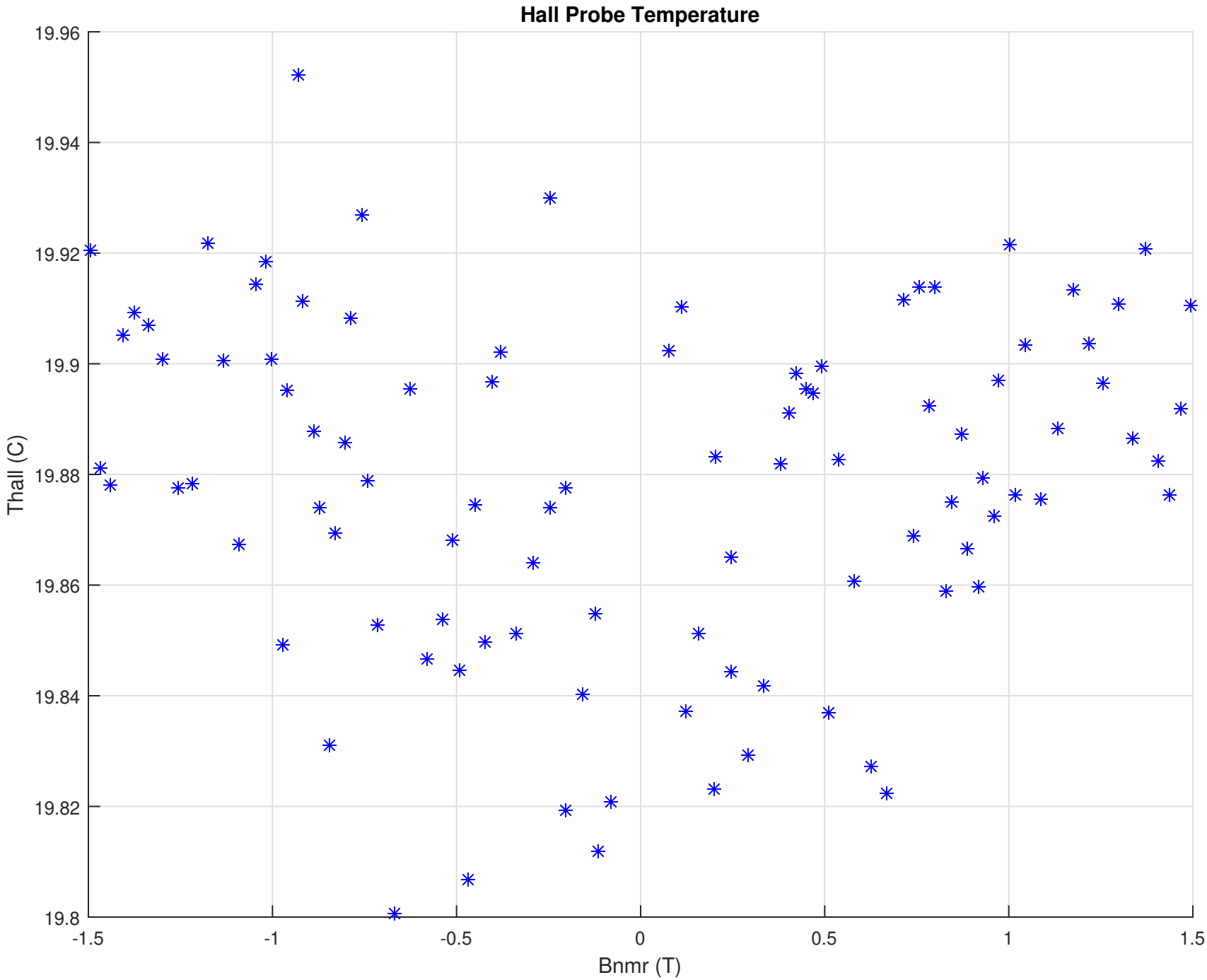
SLAC Magnetic Measurements
Hall Probe Calibration

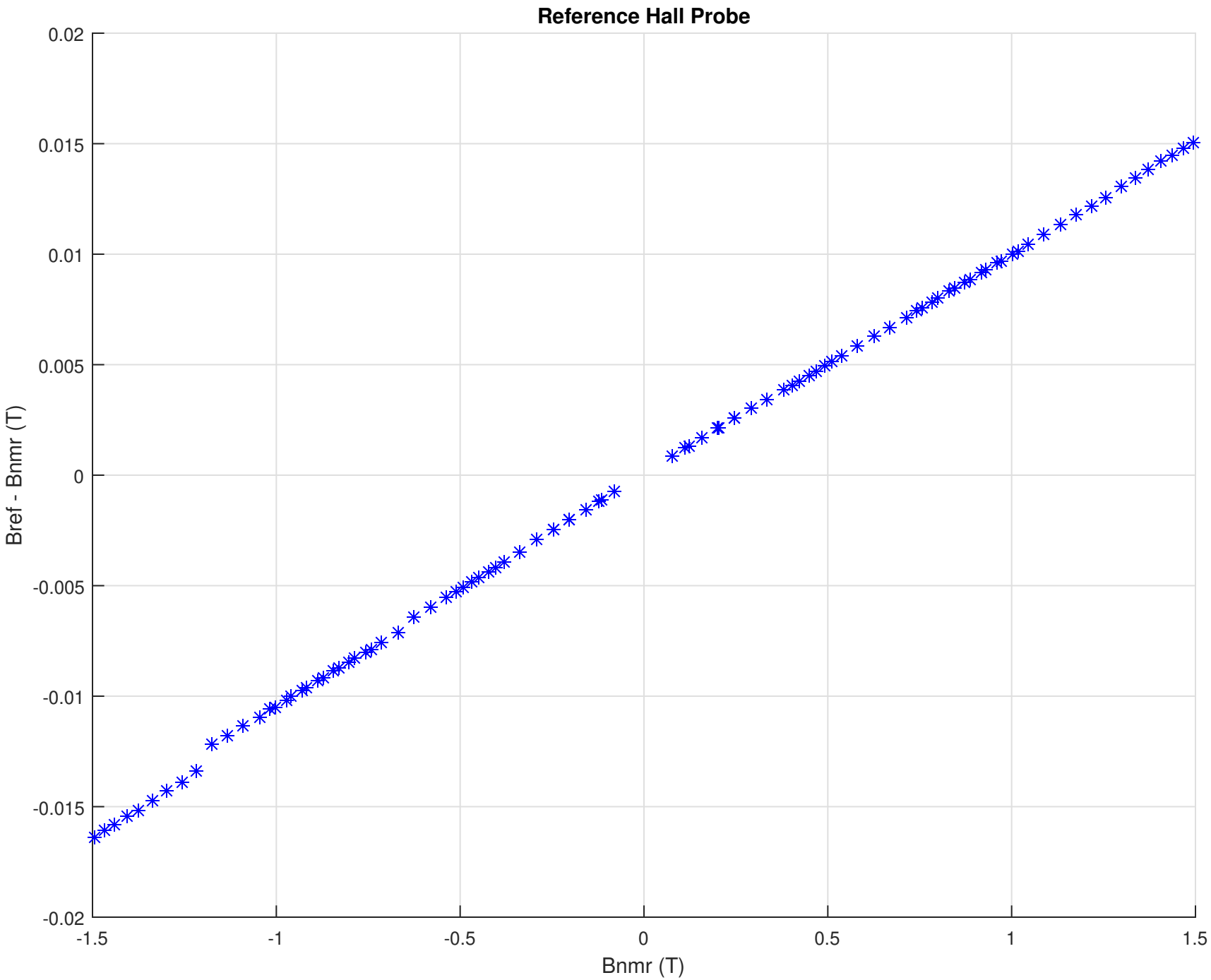
Header:
SLAC Magnetic Measurements
Date: 07-17-2015
Time: 10:56:06

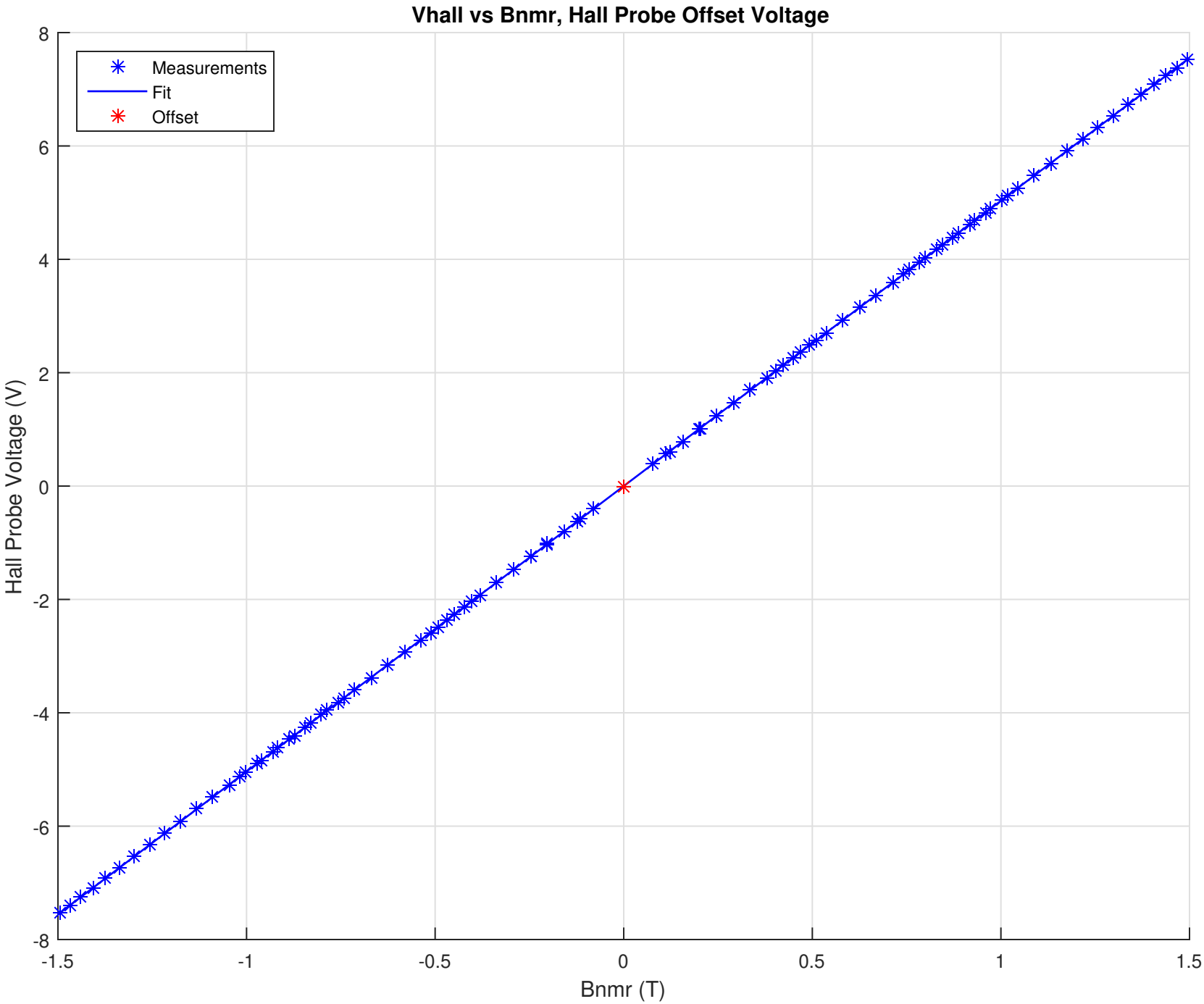
