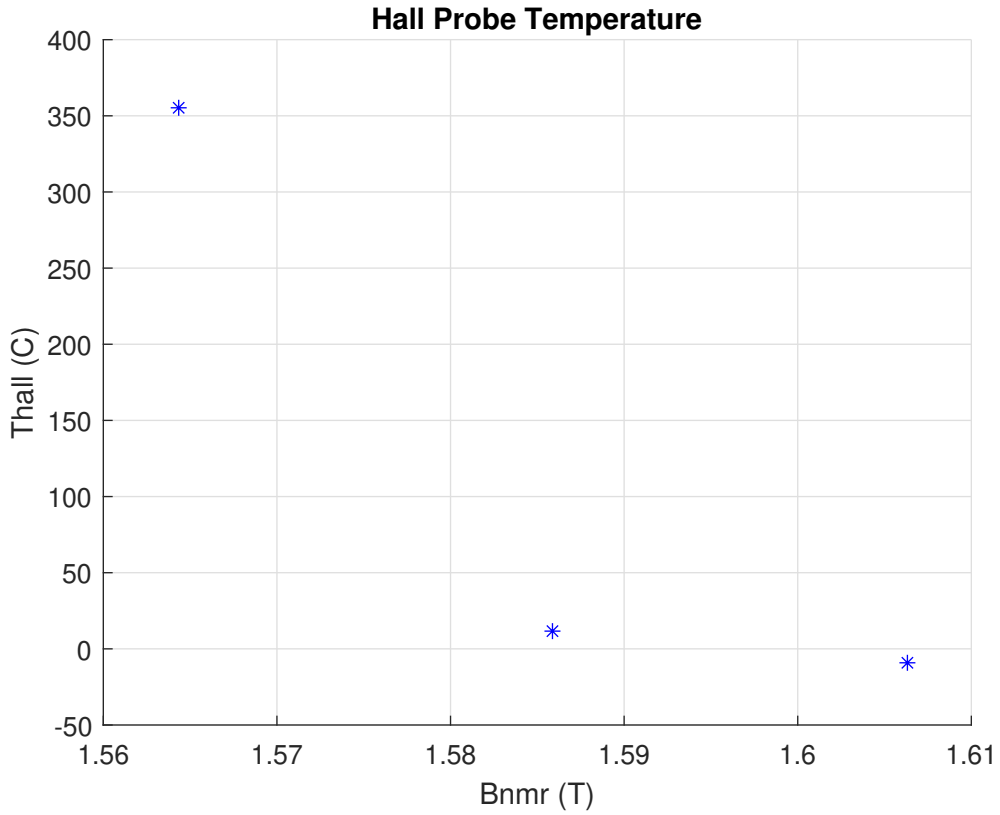
SLAC Magnetic Measurements
Hall Probe Calibration

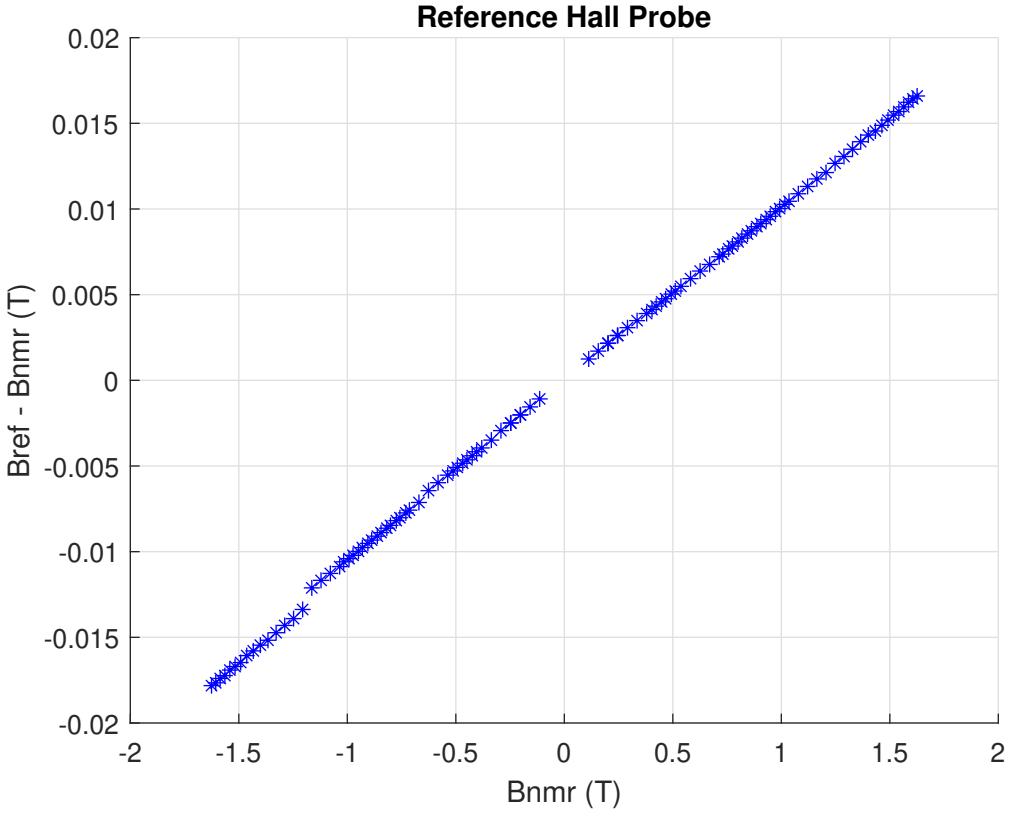
Header:
SLAC Magnetic Measurements
Date: 05-22-2020
Time: 08:20:21

