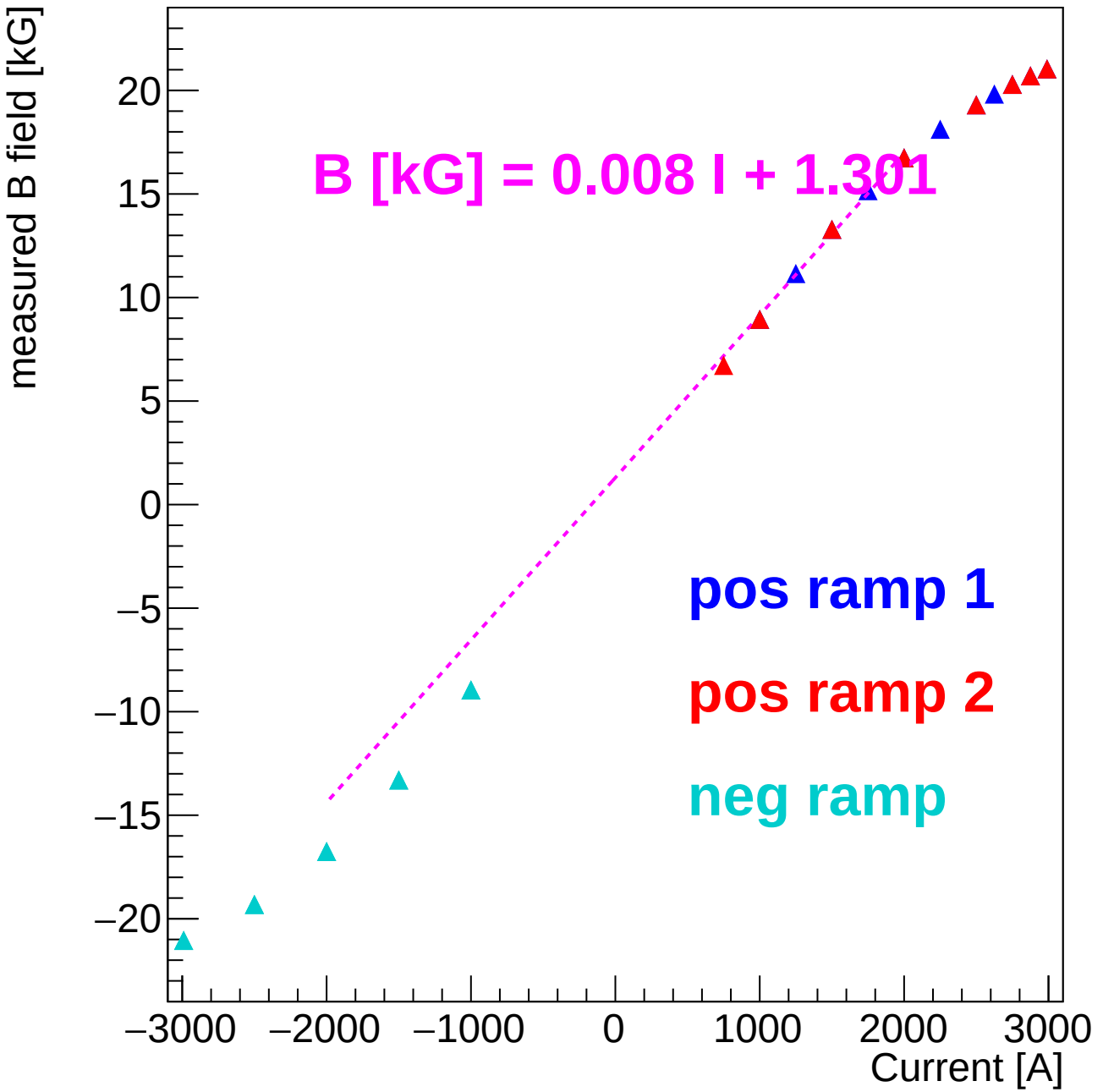
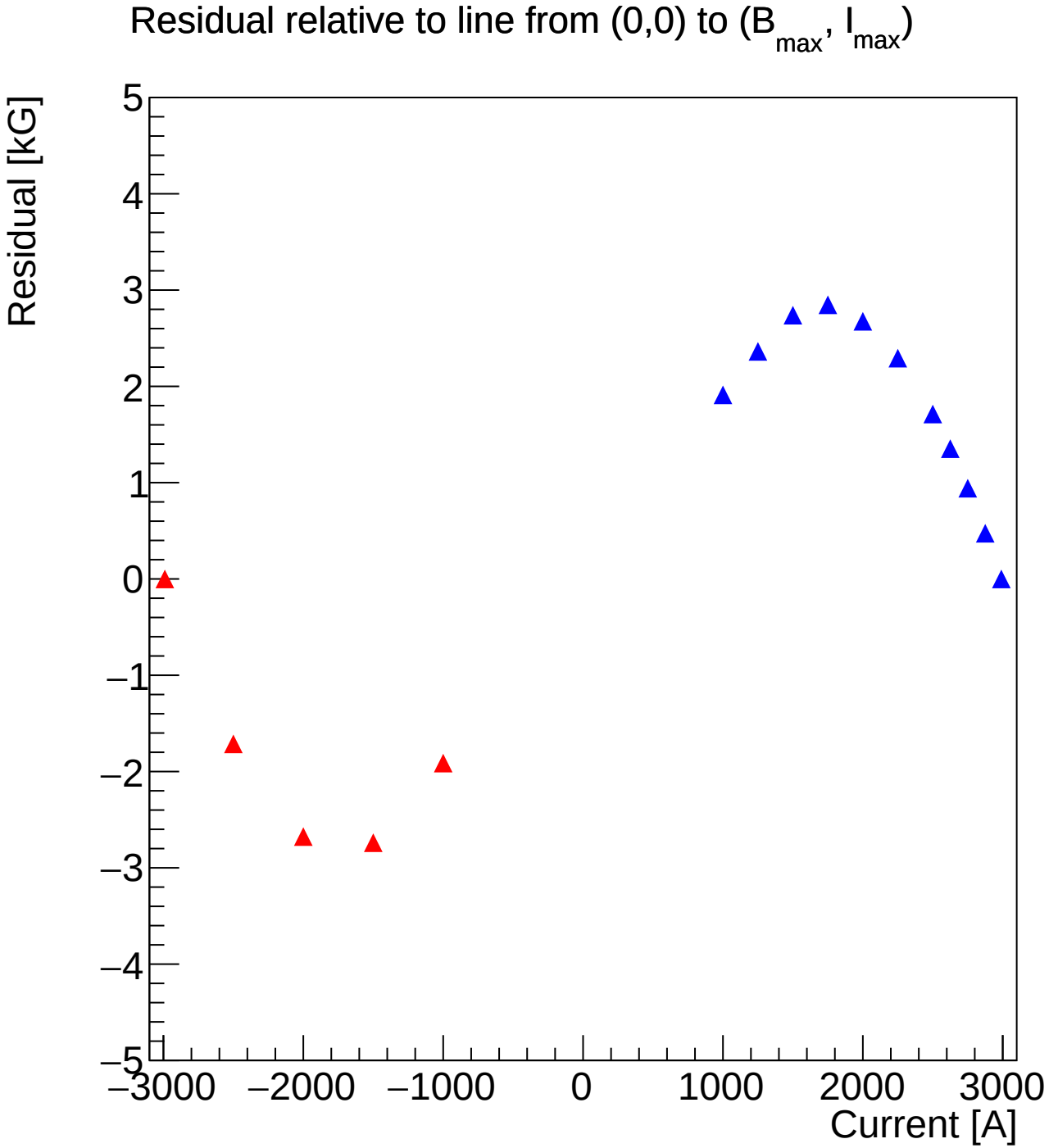