Project: LCLS
Device Type: Hall probe
Data Type: Y
Serial Number: SENIS-117-14
Run Number: 4
Measurement Type: HPCS
Operator: YL
Comment: Re - Calibration Y-probe, Run 2, VS 5.99986(V), Y Voltmeter SG45040599, longer delay, when magnet polarity switched

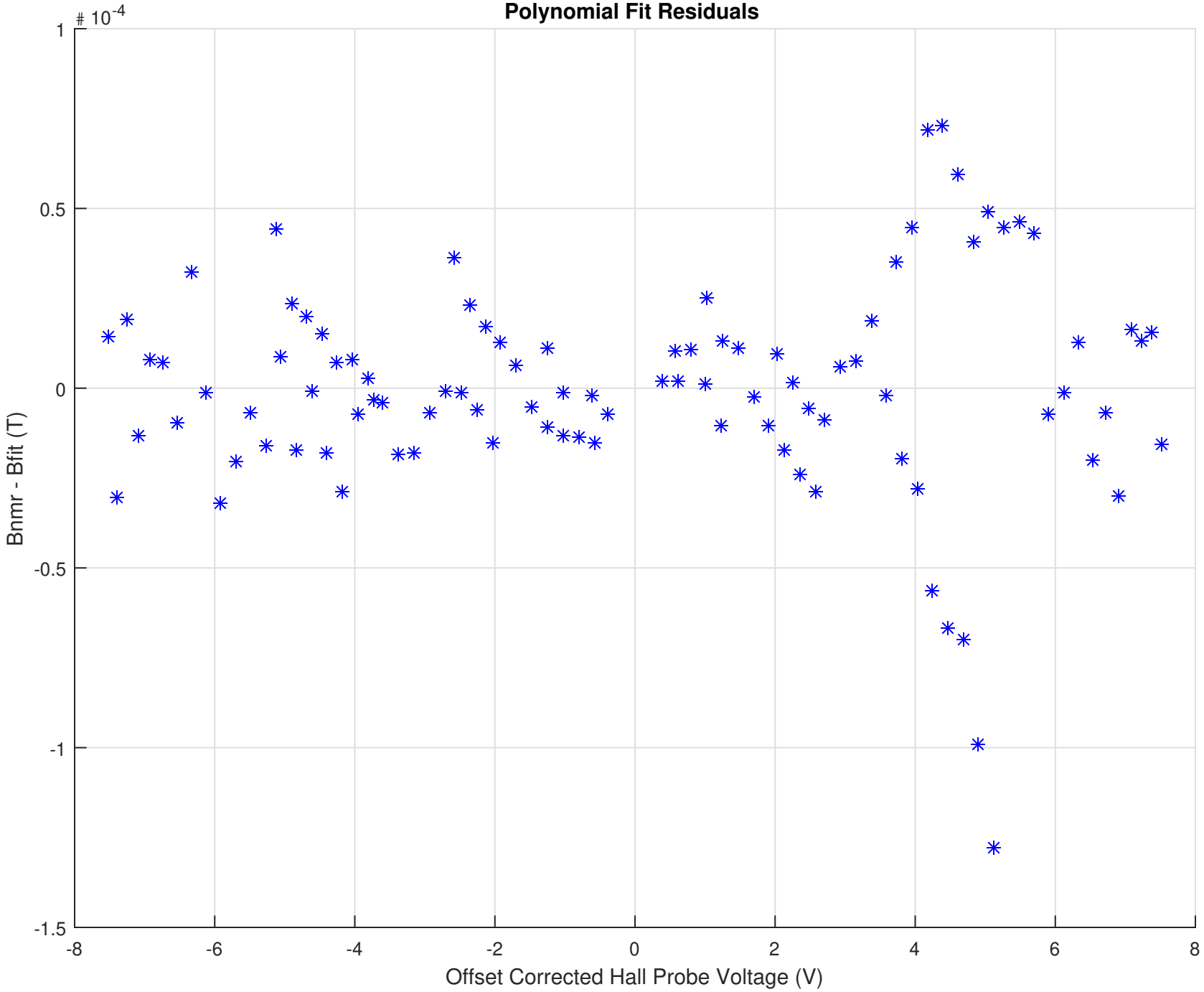
Current(A) T(C) Est. Field(T) Voltage Field

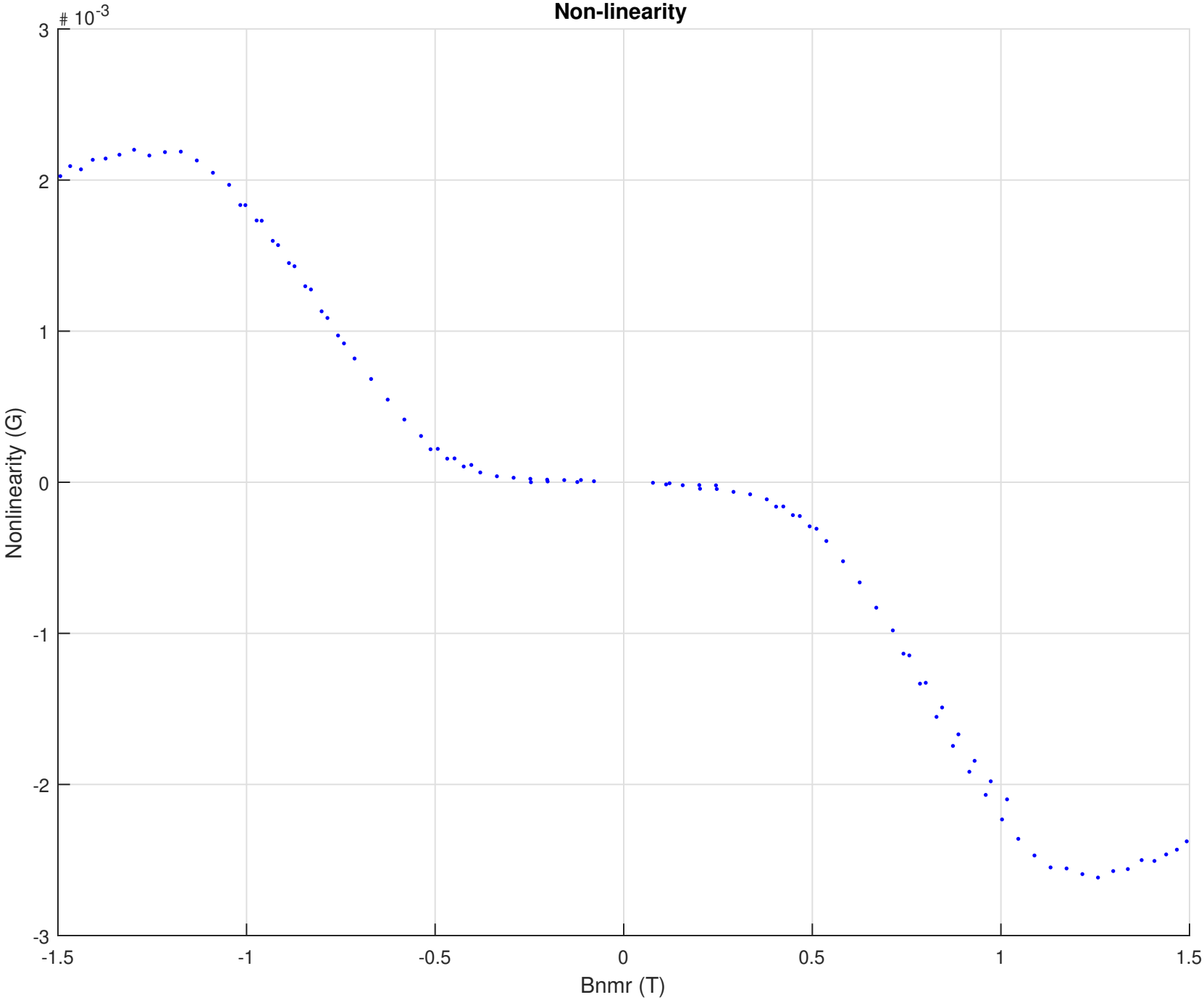
Parameters:
INPUT-FILE-DIR =S:\MagData\LCLS\Hall probe\SENIS-117-14\HPCS-004\