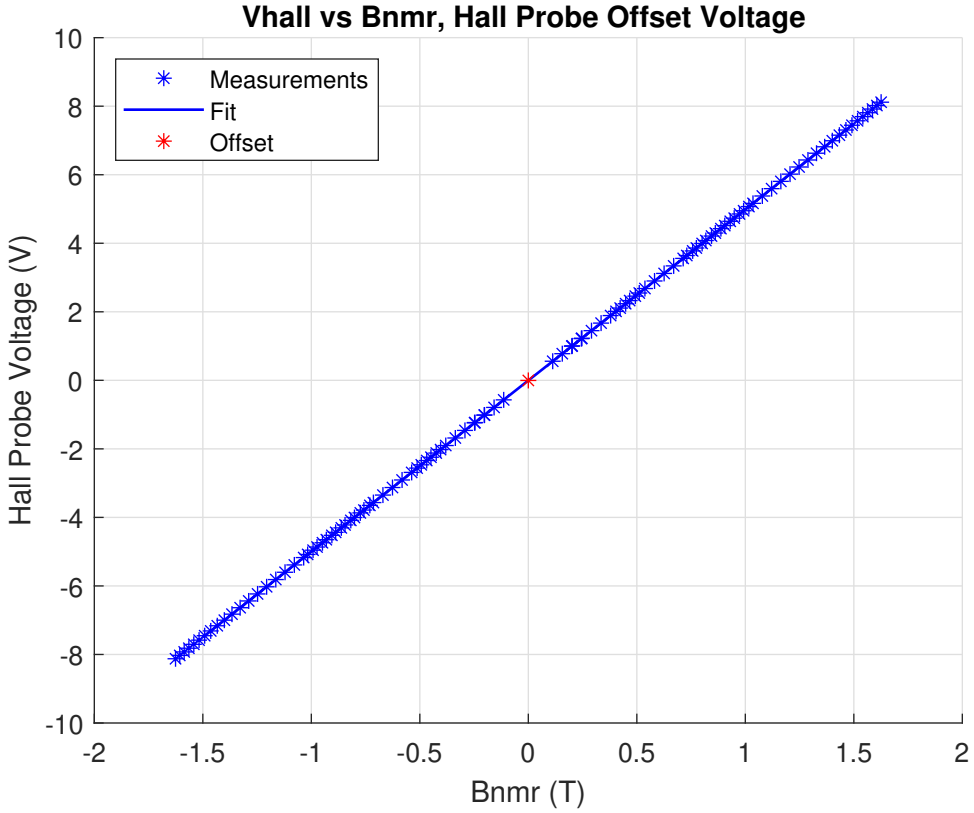
Project: LCLS-II
Device Type: Hall probe
Data Type: Y
Serial Number: SENTRON-441
Run Number: 15
Measurement Type: HPCS
Operator: YL
Comment: +6.00004, -6.00004, +1.00000

