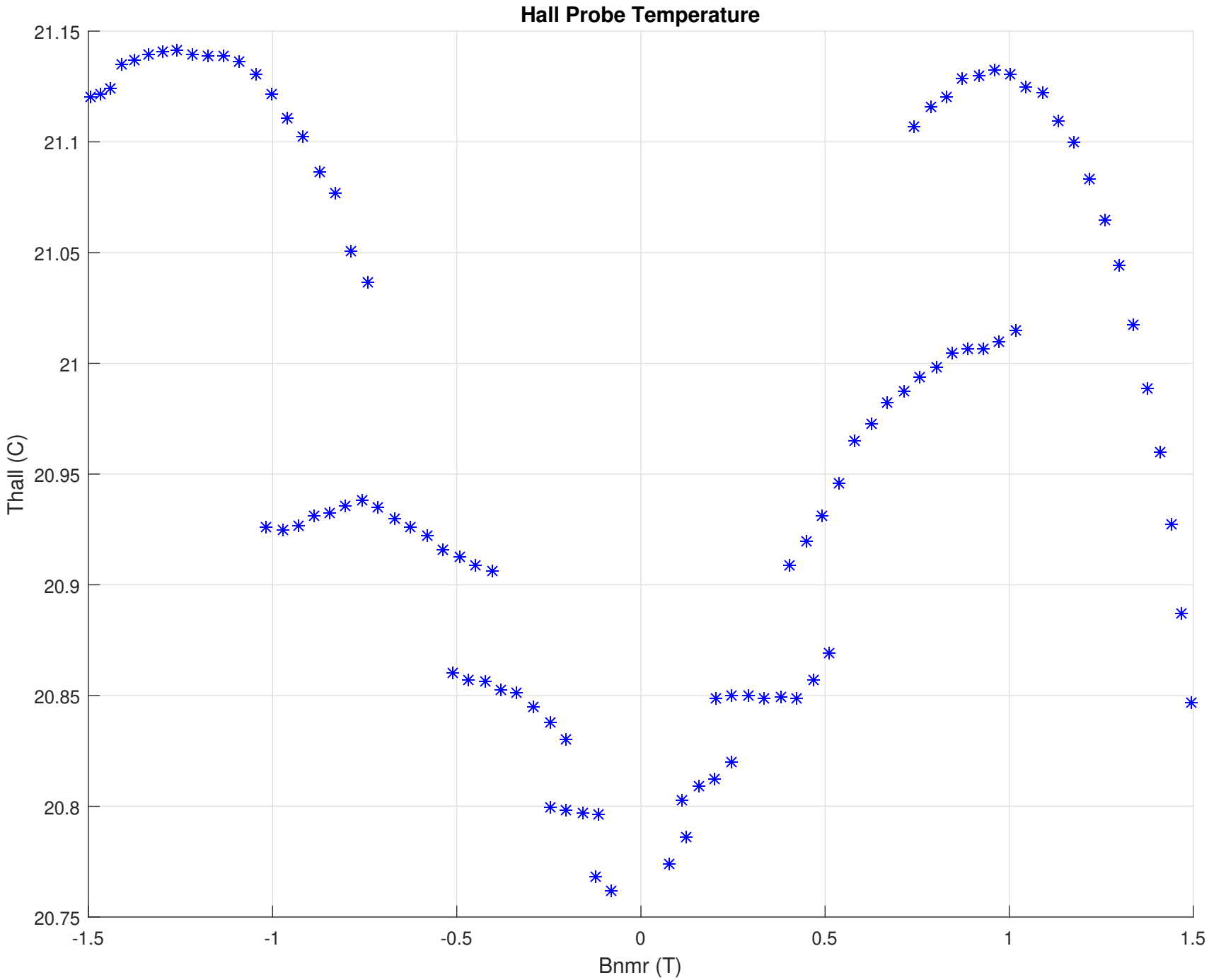
SLAC Magnetic Measurements
Hall Probe Calibration

