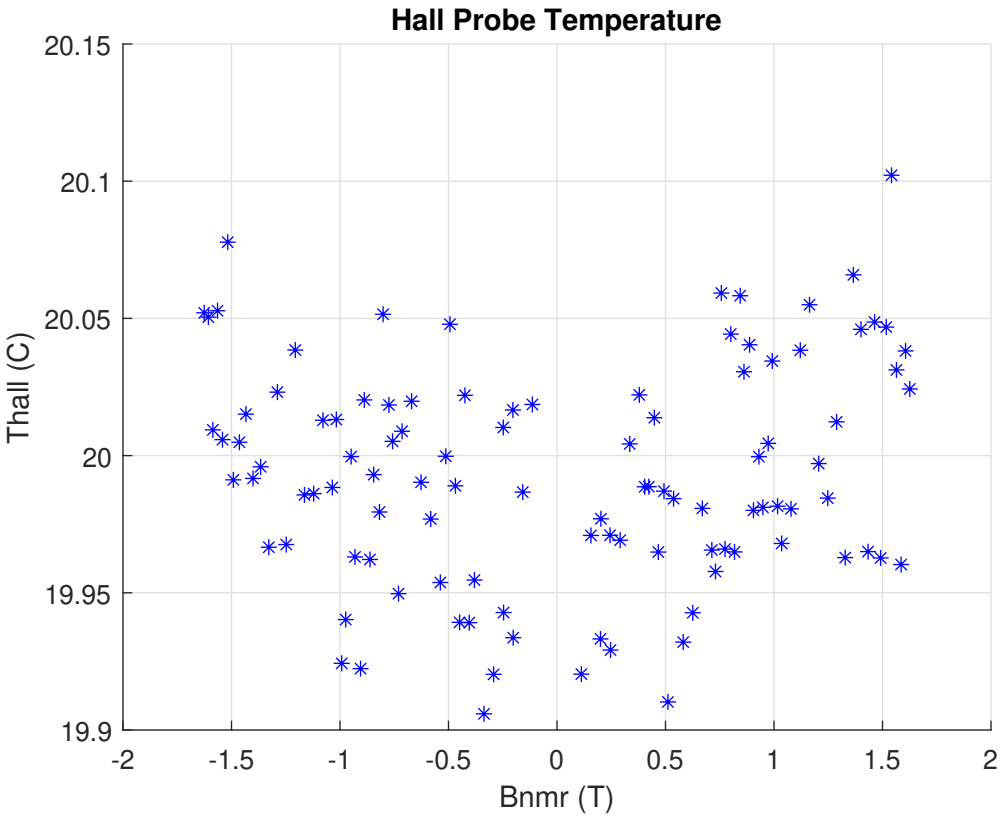
SLAC Magnetic Measurements
Hall Probe Calibration

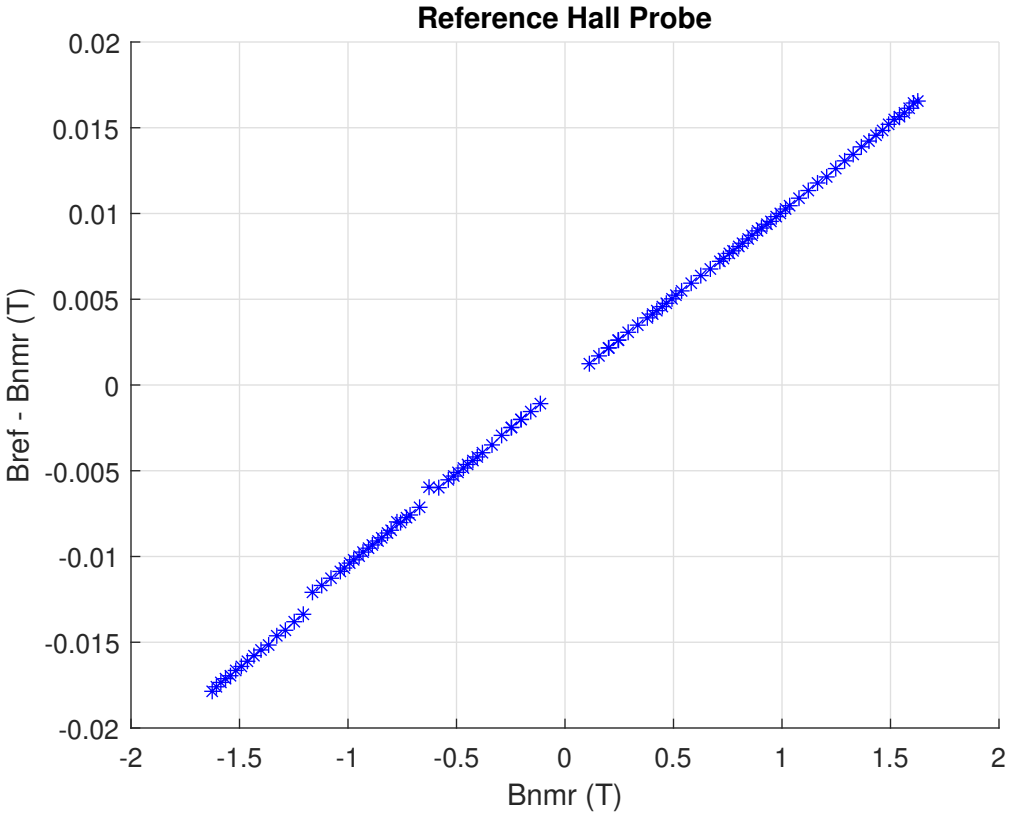
Header:
SLAC Magnetic Measurements
Date: 06-05-2020
Time: 07:53:23