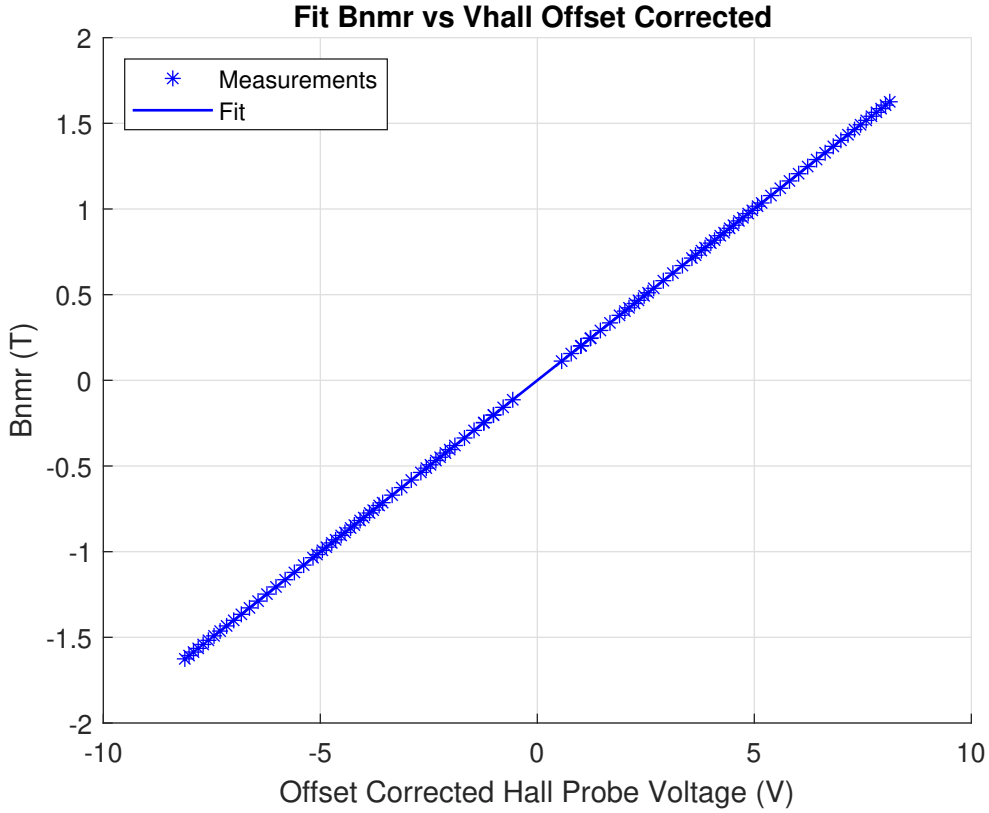
Current(A)  T(C)  Case T(C)  Est.Field(T)  Voltage  Field

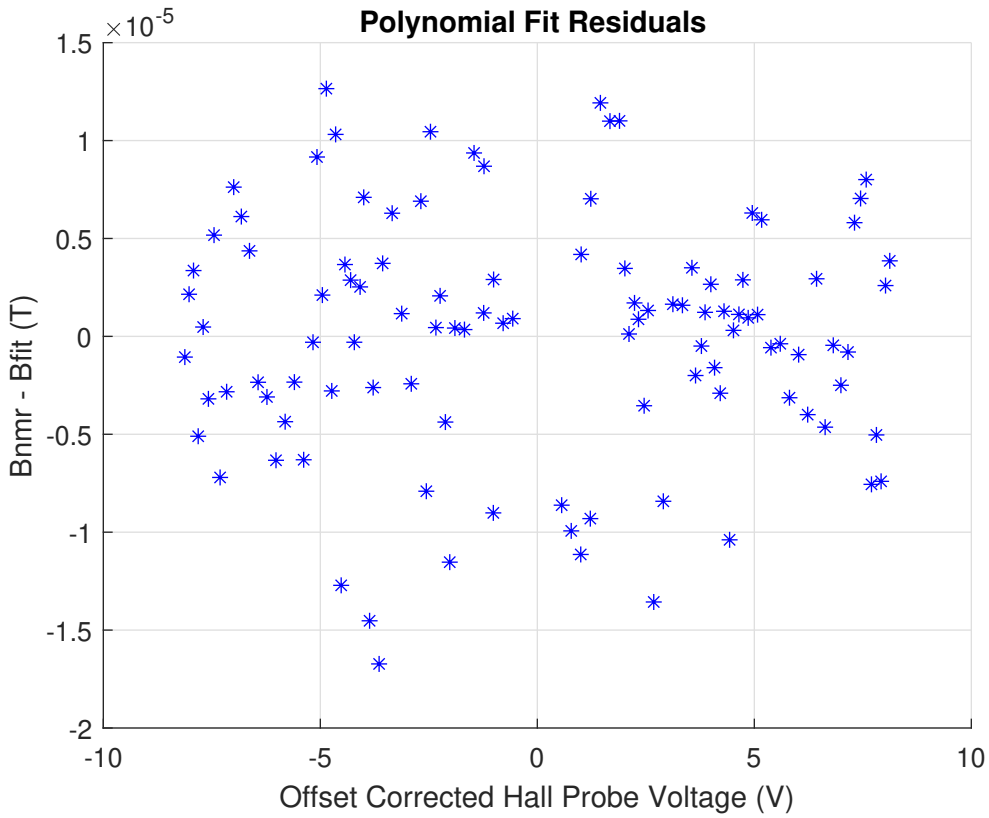
Parameters:
INPUT-FILE-DIR =T:\MagData\LCLS-II\Hall probe\SENTRON-441\HPCS-015\
INPUT-FILE-NAME =hpcs-dat.001
POLY-FIT-ORDER =13
NUM-SIG-OUTLIER =2
NOM-CALIB-CONST =0.2
MAX-B-NMR-FIT =1.5

