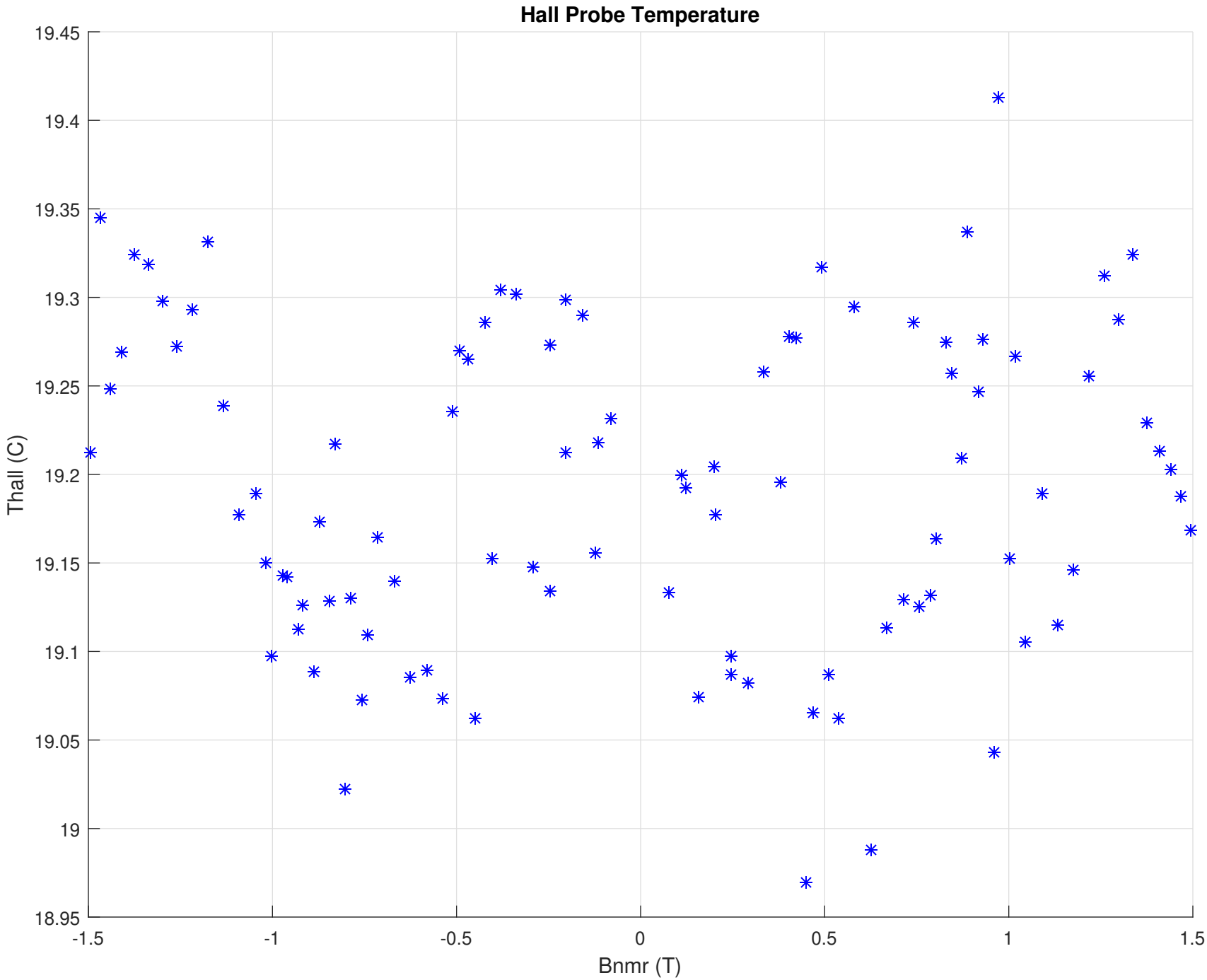
SLAC Magnetic Measurements
Hall Probe Calibration

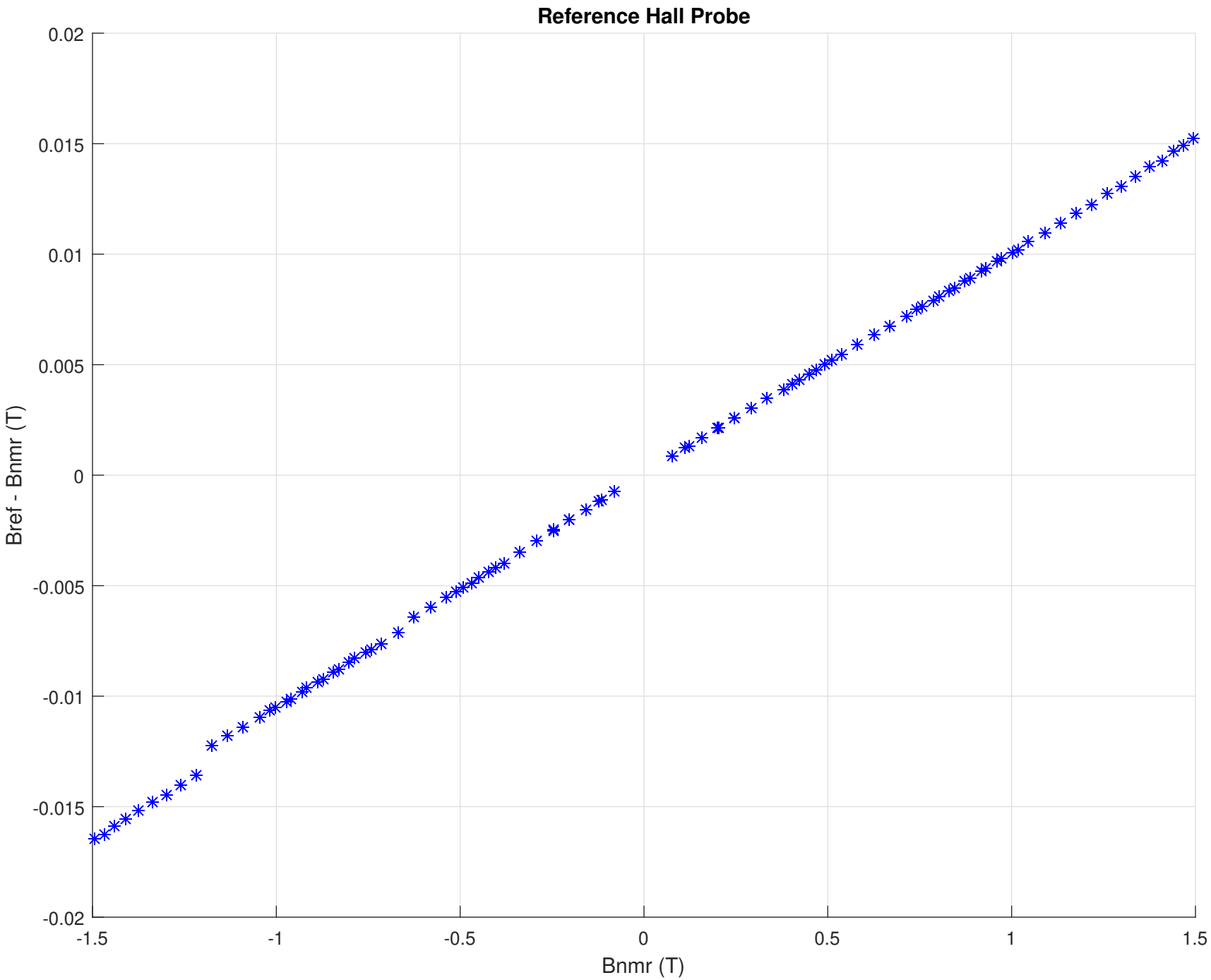
Header:
SLAC Magnetic Measurements
Date: 06-07-2016
Time: 08:10:21

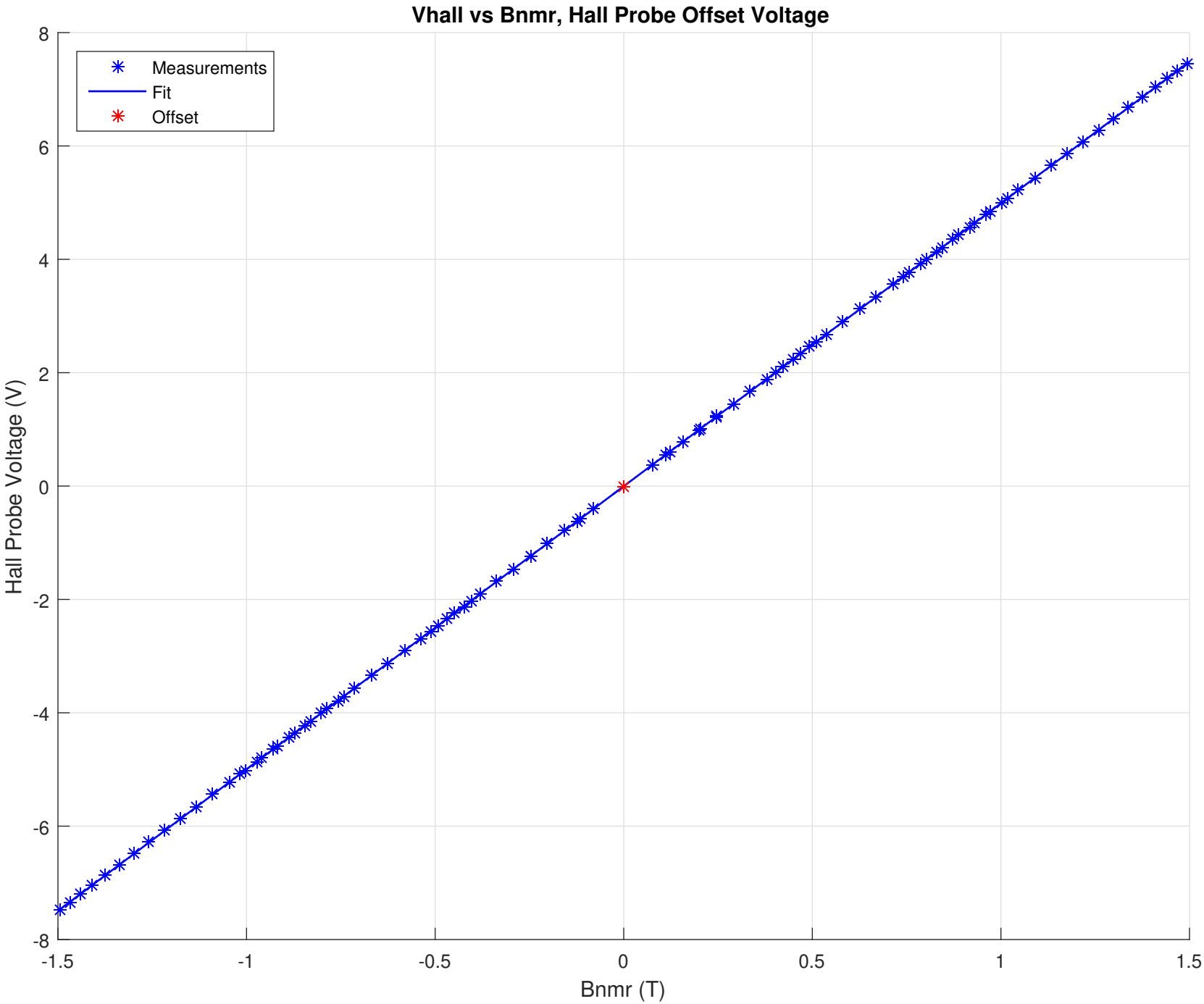
