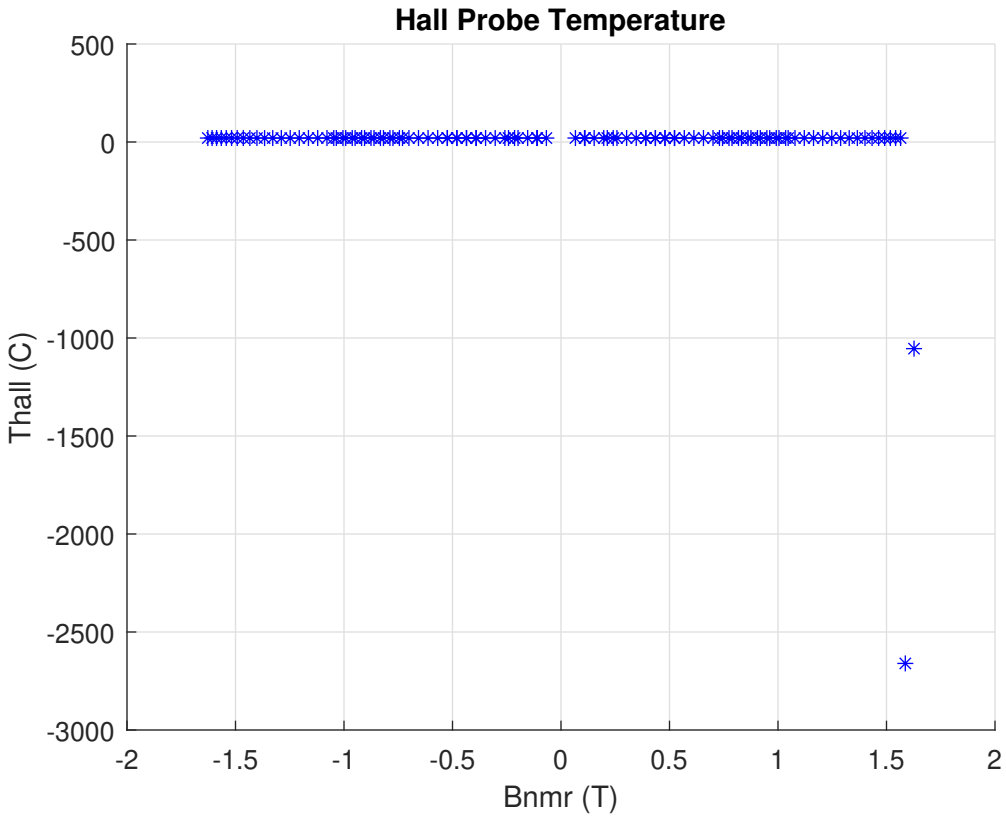
SLAC Magnetic Measurements
Hall Probe Calibration

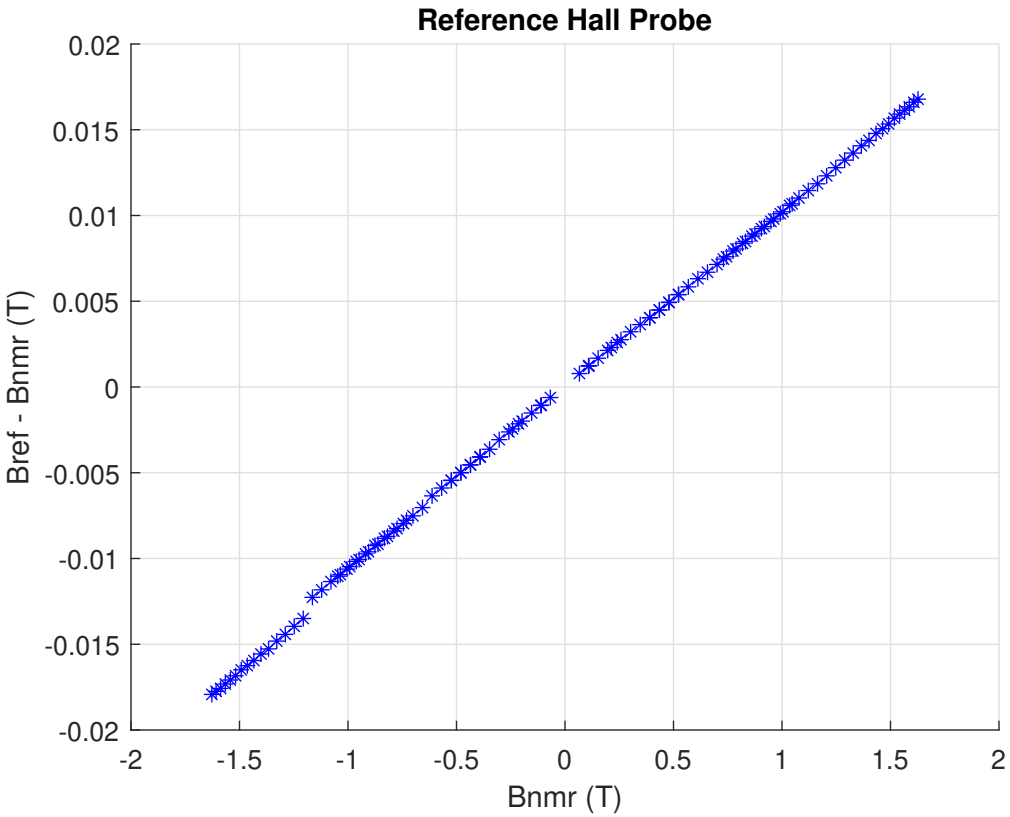
Header:
SLAC Magnetic Measurements
Date: 03-02-2021
Time: 08:22:07