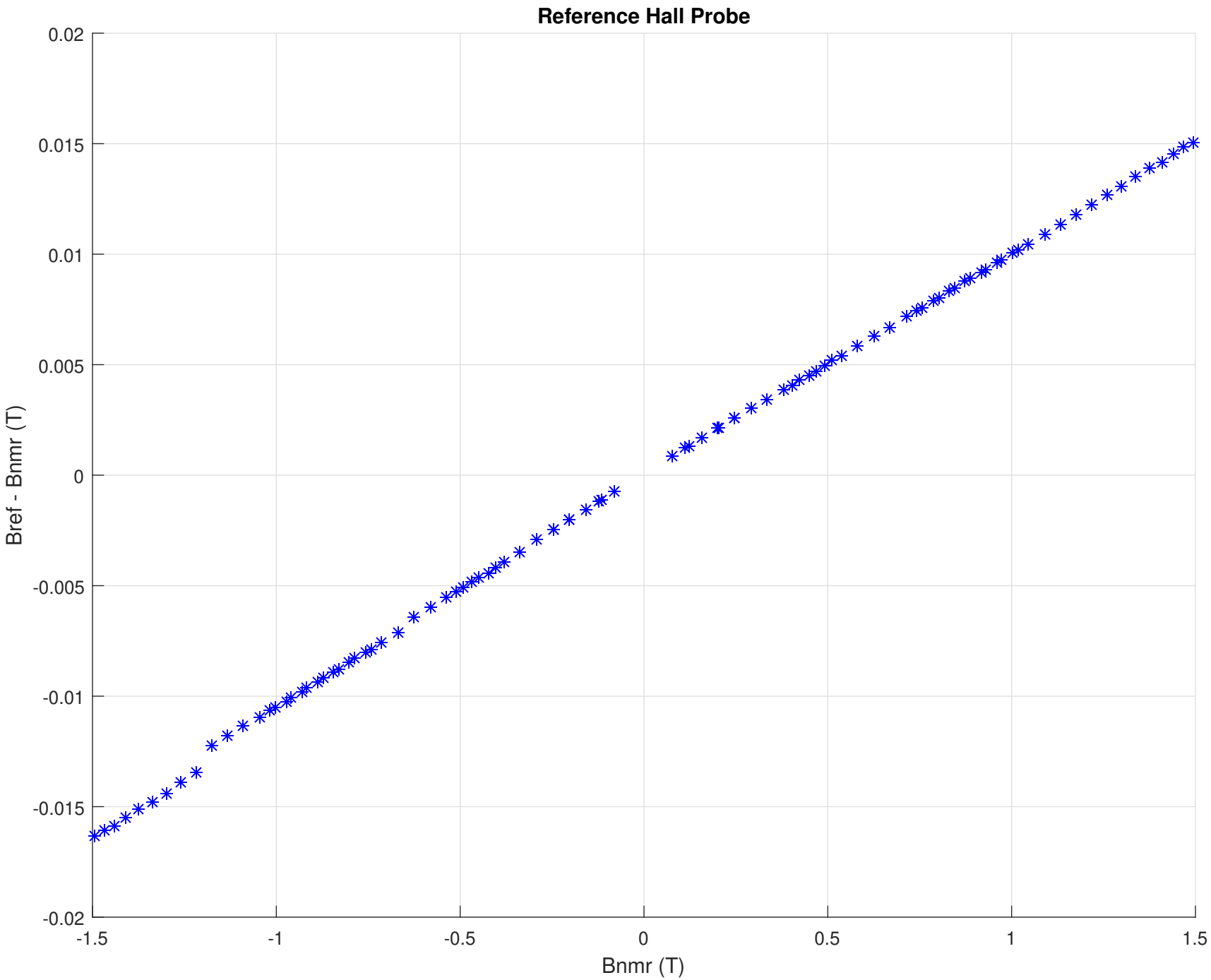
Header:
SLAC Magnetic Measurements
Date: 11-09-2015
Time: 09:40:28