Project: LCLS
Device Type: Hall probe
Data Type: Y
Serial Number: SENTRON-441
Run Number: 101
Measurement Type: HPCS
Operator: YL
Comment: Sentron441, voltmeter PC 71027, Voltage standart 5.99987V

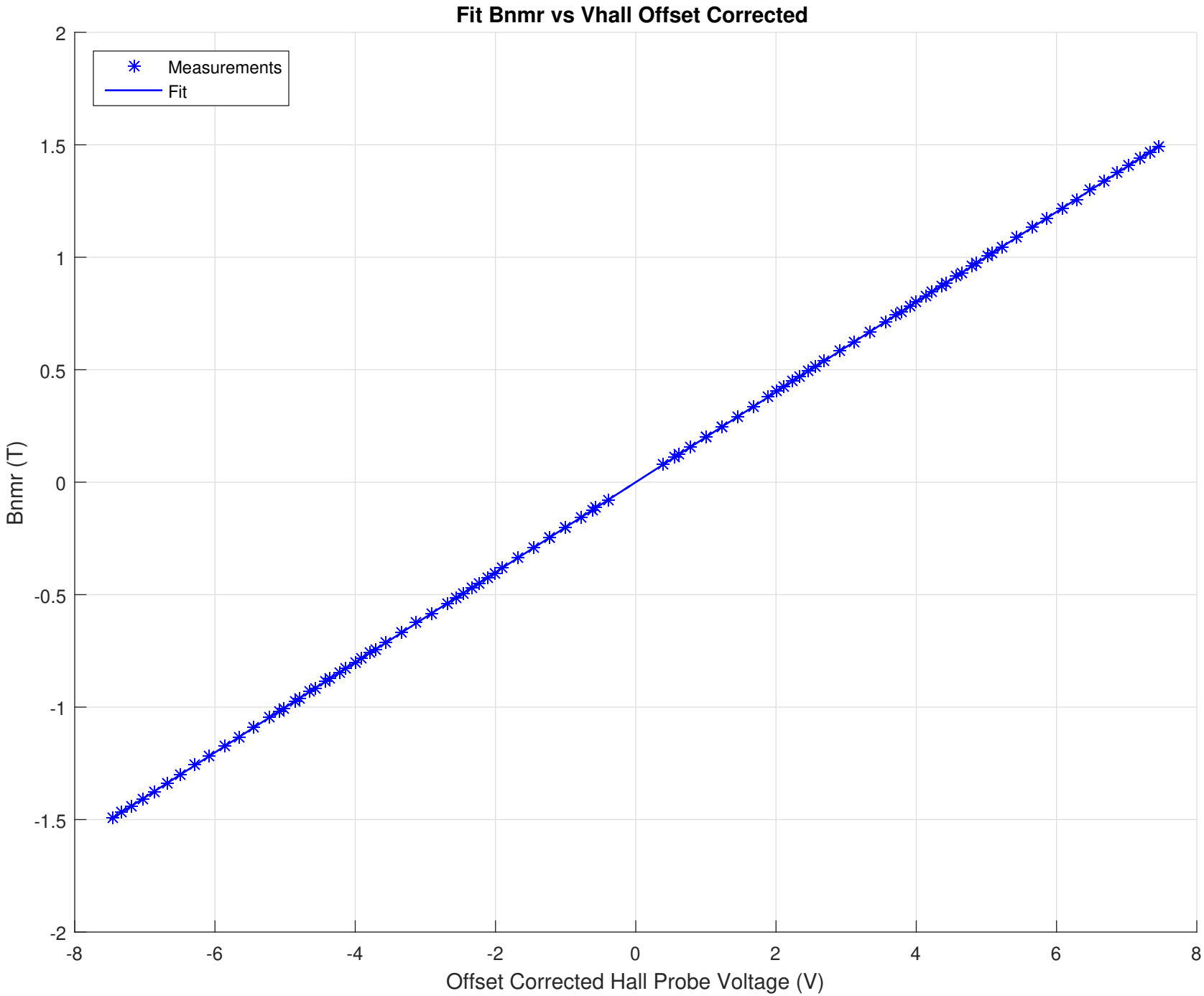
