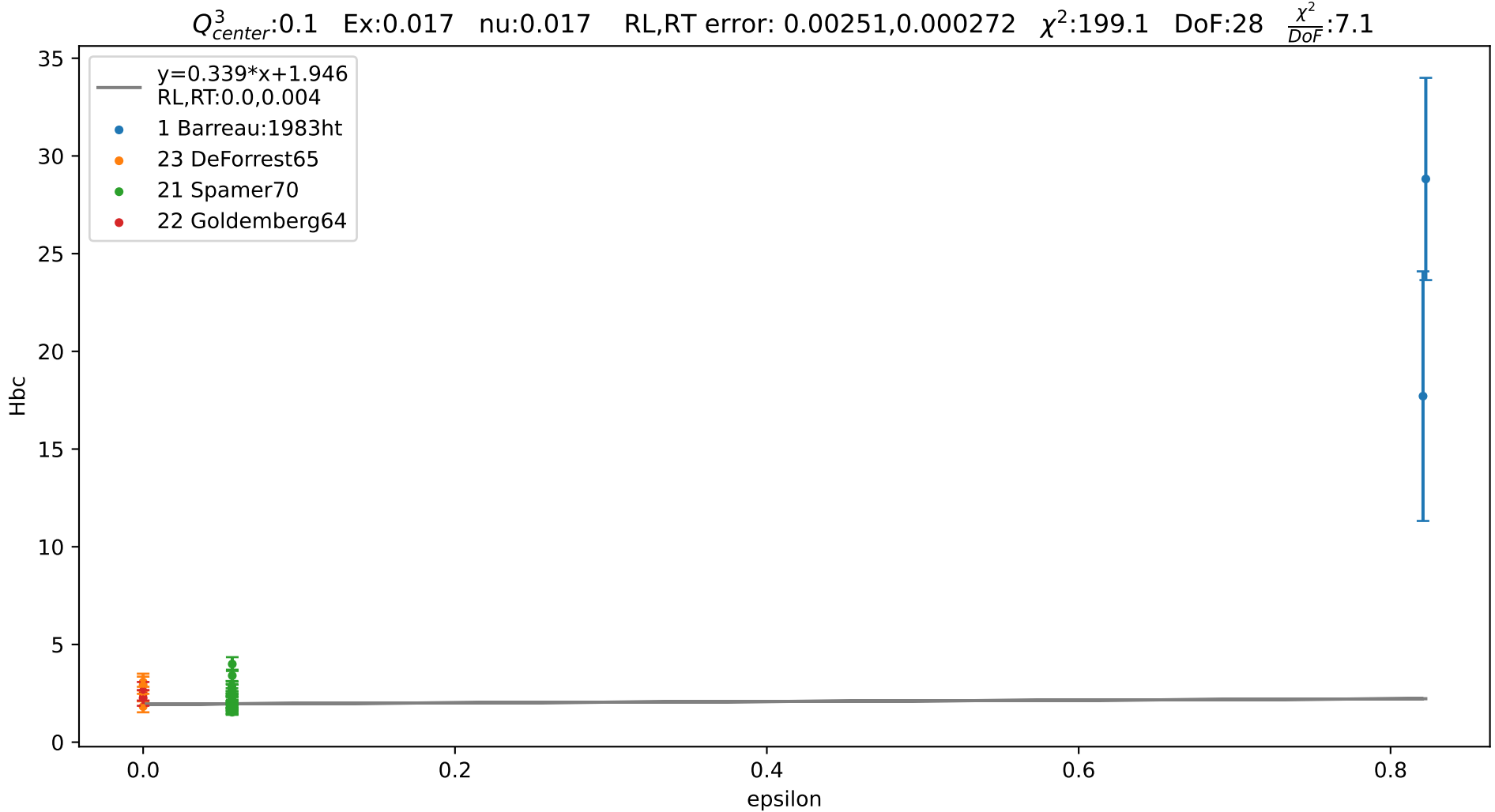
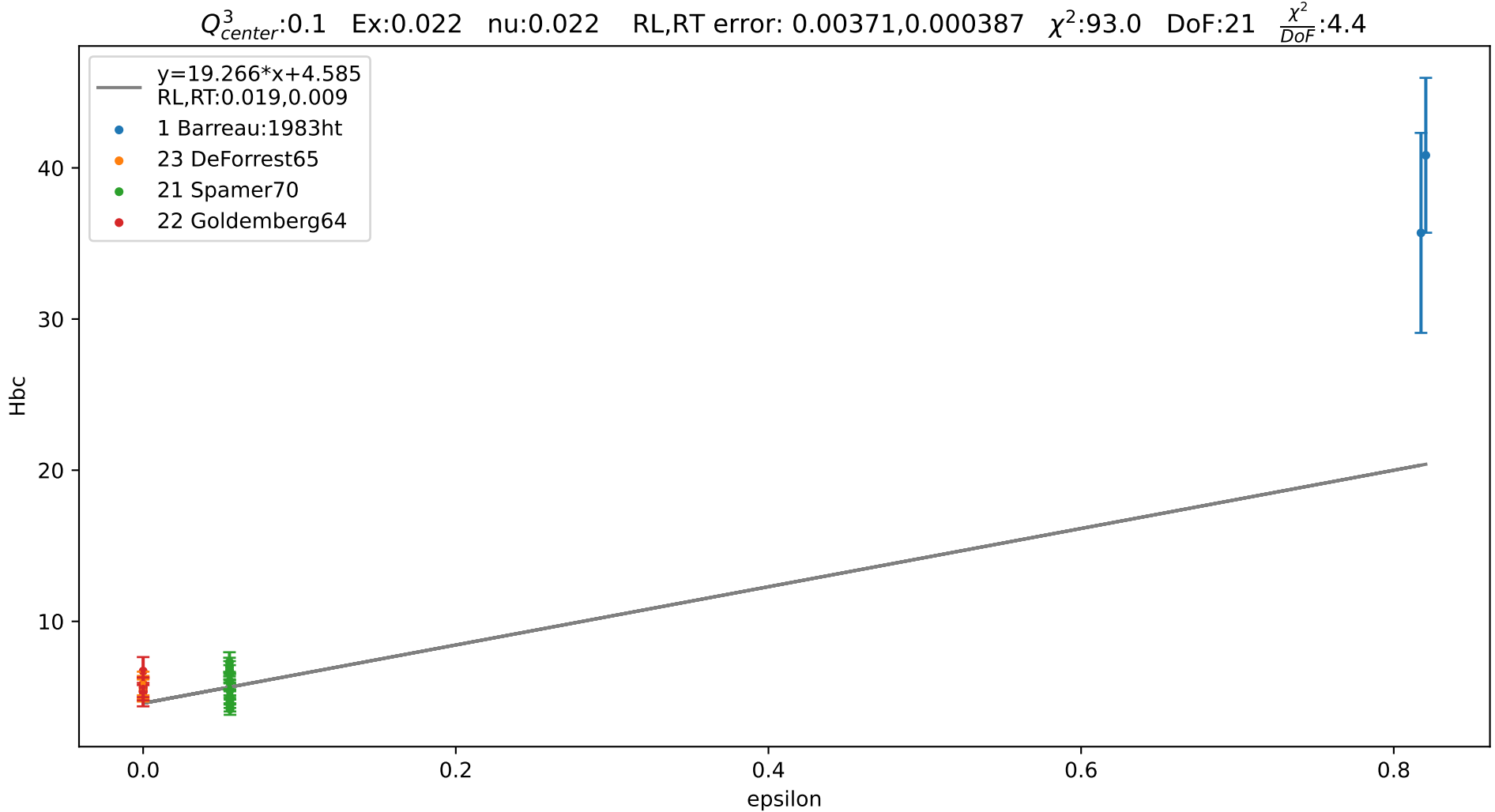
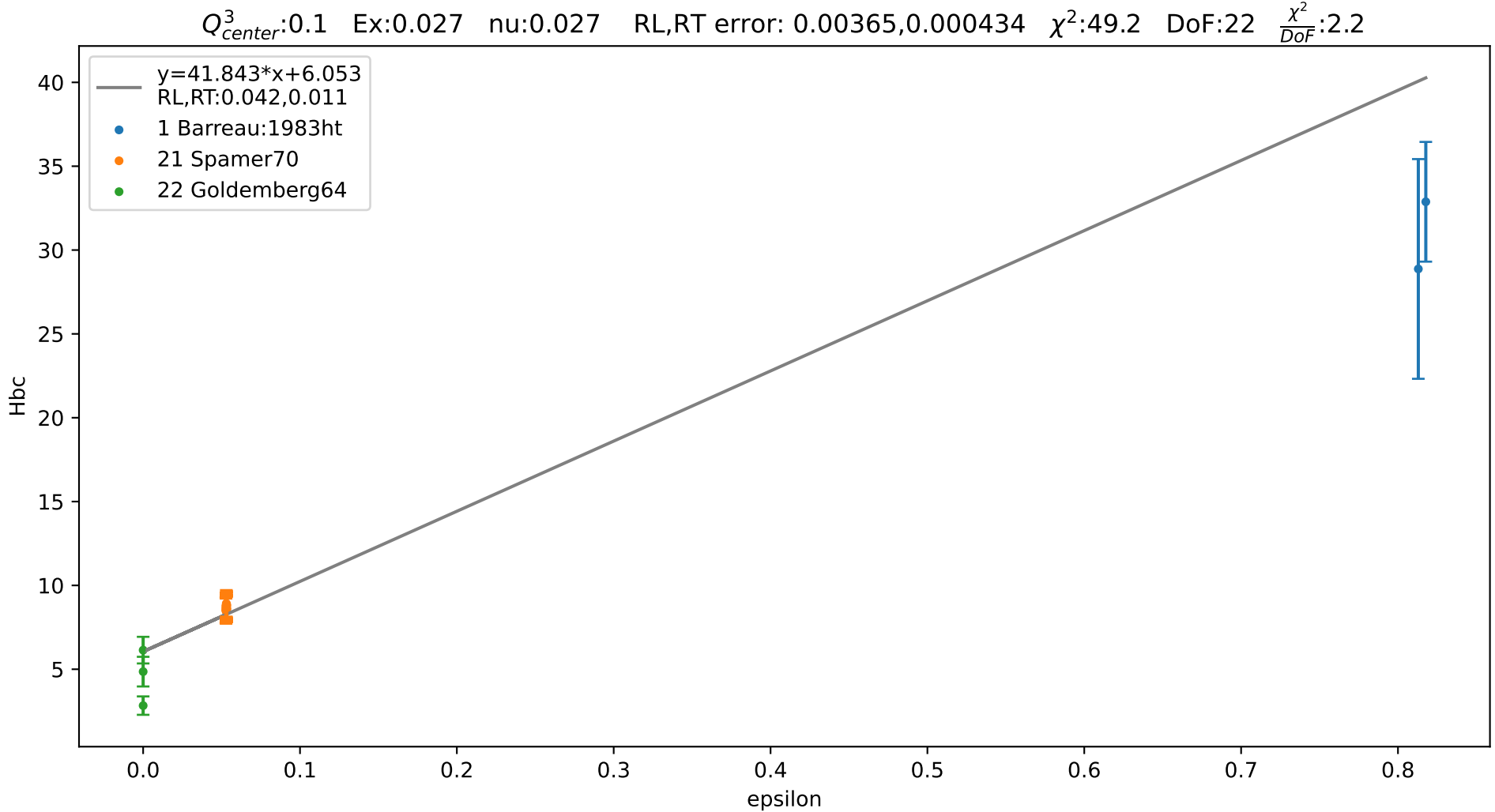
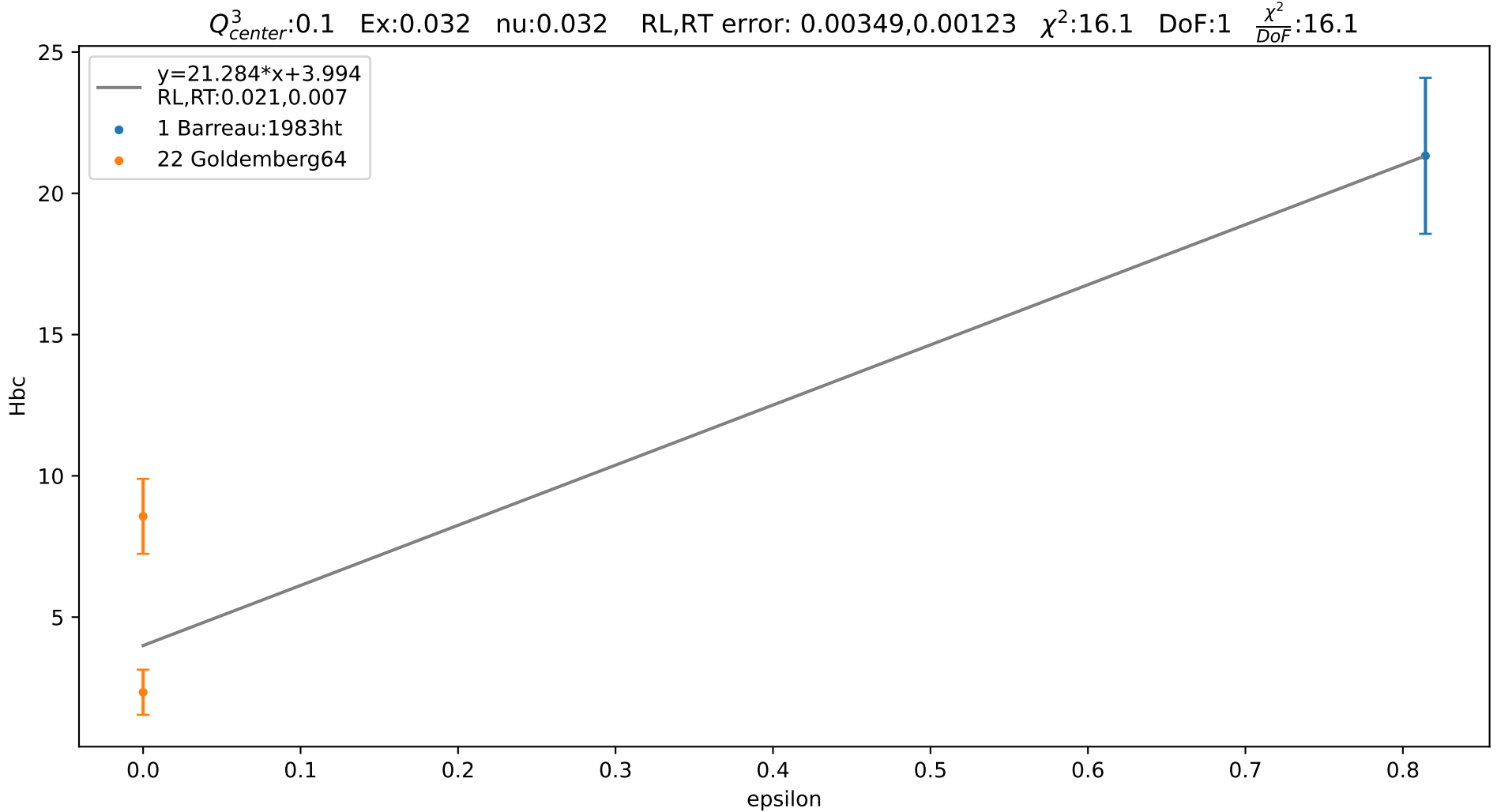
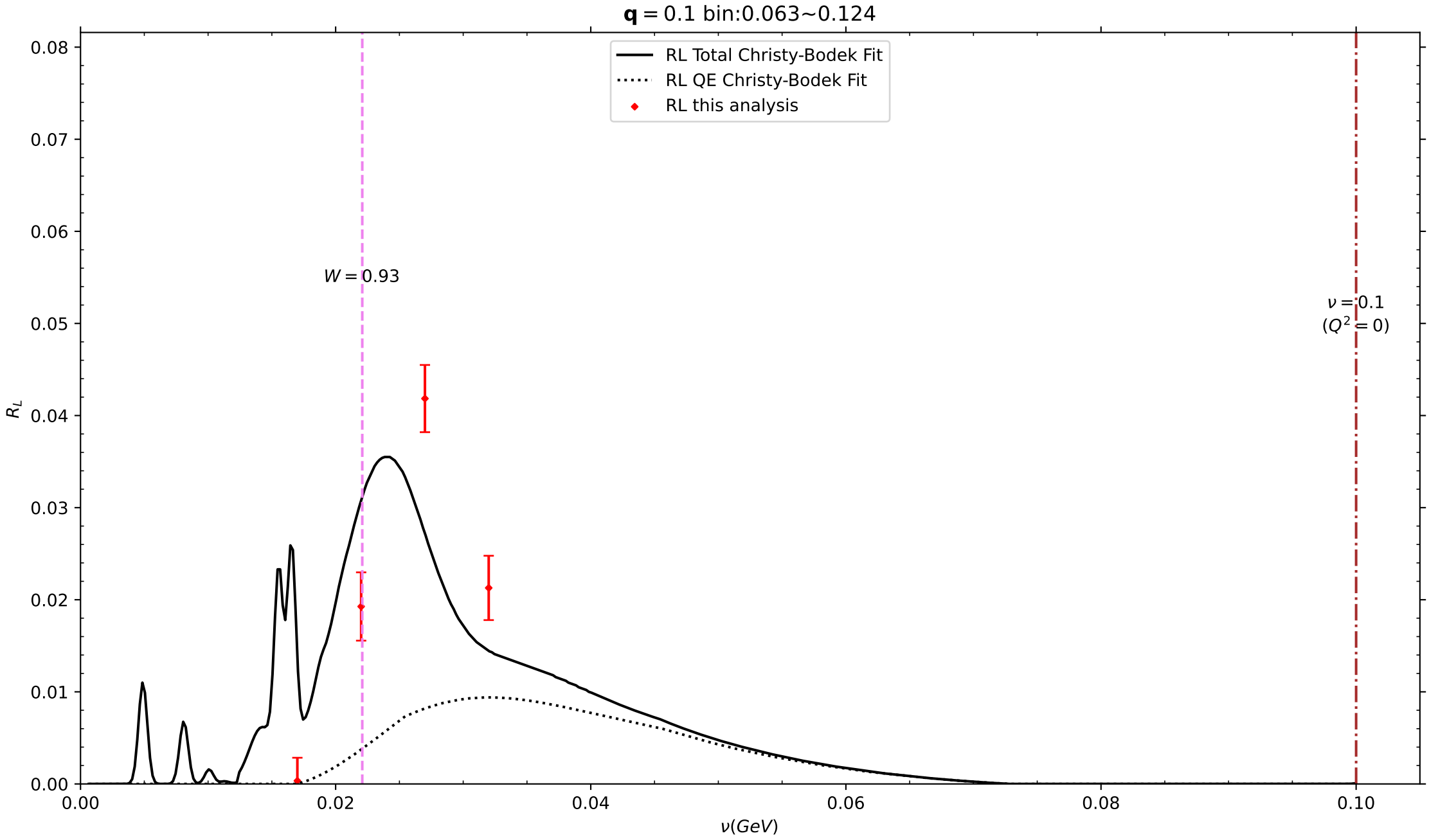
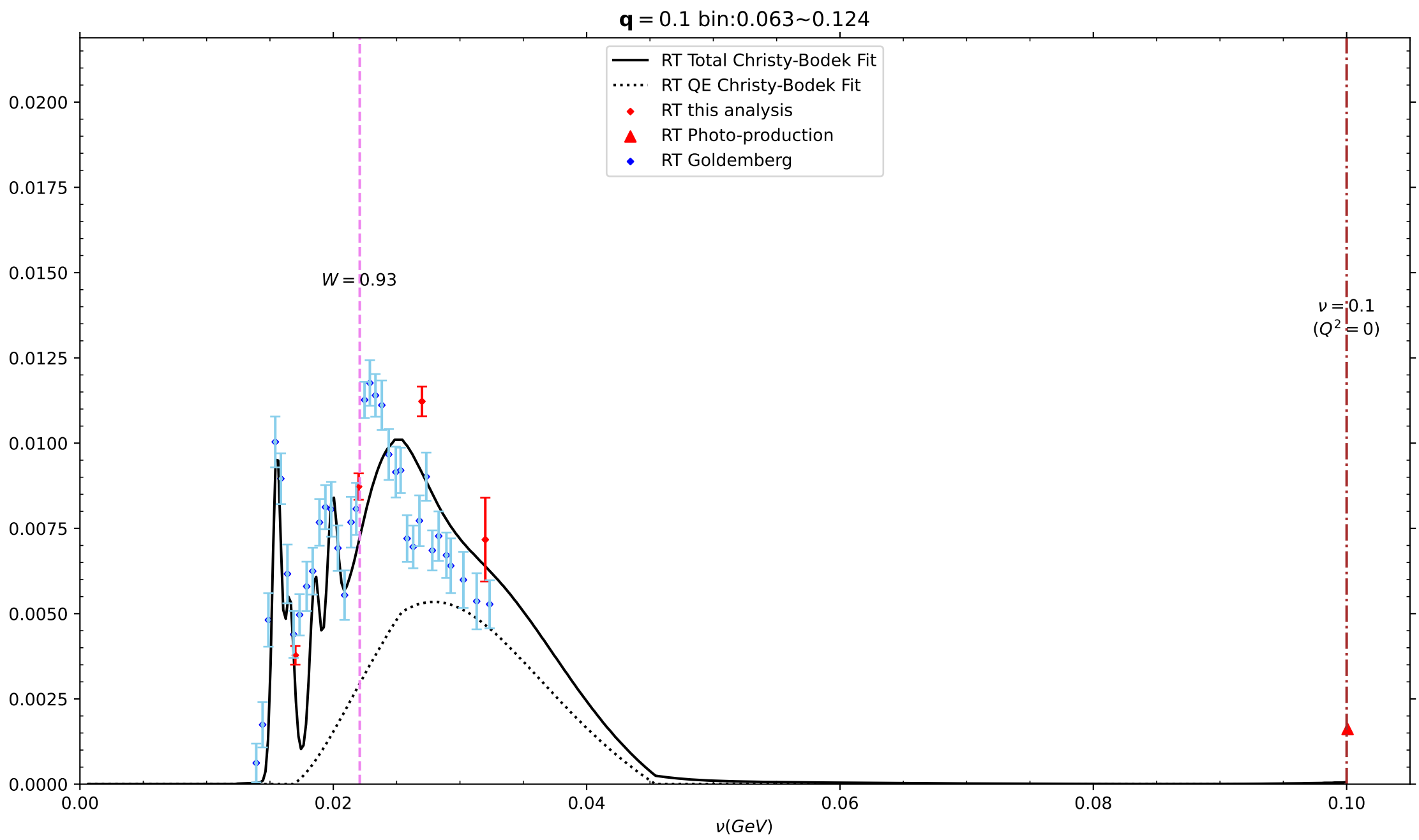

Q^3_{center}:0.1 Ex:0.017 nu:0.017 RL,RT error: 0.00251,0.000272 χ^2:199.1 DoF:28 $\frac{\chi^2}{DoF}$:7.1
y=0.339*x+1.946
RL,RT:0.0,0.004
1 Barreau:1983ht
23 DeForrest65
21 Spamer70
22 Goldemberg64
Hbc
epsilon
0
5
10
15
20
25
30
35
0.0
0.2
0.4
0.6
0.8

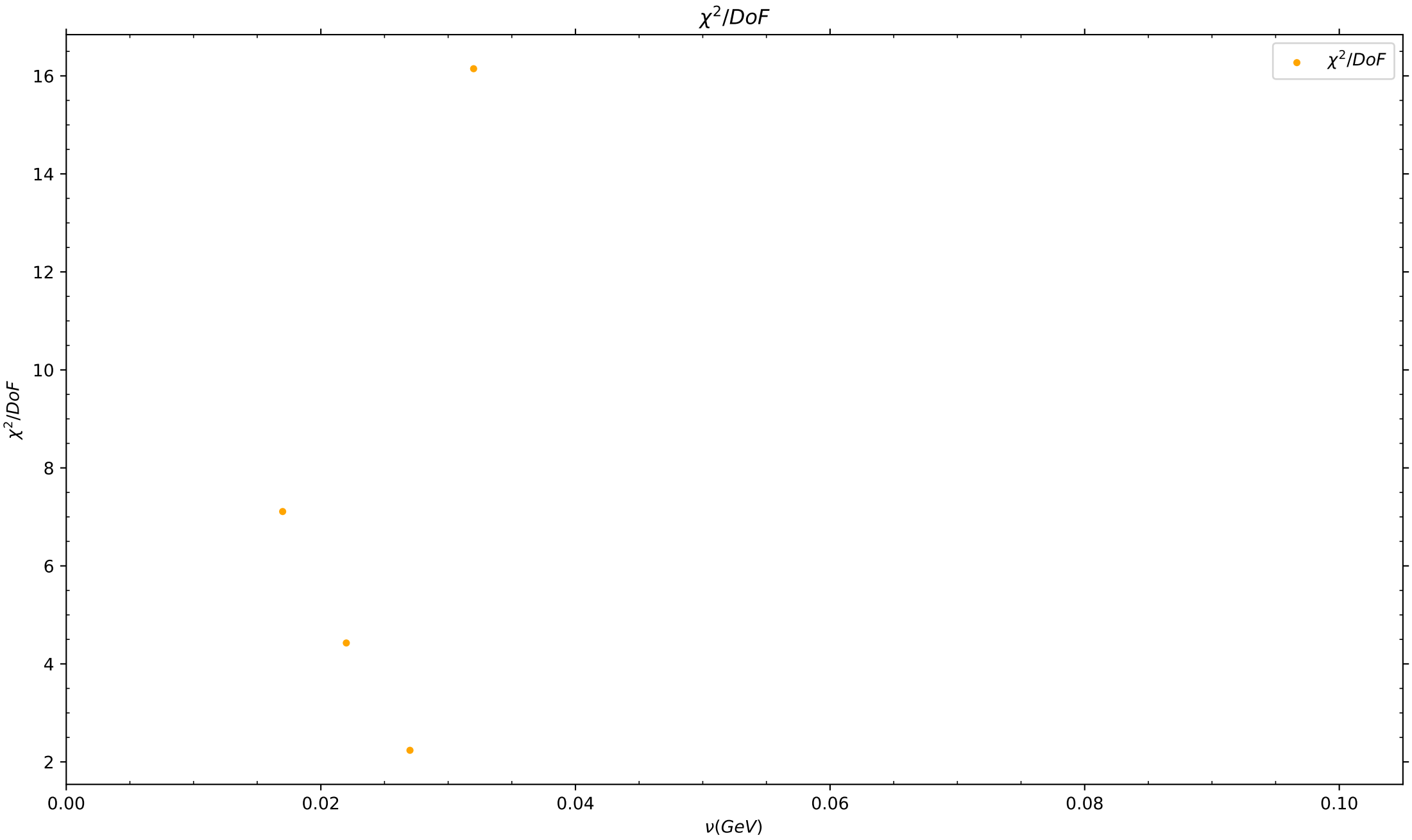

Q^3_{center}:0.1 Ex:0.022 nu:0.022 RL,RT error: 0.00371,0.000387 χ^2:93.0 DoF:21 $\frac{\chi^2}{DoF}$:4.4
y=19.266*x+4.585
RL,RT:0.019,0.009
1 Barreau:1983ht
23 DeForrest65
21 Spamer70
22 Goldemberg64
Hbc
epsilon
10
20
30
40
0.0
0.2
0.4
0.6
0.8

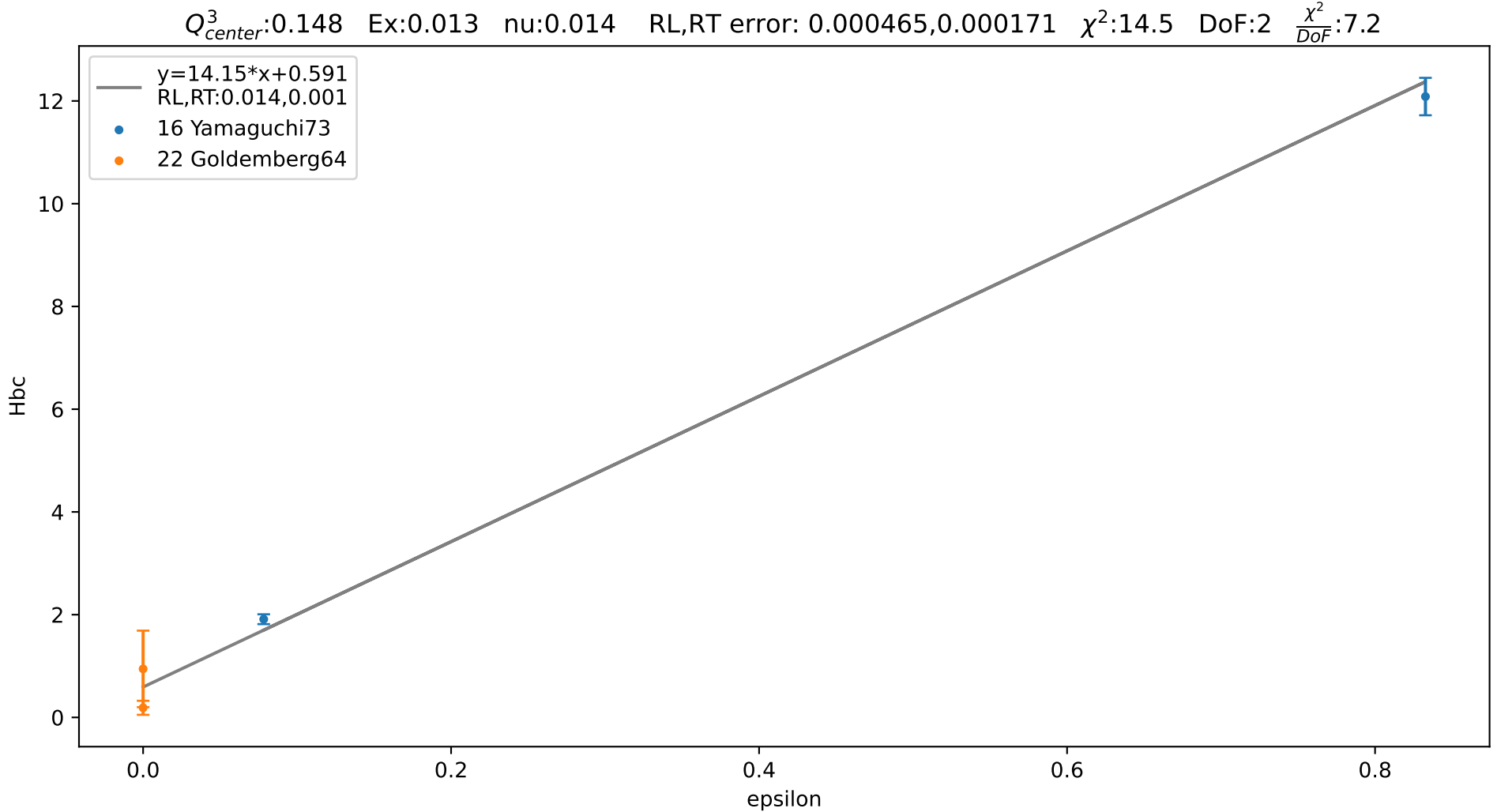

Q^3_{center}:0.1 Ex:0.027 nu:0.027 RL,RT error: 0.00365,0.000434 χ^2:49.2 DoF:22 $\frac{\chi^2}{DoF}$:2.2
y=41.843*x+6.053
RL,RT:0.042,0.011
1 Barreau:1983ht
21 Spamer70
22 Goldemberg64
Hbc
epsilon
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
5
10
15
20
25
30
35
40

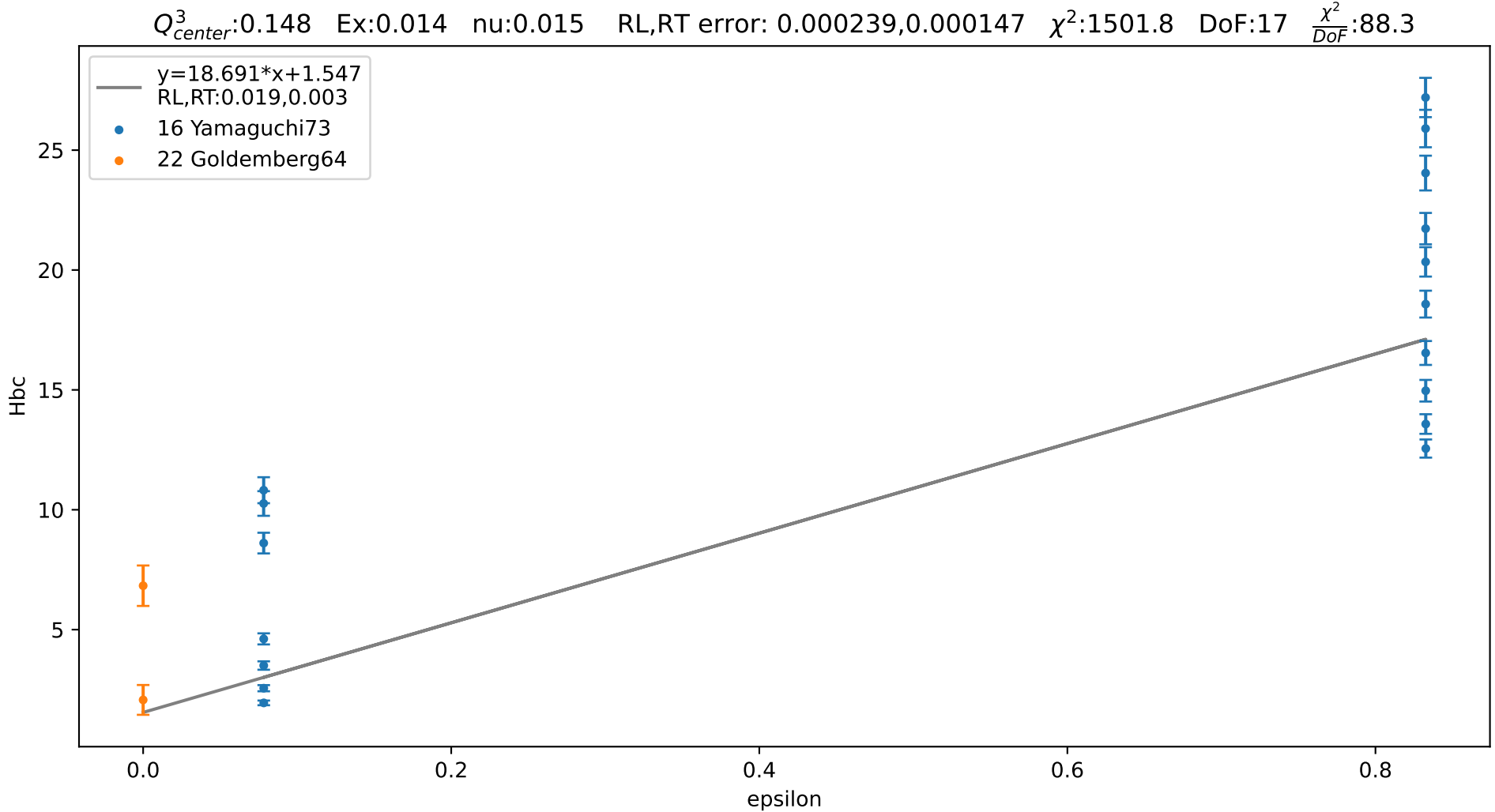

Q^3_{center}:0.1 Ex:0.032 nu:0.032 RL,RT error: 0.00349,0.00123 χ^2:16.1 DoF:1 $\frac{\chi^2}{DoF}$:16.1
y=21.284*x+3.994
RL,RT:0.021,0.007
1 Barreau:1983ht
22 Goldemberg64
Hbc
epsilon
25
20
15
10
5
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

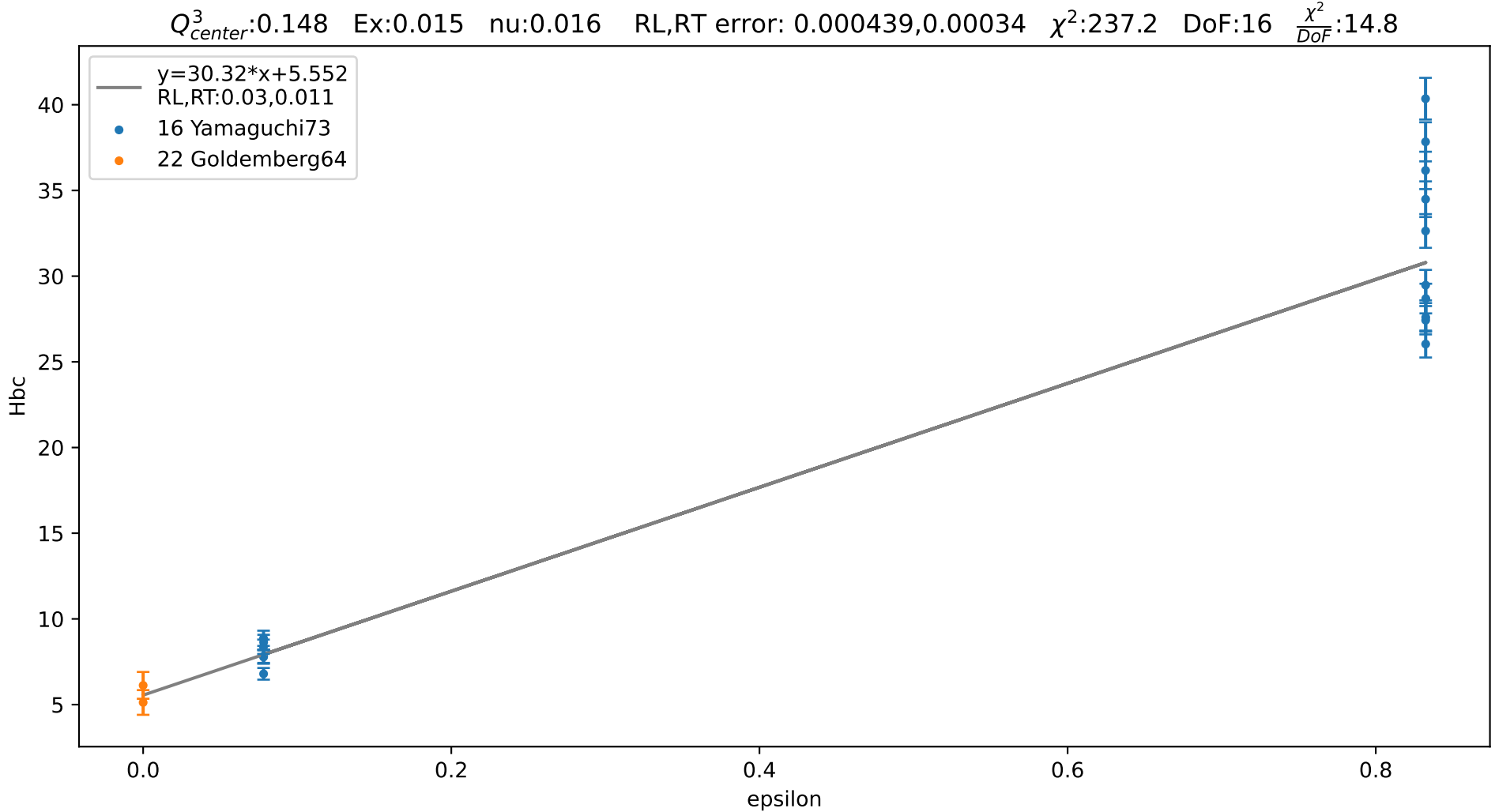

q = 0.1 bin:0.063~0.124
RL Total Christy-Bodek Fit
RL QE Christy-Bodek Fit
RL this analysis
W = 0.93
ν = 0.1
(Q² = 0)
R_L
ν(GeV)

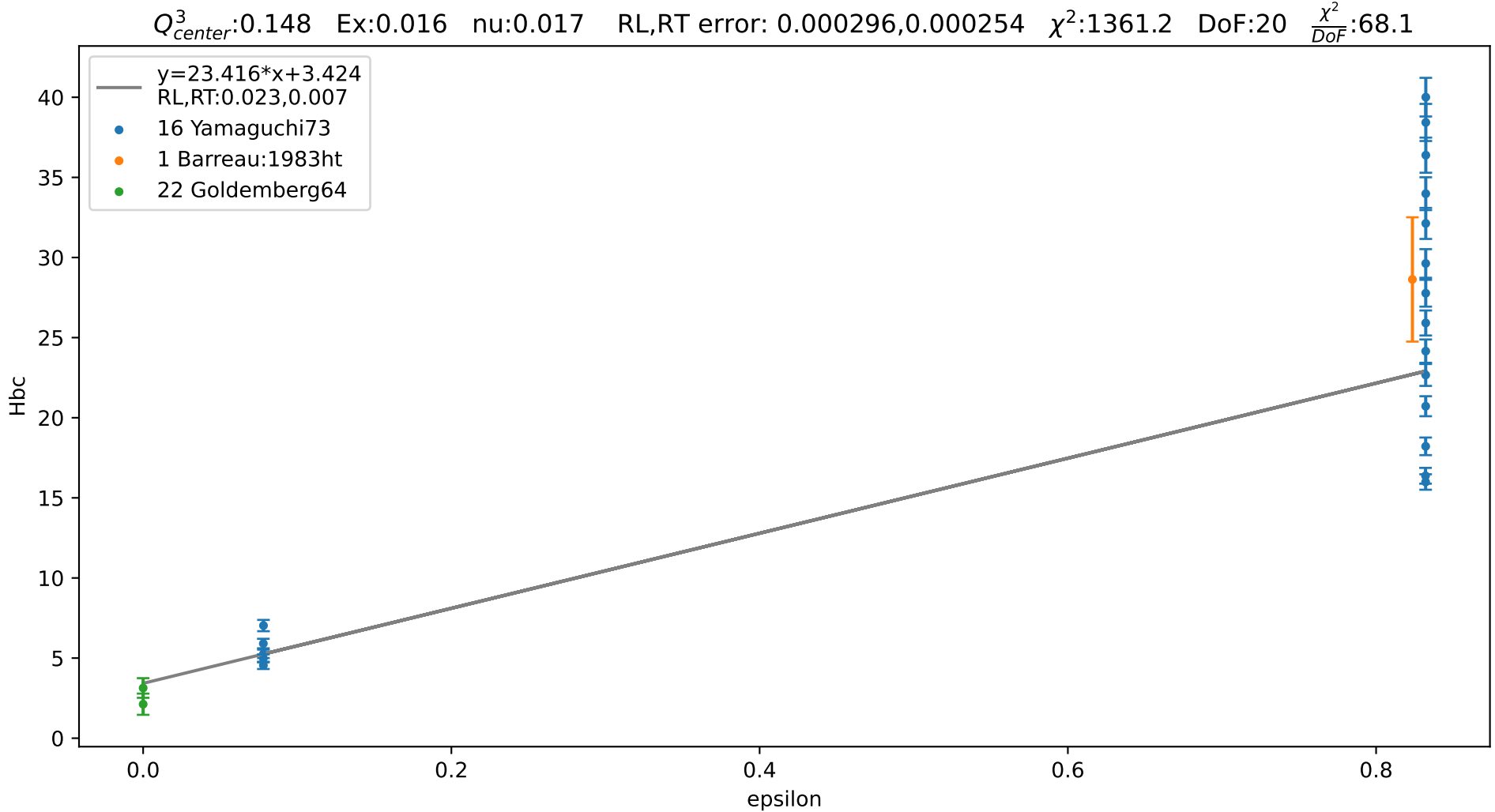

q = 0.1 bin:0.063~0.124
RT Total Christy-Bodek Fit
RT QE Christy-Bodek Fit
RT this analysis
RT Photo-production
RT Goldemberg
W = 0.93
ν = 0.1
(Q² = 0)
R_T
ν(GeV)

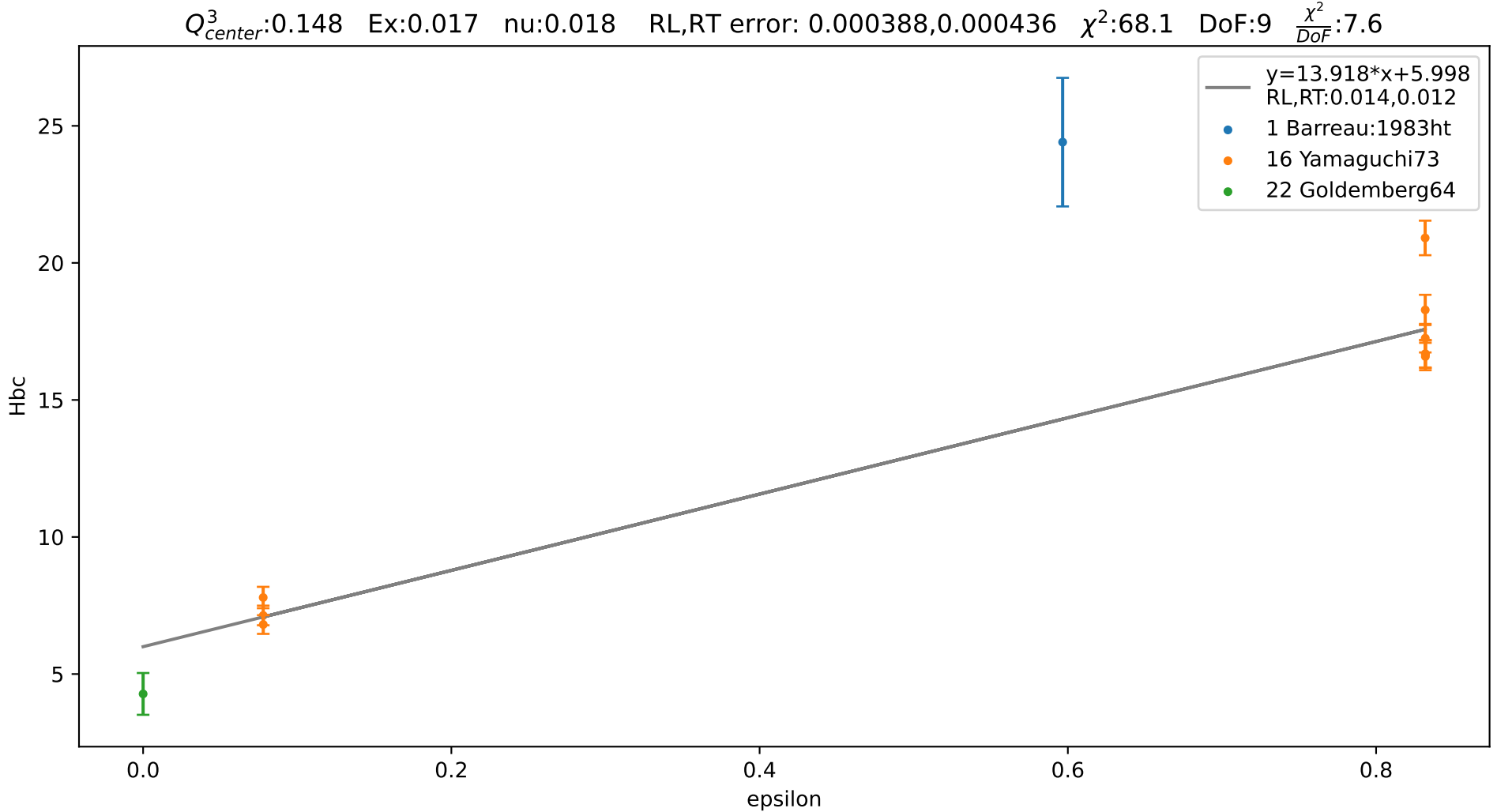

χ²/DoF
χ²/DoF
ν(GeV)

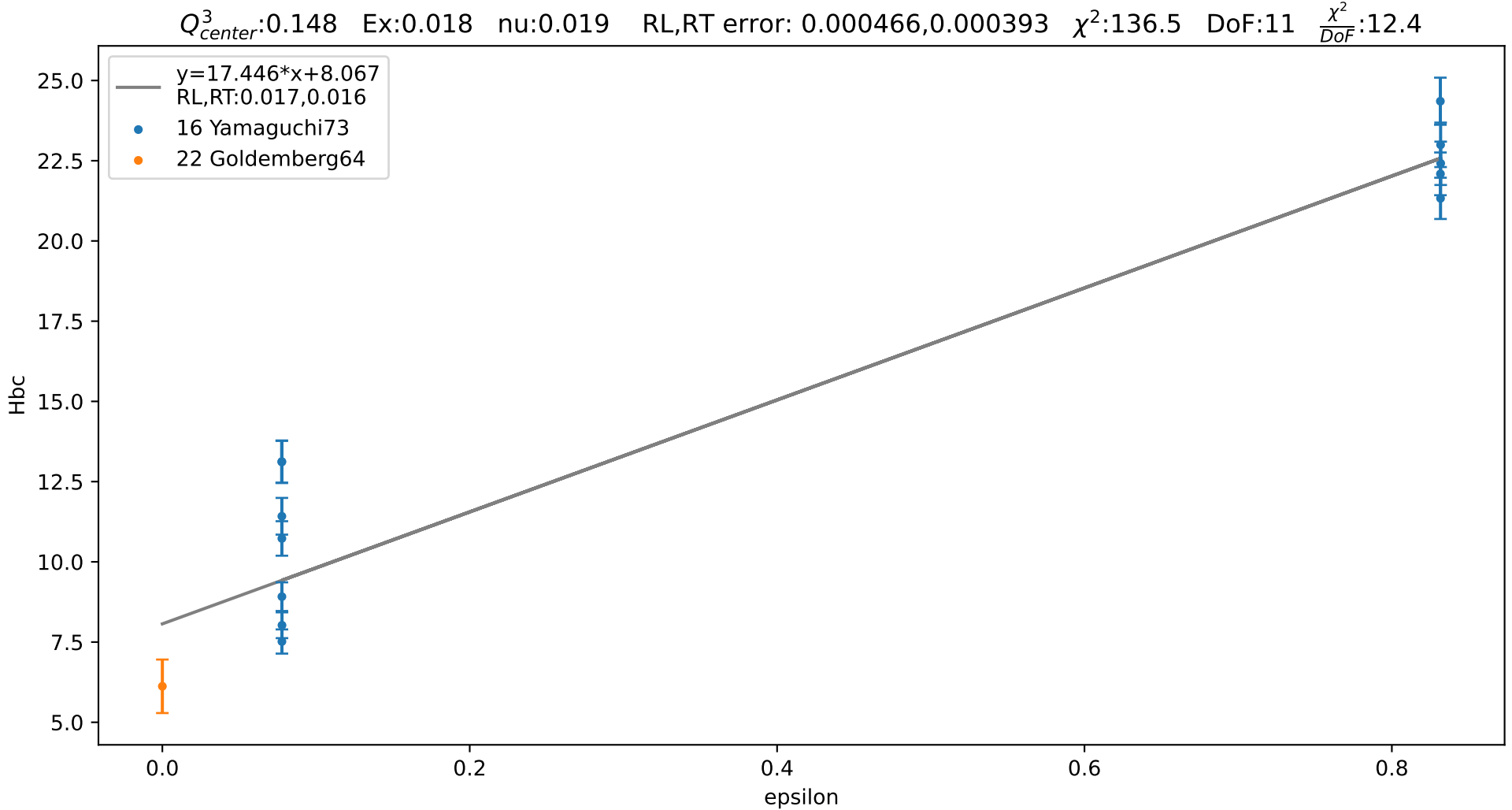

Q^3_{center}:0.148 Ex:0.013 nu:0.014 RL,RT error: 0.000465,0.000171 χ^2:14.5 DoF:2 $\frac{\chi^2}{DoF}$:7.2
y=14.15*x+0.591
RL,RT:0.014,0.001
16 Yamaguchi73
22 Goldemberg64
Hbc
epsilon
0
2
4
6
8
10
12
0.0
0.2
0.4
0.6
0.8

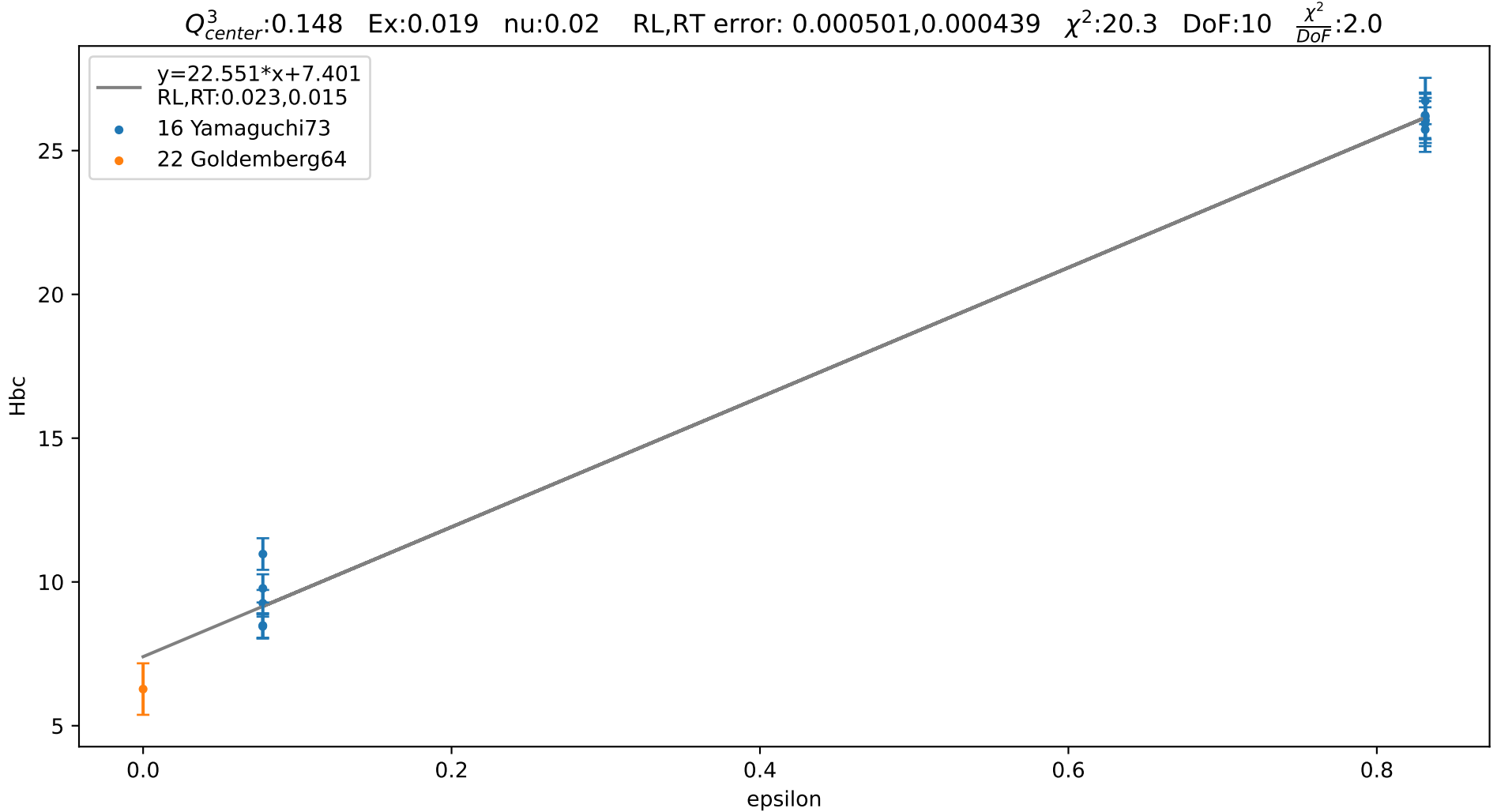

Q^3_{center}:0.148 Ex:0.014 nu:0.015 RL,RT error: 0.000239,0.000147 χ^2:1501.8 DoF:17 $\frac{\chi^2}{DoF}$:88.3
y=18.691*x+1.547
RL,RT:0.019,0.003
16 Yamaguchi73
22 Goldemberg64
Hbc
epsilon
0.0
0.2
0.4
0.6
0.8
5
10
15
20
25