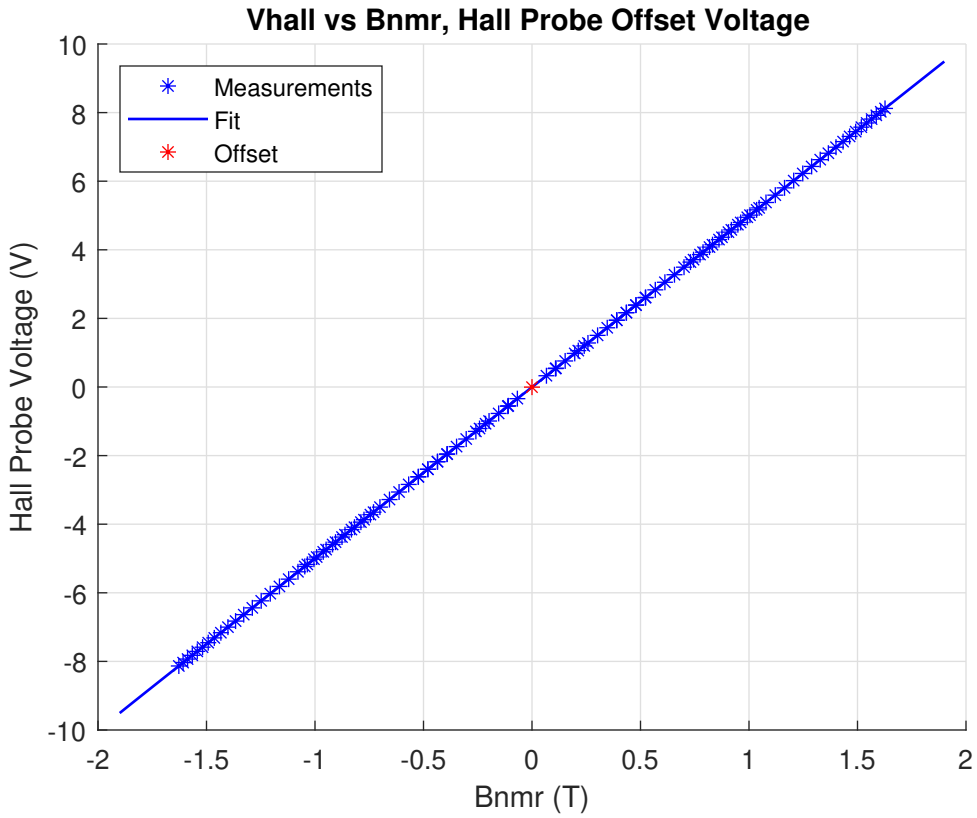
Project: LCLS-II
Device Type: Hall probe
Data Type: Y
Serial Number: SENTRON-441
Run Number: 20
Measurement Type: HPCS
Operator: YL
Comment: PC71027; +6.00003, -6.00003, +1.00000

