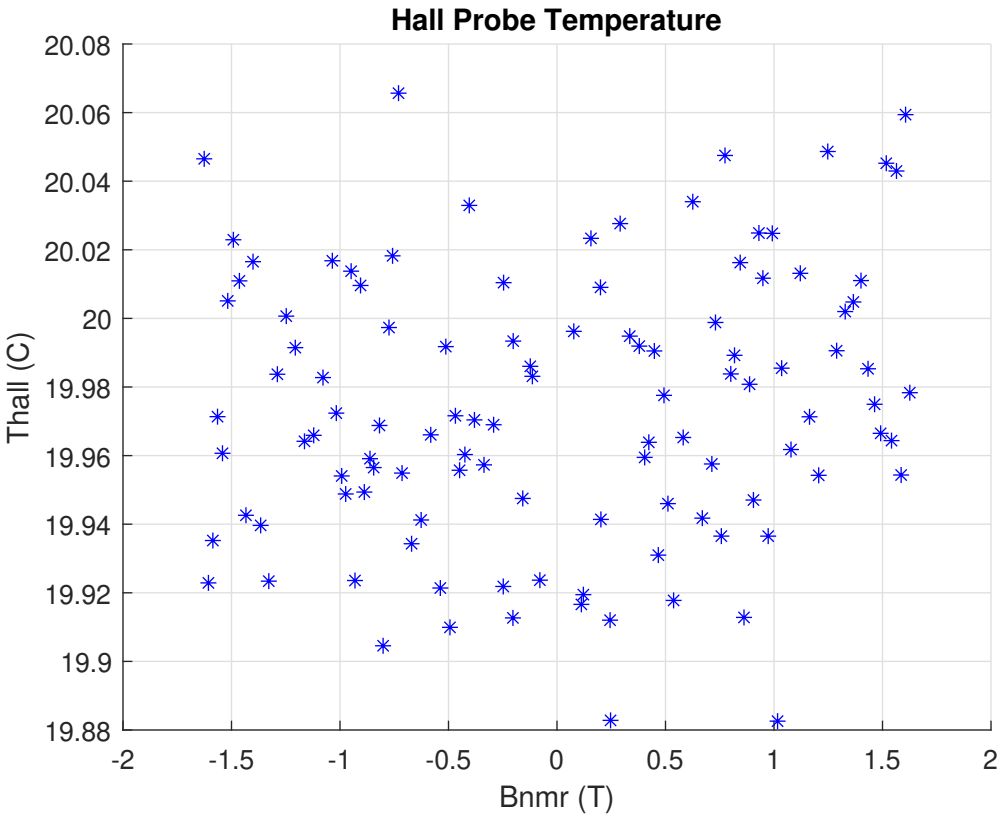
SLAC Magnetic Measurements
Hall Probe Calibration