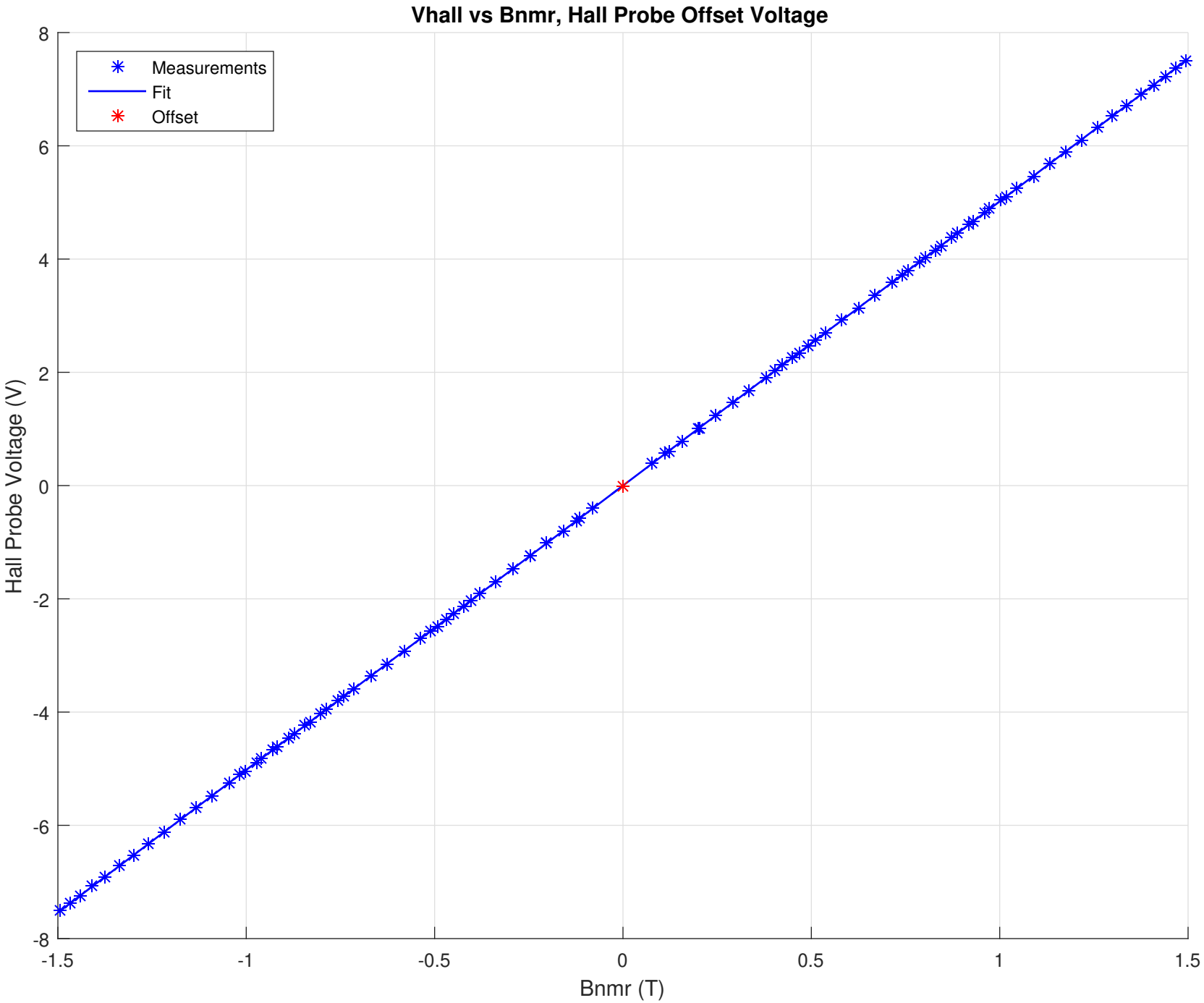
Project: LCLS
Device Type: Hall probe
Data Type: Y
Serial Number: SENIS-118-14
Run Number: 12
Measurement Type: HPCS
Operator: YL
Comment: calibration with voltage temperature correction

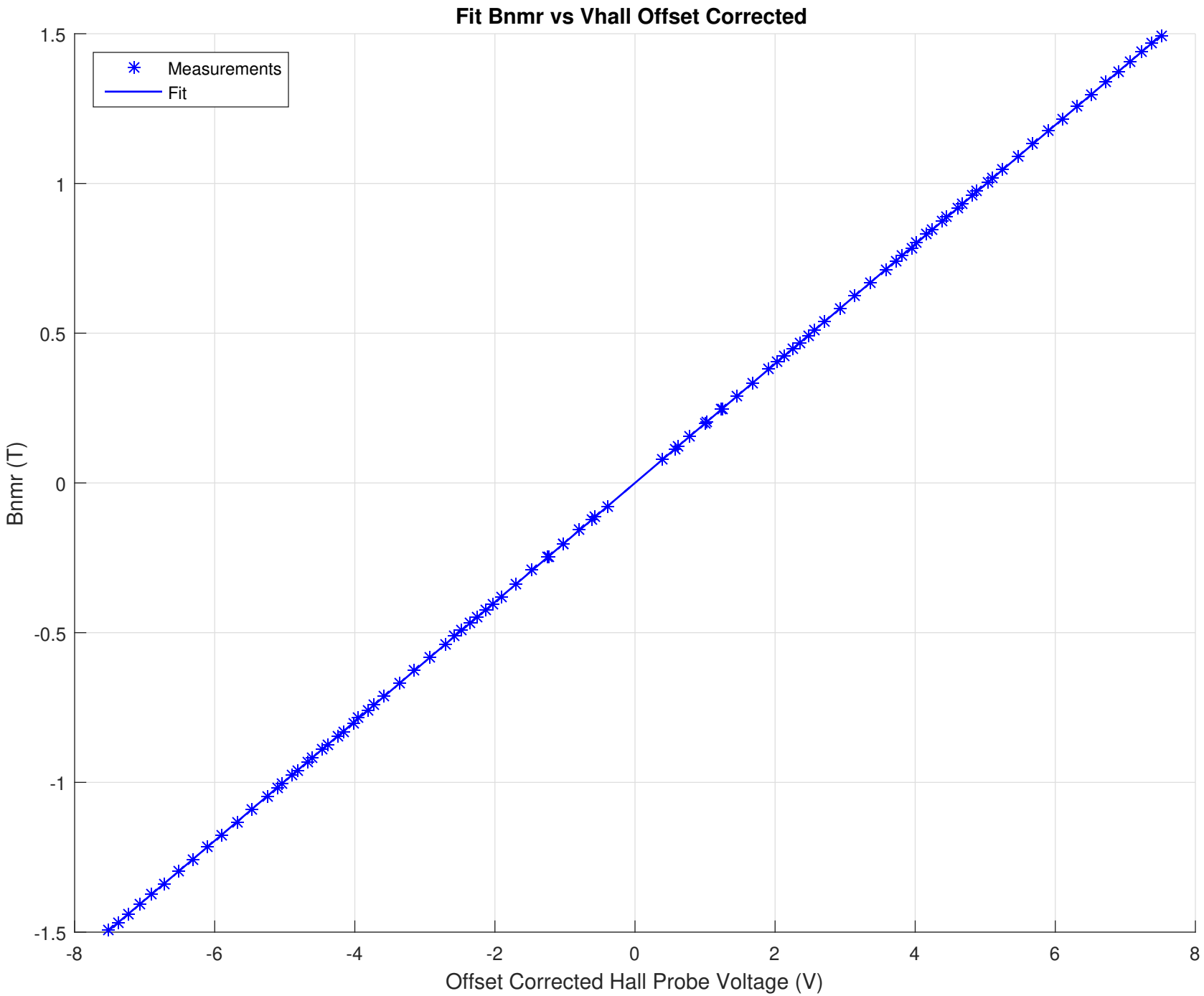
Current(A) T(C) Case T-V Est. Field(T) Voltage Voltage-T-Corr Field