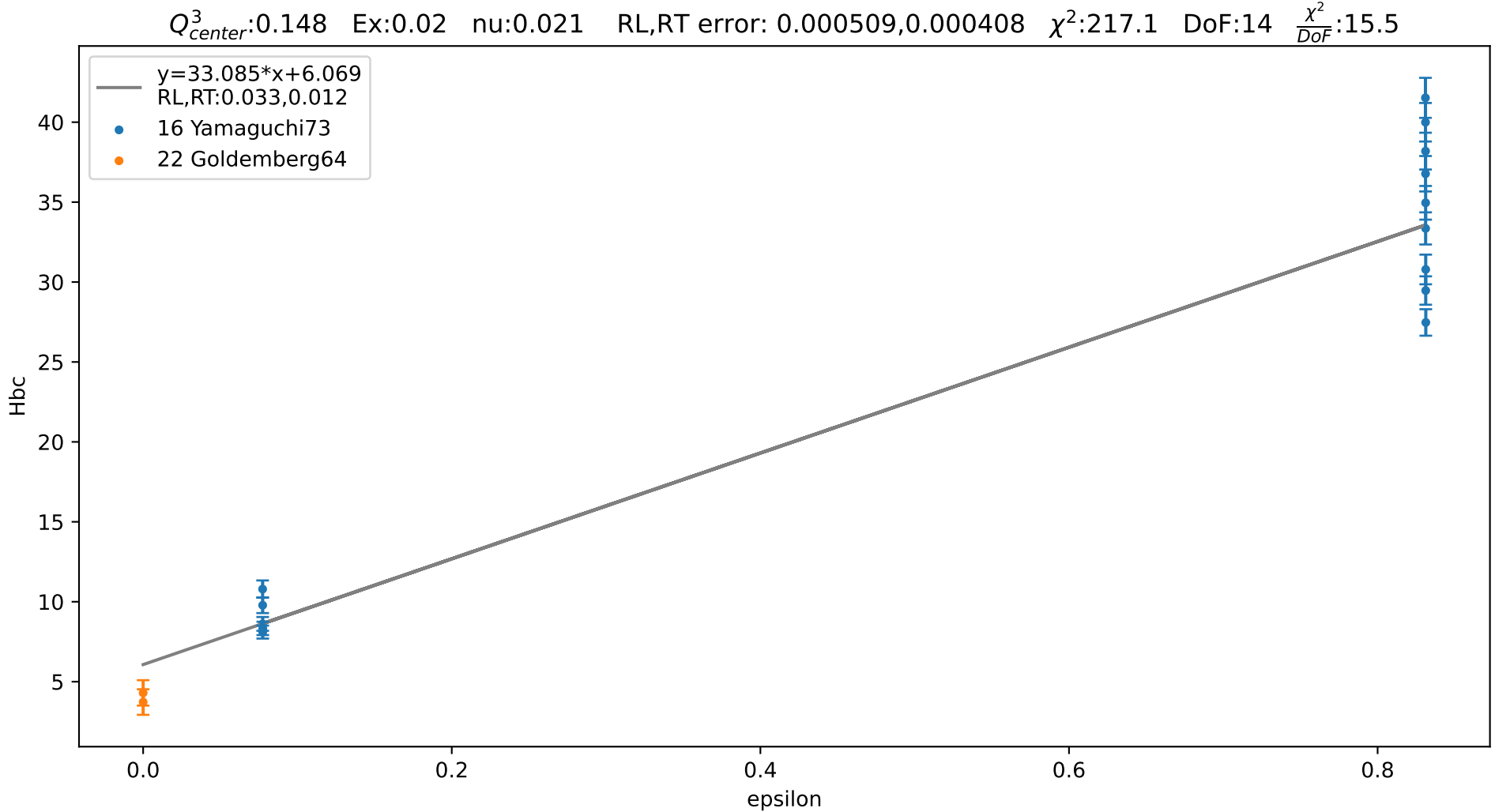

Q^3_{center}:0.148 Ex:0.015 nu:0.016 RL,RT error: 0.000439,0.00034 χ^2:237.2 DoF:16 $\frac{\chi^2}{DoF}$:14.8
y=30.32*x+5.552
RL,RT:0.03,0.011
16 Yamaguchi73
22 Goldemberg64
Hbc
epsilon
0.0
0.2
0.4
0.6
0.8
5
10
15
20
25
30
35
40

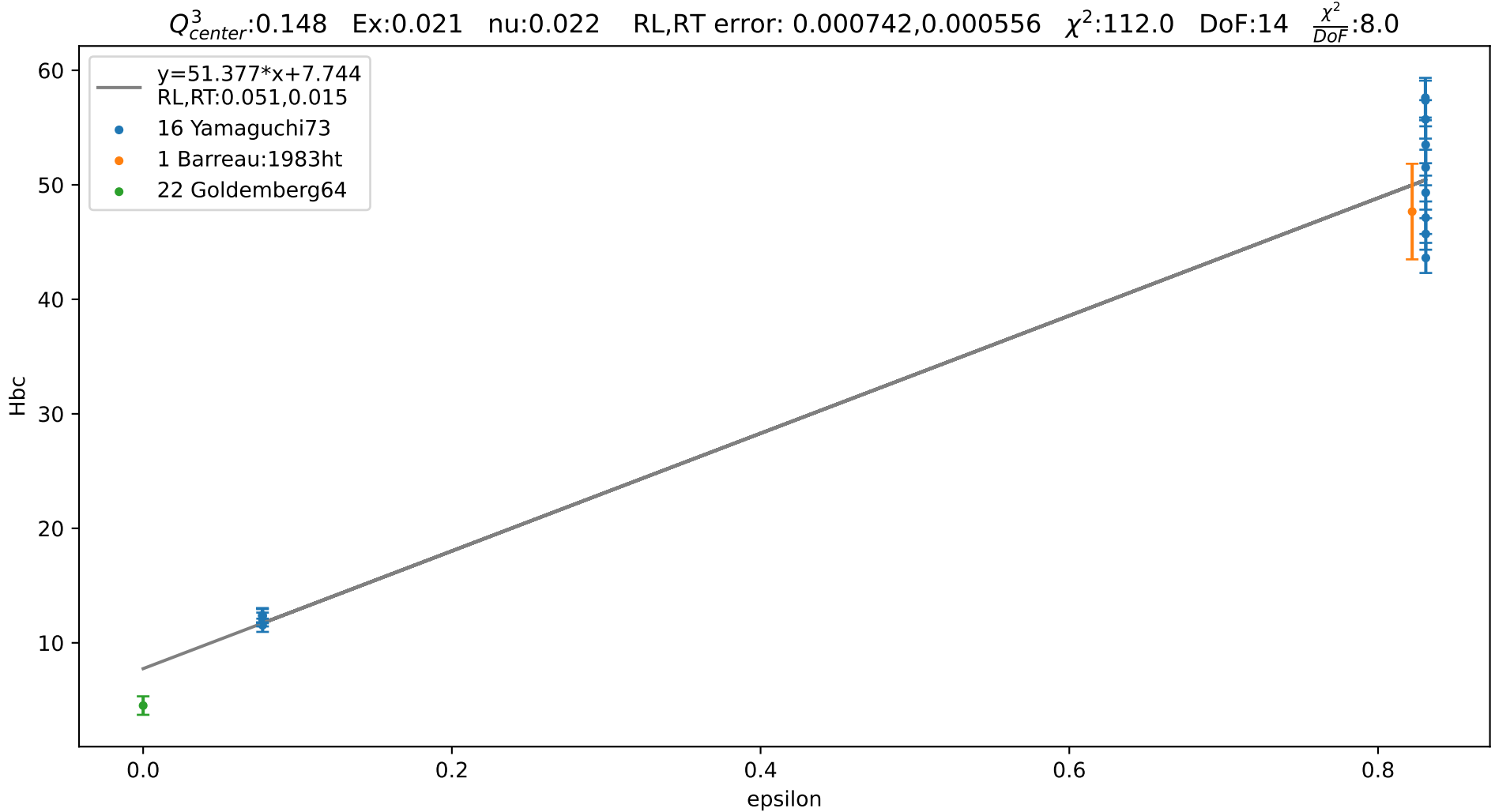

Q^3_{center}:0.148 Ex:0.016 nu:0.017 RL,RT error: 0.000296,0.000254 χ^2:1361.2 DoF:20 $\frac{\chi^2}{DoF}$:68.1
y=23.416*x+3.424
RL,RT:0.023,0.007
16 Yamaguchi73
1 Barreau:1983ht
22 Goldemberg64
Hbc
epsilon
0
5
10
15
20
25
30
35
40
0.0
0.2
0.4
0.6
0.8

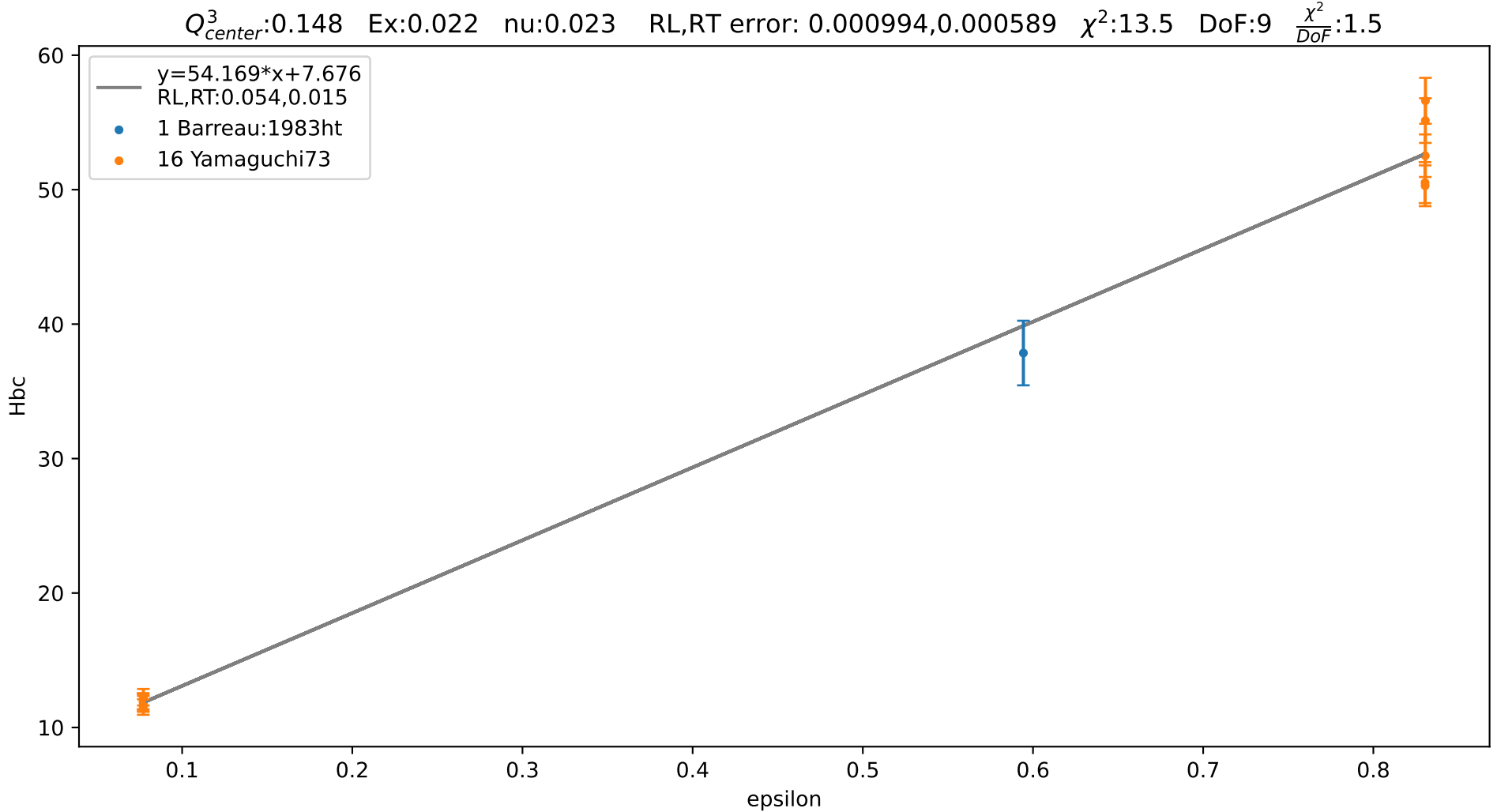

Q^3_{center}:0.148 Ex:0.017 nu:0.018 RL,RT error: 0.000388,0.000436 χ^2:68.1 DoF:9 $\frac{\chi^2}{DoF}$:7.6
y=13.918*x+5.998
RL,RT:0.014,0.012
1 Barreau:1983ht
16 Yamaguchi73
22 Goldemberg64
Hbc
epsilon
0.0
0.2
0.4
0.6
0.8
5
10
15
20
25

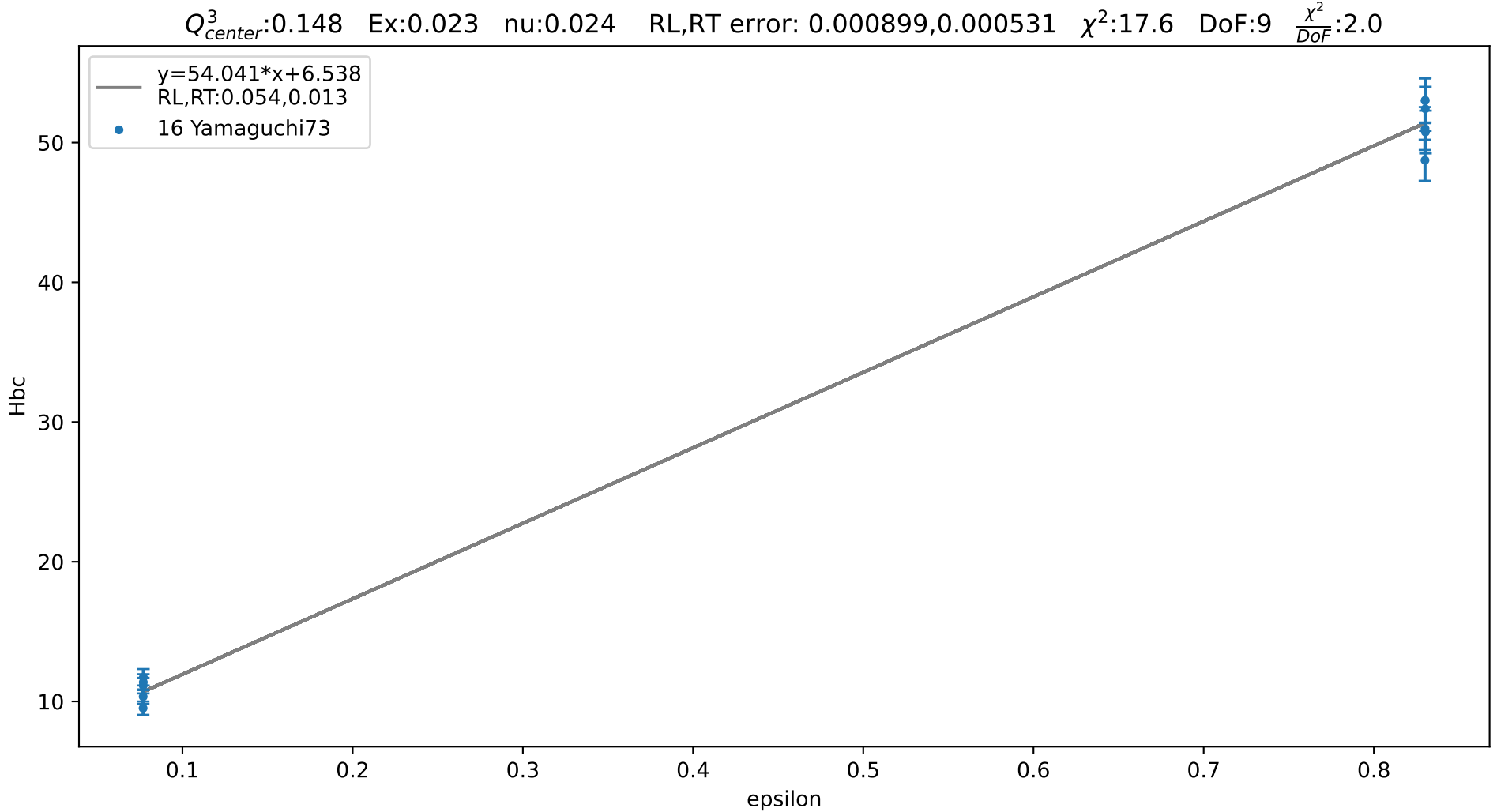

Q^3_{center}:0.148 Ex:0.018 nu:0.019 RL,RT error: 0.000466,0.000393 χ^2:136.5 DoF:11 $\frac{\chi^2}{DoF}$:12.4
y=17.446*x+8.067
RL,RT:0.017,0.016
16 Yamaguchi73
22 Goldemberg64
Hbc
epsilon
25.0
22.5
20.0
17.5
15.0
12.5
10.0
7.5
5.0
0.0
0.2
0.4
0.6
0.8

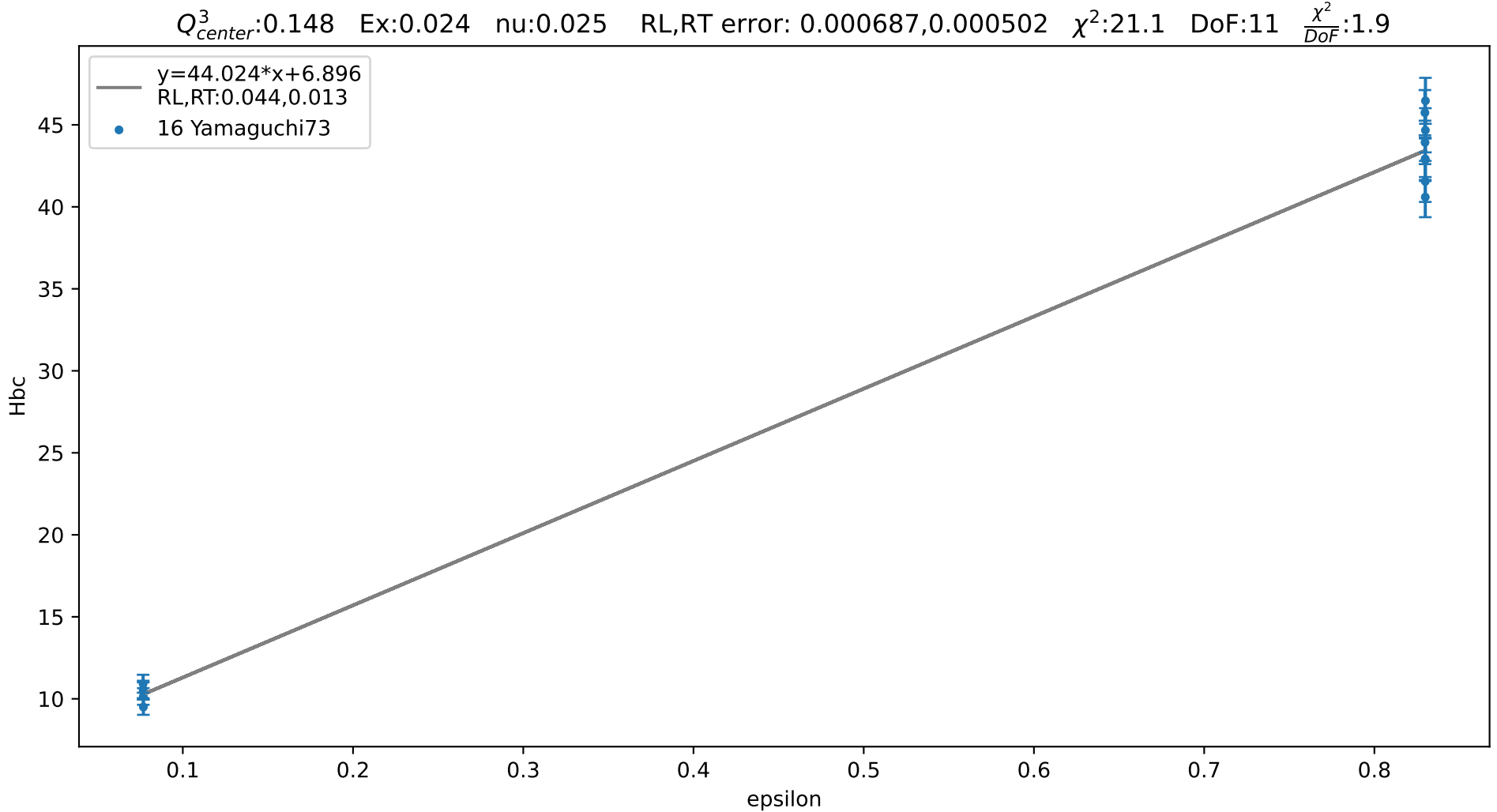

Q^3_{center}:0.148 Ex:0.019 nu:0.02 RL,RT error: 0.000501,0.000439 χ^2:20.3 DoF:10 $\frac{\chi^2}{DoF}$:2.0
y=22.551*x+7.401
RL,RT:0.023,0.015
16 Yamaguchi73
22 Goldemberg64
Hbc
epsilon
5
10
15
20
25
0.0
0.2
0.4
0.6
0.8

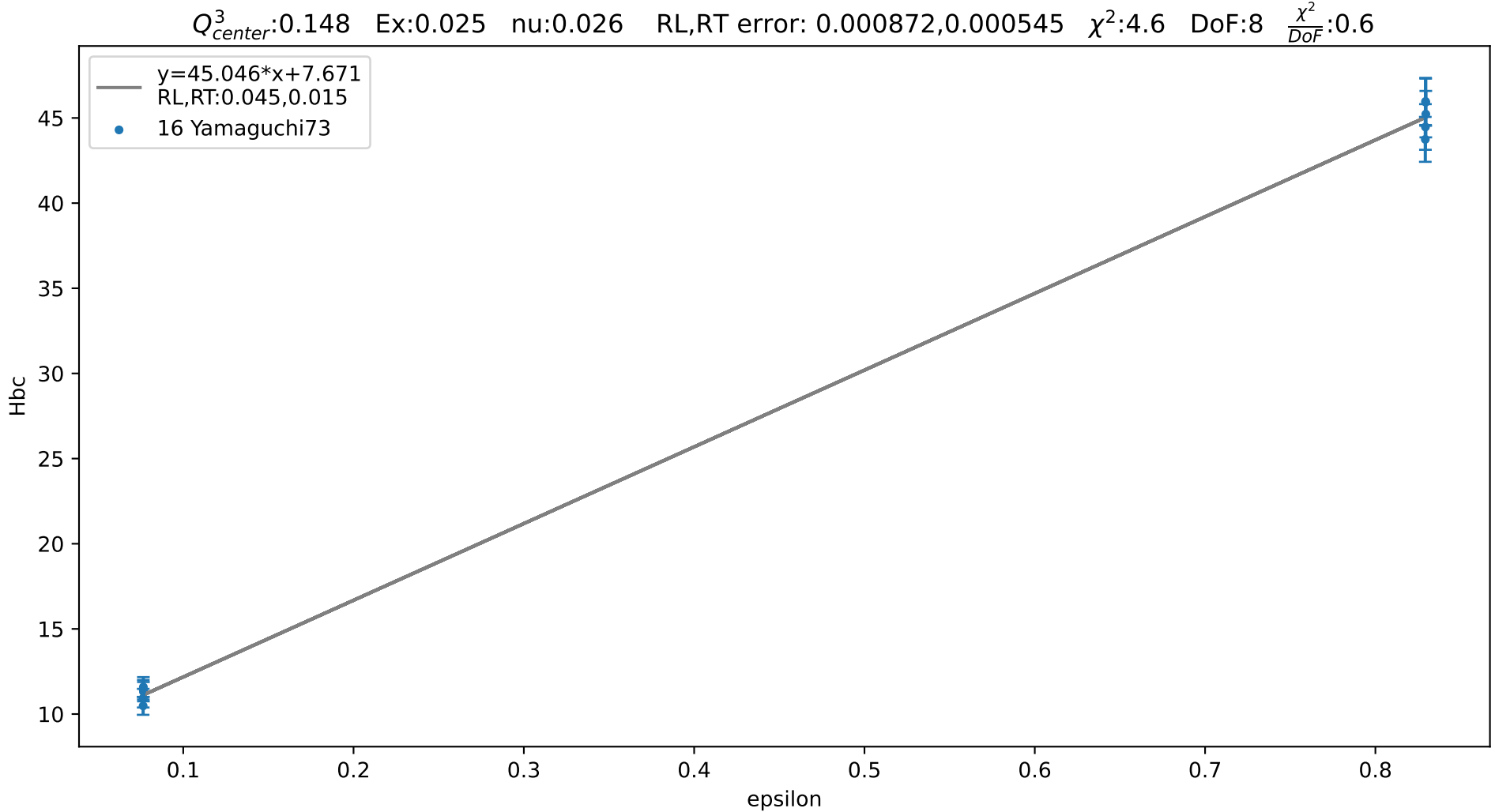

Q^3_{center}:0.148 Ex:0.02 nu:0.021 RL,RT error: 0.000509,0.000408 χ^2:217.1 DoF:14 $\frac{\chi^2}{DoF}$:15.5
y=33.085*x+6.069
RL,RT:0.033,0.012
16 Yamaguchi73
22 Goldemberg64
Hbc
epsilon
0.0
0.2
0.4
0.6
0.8
5
10
15
20
25
30
35
40

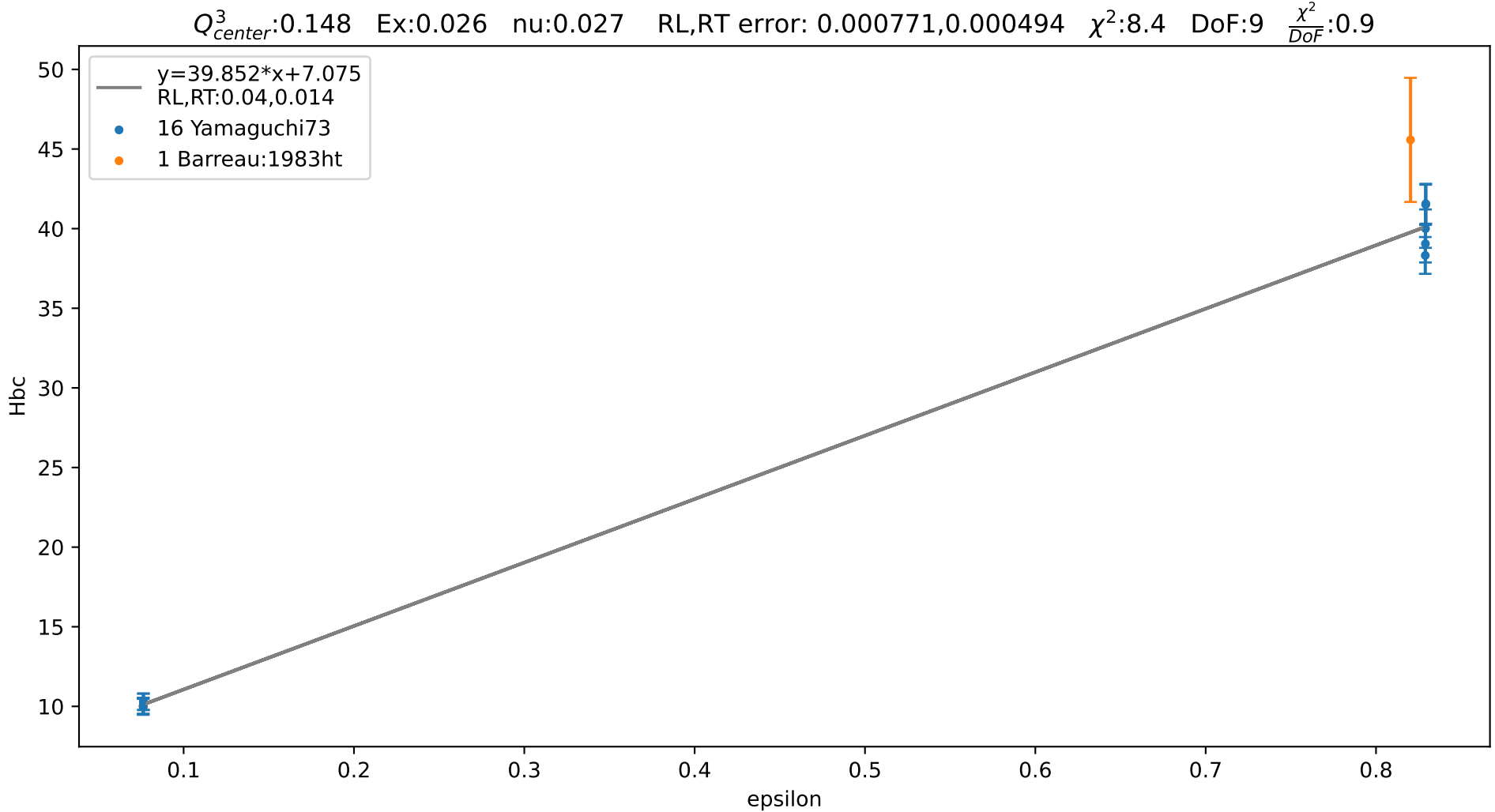

Q^3_{center}:0.148 Ex:0.021 nu:0.022 RL,RT error: 0.000742,0.000556 χ^2:112.0 DoF:14 $\frac{\chi^2}{DoF}$:8.0
y=51.377*x+7.744
RL,RT:0.051,0.015
16 Yamaguchi73
1 Barreau:1983ht
22 Goldemberg64
Hbc
epsilon
60
50
40
30
20
10
0.0
0.2
0.4
0.6
0.8

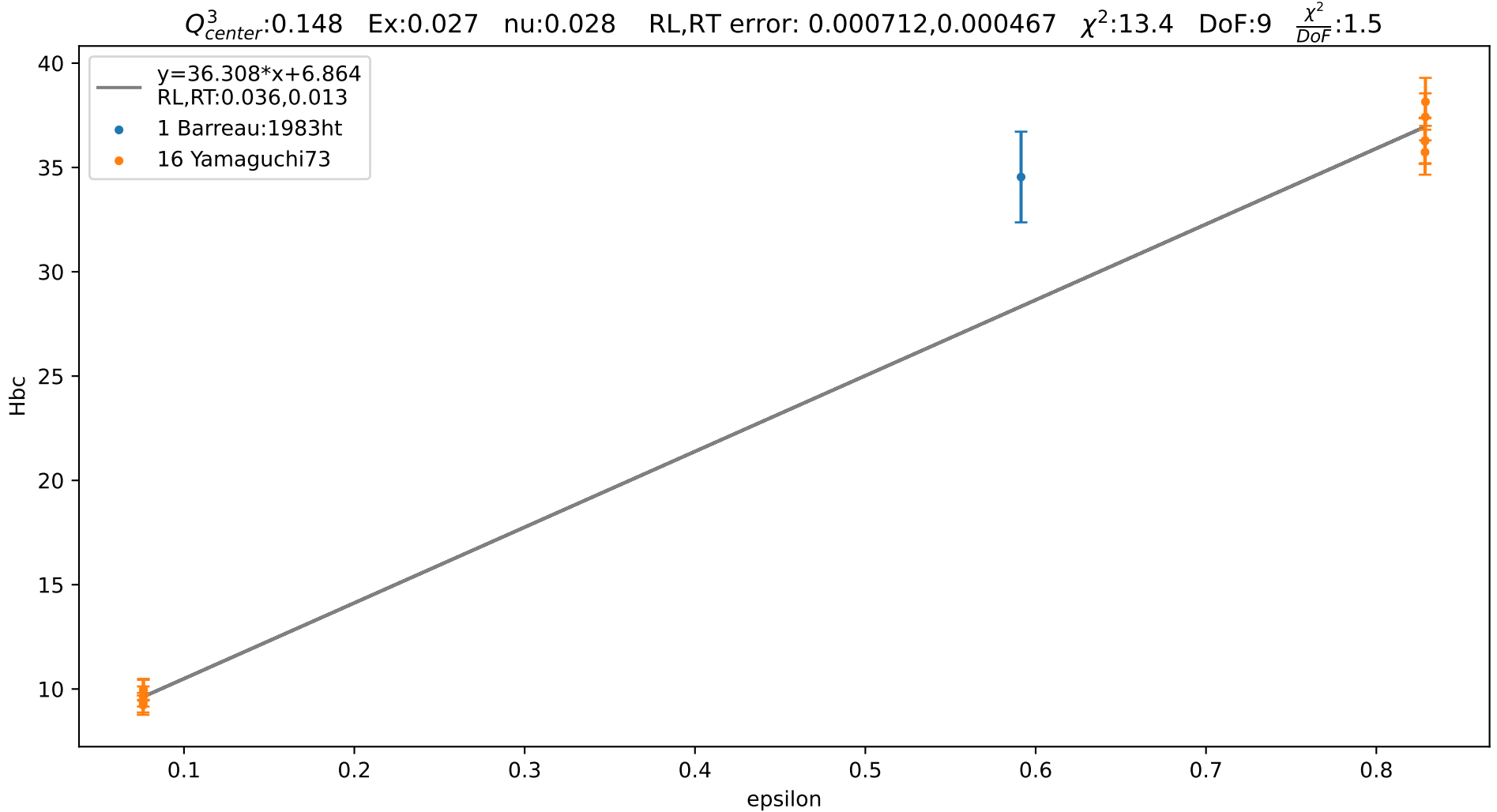

Q^3_{center}:0.148 Ex:0.022 nu:0.023 RL,RT error: 0.000994,0.000589 χ^2:13.5 DoF:9 $\frac{\chi^2}{DoF}$:1.5
y=54.169*x+7.676
RL,RT:0.054,0.015
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
60
50
40
30
20
10
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

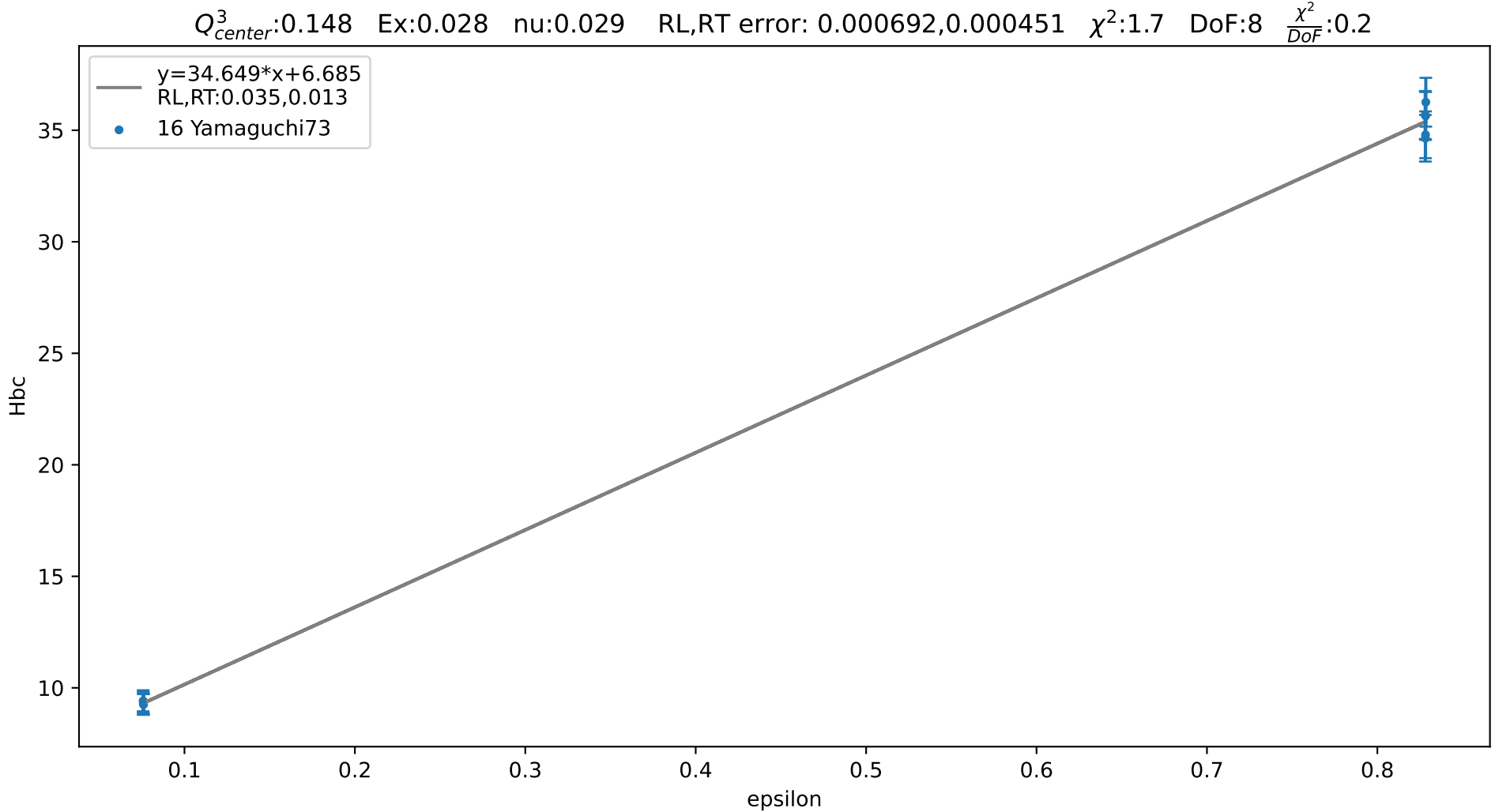

Q^3_{center}:0.148 Ex:0.023 nu:0.024 RL,RT error: 0.000899,0.000531 χ^2:17.6 DoF:9 $\frac{\chi^2}{DoF}$:2.0
y=54.041*x+6.538
RL,RT:0.054,0.013
16 Yamaguchi73
Hbc
epsilon
10
20
30
40
50
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

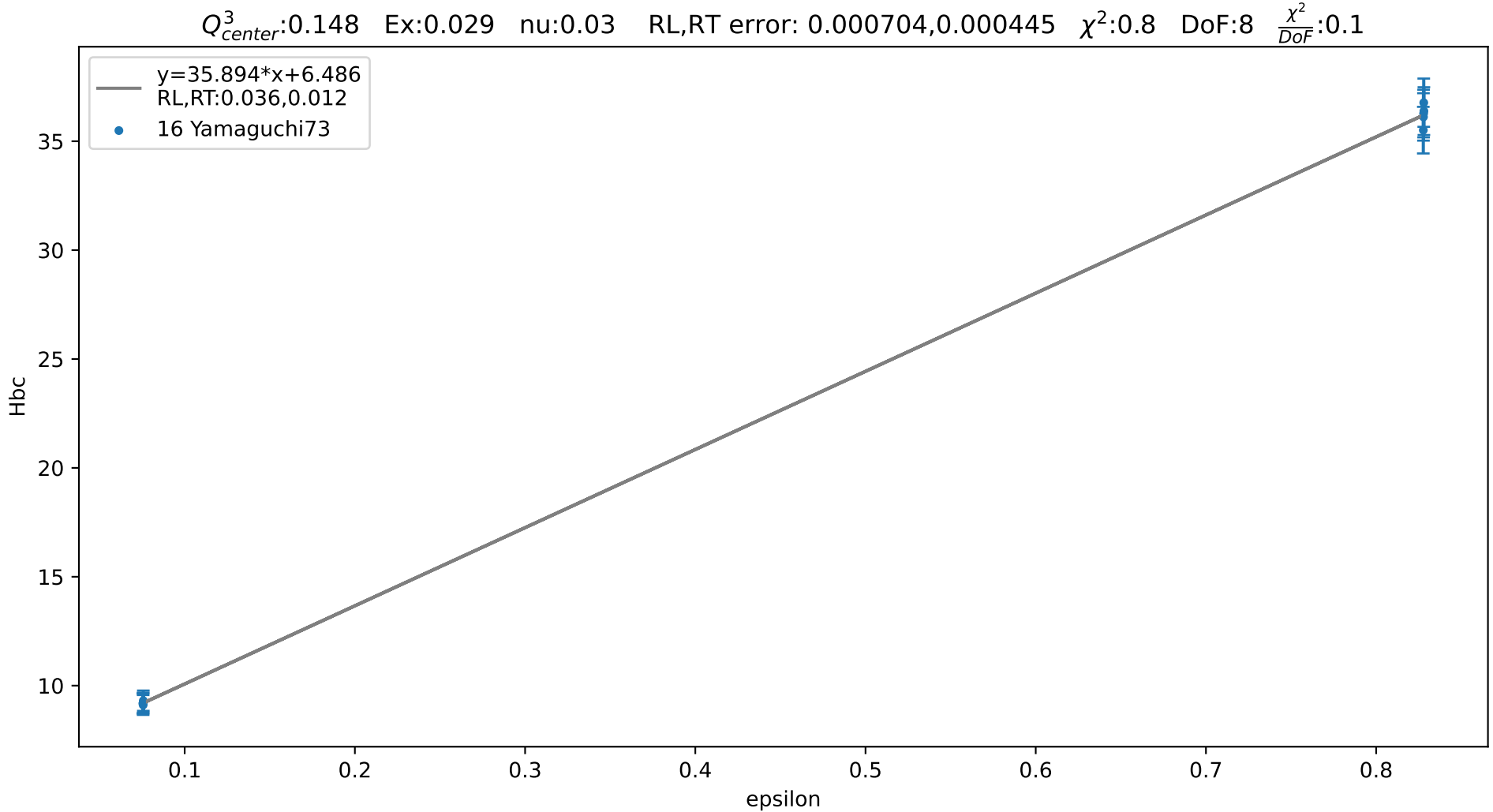

Q^3_{center}:0.148 Ex:0.024 nu:0.025 RL,RT error: 0.000687,0.000502 χ^2:21.1 DoF:11 $\frac{\chi^2}{DoF}$:1.9
y=44.024*x+6.896
RL,RT:0.044,0.013
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
35
40
45
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

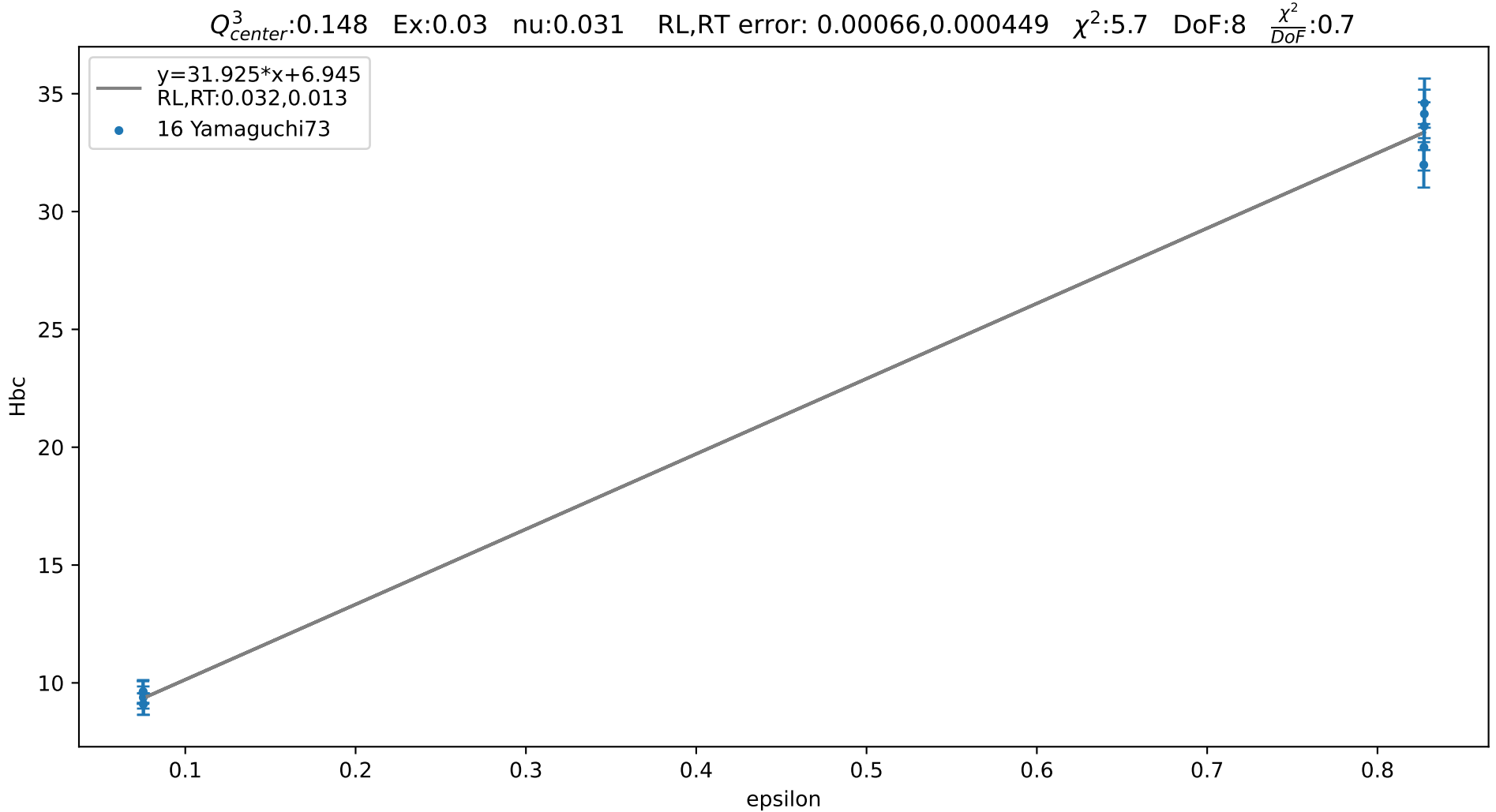

Q^3_{center}:0.148 Ex:0.025 nu:0.026 RL,RT error: 0.000872,0.000545 χ^2:4.6 DoF:8 $\frac{\chi^2}{DoF}$:0.6
y=45.046*x+7.671
RL,RT:0.045,0.015
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
35
40
45
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

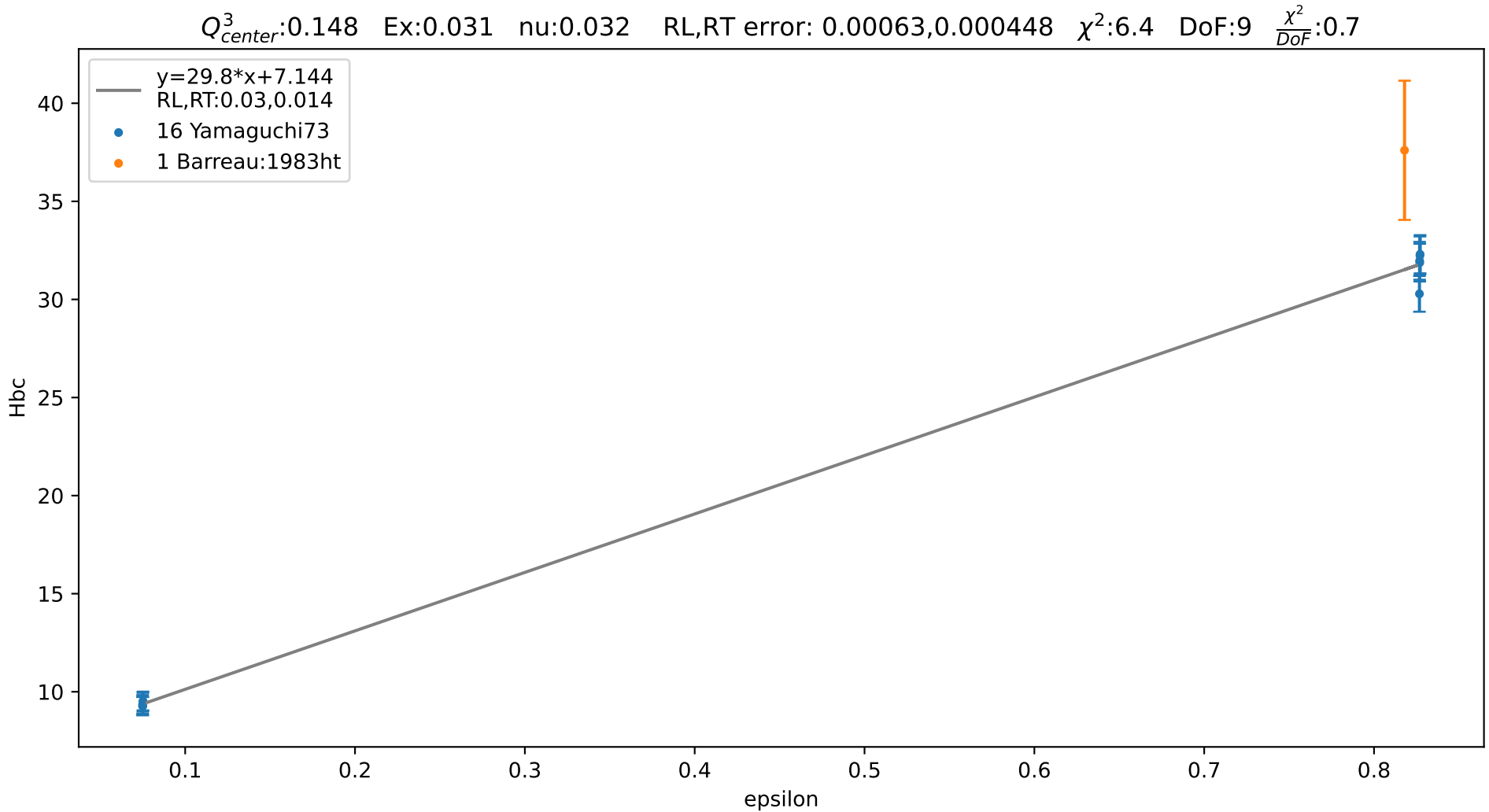

Q^3_{center}:0.148 Ex:0.026 nu:0.027 RL,RT error: 0.000771,0.000494 χ^2:8.4 DoF:9 $\frac{\chi^2}{DoF}$:0.9
y=39.852*x+7.075
RL,RT:0.04,0.014
16 Yamaguchi73
1 Barreau:1983ht
Hbc
epsilon
50
45
40
35
30
25
20
15
10
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

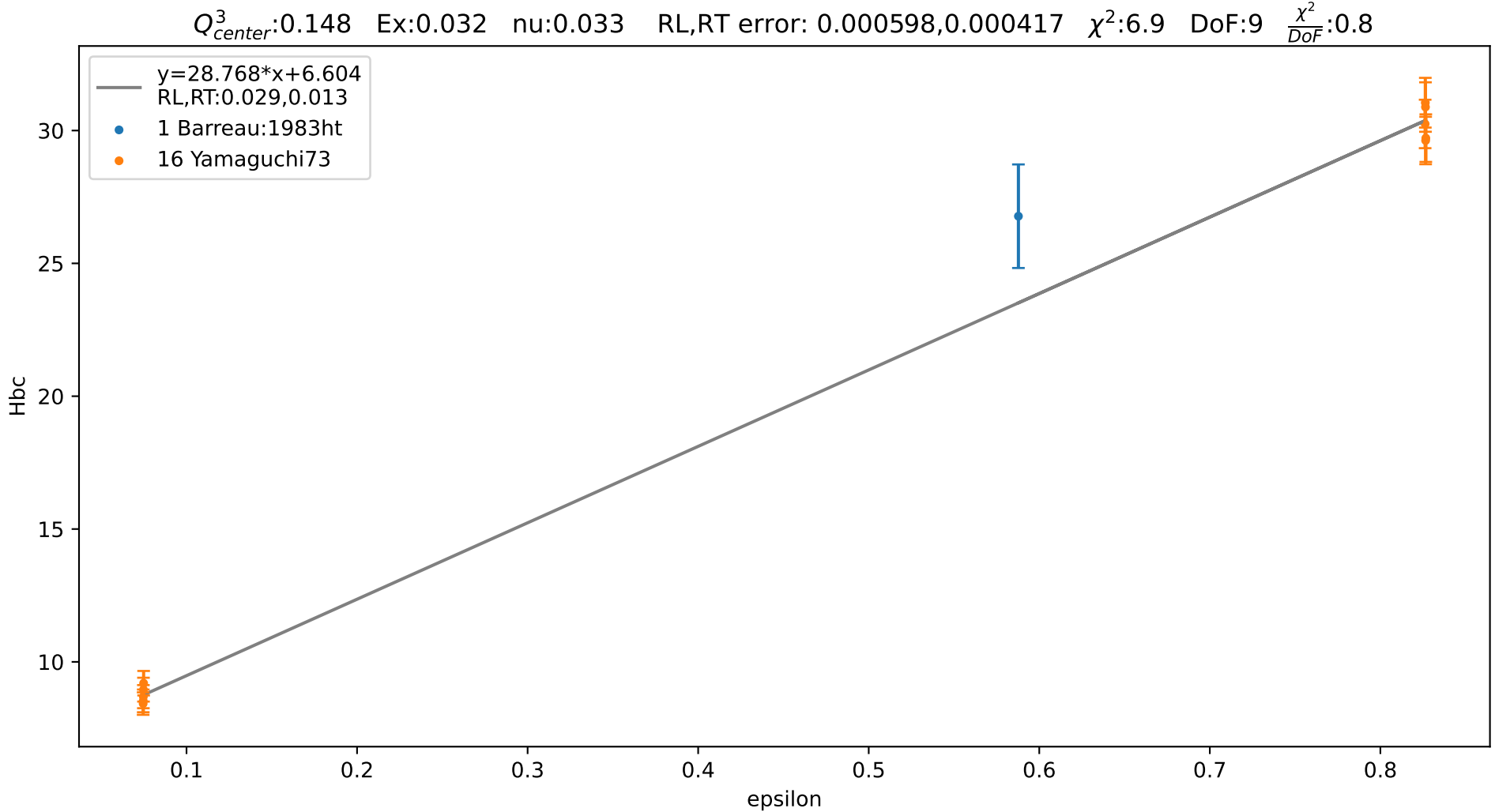

Q^3_{center}:0.148 Ex:0.027 nu:0.028 RL,RT error: 0.000712,0.000467 χ^2:13.4 DoF:9 $\frac{\chi^2}{DoF}$:1.5
y=36.308*x+6.864
RL,RT:0.036,0.013
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
40
35
30
25
20
15
10
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