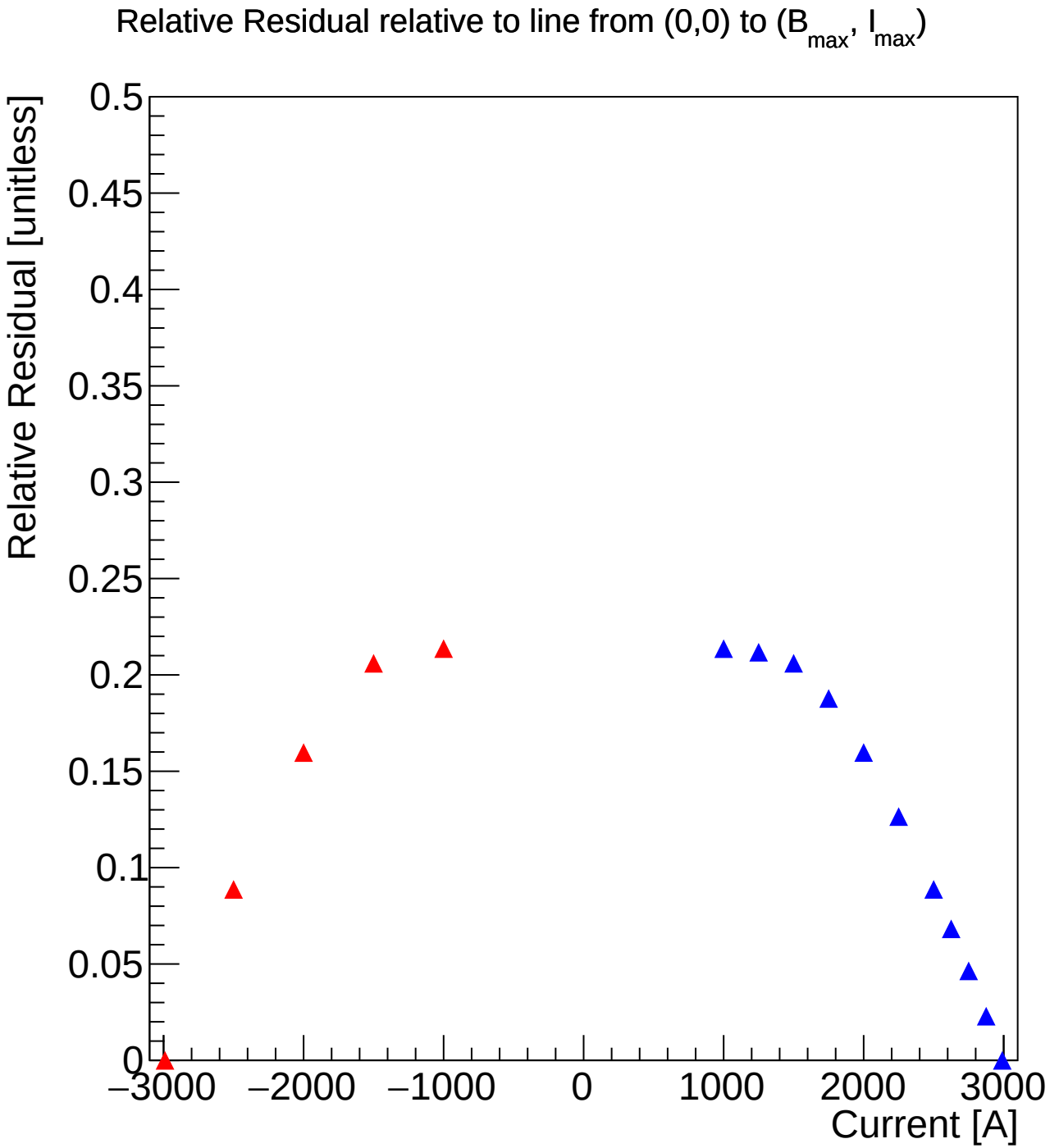