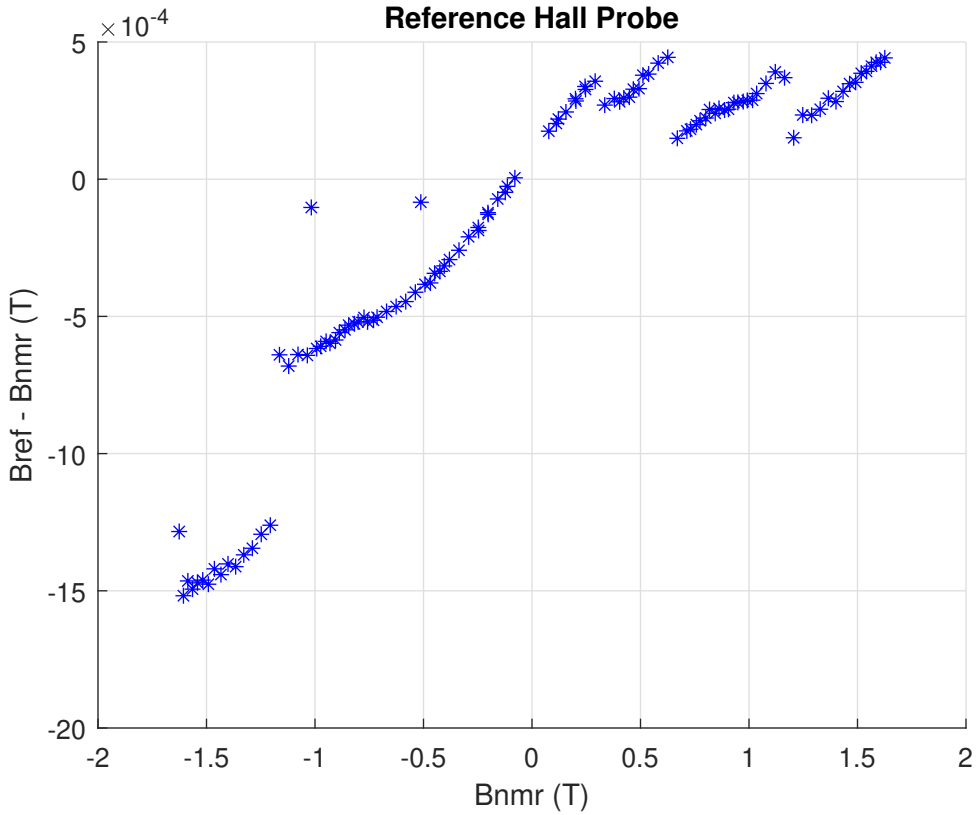
Header:
SLAC Magnetic Measurements
Date: 01-16-2020
Time: 10:55:51

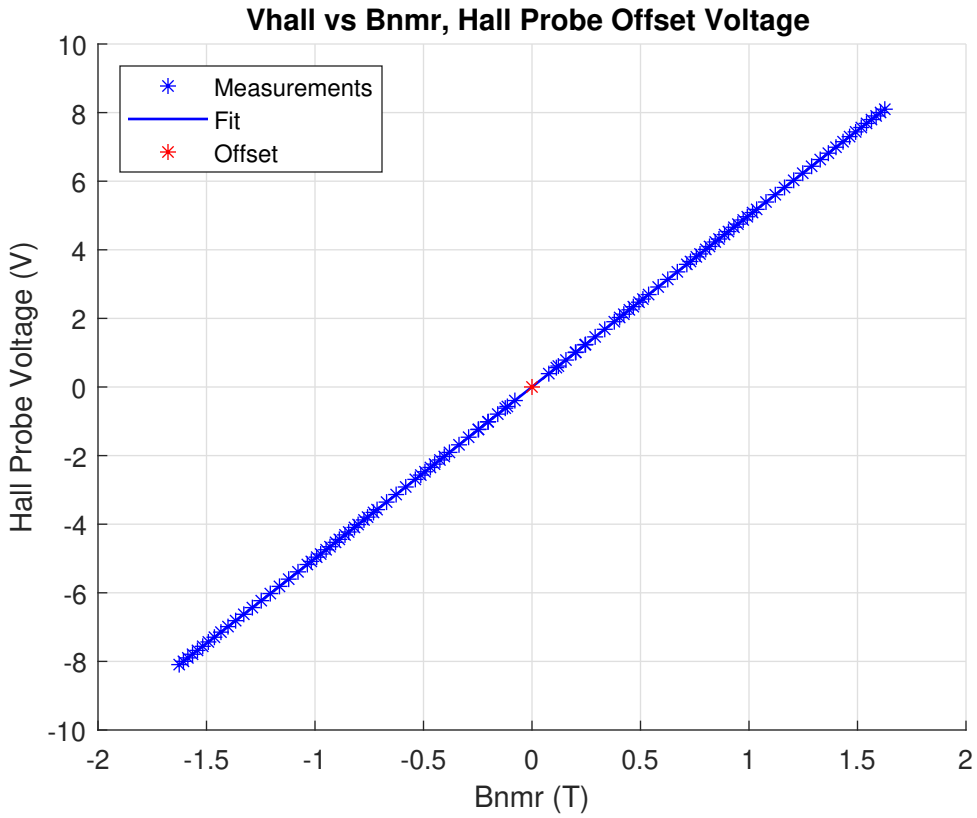
Project: LCLS-II
Device Type: Hall probe
Data Type: Y
Serial Number: SENTRON-463
Run Number: 13
Measurement Type: HPCS
Operator: YL
Comment: PC71024; +6.00002, -6.00002, +0.99999; 20C