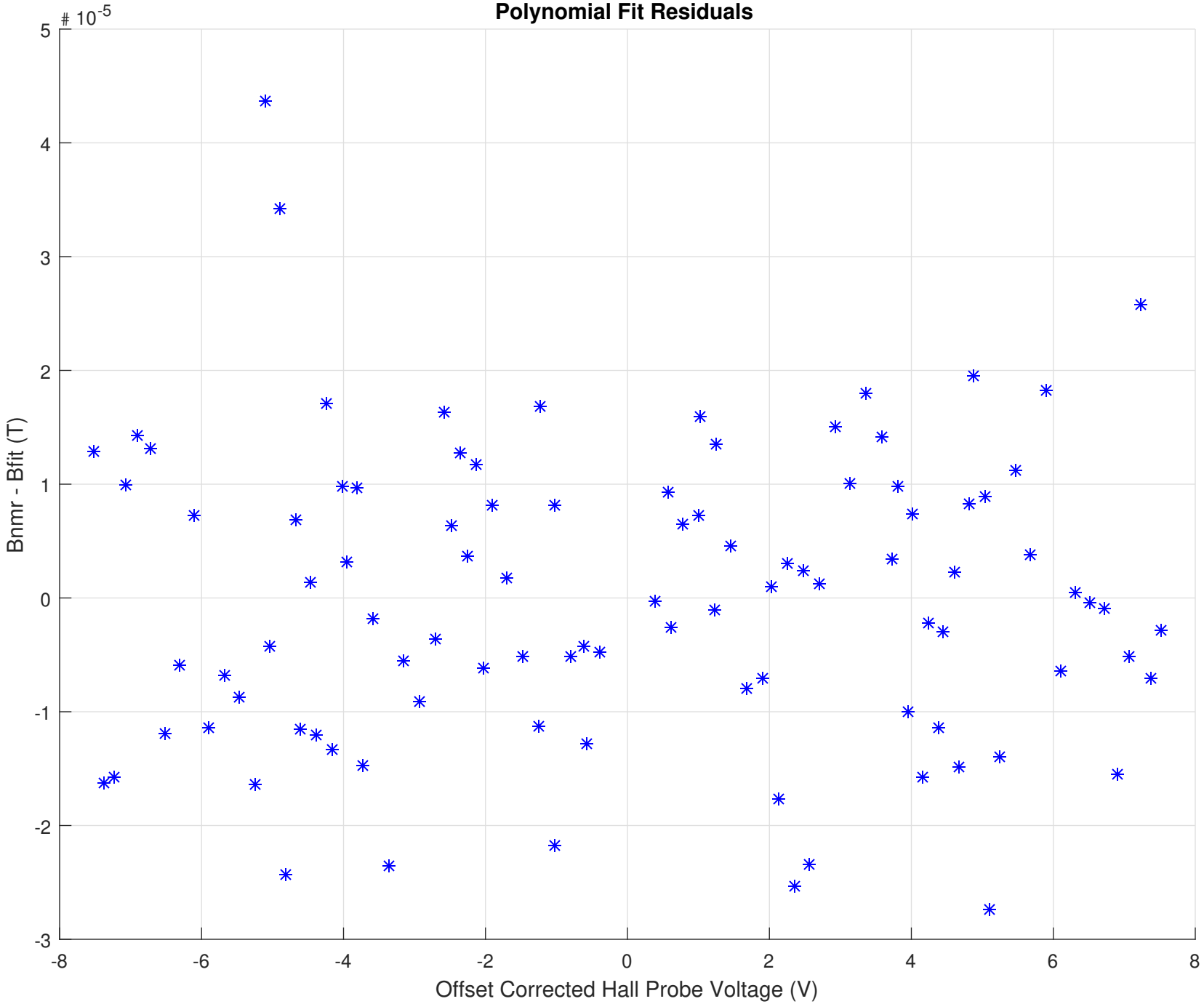
Parameters:
INPUT-FILE-DIR =S:\MagData\LCLS\Hall probe\SENIS-118-14\HPCS-012\
INPUT-FILE-NAME =hpcs-dat.001
POLY-FIT-ORDER =13
NUM-SIG-OUTLIER =2
NOM-CALIB-CONST =0.2
MAX-B-NMR-FIT =1.5

