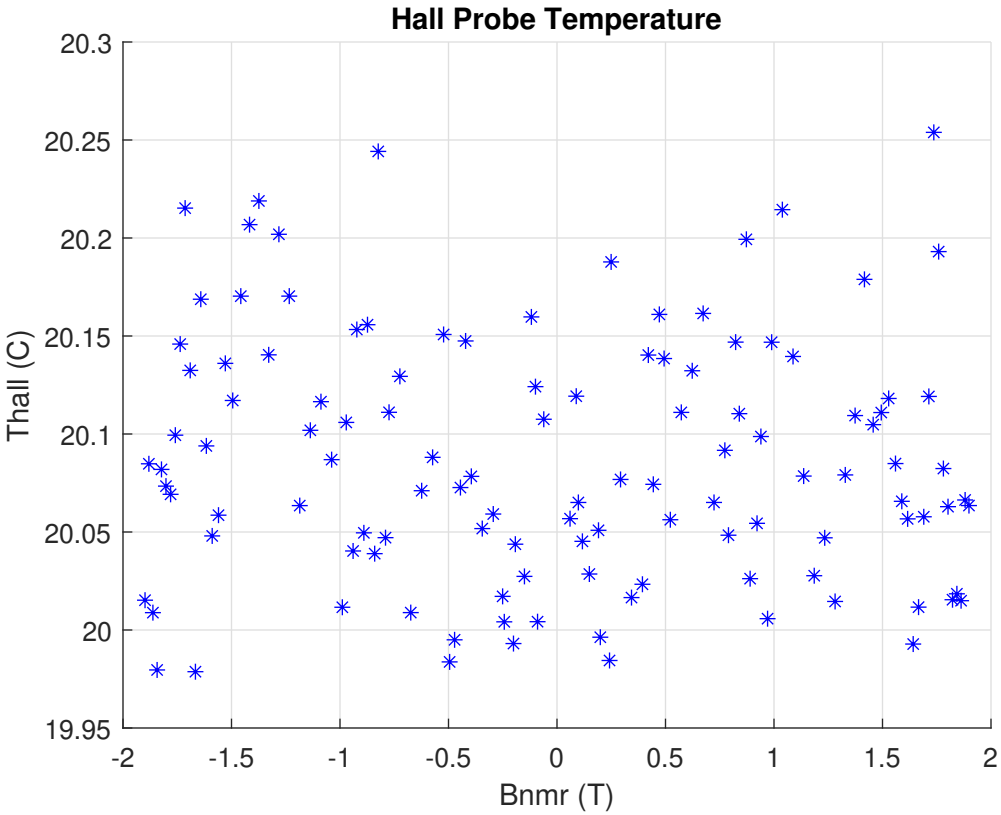
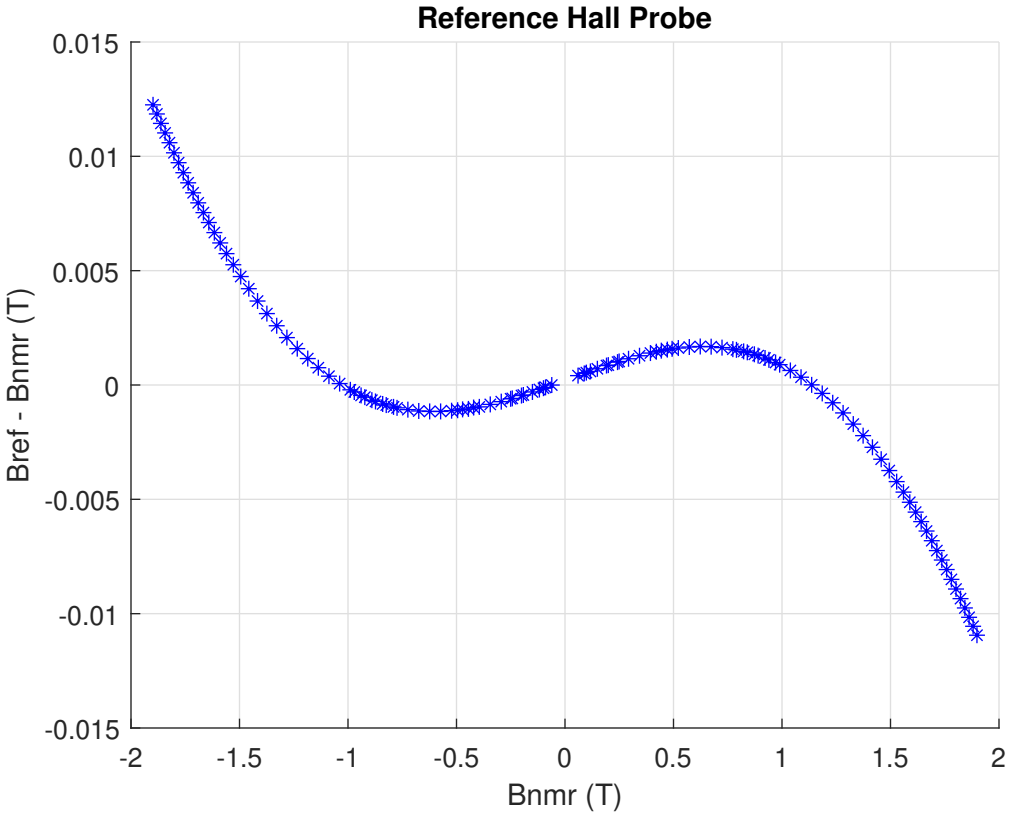
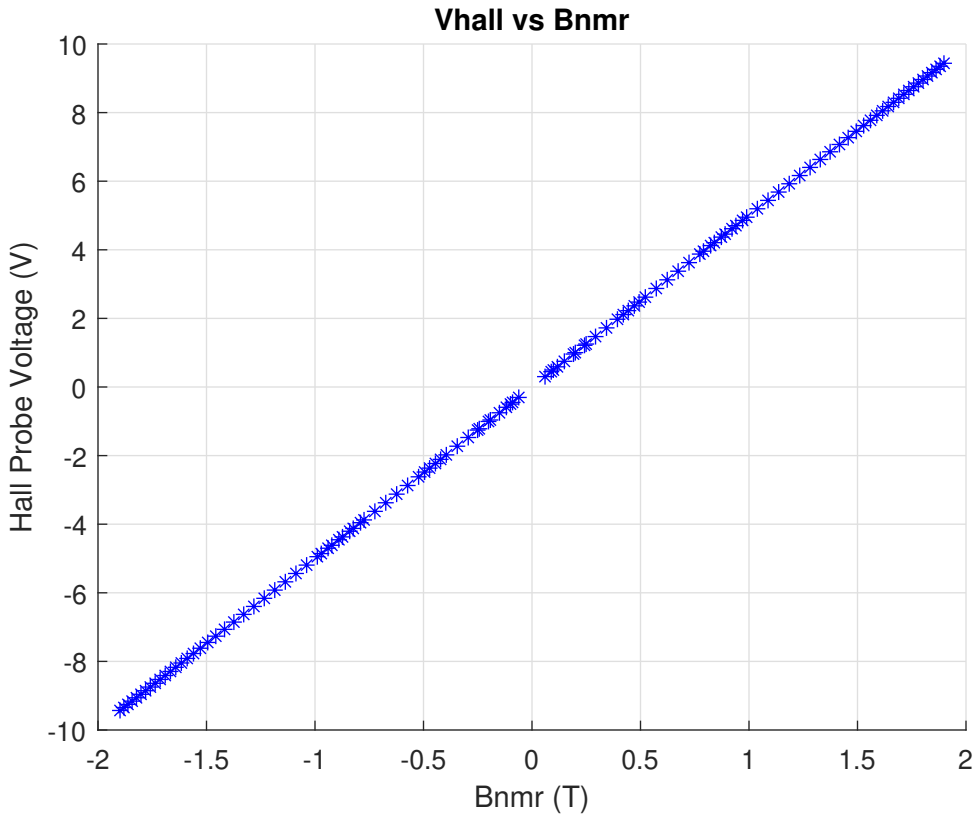
