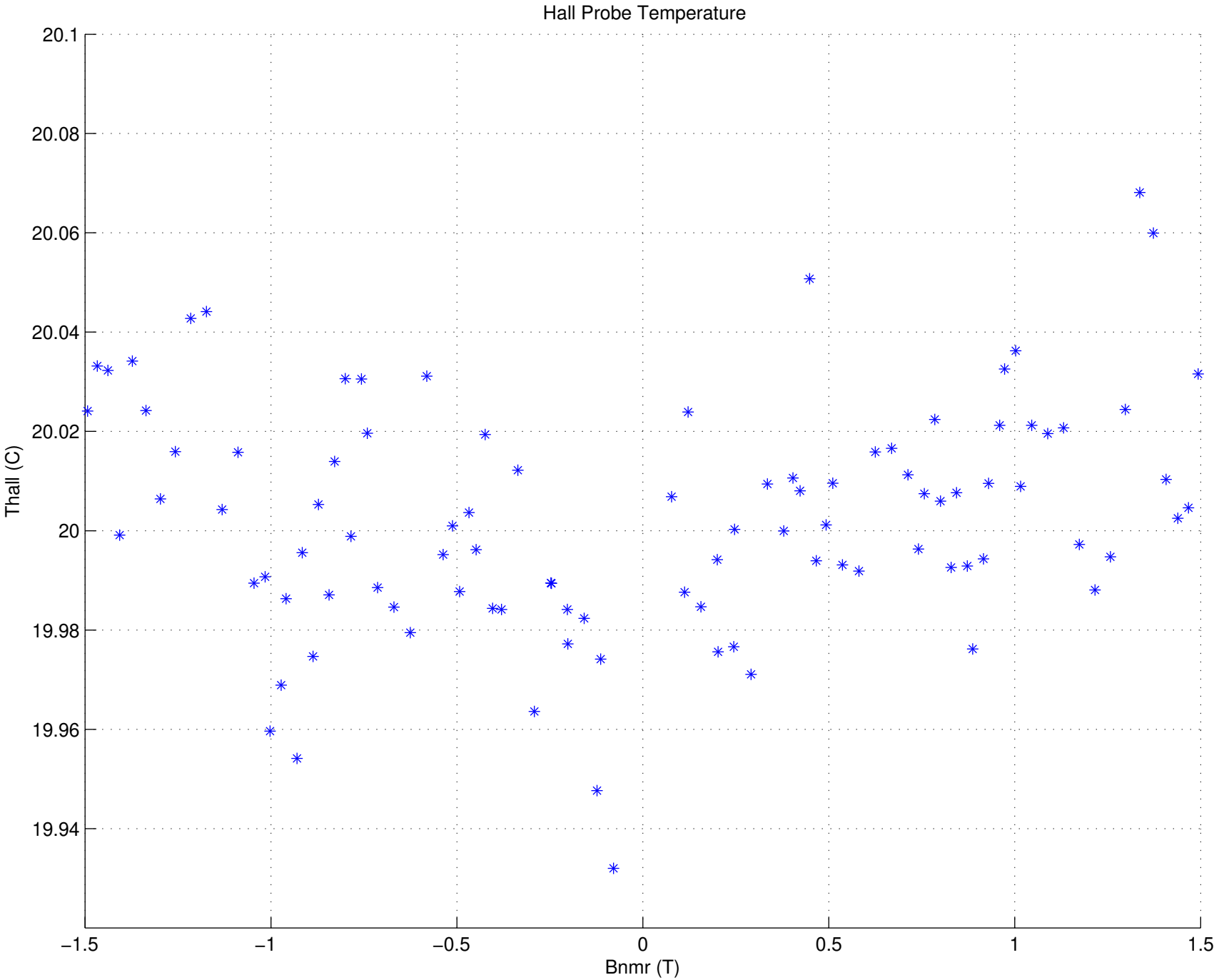
SLAC Magnetic Measurements
Hall Probe Calibration

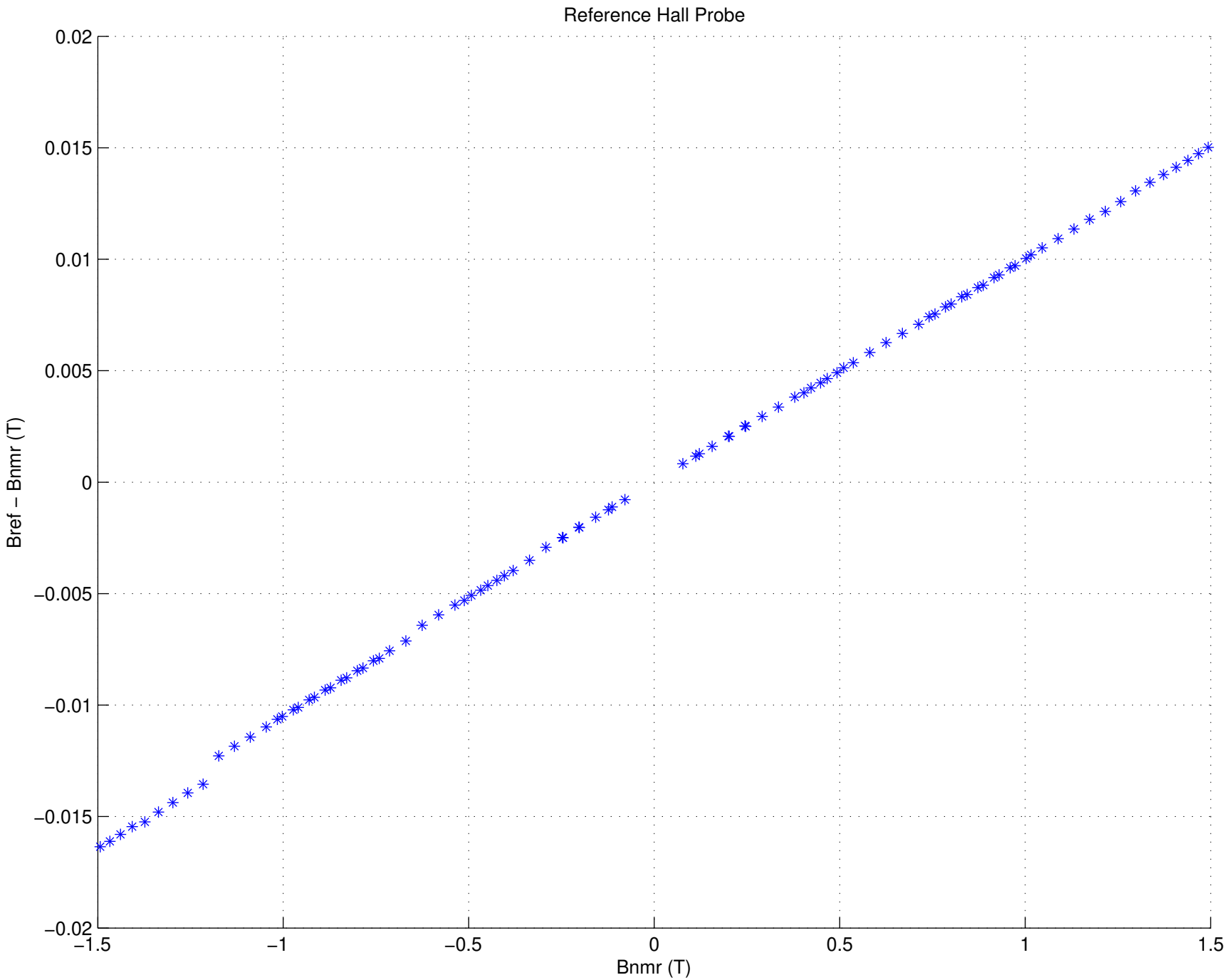
Header:
SLAC Magnetic Measurements
Date: 03−08−2007
Time: 12:23:25