Current(A) T(C) Case T-V Est. Field(T) Voltage Voltage-T-Corr Field

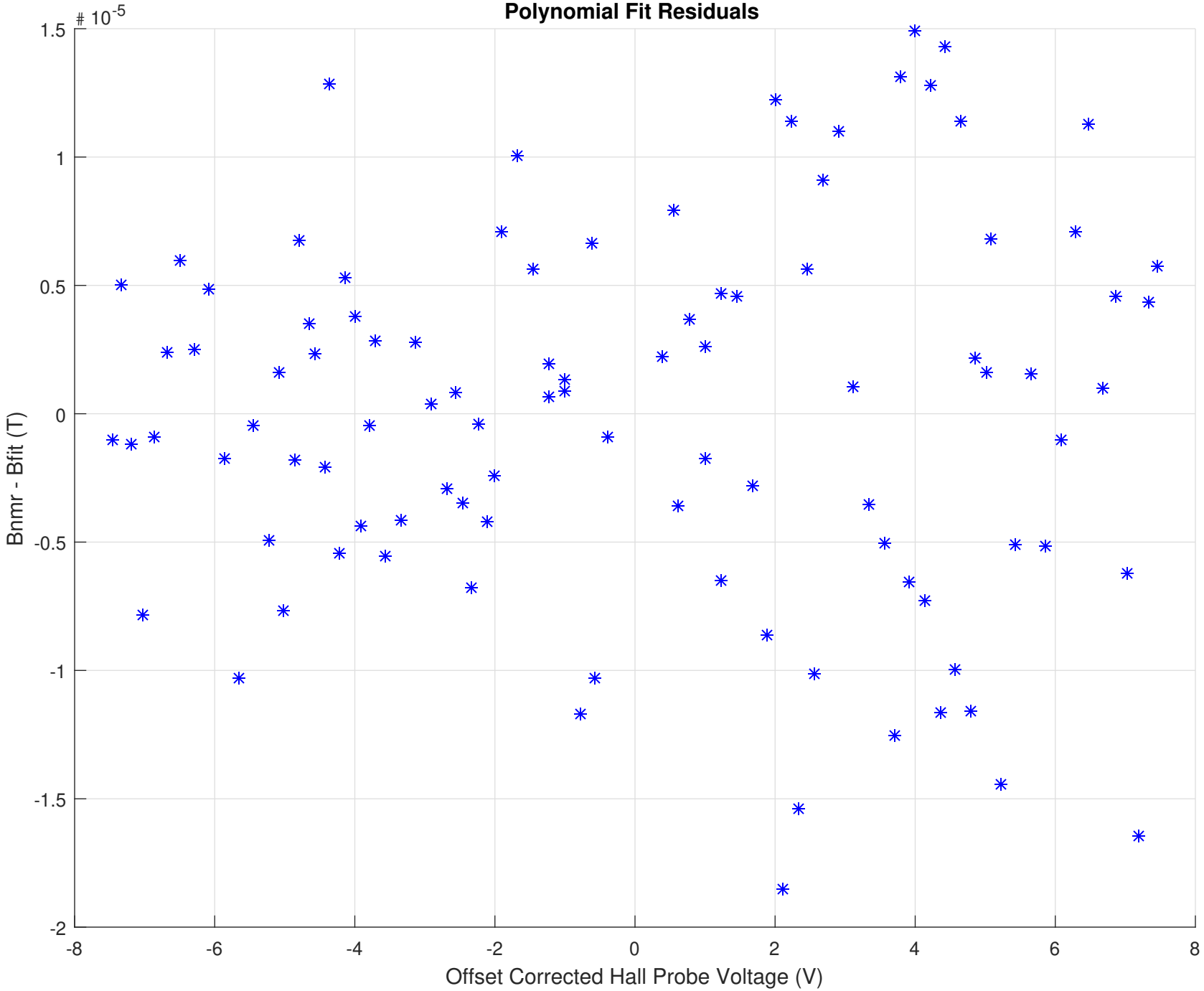
Parameters:
INPUT-FILE-DIR =S:\MagData\LCLS\Hall probe\Sentron-441\HPCS-101\
INPUT-FILE-NAME =hpcs-dat.001