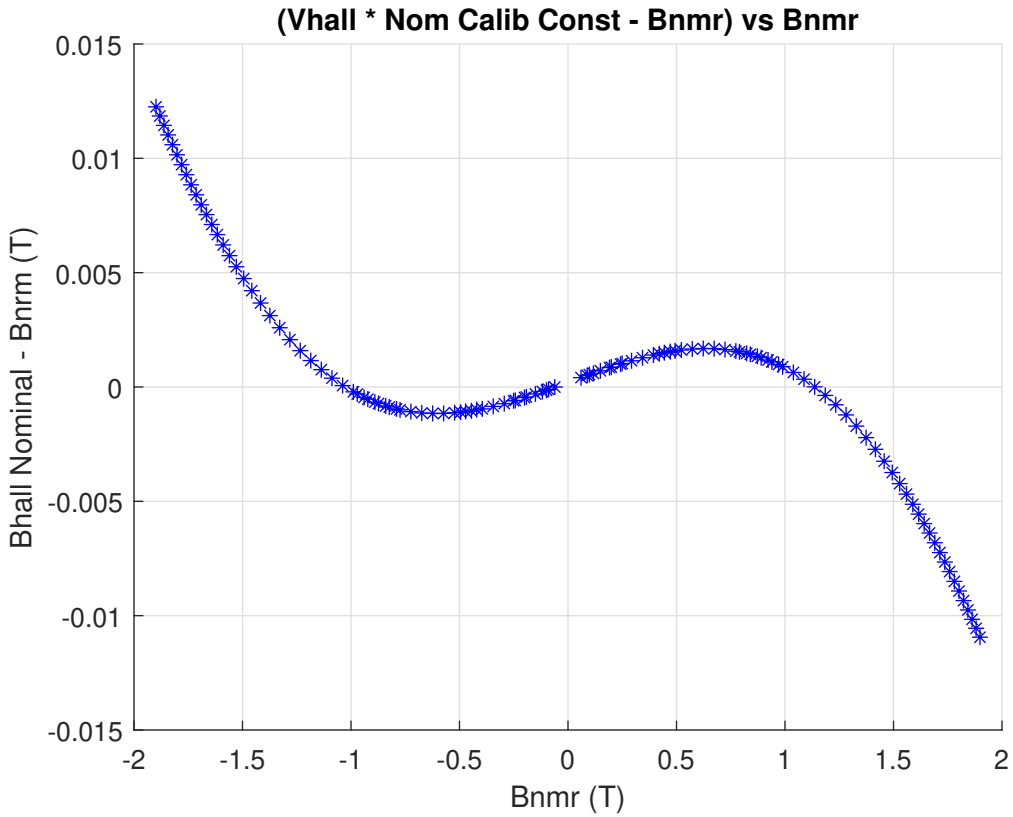
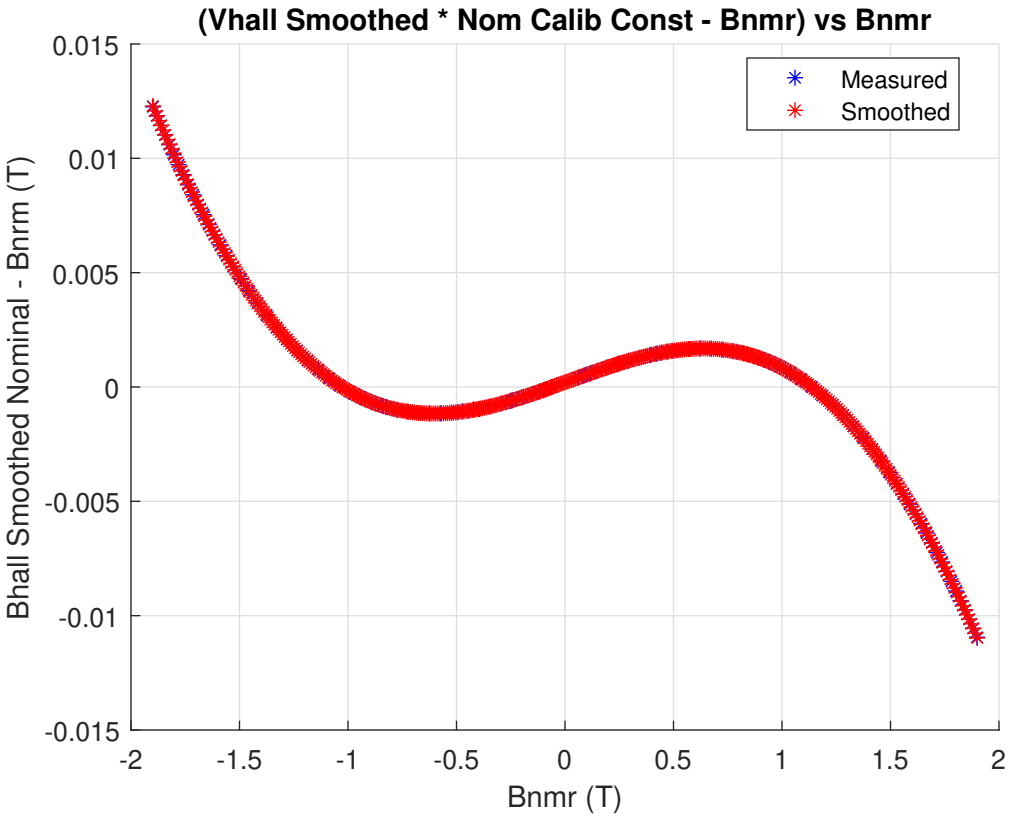
SLAC Magnetic Measurements#
Date: 04-04-2023#
Time: 14:41:45#