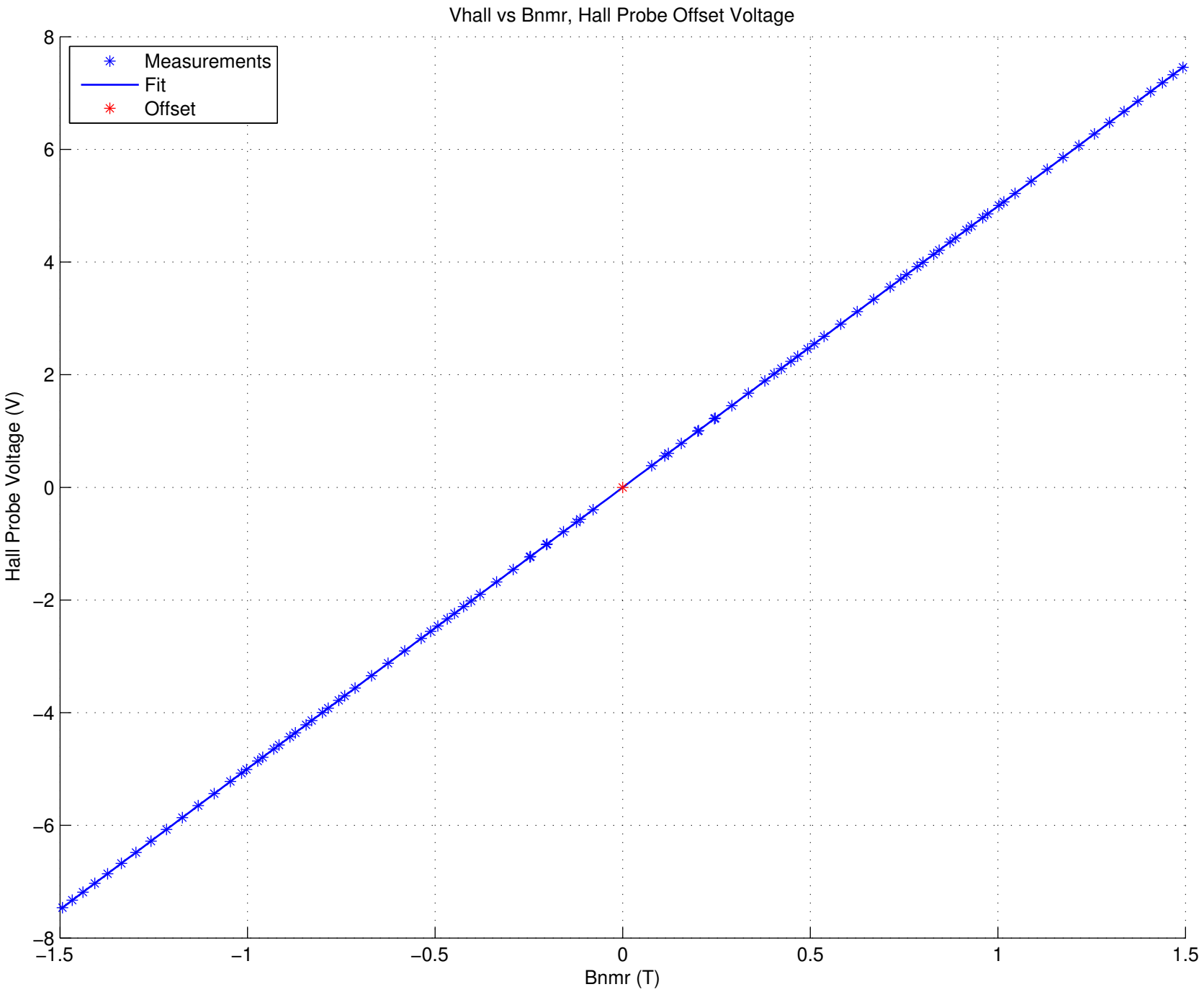
Project: LCLS
Device Type: Hall probe
Data Type: y
Serial Number: SENTRON−441
Run Number: 6
Measurement Type: HPCS
Operator: vk
Comment: New Run  to use 2 sigma criteria