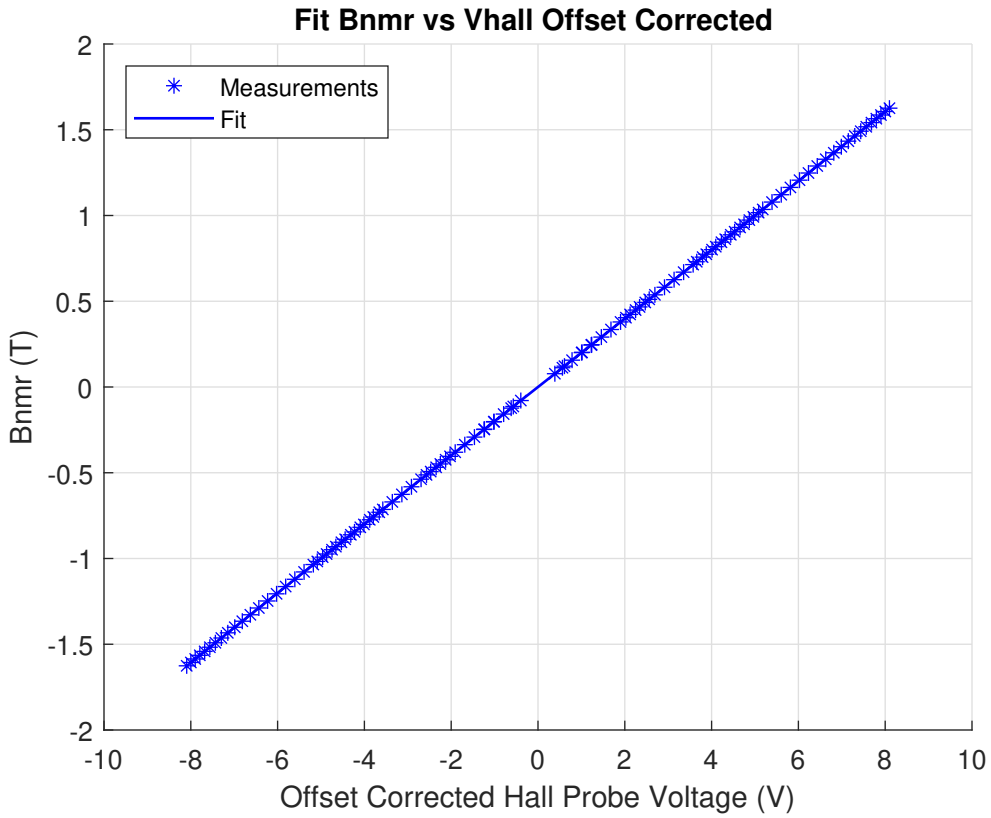
Current(A) T(C) Case T-V Est. Field(T) Voltage Voltage-T-Corr Field