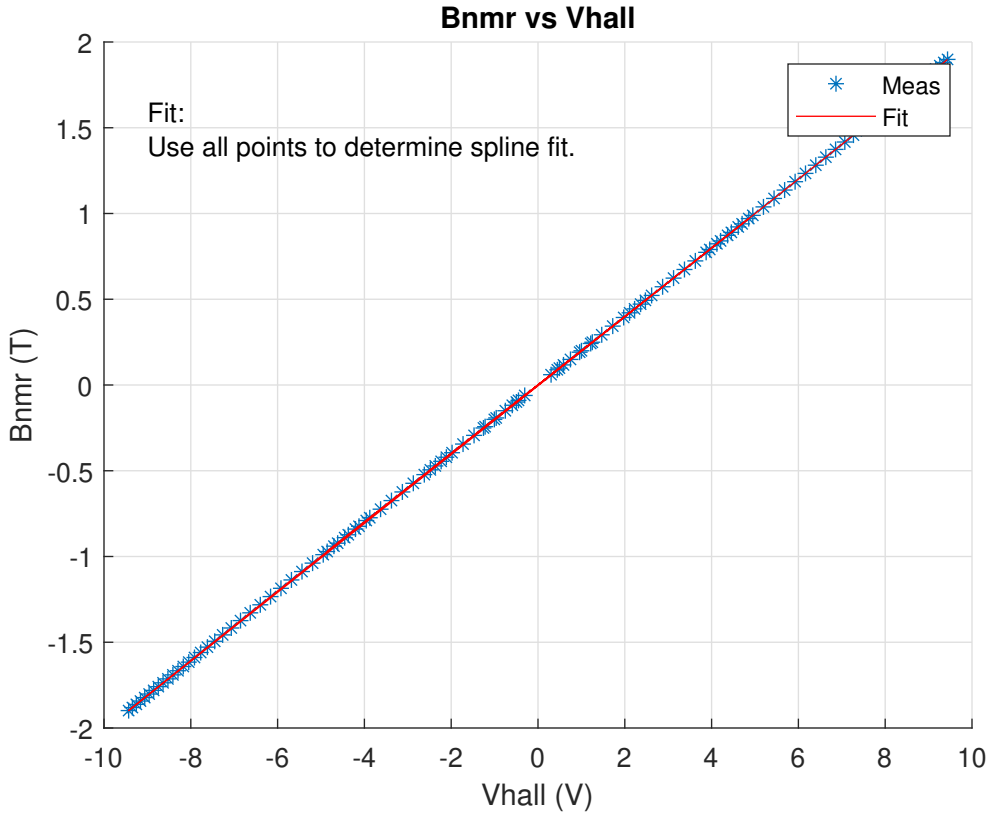

Hall Probe Temperature
Thall (C)
Bnmr (T)
20.3
20.25
20.2
20.15
20.1
20.05
20
19.95
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2

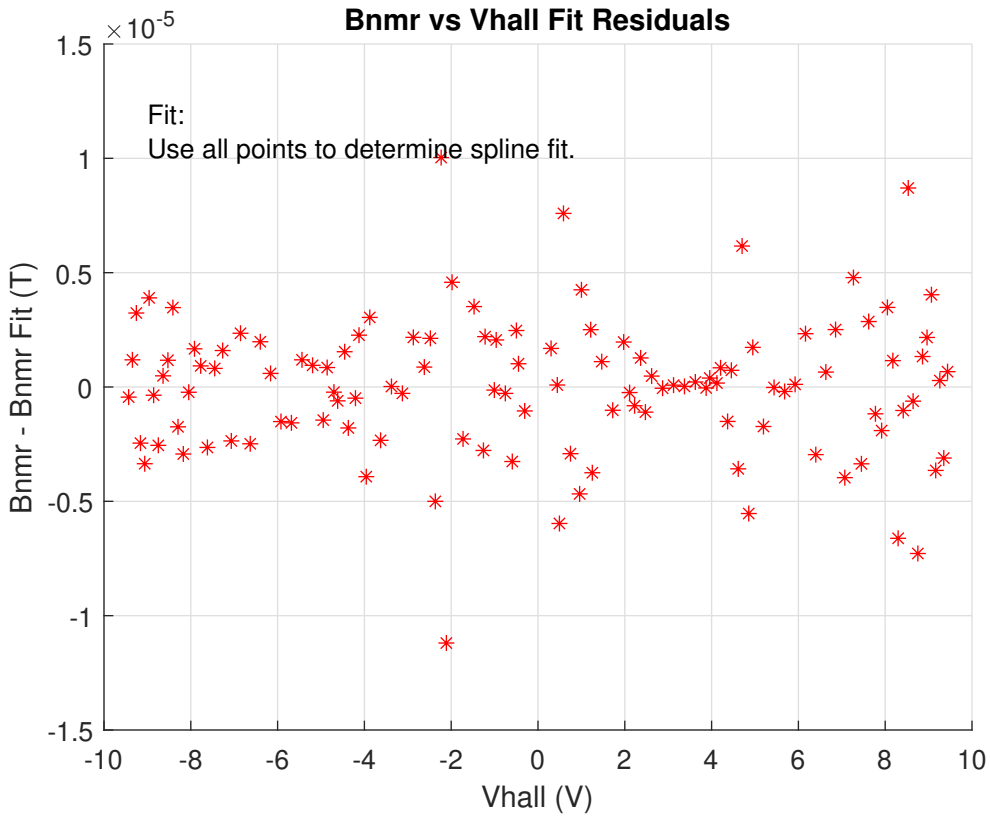

Reference Hall Probe
0.015
0.01
0.005
0
-0.005
-0.01
-0.015
Bref - Bnmr (T)
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2
Bnmr (T)