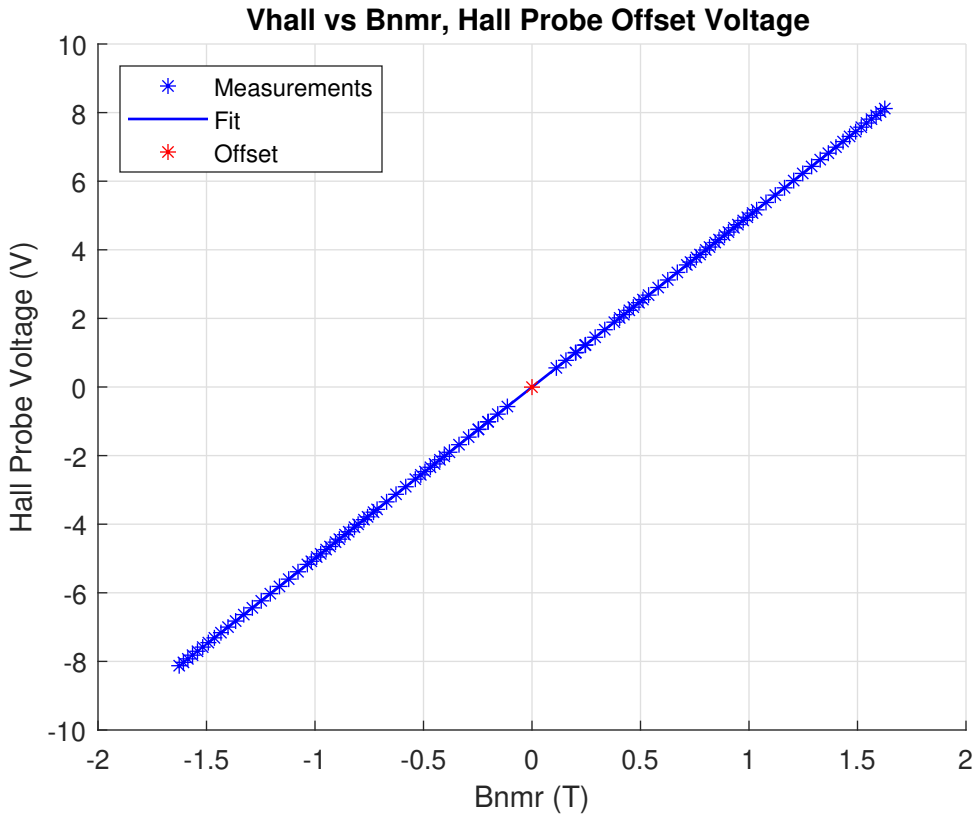
Project: LCLS-II
Device Type: Hall probe
Data Type: Y
Serial Number: SENTRON-441
Run Number: 16
Measurement Type: HPCS
Operator: YL
Comment: +6.00004, -6.00004, +1.00000