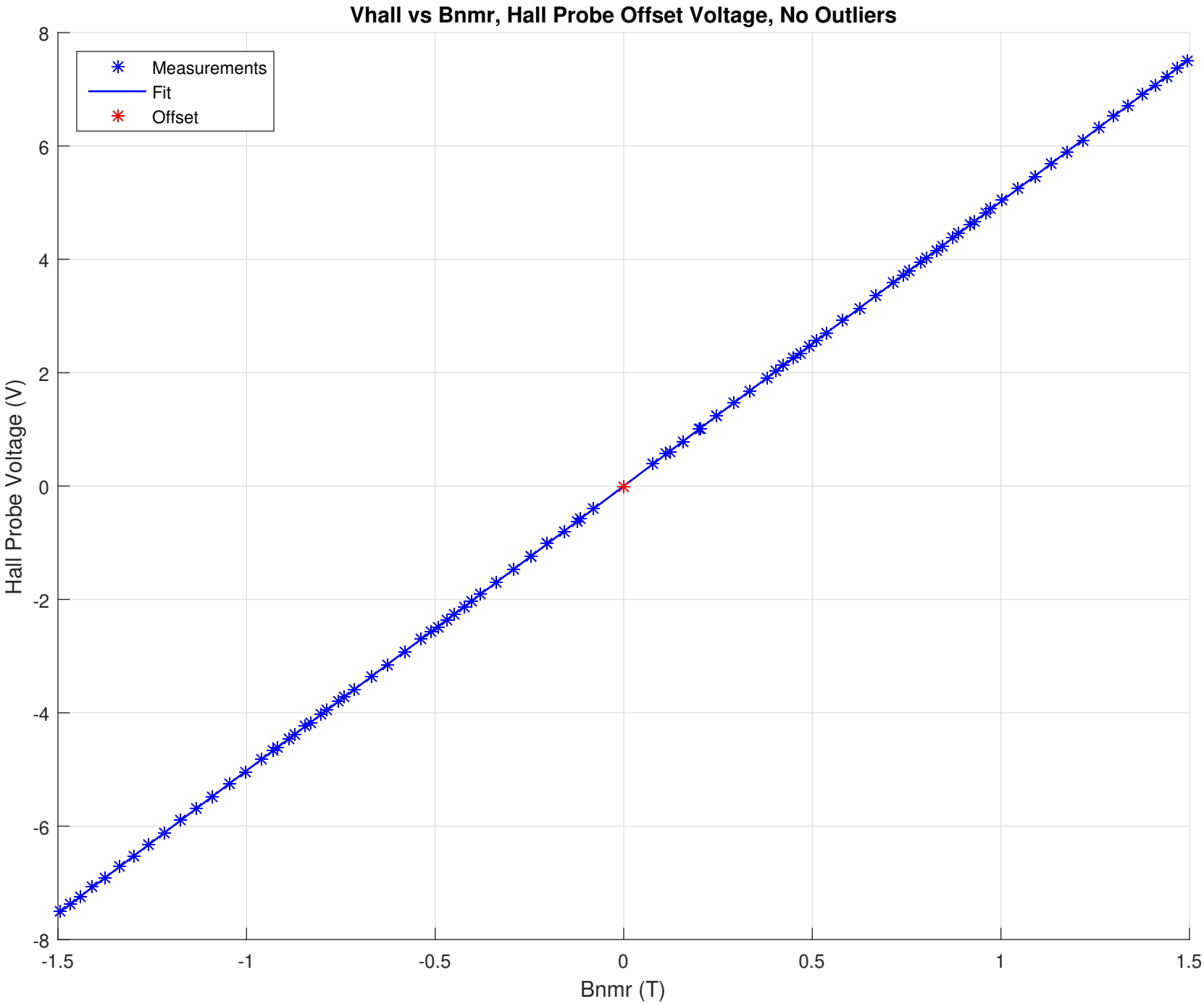

Hall Probe Temperature
21.15
21.1
21.05
21
20.95
20.9
20.85
20.8
20.75
Thall (C)
-1.5
-1
-0.5
0
0.5
1
1.5
Bnmr (T)