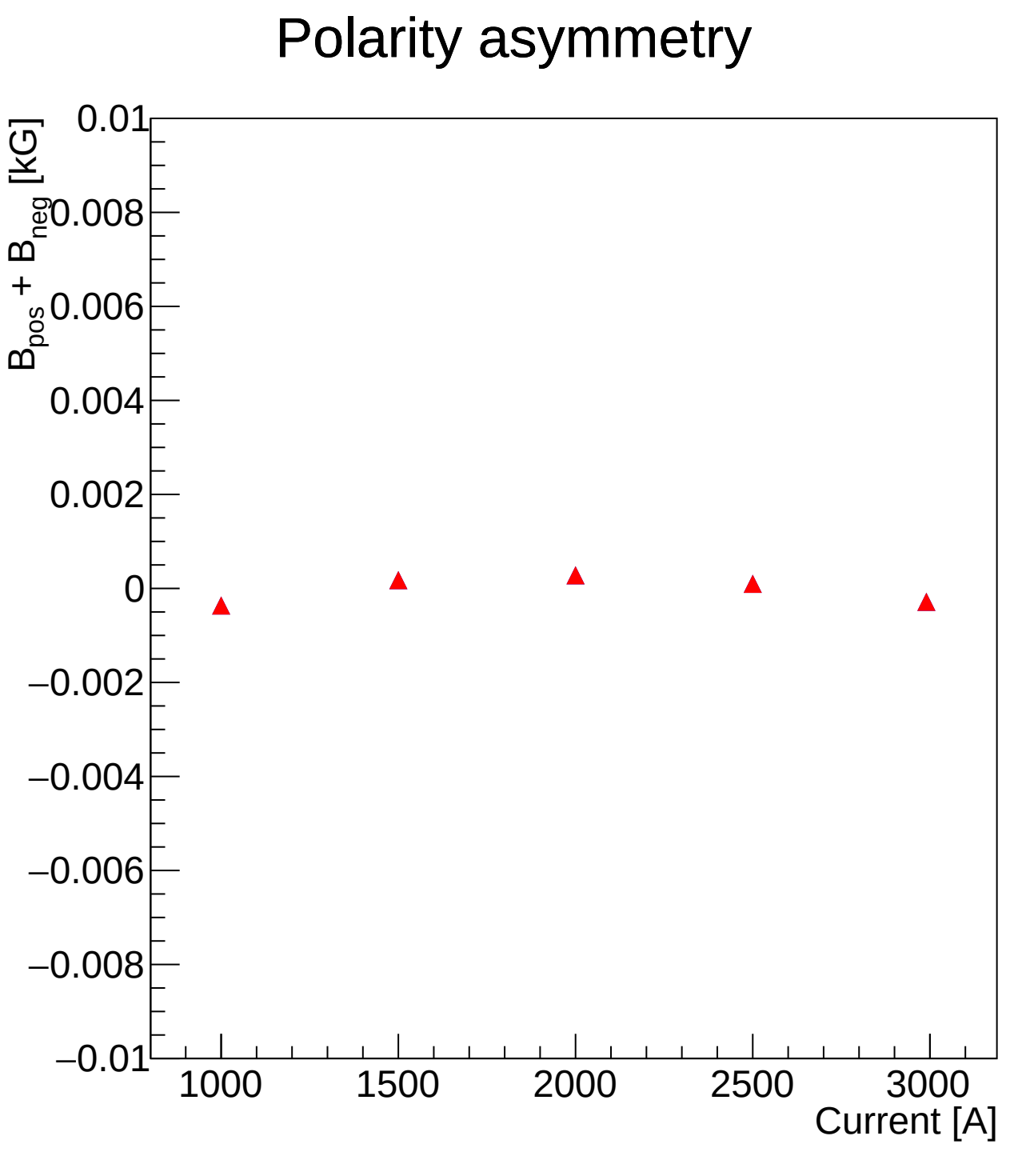
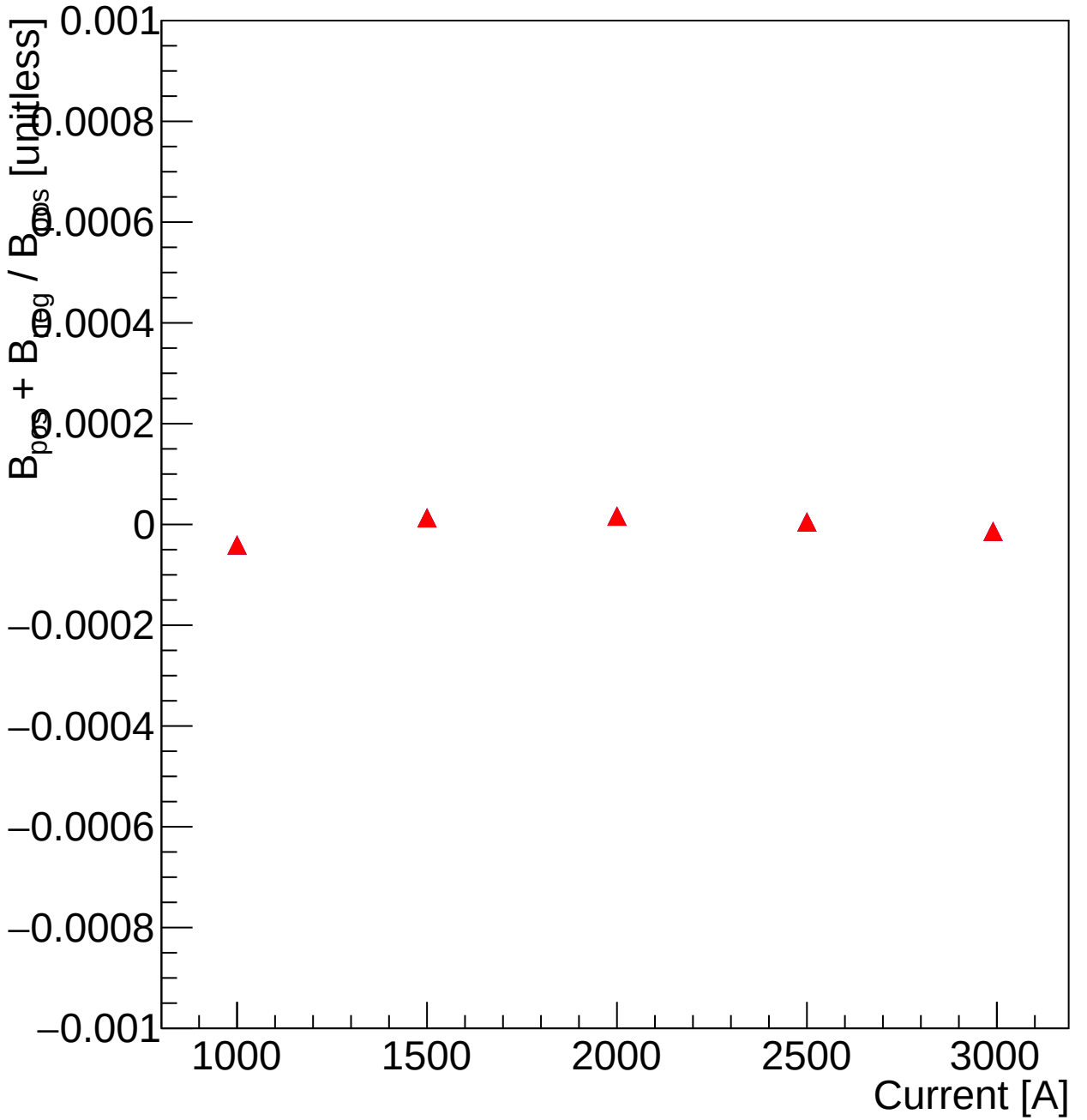