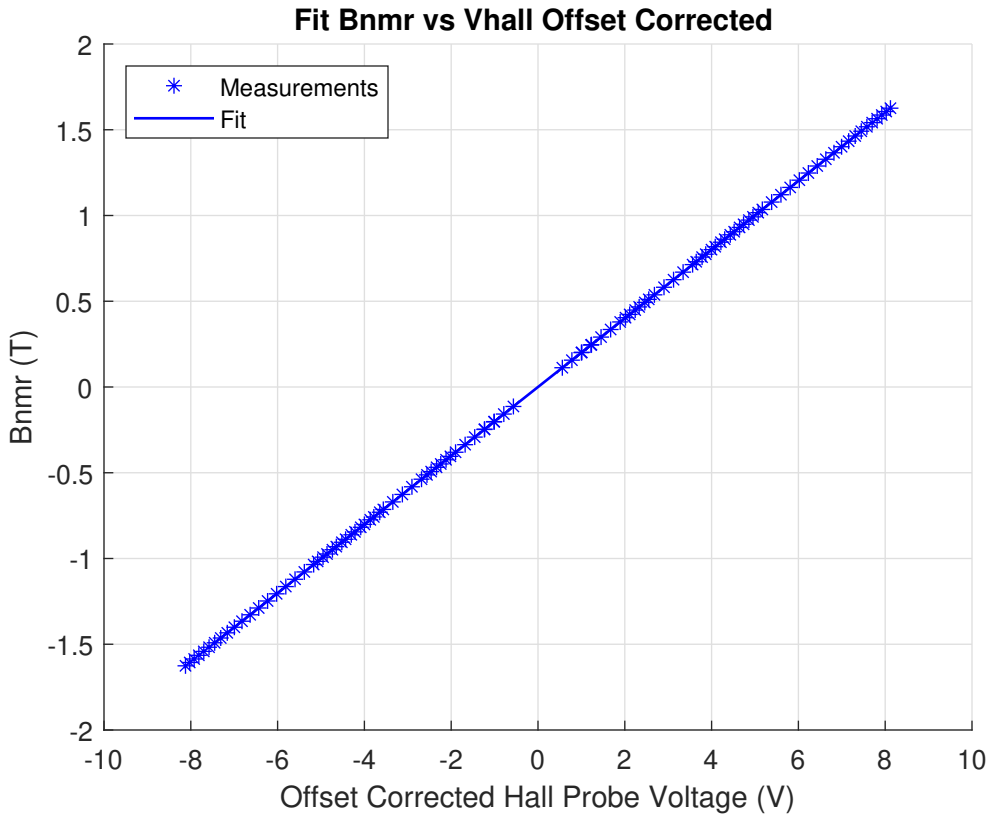
Current(A) T(C) Case T(C) Est.Field(T) Voltage Field

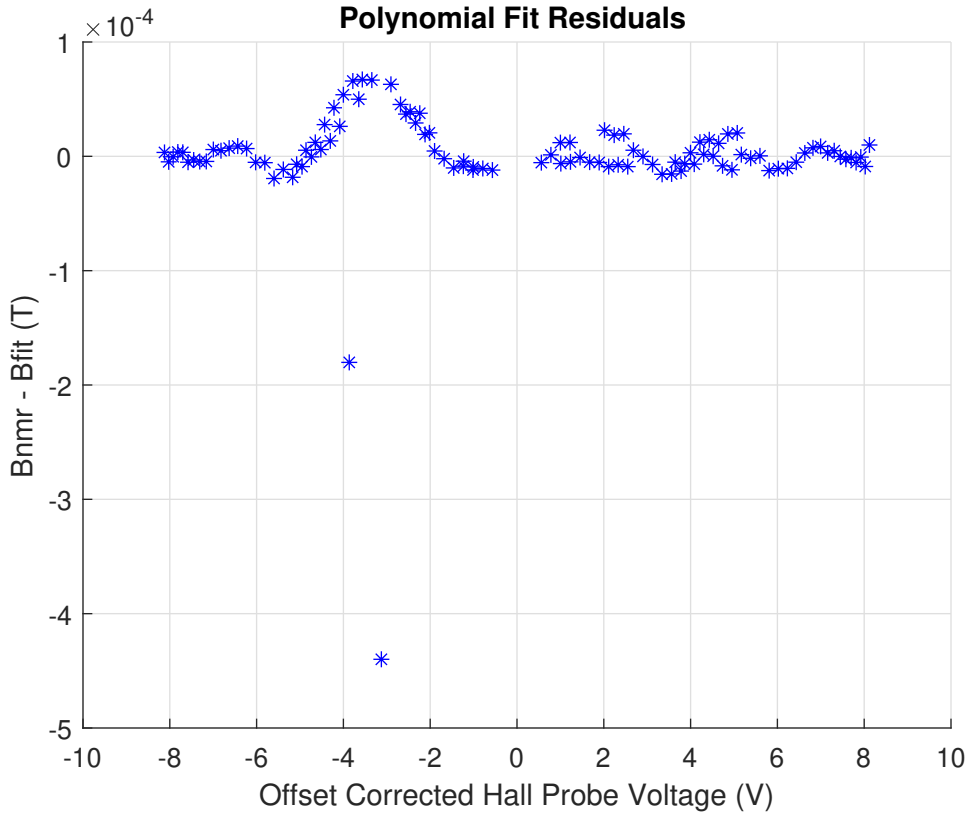
Parameters:
INPUT-FILE-DIR =T:\MagData\LCLS-II\Hall probe\SENTRON-441\HPCS-016\
INPUT-FILE-NAME =hpcs-dat.001
POLY-FIT-ORDER =13
NUM-SIG-OUTLIER =2
NOM-CALIB-CONST =0.2
MAX-B-NMR-FIT =1.5