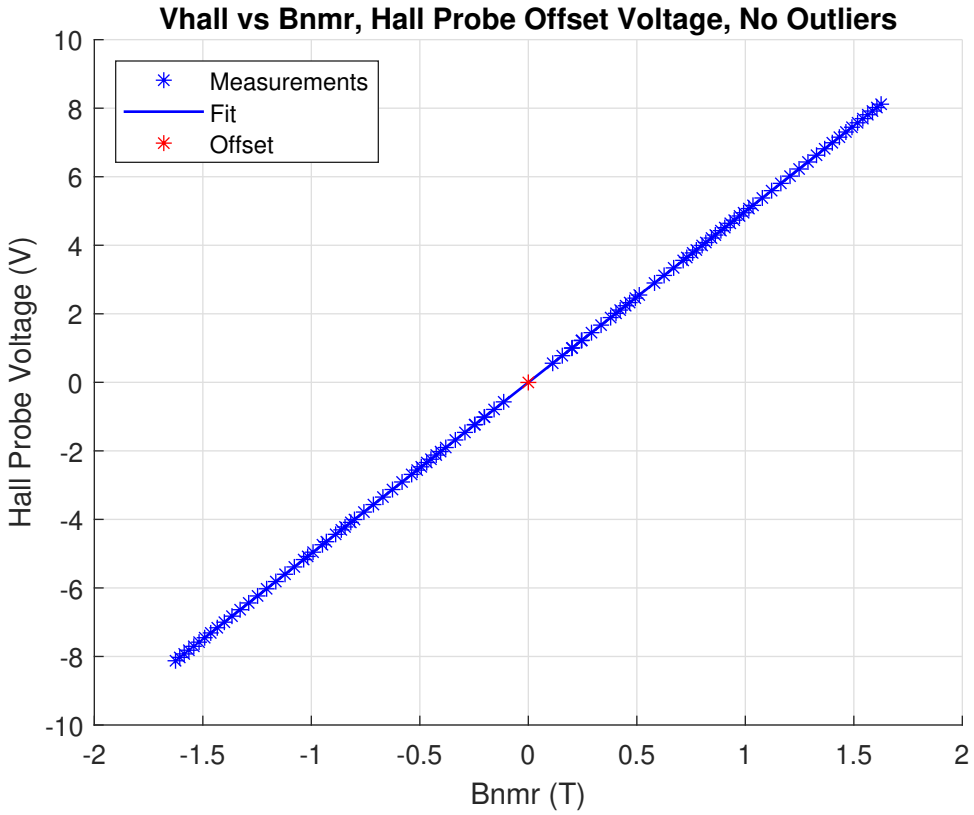

Hall Probe Temperature
400
350
300
250
200
150
100
50
0
-50
Thall (C)
1.56
1.57
1.58
1.59
1.6
1.61
Bnmr (T)