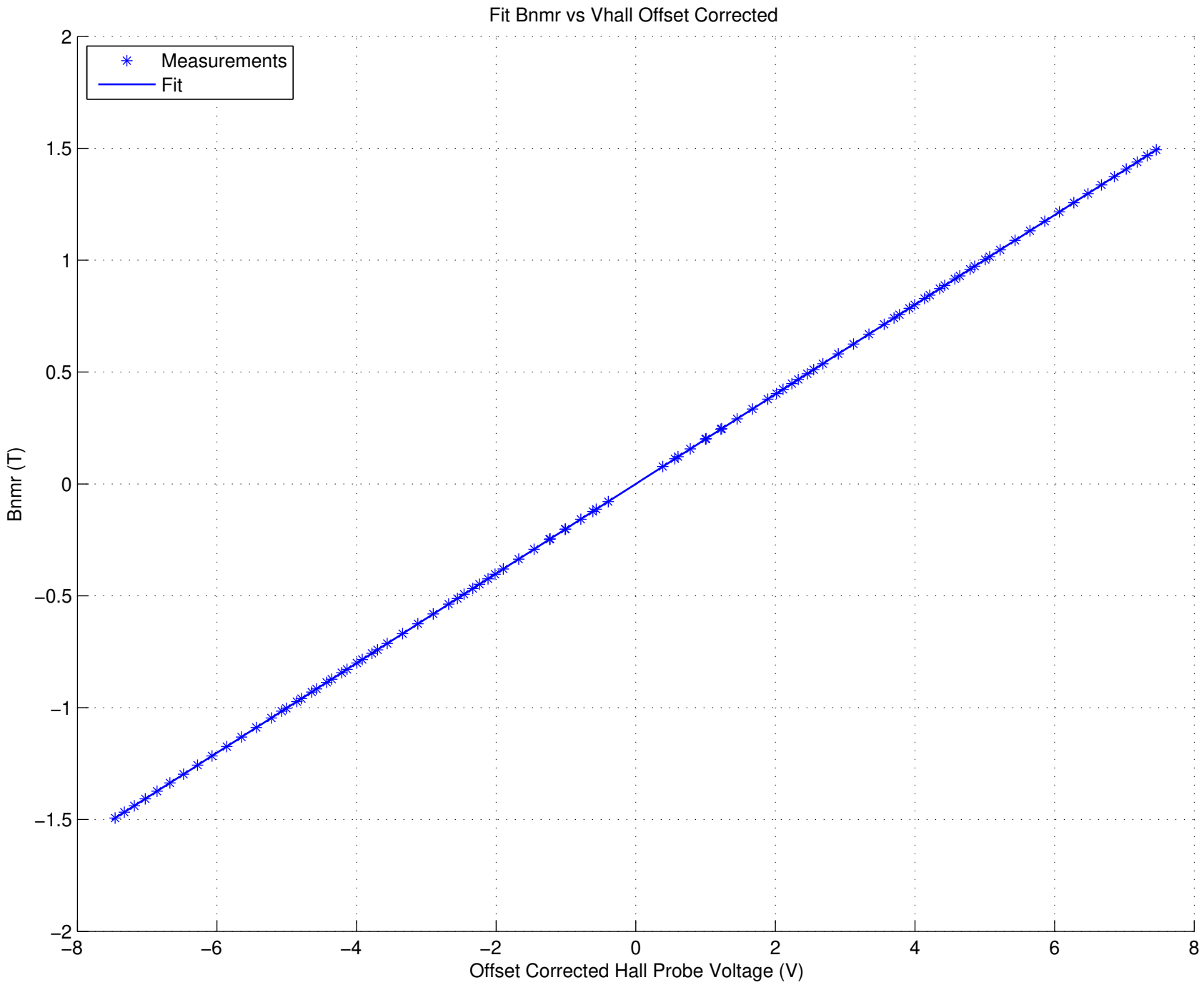
Current(A)  T(C)  Est. Field(T)  Voltage  Field

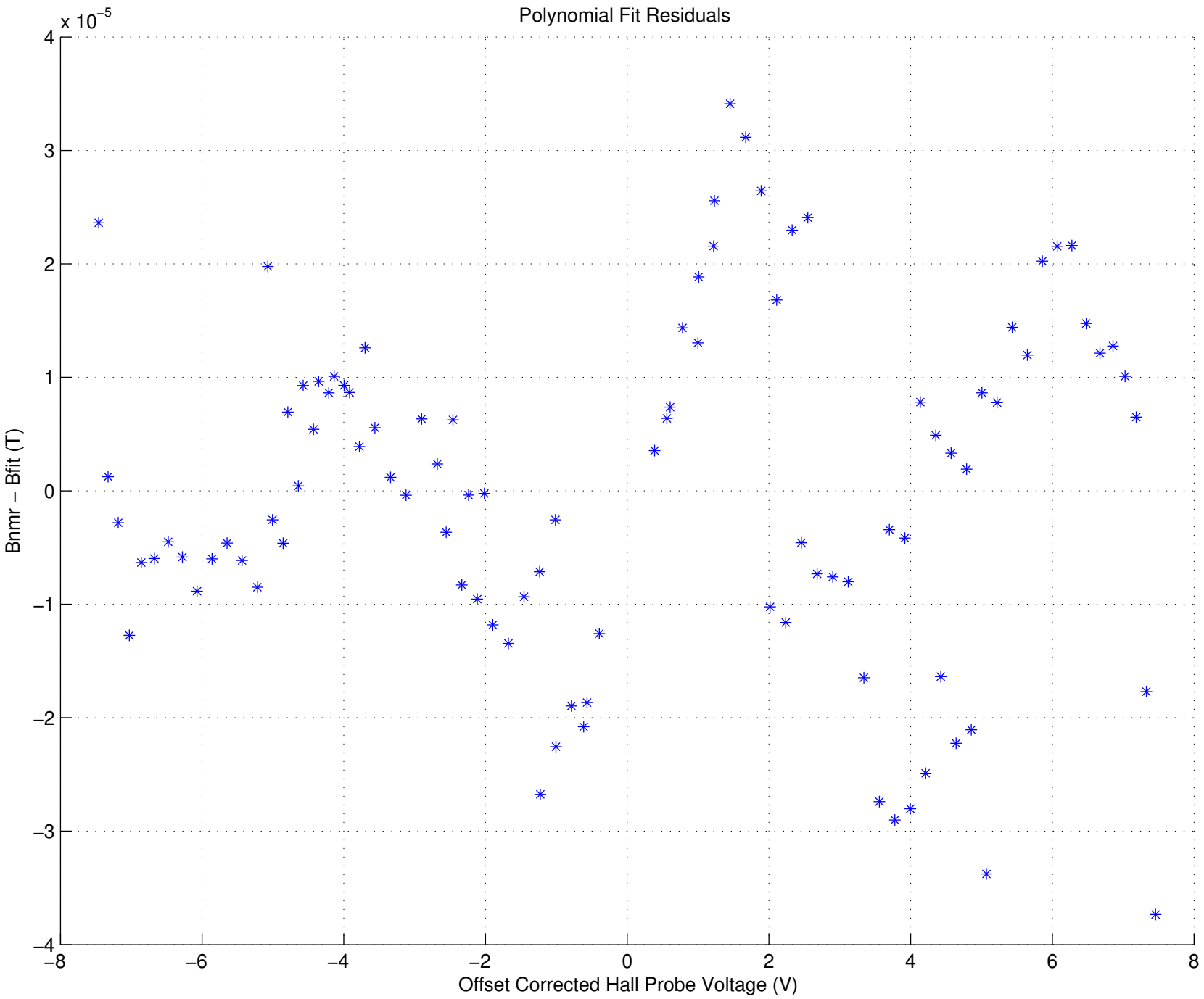
Parameters:
INPUT−FILE−DIR =c:\magdata\hall probe\sentron−441\hpcs−006\