POLY-FIT-ORDER =10
NUM-SIG-OUTLIER =2
NOM-CALIB-CONST =0.2
MAX-B-NMR-FIT =1.5

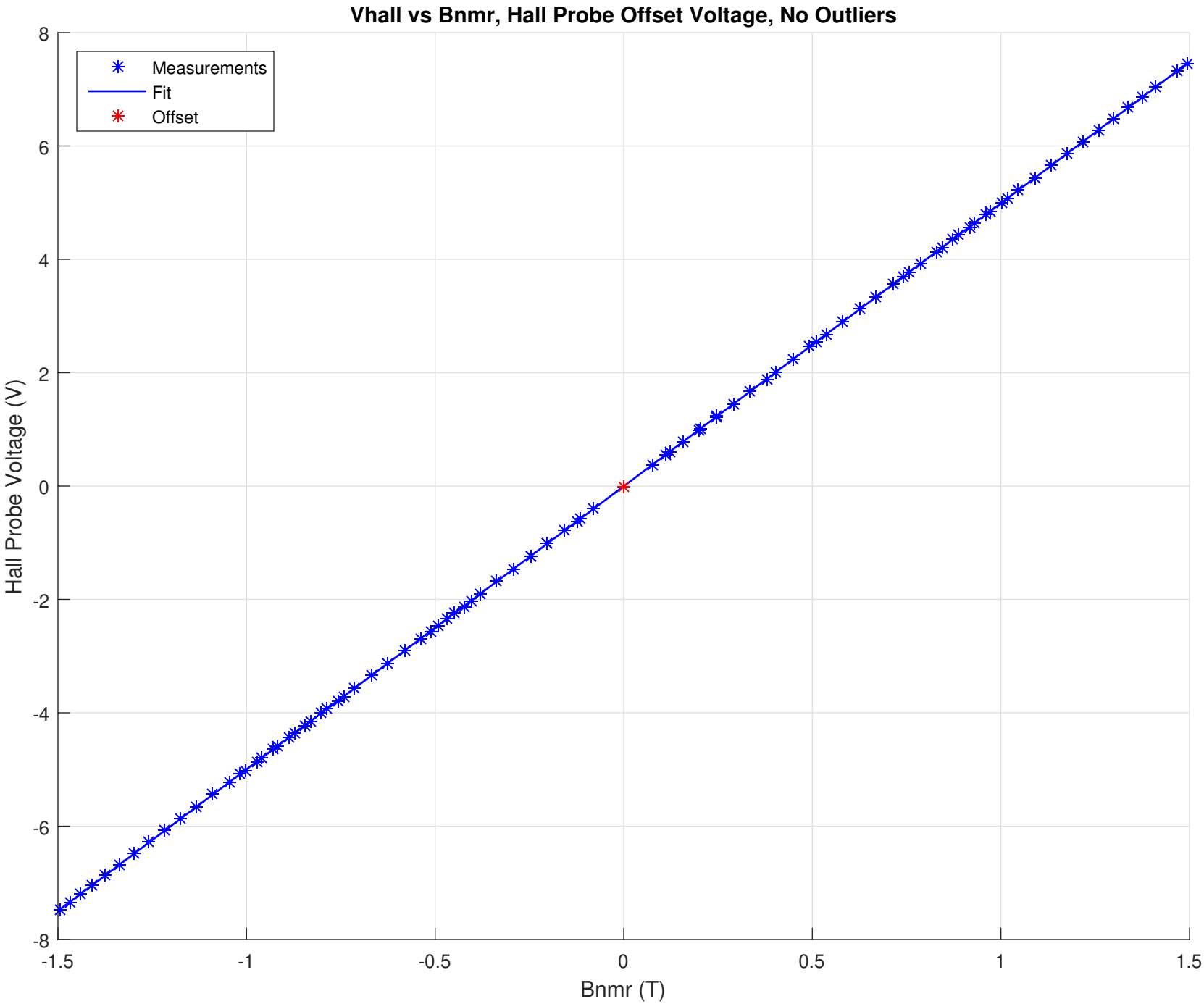

Hall Probe Temperature
19.45
19.4
19.35
19.3
19.25
19.2
19.15
19.1
19.05
19
18.95
Thall (C)
-1.5
-1
-0.5
0
0.5
1
1.5
Bnmr (T)