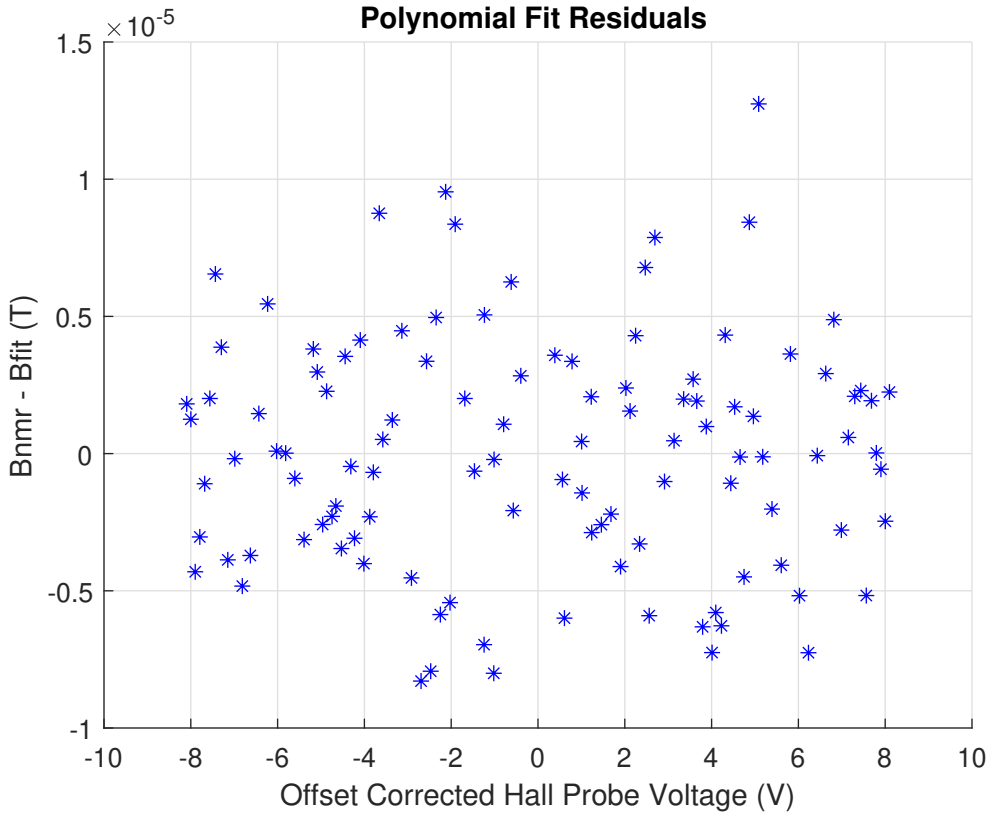
Parameters:
INPUT-FILE-DIR =T:\MagData\LCLS-II\Hall probe\SENTRON-463\HPCS-013\
INPUT-FILE-NAME =hpcs-dat.001
POLY-FIT-ORDER =13
NUM-SIG-OUTLIER =2
NOM-CALIB-CONST =0.2
MAX-B-NMR-FIT =1.6