INPUT−FILE−NAME =hpcs−dat.001
POLY−FIT−ORDER =5
NUM−SIG−OUTLIER =2
NOM−CALIB−CONST =0.2
MAX−B−NMR−FIT =1.5

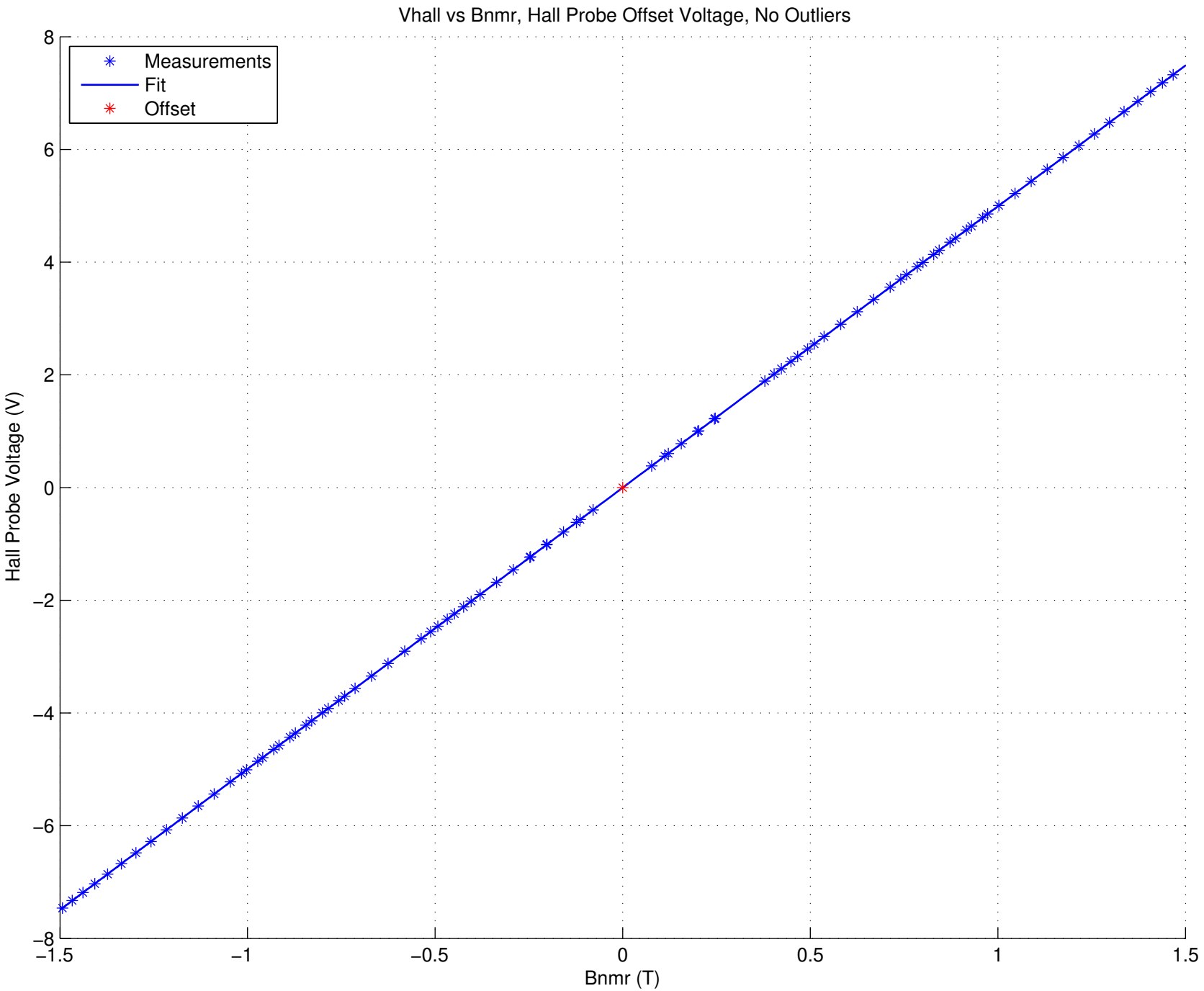

Hall Probe Temperature
Thall (C)
Bnmr (T)
20.1