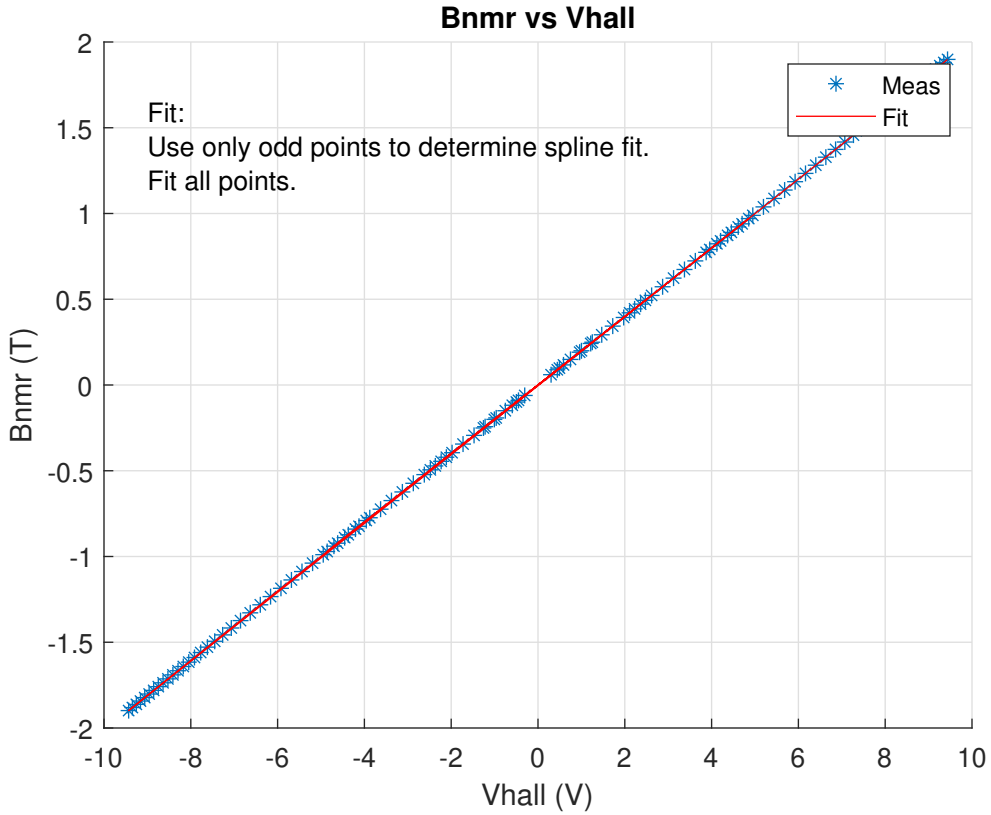

Vhall vs Bnmr
Hall Probe Voltage (V)
Bnmr (T)
10
8
6
4
2
0
-2
-4
-6
-8
-10
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2

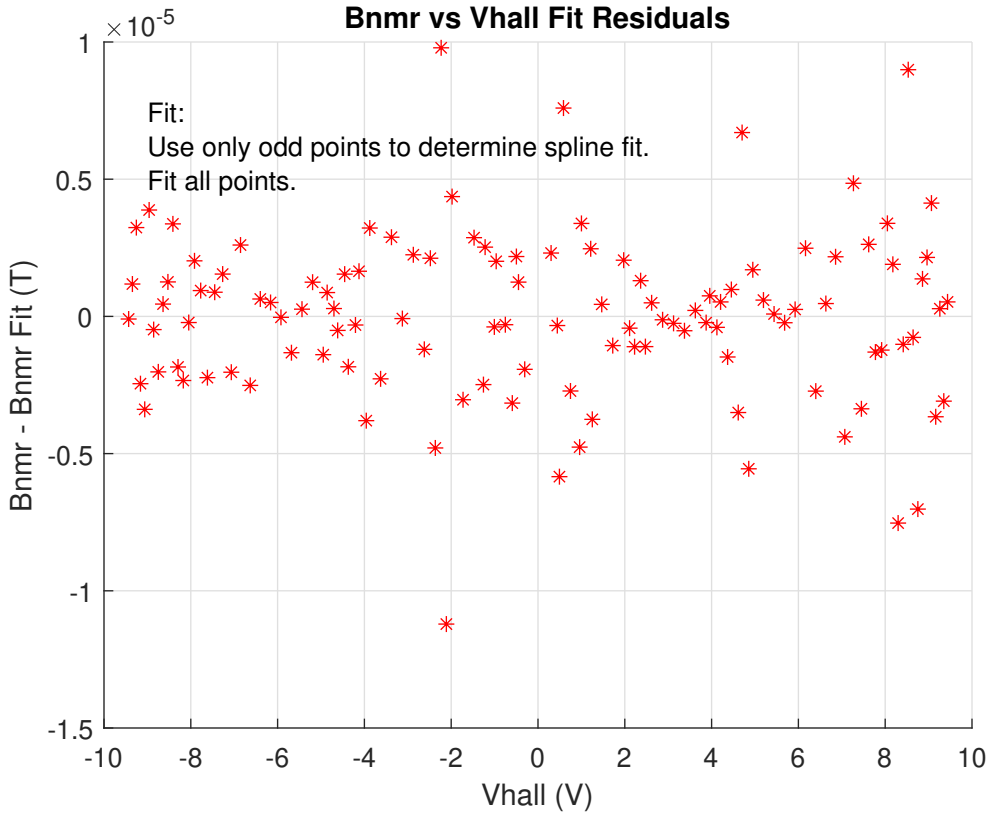

(Vhall * Nom Calib Const - Bnmr) vs Bnmr
Bhall Nominal - Bnrm (T)
Bnmr (T)
0.015
0.01
0.005
0
-0.005
-0.01
-0.015
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2

