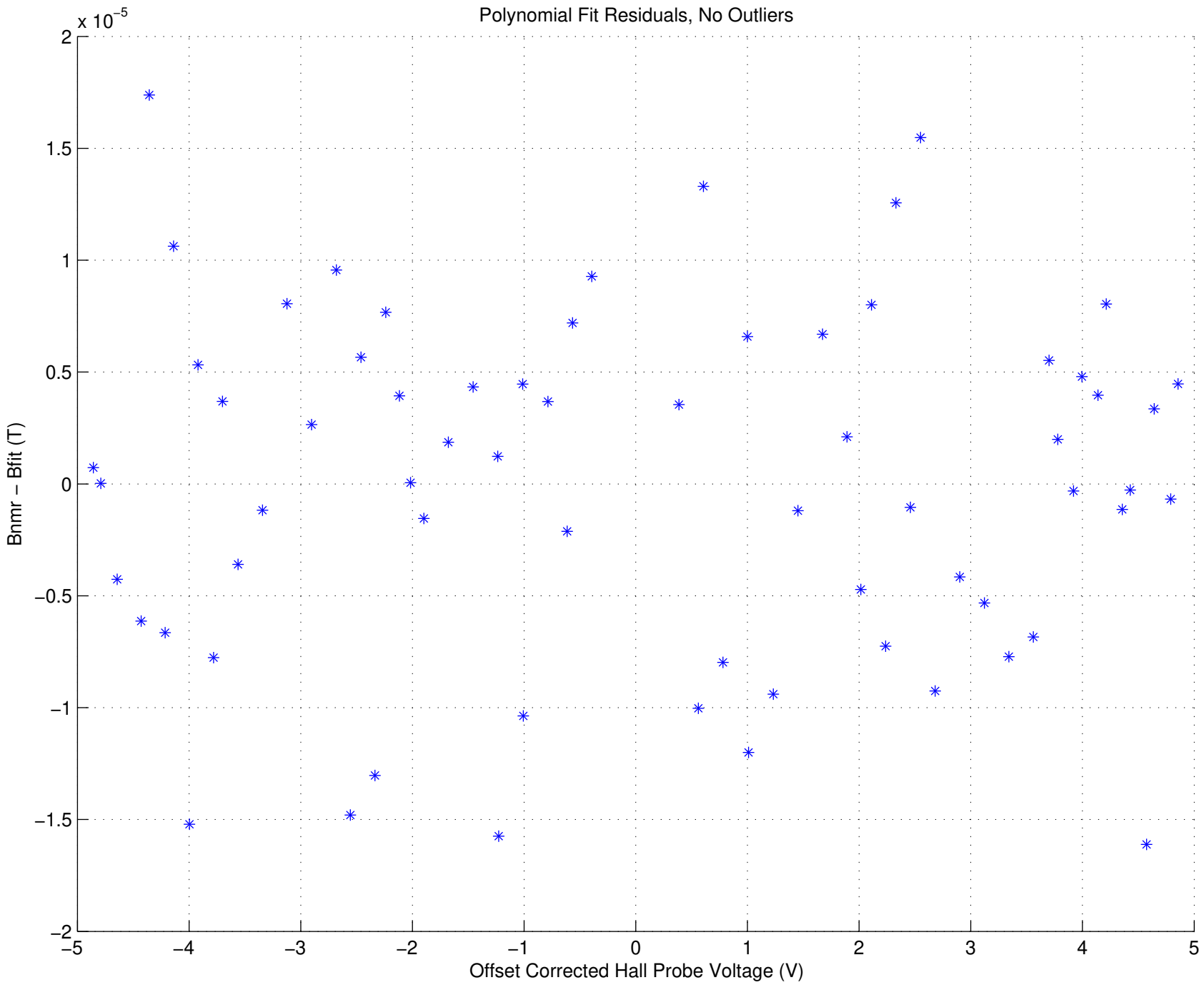

Vhall vs Bnmr, Hall Probe Offset Voltage
Measurements
Fit
Offset
Hall Probe Voltage (V)
Bnmr (T)
5
4
3
2
1
0
−1
−2
−3
−4
−5
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1