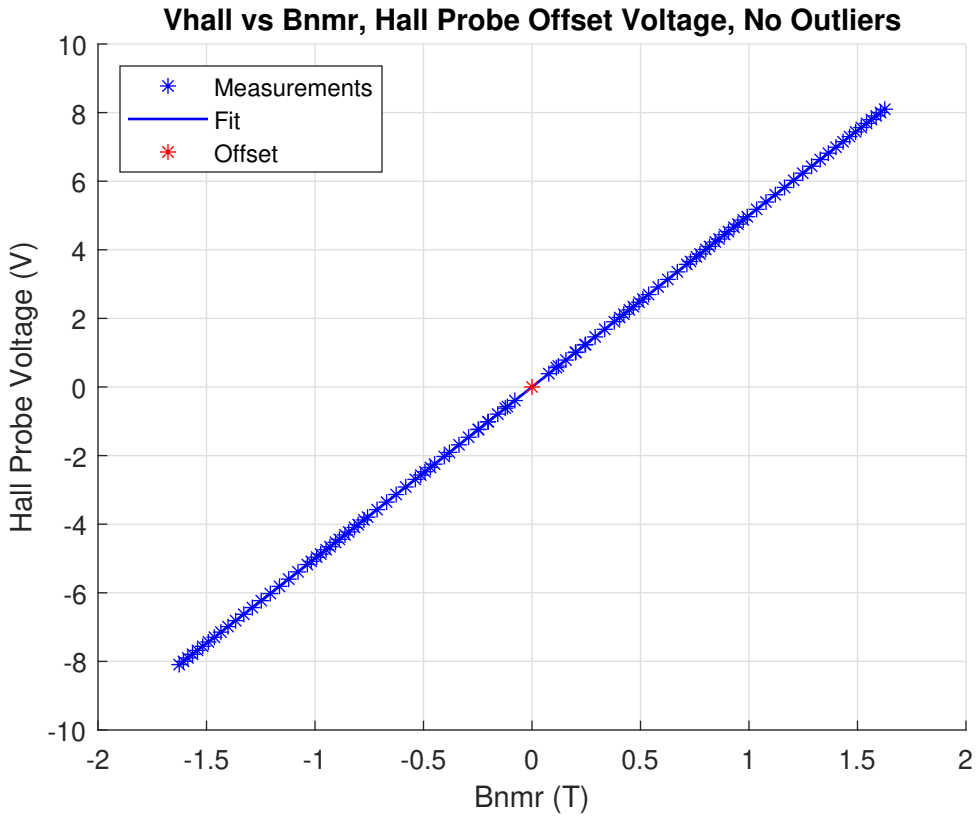

Hall Probe Temperature
Thall (C)
Bnmr (T)
20.08
20.06
20.04
20.02
20
19.98
19.96
19.94
19.92
19.9
19.88
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2

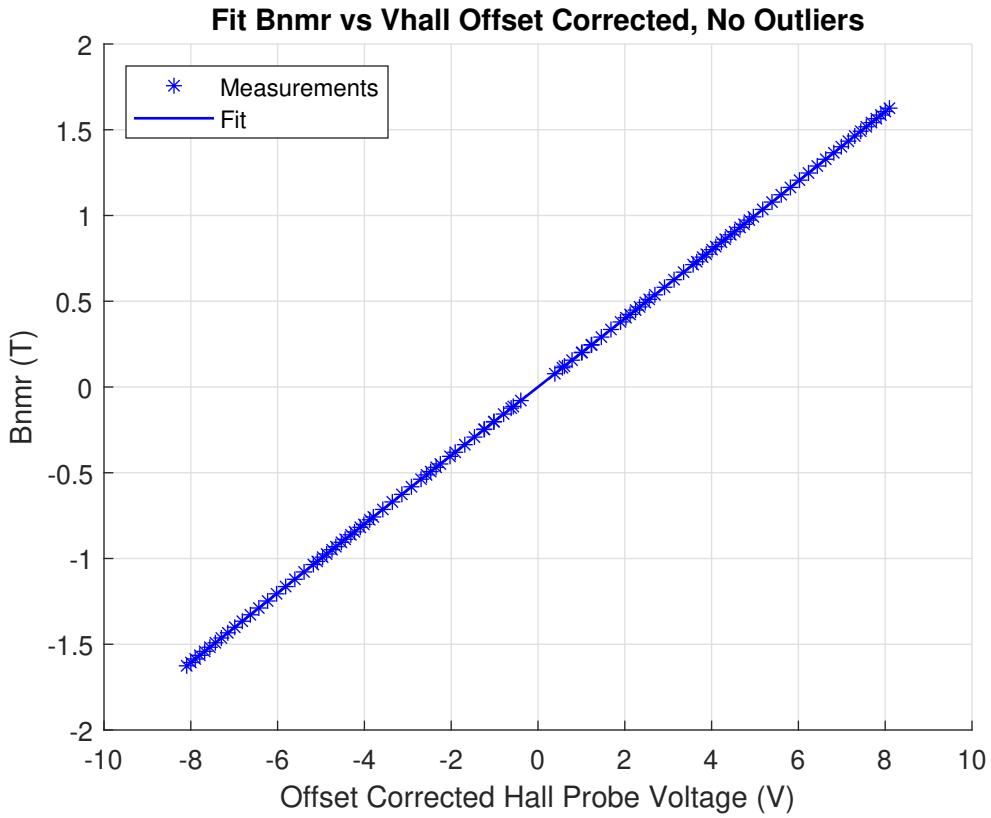

Reference Hall Probe
×10^-4
5
0
-5
-10
-15
-20
Bref - Bnmr (T)
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2
Bnmr (T)