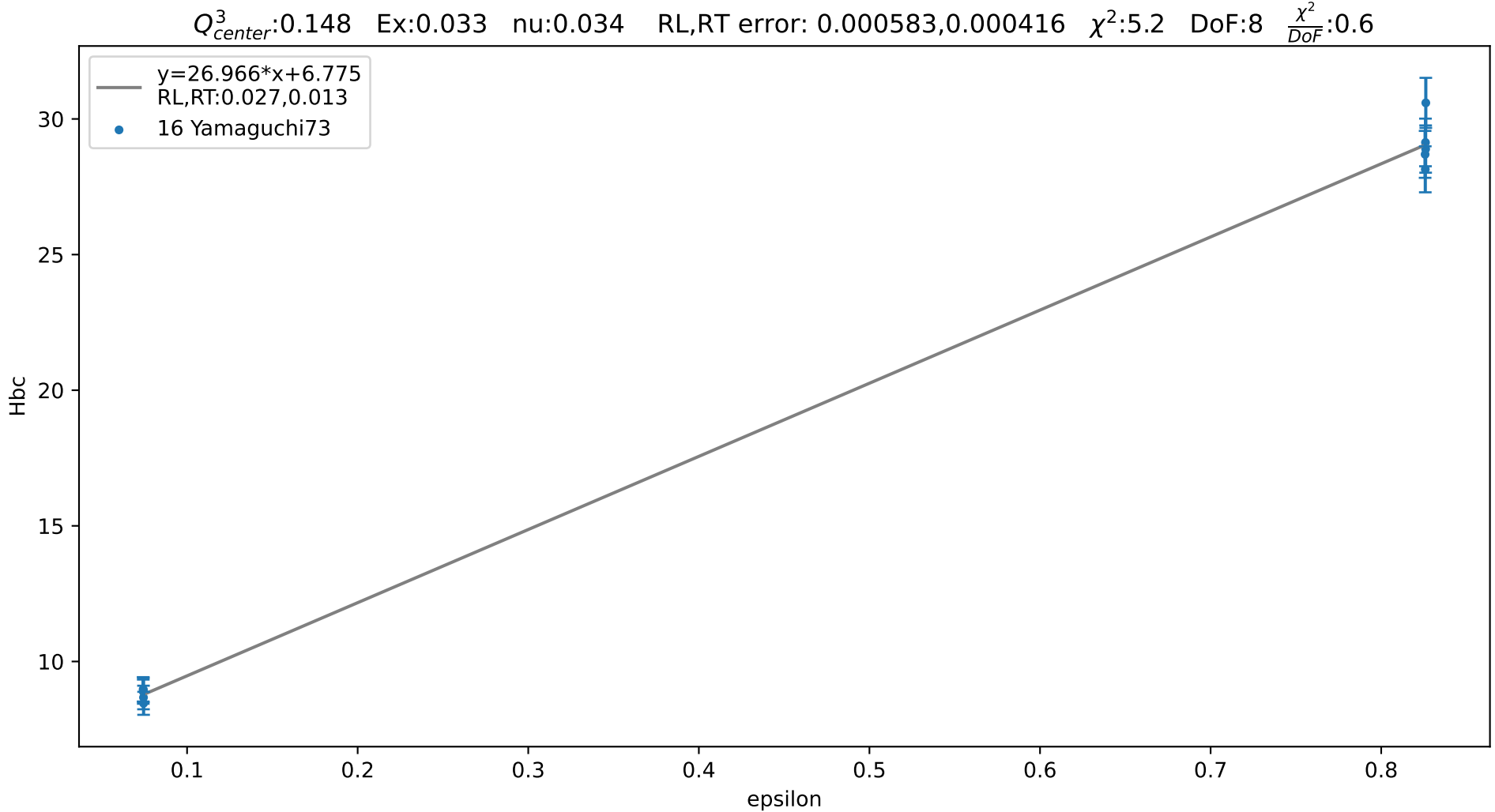

Q^3_{center}:0.148 Ex:0.028 nu:0.029 RL,RT error: 0.000692,0.000451 χ^2:1.7 DoF:8 $\frac{\chi^2}{DoF}$:0.2
y=34.649*x+6.685
RL,RT:0.035,0.013
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
35
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

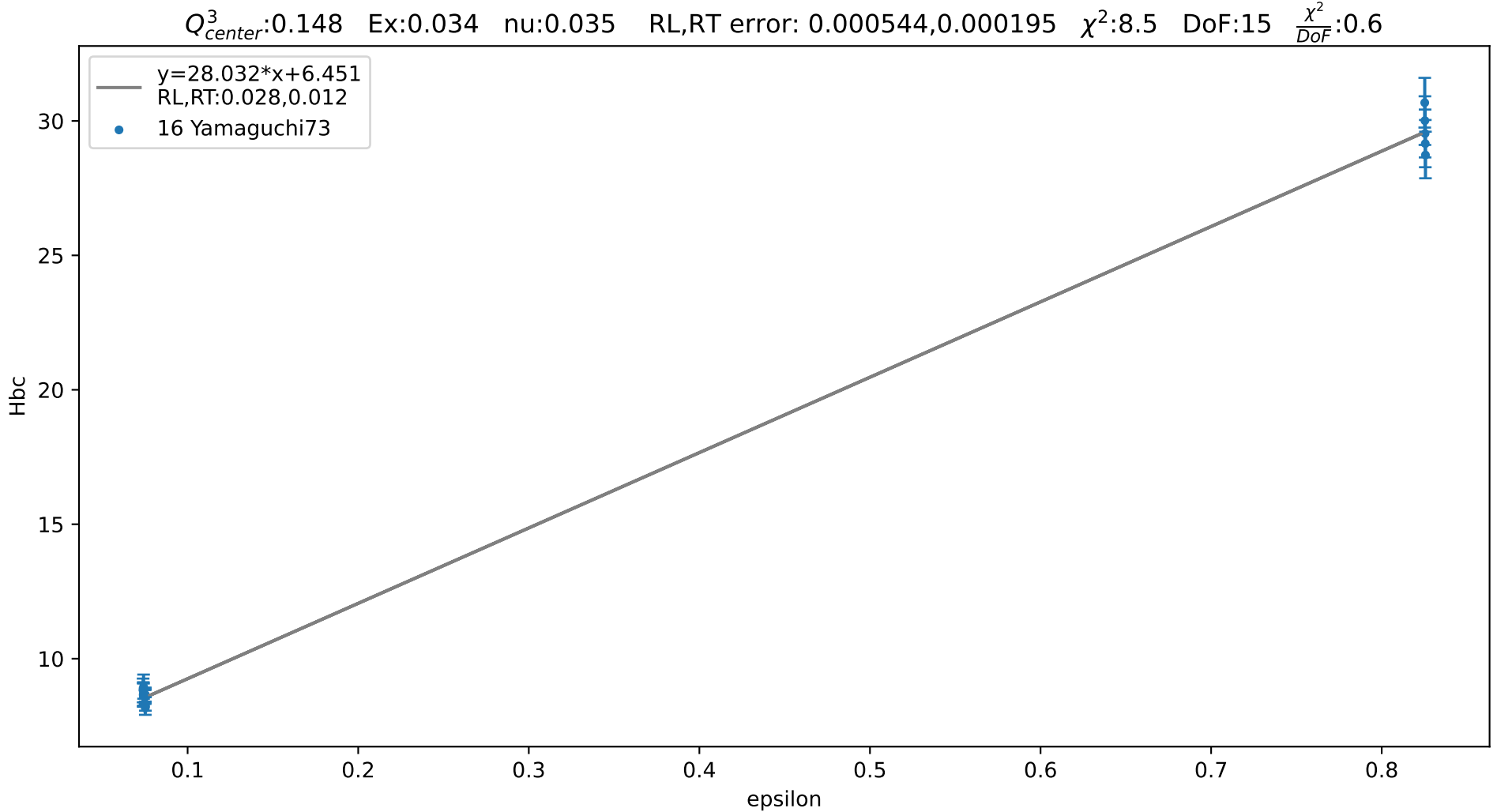

Q^3_{center}:0.148 Ex:0.029 nu:0.03 RL,RT error: 0.000704,0.000445 χ^2:0.8 DoF:8 $\frac{\chi^2}{DoF}$:0.1
y=35.894*x+6.486
RL,RT:0.036,0.012
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
35
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.148 Ex:0.03 nu:0.031 RL,RT error: 0.00066,0.000449 χ^2:5.7 DoF:8 $\frac{\chi^2}{DoF}$:0.7
y=31.925*x+6.945
RL,RT:0.032,0.013
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
35
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.148 Ex:0.031 nu:0.032 RL,RT error: 0.00063,0.000448 χ^2:6.4 DoF:9 $\frac{\chi^2}{DoF}$:0.7
y=29.8*x+7.144
RL,RT:0.03,0.014
16 Yamaguchi73
1 Barreau:1983ht
Hbc
epsilon
10
15
20
25
30
35
40
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.148 Ex:0.032 nu:0.033 RL,RT error: 0.000598,0.000417 χ^2:6.9 DoF:9 $\frac{\chi^2}{DoF}$:0.8
y=28.768*x+6.604
RL,RT:0.029,0.013
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.148 Ex:0.033 nu:0.034 RL,RT error: 0.000583,0.000416 χ^2:5.2 DoF:8 $\frac{\chi^2}{DoF}$:0.6
y=26.966*x+6.775
RL,RT:0.027,0.013
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.148 Ex:0.034 nu:0.035 RL,RT error: 0.000544,0.000195 χ^2:8.5 DoF:15 $\frac{\chi^2}{DoF}$:0.6
y=28.032*x+6.451
RL,RT:0.028,0.012
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
0.1
0.2
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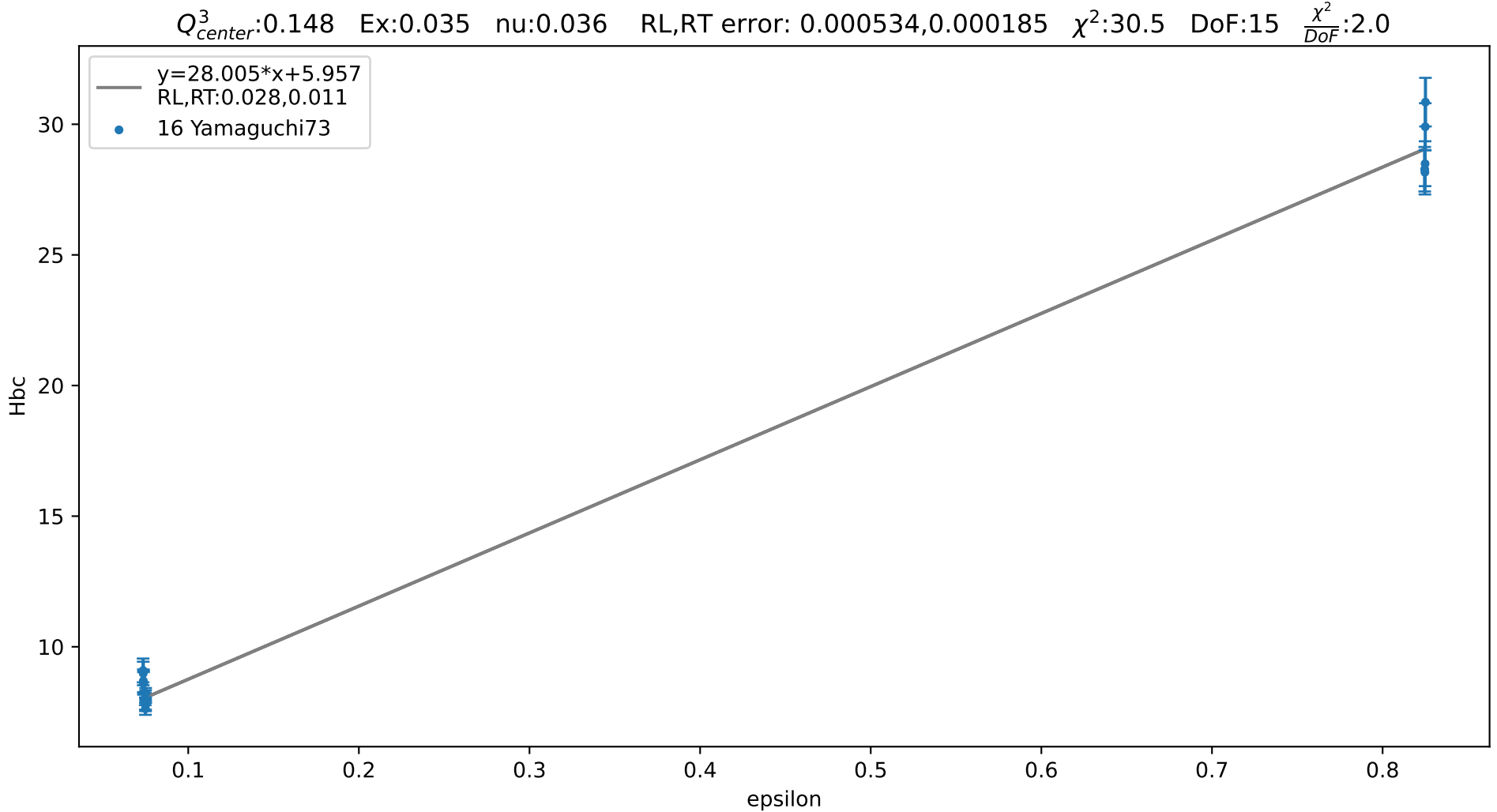
Q^3_{center}:0.148 Ex:0.035 nu:0.036 RL,RT error: 0.000534,0.000185 χ^2:30.5 DoF:15 $\frac{\chi^2}{DoF}$:2.0
y=28.005*x+5.957
RL,RT:0.028,0.011
16 Yamaguchi73
Hbc
epsilon
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0.1
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0.7
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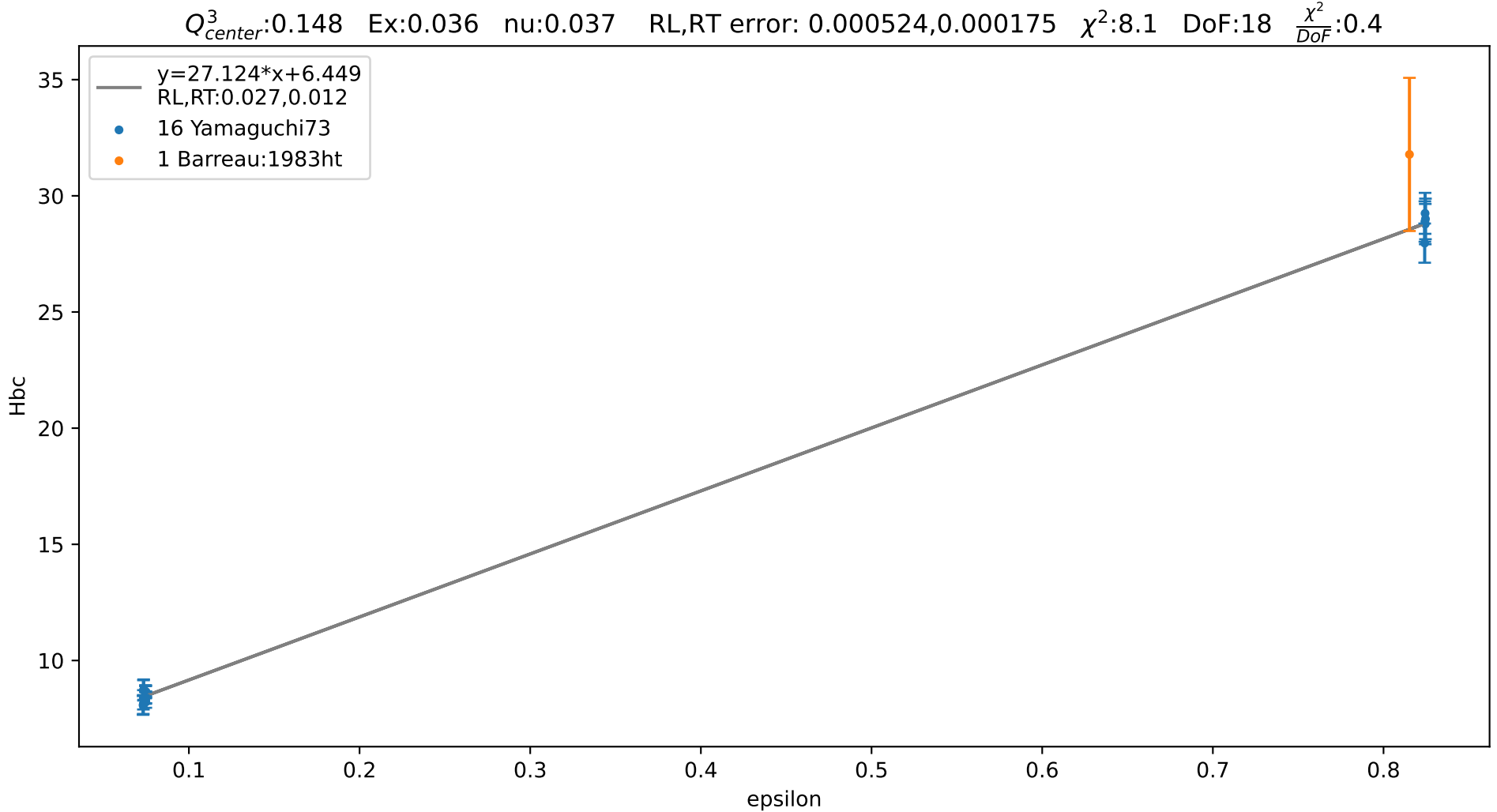
Q^3_{center}:0.148 Ex:0.036 nu:0.037 RL,RT error: 0.000524,0.000175 χ^2:8.1 DoF:18 $\frac{\chi^2}{DoF}$:0.4
y=27.124*x+6.449
RL,RT:0.027,0.012
16 Yamaguchi73
1 Barreau:1983ht
Hbc
epsilon
35
30
25
20
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0.1
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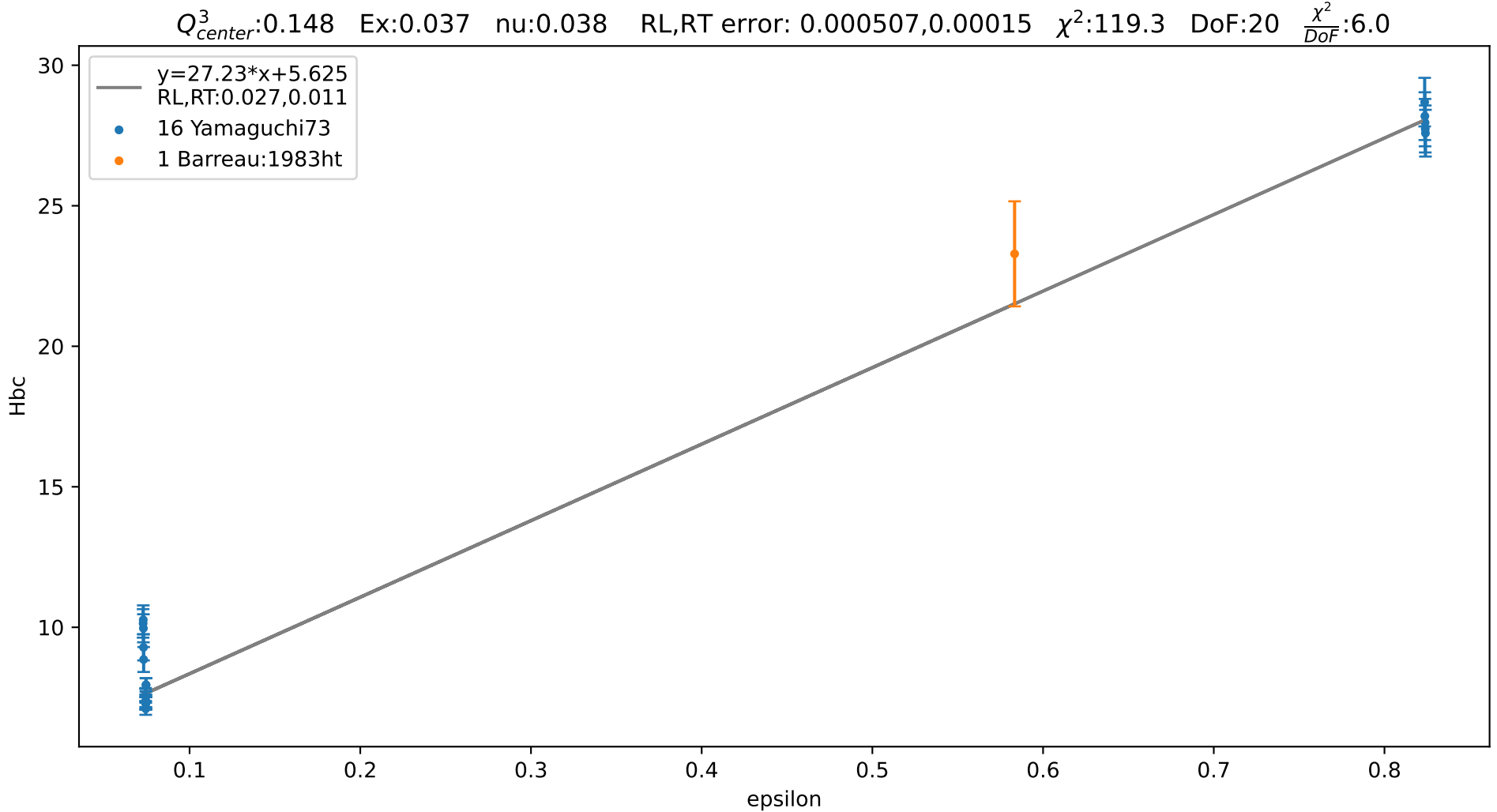
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.148 Ex:0.037 nu:0.038 RL,RT error: 0.000507,0.00015 χ^2:119.3 DoF:20 $\frac{\chi^2}{DoF}$:6.0
y=27.23*x+5.625
RL,RT:0.027,0.011
16 Yamaguchi73
1 Barreau:1983ht
Hbc
epsilon
30
25
20
15
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0.1
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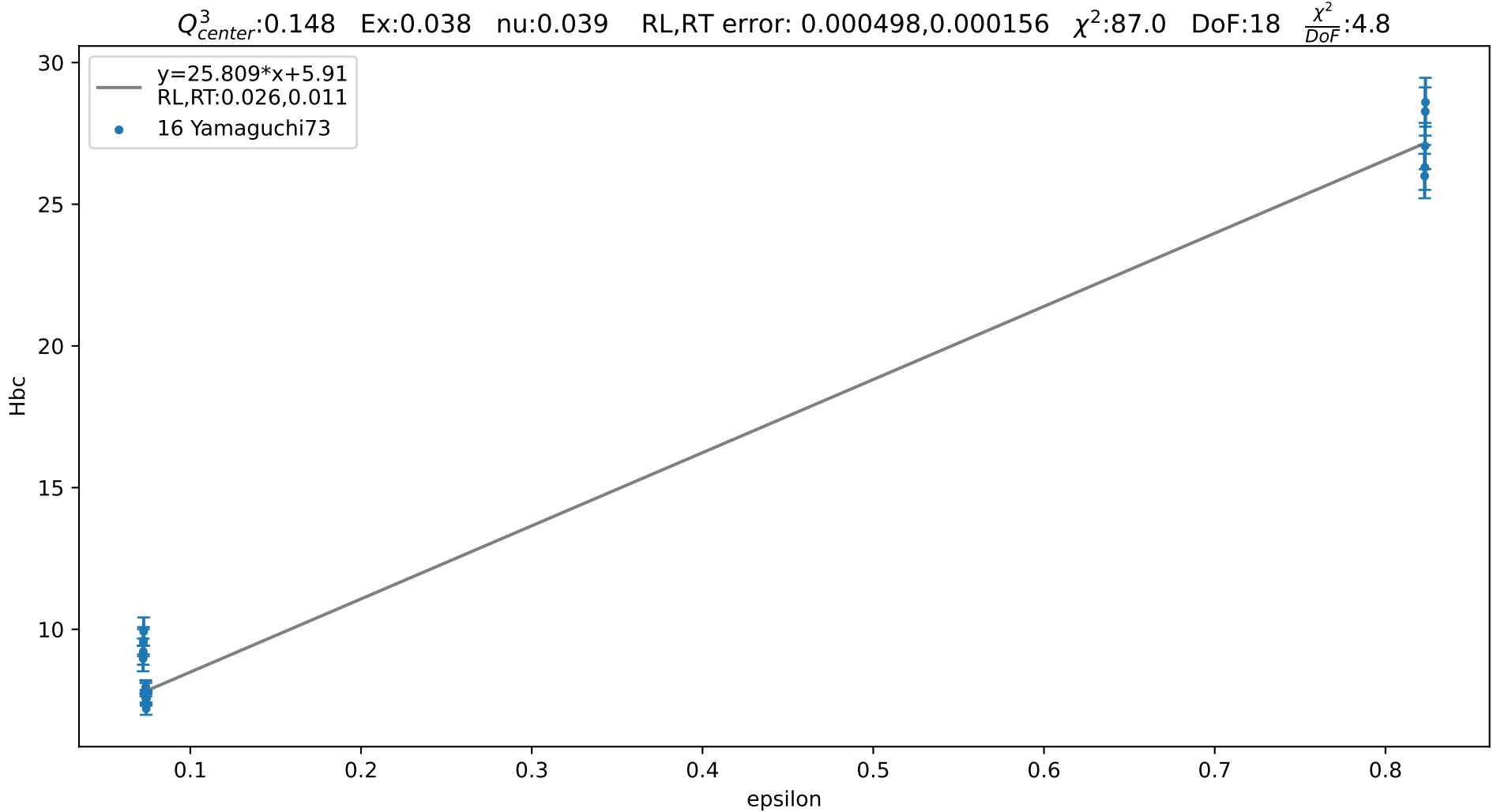
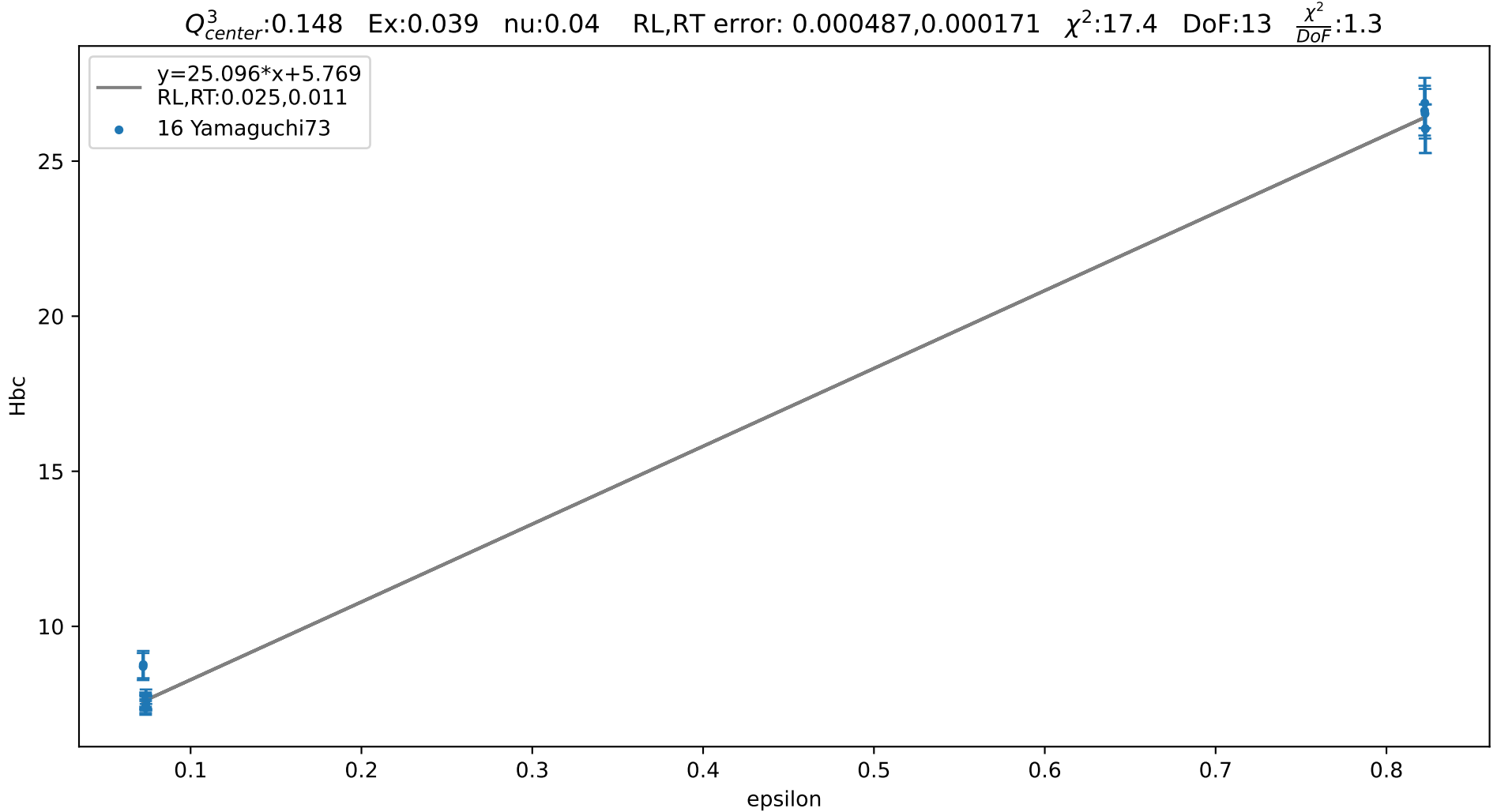
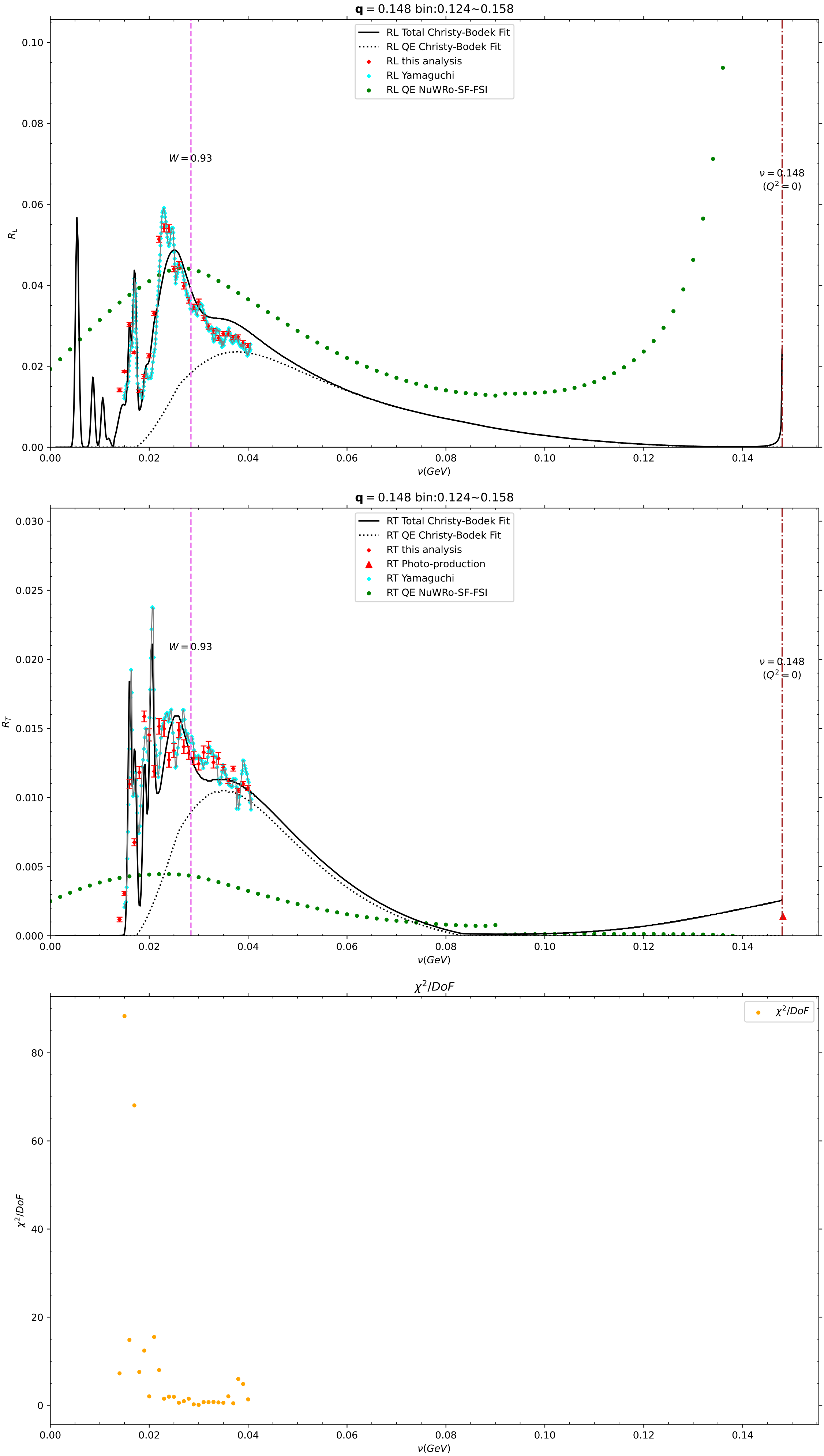
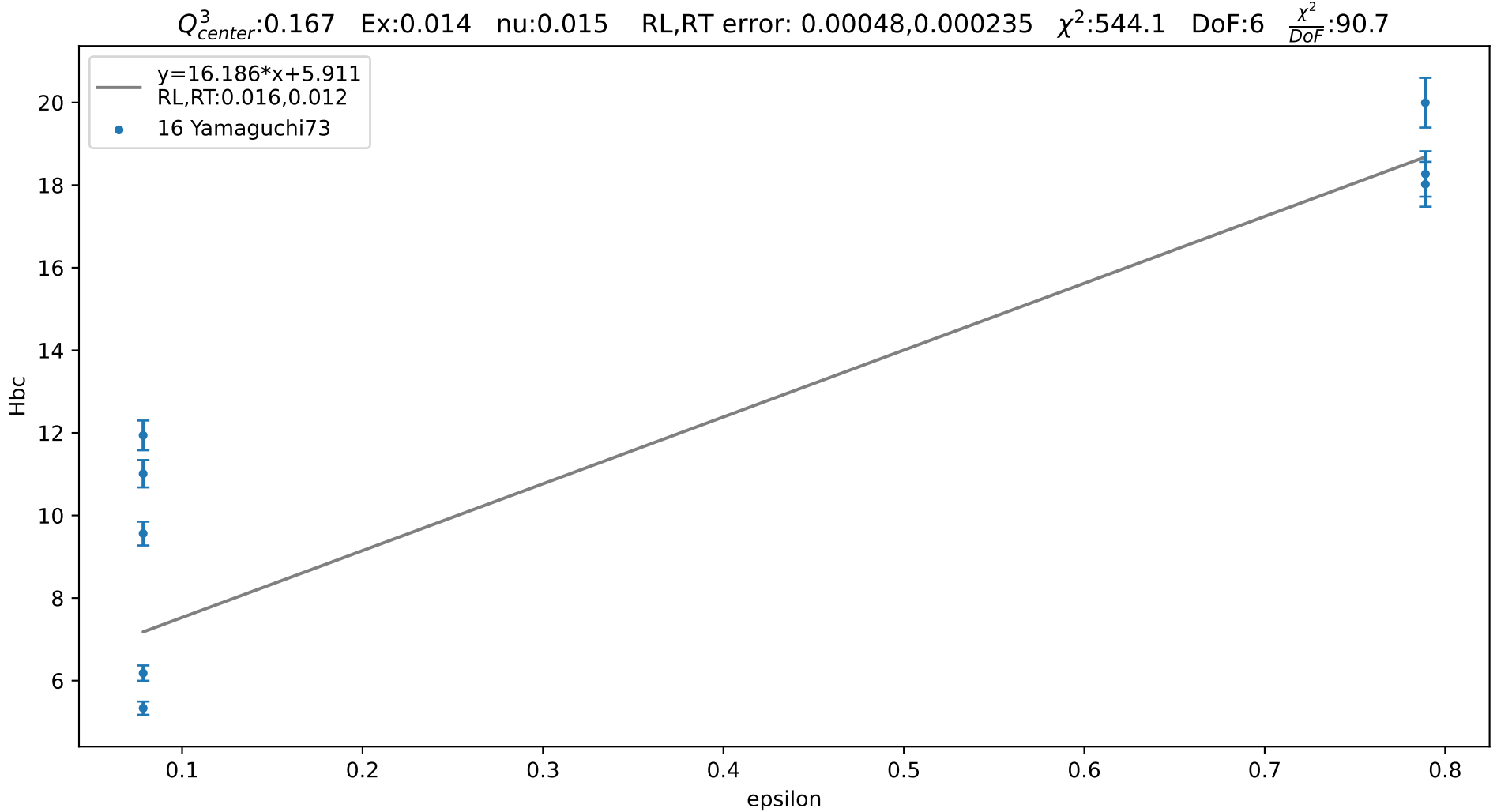
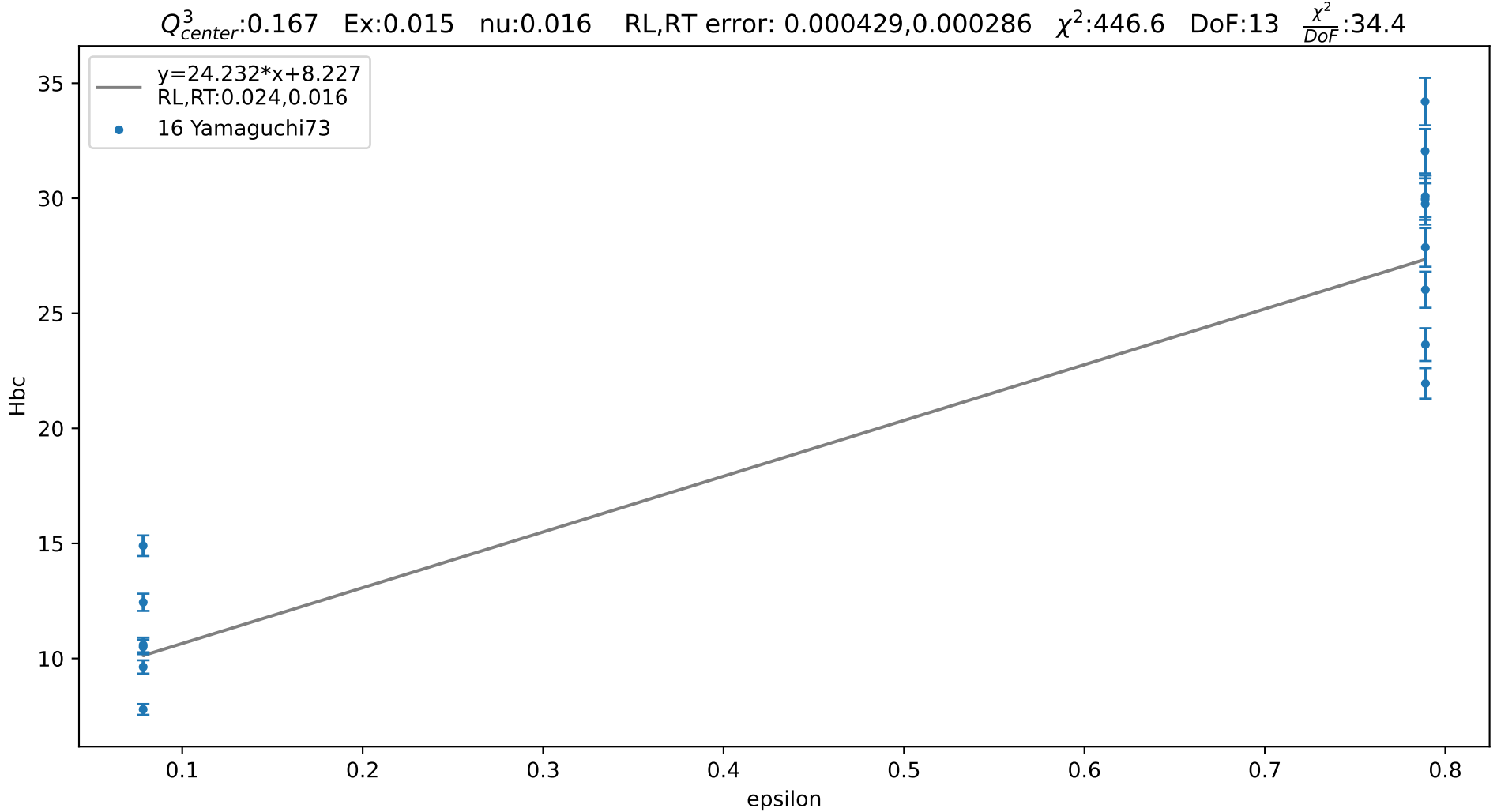
0.4
0.5
0.6
0.7
0.8

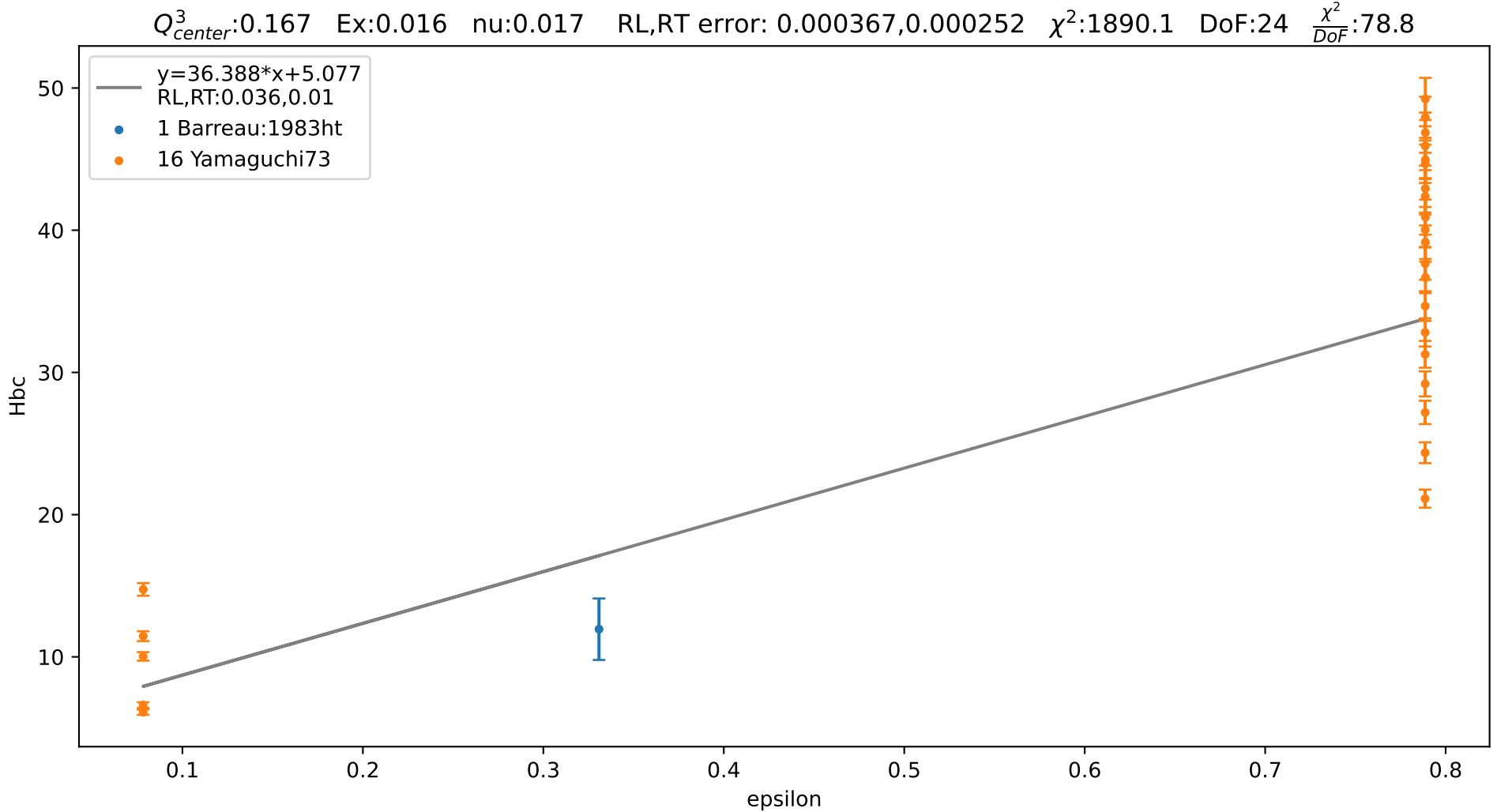

Q^3_{center}:0.148 Ex:0.038 nu:0.039 RL,RT error: 0.000498,0.000156 χ^2:87.0 DoF:18 $\frac{\chi^2}{DoF}$:4.8
y=25.809*x+5.91
RL,RT:0.026,0.011
16 Yamaguchi73
Hbc
epsilon
30
25
20
15
10
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

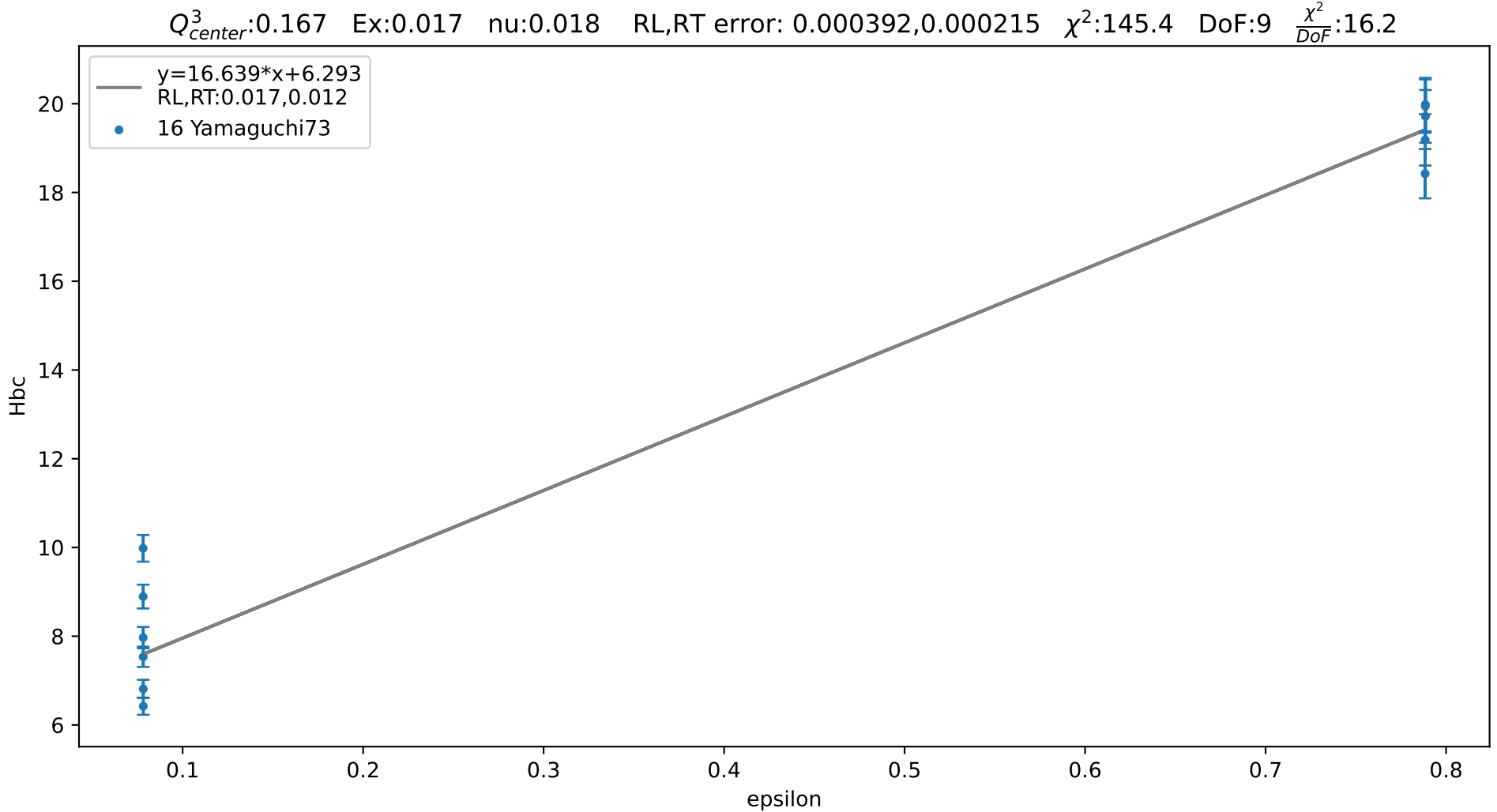

Q^3_{center}:0.148 Ex:0.039 nu:0.04 RL,RT error: 0.000487,0.000171 χ^2:17.4 DoF:13 $\frac{\chi^2}{DoF}$:1.3
y=25.096*x+5.769
RL,RT:0.025,0.011
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

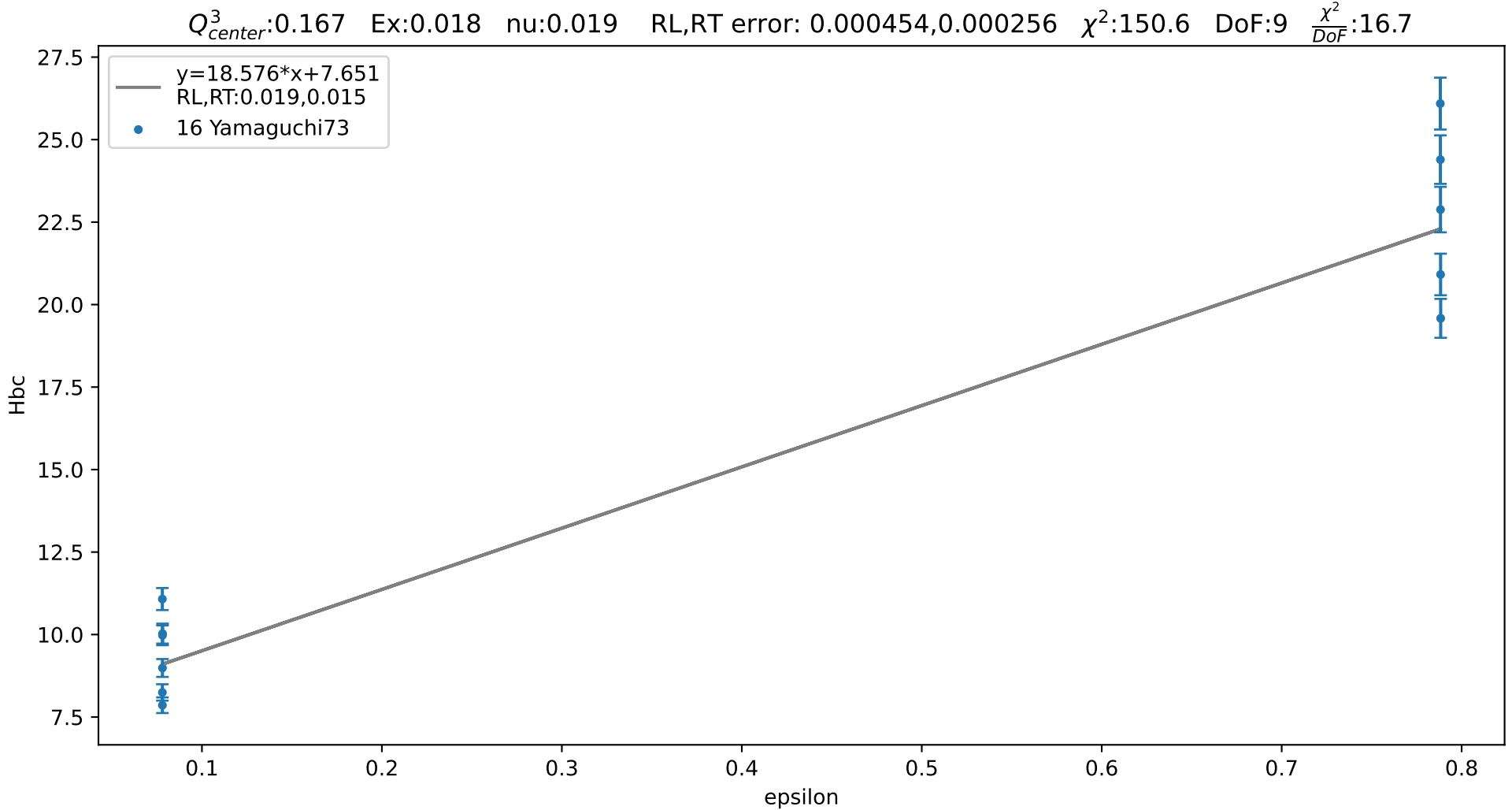

q = 0.148 bin:0.124~0.158
RL Total Christy-Bodek Fit
RL QE Christy-Bodek Fit
RL this analysis
RL Yamaguchi
RL QE NuWRo-SF-FSI
W = 0.93
ν = 0.148
(Q² = 0)
R_L
ν(GeV)
q = 0.148 bin:0.124~0.158
RT Total Christy-Bodek Fit
RT QE Christy-Bodek Fit
RT this analysis
RT Photo-production
RT Yamaguchi
RT QE NuWRo-SF-FSI
W = 0.93
ν = 0.148
(Q² = 0)
R_T
ν(GeV)
χ²/DoF
χ²/DoF
χ²/DoF
ν(GeV)

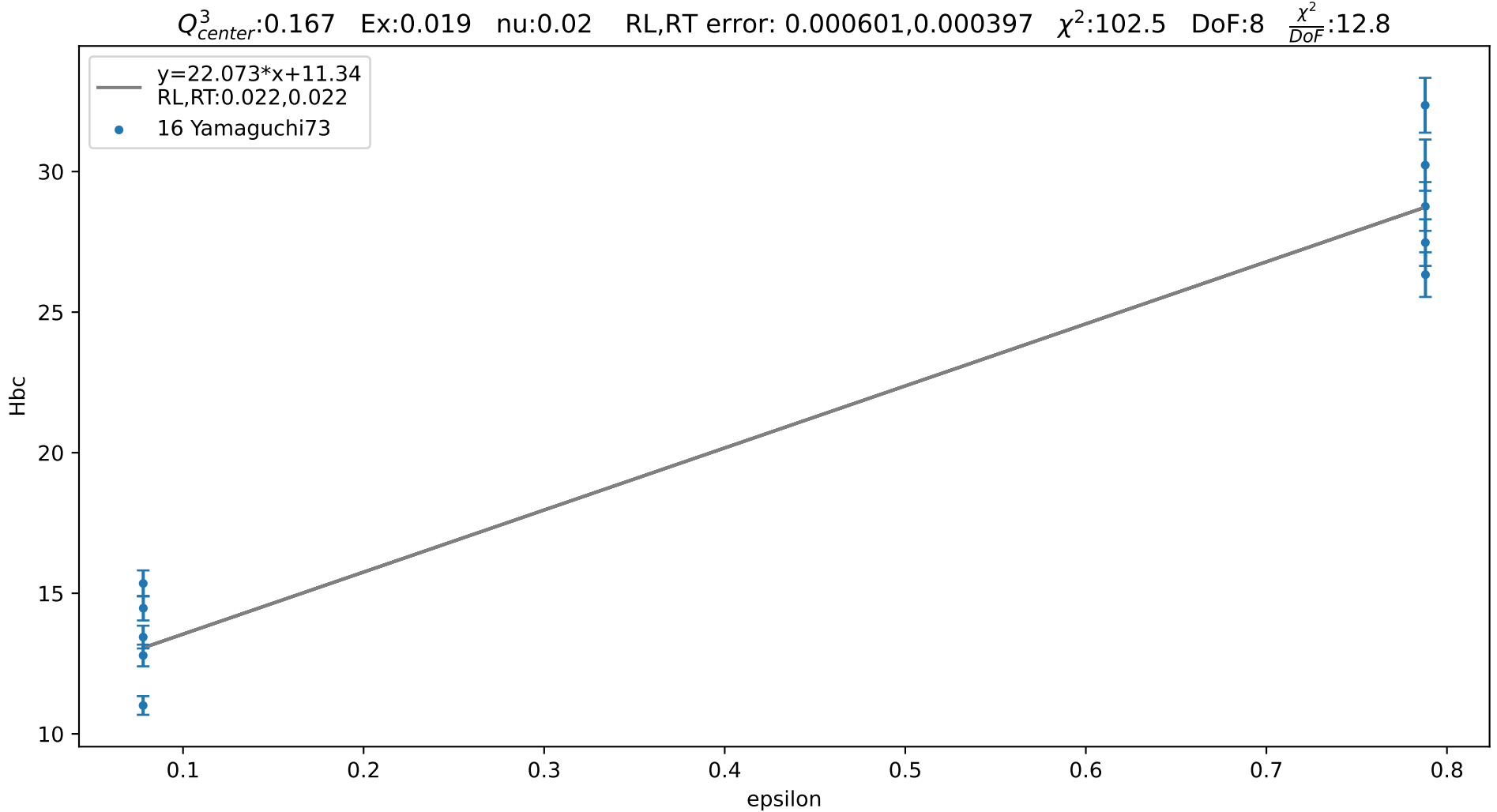

Q^3_{center}:0.167 Ex:0.014 nu:0.015 RL,RT error: 0.00048,0.000235 χ^2:544.1 DoF:6 $\frac{\chi^2}{DoF}$:90.7
y=16.186*x+5.911
RL,RT:0.016,0.012
16 Yamaguchi73
Hbc
epsilon
20
18
16
14
12
10
8
6
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