B vs I
measured B field [kG]
B [kG] = 0.008 I + 1.301
pos ramp 1
pos ramp 2
neg ramp
20
15
10
5
0
−5
−10
−15
−20
−3000
−2000
−1000
0
1000
2000
3000
Current [A]

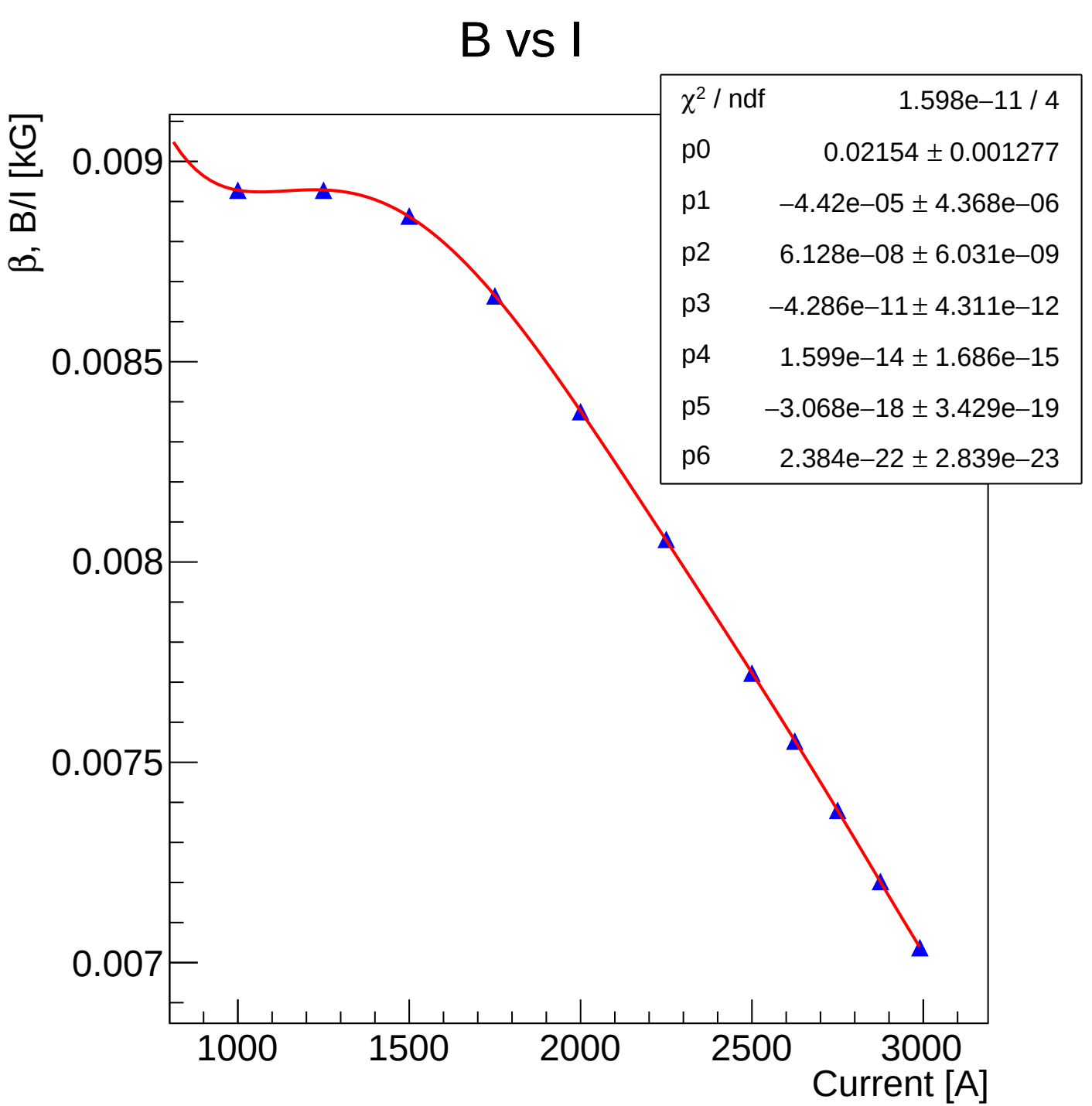

Residual relative to line from (0,0) to (B_{max}, I_{max})
Residual [kG]
5
4
3
2
1
0
−1
−2
−3
−4
−5
−3000
−2000
−1000
0
1000
2000
3000
Current [A]