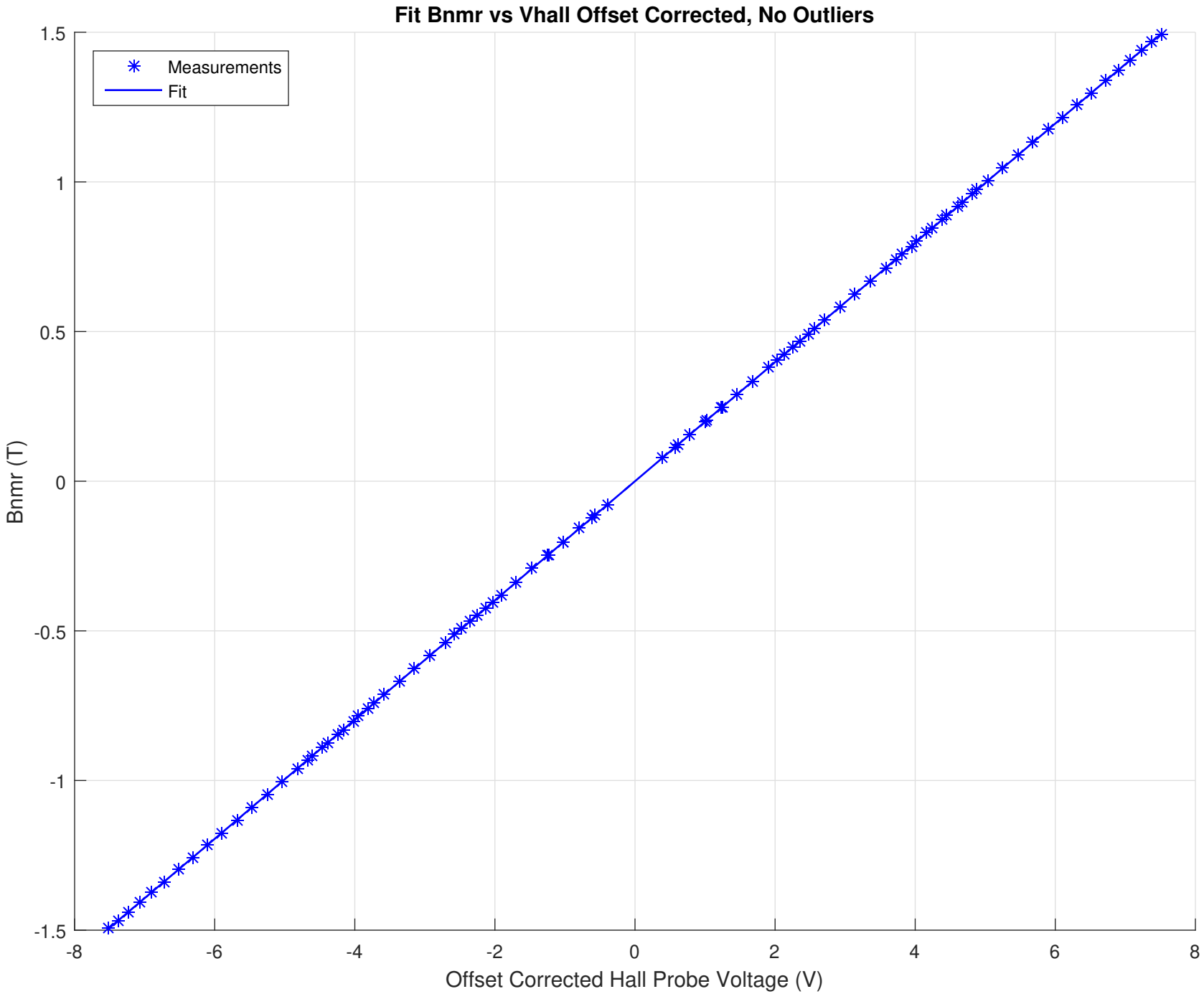

Reference Hall Probe
0.02
0.015
0.01
0.005
0
-0.005
-0.01
-0.015
-0.02
Bref - Bnmr (T)
-1.5
-1
-0.5
0
0.5
1
1.5
Bnmr (T)