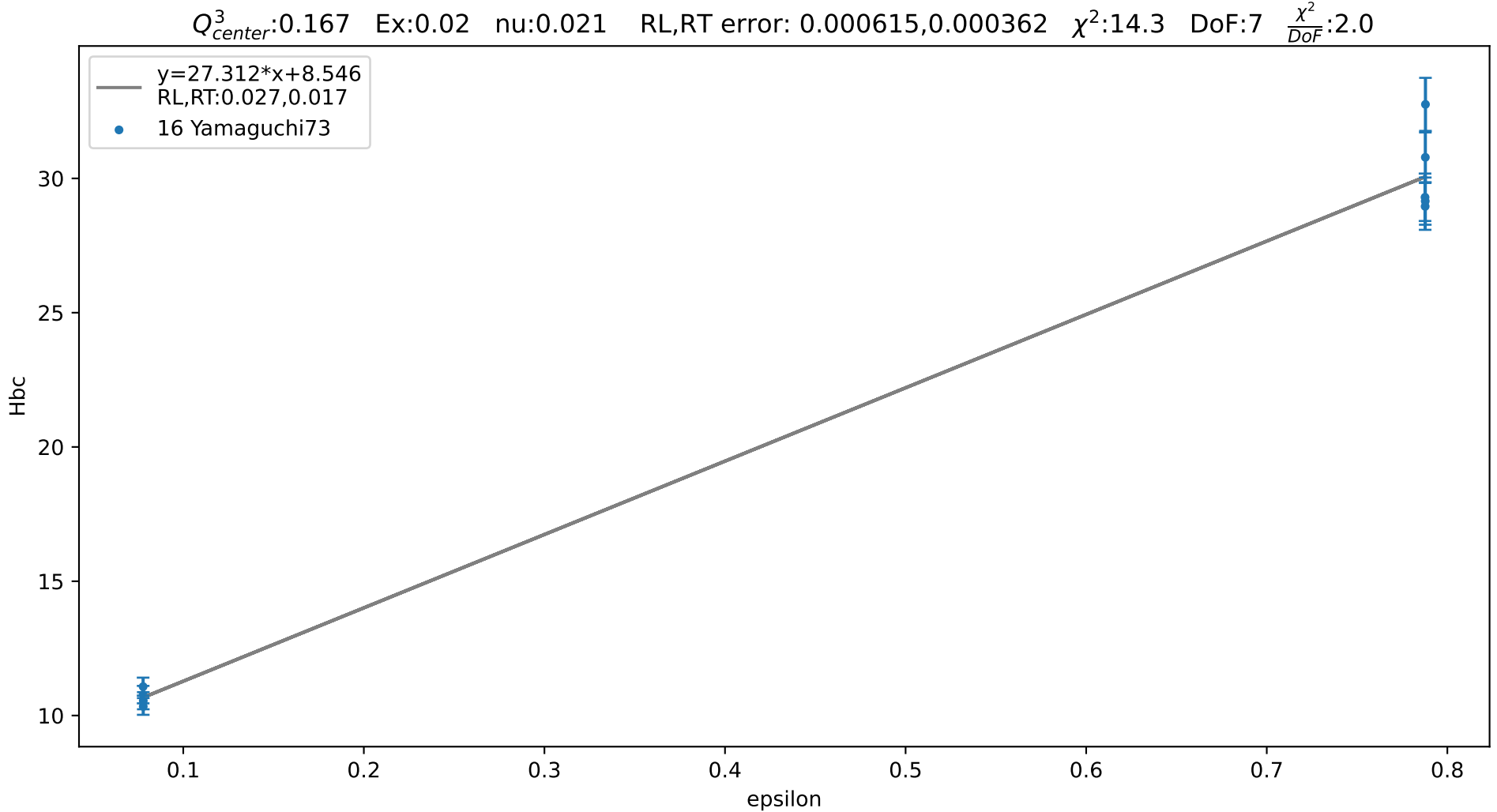

Q^3_{center}:0.167 Ex:0.015 nu:0.016 RL,RT error: 0.000429,0.000286 χ^2:446.6 DoF:13 $\frac{\chi^2}{DoF}$:34.4
y=24.232*x+8.227
RL,RT:0.024,0.016
16 Yamaguchi73
Hbc
epsilon
35
30
25
20
15
10
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

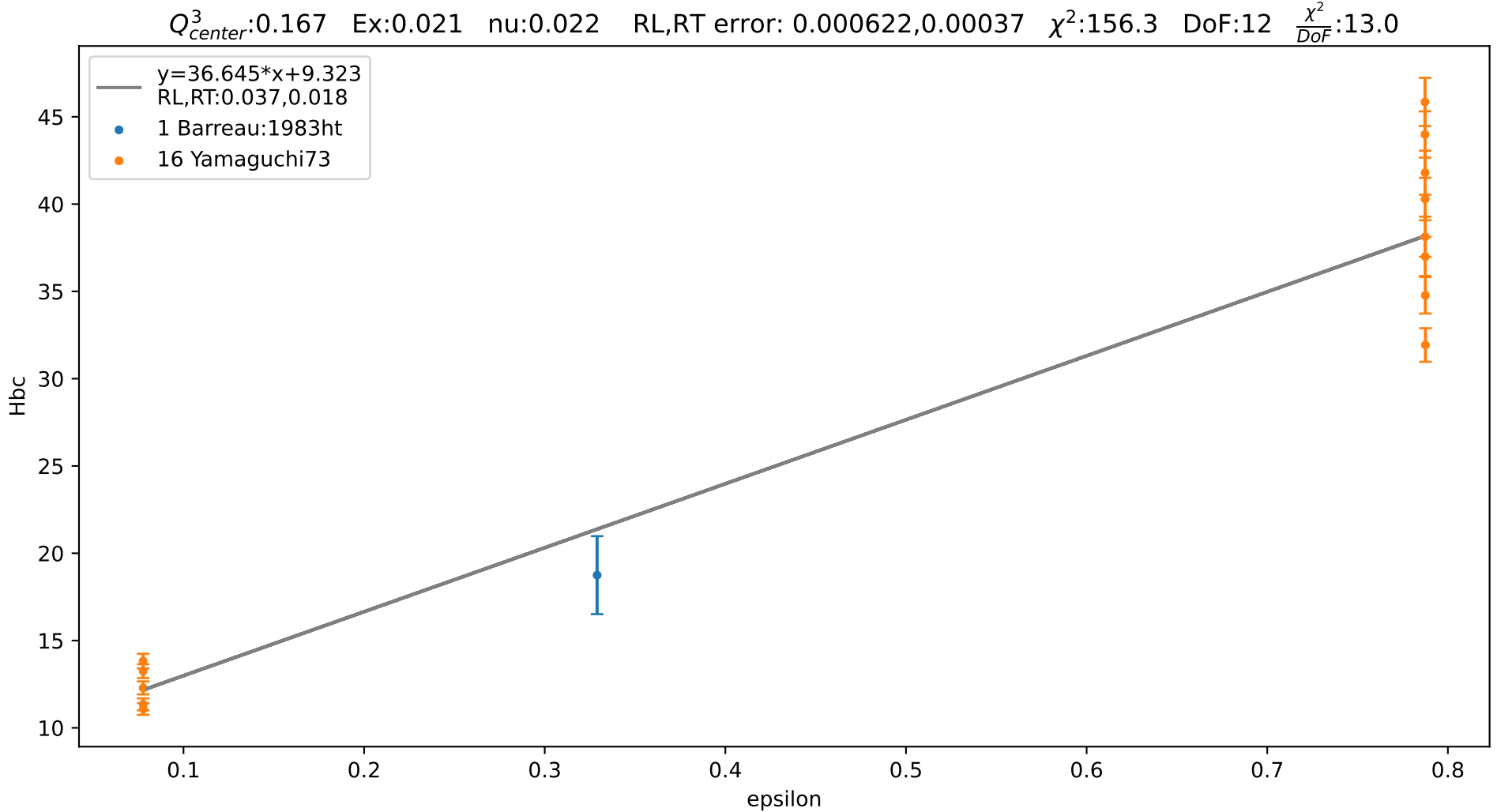

Q^3_{center}:0.167 Ex:0.016 nu:0.017 RL,RT error: 0.000367,0.000252 χ^2:1890.1 DoF:24 $\frac{\chi^2}{DoF}$:78.8
y=36.388*x+5.077
RL,RT:0.036,0.01
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
10
20
30
40
50
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

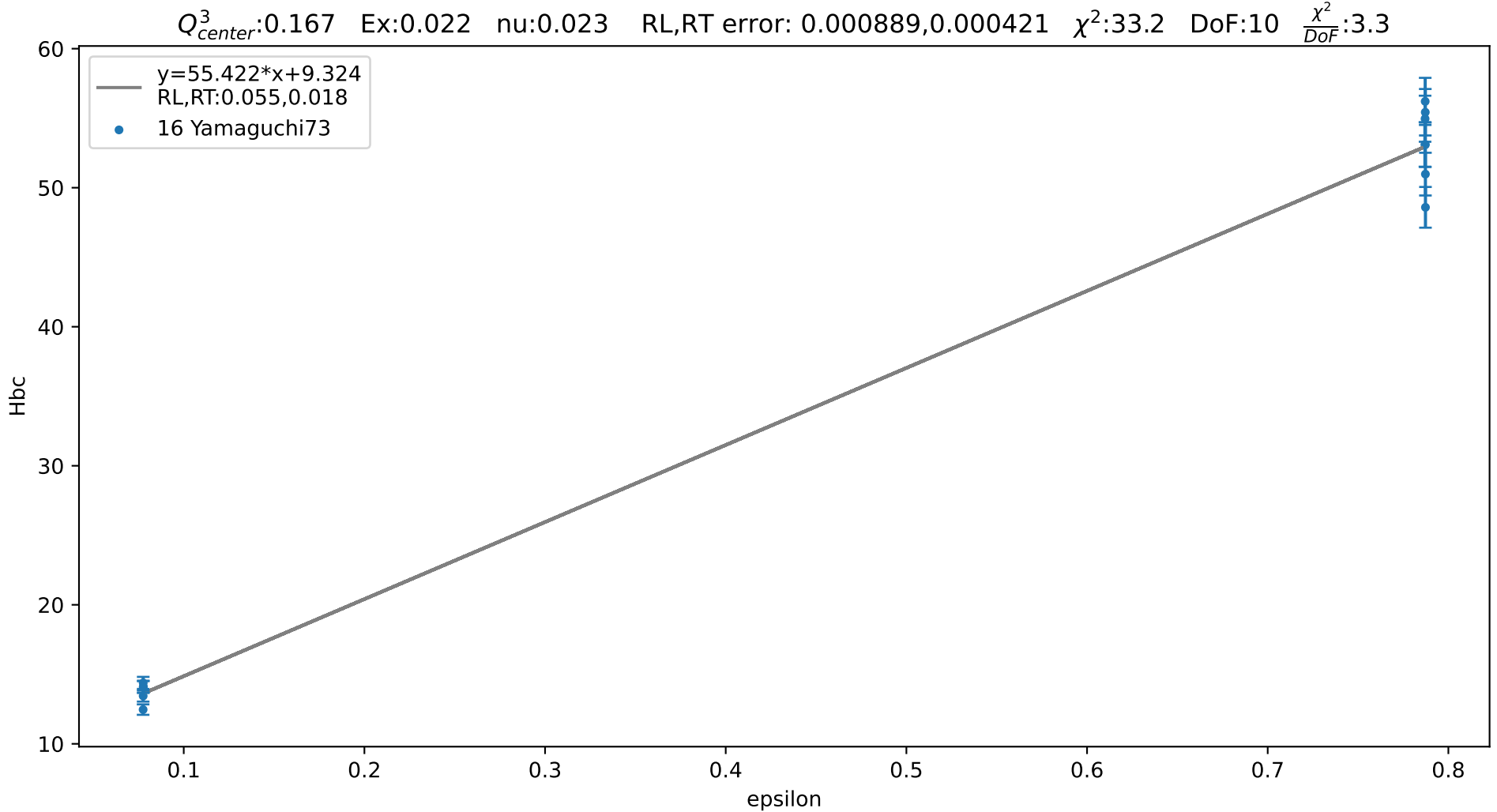

Q^3_{center}:0.167 Ex:0.017 nu:0.018 RL,RT error: 0.000392,0.000215 χ^2:145.4 DoF:9 $\frac{\chi^2}{DoF}$:16.2
y=16.639*x+6.293
RL,RT:0.017,0.012
16 Yamaguchi73
Hbc
epsilon
6
8
10
12
14
16
18
20
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

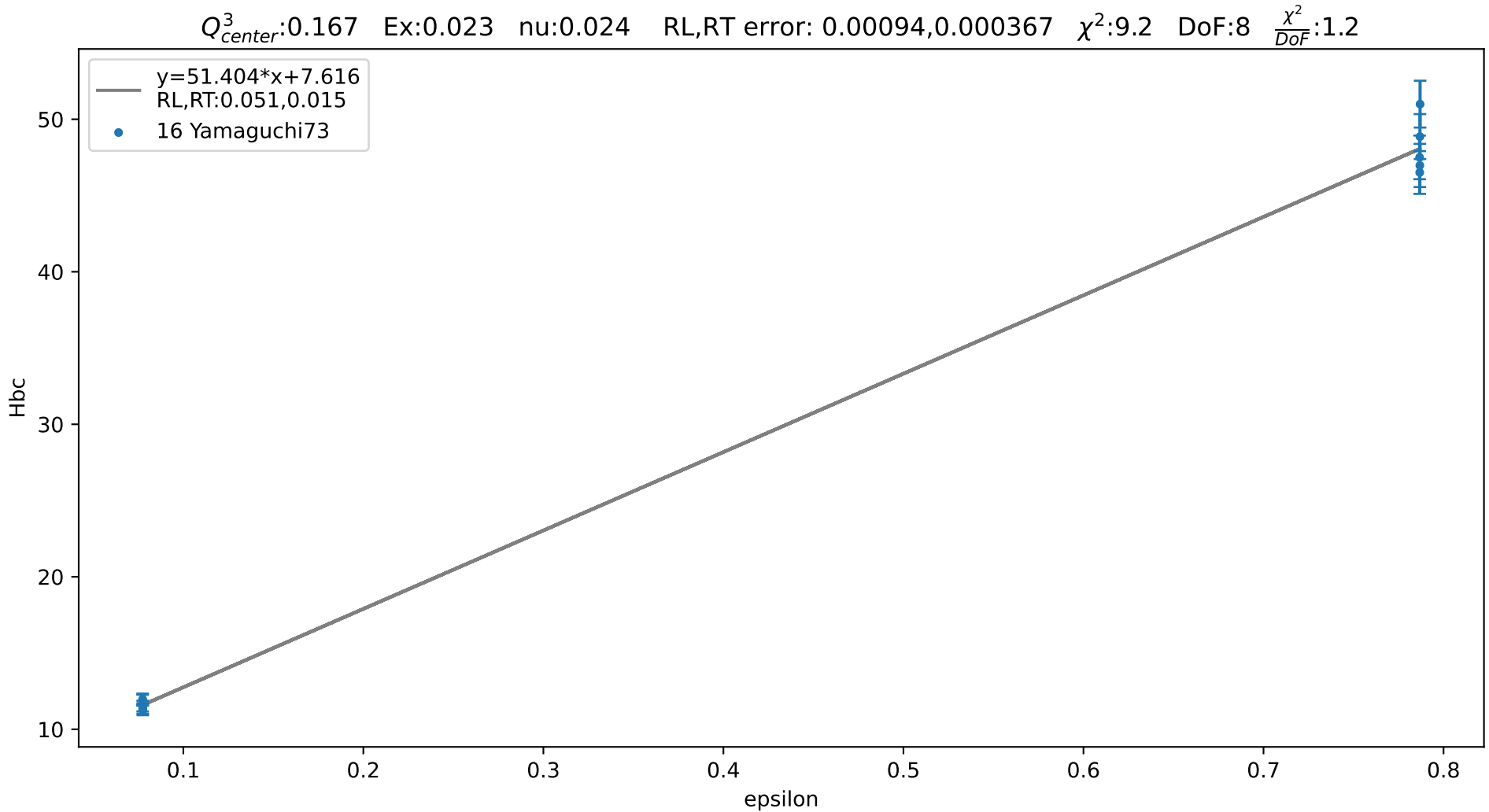

Q^3_{center}:0.167 Ex:0.018 nu:0.019 RL,RT error: 0.000454,0.000256 χ^2:150.6 DoF:9 $\frac{\chi^2}{DoF}$:16.7
y=18.576*x+7.651
RL,RT:0.019,0.015
16 Yamaguchi73
Hbc
epsilon
27.5
25.0
22.5
20.0
17.5
15.0
12.5
10.0
7.5
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.167 Ex:0.019 nu:0.02 RL,RT error: 0.000601,0.000397 χ^2:102.5 DoF:8 $\frac{\chi^2}{DoF}$:12.8
y=22.073*x+11.34
RL,RT:0.022,0.022
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.167 Ex:0.02 nu:0.021 RL,RT error: 0.000615,0.000362 χ^2:14.3 DoF:7 $\frac{\chi^2}{DoF}$:2.0
y=27.312*x+8.546
RL,RT:0.027,0.017
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.167 Ex:0.021 nu:0.022 RL,RT error: 0.000622,0.00037 χ^2:156.3 DoF:12 $\frac{\chi^2}{DoF}$:13.0
y=36.645*x+9.323
RL,RT:0.037,0.018
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
35
40
45
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.167 Ex:0.022 nu:0.023 RL,RT error: 0.000889,0.000421 χ^2:33.2 DoF:10 $\frac{\chi^2}{DoF}$:3.3
y=55.422*x+9.324
RL,RT:0.055,0.018
16 Yamaguchi73
Hbc
epsilon
60
50
40
30
20
10
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.167 Ex:0.023 nu:0.024 RL,RT error: 0.00094,0.000367 χ^2:9.2 DoF:8 $\frac{\chi^2}{DoF}$:1.2
y=51.404*x+7.616
RL,RT:0.051,0.015
16 Yamaguchi73
Hbc
epsilon
10
20
30
40
50
0.1
0.2
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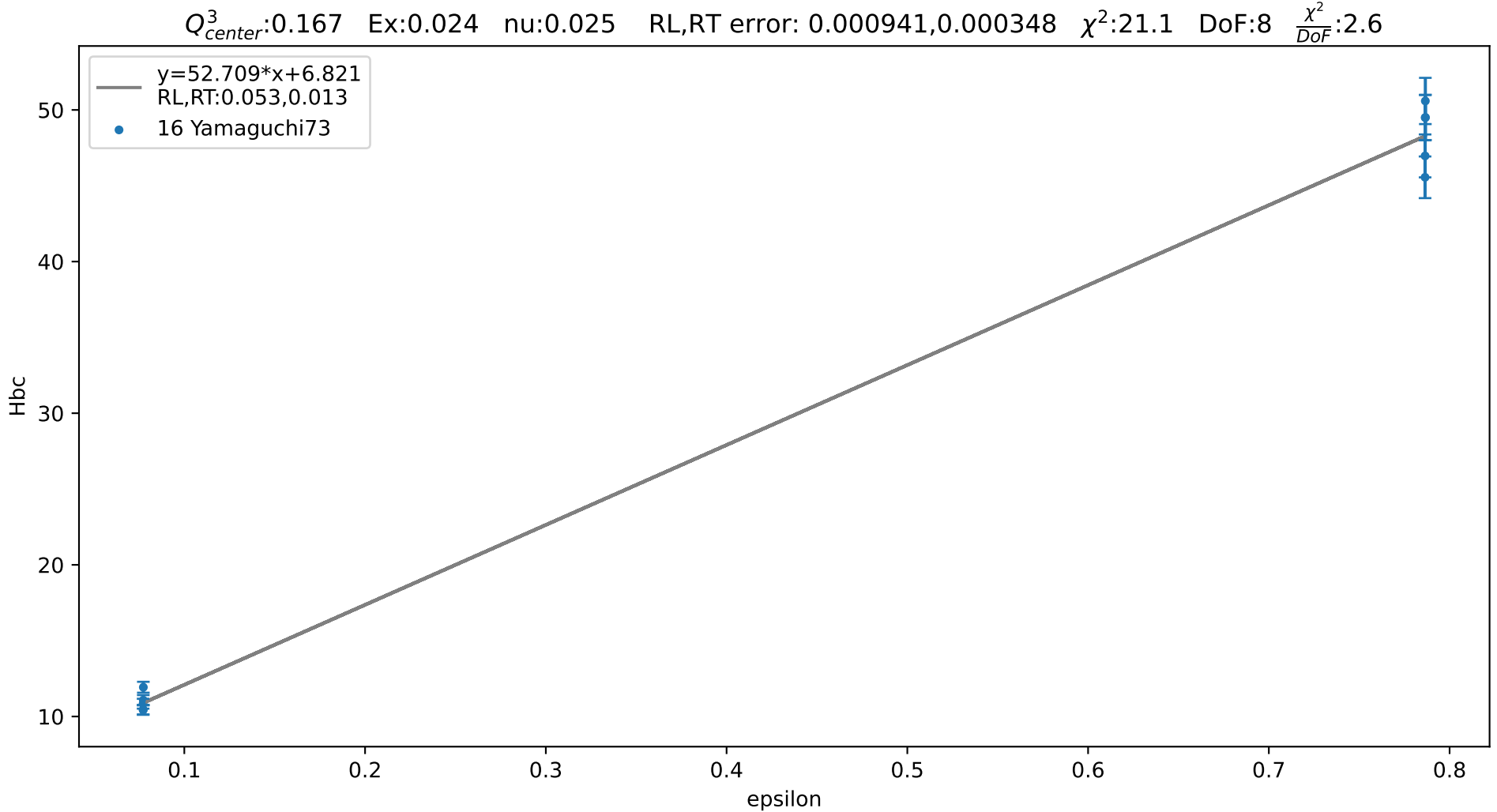
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.167 Ex:0.024 nu:0.025 RL,RT error: 0.000941,0.000348 χ^2:21.1 DoF:8 $\frac{\chi^2}{DoF}$:2.6
y=52.709*x+6.821
RL,RT:0.053,0.013
16 Yamaguchi73
Hbc
epsilon
10
20
30
40
50
0.1
0.2
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0.4
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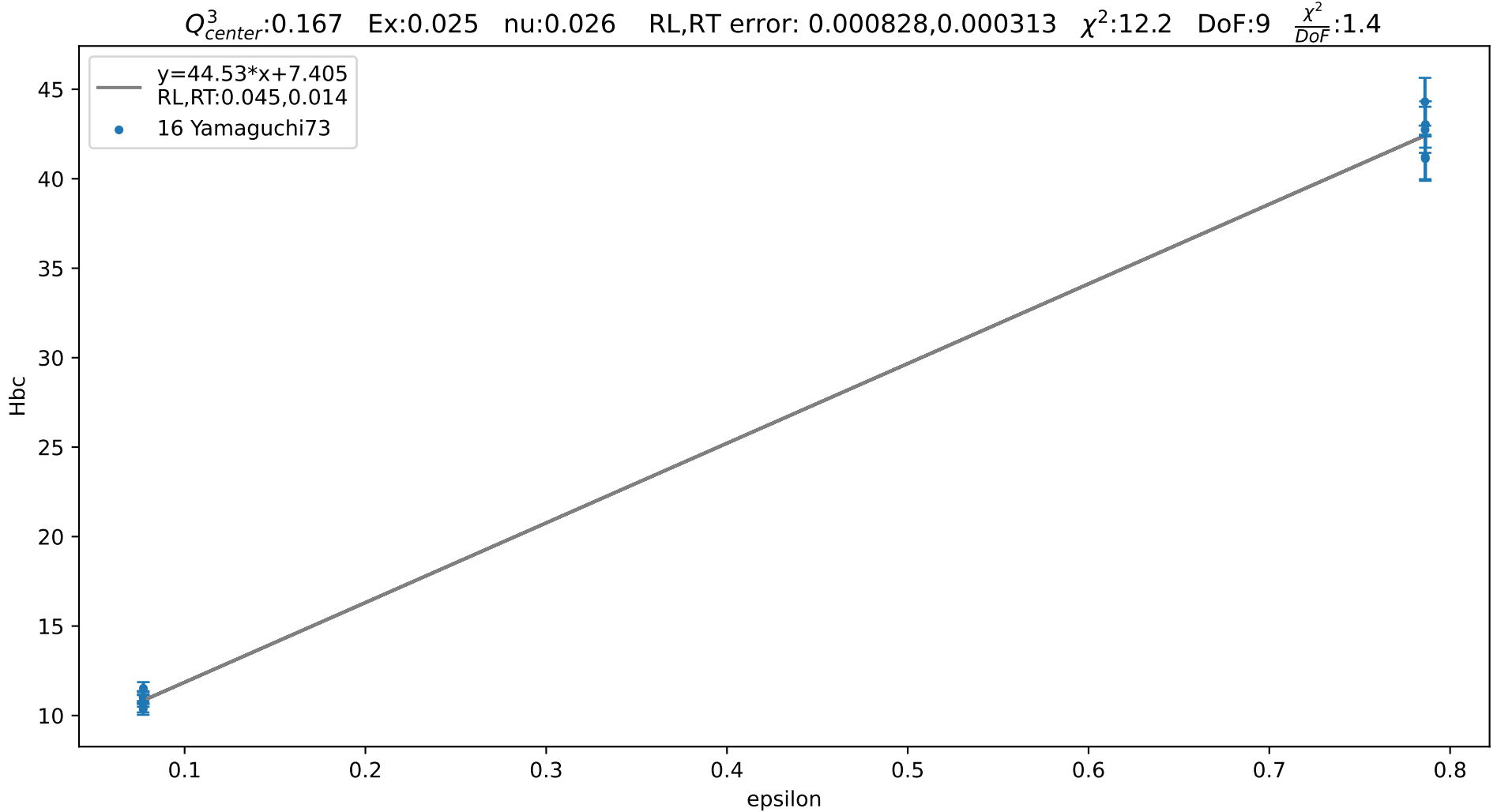
0.7
0.8


Q^3_{center}:0.167 Ex:0.025 nu:0.026 RL,RT error: 0.000828,0.000313 χ^2:12.2 DoF:9 $\frac{\chi^2}{DoF}$:1.4
y=44.53*x+7.405
RL,RT:0.045,0.014
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
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35
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0.1
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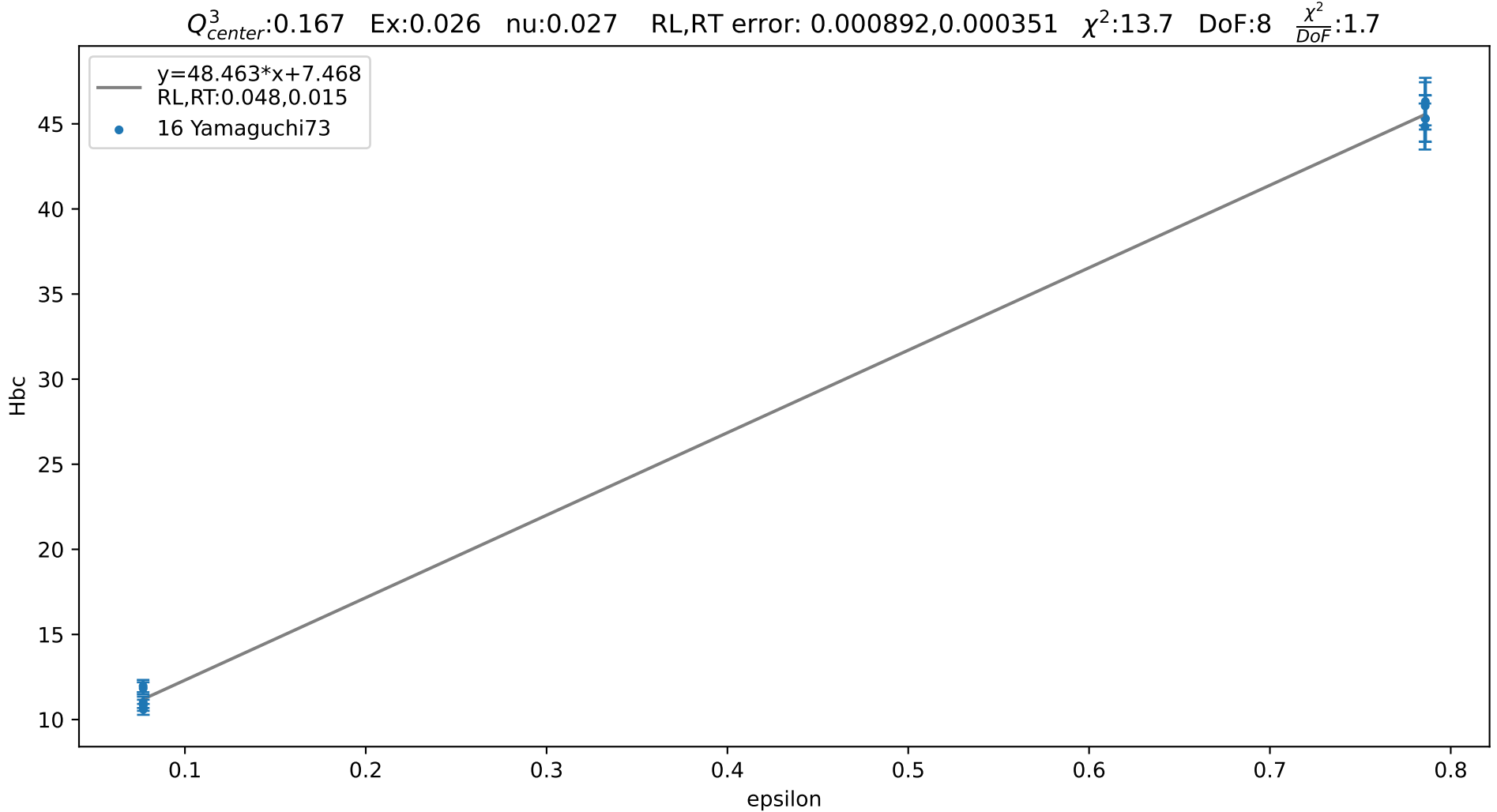
Q^3_{center}:0.167 Ex:0.026 nu:0.027 RL,RT error: 0.000892,0.000351 χ^2:13.7 DoF:8 $\frac{\chi^2}{DoF}$:1.7
y=48.463*x+7.468
RL,RT:0.048,0.015
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
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35
40
45
0.1
0.2
0.3
0.4
0.5
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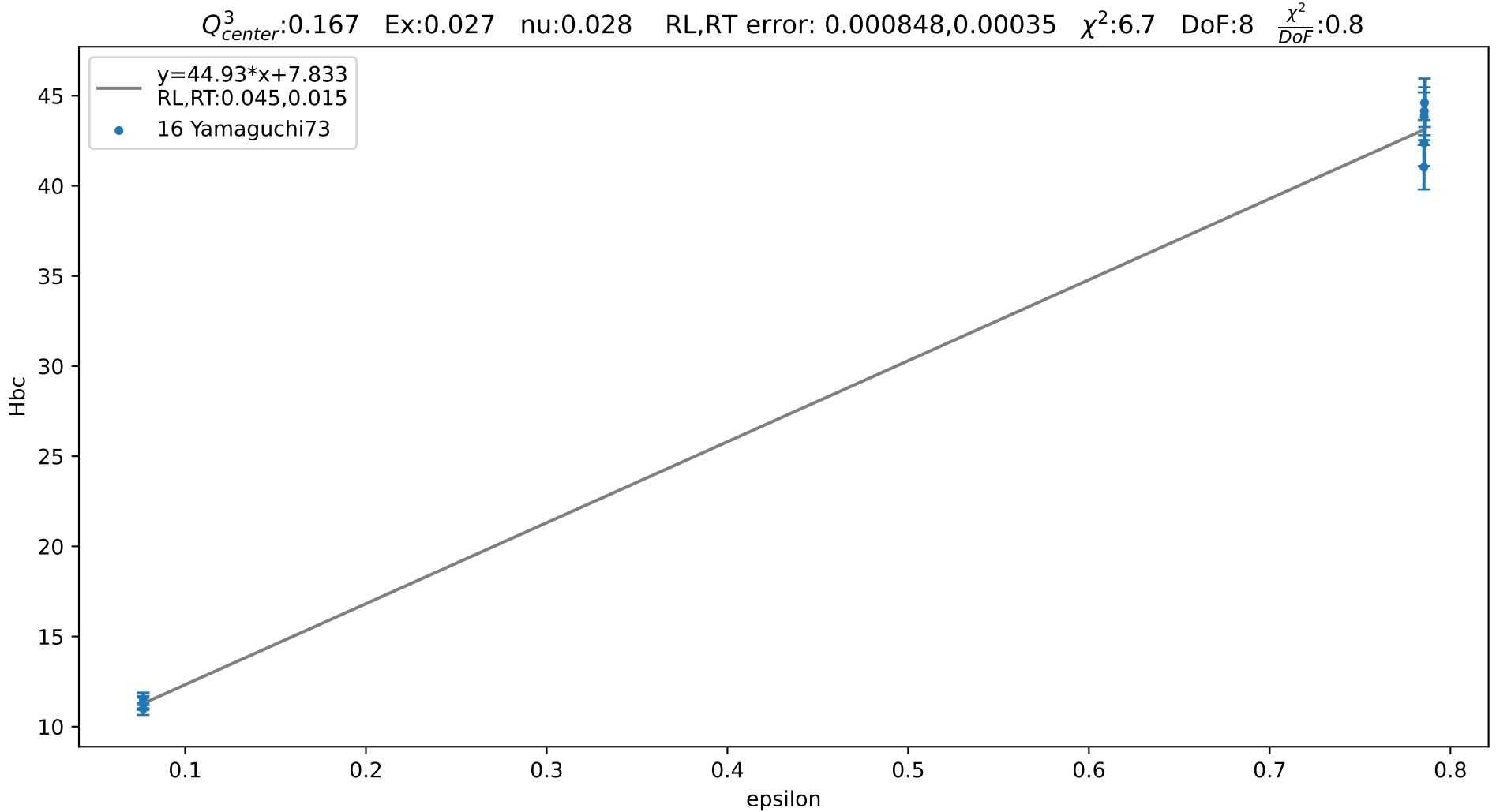
Q^3_{center}:0.167 Ex:0.027 nu:0.028 RL,RT error: 0.000848,0.00035 χ^2:6.7 DoF:8 $\frac{\chi^2}{DoF}$:0.8
y=44.93*x+7.833
RL,RT:0.045,0.015
16 Yamaguchi73
Hbc
epsilon
10
15
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25
30
35
40
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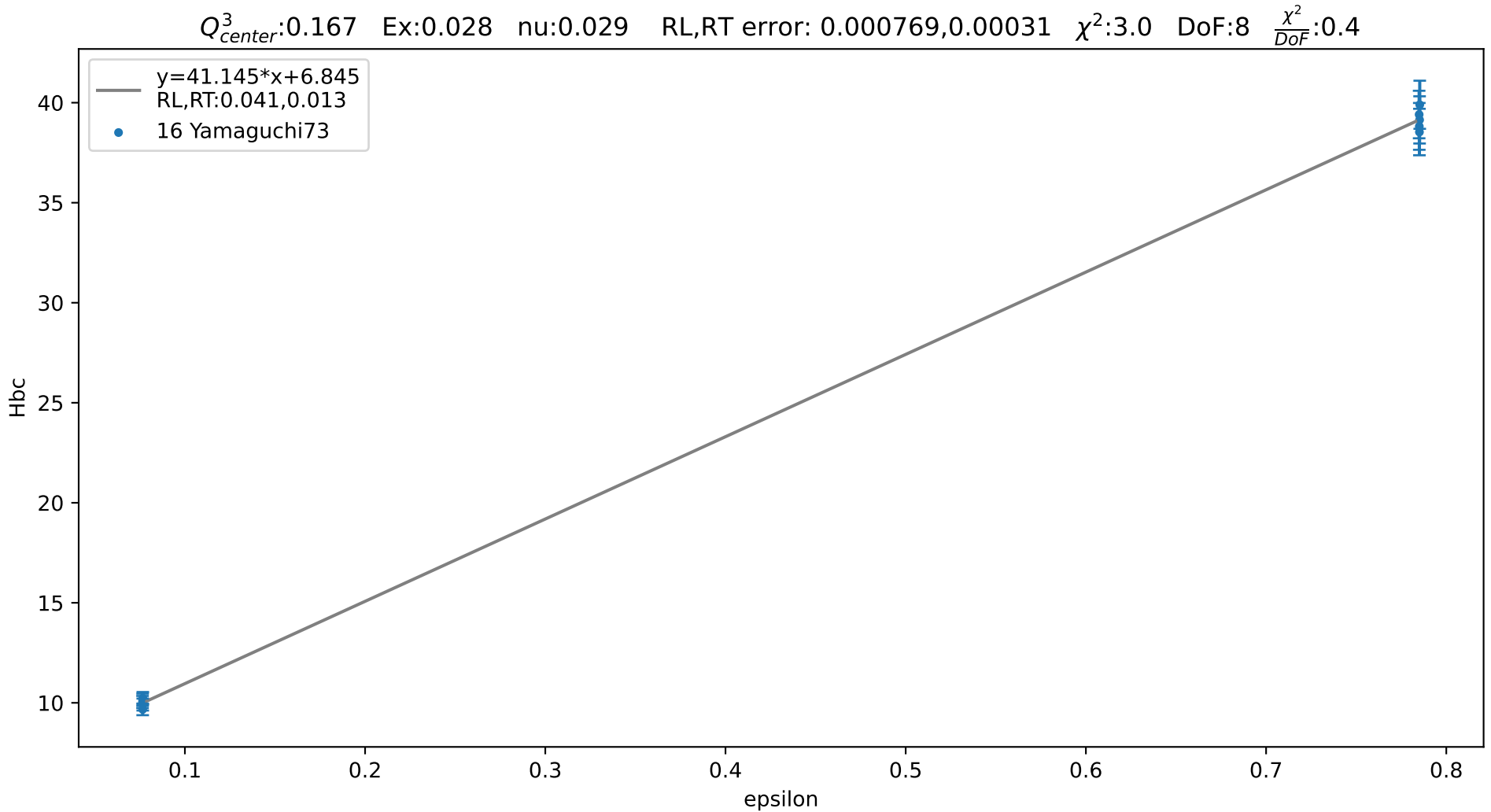
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.167 Ex:0.028 nu:0.029 RL,RT error: 0.000769,0.00031 χ^2:3.0 DoF:8 $\frac{\chi^2}{DoF}$:0.4
y=41.145*x+6.845
RL,RT:0.041,0.013
16 Yamaguchi73
Hbc
epsilon
10
15
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25
30
35
40
0.1
0.2
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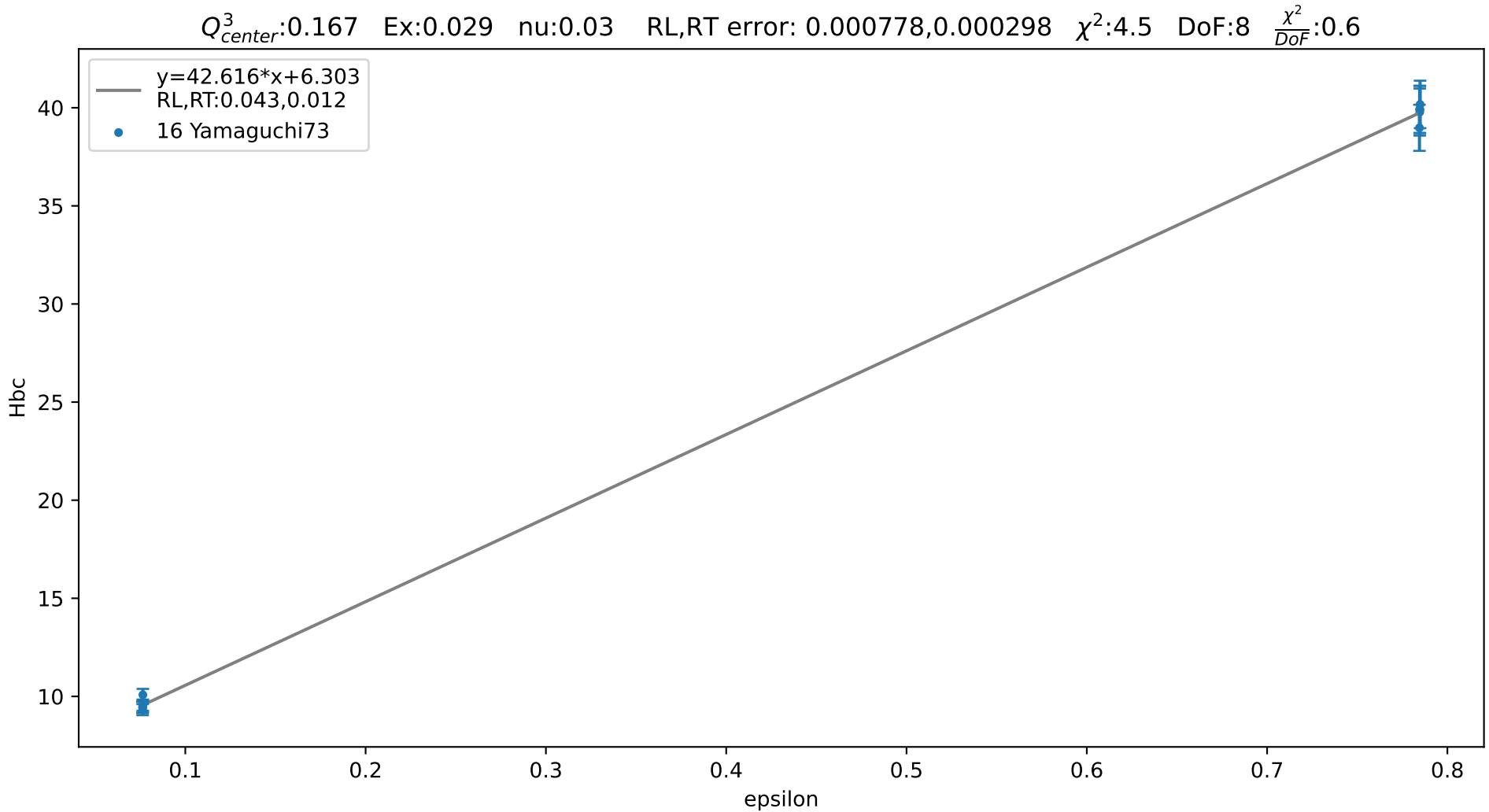
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.167 Ex:0.029 nu:0.03 RL,RT error: 0.000778,0.000298 χ^2:4.5 DoF:8 $\frac{\chi^2}{DoF}$:0.6
y=42.616*x+6.303
RL,RT:0.043,0.012
16 Yamaguchi73
Hbc
epsilon
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35
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0.1
0.2
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0.4
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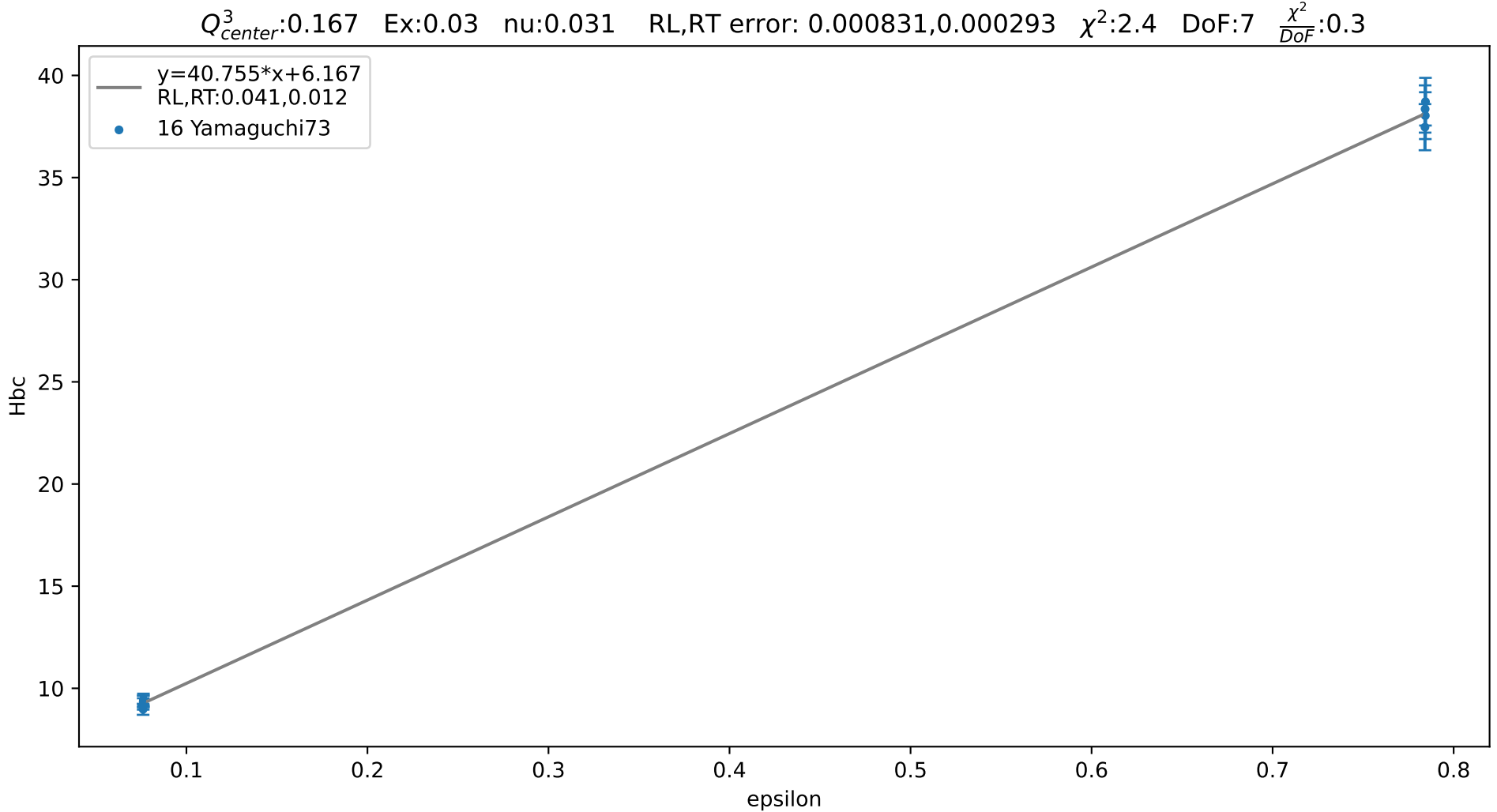
Q^3_{center}:0.167 Ex:0.03 nu:0.031 RL,RT error: 0.000831,0.000293 χ^2:2.4 DoF:7 $\frac{\chi^2}{DoF}$:0.3
y=40.755*x+6.167
RL,RT:0.041,0.012
16 Yamaguchi73
Hbc
epsilon
10
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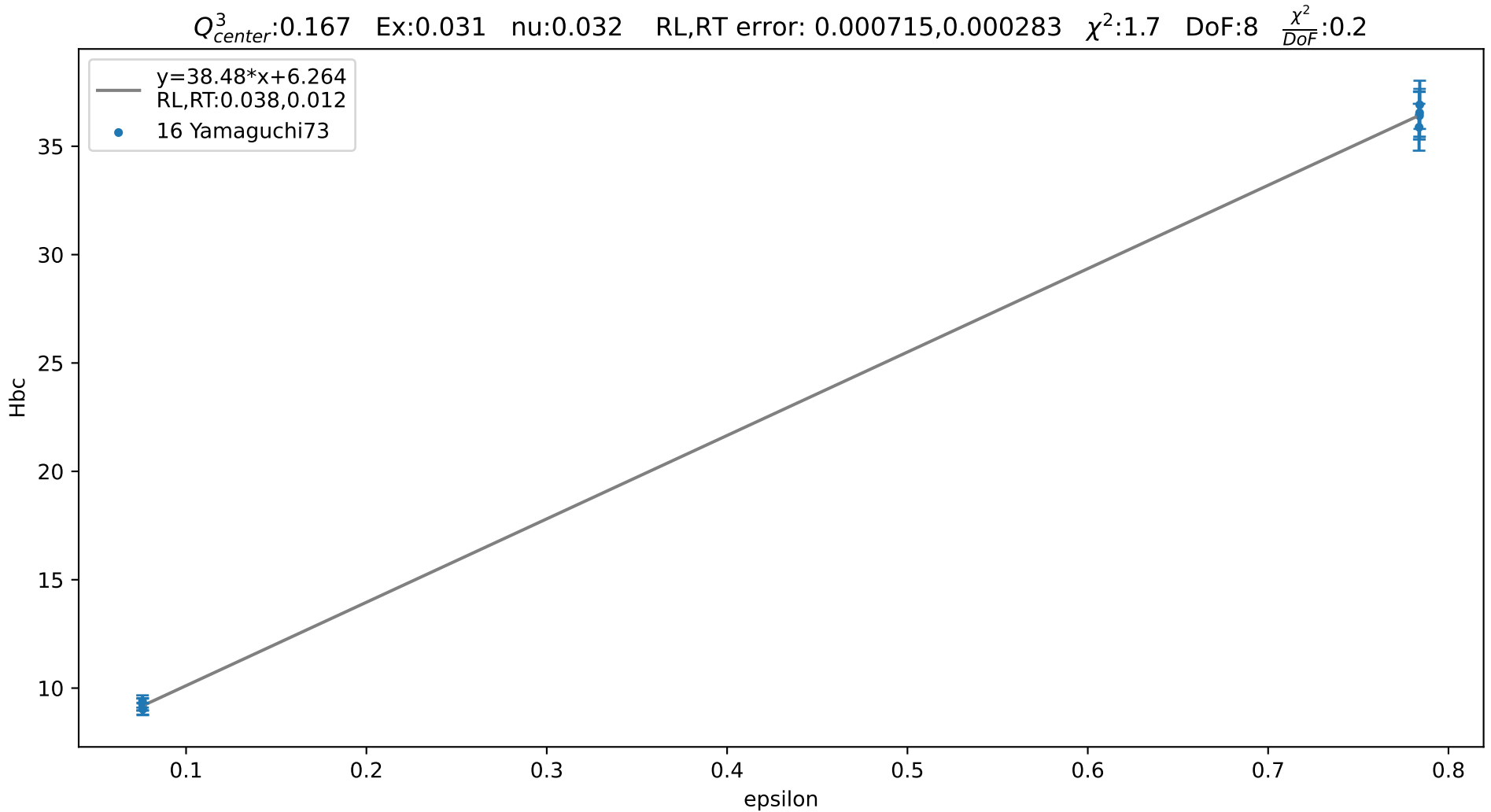
35
40
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.167 Ex:0.031 nu:0.032 RL,RT error: 0.000715,0.000283 χ^2:1.7 DoF:8 $\frac{\chi^2}{DoF}$:0.2
y=38.48*x+6.264
RL,RT:0.038,0.012
16 Yamaguchi73
Hbc
epsilon
10
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0.1
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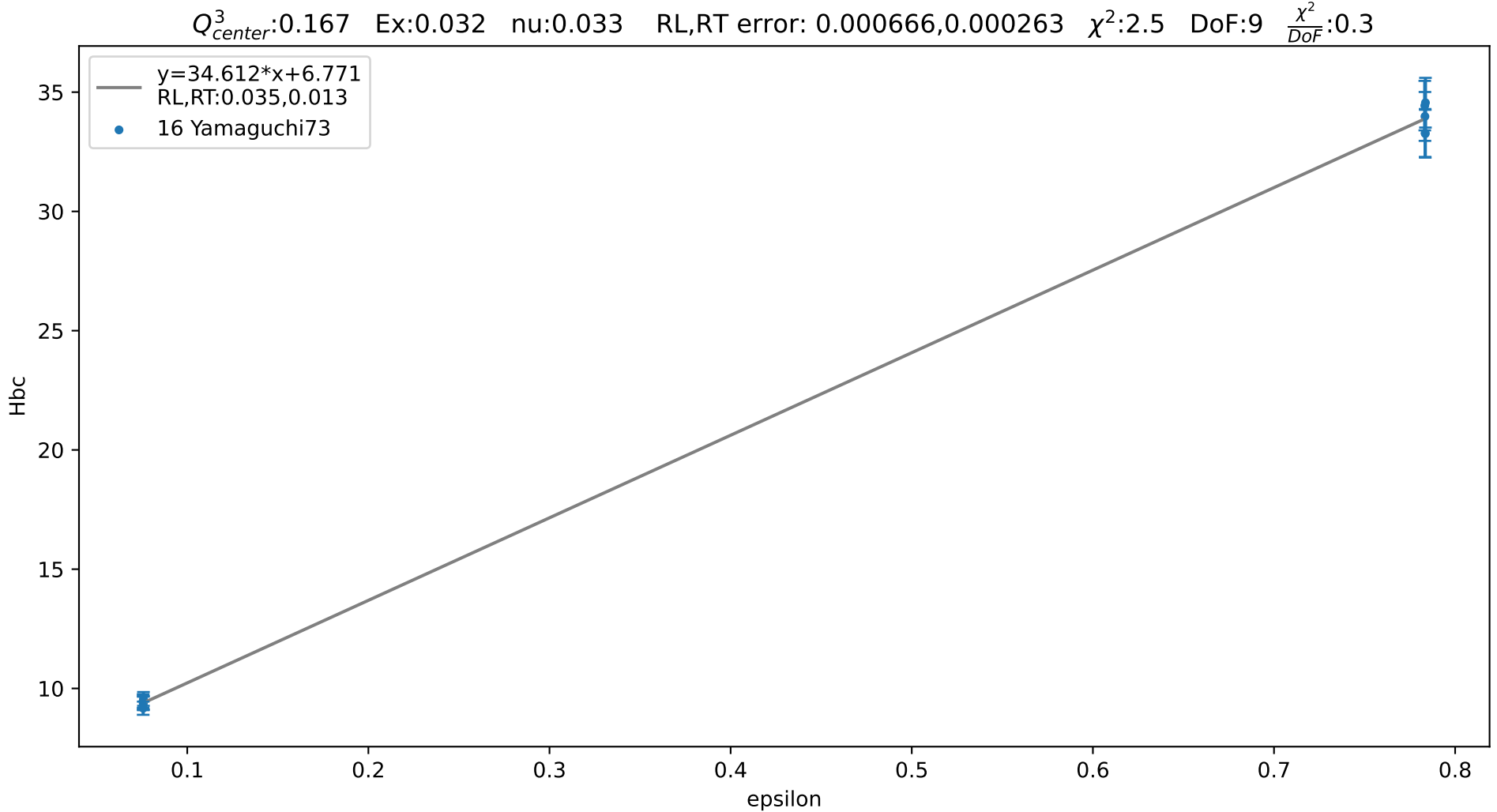
Q^3_{center}:0.167 Ex:0.032 nu:0.033 RL,RT error: 0.000666,0.000263 χ^2:2.5 DoF:9 $\frac{\chi^2}{DoF}$:0.3
y=34.612*x+6.771
RL,RT:0.035,0.013
16 Yamaguchi73
Hbc
epsilon
10
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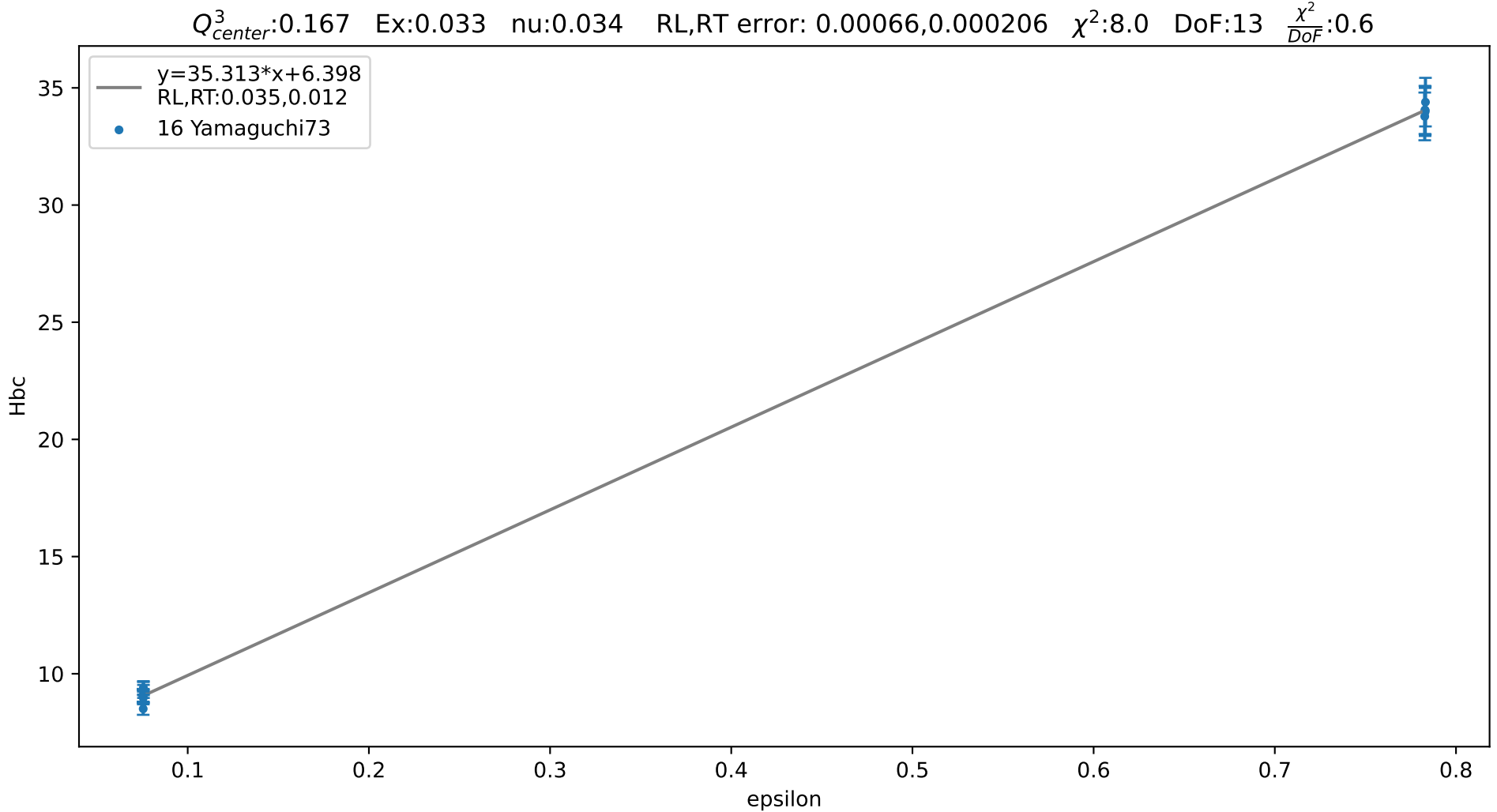
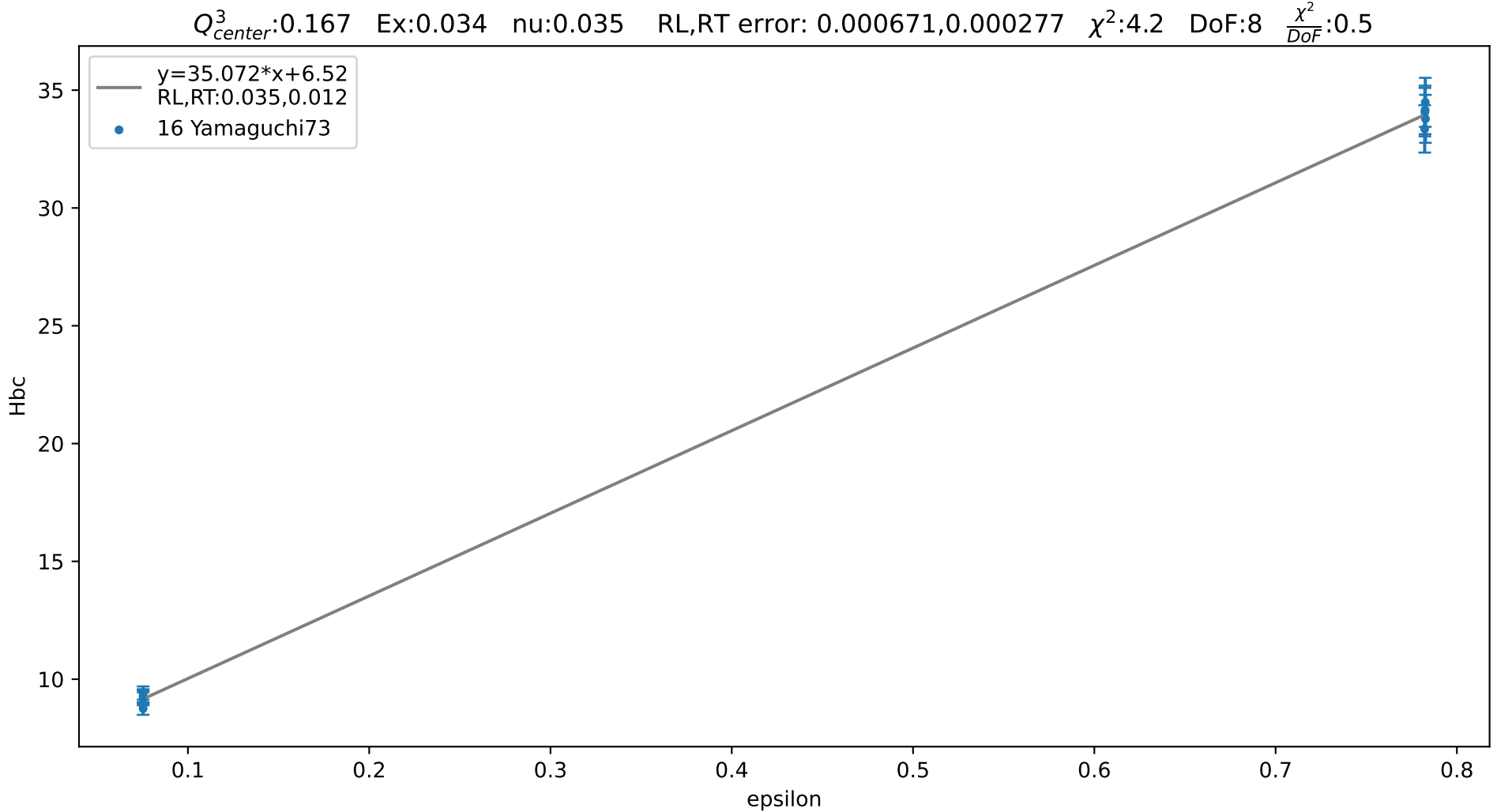
25
30
35
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.167 Ex:0.033 nu:0.034 RL,RT error: 0.00066,0.000206 χ^2:8.0 DoF:13 $\frac{\chi^2}{DoF}$:0.6
y=35.313*x+6.398
RL,RT:0.035,0.012
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
35
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.167 Ex:0.034 nu:0.035 RL,RT error: 0.000671,0.000277 χ^2:4.2 DoF:8 $\frac{\chi^2}{DoF}$:0.5
y=35.072*x+6.52
RL,RT:0.035,0.012
16 Yamaguchi73
Hbc
epsilon
10
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25
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0.1
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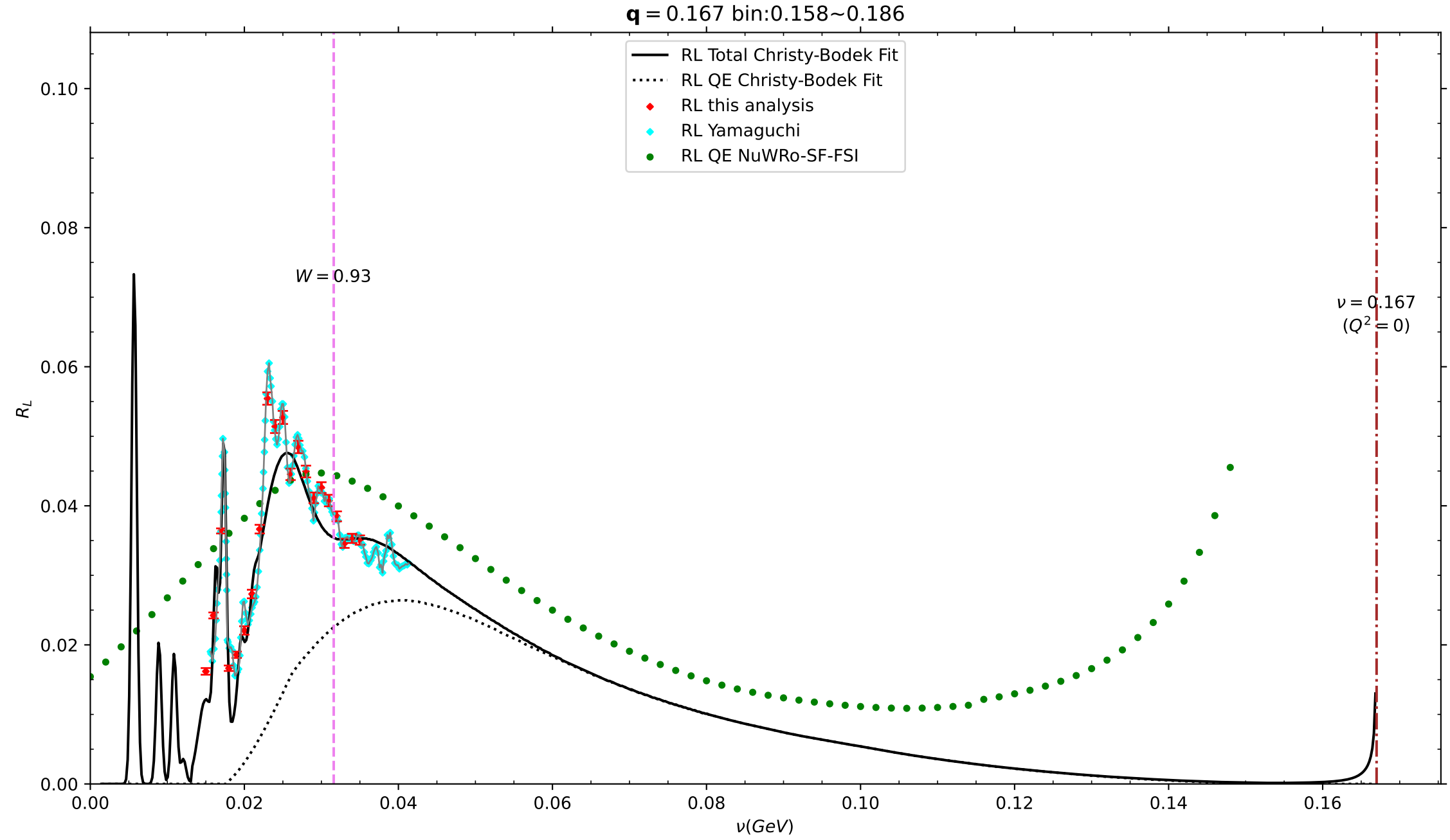
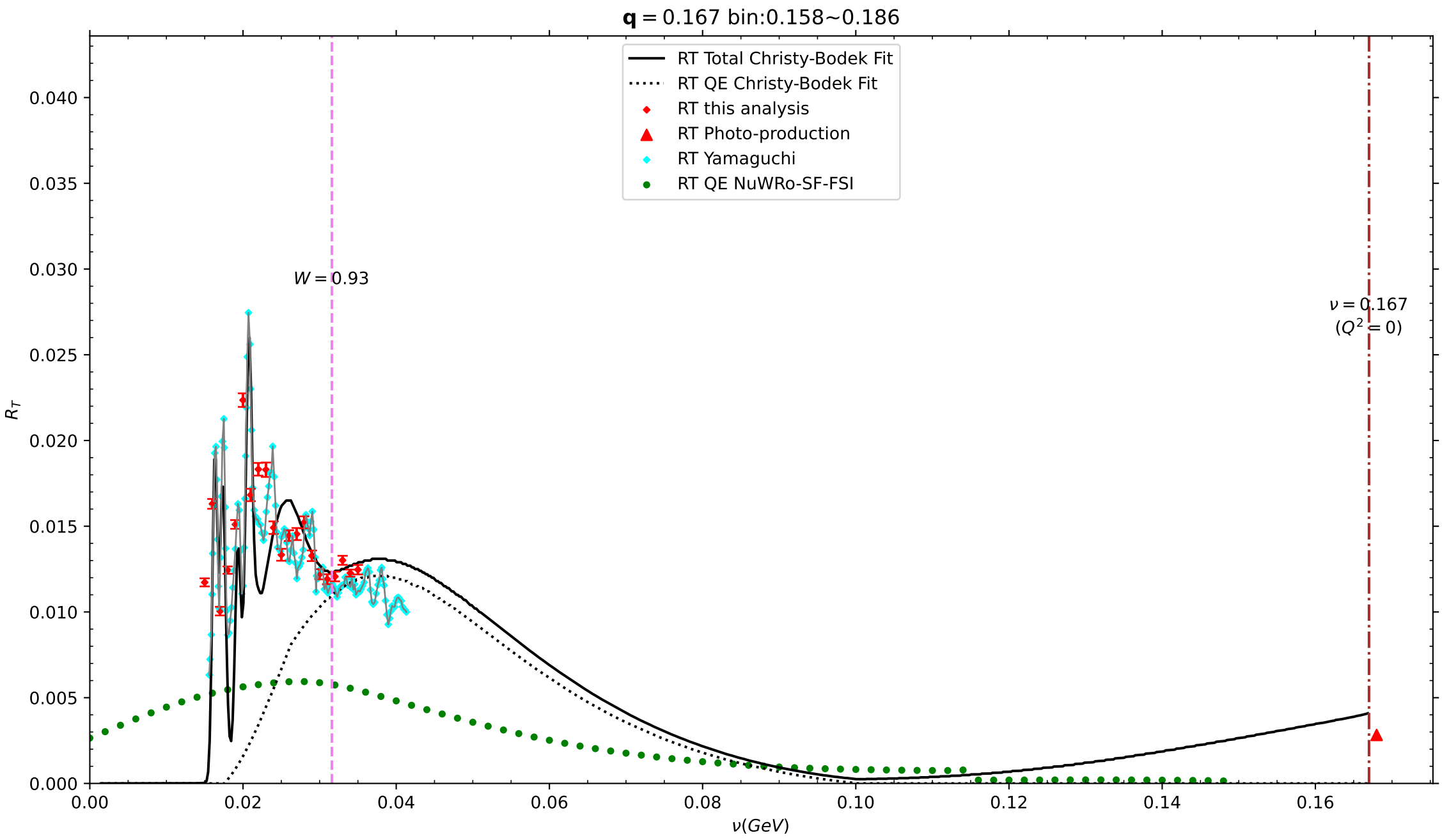
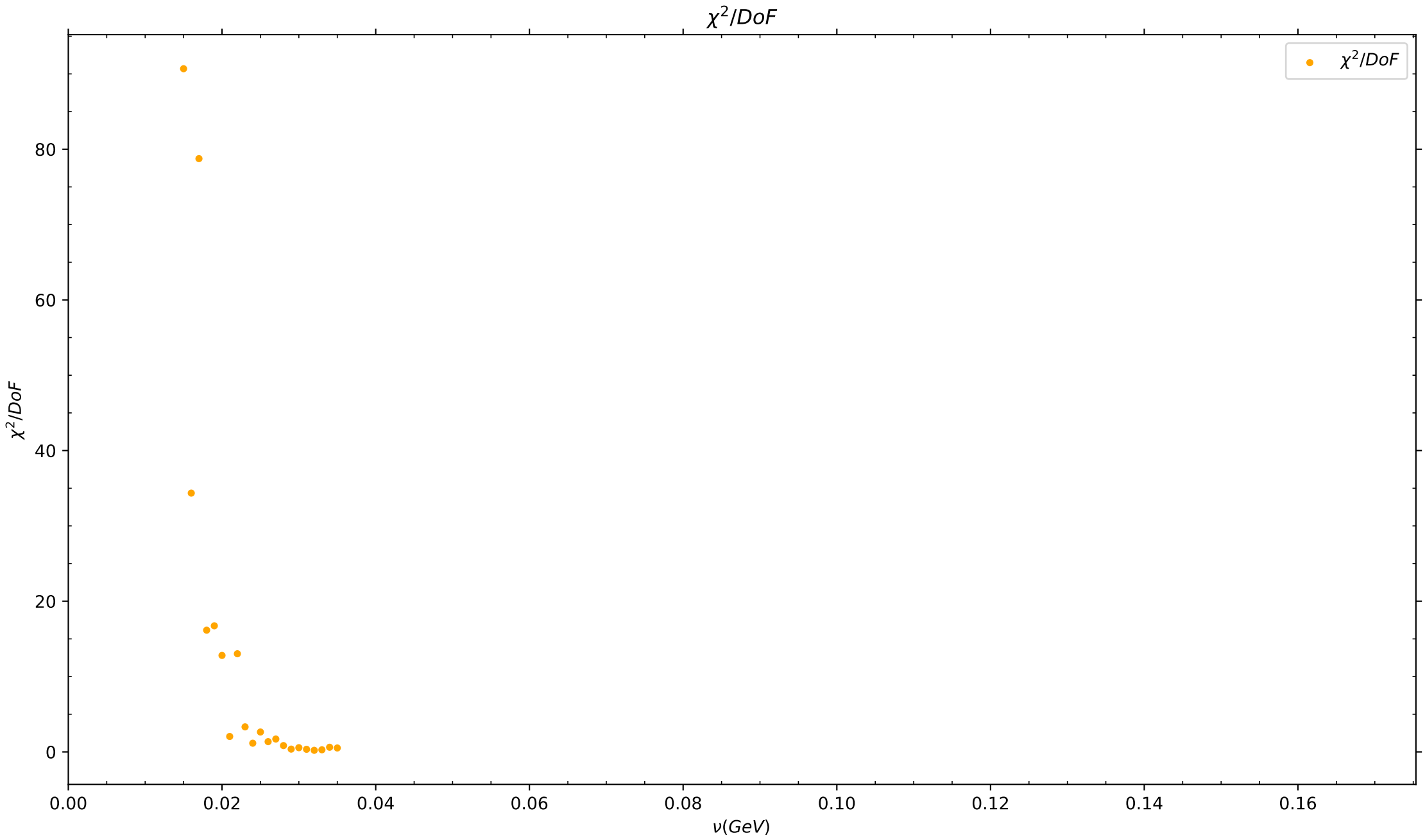
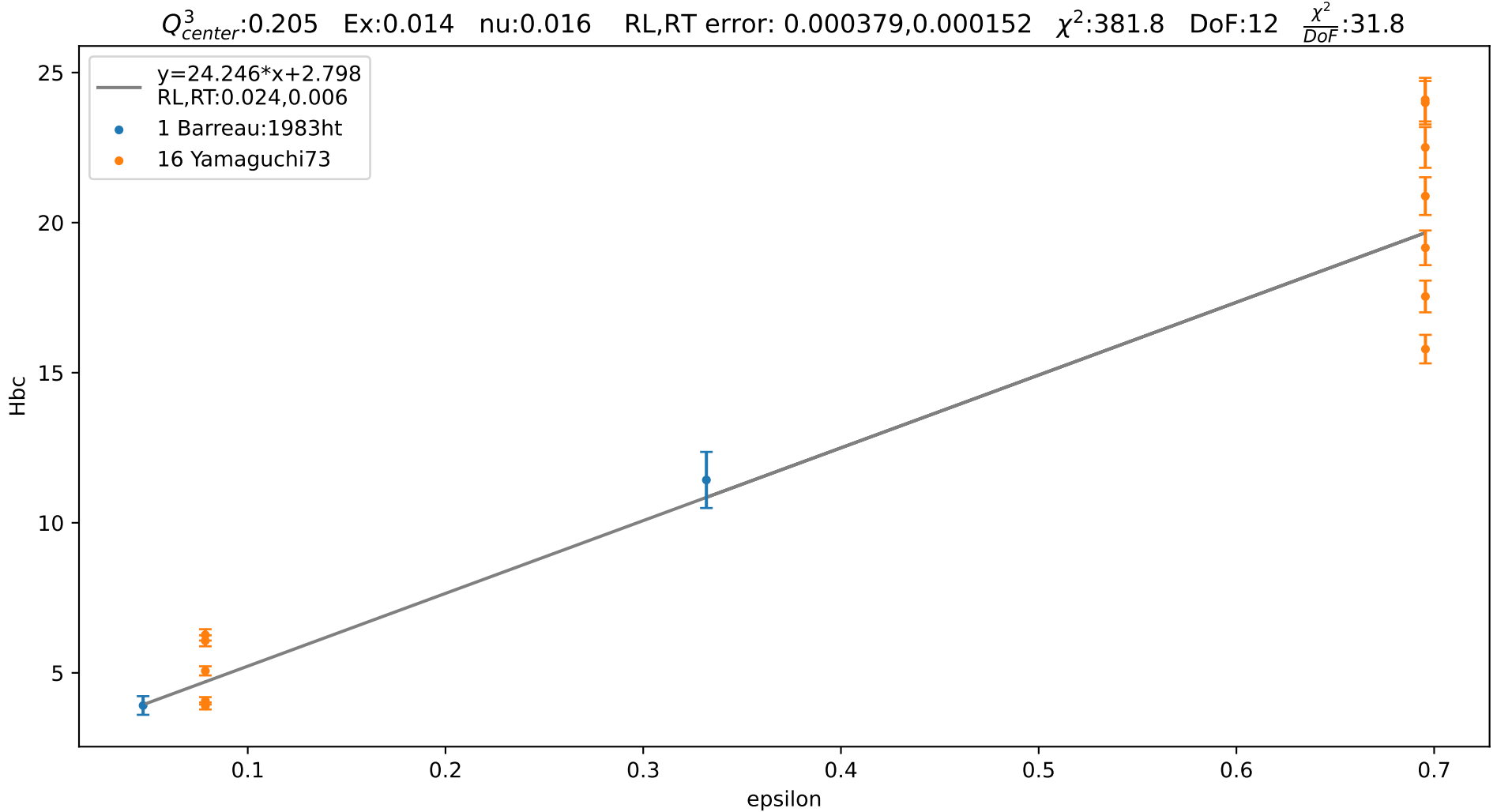
0.6
0.7
0.8