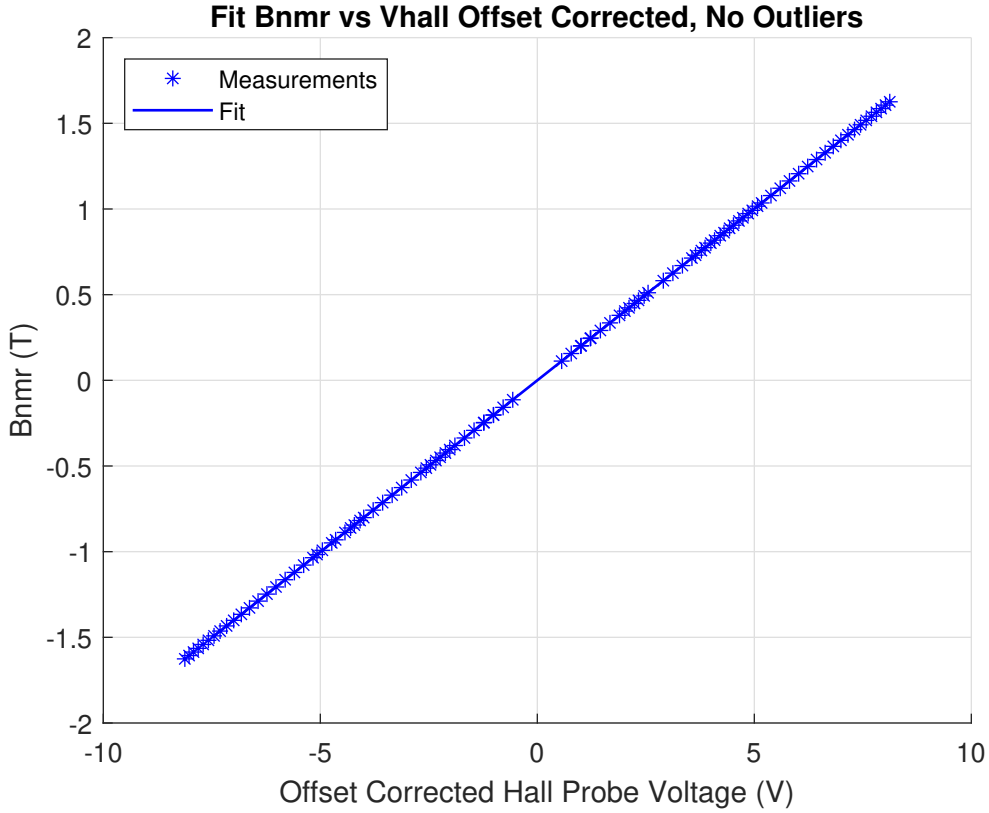

Reference Hall Probe
0.02
0.015
0.01
0.005
0
-0.005
-0.01
-0.015
-0.02
Bref - Bnmr (T)
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2
Bnmr (T)