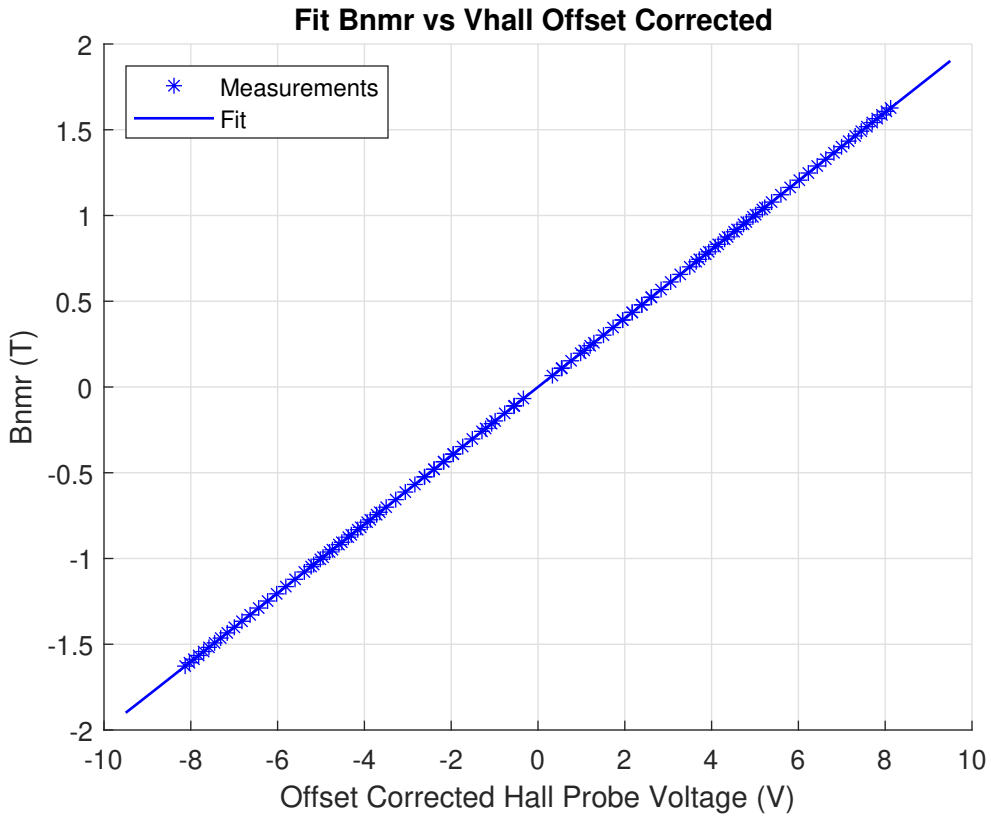
Current(A) T(C) Case T(C) Est.Field(T) Voltage Field

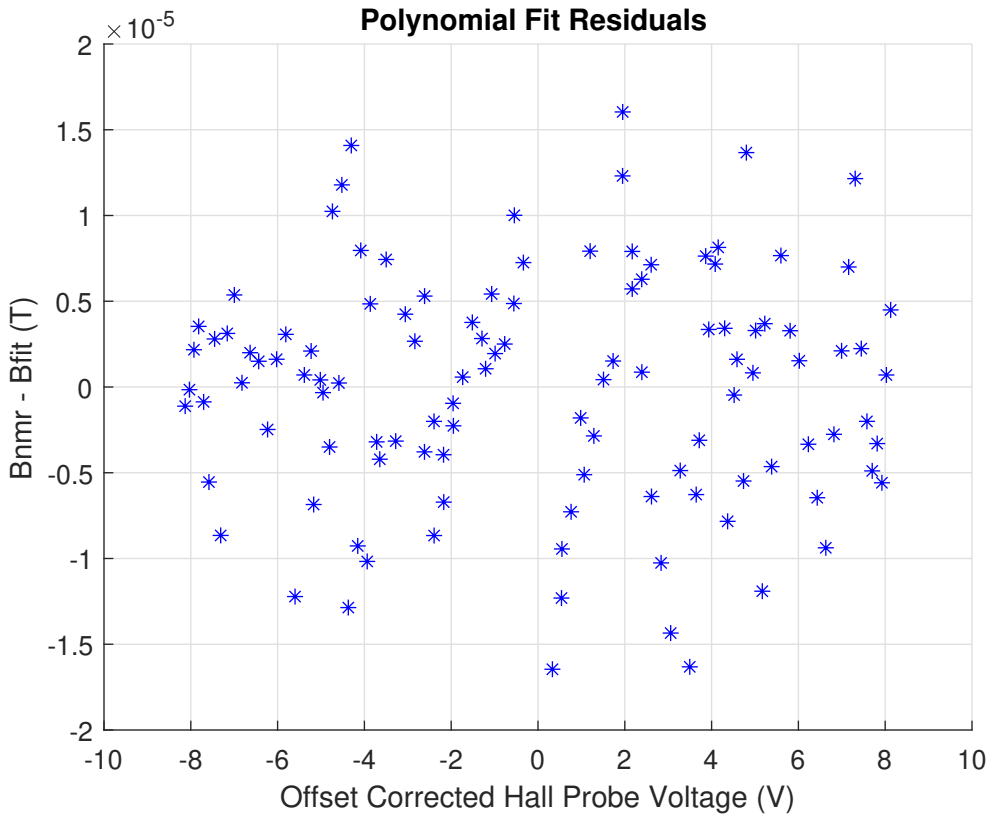
Parameters:
INPUT-FILE-DIR =T:\MagData\LCLS-II\Hall probe\SENTRON-441\HPCS-020\
INPUT-FILE-NAME =hpcs-dat.001
POLY-FIT-ORDER =13
NUM-SIG-OUTLIER =2
NOM-CALIB-CONST =0.2
MAX-B-NMR-FIT =1.9