q = 0.167 bin:0.158~0.186
RL Total Christy-Bodek Fit
RL QE Christy-Bodek Fit
RL this analysis
RL Yamaguchi
RL QE NuWRo-SF-FSI
W = 0.93
ν = 0.167
(Q² = 0)
R_L
ν(GeV)


q = 0.167 bin:0.158~0.186
RT Total Christy-Bodek Fit
RT QE Christy-Bodek Fit
RT this analysis
RT Photo-production
RT Yamaguchi
RT QE NuWRo-SF-FSI
W = 0.93
ν = 0.167
(Q² = 0)
R_T
ν(GeV)


χ²/DoF
χ²/DoF
ν(GeV)


Q^3_{center}:0.205 Ex:0.014 nu:0.016 RL,RT error: 0.000379,0.000152 χ^2:381.8 DoF:12 $\frac{\chi^2}{DoF}$:31.8
y=24.246*x+2.798
RL,RT:0.024,0.006
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
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0.1
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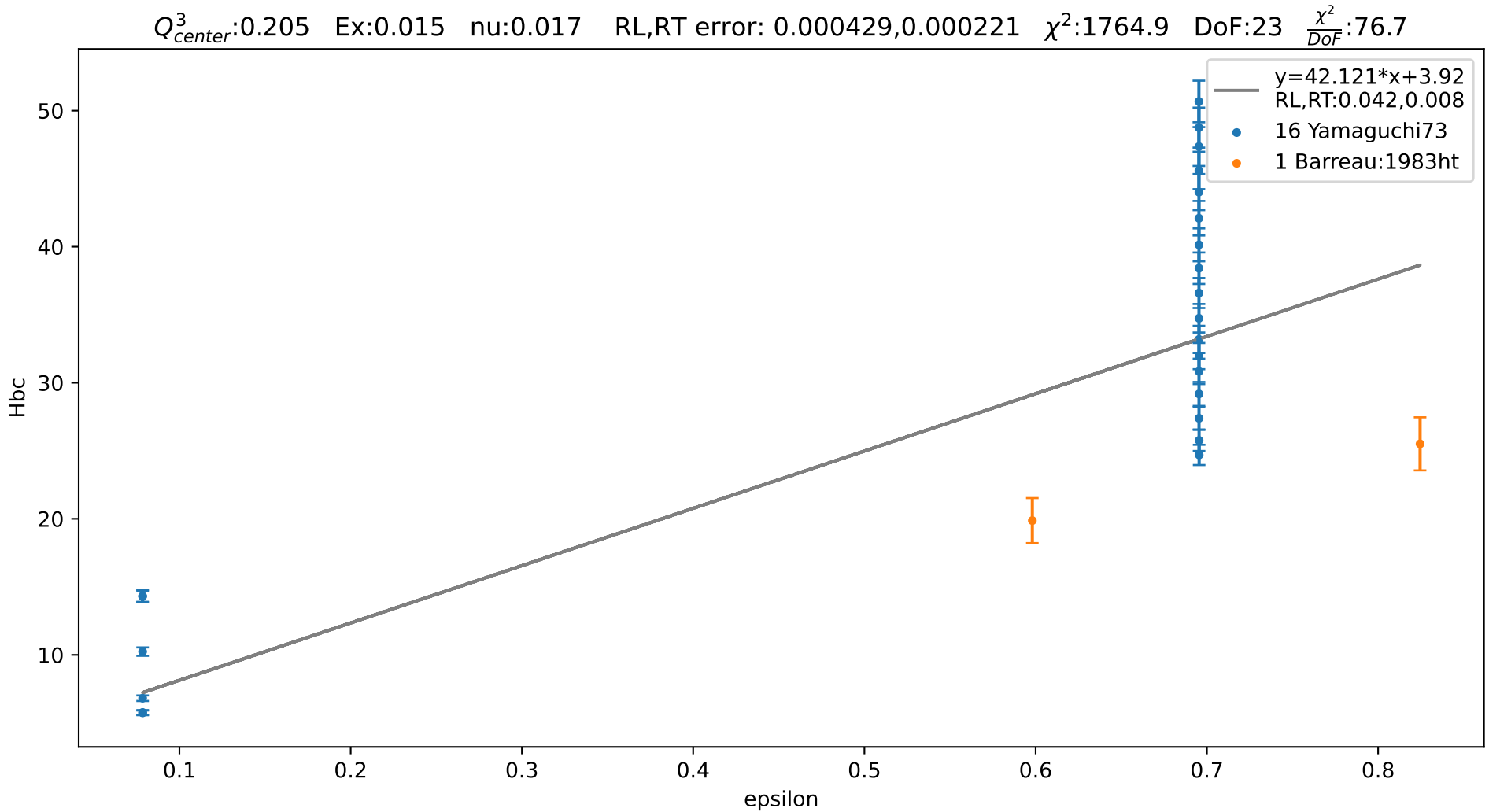
0.6
0.7


Q^3_{center}:0.205 Ex:0.015 nu:0.017 RL,RT error: 0.000429,0.000221 χ^2:1764.9 DoF:23 $\frac{\chi^2}{DoF}$:76.7
y=42.121*x+3.92
RL,RT:0.042,0.008
16 Yamaguchi73
1 Barreau:1983ht
Hbc
epsilon
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0.6
0.7
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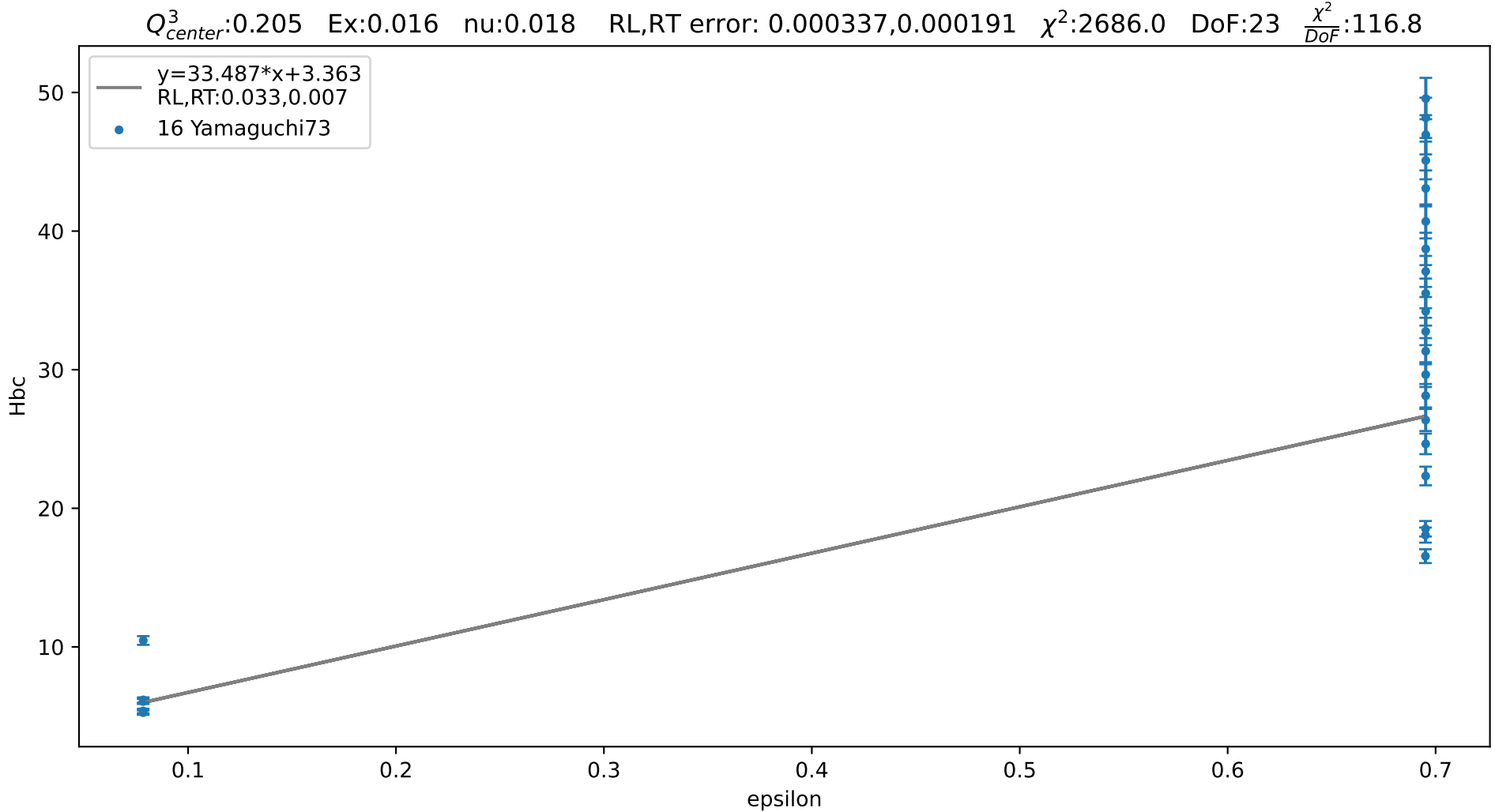
Q^3_{center}:0.205 Ex:0.016 nu:0.018 RL,RT error: 0.000337,0.000191 χ^2:2686.0 DoF:23 $\frac{\chi^2}{DoF}$:116.8
y=33.487*x+3.363
RL,RT:0.033,0.007
16 Yamaguchi73
Hbc
epsilon
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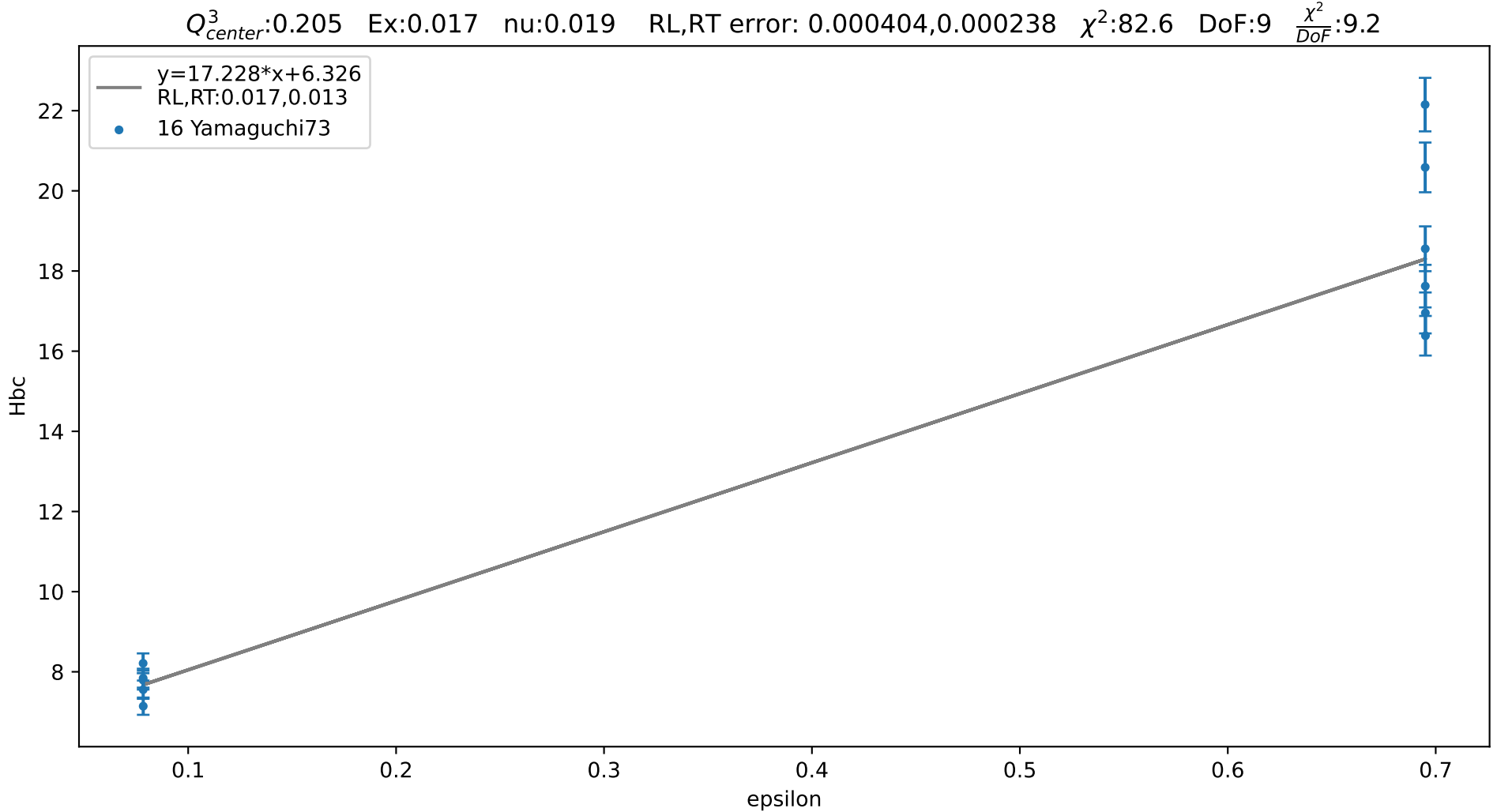
50
0.1
0.2
0.3
0.4
0.5
0.6
0.7


Q^3_{center}:0.205 Ex:0.017 nu:0.019 RL,RT error: 0.000404,0.000238 χ^2:82.6 DoF:9 $\frac{\chi^2}{DoF}$:9.2
y=17.228*x+6.326
RL,RT:0.017,0.013
16 Yamaguchi73
Hbc
epsilon
8
10
12
14
16
18
20
22
0.1
0.2
0.3
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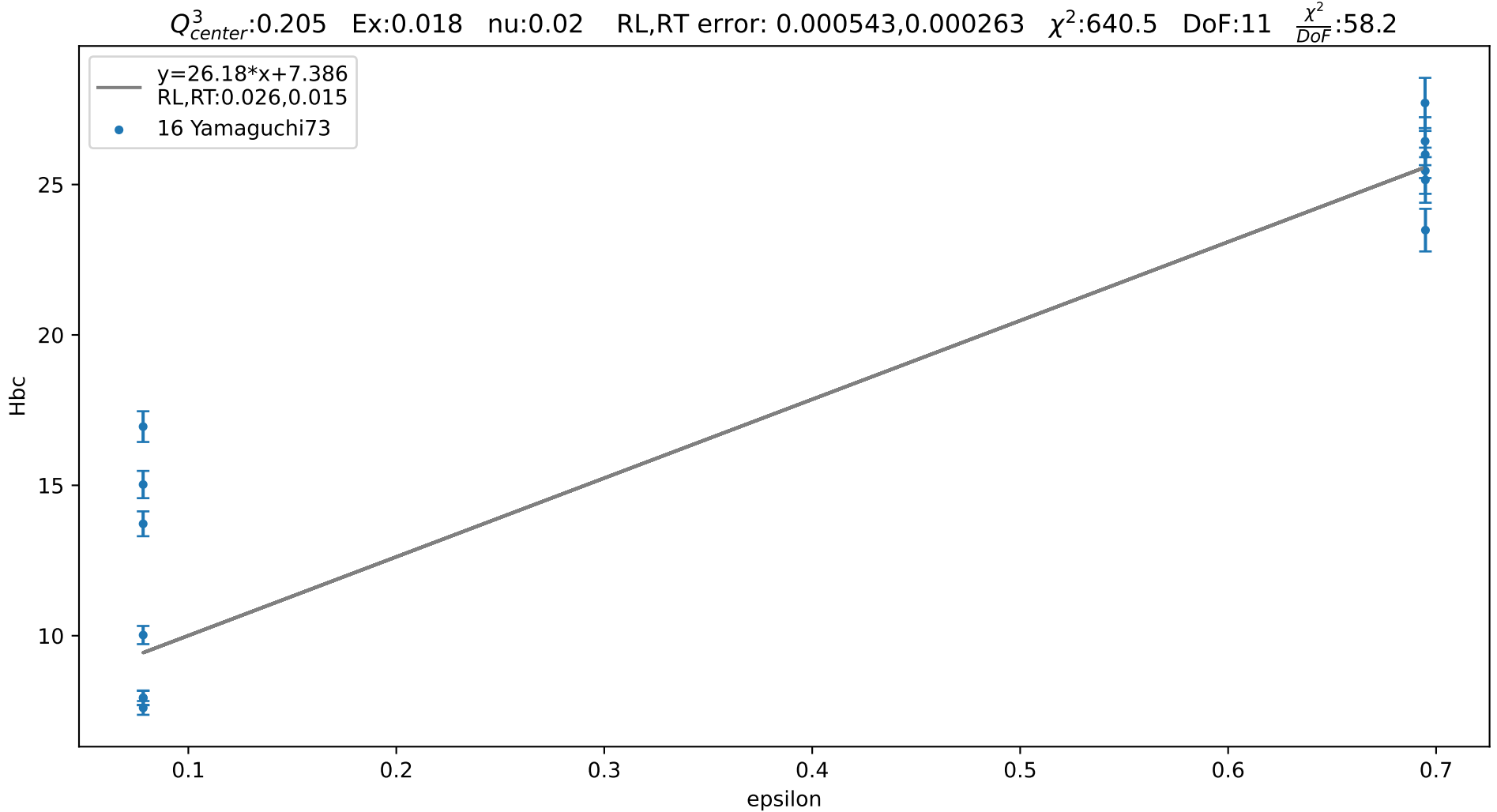
0.5
0.6
0.7


Q^3_{center}:0.205 Ex:0.018 nu:0.02 RL,RT error: 0.000543,0.000263 χ^2:640.5 DoF:11 $\frac{\chi^2}{DoF}$:58.2
y=26.18*x+7.386
RL,RT:0.026,0.015
16 Yamaguchi73
Hbc
epsilon
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0.1
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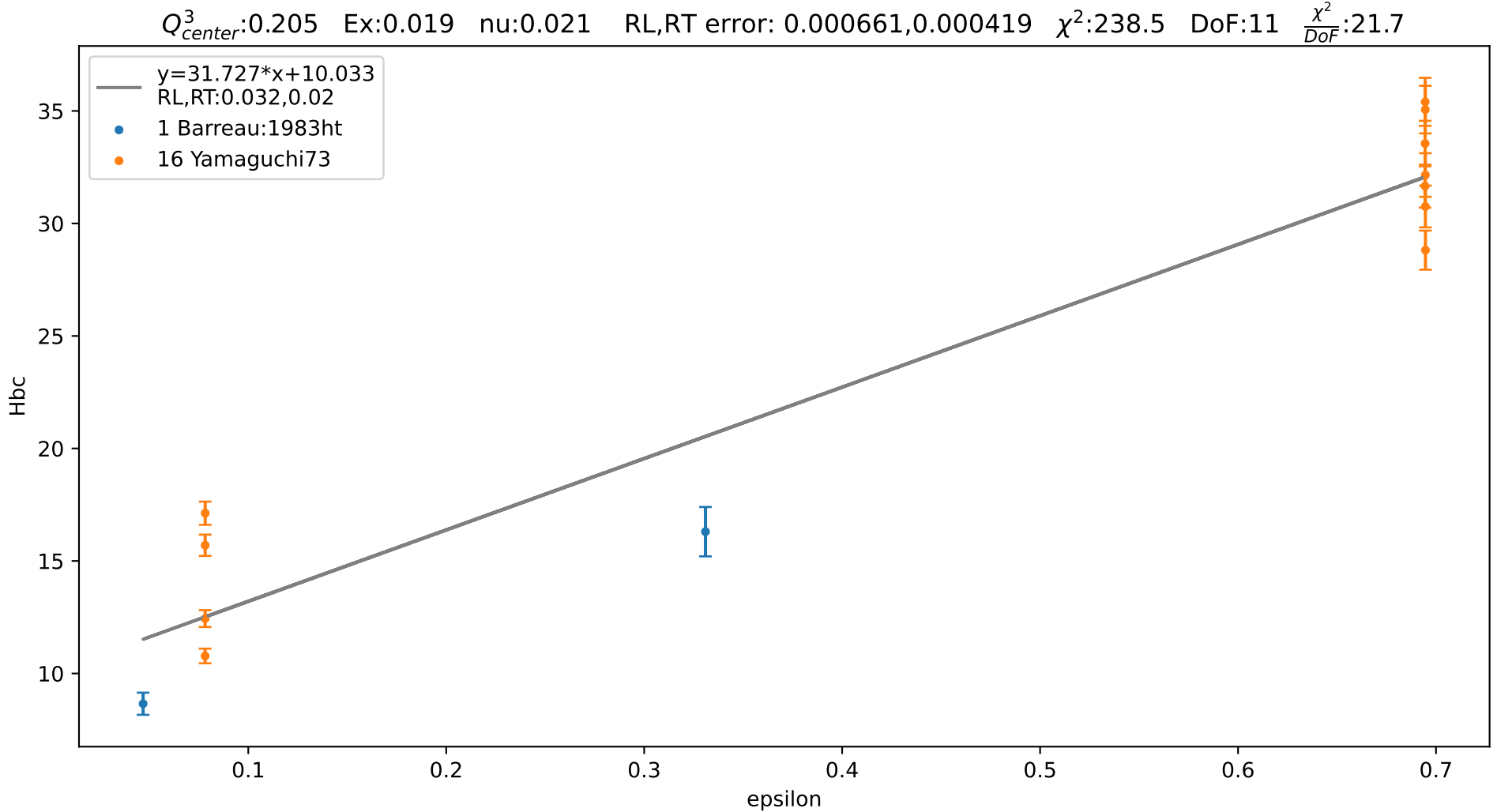
0.6
0.7


Q^3_{center}:0.205 Ex:0.019 nu:0.021 RL,RT error: 0.000661,0.000419 χ^2:238.5 DoF:11 $\frac{\chi^2}{DoF}$:21.7
y=31.727*x+10.033
RL,RT:0.032,0.02
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
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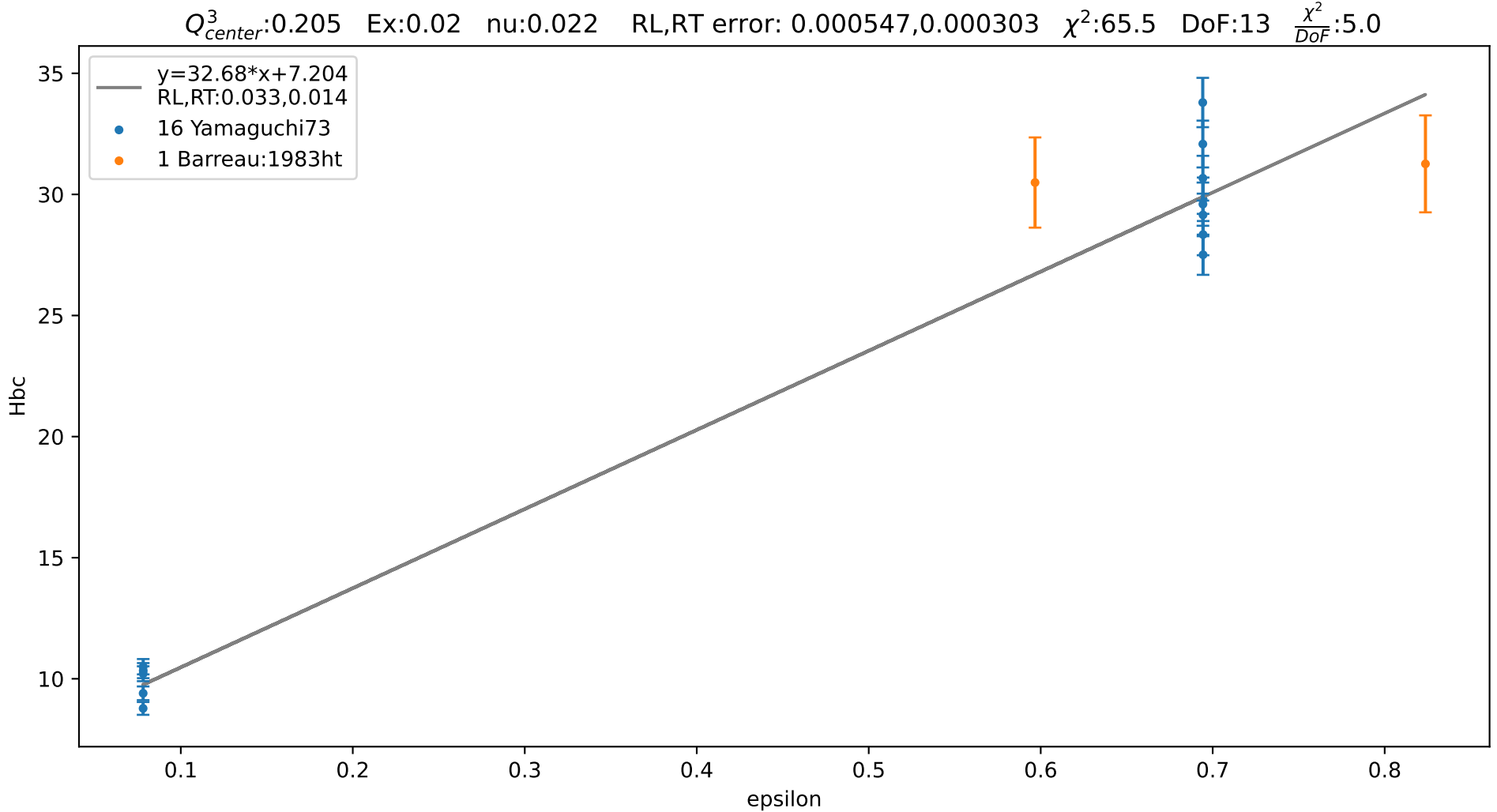
0.1
0.2
0.3
0.4
0.5
0.6
0.7