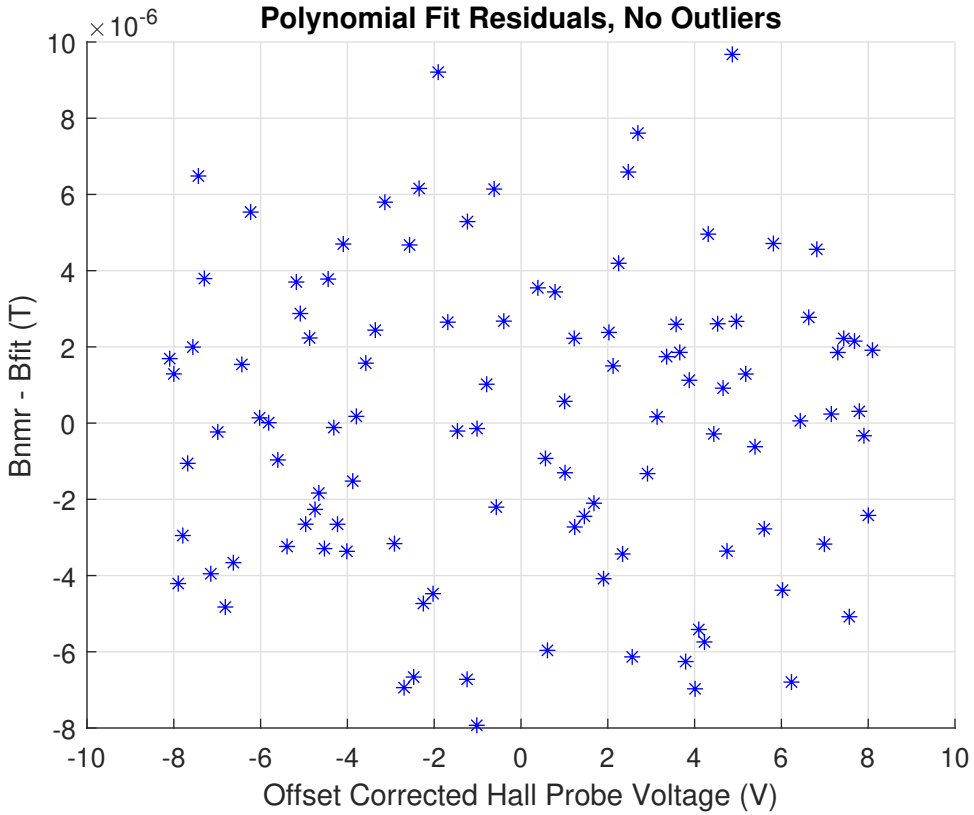

Vhall vs Bnmr, Hall Probe Offset Voltage
Measurements
Fit
Offset
Hall Probe Voltage (V)
Bnmr (T)
10
8
6
4
2
0
-2
-4
-6
-8
-10
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2