20.08
20.06
20.04
20.02
20
19.98
19.96
19.94
−1.5
−1
−0.5
0
0.5
1
1.5

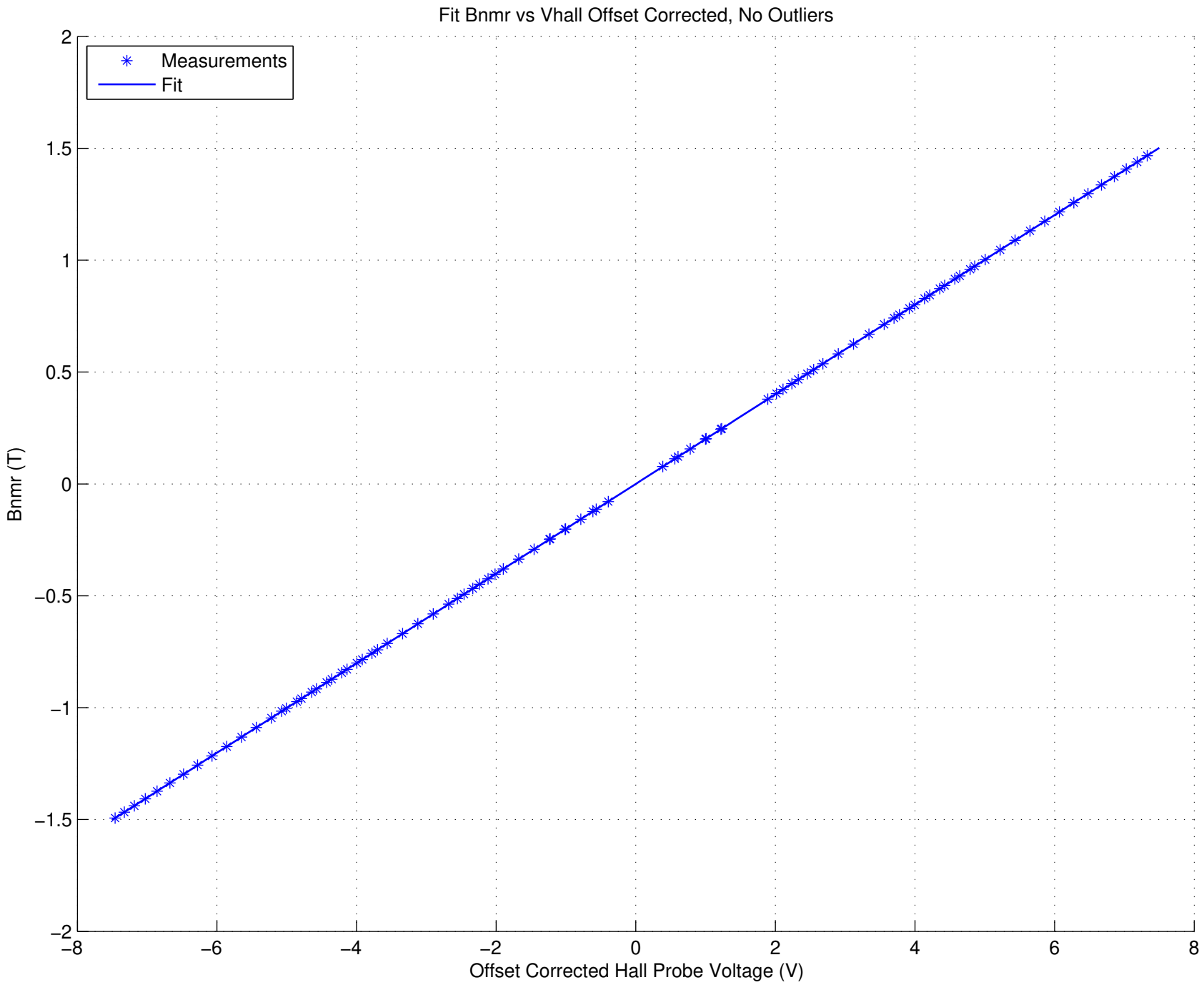

Reference Hall Probe
0.02
0.015
0.01
0.005
0
−0.005
−0.01
−0.015
−0.02
Bref − Bnmr (T)
−1.5