Q^3_{center}:0.205 Ex:0.02 nu:0.022 RL,RT error: 0.000547,0.000303 χ^2:65.5 DoF:13 $\frac{\chi^2}{DoF}$:5.0
y=32.68*x+7.204
RL,RT:0.033,0.014
16 Yamaguchi73
1 Barreau:1983ht
Hbc
epsilon
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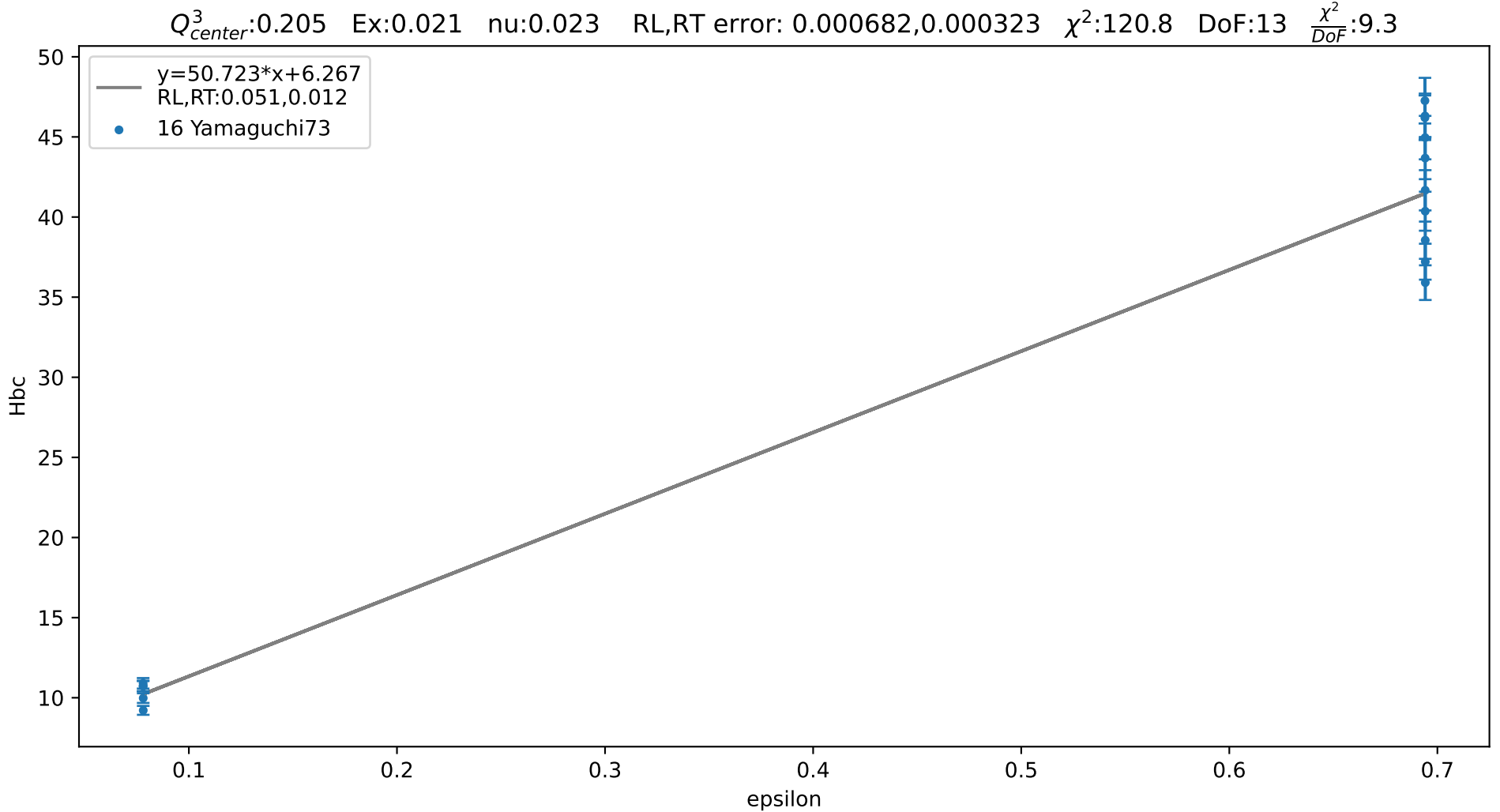
35
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.205 Ex:0.021 nu:0.023 RL,RT error: 0.000682,0.000323 χ^2:120.8 DoF:13 $\frac{\chi^2}{DoF}$:9.3
y=50.723*x+6.267
RL,RT:0.051,0.012
16 Yamaguchi73
Hbc
epsilon
50
45
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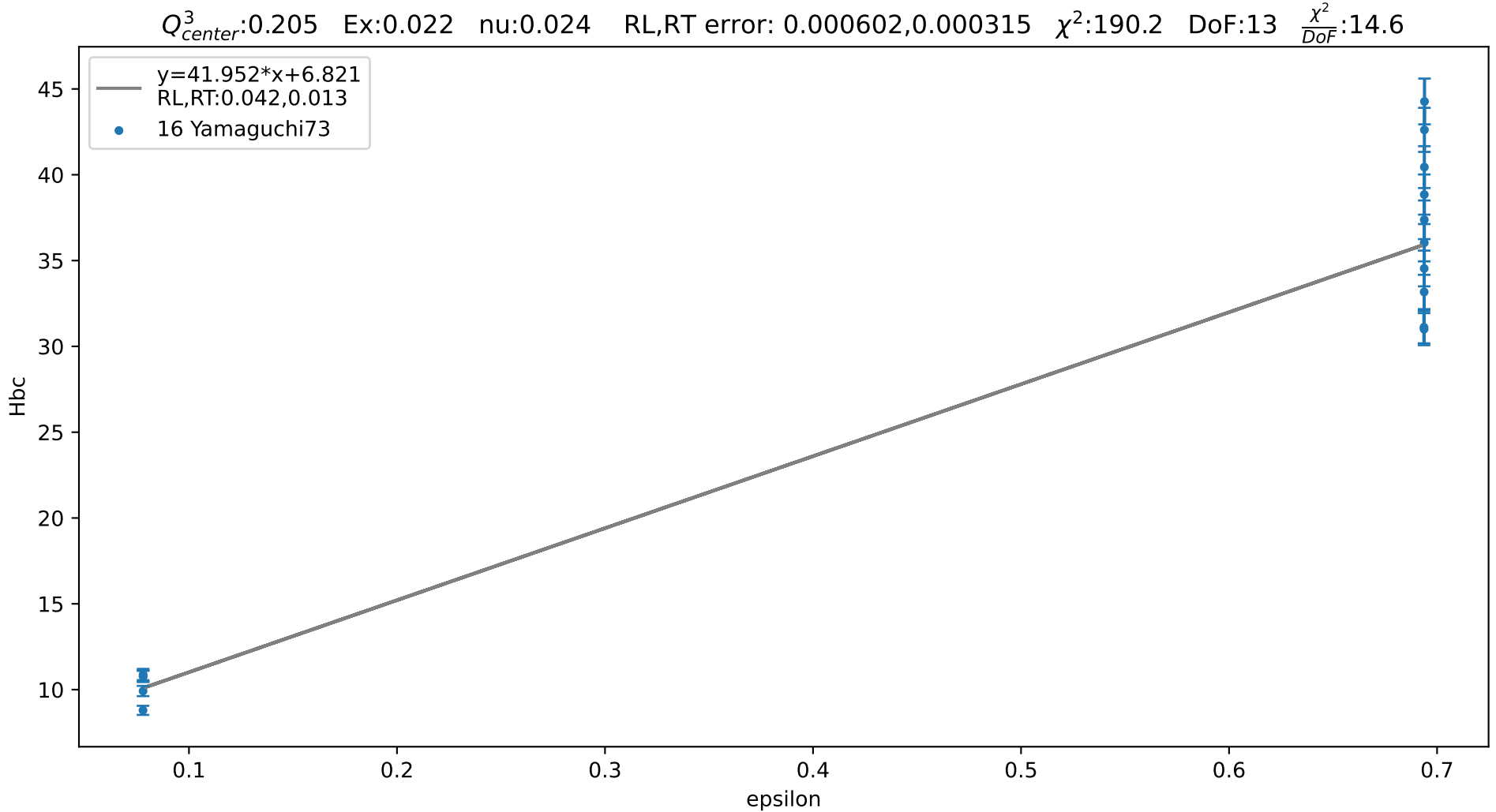
Q^3_{center}:0.205 Ex:0.022 nu:0.024 RL,RT error: 0.000602,0.000315 χ^2:190.2 DoF:13 $\frac{\chi^2}{DoF}$:14.6
y=41.952*x+6.821
RL,RT:0.042,0.013
16 Yamaguchi73
Hbc
epsilon
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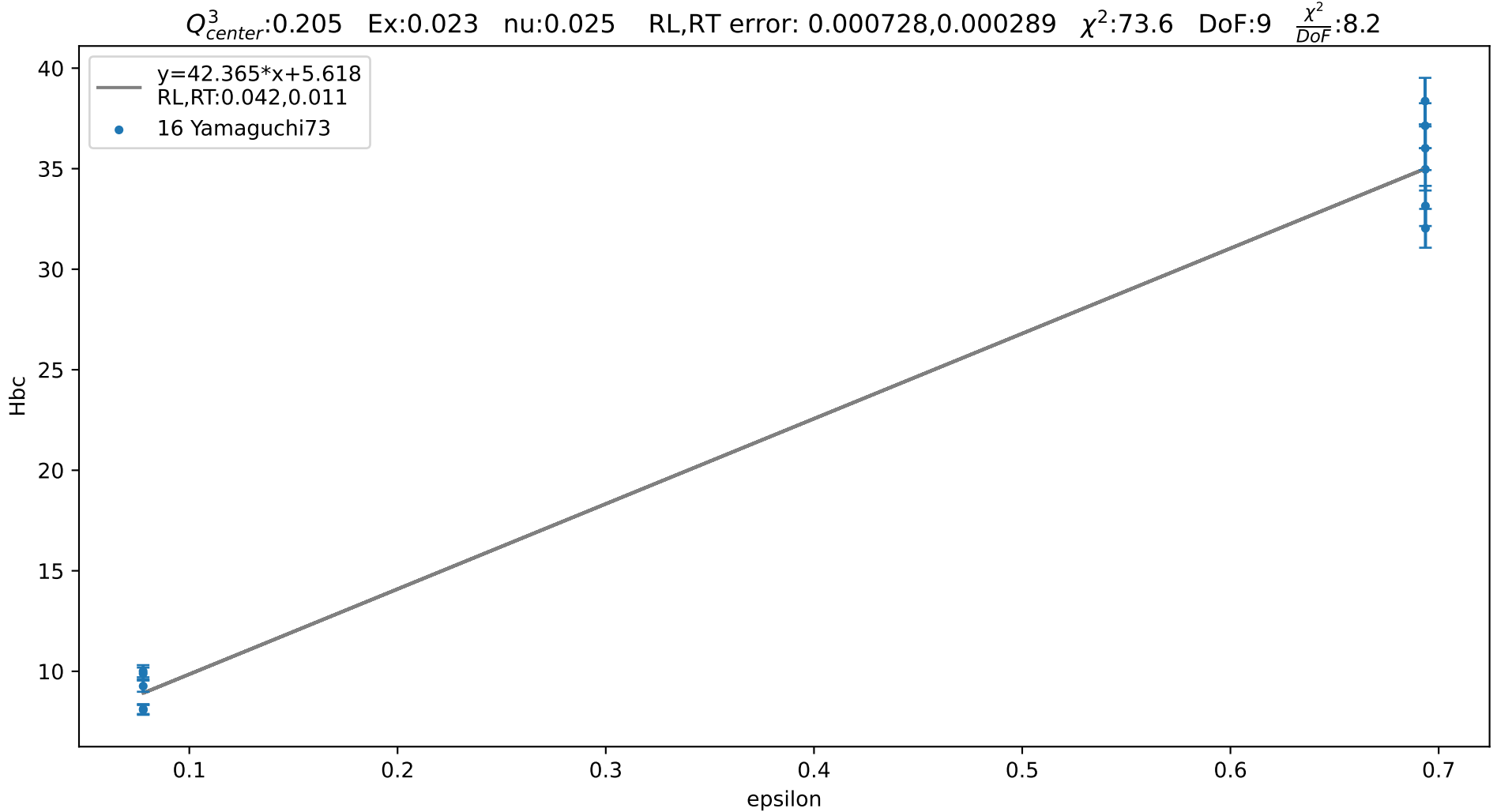
0.6
0.7


Q^3_{center}:0.205 Ex:0.023 nu:0.025 RL,RT error: 0.000728,0.000289 χ^2:73.6 DoF:9 $\frac{\chi^2}{DoF}$:8.2
y=42.365*x+5.618
RL,RT:0.042,0.011
16 Yamaguchi73
Hbc
epsilon
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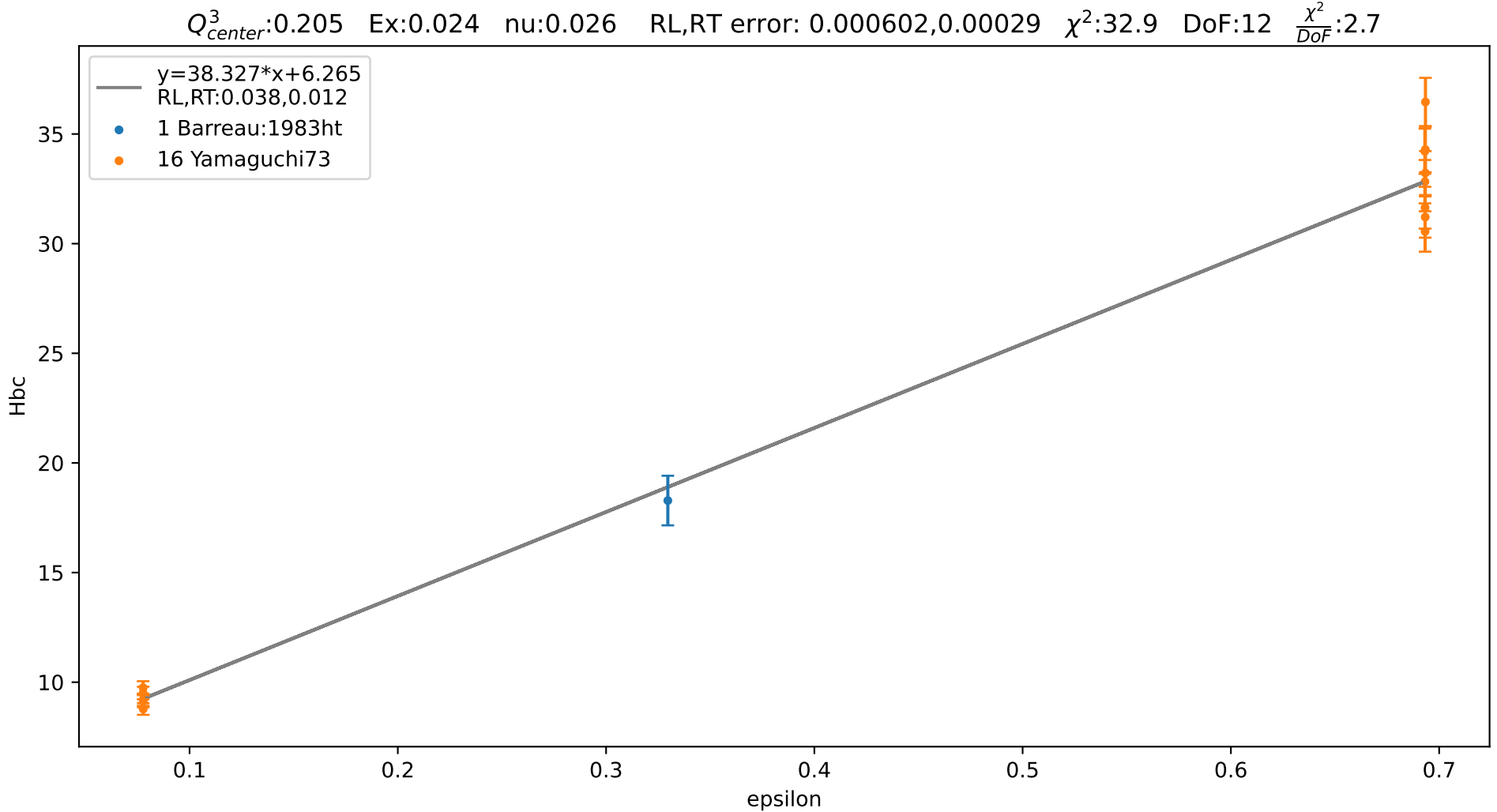
Q^3_{center}:0.205 Ex:0.024 nu:0.026 RL,RT error: 0.000602,0.00029 χ^2:32.9 DoF:12 $\frac{\chi^2}{DoF}$:2.7
y=38.327*x+6.265
RL,RT:0.038,0.012
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
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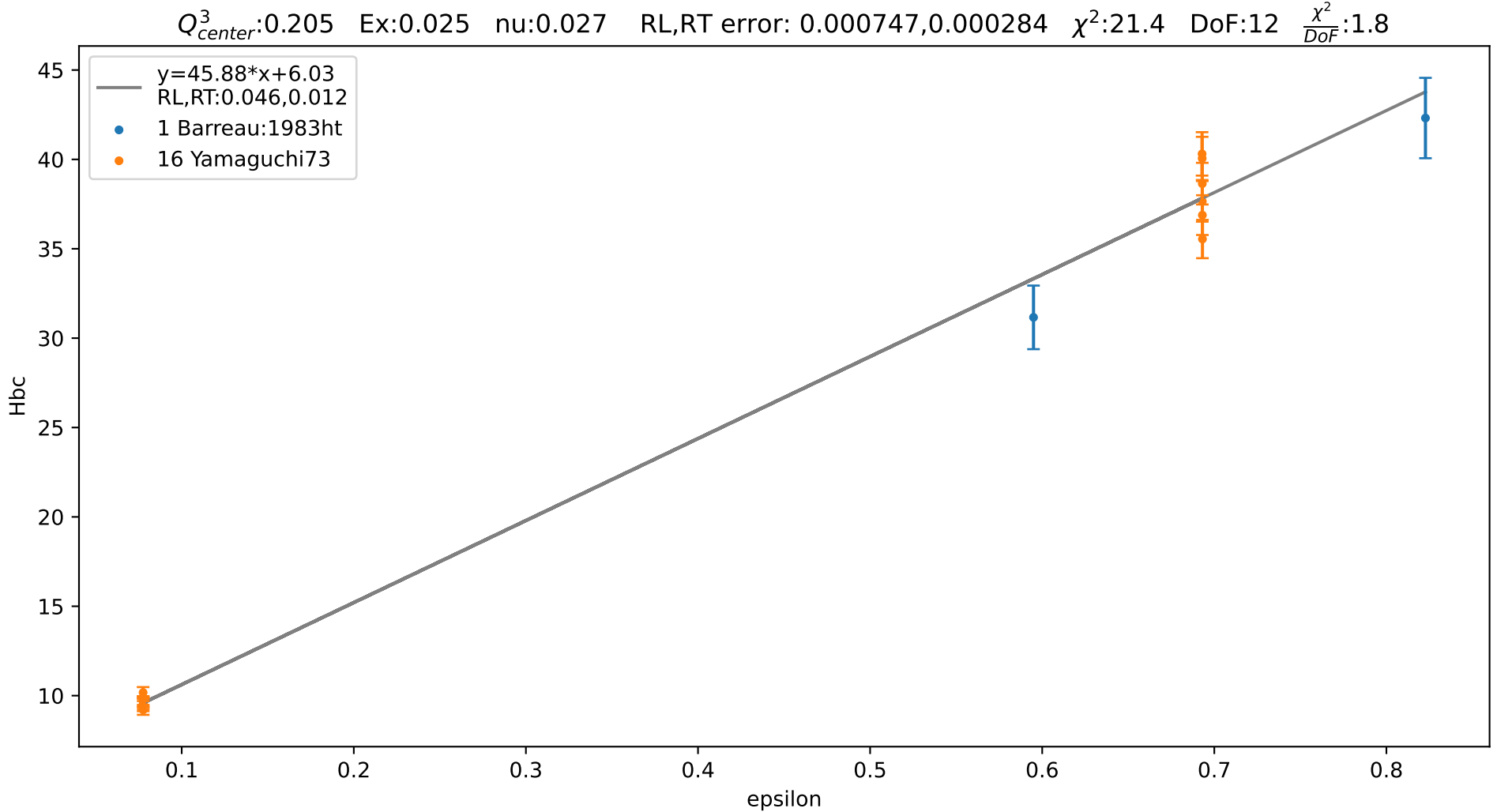
0.7


Q^3_{center}:0.205 Ex:0.025 nu:0.027 RL,RT error: 0.000747,0.000284 χ^2:21.4 DoF:12 $\frac{\chi^2}{DoF}$:1.8
y=45.88*x+6.03
RL,RT:0.046,0.012
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
45
40
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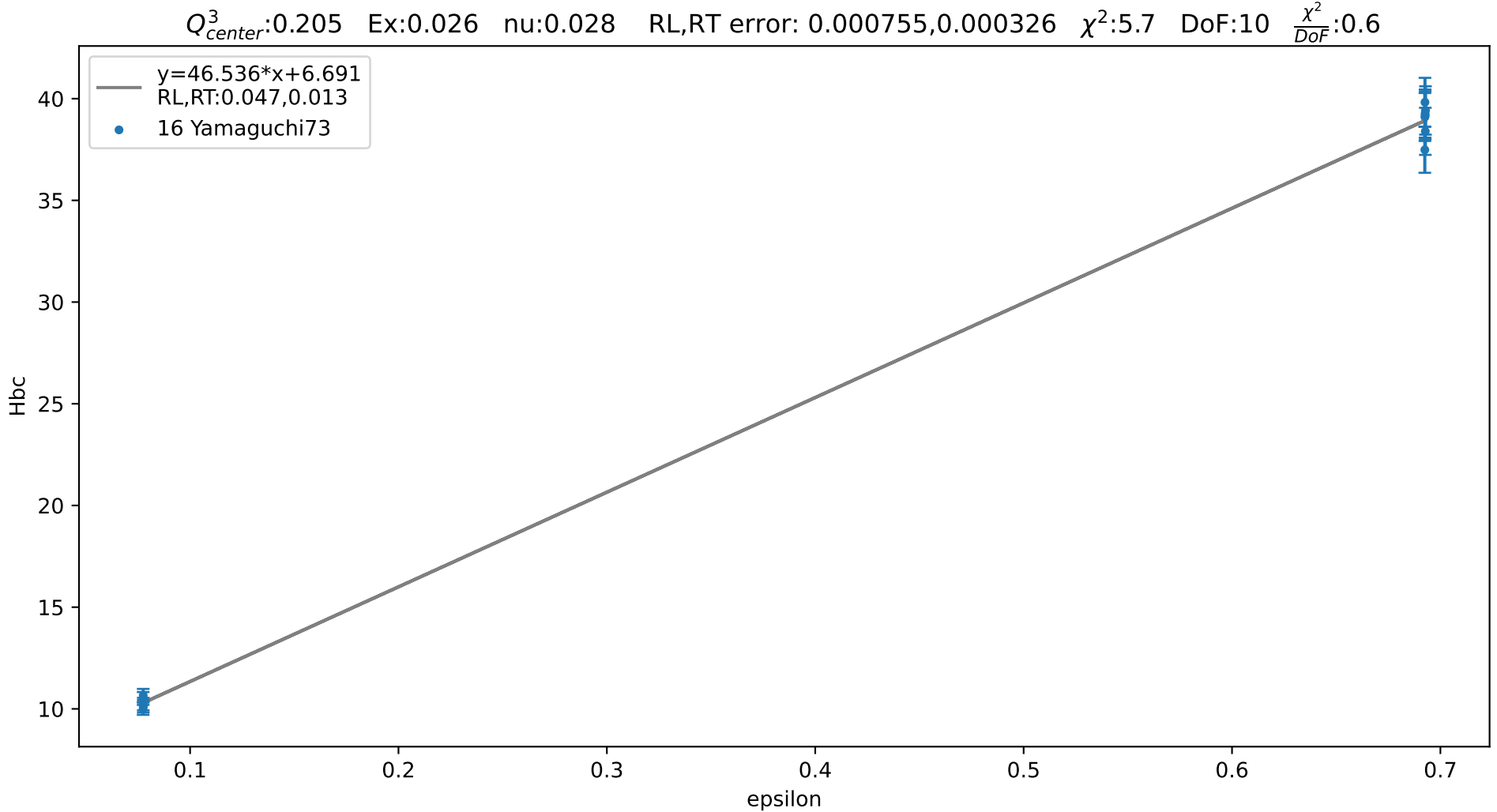
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.205 Ex:0.026 nu:0.028 RL,RT error: 0.000755,0.000326 χ^2:5.7 DoF:10 $\frac{\chi^2}{DoF}$:0.6
y=46.536*x+6.691
RL,RT:0.047,0.013
16 Yamaguchi73
Hbc
epsilon
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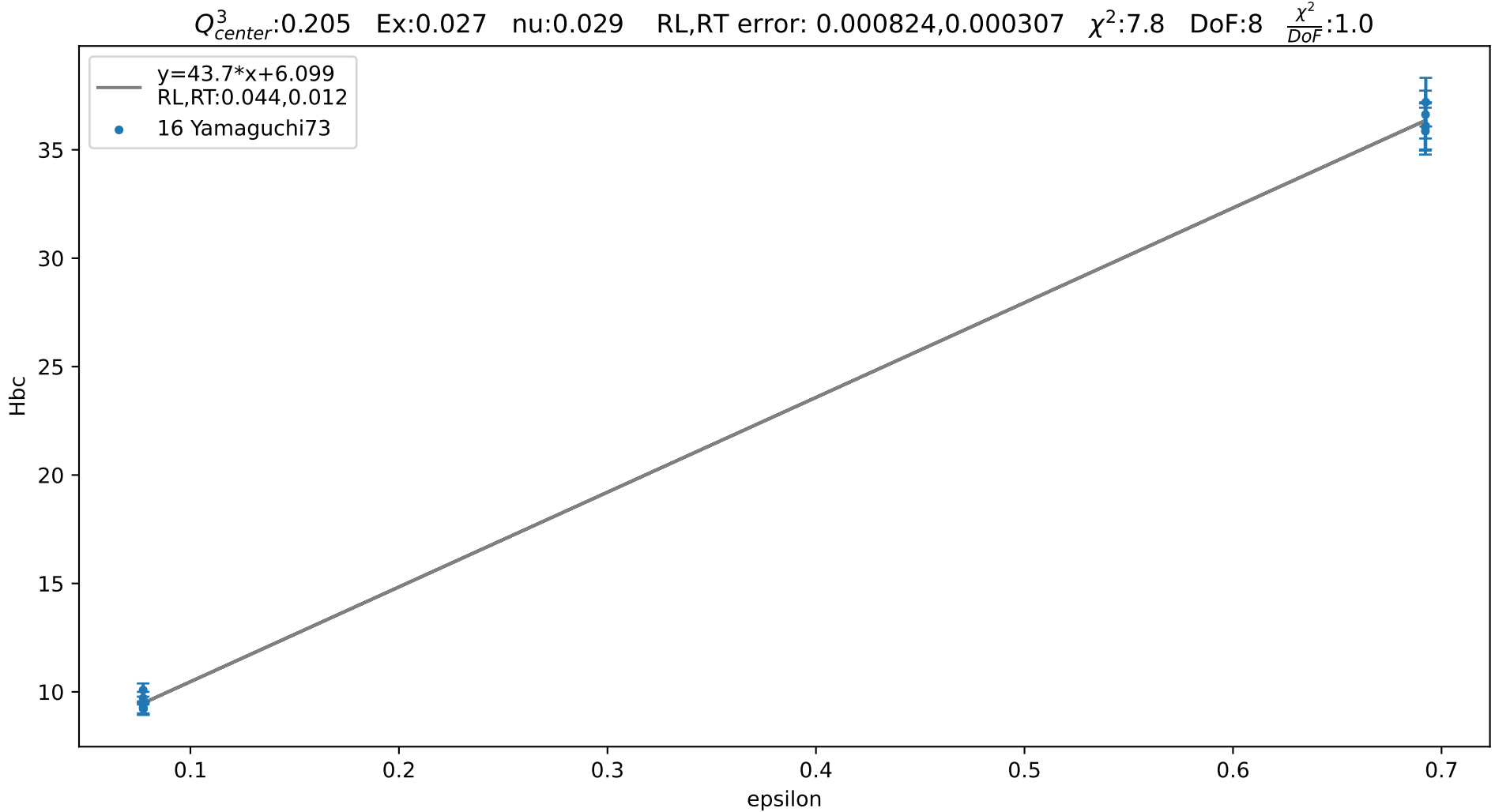
0.6
0.7


Q^3_{center}:0.205 Ex:0.027 nu:0.029 RL,RT error: 0.000824,0.000307 χ^2:7.8 DoF:8 $\frac{\chi^2}{DoF}$:1.0
y=43.7*x+6.099
RL,RT:0.044,0.012
16 Yamaguchi73
Hbc
epsilon
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0.1
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0.4
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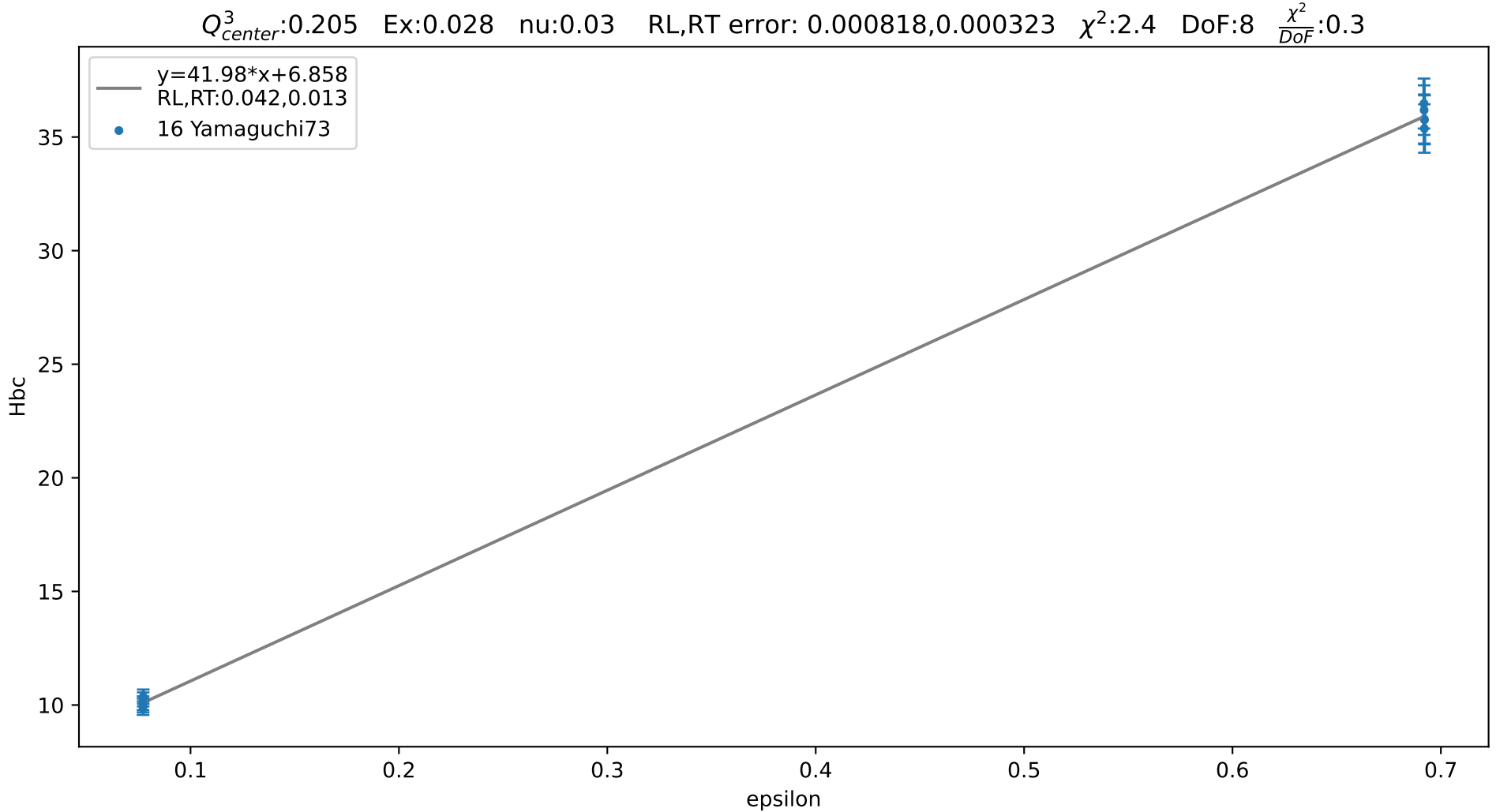
Q^3_{center}:0.205 Ex:0.028 nu:0.03 RL,RT error: 0.000818,0.000323 χ^2:2.4 DoF:8 $\frac{\chi^2}{DoF}$:0.3
y=41.98*x+6.858
RL,RT:0.042,0.013
16 Yamaguchi73
Hbc
epsilon
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0.1
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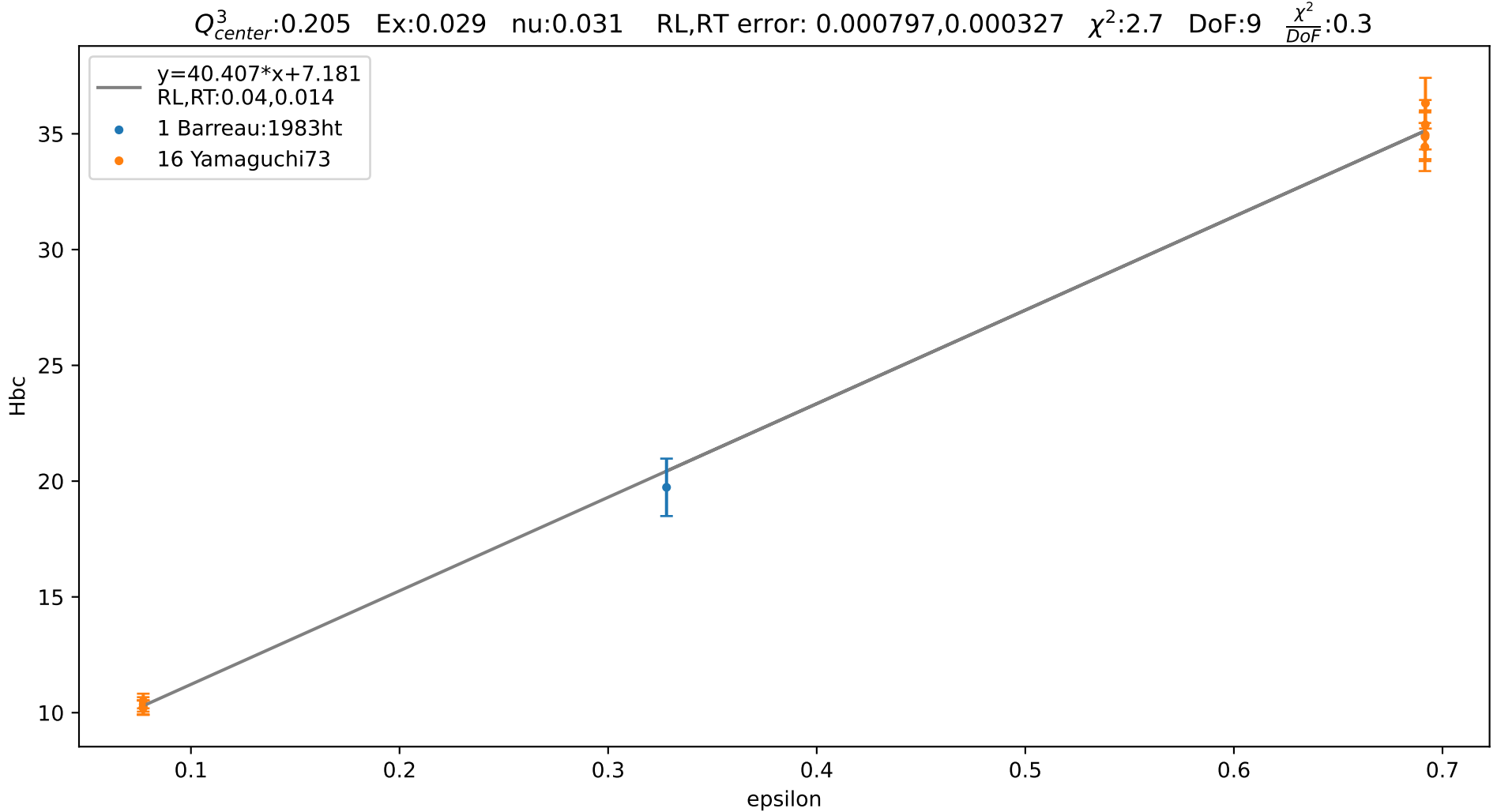
Q^3_{center}:0.205 Ex:0.029 nu:0.031 RL,RT error: 0.000797,0.000327 χ^2:2.7 DoF:9 $\frac{\chi^2}{DoF}$:0.3
y=40.407*x+7.181
RL,RT:0.04,0.014
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
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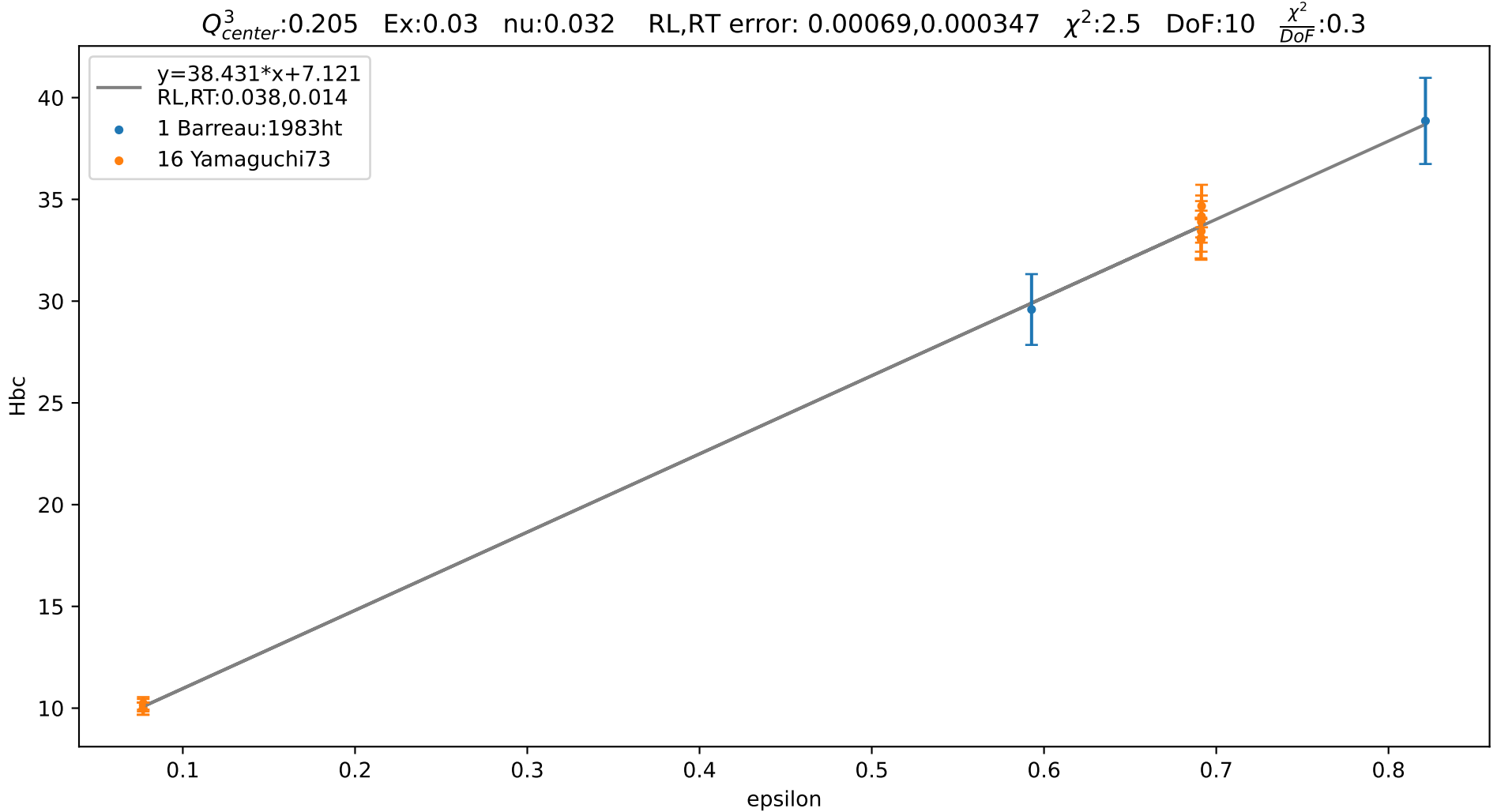
Q^3_{center}:0.205 Ex:0.03 nu:0.032 RL,RT error: 0.00069,0.000347 χ^2:2.5 DoF:10 $\frac{\chi^2}{DoF}$:0.3
y=38.431*x+7.121
RL,RT:0.038,0.014
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
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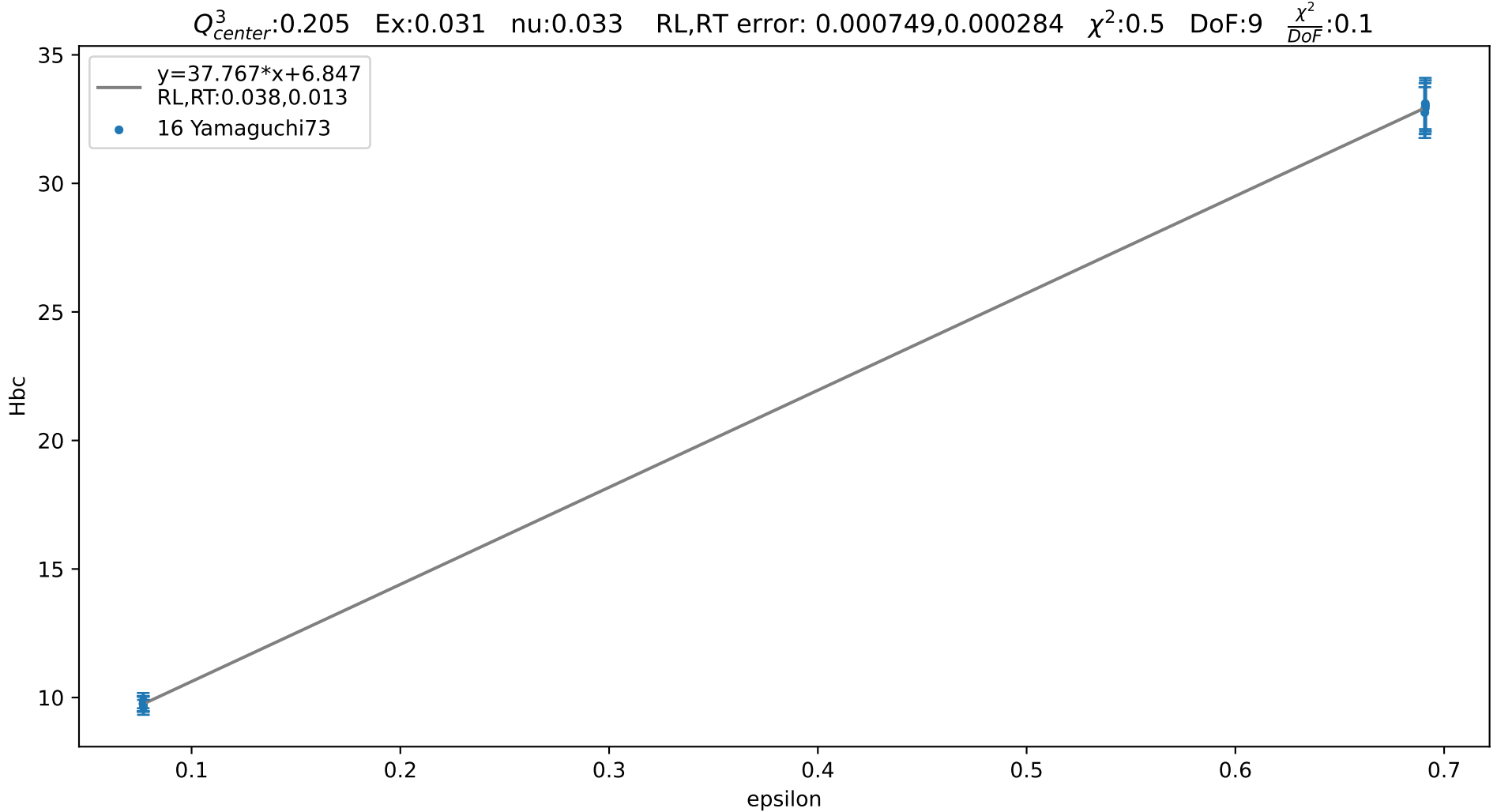
Q^3_{center}:0.205 Ex:0.031 nu:0.033 RL,RT error: 0.000749,0.000284 χ^2:0.5 DoF:9 $\frac{\chi^2}{DoF}$:0.1
y=37.767*x+6.847
RL,RT:0.038,0.013
16 Yamaguchi73
Hbc
epsilon
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0.1
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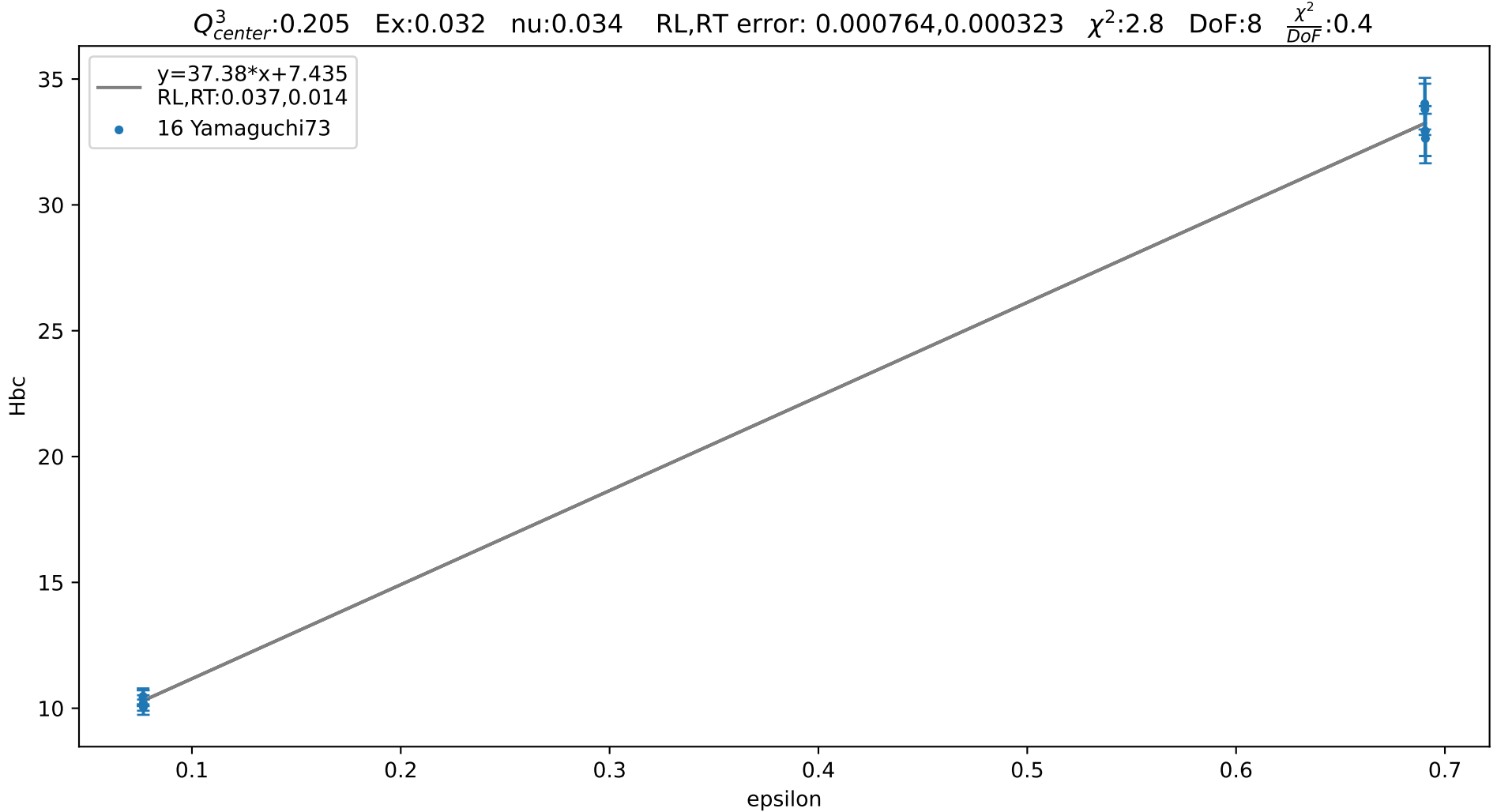
0.5
0.6
0.7


Q^3_{center}:0.205 Ex:0.032 nu:0.034 RL,RT error: 0.000764,0.000323 χ^2:2.8 DoF:8 $\frac{\chi^2}{DoF}$:0.4
y=37.38*x+7.435
RL,RT:0.037,0.014
16 Yamaguchi73
Hbc
epsilon
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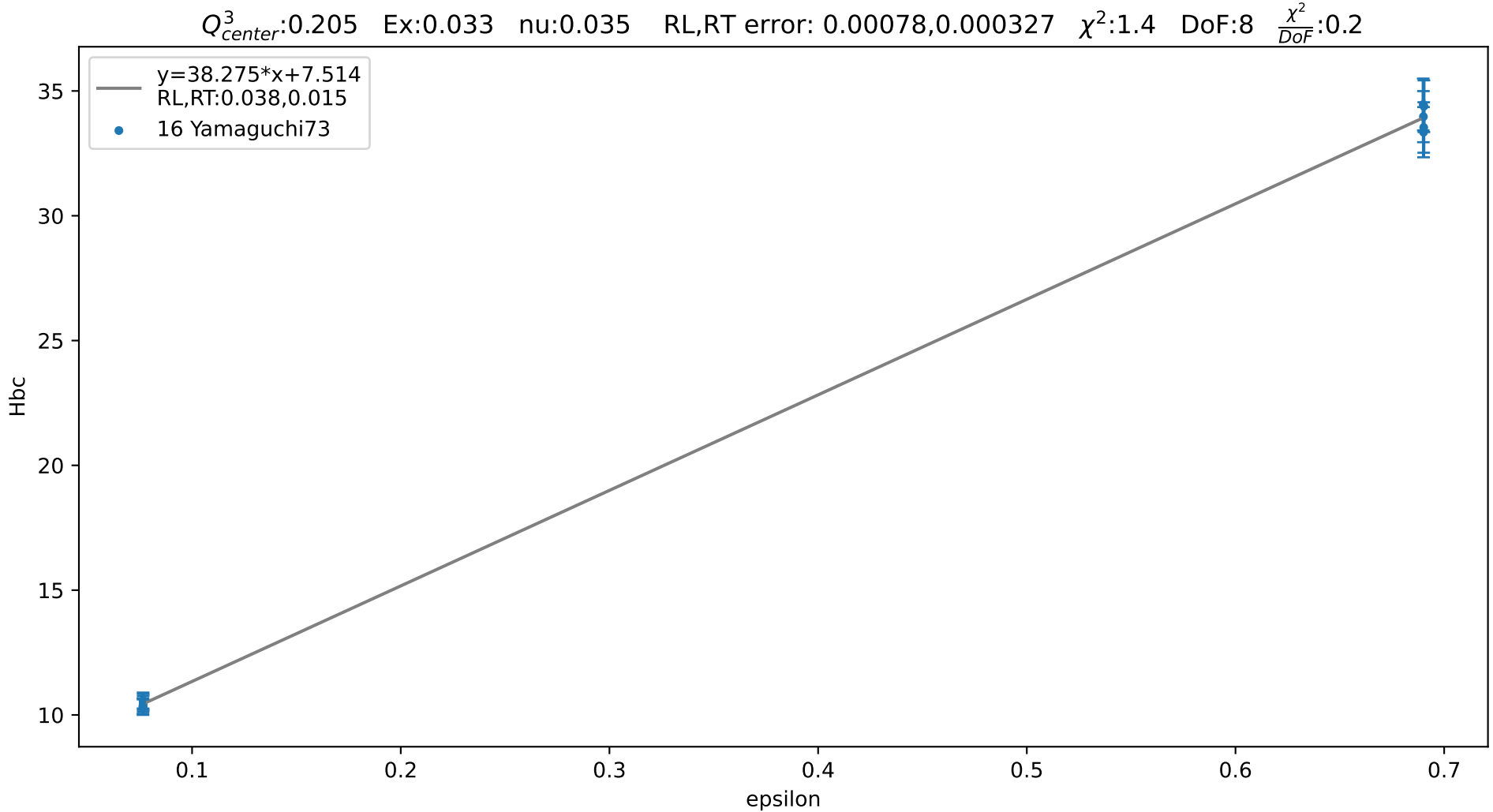
0.6
0.7


Q^3_{center}:0.205 Ex:0.033 nu:0.035 RL,RT error: 0.00078,0.000327 χ^2:1.4 DoF:8 $\frac{\chi^2}{DoF}$:0.2
y=38.275*x+7.514
RL,RT:0.038,0.015
16 Yamaguchi73
Hbc
epsilon
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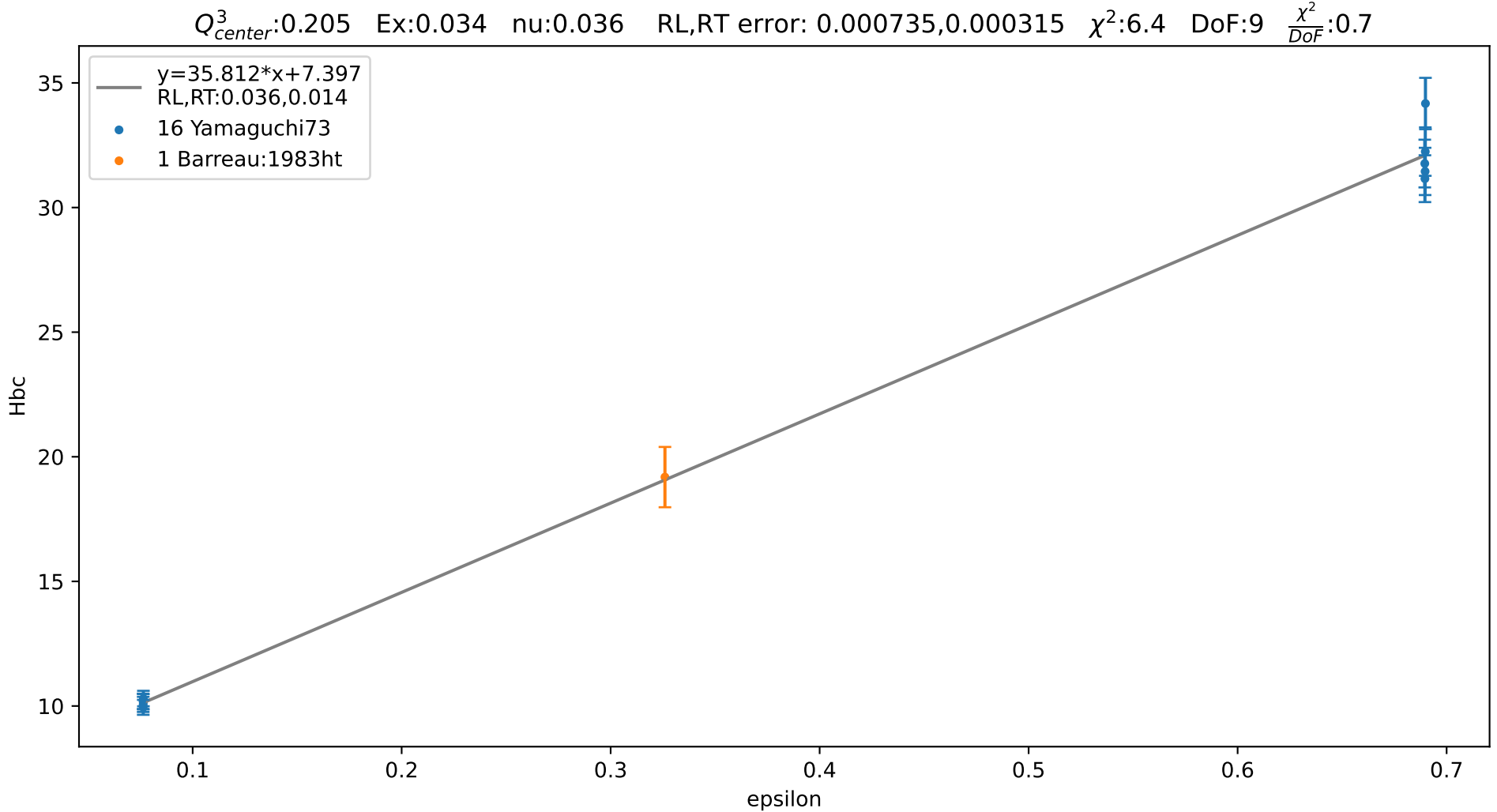
Q^3_{center}:0.205 Ex:0.034 nu:0.036 RL,RT error: 0.000735,0.000315 χ^2:6.4 DoF:9 $\frac{\chi^2}{DoF}$:0.7
y=35.812*x+7.397
RL,RT:0.036,0.014
16 Yamaguchi73
1 Barreau:1983ht
Hbc
epsilon
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0.1
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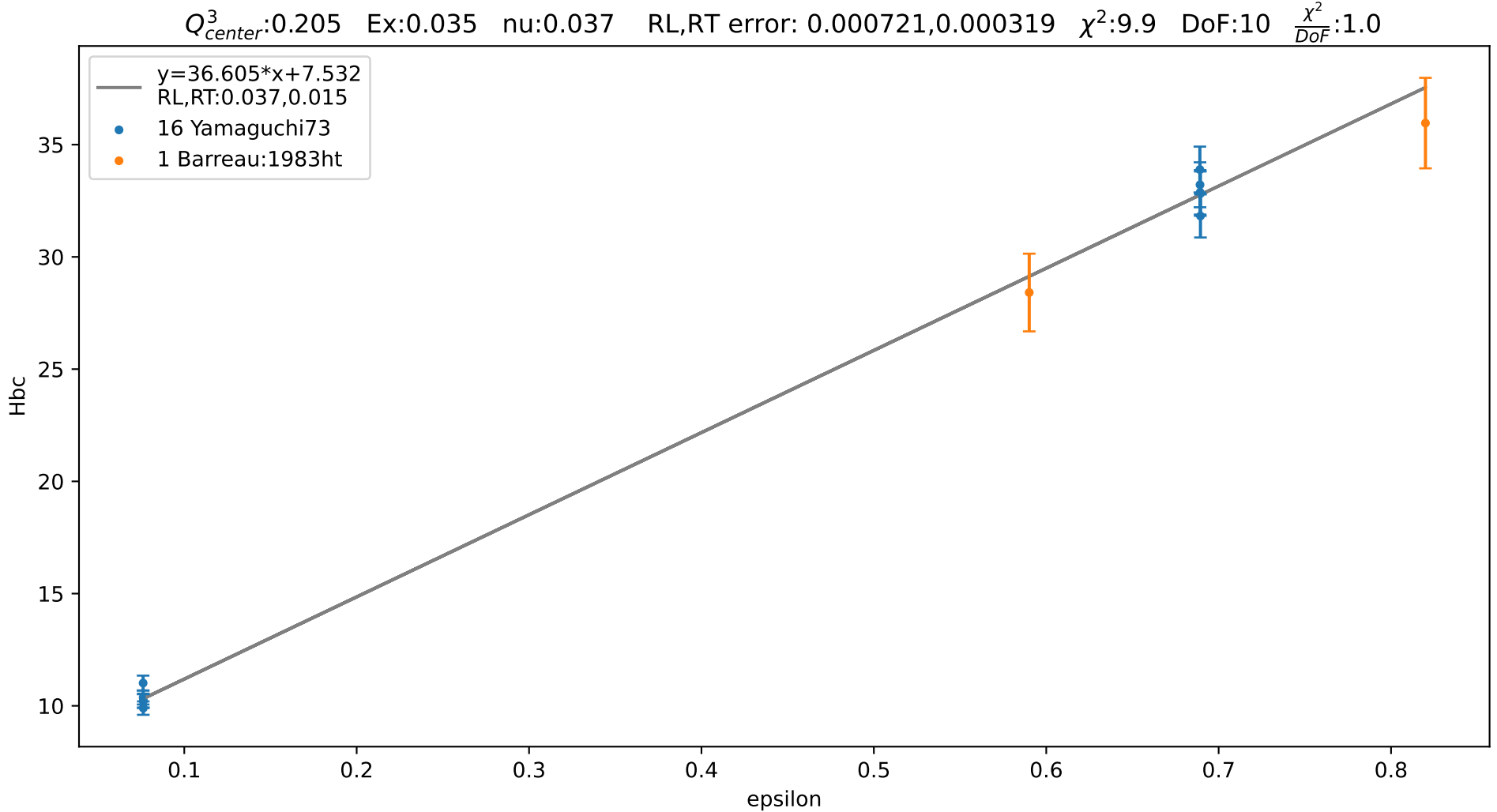
0.6
0.7