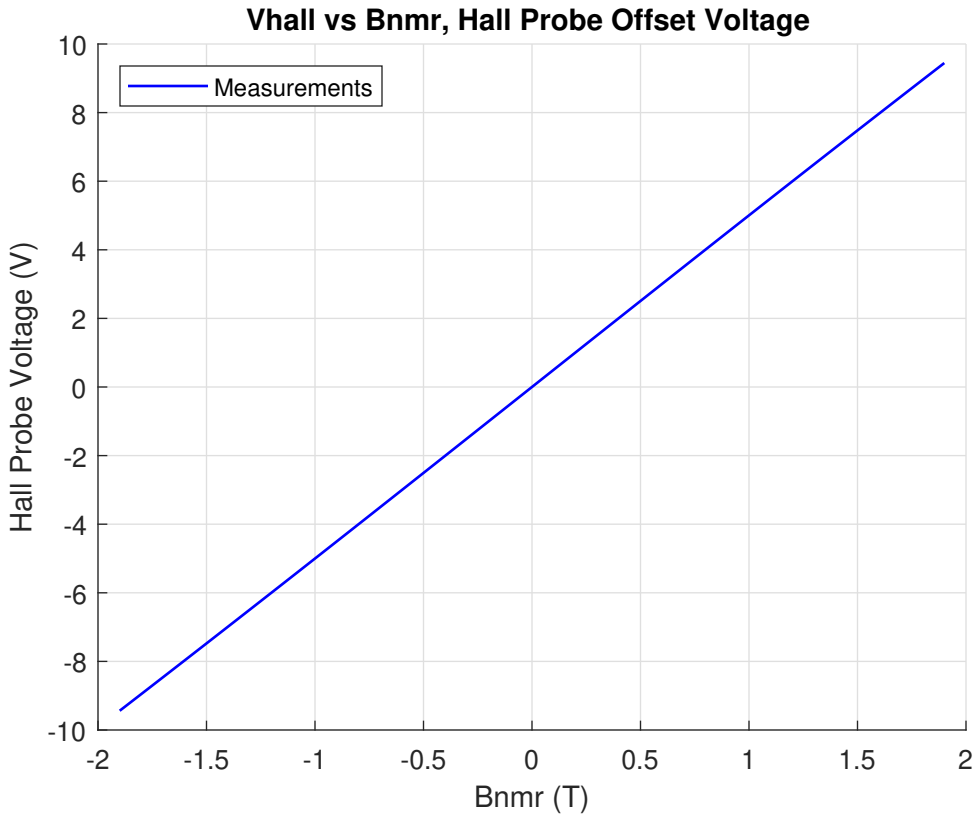

(Vhall Smoothed * Nom Calib Const - Bnmr) vs Bnmr
Measured
Smoothed
Bhall Smoothed Nominal - Bnrm (T)
Bnmr (T)
0.015
0.01
0.005
0
-0.005
-0.01
-0.015
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2

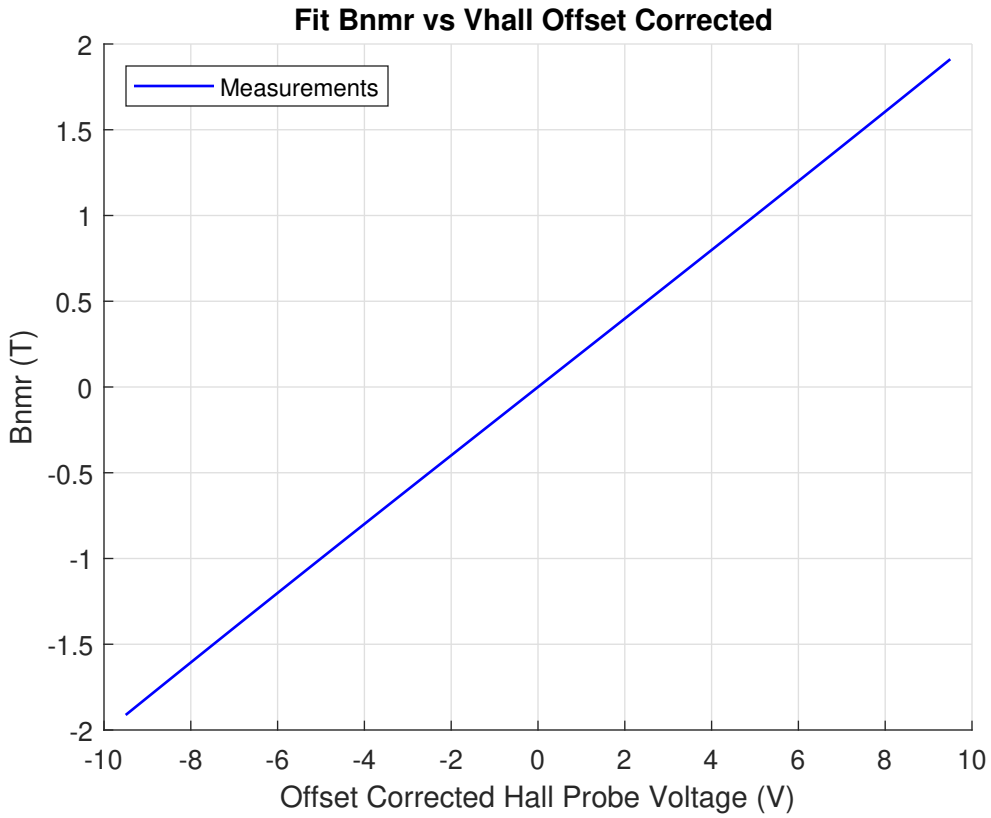

Bnmr vs Vhall
Fit:
Use all points to determine spline fit.
Meas
Fit
Bnmr (T)
Vhall (V)
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-10
-8
-6
-4
-2
0
2
4
6
8
10