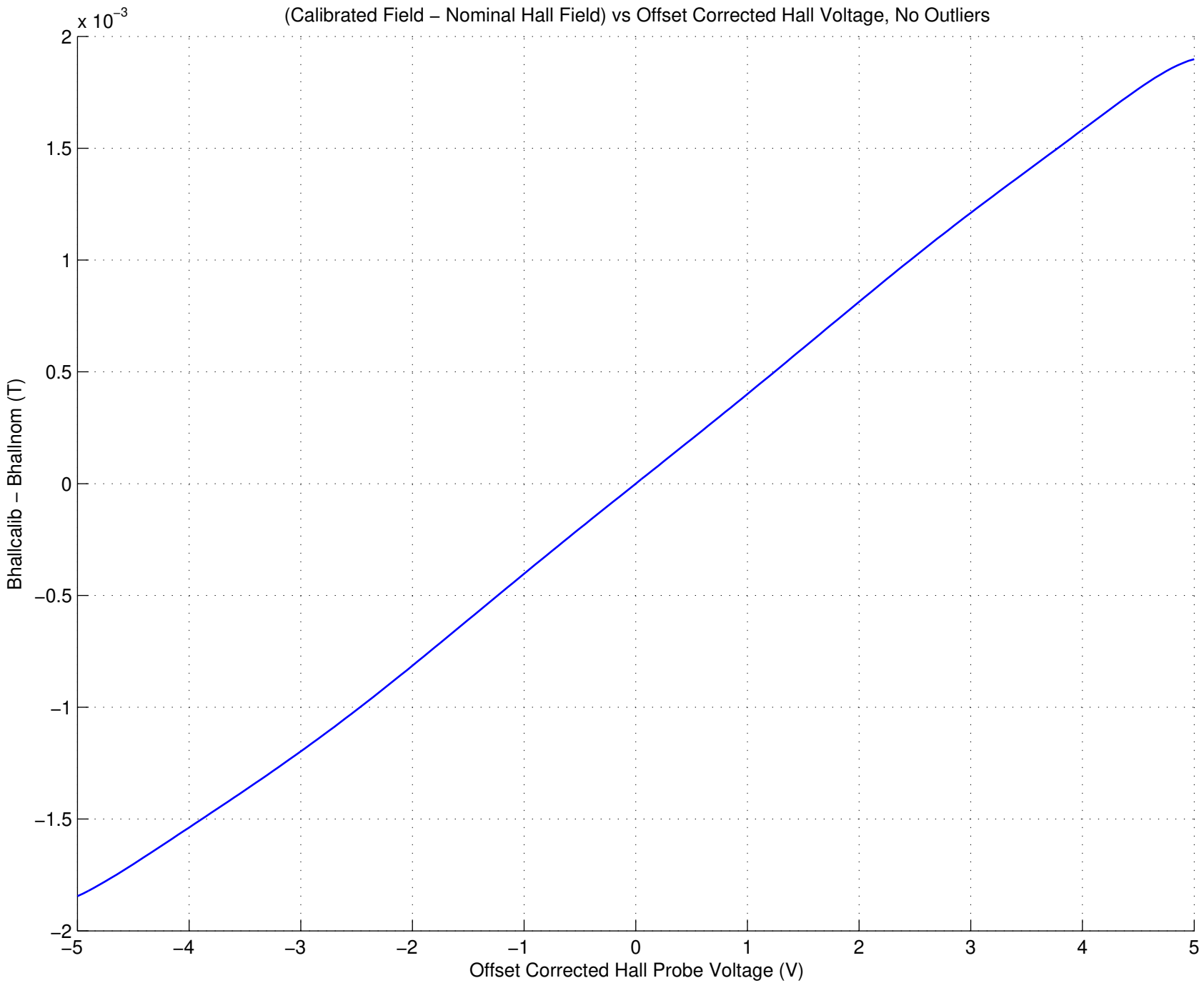

Fit Bnmr vs Vhall Offset Corrected
Measurements
Fit
Bnmr (T)
Offset Corrected Hall Probe Voltage (V)
1.5
1
0.5
0
−0.5
−1
−1.5
−5
−4
−3
−2
−1
0
1
2
3
4
5


Polynomial Fit Residuals
x 10^-5
2
1.5
1
0.5
0
−0.5
−1
−1.5
−2
−5
−4
−3
−2
−1
0
1
2
3
4
5
Bnmr − Bfit (T)
Offset Corrected Hall Probe Voltage (V)


Vhall vs Bnmr, Hall Probe Offset Voltage, No Outliers
Measurements
Fit
Offset
Hall Probe Voltage (V)
Bnmr (T)
5
4
3
2
1
0
−1
−2
−3
−4
−5
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1


Fit Bnmr vs Vhall Offset Corrected, No Outliers
Measurements
Fit
Bnmr (T)
Offset Corrected Hall Probe Voltage (V)
1.5
1
0.5
0
−0.5
−1
−1.5
−5
−4
−3
−2
−1
0
1
2
3
4
5


Polynomial Fit Residuals, No Outliers
x 10^-5
2
1.5
1
0.5
0
−0.5
−1
−1.5
−2
−5
−4
−3
−2
−1
0
1
2
3
4
5
Bnmr − Bfit (T)
Offset Corrected Hall Probe Voltage (V)


(Calibrated Field – Nominal Hall Field) vs Offset Corrected Hall Voltage, No Outliers
x 10^-3
2
1.5
1
0.5
0
−0.5
−1
−1.5
−2
Bhallcalib – Bhallnom (T)
−5
−4
−3
−2
−1
0
1
2
3
4
5
Offset Corrected Hall Probe Voltage (V)