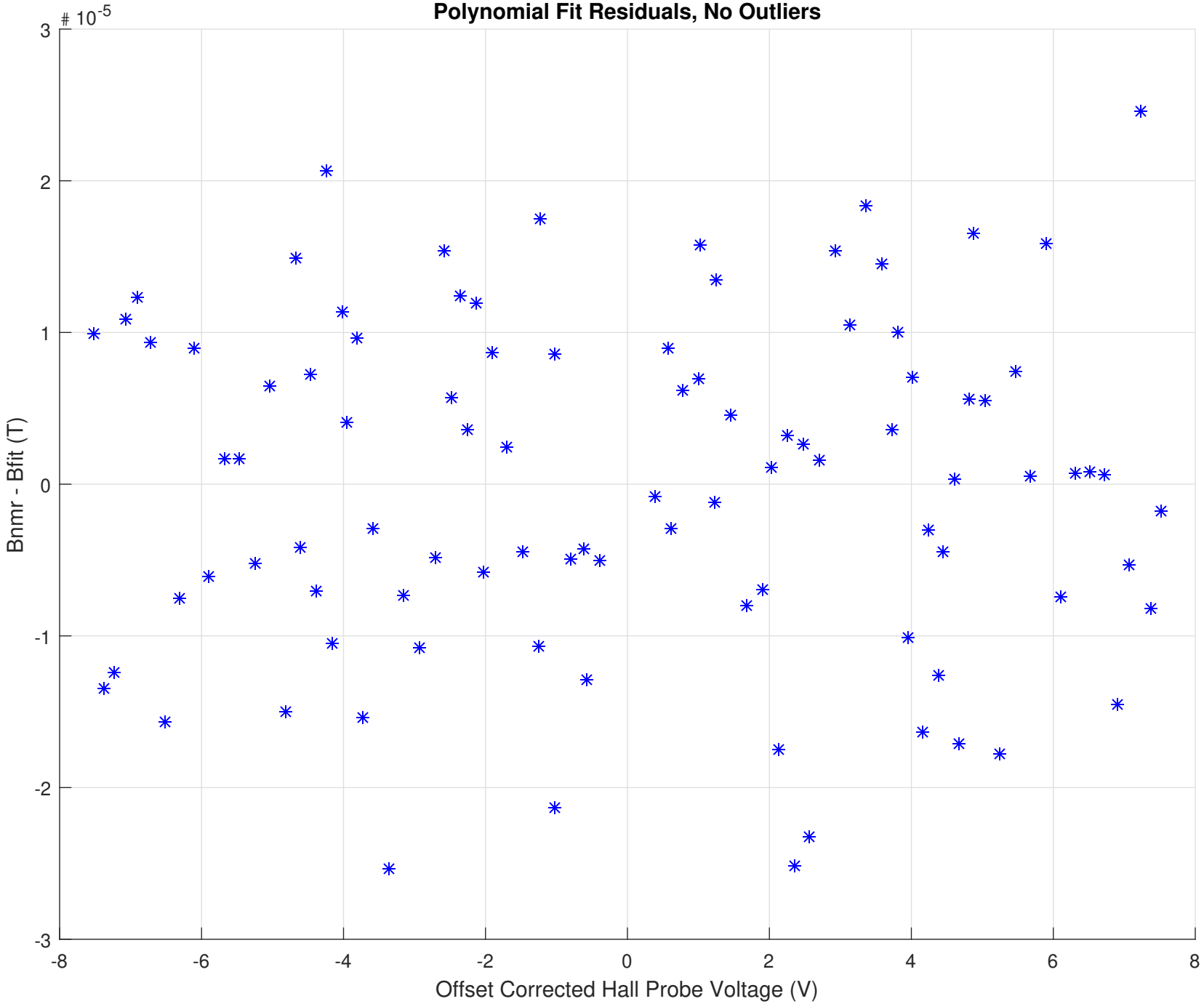

Vhall vs Bnmr, Hall Probe Offset Voltage
Measurements
Fit
Offset
Hall Probe Voltage (V)
Bnmr (T)
8
6
4
2
0
-2
-4
-6
-8
-1.5
-1
-0.5
0
0.5
1
1.5