Q^3_{center}:0.205 Ex:0.035 nu:0.037 RL,RT error: 0.000721,0.000319 χ^2:9.9 DoF:10 $\frac{\chi^2}{DoF}$:1.0
y=36.605*x+7.532
RL,RT:0.037,0.015
16 Yamaguchi73
1 Barreau:1983ht
Hbc
epsilon
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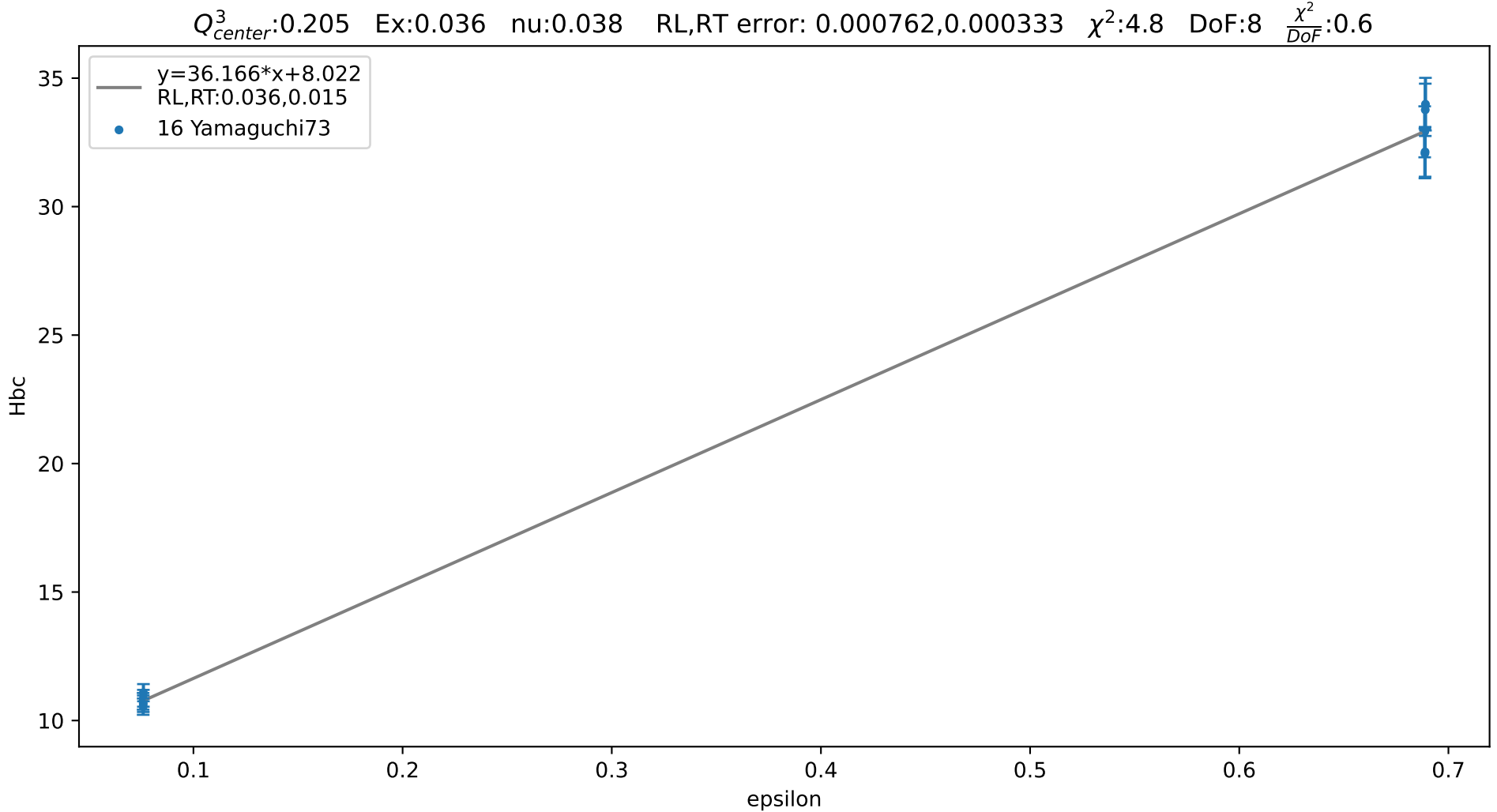
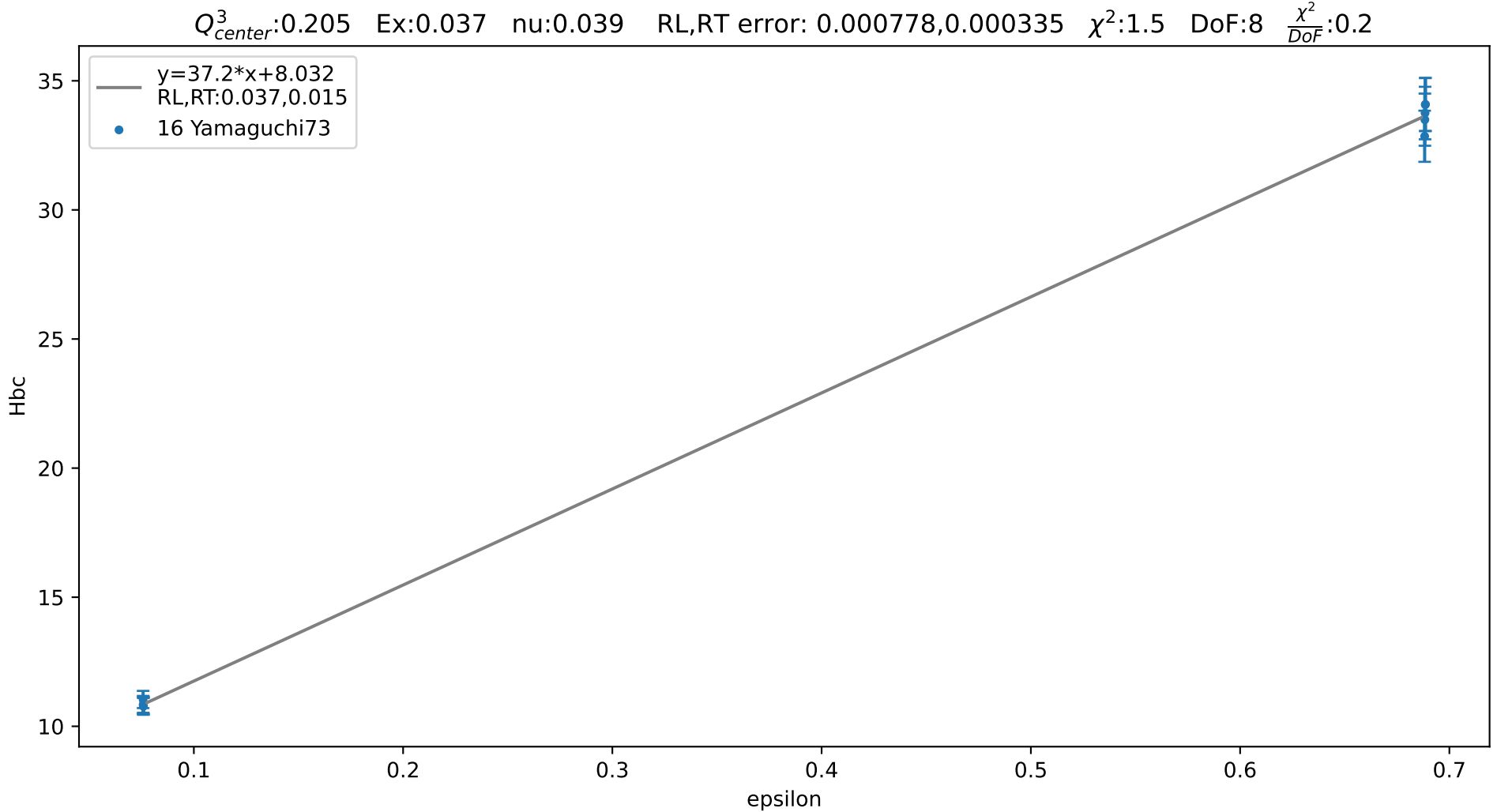
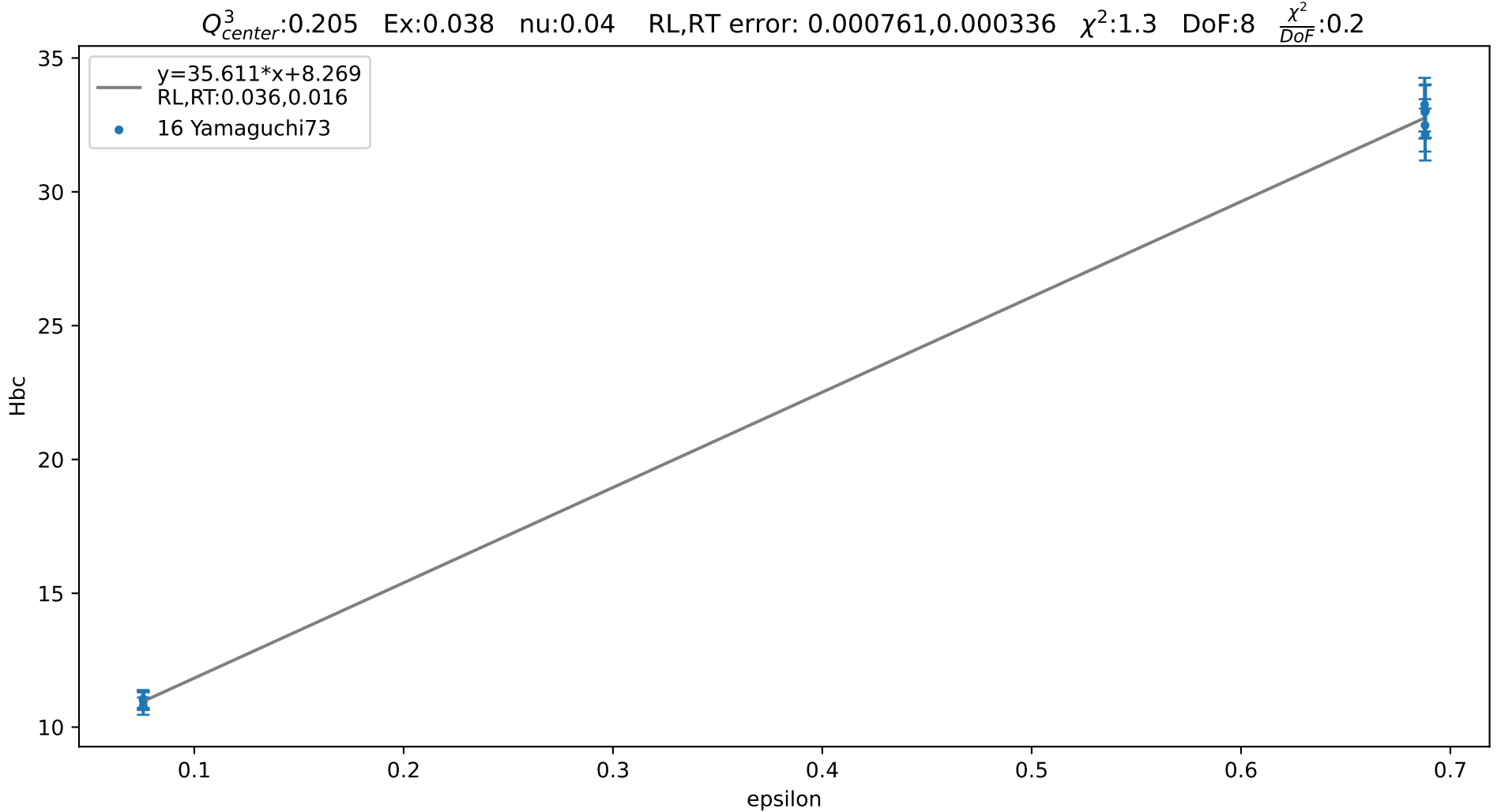
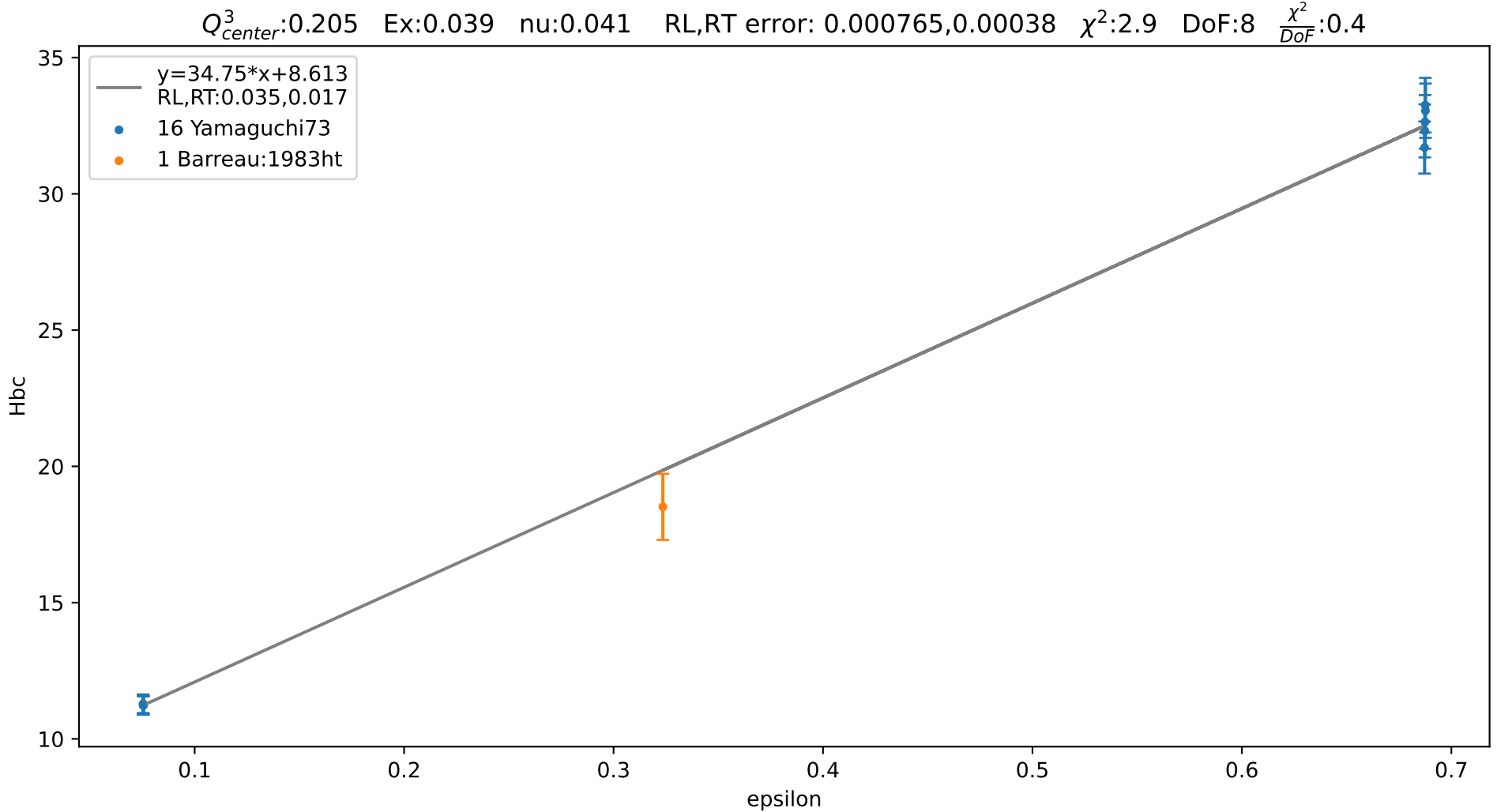
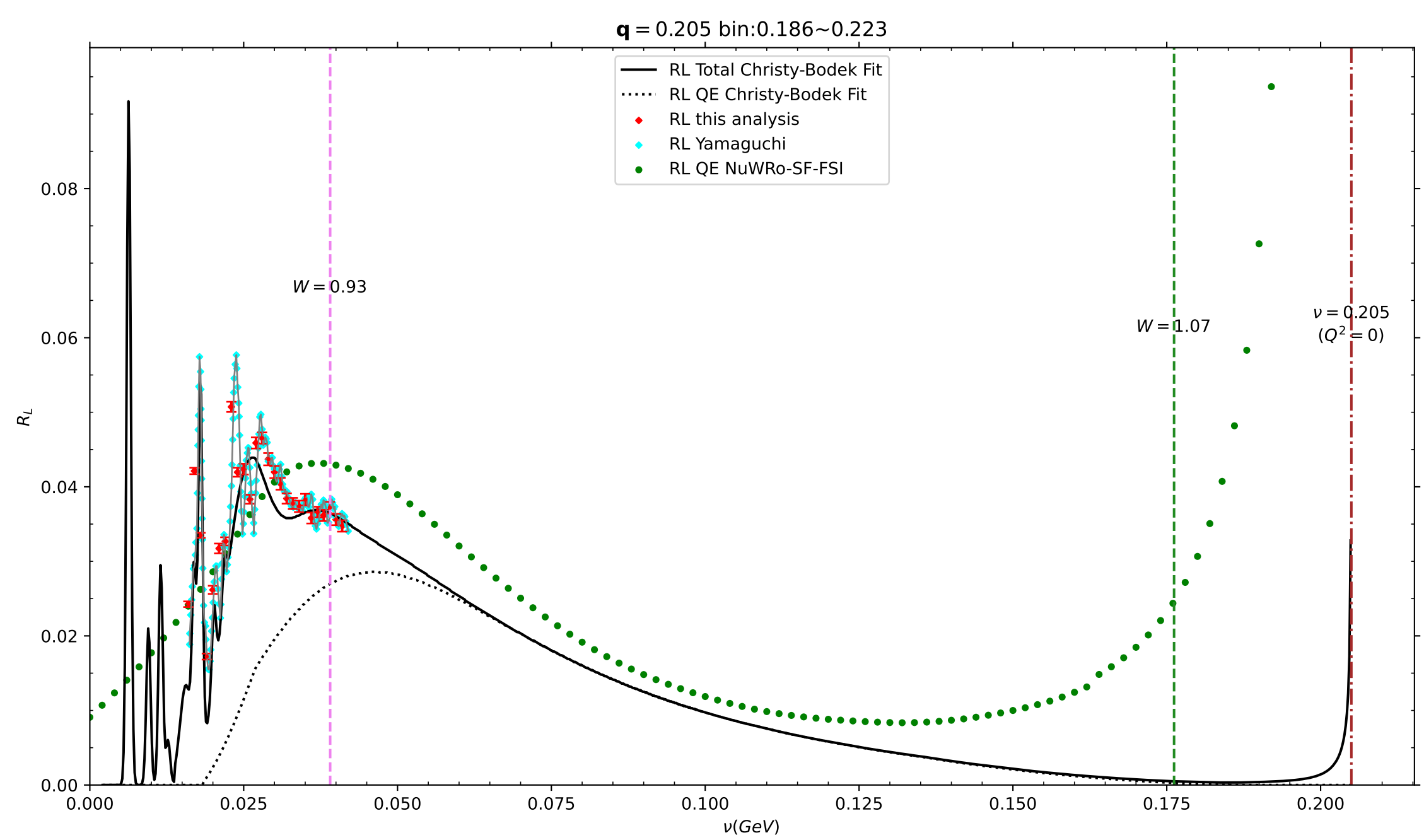
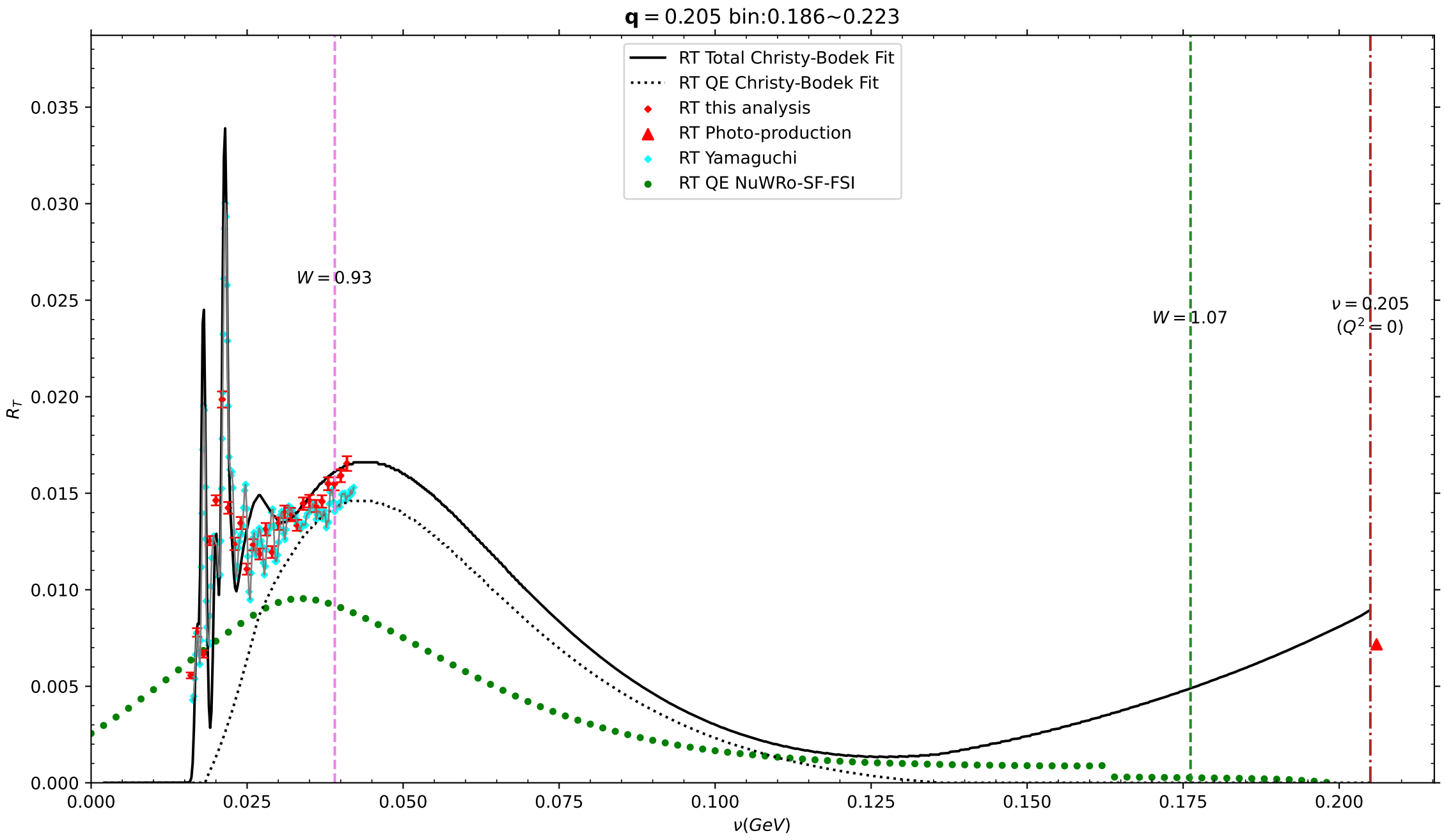

Q^3_{center}:0.205 Ex:0.036 nu:0.038 RL,RT error: 0.000762,0.000333 χ^2:4.8 DoF:8 $\frac{\chi^2}{DoF}$:0.6
y=36.166*x+8.022
RL,RT:0.036,0.015
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
35
0.1
0.2
0.3
0.4
0.5
0.6
0.7

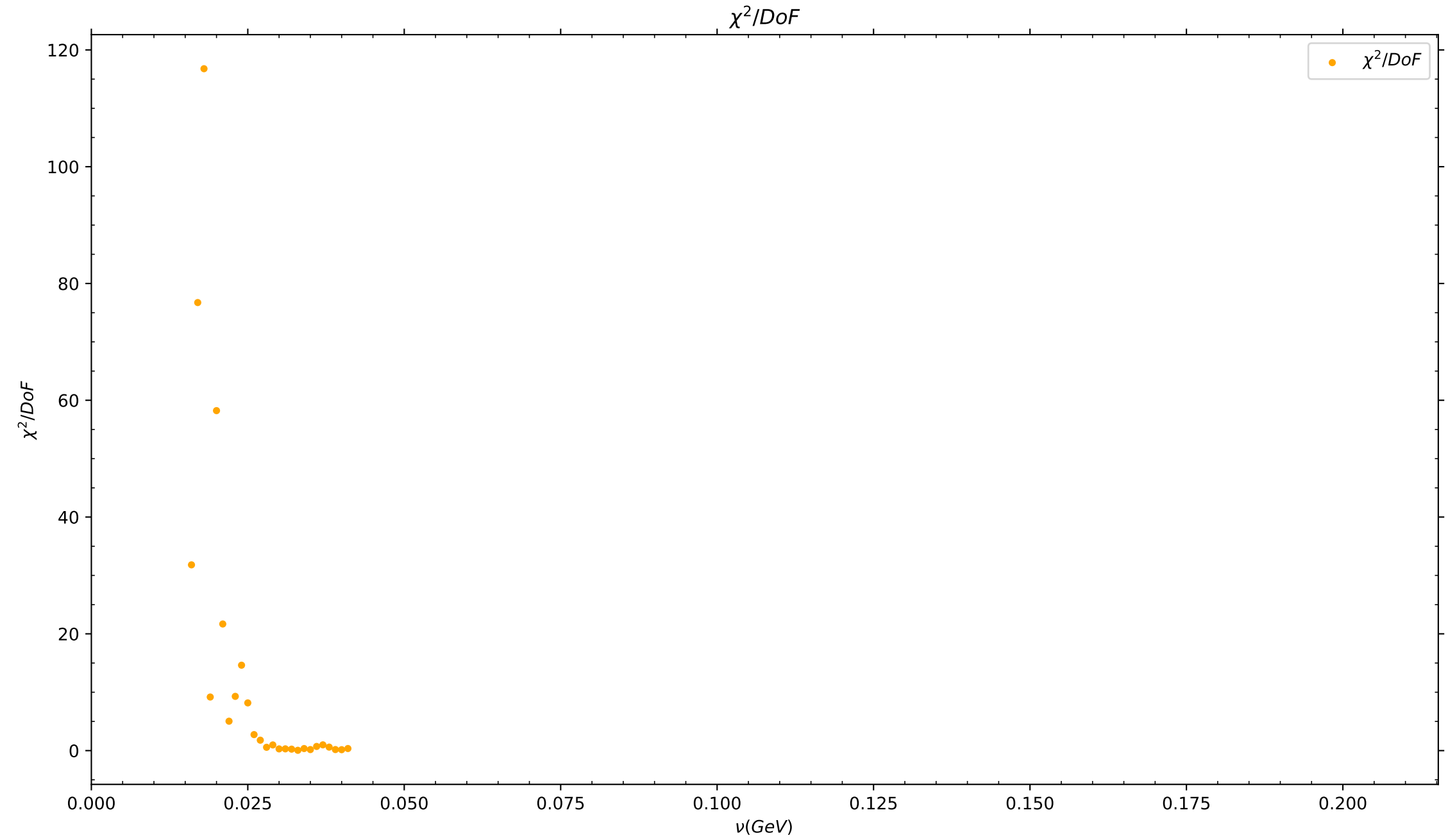

Q^3_{center}:0.205 Ex:0.037 nu:0.039 RL,RT error: 0.000778,0.000335 χ^2:1.5 DoF:8 $\frac{\chi^2}{DoF}$:0.2
y=37.2*x+8.032
RL,RT:0.037,0.015
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
35
0.1
0.2
0.3
0.4
0.5
0.6
0.7

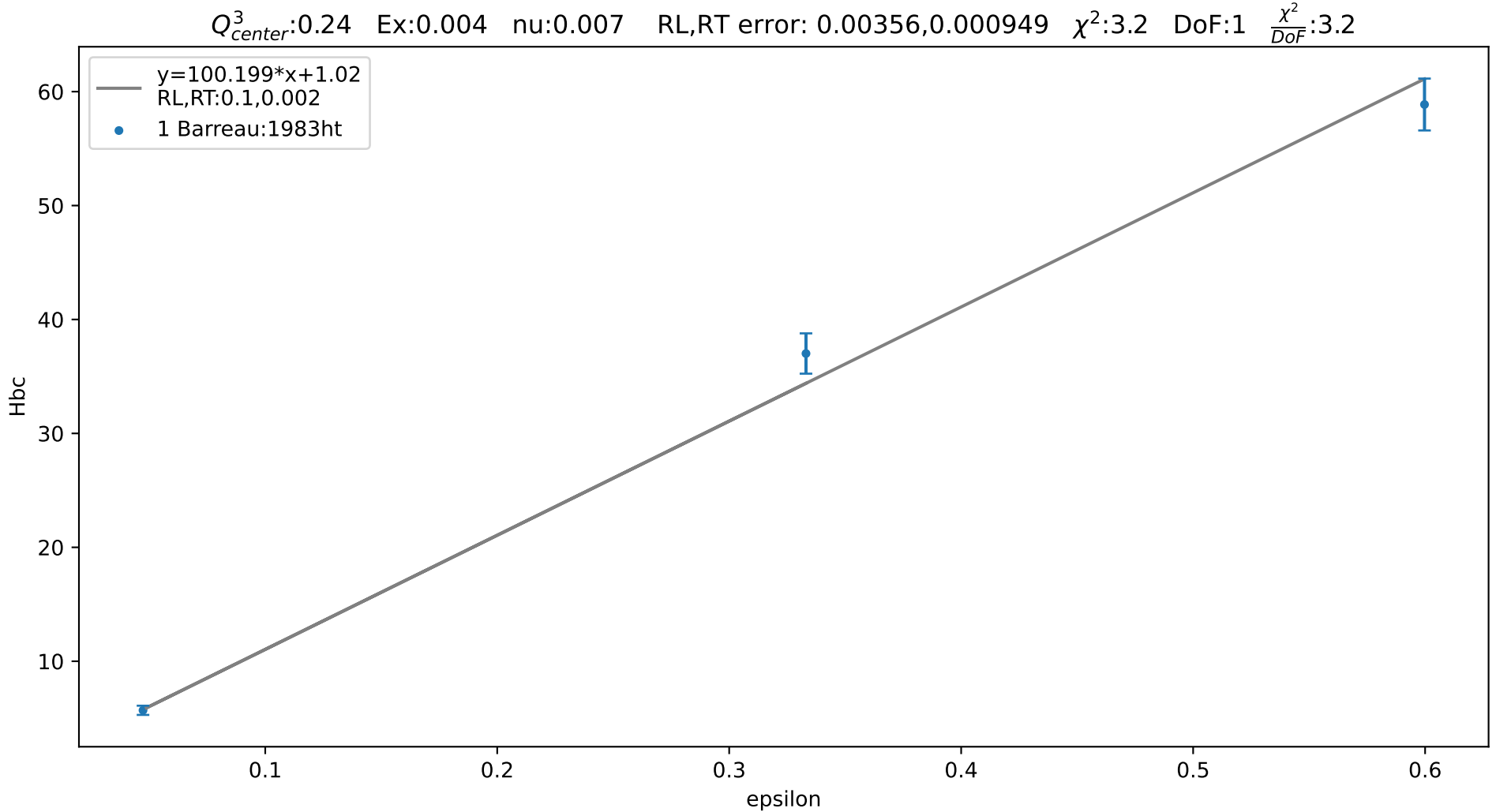

Q^3_{center}:0.205 Ex:0.038 nu:0.04 RL,RT error: 0.000761,0.000336 χ^2:1.3 DoF:8 $\frac{\chi^2}{DoF}$:0.2
y=35.611*x+8.269
RL,RT:0.036,0.016
16 Yamaguchi73
Hbc
epsilon
35
30
25
20
15
10
0.1
0.2
0.3
0.4
0.5
0.6
0.7

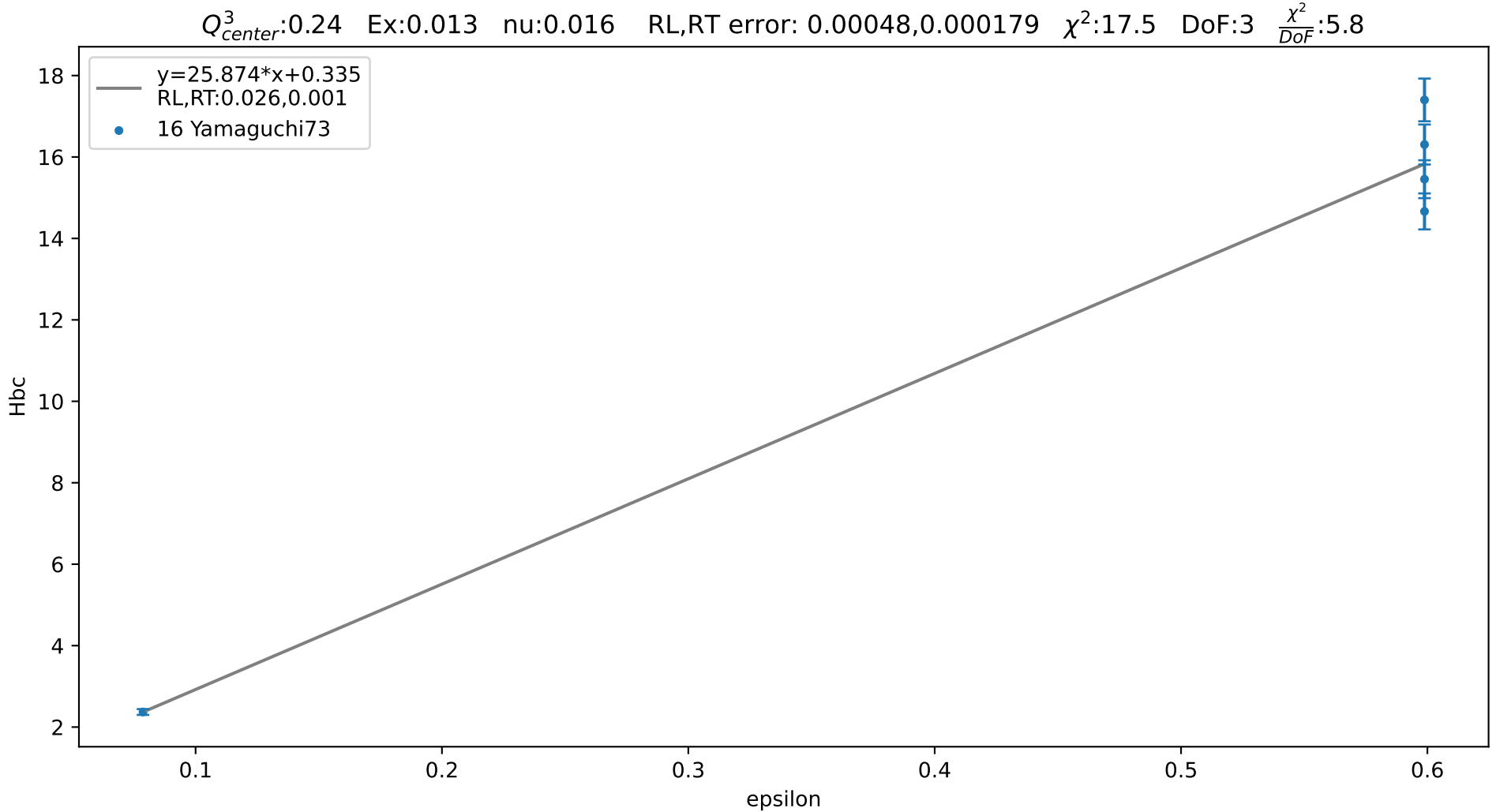

Q^3_{center}:0.205 Ex:0.039 nu:0.041 RL,RT error: 0.000765,0.00038 χ^2:2.9 DoF:8 $\frac{\chi^2}{DoF}$:0.4
y=34.75*x+8.613
RL,RT:0.035,0.017
16 Yamaguchi73
1 Barreau:1983ht
Hbc
epsilon
35
30
25
20
15
10
0.1
0.2
0.3
0.4
0.5
0.6
0.7

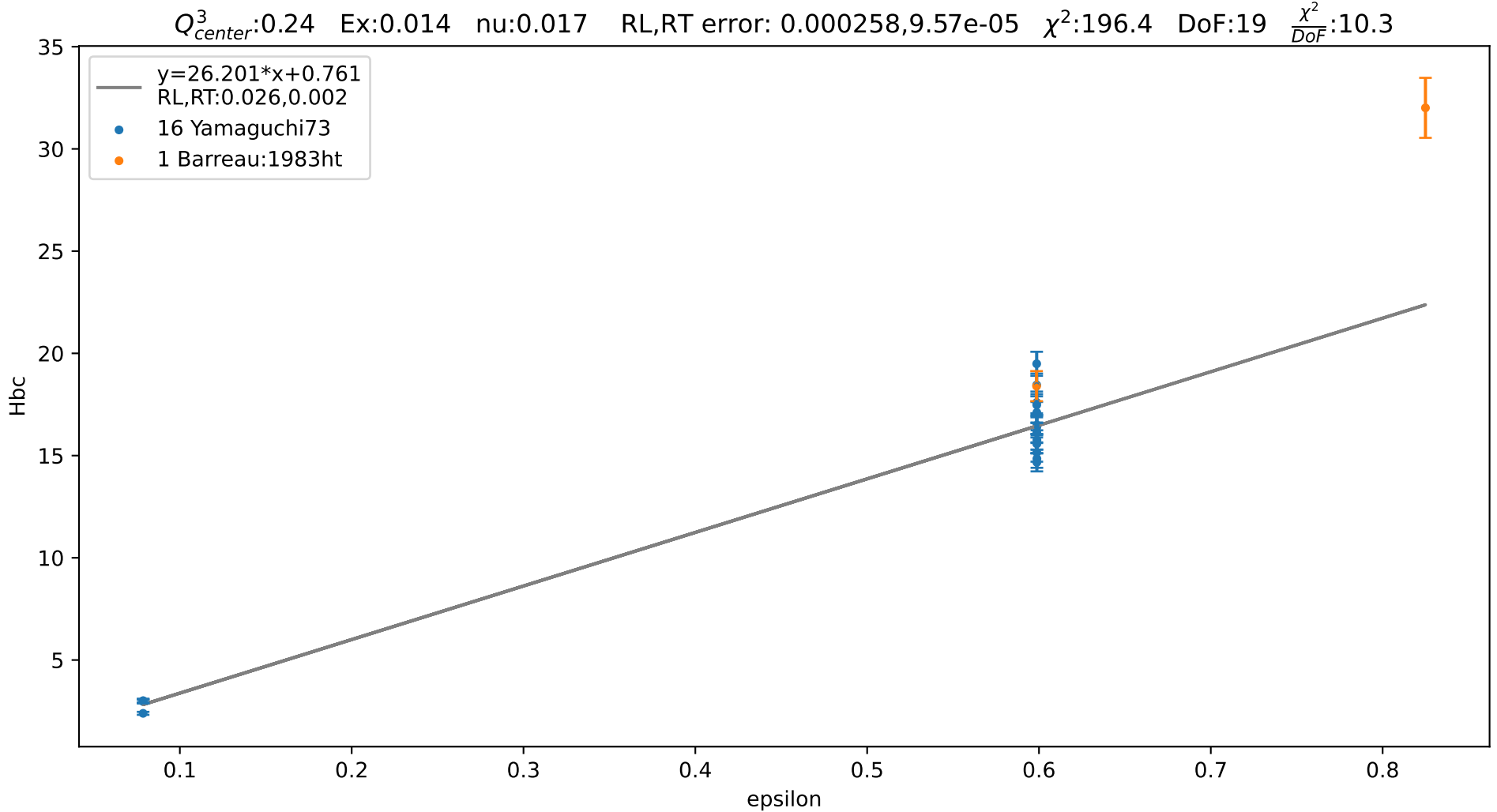

q = 0.205 bin:0.186~0.223
RL Total Christy-Bodek Fit
RL QE Christy-Bodek Fit
RL this analysis
RL Yamaguchi
RL QE NuWRo-SF-FSI
W = 0.93
W = 1.07
ν = 0.205
(Q² = 0)
R_L
ν(GeV)

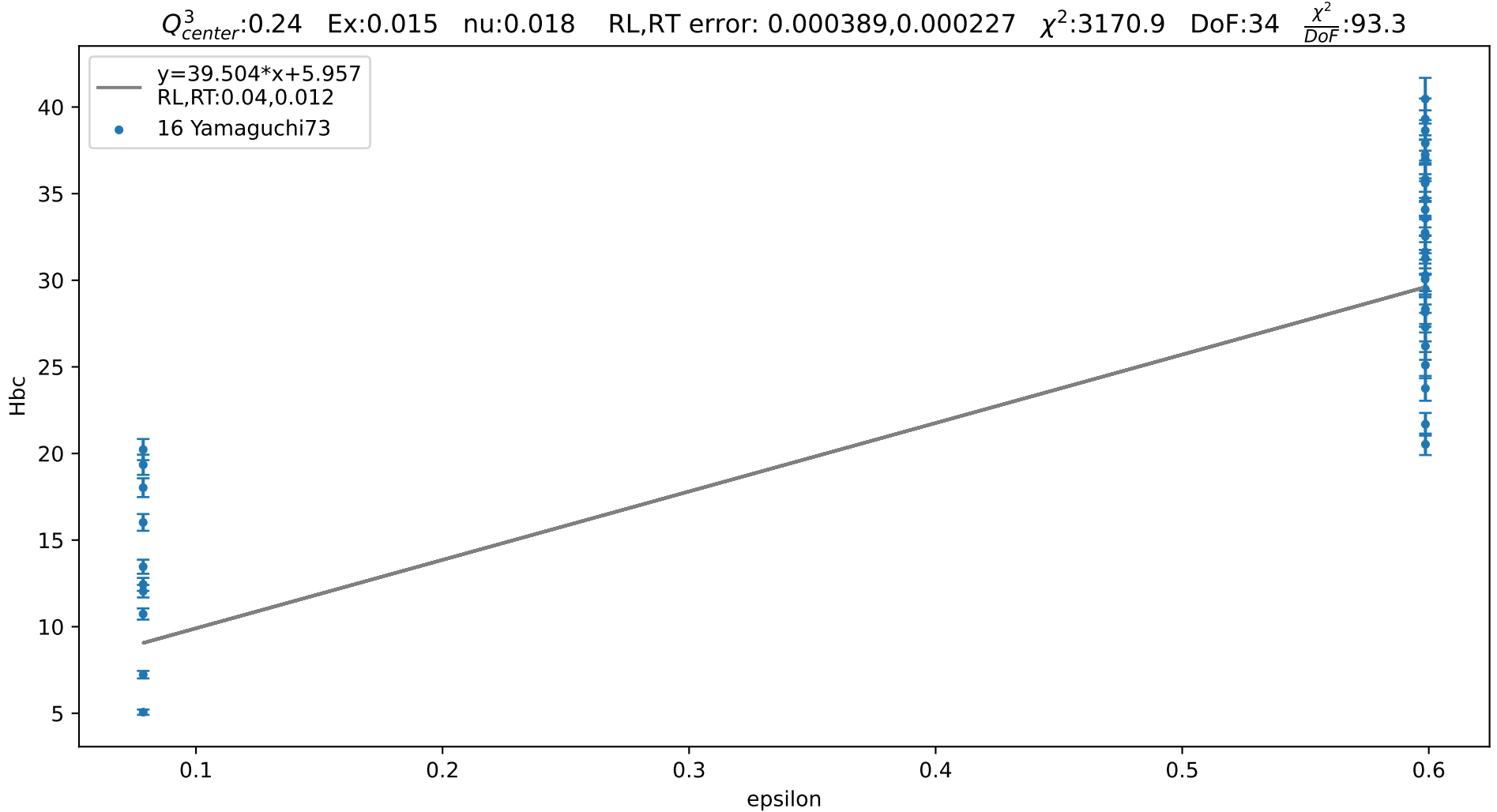

q = 0.205 bin:0.186~0.223
RT Total Christy-Bodek Fit
RT QE Christy-Bodek Fit
RT this analysis
RT Photo-production
RT Yamaguchi
RT QE NuWRo-SF-FSI
W = 0.93
W = 1.07
ν = 0.205
(Q² = 0)
R_T
ν(GeV)

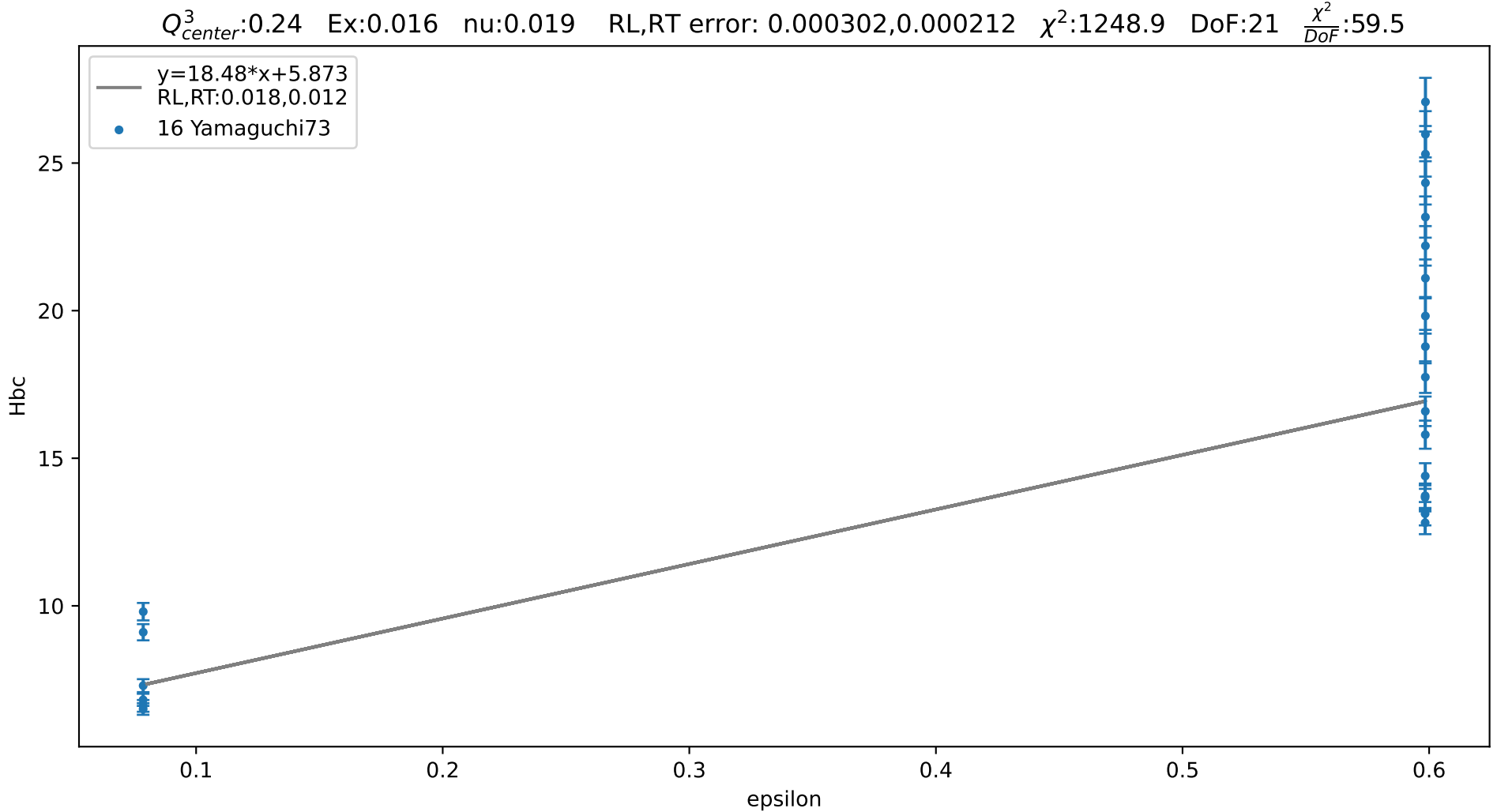

χ²/DoF
χ²/DoF
ν(GeV)

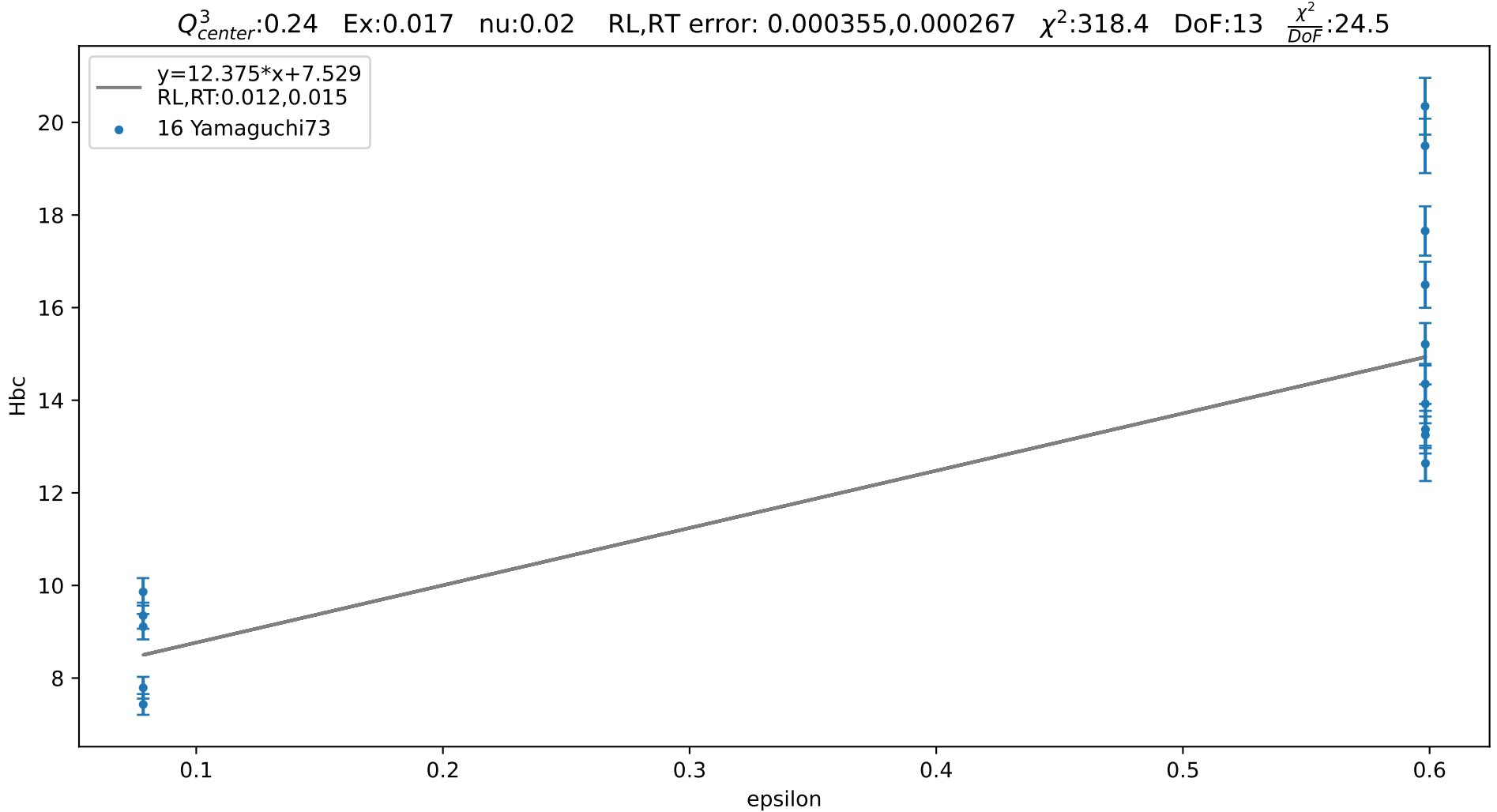

Q^3_{center}:0.24 Ex:0.004 nu:0.007 RL,RT error: 0.00356,0.000949 χ^2:3.2 DoF:1 $\frac{\chi^2}{DoF}$:3.2
y=100.199*x+1.02
RL,RT:0.1,0.002
1 Barreau:1983ht
Hbc
epsilon
10
20
30
40
50
60
0.1
0.2
0.3
0.4
0.5
0.6

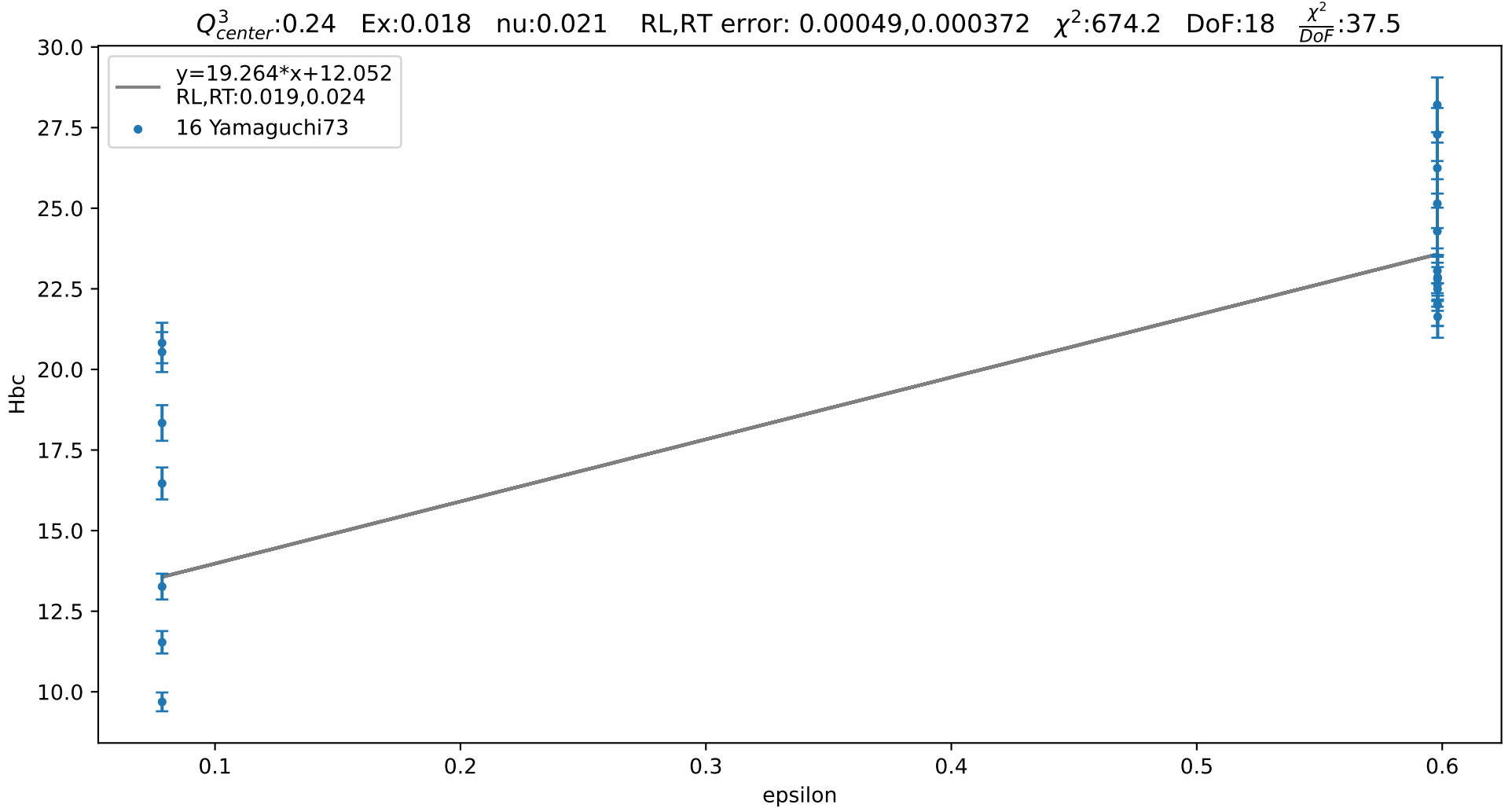

Q^3_{center}:0.24 Ex:0.013 nu:0.016 RL,RT error: 0.00048,0.000179 χ^2:17.5 DoF:3 $\frac{\chi^2}{DoF}$:5.8
y=25.874*x+0.335
RL,RT:0.026,0.001
16 Yamaguchi73
Hbc
epsilon
2
4
6
8
10
12
14
16
18
0.1
0.2
0.3
0.4
0.5
0.6