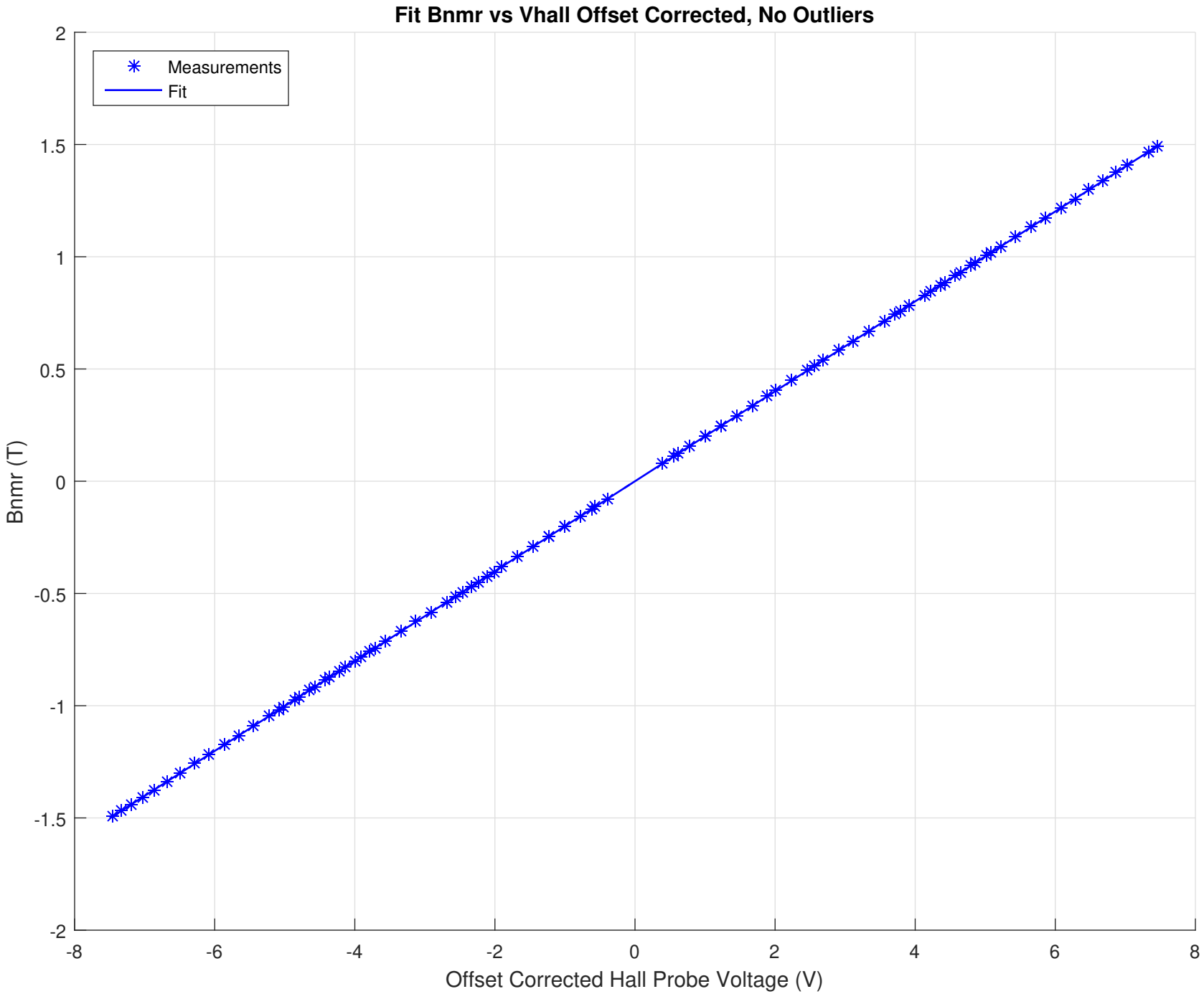

Reference Hall Probe
0.02
0.015
0.01
0.005
0
-0.005
-0.01
-0.015
-0.02
Bref - Bnmr (T)
-1.5
-1
-0.5
0
0.5
1
1.5
Bnmr (T)

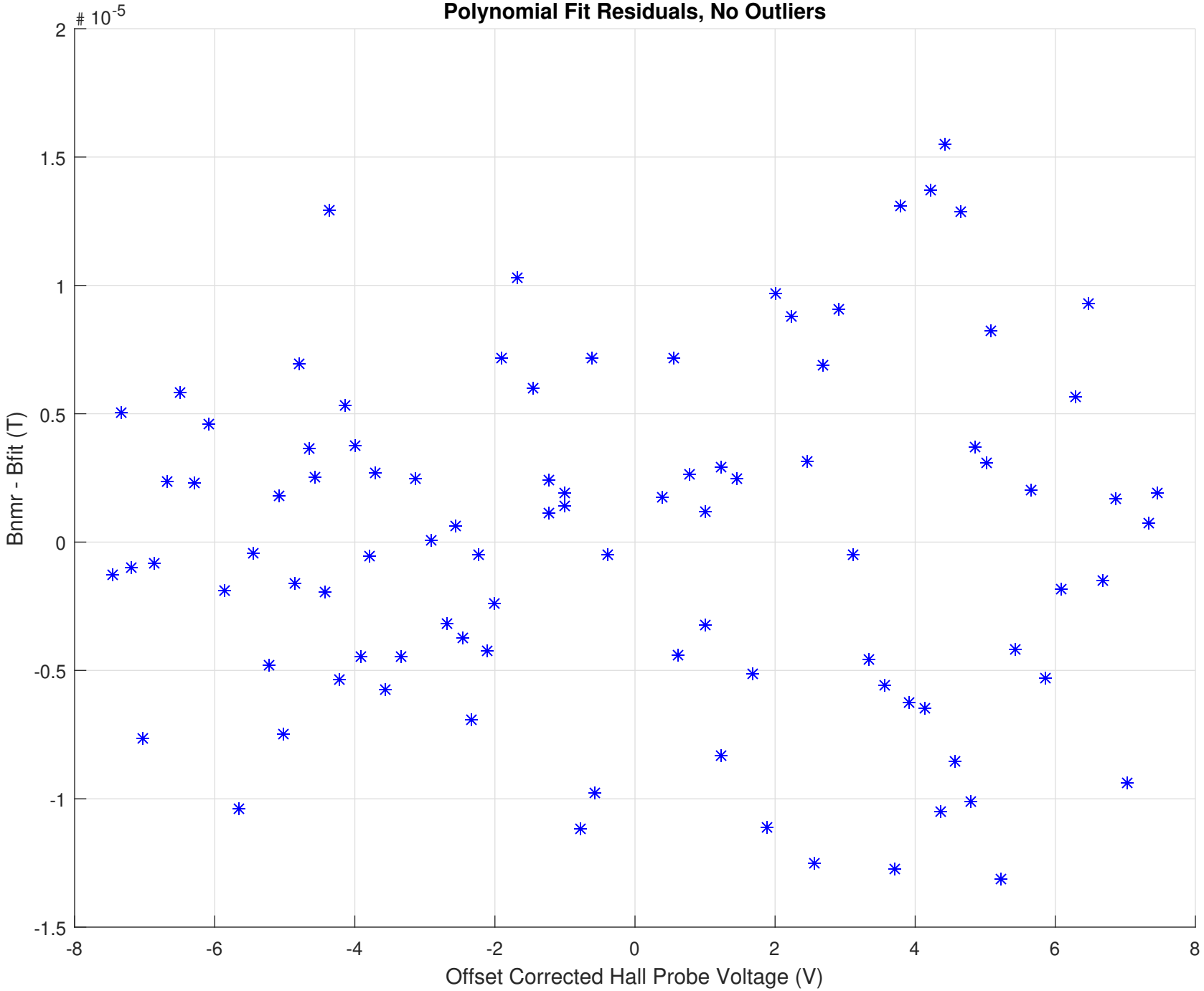

Vhall vs Bnmr, Hall Probe Offset Voltage