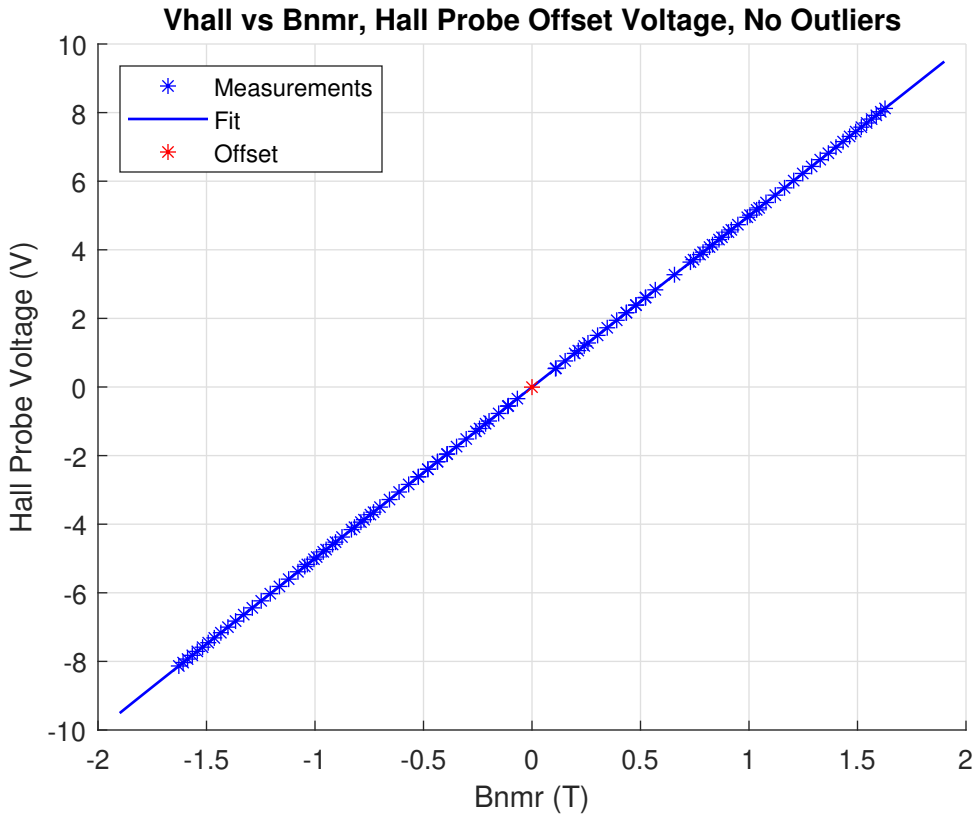

Hall Probe Temperature
500
0
-500
-1000
-1500
-2000
-2500
-3000
Thall (C)
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2
Bnmr (T)