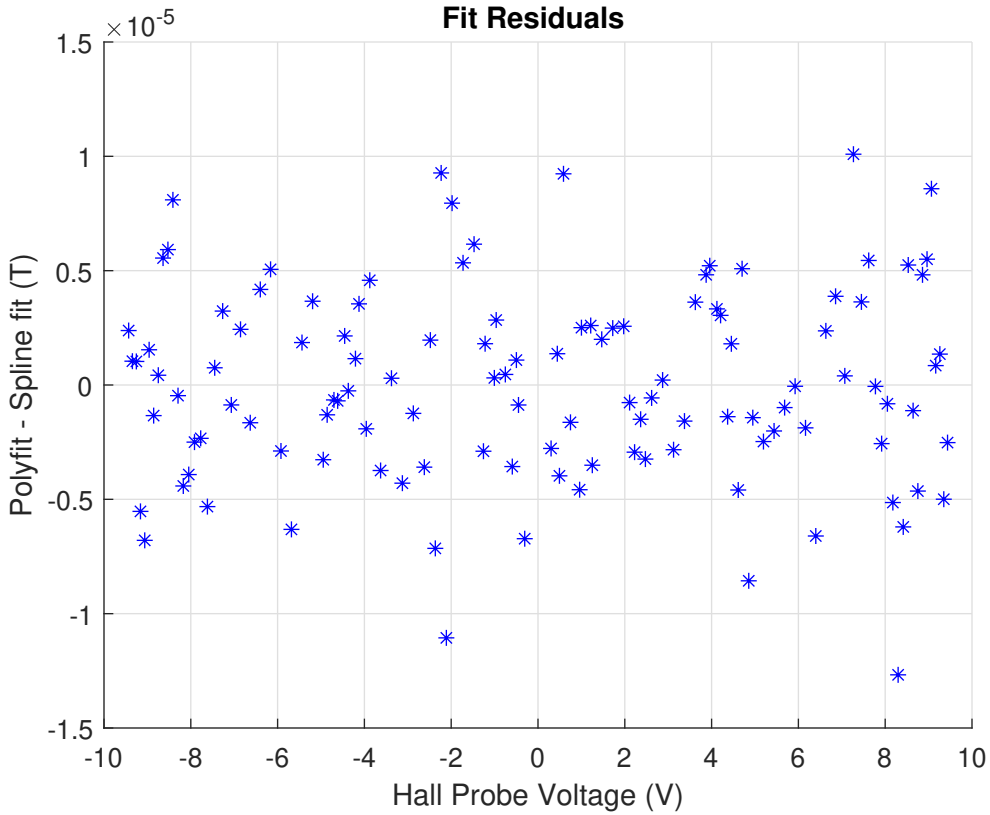

Bnmr vs Vhall Fit Residuals
×10-5
1.5
1
0.5
0
-0.5
-1
-1.5
Fit:
Use all points to determine spline fit.
Bnmr - Bnmr Fit (T)
-10
-8
-6
-4
-2
0
2
4
6
8
10
Vhall (V)

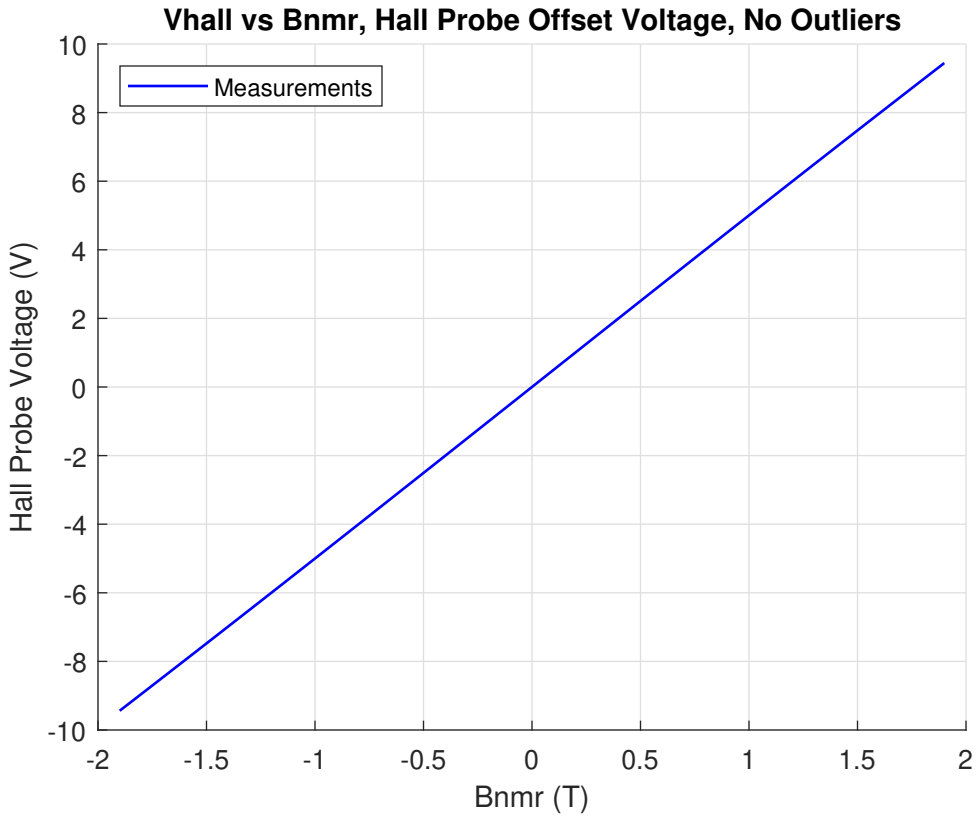

Bnmr vs Vhall
Fit:
Use only odd points to determine spline fit.
Fit all points.
Meas
Fit
Bnmr (T)
Vhall (V)
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-10
-8
-6
-4
-2
0
2
4
6
8
10