−1
−0.5
0
0.5
1
1.5
Bnmr (T)

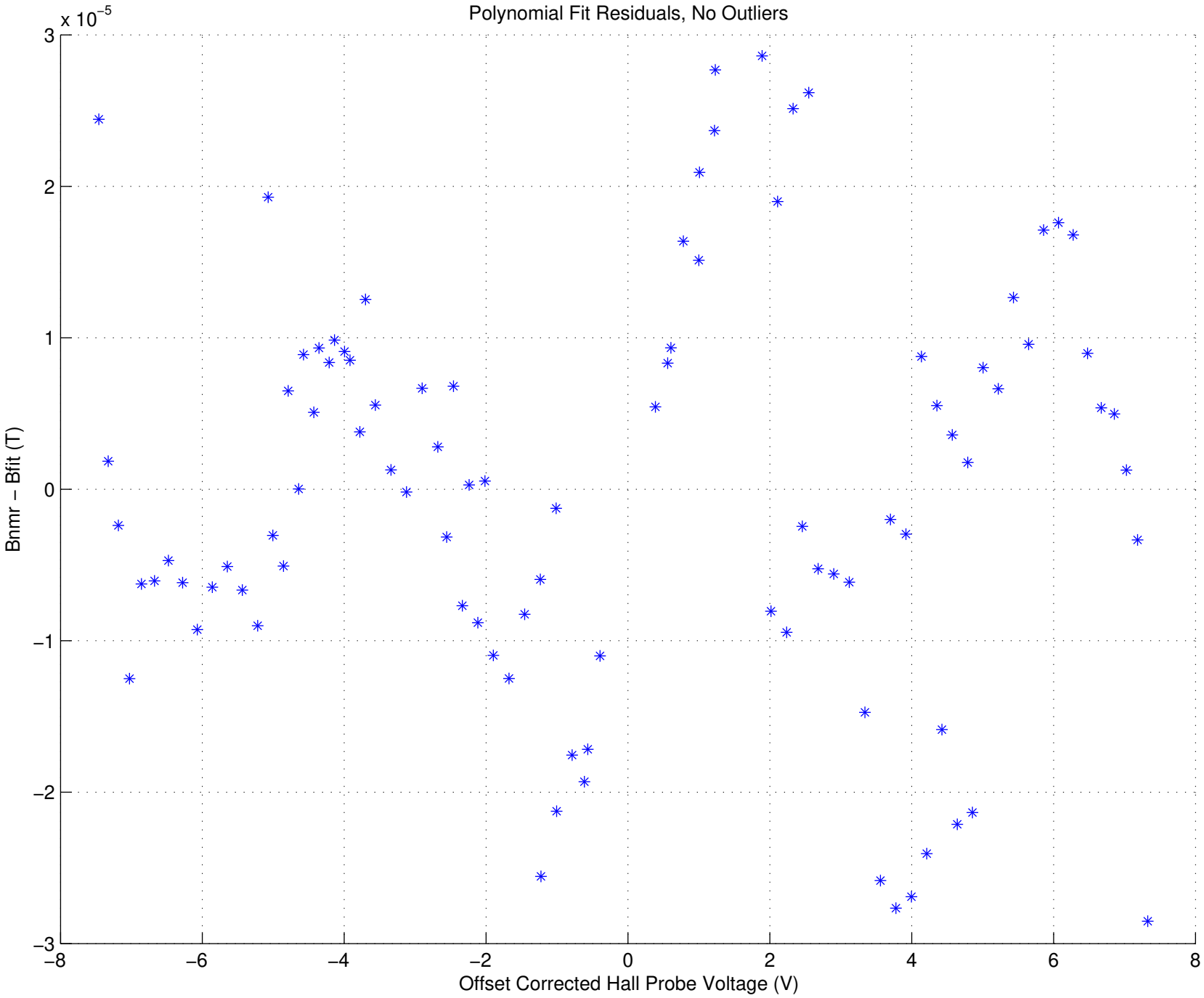

Vhall vs Bnmr, Hall Probe Offset Voltage
Measurements
Fit
Offset
Hall Probe Voltage (V)
Bnmr (T)
8
6
4
2
0
−2
−4
−6
−8
−1.5
−1
−0.5