INPUT-FILE-NAME =hpcs-dat.001
POLY-FIT-ORDER =13
NUM-SIG-OUTLIER =2
NOM-CALIB-CONST =0.2
MAX-B-NMR-FIT =1.5

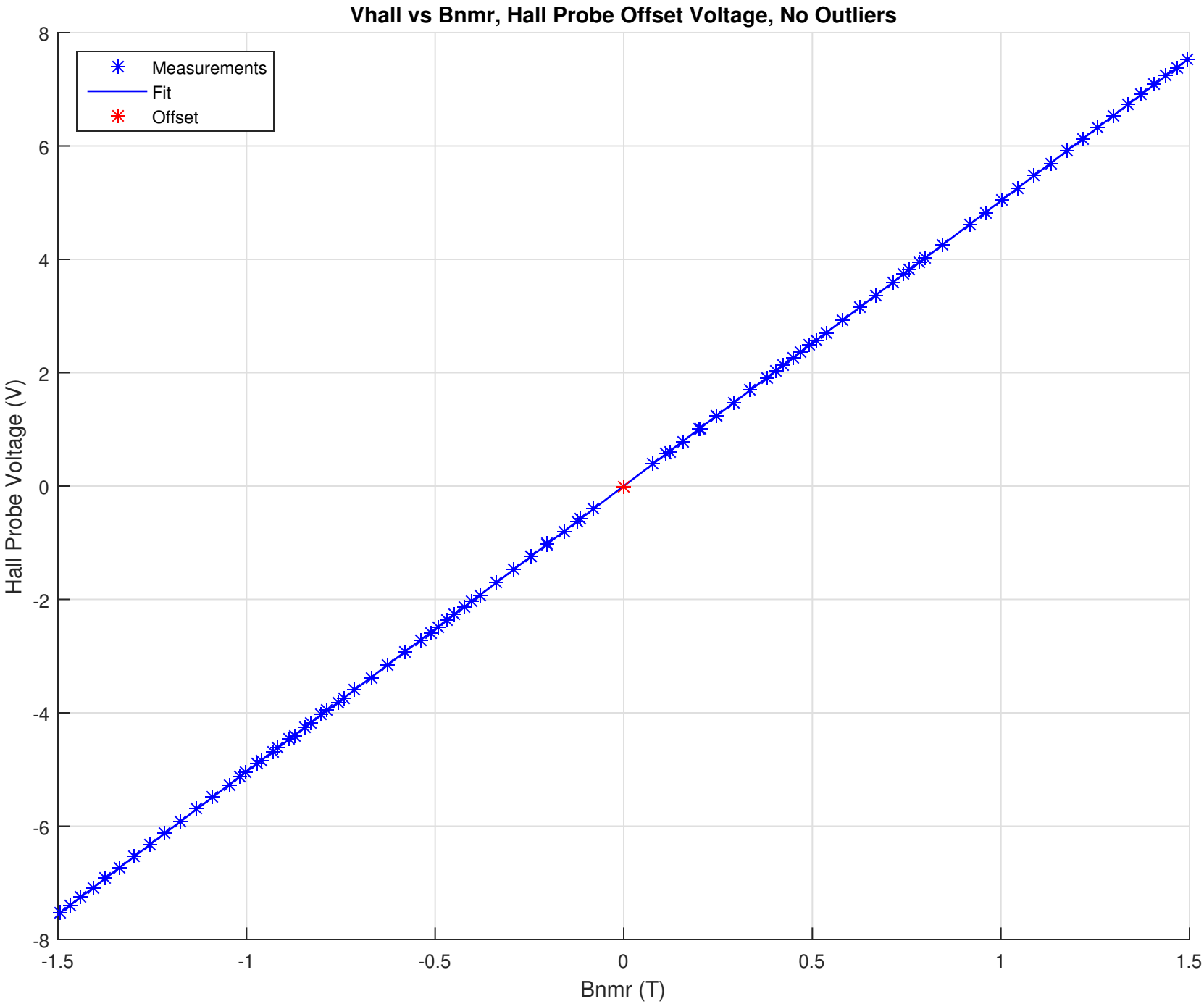

Hall Probe Temperature
19.96
19.94
19.92
19.9
19.88
19.86
19.84
19.82