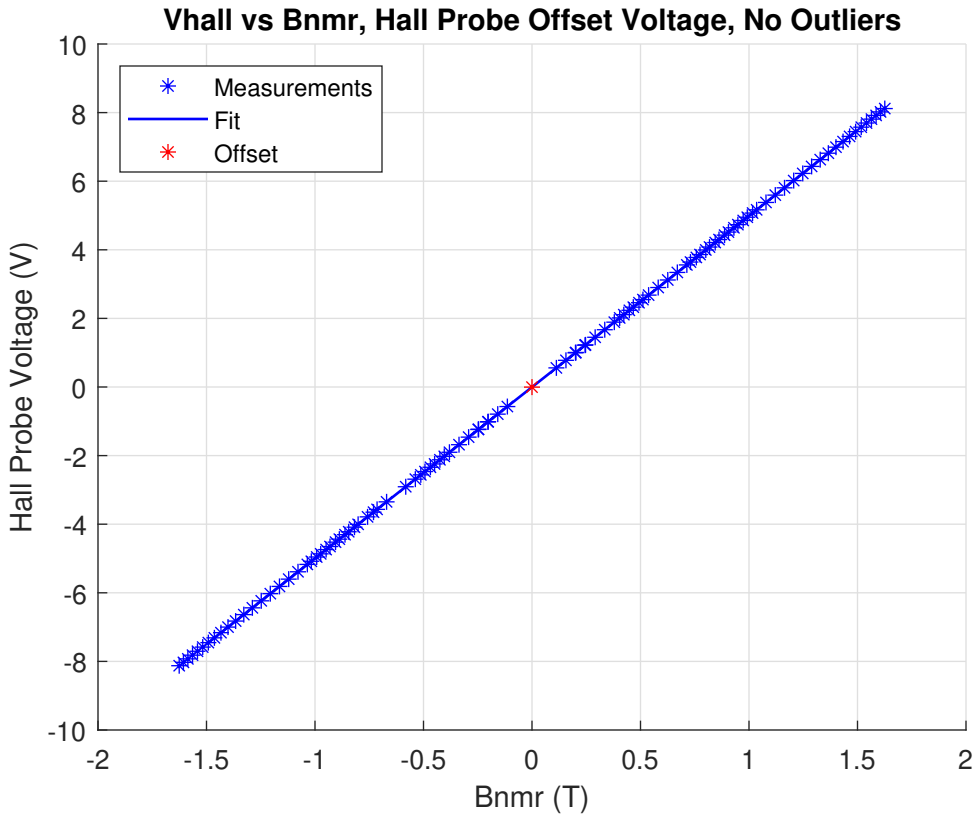

Hall Probe Temperature
20.15
20.1
20.05
20
19.95
19.9
Thall (C)
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2
Bnmr (T)