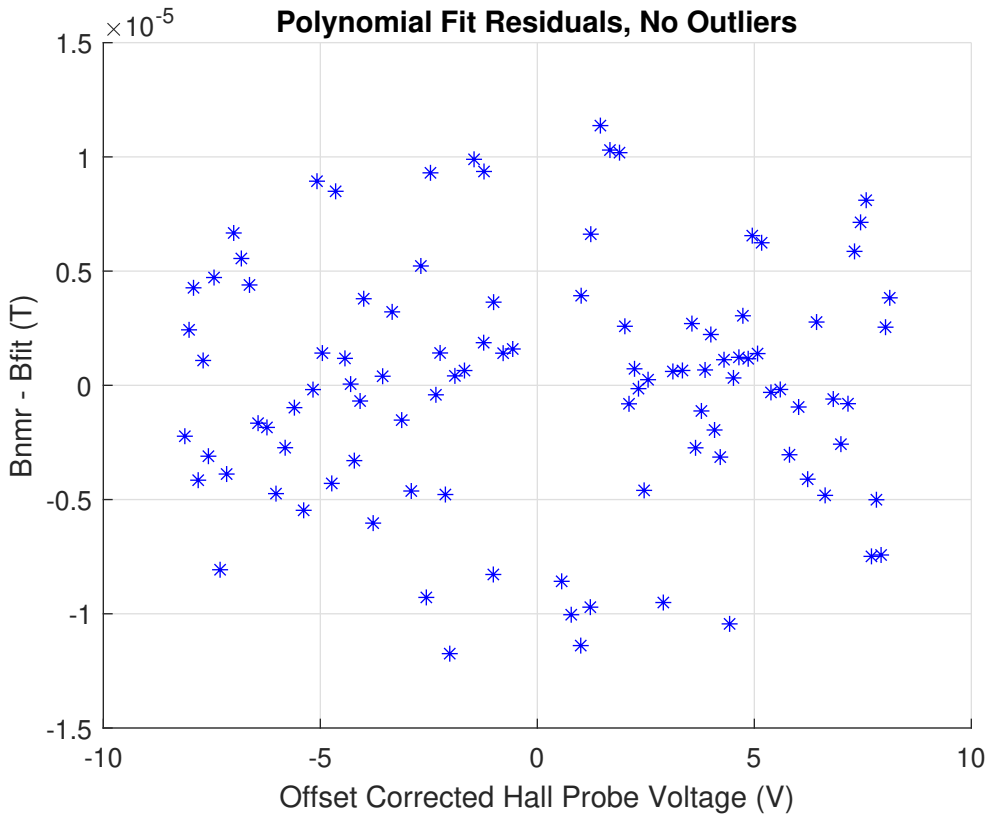

Vhall vs Bnmr, Hall Probe Offset Voltage
Measurements
Fit
Offset
Hall Probe Voltage (V)
Bnmr (T)
10
8
6
4
2
0
-2
-4
-6
-8
-10
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2

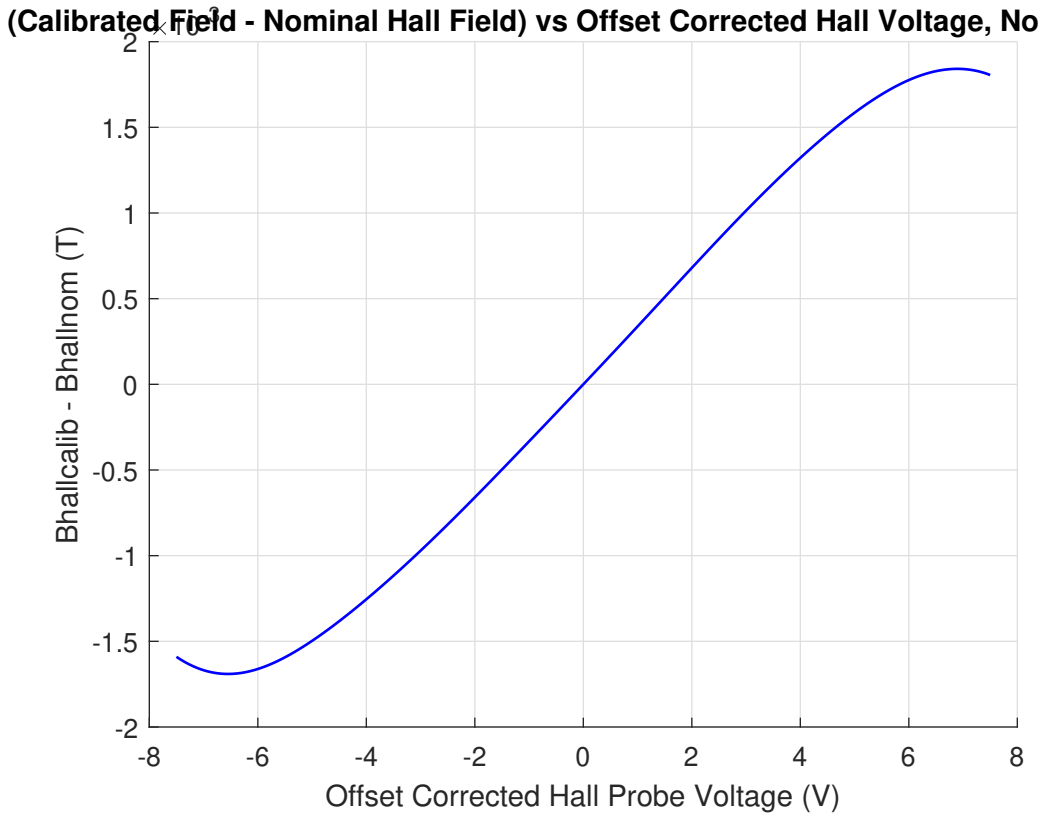

Fit Bnmr vs Vhall Offset Corrected
Measurements
Fit
Bnmr (T)
Offset Corrected Hall Probe Voltage (V)
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-10
-5
0
5
10


Polynomial Fit Residuals
×10^-5
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Bnmr - Bfit (T)
-10
-5
0
5
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
-5
0
5
10


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


(Calibrated Field - Nominal Hall Field) vs Offset Corrected Hall Voltage, No Outliers
×10^-3
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)