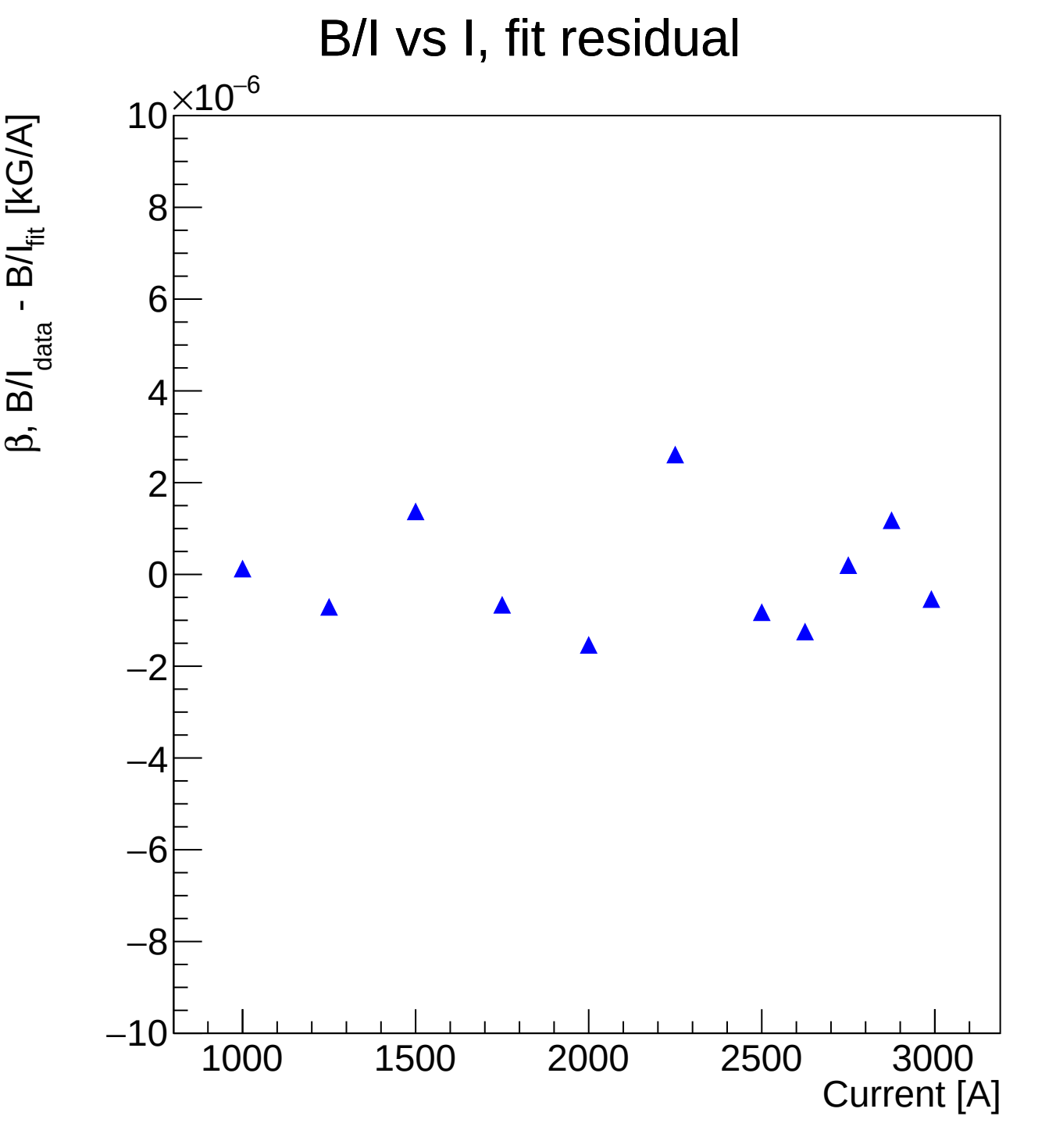

Relative Residual relative to line from (0,0) to (B_{max}, I_{max})
Relative Residual [unitless]
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
−3000
−2000
−1000
0
1000
2000
3000
Current [A]