19.8
Thall (C)
-1.5
-1
-0.5
0
0.5
1
1.5
Bnmr (T)

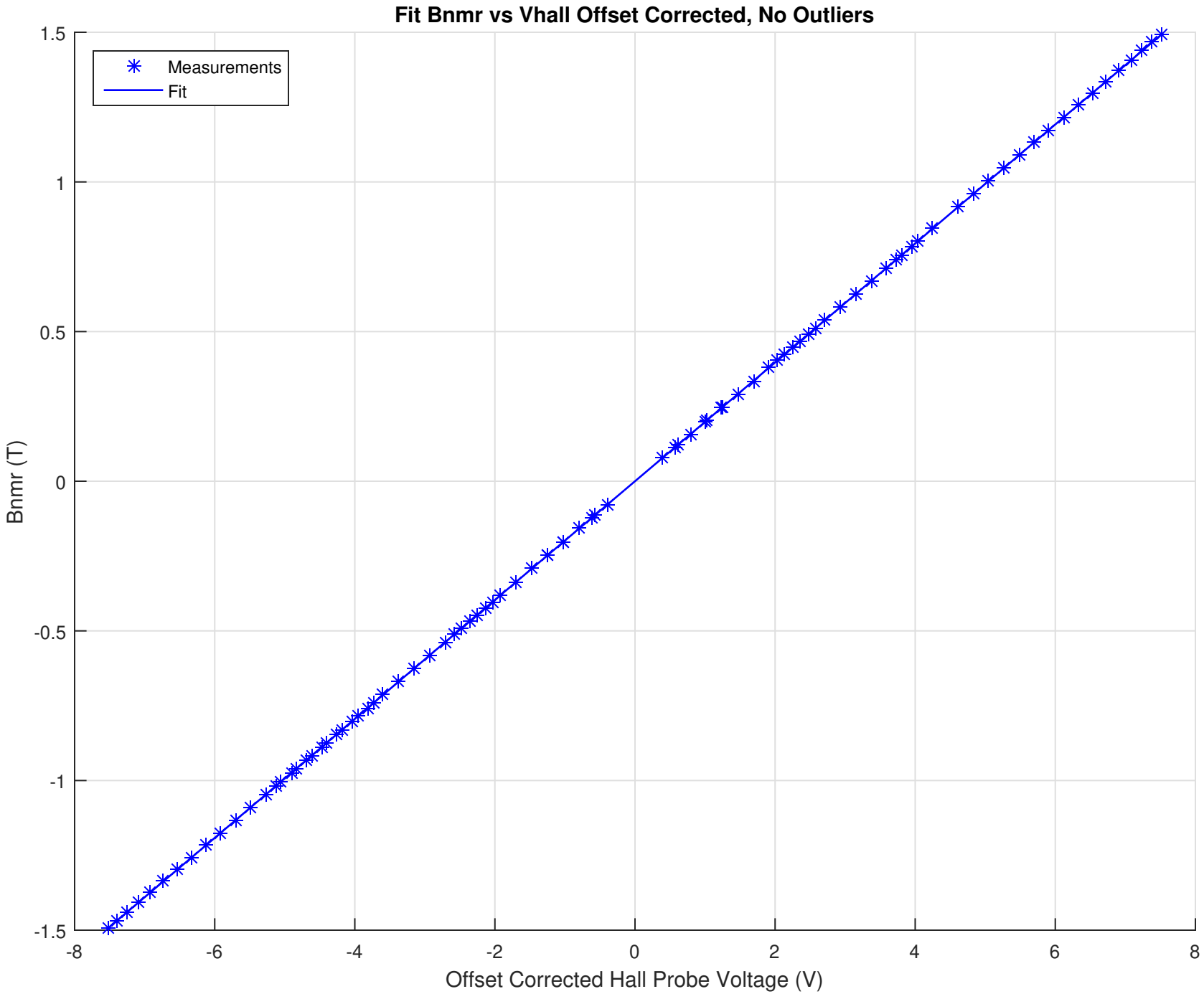

Reference Hall Probe
0.02
0.015
0.01
0.005
0
-0.005
-0.01
-0.015
-0.02
Bref - Bnmr (T)
-1.5
-1
-0.5
0
0.5
1
1.5
Bnmr (T)