0
0.5
1
1.5

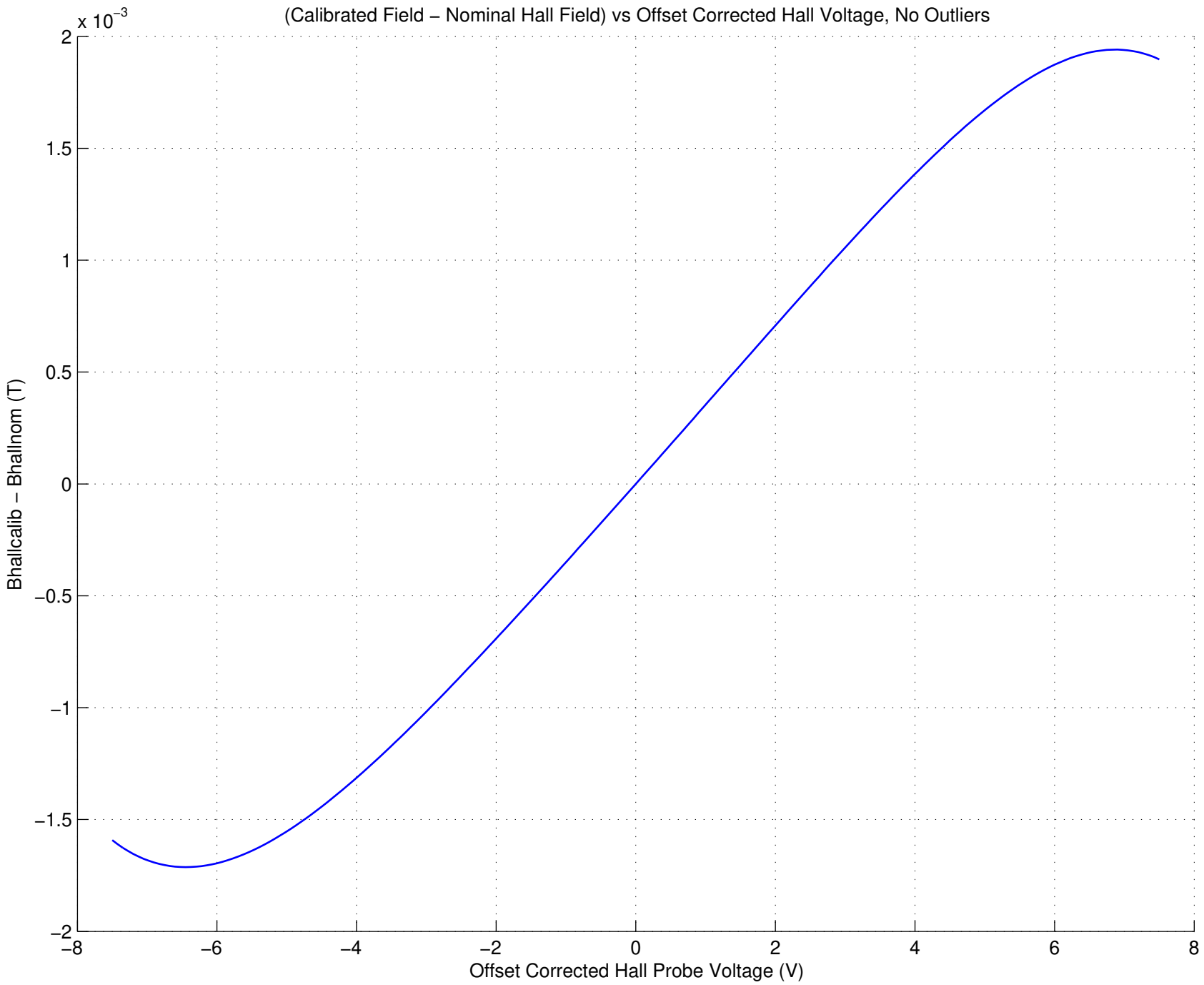

Fit Bnmr vs Vhall Offset Corrected
Measurements
Fit
Bnmr (T)
Offset Corrected Hall Probe Voltage (V)
2
1.5
1
0.5
0
−0.5
−1
−1.5
−2
−8
−6
−4
−2
0
2
4
6
8


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


(Calibrated Field – Nominal Hall Field) vs Offset Corrected Hall Voltage, No Outliers
x 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)