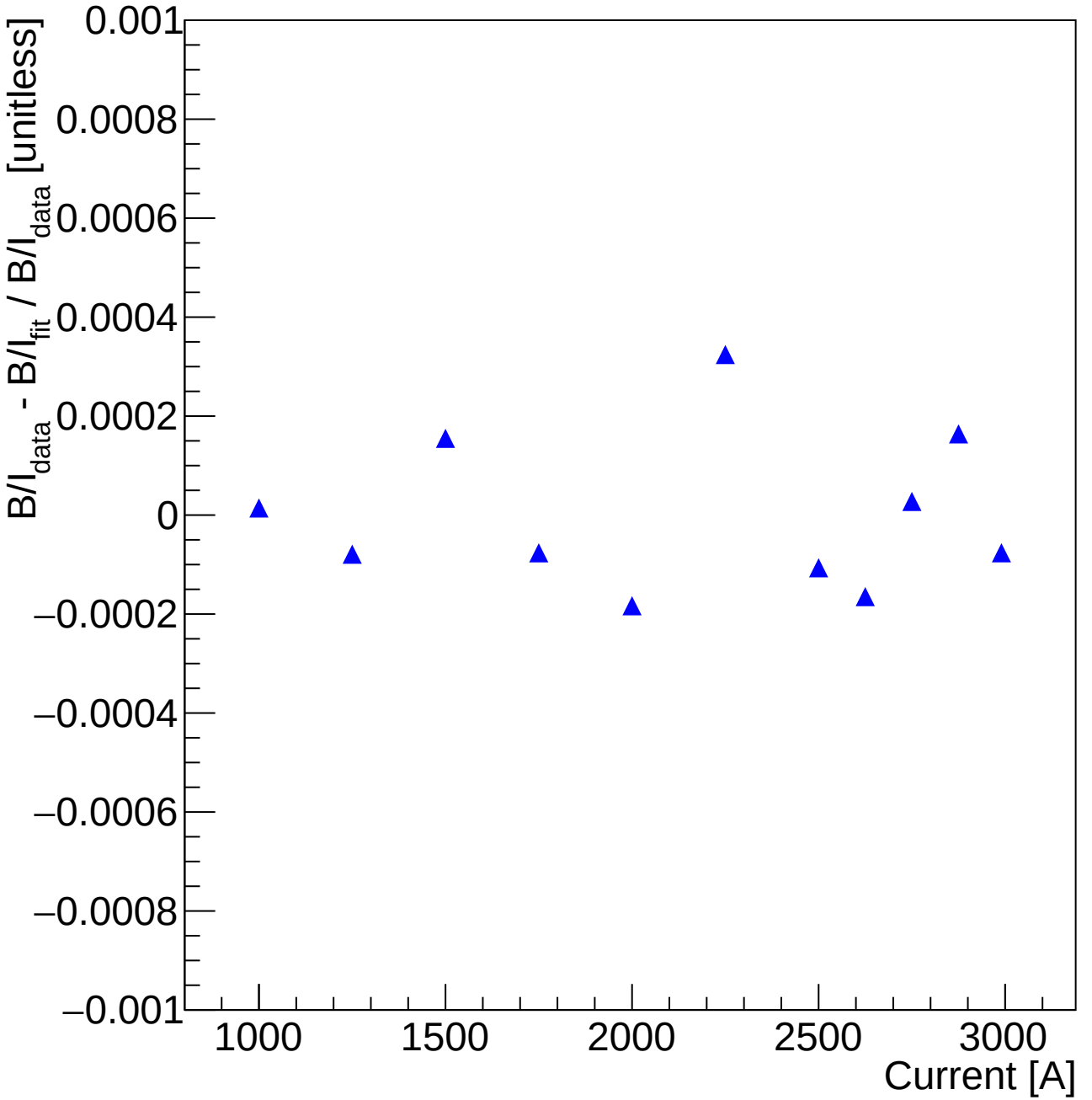

Polarity asymmetry
$B_{pos} + B_{neg}$ [kG]
0.01
0.008
0.006
0.004
0.002
0
–0.002
–0.004
–0.006
–0.008
–0.01
1000
1500
2000
2500
3000
Current [A]