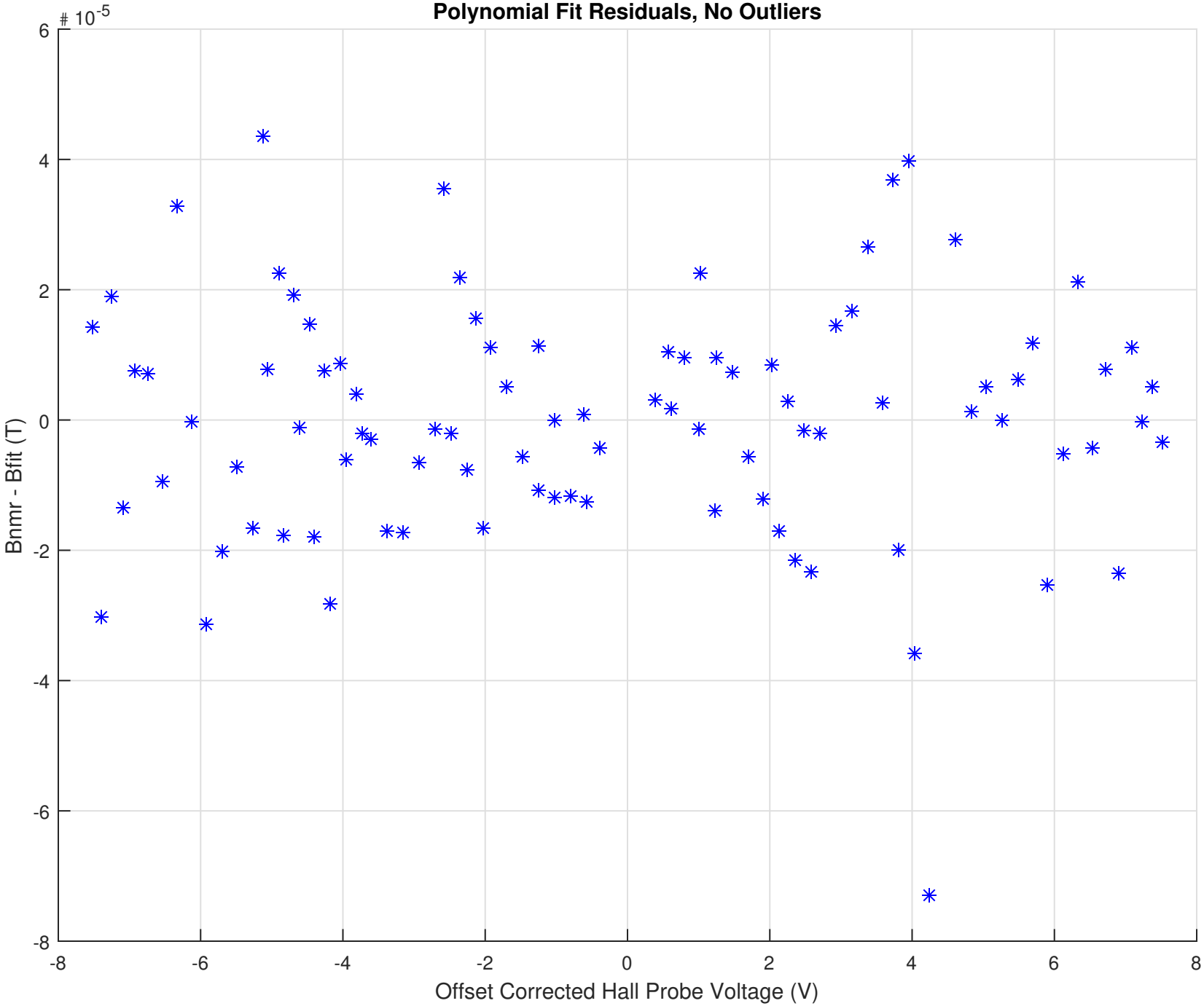

Vhall vs Bnmr, Hall Probe Offset Voltage
Measurements
Fit
Offset
Hall Probe Voltage (V)
Bnmr (T)
8
6
4
2
0
-2
-4
-6
-8
-1.5
-1
-0.5
0
0.5
1
1.5

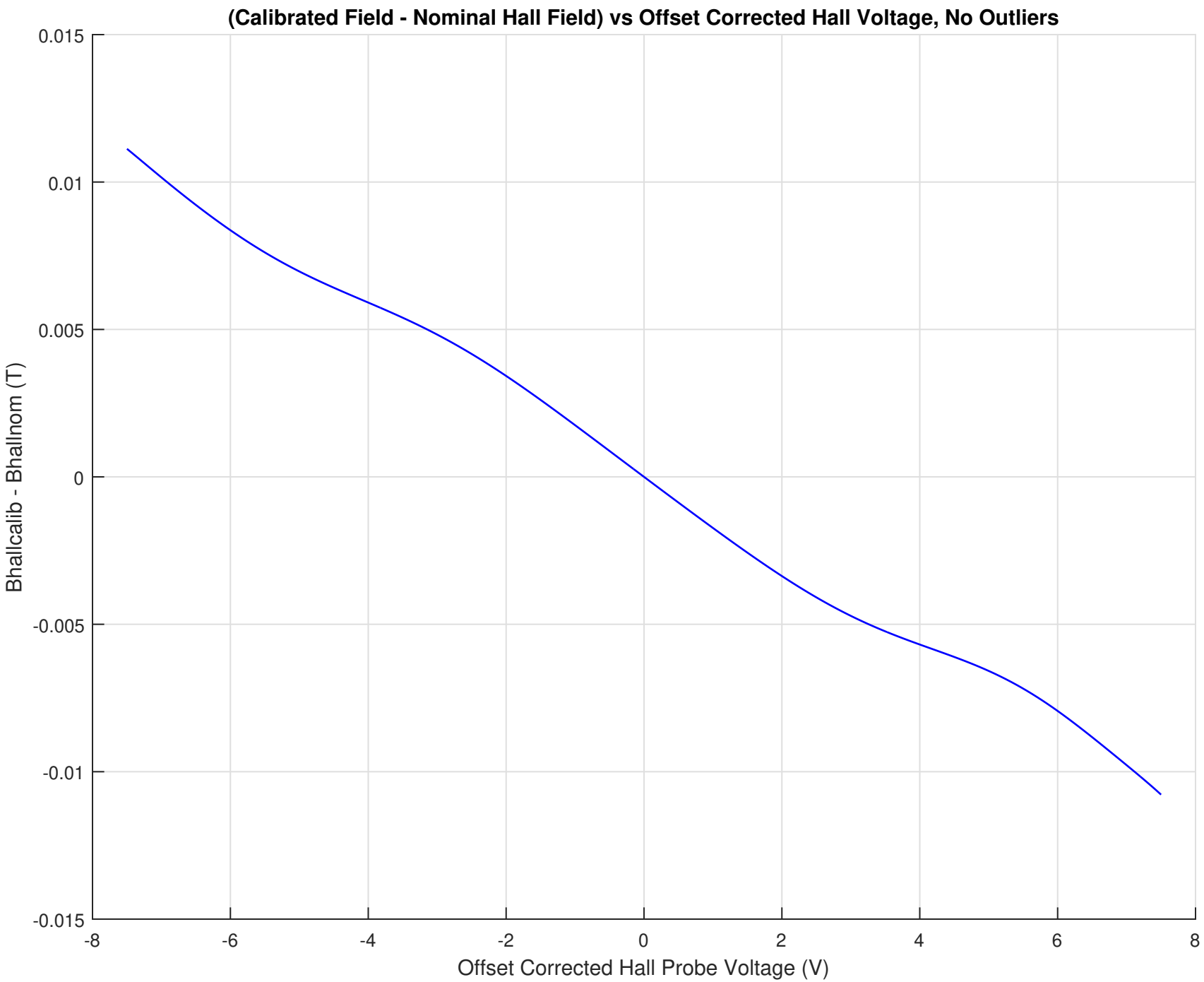

Polynomial Fit Residuals
10^-4
1
0.5
0
-0.5
-1
-1.5
Bnmr - Bfit (T)
-8
-6
-4
-2
0
2
4
6
8
Offset Corrected Hall Probe Voltage (V)


Non-linearity
10^-3
3
2
1
0
-1
-2
-3
Nonlinearity (G)
-1.5
-1
-0.5
0
0.5
1
1.5
Bnmr (T)


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
6
4
2
0
-2
-4
-6
-8
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
0.015
0.01
0.005
0
-0.005
-0.01
-0.015
Bhallcalib - Bhallnom (T)
-8
-6
-4
-2
0
2
4
6
8
Offset Corrected Hall Probe Voltage (V)