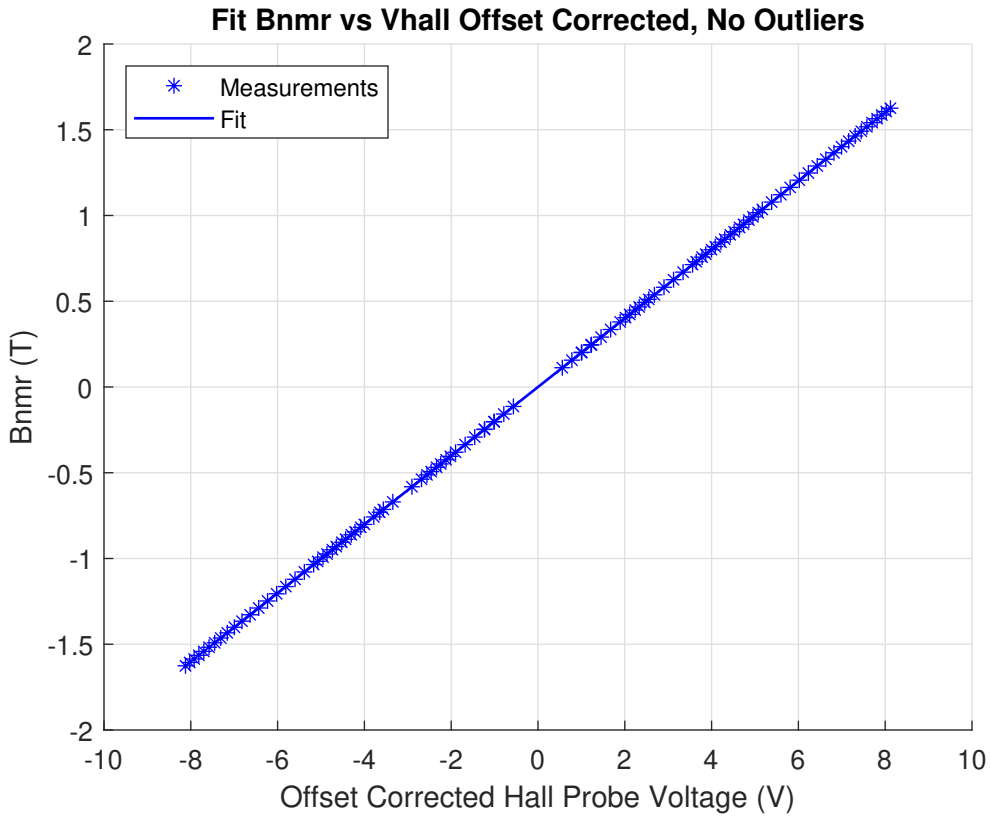

Reference Hall Probe
0.02
0.015
0.01
0.005
0
-0.005
-0.01
-0.015
-0.02
Bref - Bnmr (T)
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2
Bnmr (T)