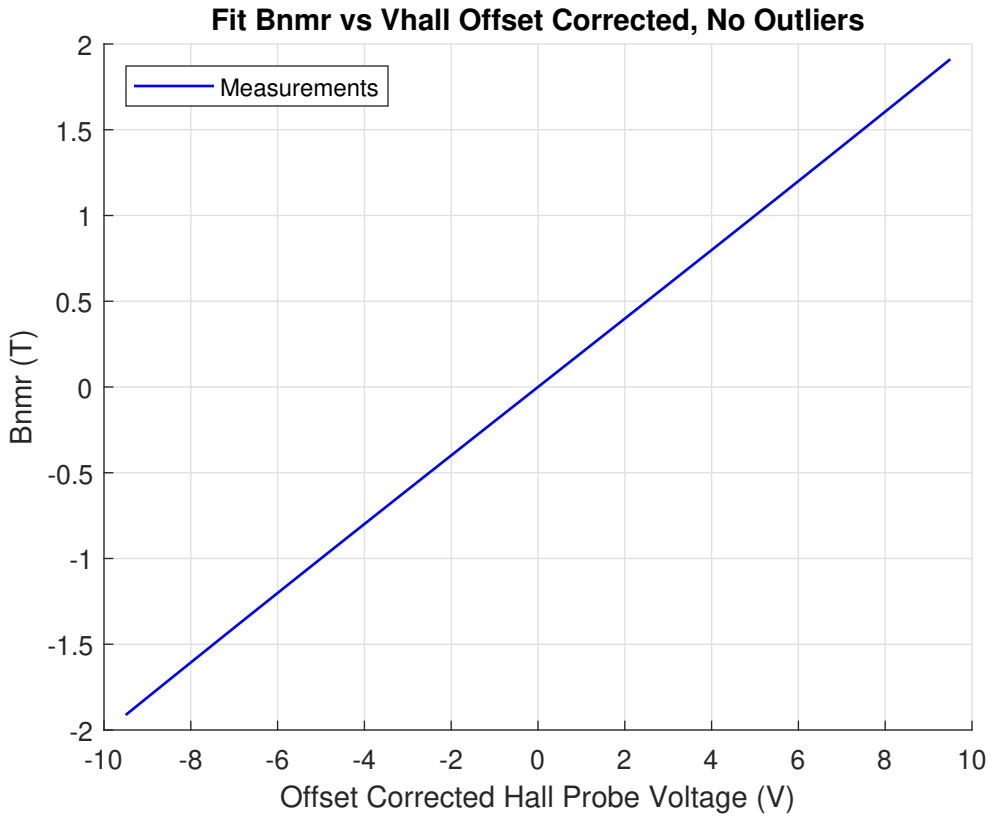

Bnmr vs Vhall Fit Residuals
×10-5
1
0.5
0
-0.5
-1
-1.5
Bnmr - Bnmr Fit (T)
Fit:
Use only odd points to determine spline fit.
Fit all points.
-10
-8
-6
-4
-2
0
2
4
6
8
10
Vhall (V)

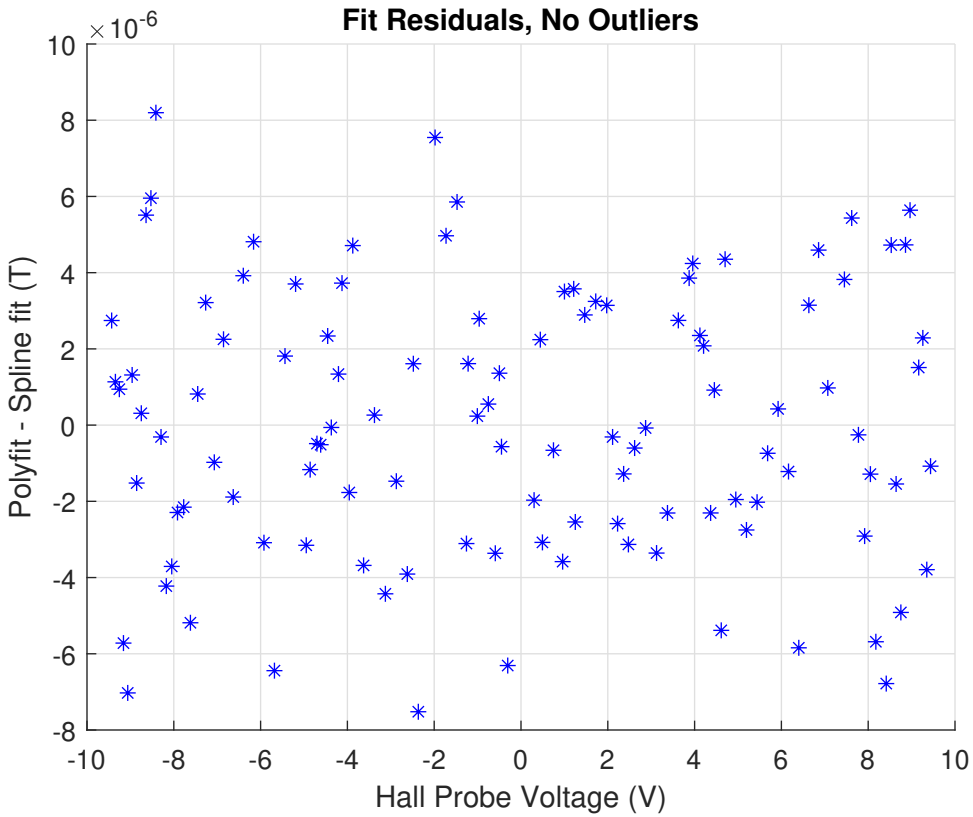

Vhall vs Bnmr, Hall Probe Offset Voltage
Measurements
Hall Probe Voltage (V)
Bnmr (T)
10
8
6
4
2
0
-2
-4
-6
-8
-10
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2