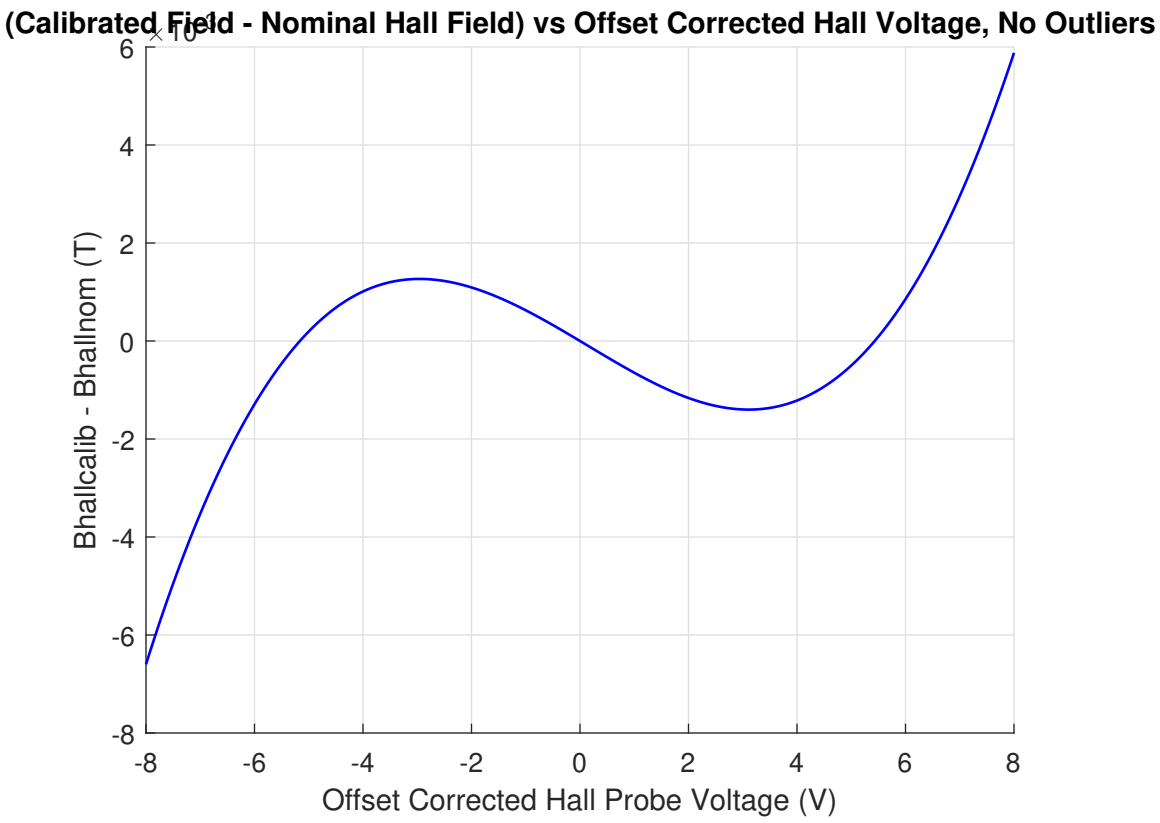

Fit Bnmr vs Vhall Offset Corrected
Measurements
Fit
Bnmr (T)
Offset Corrected Hall Probe Voltage (V)
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-10
-8
-6
-4
-2
0
2
4
6
8
10


Polynomial Fit Residuals
×10-5
1.5
1
0.5
0
-0.5
-1
Bnmr - Bfit (T)
-10
-8
-6
-4
-2
0
2
4
6
8
10
Offset Corrected Hall Probe Voltage (V)


Vhall vs Bnmr, Hall Probe Offset Voltage, No Outliers
Measurements
Fit
Offset
Hall Probe Voltage (V)
Bnmr (T)
10
8
6
4
2
0
-2
-4
-6
-8
-10
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2


Fit Bnmr vs Vhall Offset Corrected, No Outliers
Measurements
Fit
Bnmr (T)
Offset Corrected Hall Probe Voltage (V)
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-10
-8
-6
-4
-2
0
2
4
6
8
10


Polynomial Fit Residuals, No Outliers
×10-6
10
8
6
4
2
0
-2
-4
-6
-8
Bnmr - Bfit (T)
-10
-8
-6
-4
-2
0
2
4
6
8
10
Offset Corrected Hall Probe Voltage (V)


(Calibrated Field - Nominal Hall Field) vs Offset Corrected Hall Voltage, No Outliers
×10⁻⁴
6
4
2
0
-2
-4
-6
-8
Bhallcalib - Bhallnom (T)
-8
-6
-4
-2
0
2
4
6
8
Offset Corrected Hall Probe Voltage (V)