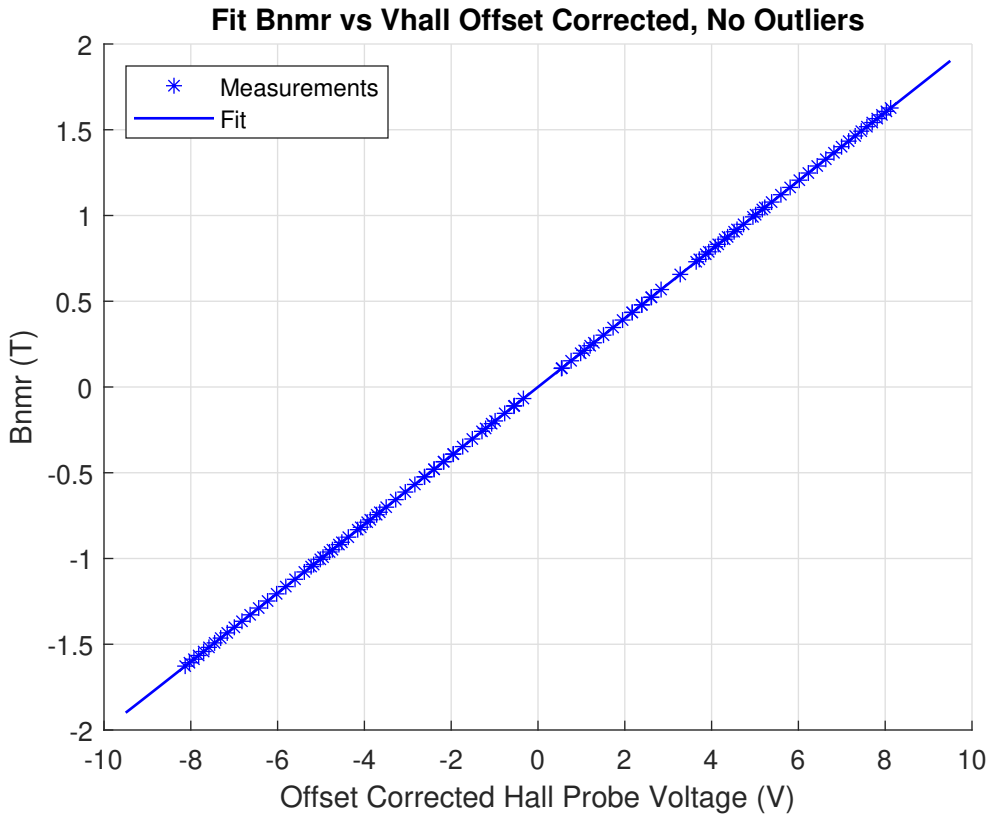

Reference Hall Probe
Bref - Bnmr (T)
Bnmr (T)
0.02
0.015
0.01
0.005
0
-0.005
-0.01
-0.015
-0.02
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2