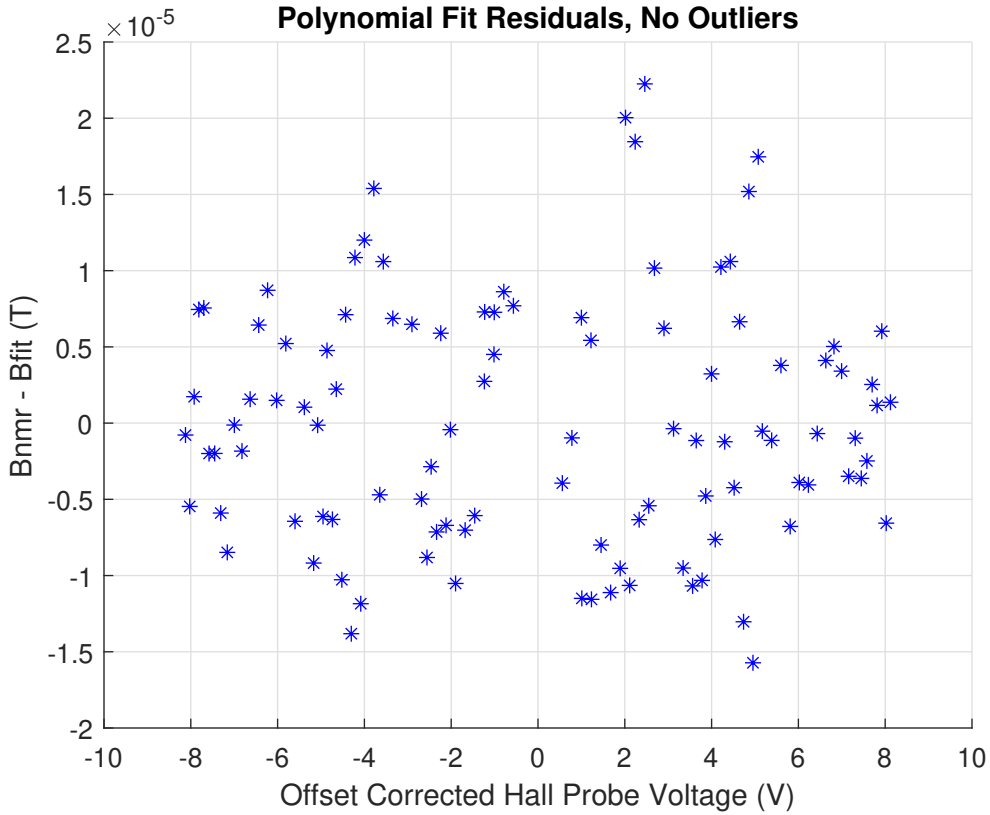

Vhall vs Bnmr, Hall Probe Offset Voltage
Measurements
Fit
Offset
Hall Probe Voltage (V)
Bnmr (T)
10
8
6
4
2
0
-2
-4
-6
-8
-10
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2

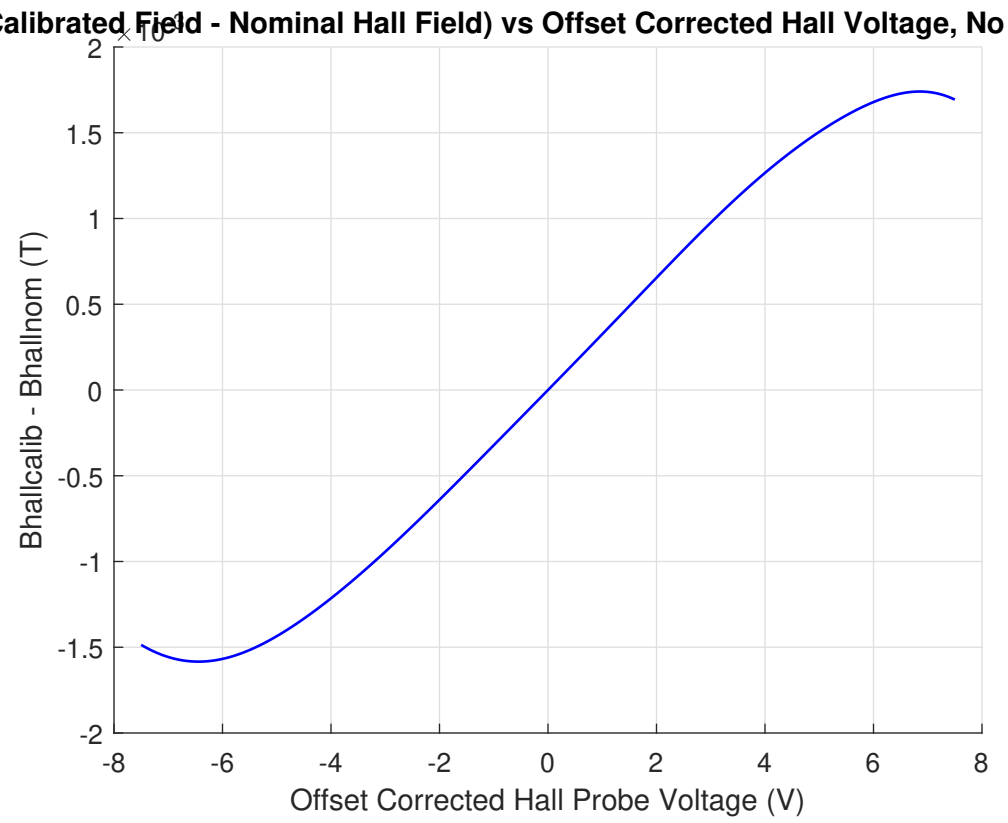

Fit Bnmr vs Vhall Offset Corrected
Measurements
Fit
Bnmr (T)
Offset Corrected Hall Probe Voltage (V)
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-10
-8
-6
-4
-2
0
2
4
6
8
10


Polynomial Fit Residuals
×10^-4
1
0
-1
-2
-3
-4
-5
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
2.5
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)


(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)
-8
-6
-4
-2
0
2
4
6
8
Offset Corrected Hall Probe Voltage (V)