Relative polarity asymmetry

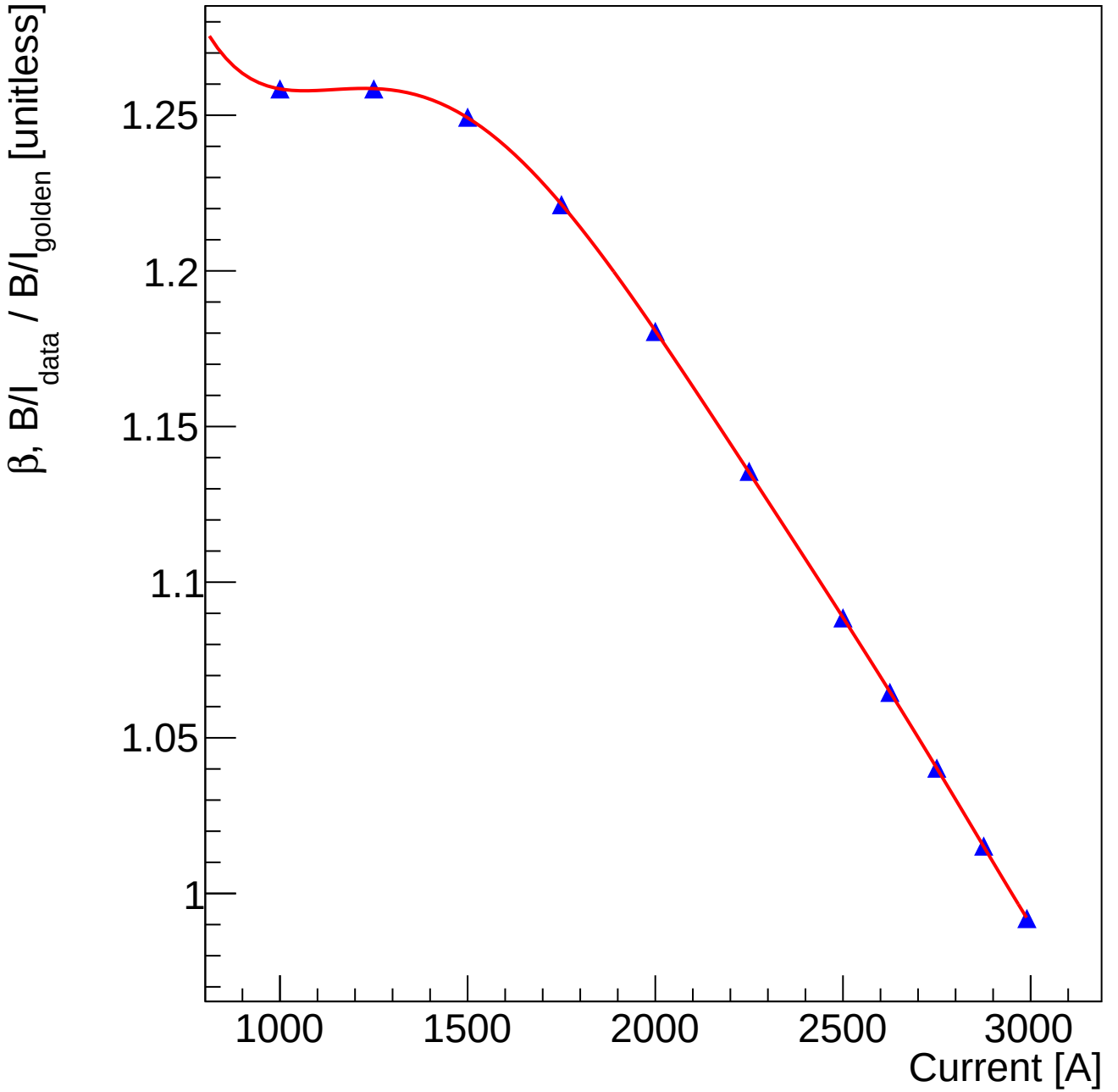


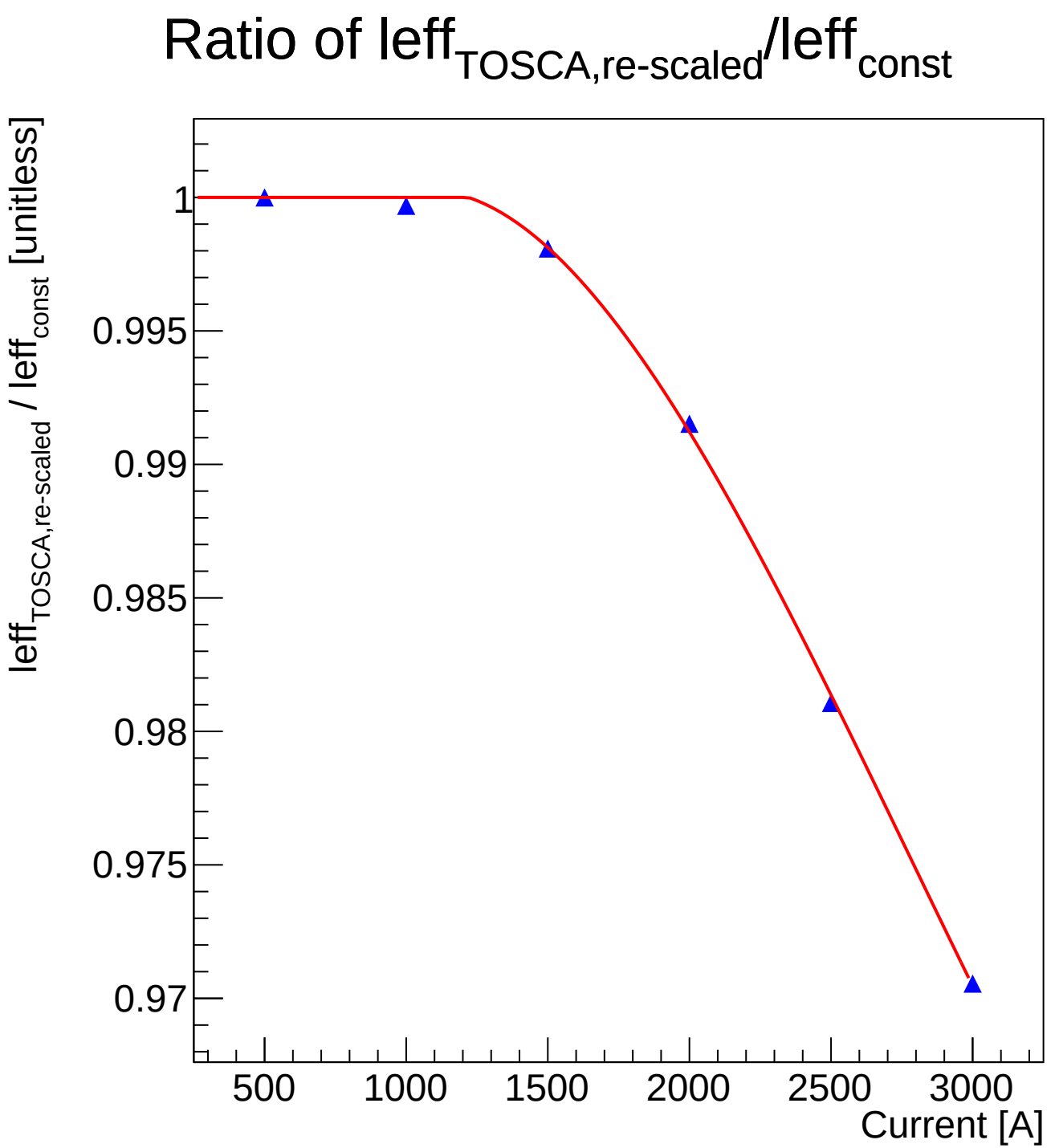

B vs I
β, B/I [kG]
0.009
0.0085
0.008
0.0075
0.007
1000
1500
2000
2500
3000
Current [A]
χ² / ndf 1.598e−11 / 4
p0 0.02154 ± 0.001277
p1 −4.42e−05 ± 4.368e−06
p2 6.128e−08 ± 6.031e−09
p3 −4.286e−11 ± 4.311e−12
p4 1.599e−14 ± 1.686e−15
p5 −3.068e−18 ± 3.429e−19
p6 2.384e−22 ± 2.839e−23