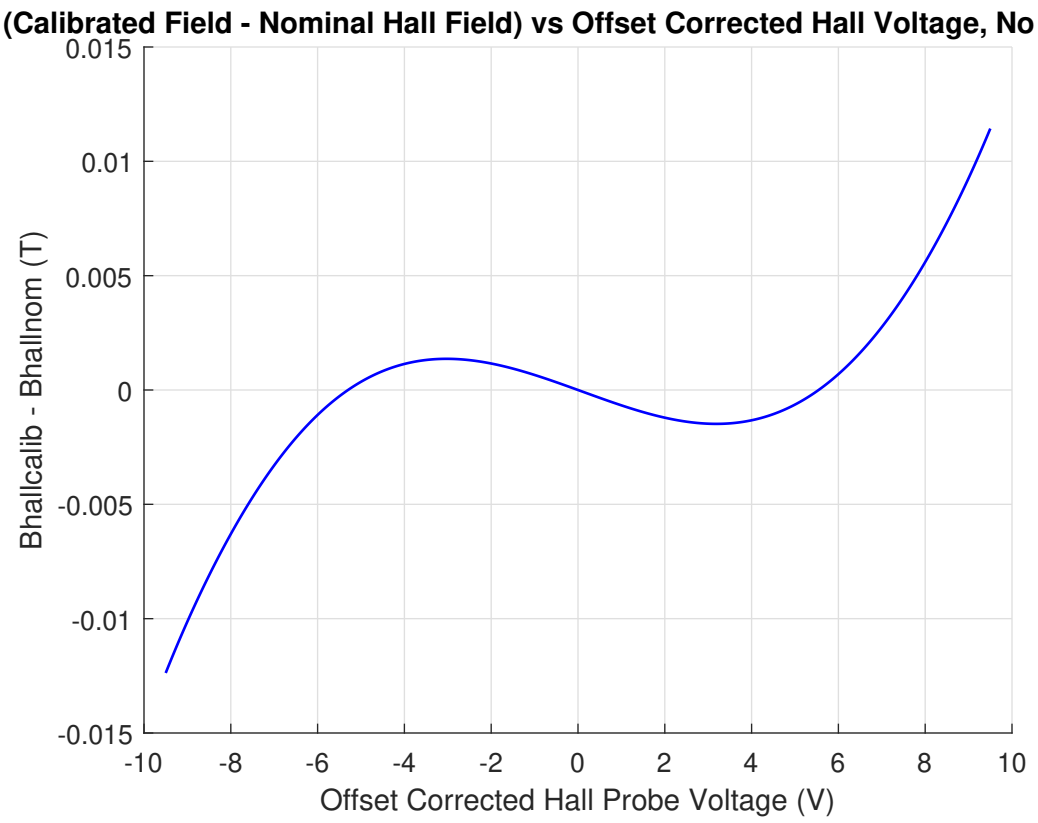

Fit Bnmr vs Vhall Offset Corrected
Measurements
Bnmr (T)
Offset Corrected Hall Probe Voltage (V)
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-10
-8
-6
-4
-2
0
2
4
6
8
10

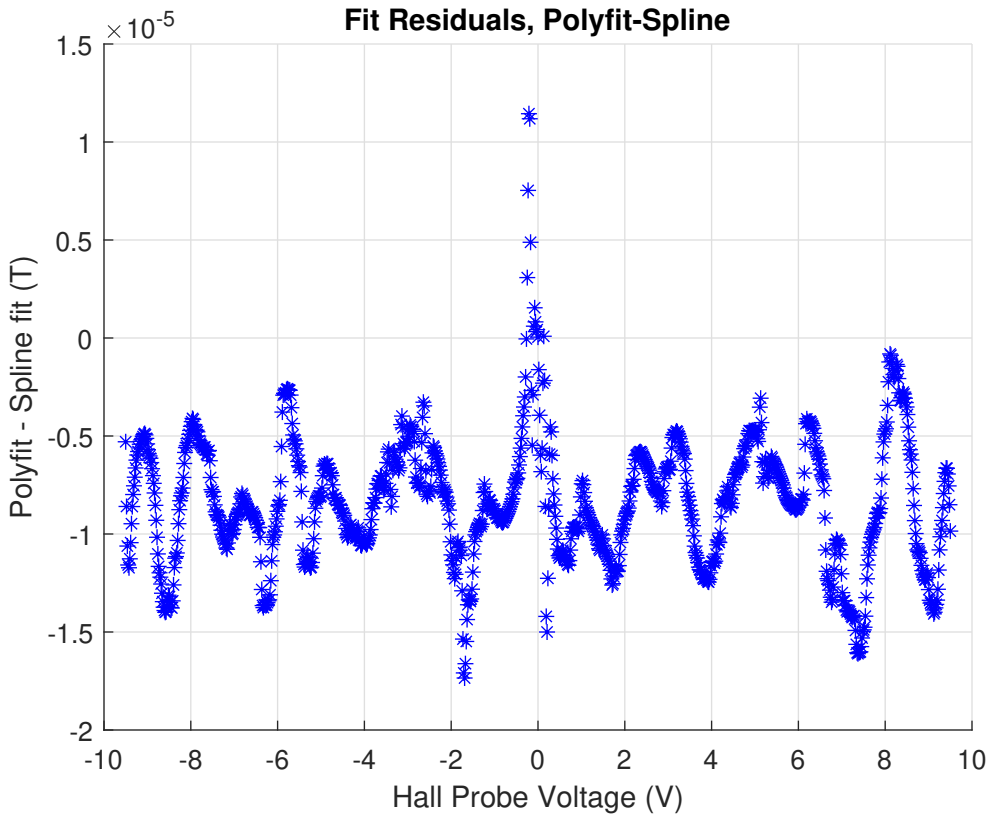

Fit Residuals
×10^-5
1.5
1
0.5
0
-0.5
-1
-1.5
Polyfit - Spline fit (T)
-10
-8
-6
-4
-2
0
2
4
6
8
10
Hall Probe Voltage (V)


Vhall vs Bnmr, Hall Probe Offset Voltage, No Outliers
Measurements
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
Bnmr (T)
Offset Corrected Hall Probe Voltage (V)
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-10
-8
-6
-4
-2
0
2
4
6
8
10


Fit Residuals, No Outliers
×10-6
10
8
6
4
2
0
-2
-4
-6
-8
Polyfit - Spline fit (T)
-10
-8
-6
-4
-2
0
2
4
6
8
10
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)
-10
-8
-6
-4
-2
0
2
4
6
8
10
Offset Corrected Hall Probe Voltage (V)


Fit Residuals, Polyfit-Spline
×10^-5
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Polyfit - Spline fit (T)
-10
-8
-6
-4
-2
0
2
4
6
8
10
Hall Probe Voltage (V)