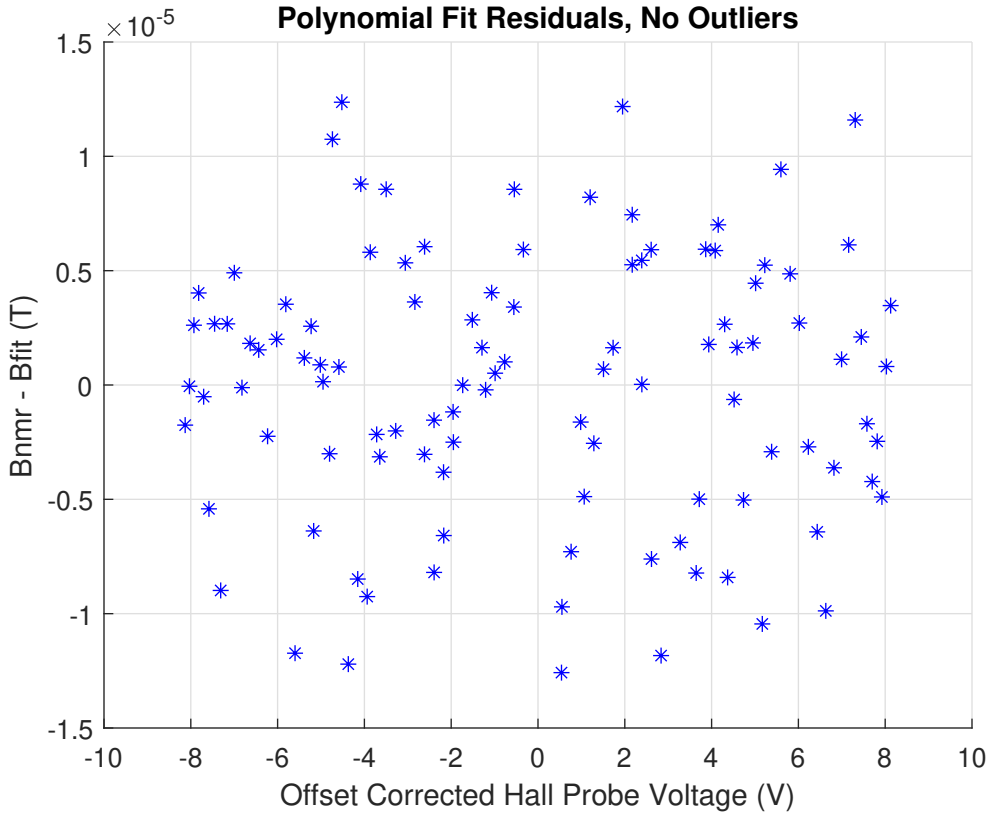

Vhall vs Bnmr, Hall Probe Offset Voltage
Measurements
Fit
Offset
Hall Probe Voltage (V)
Bnmr (T)
10
8
6
4
2
0
-2
-4
-6
-8
-10
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2

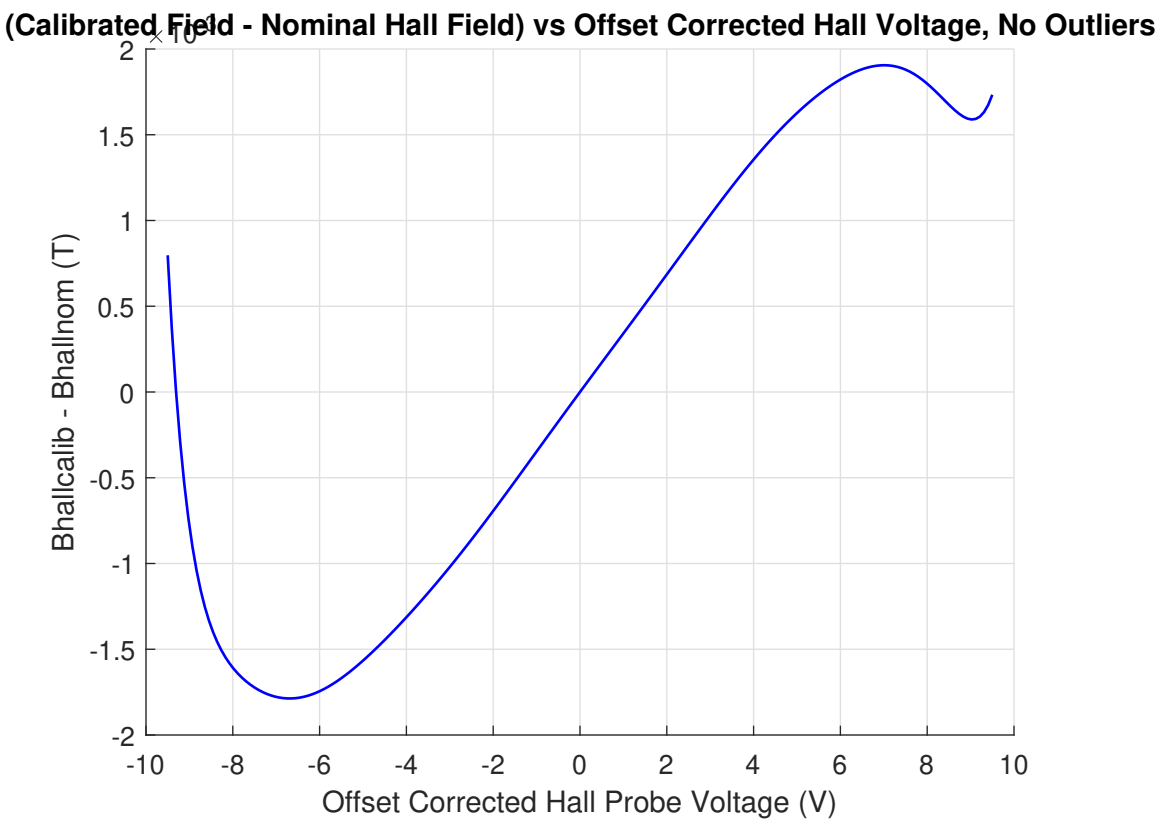

Fit Bnmr vs Vhall Offset Corrected
Measurements
Fit
Bnmr (T)
Offset Corrected Hall Probe Voltage (V)
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-10
-8
-6
-4
-2
0
2
4
6
8
10


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