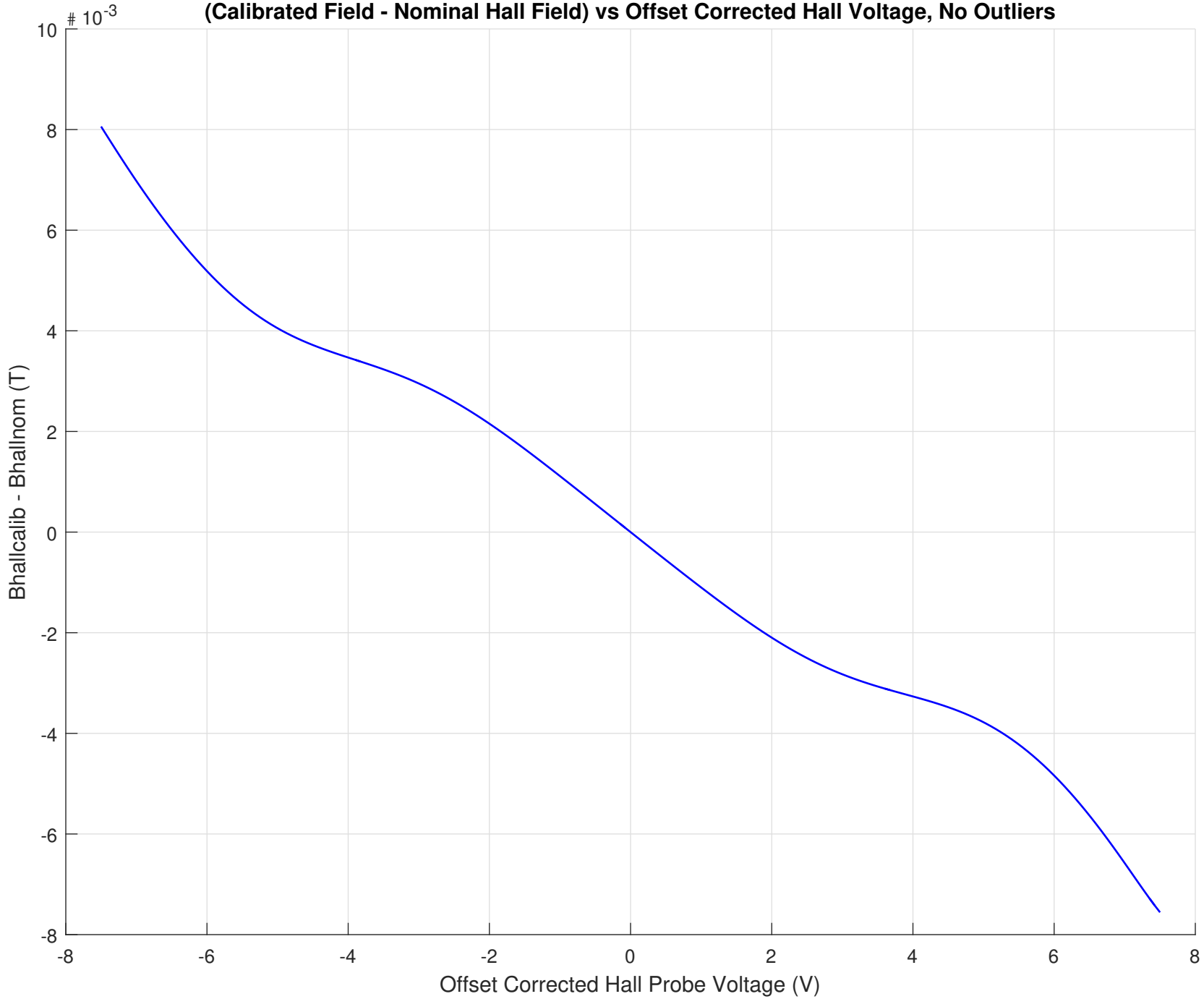

Fit Bnmr vs Vhall Offset Corrected
Measurements
Fit
Bnmr (T)
Offset Corrected Hall Probe Voltage (V)
1.5
1
0.5
0
-0.5
-1
-1.5
-8
-6
-4
-2
0
2
4
6
8


Polynomial Fit Residuals
10^-5
5
4
3
2
1
0
-1
-2
-3
Bnmr - Bfit (T)
-8
-6
-4
-2
0
2
4
6
8
Offset Corrected Hall Probe Voltage (V)


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


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
-8
-6
-4
-2
0
2
4
6
8


Polynomial Fit Residuals, No Outliers
10-5
3
2
1
0
-1
-2
-3
Bnmr - Bfit (T)
-8
-6
-4
-2
0
2
4
6
8
Offset Corrected Hall Probe Voltage (V)


(Calibrated Field - Nominal Hall Field) vs Offset Corrected Hall Voltage, No Outliers
10-3
10
8
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)