Measurements
Fit
Offset
Hall Probe Voltage (V)
Bnmr (T)
8
6
4
2
0
-2
-4
-6
-8
-1.5
-1
-0.5
0
0.5
1
1.5

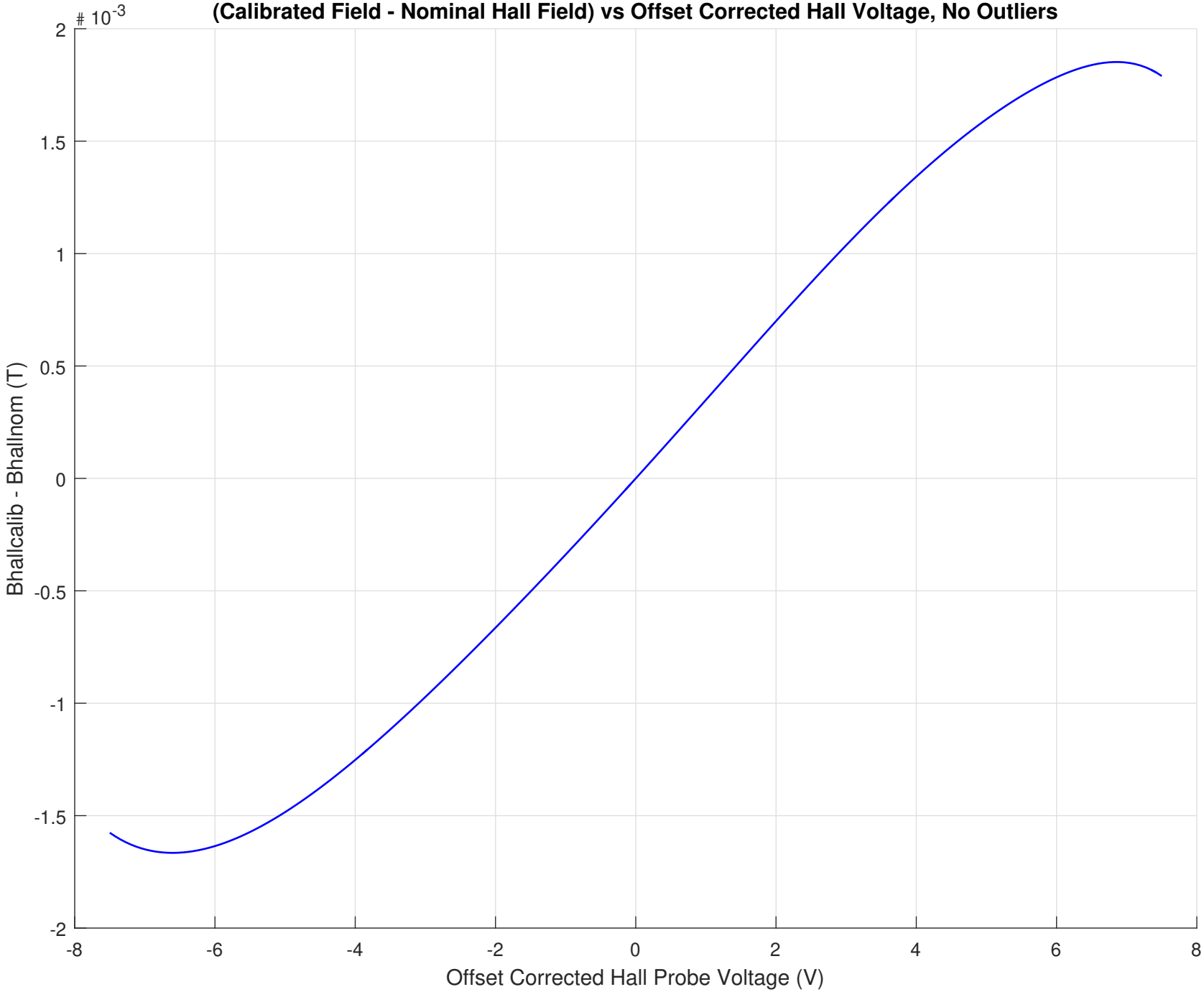

Fit Bnmr vs Vhall Offset Corrected
Measurements
Fit
Bnmr (T)
Offset Corrected Hall Probe Voltage (V)
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-8
-6
-4
-2
0
2
4
6
8


Polynomial Fit Residuals
10^-5
1.5
1
0.5
0
-0.5
-1
-1.5
-2
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)
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-8
-6
-4
-2
0
2
4
6
8


Polynomial Fit Residuals, No Outliers
10-5
2
1.5
1
0.5
0
-0.5
-1
-1.5
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
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)