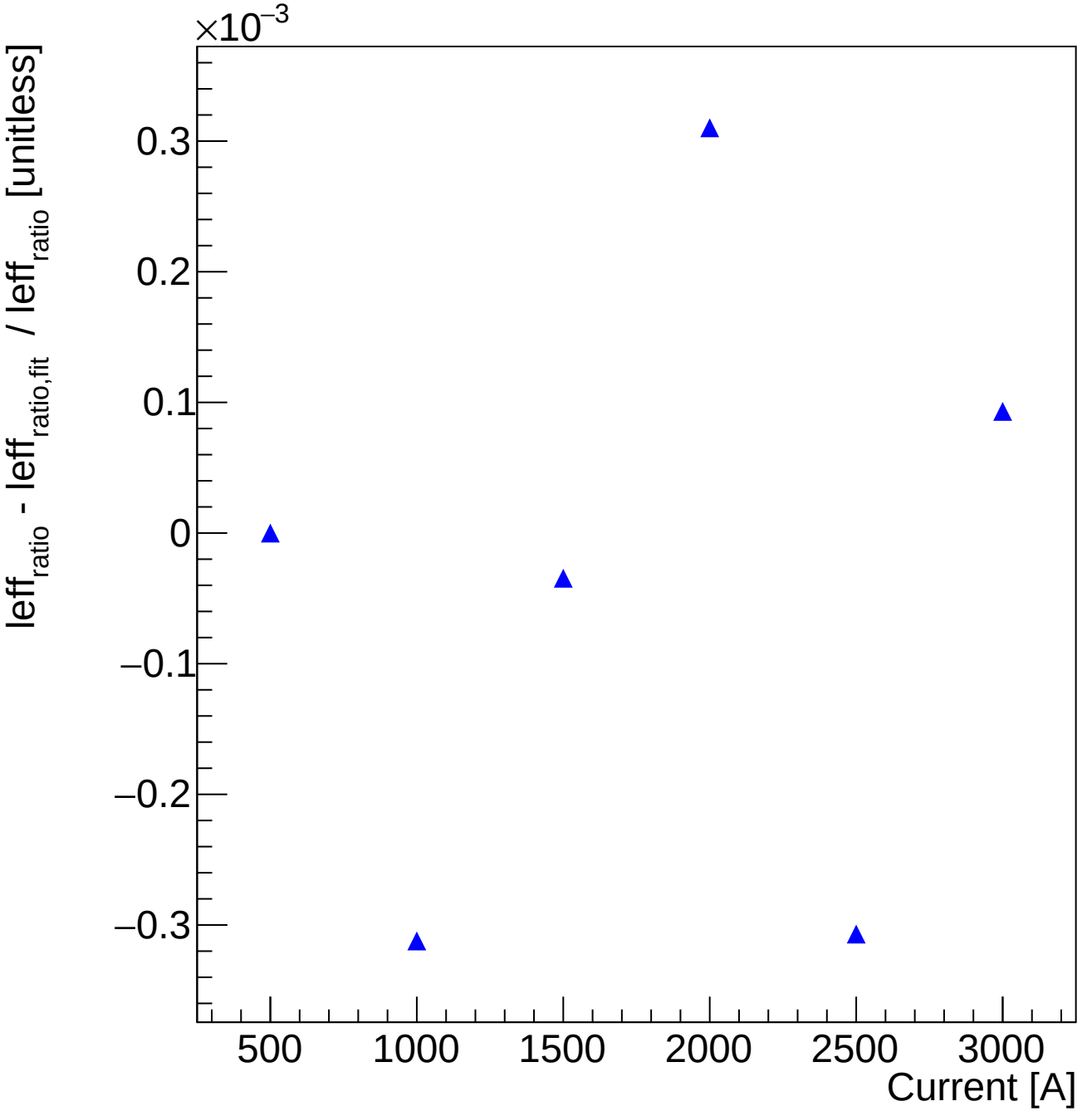

B/I vs I, fit residual
×10⁻⁶
β, B/I_data - B/I_fit [kG/A]
10
8
6
4
2
0
−2
−4
−6
−8
−10
1000
1500
2000
2500
3000
Current [A]

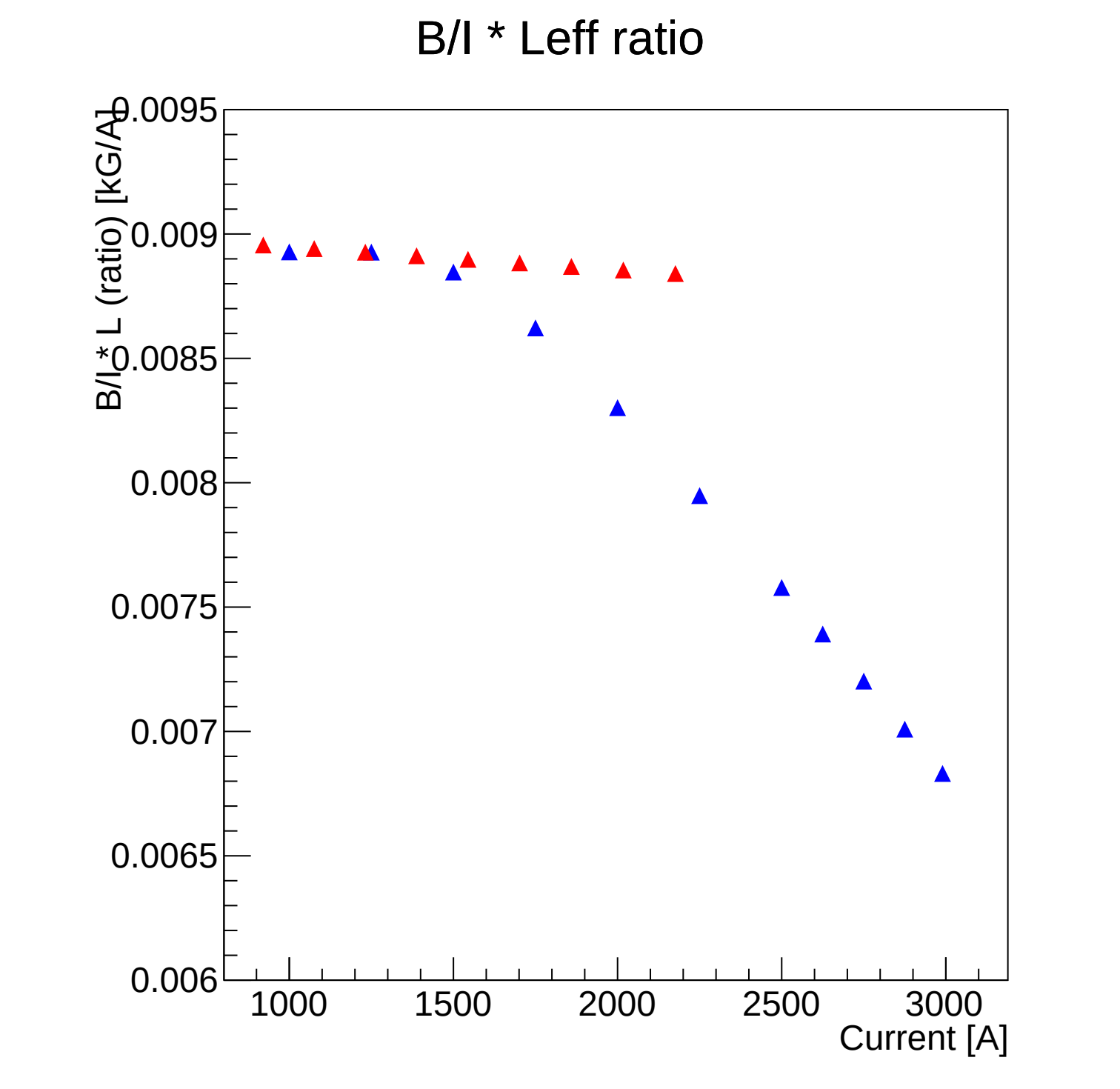

B/I vs I, fit relative residual
0.001
0.0008
0.0006
0.0004
0.0002
0
–0.0002
–0.0004
–0.0006
–0.0008
–0.001
B/I_data - B/I_fit / B/I_data [unitless]
1000
1500
2000
2500
3000
Current [A]

B/I ratio to golden tune




Ratio of leff$_{TOSCA,re-scaled}$/leff$_{const}$
leff$_{TOSCA,re-scaled}$ / leff$_{const}$ [unitless]
1
0.995
0.99
0.985
0.98
0.975
0.97
500
1000
1500
2000
2500
3000
Current [A]


Fit to leff, relative residual
×10⁻³
0.3
0.2
0.1
0
–0.1
–0.2
–0.3
leff_ratio - leff_ratio,fit / leff_ratio [unitless]
500
1000
1500
2000
2500
3000
Current [A]


B/I * Leff ratio
B/I * L (ratio) [kG/A]
0.0095
0.009
0.0085
0.008
0.0075
0.007
0.0065
0.006
1000
1500
2000
2500
3000
Current [A]