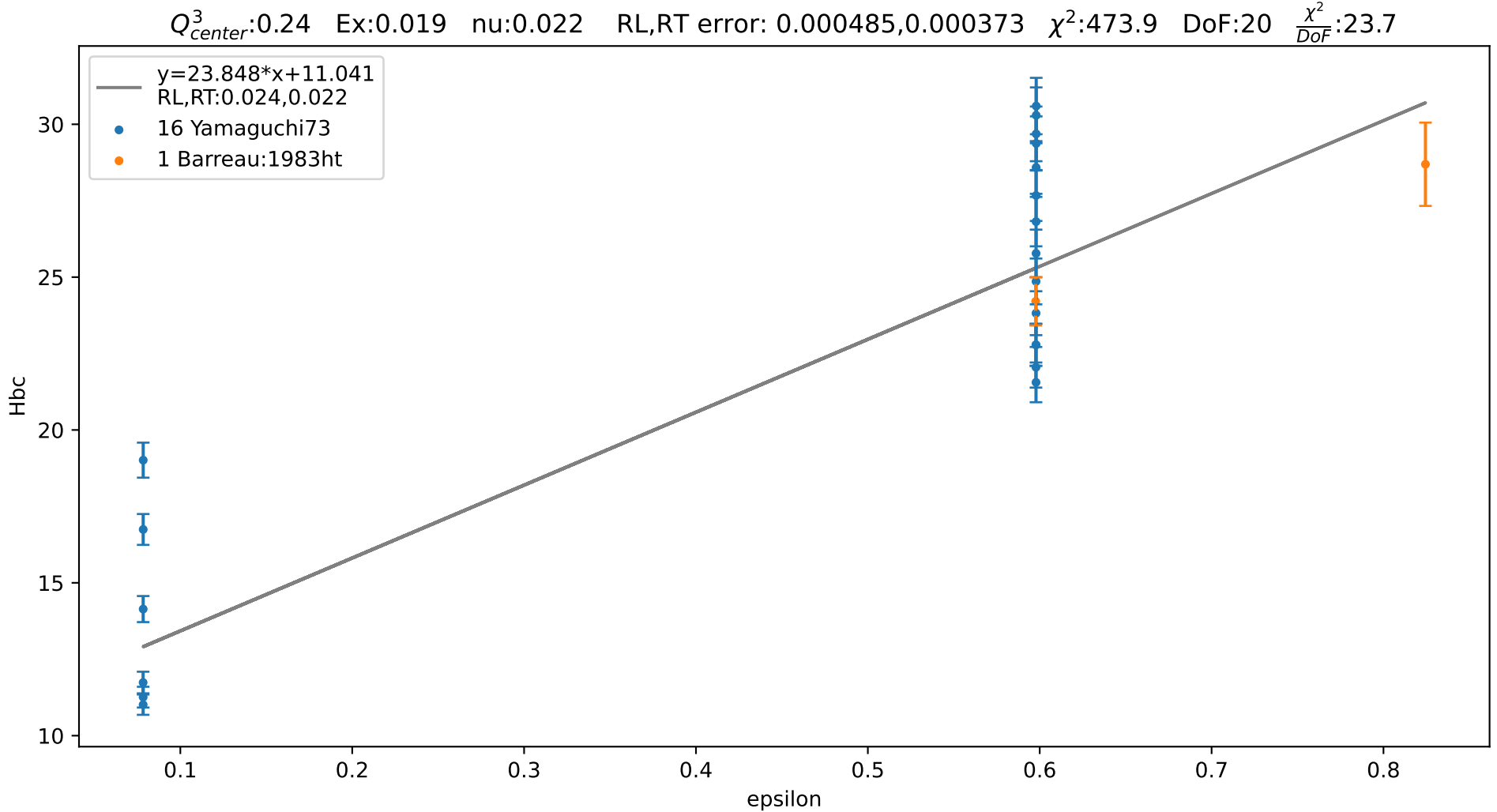

Q^3_{center}:0.24 Ex:0.014 nu:0.017 RL,RT error: 0.000258,9.57e-05 χ^2:196.4 DoF:19 $\frac{\chi^2}{DoF}$:10.3
y=26.201*x+0.761
RL,RT:0.026,0.002
16 Yamaguchi73
1 Barreau:1983ht
Hbc
epsilon
35
30
25
20
15
10
5
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

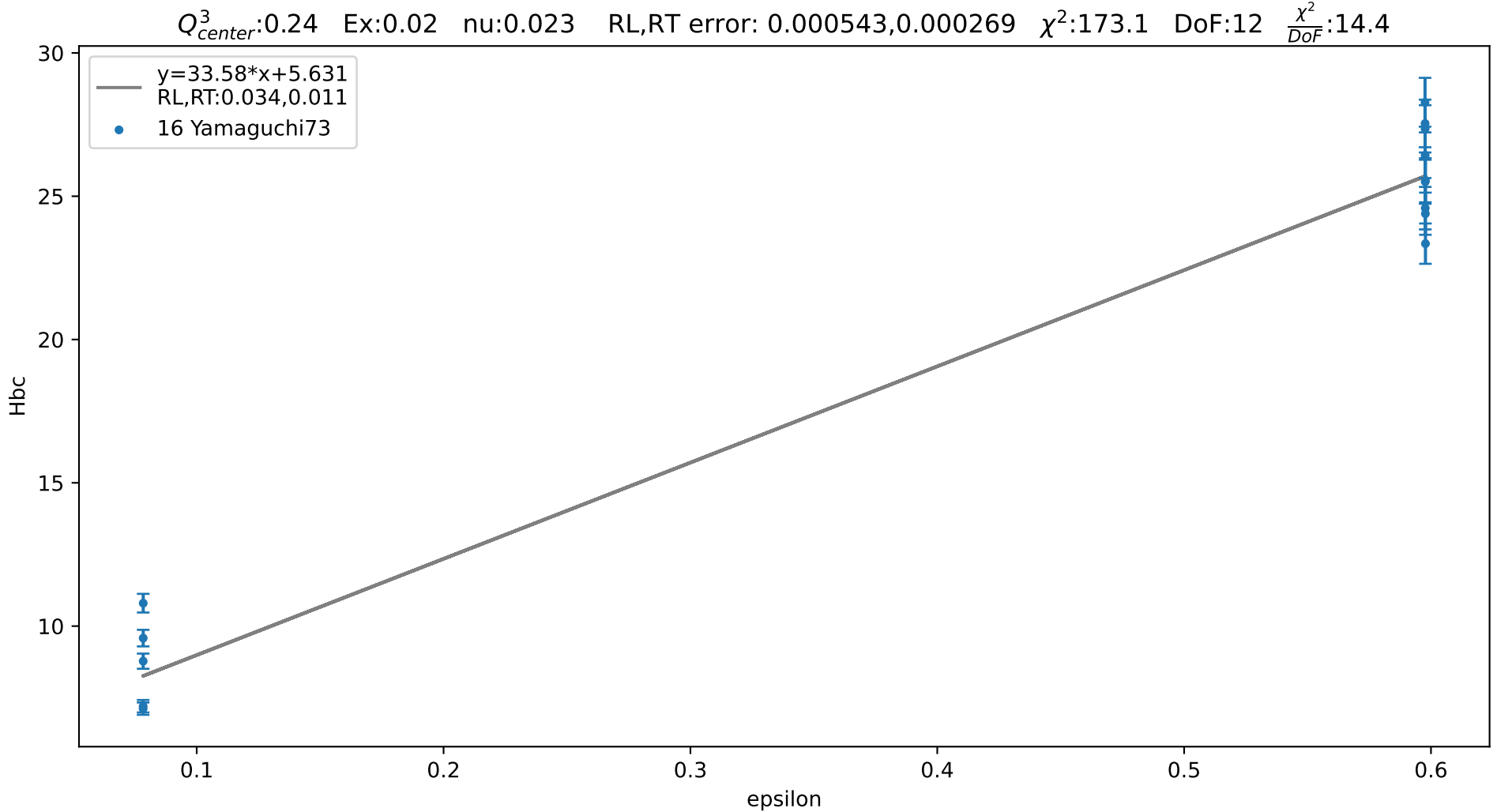

Q^3_{center}:0.24 Ex:0.015 nu:0.018 RL,RT error: 0.000389,0.000227 χ^2:3170.9 DoF:34 $\frac{\chi^2}{DoF}$:93.3
y=39.504*x+5.957
RL,RT:0.04,0.012
16 Yamaguchi73
Hbc
epsilon
5
10
15
20
25
30
35
40
0.1
0.2
0.3
0.4
0.5
0.6

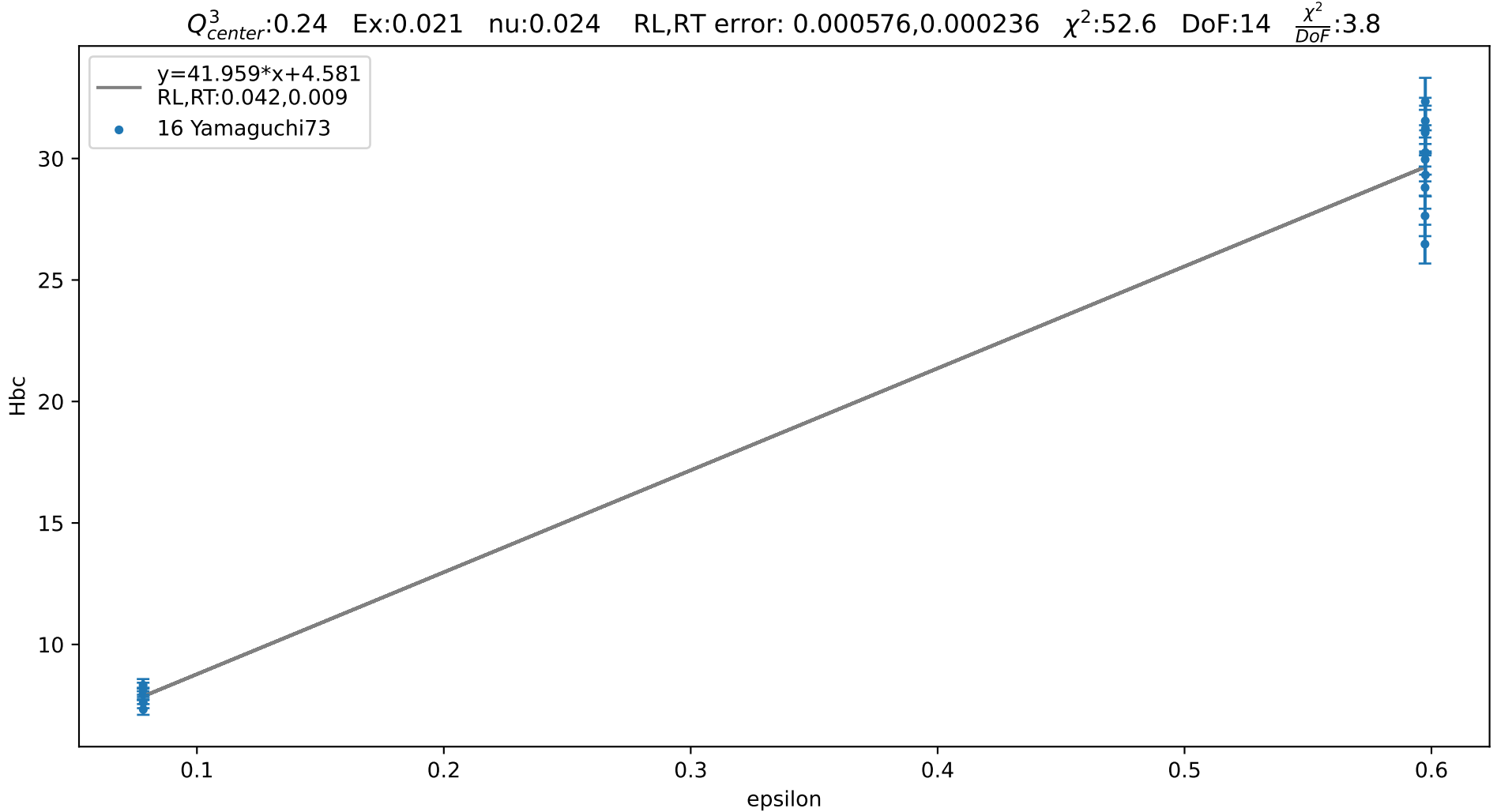

Q^3_{center}:0.24 Ex:0.016 nu:0.019 RL,RT error: 0.000302,0.000212 χ^2:1248.9 DoF:21 $\frac{\chi^2}{DoF}$:59.5
y=18.48*x+5.873
RL,RT:0.018,0.012
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
0.1
0.2
0.3
0.4
0.5
0.6

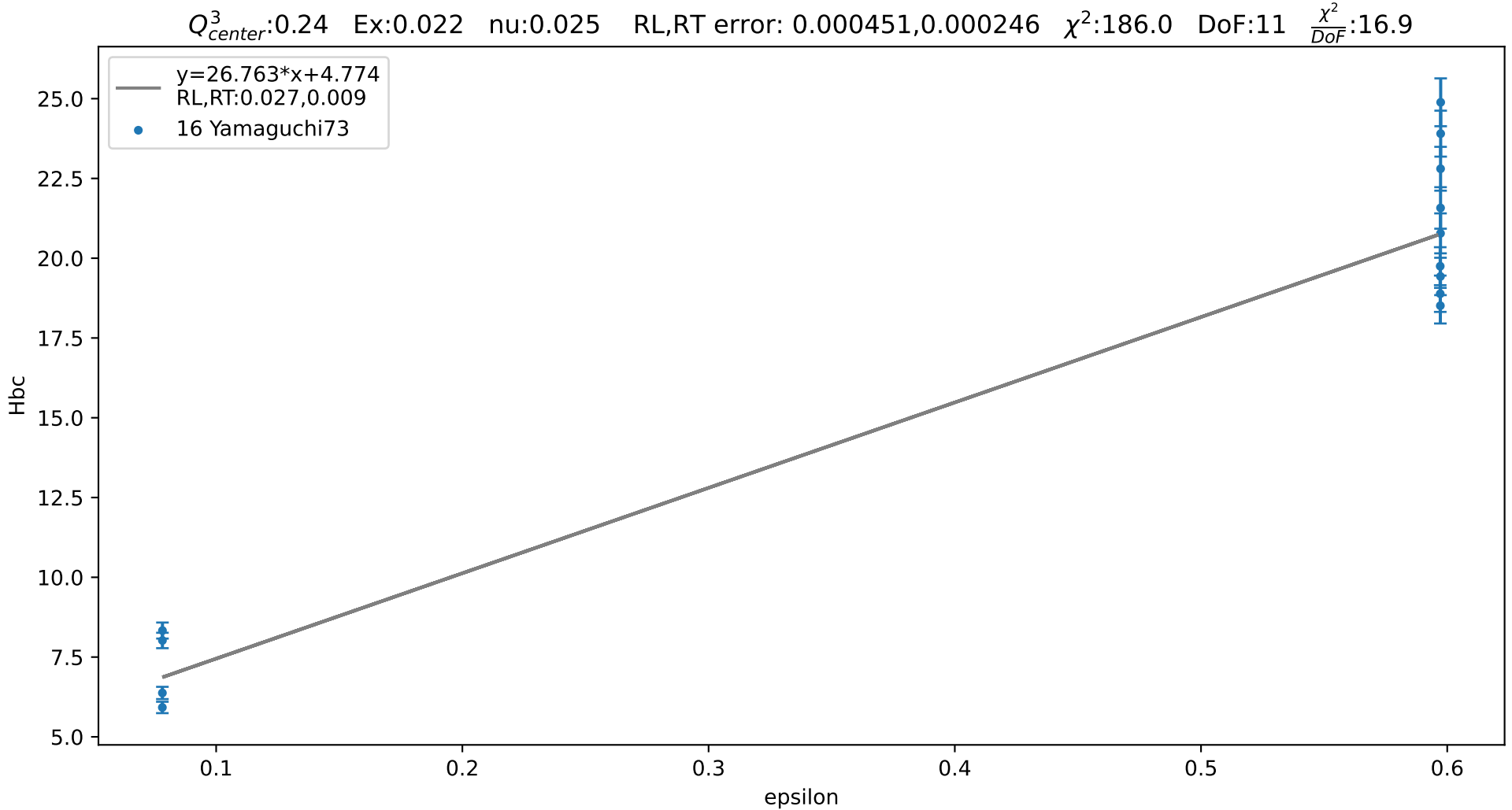

Q^3_{center}:0.24 Ex:0.017 nu:0.02 RL,RT error: 0.000355,0.000267 χ^2:318.4 DoF:13 $\frac{\chi^2}{DoF}$:24.5
y=12.375*x+7.529
RL,RT:0.012,0.015
16 Yamaguchi73
Hbc
epsilon
8
10
12
14
16
18
20
0.1
0.2
0.3
0.4
0.5
0.6

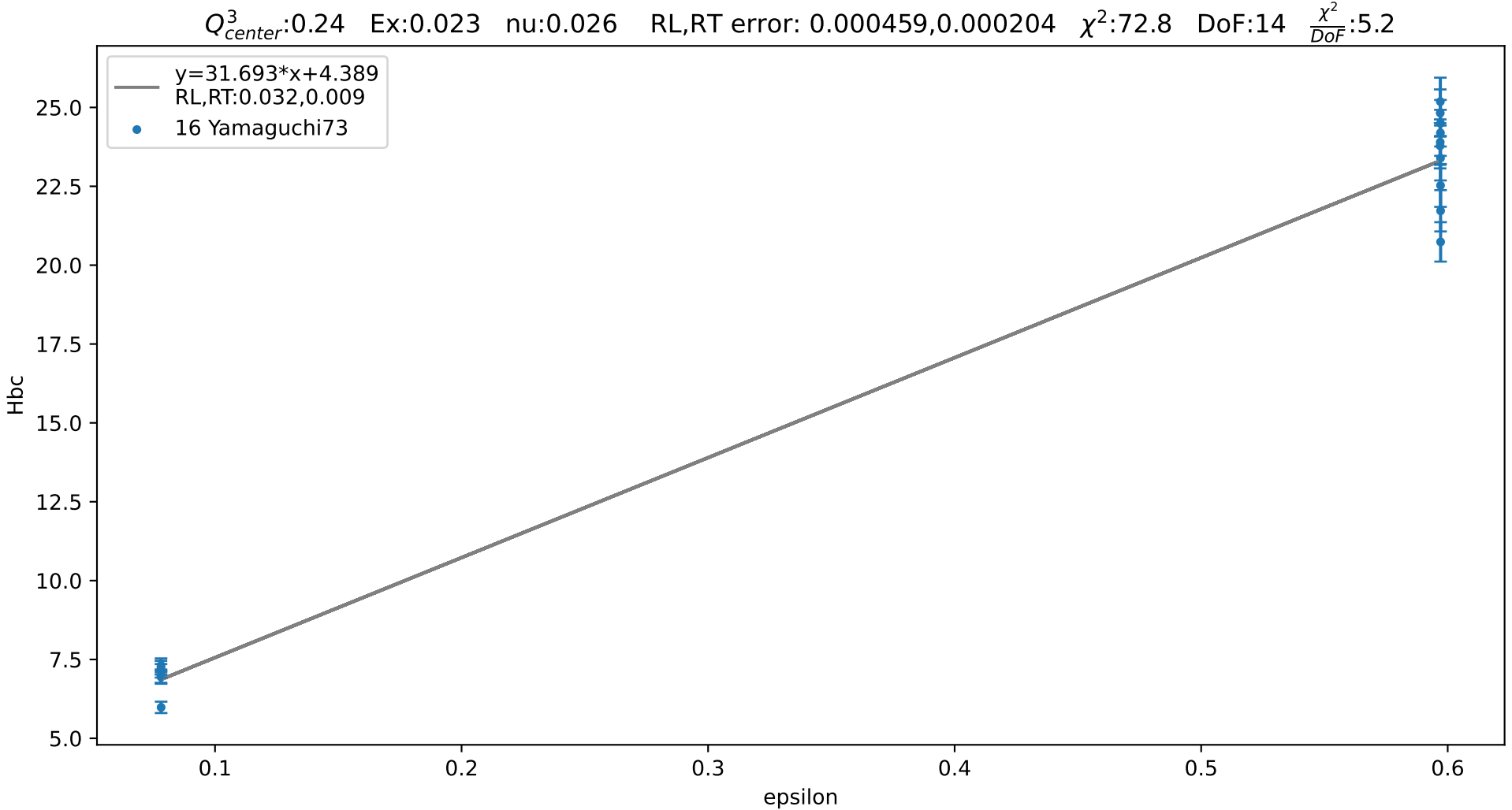

Q^3_{center}:0.24 Ex:0.018 nu:0.021 RL,RT error: 0.00049,0.000372 χ^2:674.2 DoF:18 $\frac{\chi^2}{DoF}$:37.5
y=19.264*x+12.052
RL,RT:0.019,0.024
16 Yamaguchi73
Hbc
epsilon
30.0
27.5
25.0
22.5
20.0
17.5
15.0
12.5
10.0
0.1
0.2
0.3
0.4
0.5
0.6

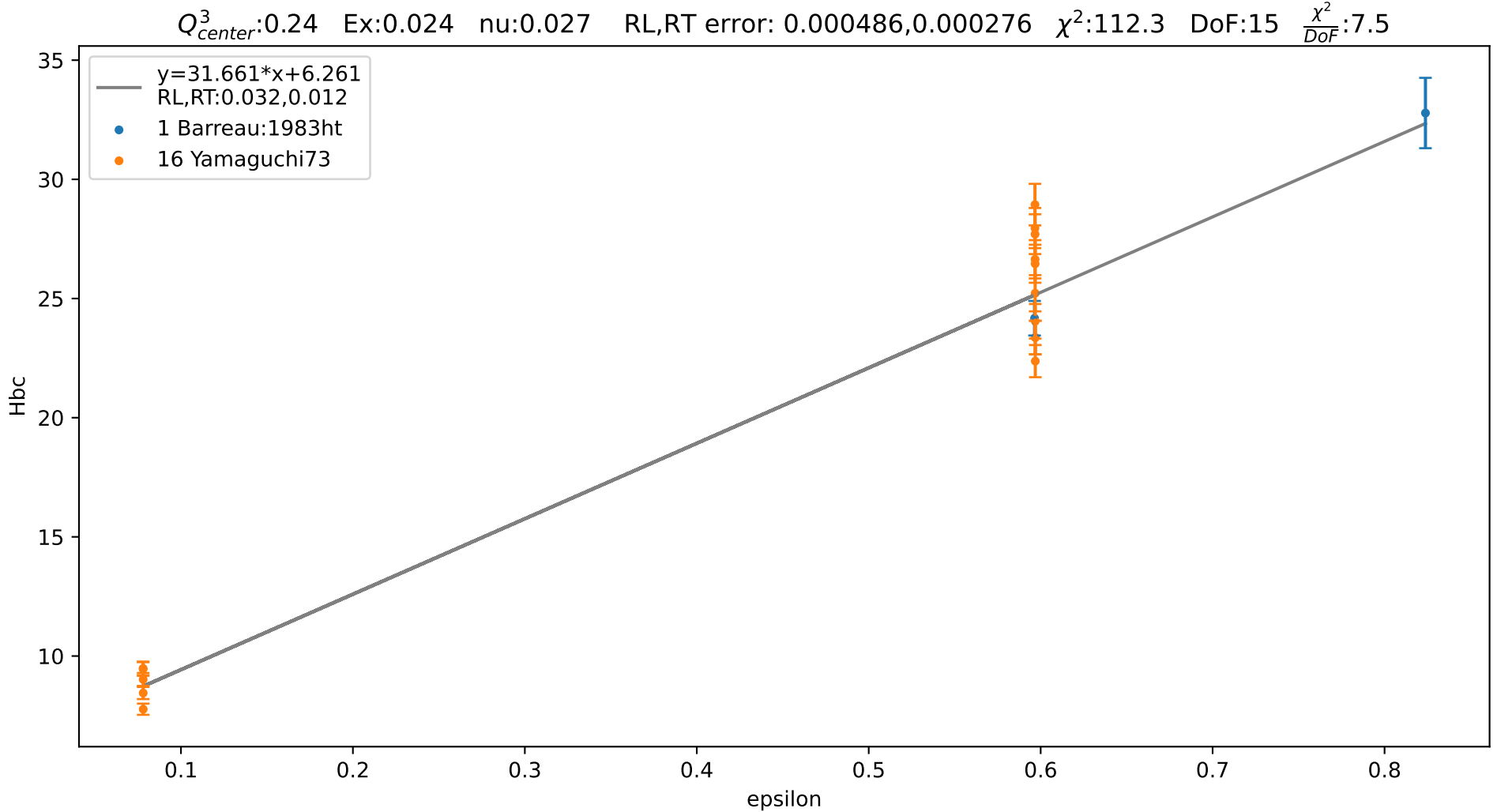

Q^3_{center}:0.24 Ex:0.019 nu:0.022 RL,RT error: 0.000485,0.000373 χ^2:473.9 DoF:20 $\frac{\chi^2}{DoF}$:23.7
y=23.848*x+11.041
RL,RT:0.024,0.022
16 Yamaguchi73
1 Barreau:1983ht
Hbc
epsilon
10
15
20
25
30
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

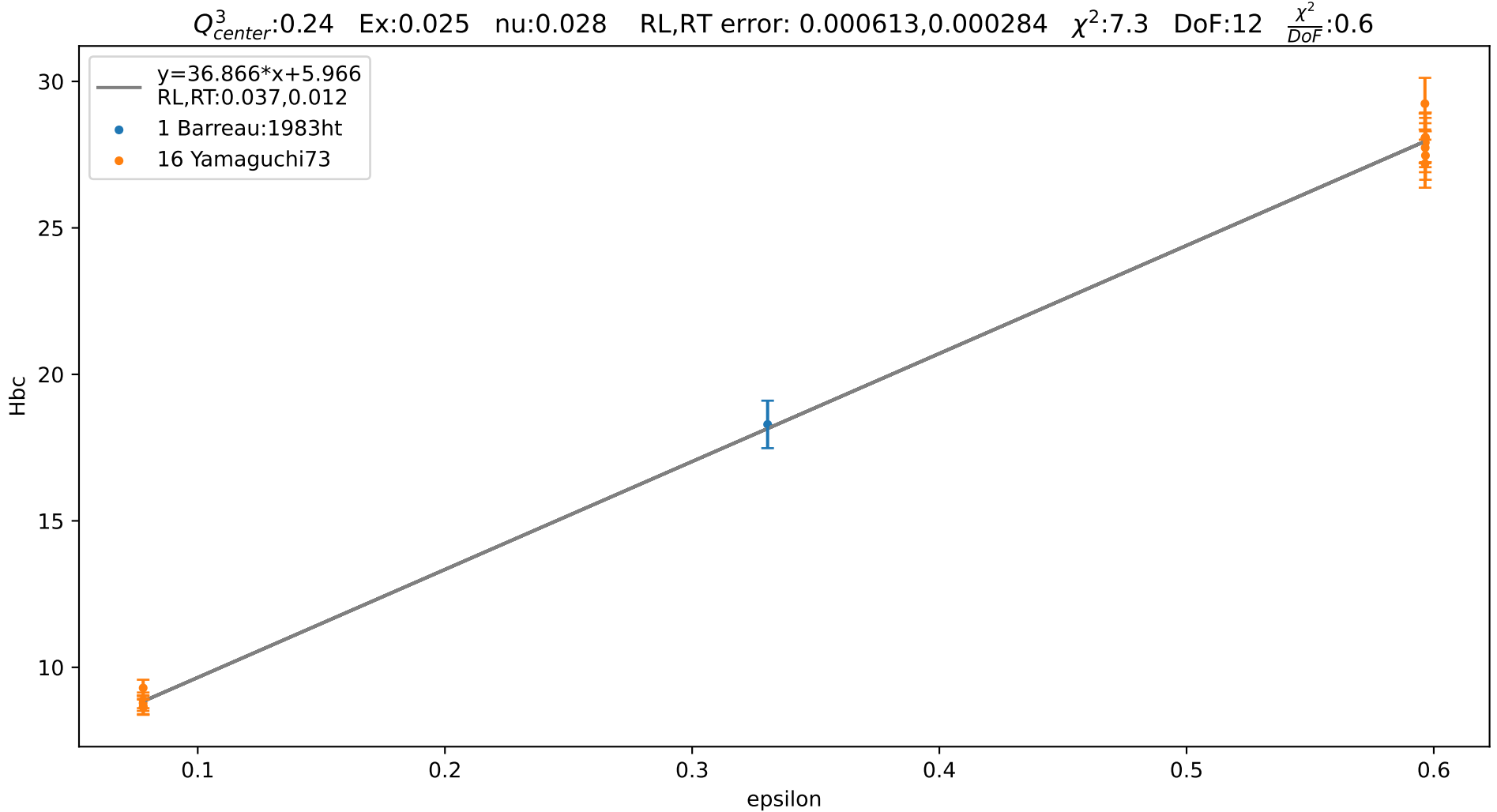

Q^3_{center}:0.24 Ex:0.02 nu:0.023 RL,RT error: 0.000543,0.000269 χ^2:173.1 DoF:12 $\frac{\chi^2}{DoF}$:14.4
y=33.58*x+5.631
RL,RT:0.034,0.011
16 Yamaguchi73
Hbc
epsilon
30
25
20
15
10
0.1
0.2
0.3
0.4
0.5
0.6

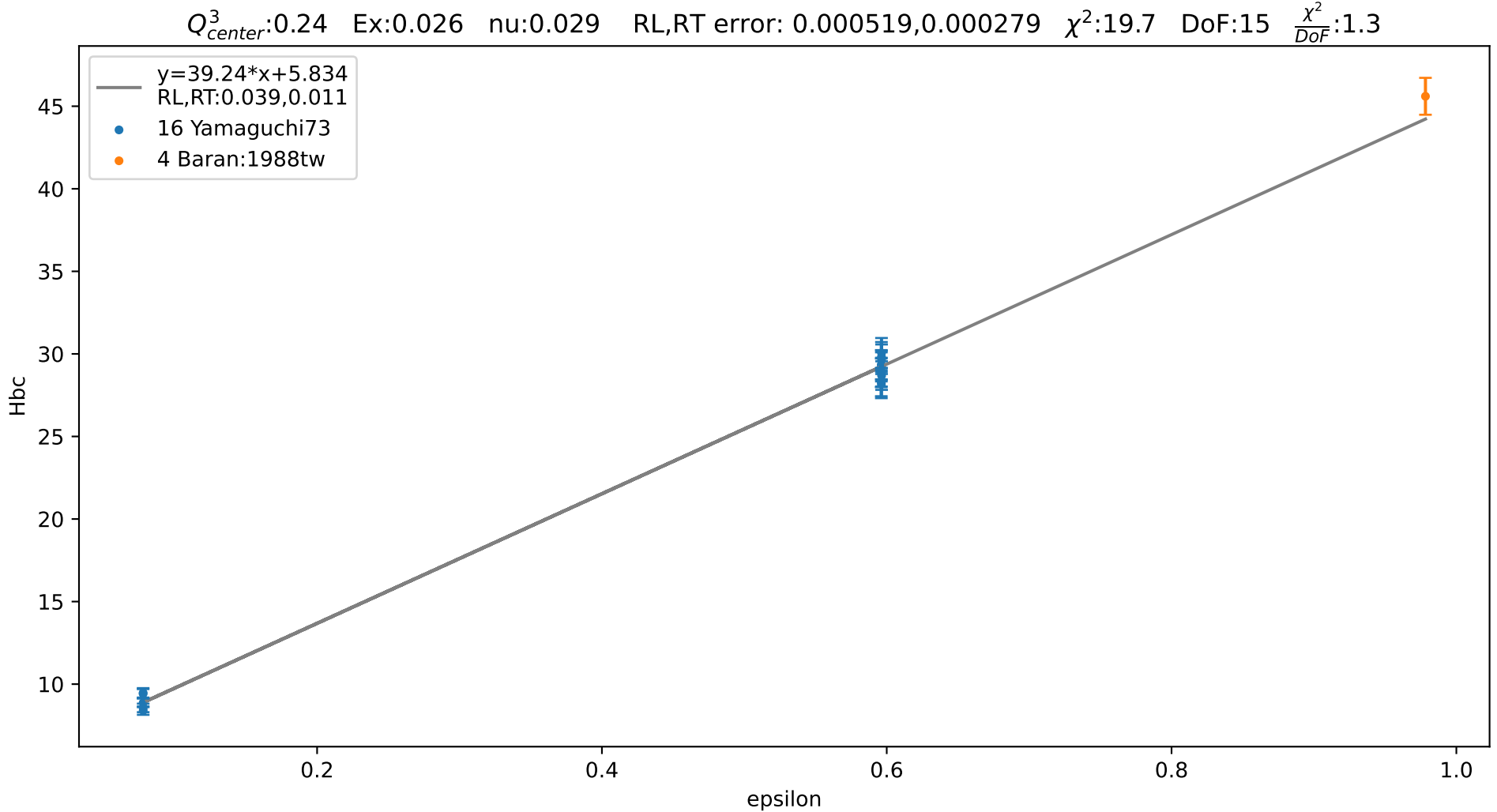

Q^3_{center}:0.24 Ex:0.021 nu:0.024 RL,RT error: 0.000576,0.000236 χ^2:52.6 DoF:14 $\frac{\chi^2}{DoF}$:3.8
y=41.959*x+4.581
RL,RT:0.042,0.009
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
0.1
0.2
0.3
0.4
0.5
0.6

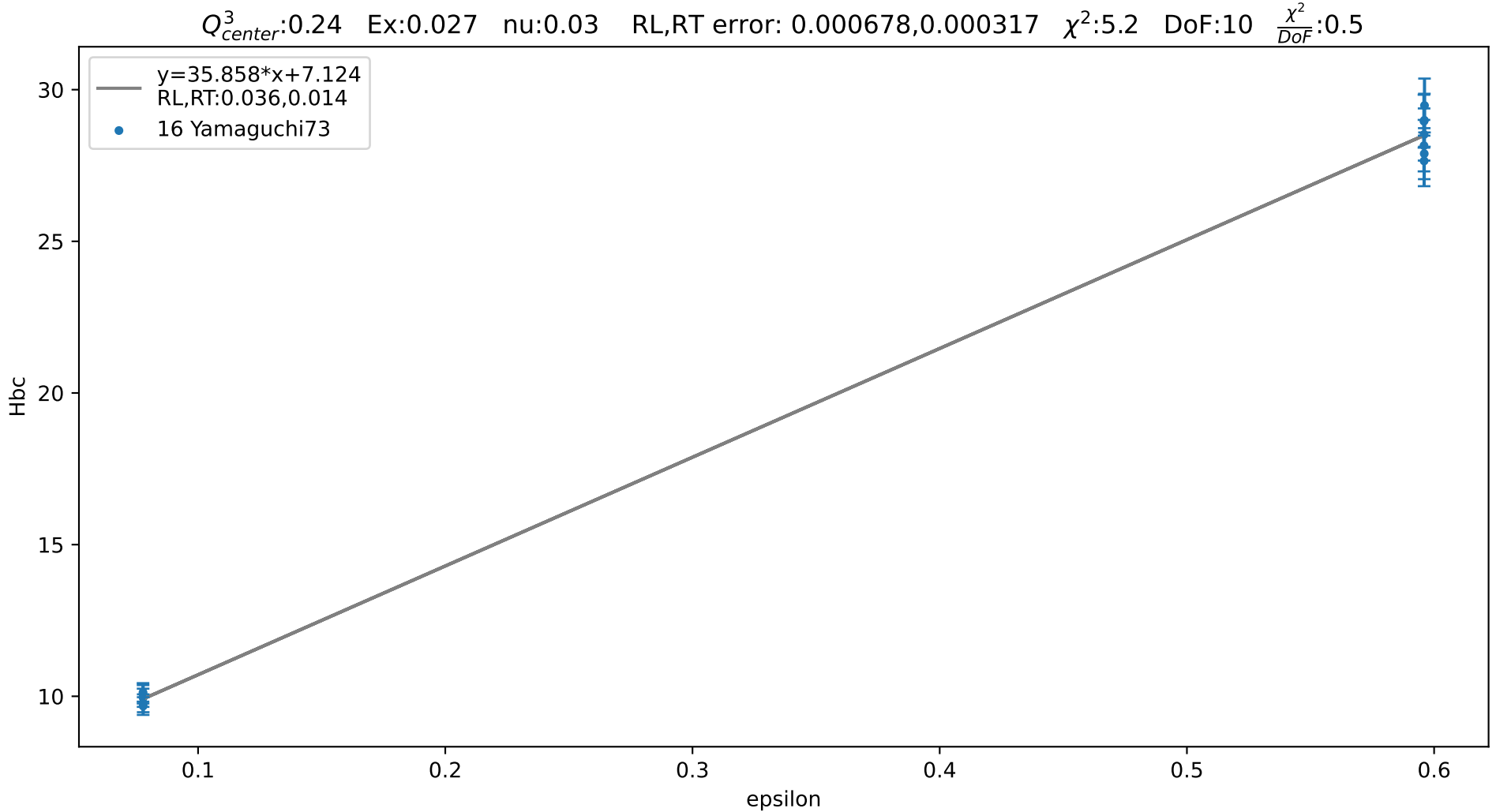

Q^3_{center}:0.24 Ex:0.022 nu:0.025 RL,RT error: 0.000451,0.000246 χ^2:186.0 DoF:11 $\frac{\chi^2}{DoF}$:16.9
y=26.763*x+4.774
RL,RT:0.027,0.009
16 Yamaguchi73
Hbc
epsilon
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
0.1
0.2
0.3
0.4
0.5
0.6

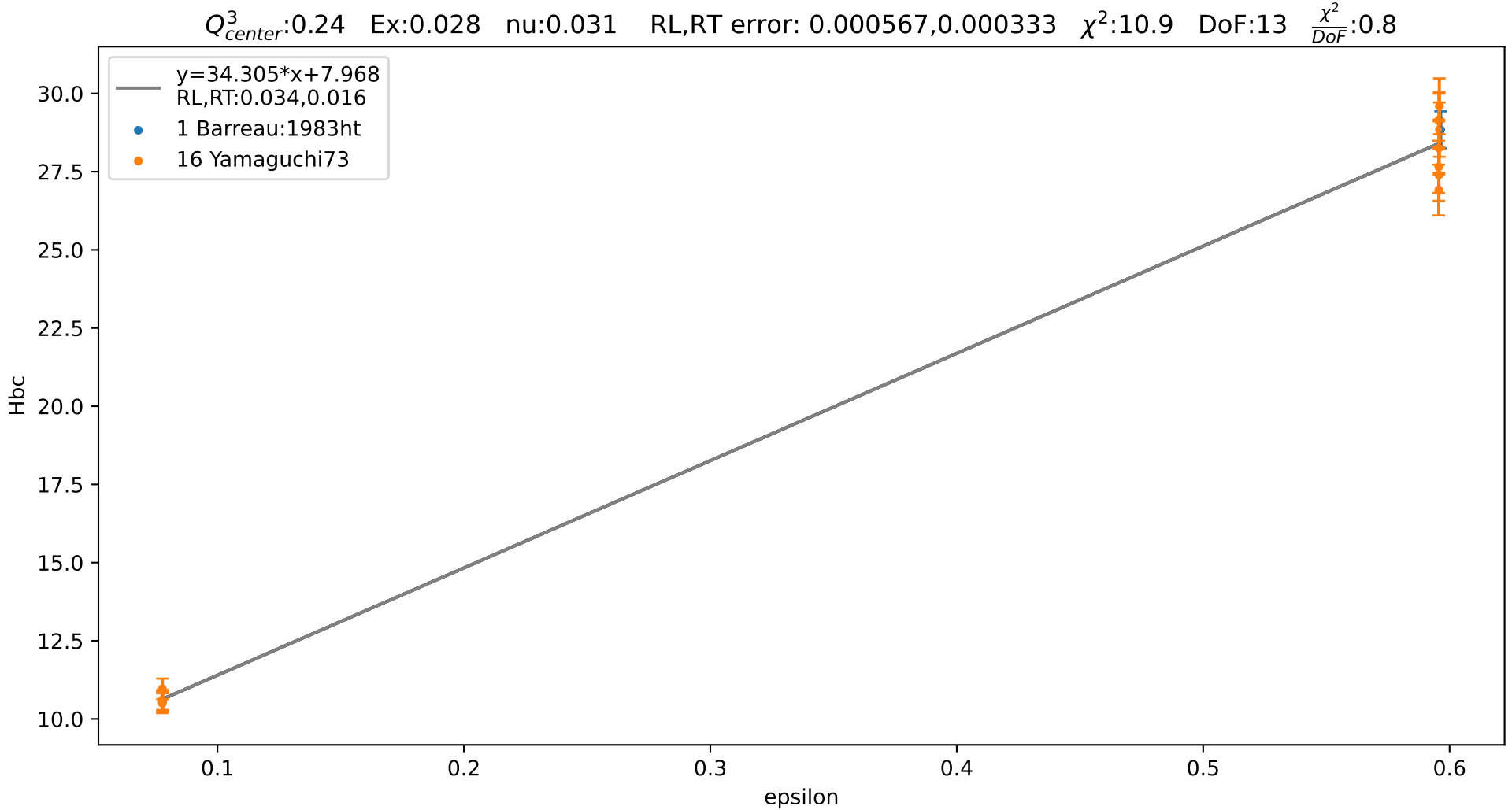

Q^3_{center}:0.24 Ex:0.023 nu:0.026 RL,RT error: 0.000459,0.000204 χ^2:72.8 DoF:14 $\frac{\chi^2}{DoF}$:5.2
y=31.693*x+4.389
RL,RT:0.032,0.009
16 Yamaguchi73
Hbc
epsilon
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
0.1
0.2
0.3
0.4
0.5
0.6

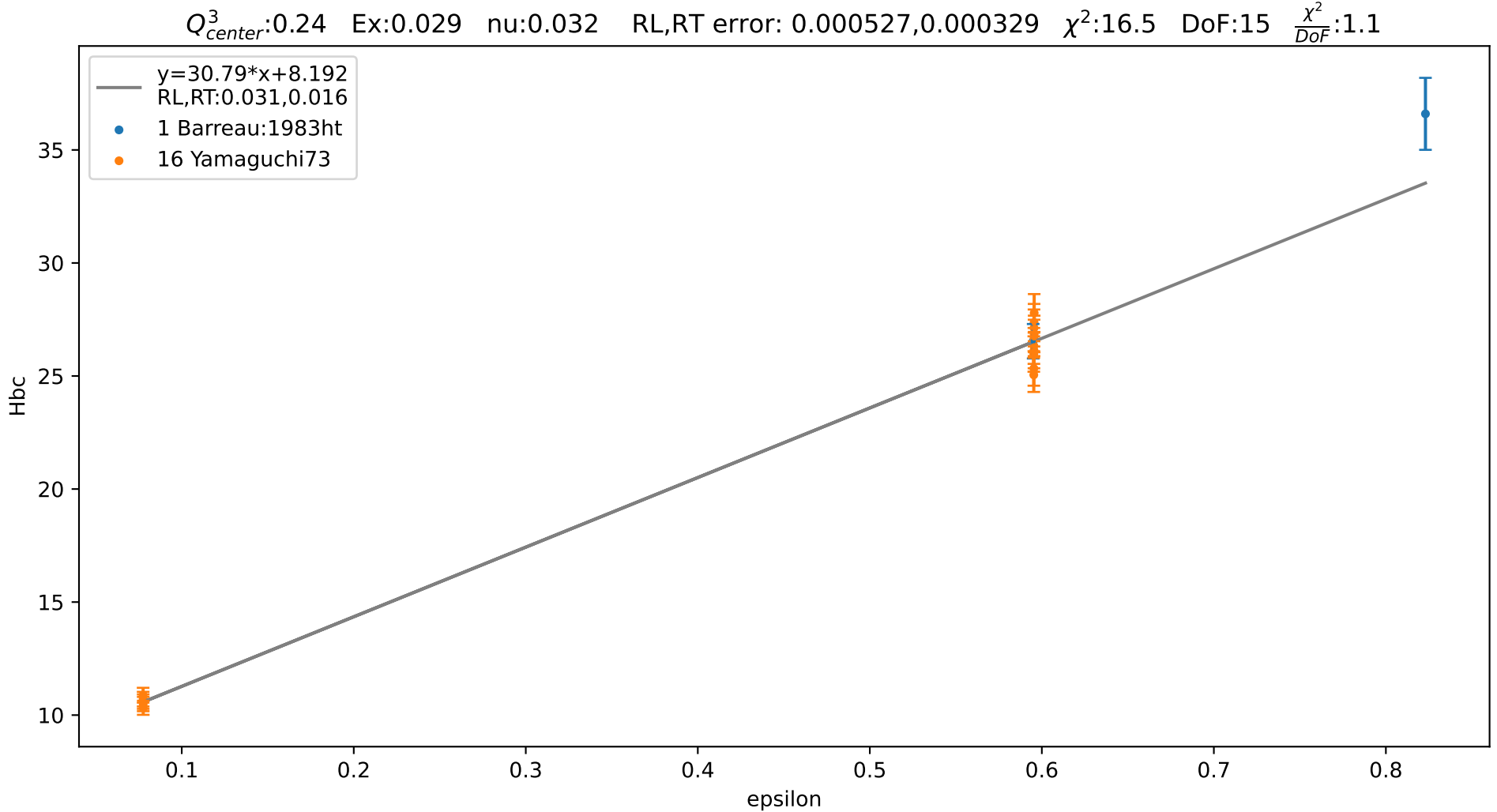

Q^3_{center}:0.24 Ex:0.024 nu:0.027 RL,RT error: 0.000486,0.000276 χ^2:112.3 DoF:15 $\frac{\chi^2}{DoF}$:7.5
y=31.661*x+6.261
RL,RT:0.032,0.012
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
35
30
25
20
15
10
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

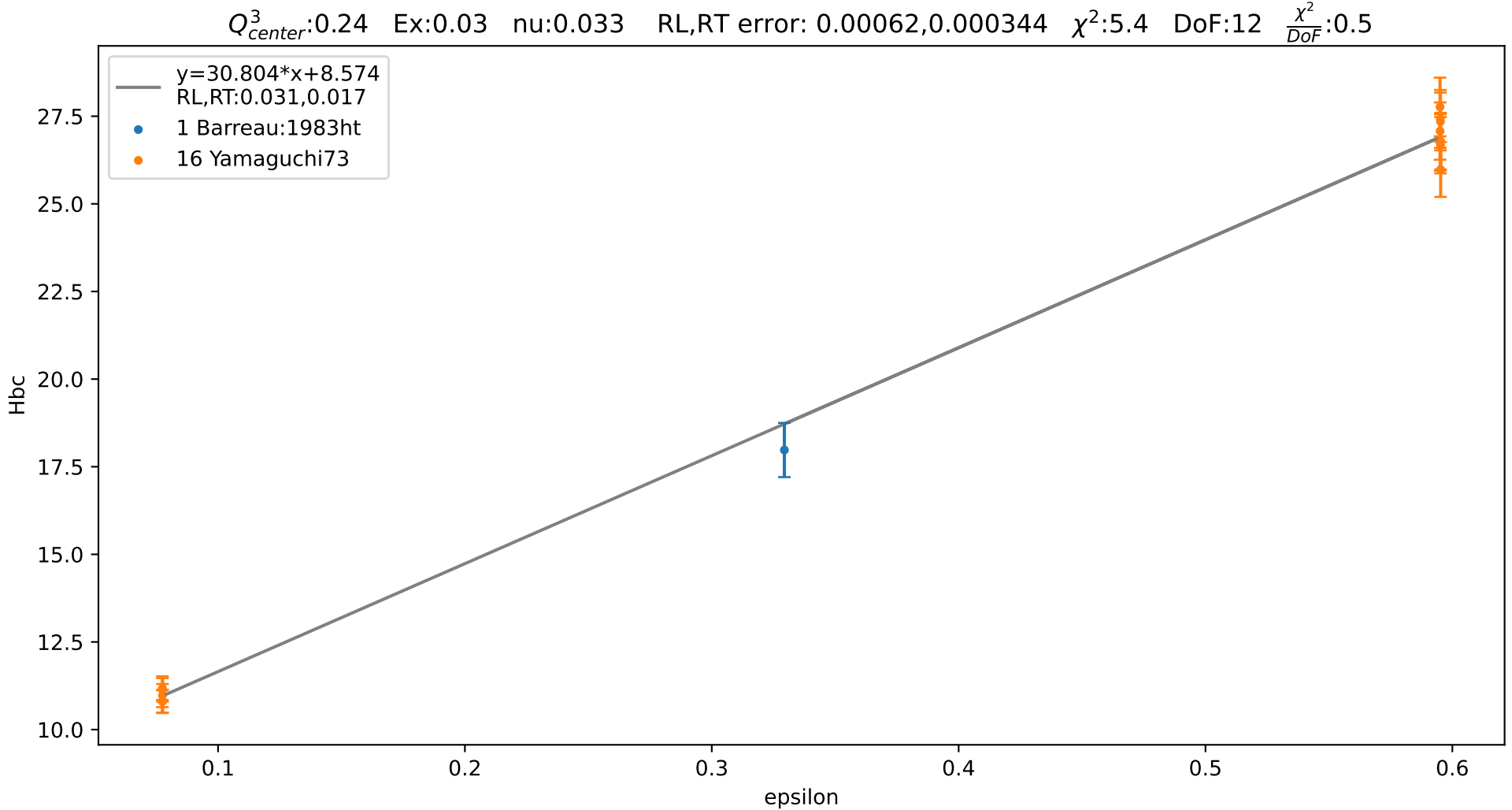

Q^3_{center}:0.24 Ex:0.025 nu:0.028 RL,RT error: 0.000613,0.000284 χ^2:7.3 DoF:12 $\frac{\chi^2}{DoF}$:0.6
y=36.866*x+5.966
RL,RT:0.037,0.012
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
0.1
0.2
0.3
0.4
0.5
0.6

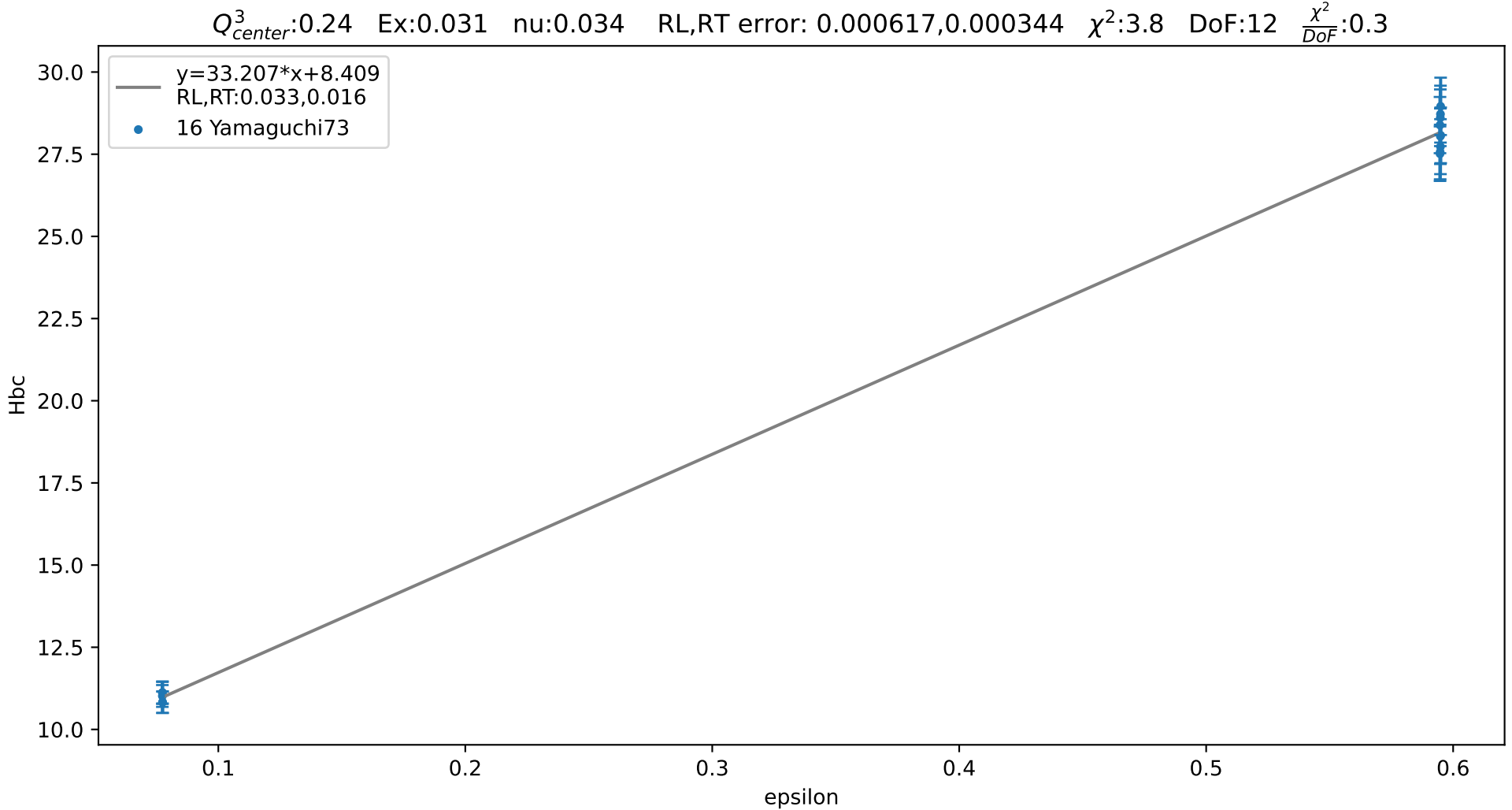

Q^3_{center}:0.24 Ex:0.026 nu:0.029 RL,RT error: 0.000519,0.000279 χ^2:19.7 DoF:15 $\frac{\chi^2}{DoF}$:1.3
y=39.24*x+5.834
RL,RT:0.039,0.011
16 Yamaguchi73
4 Baran:1988tw
Hbc
epsilon
10
15
20
25
30
35
40
45
0.2
0.4
0.6
0.8
1.0

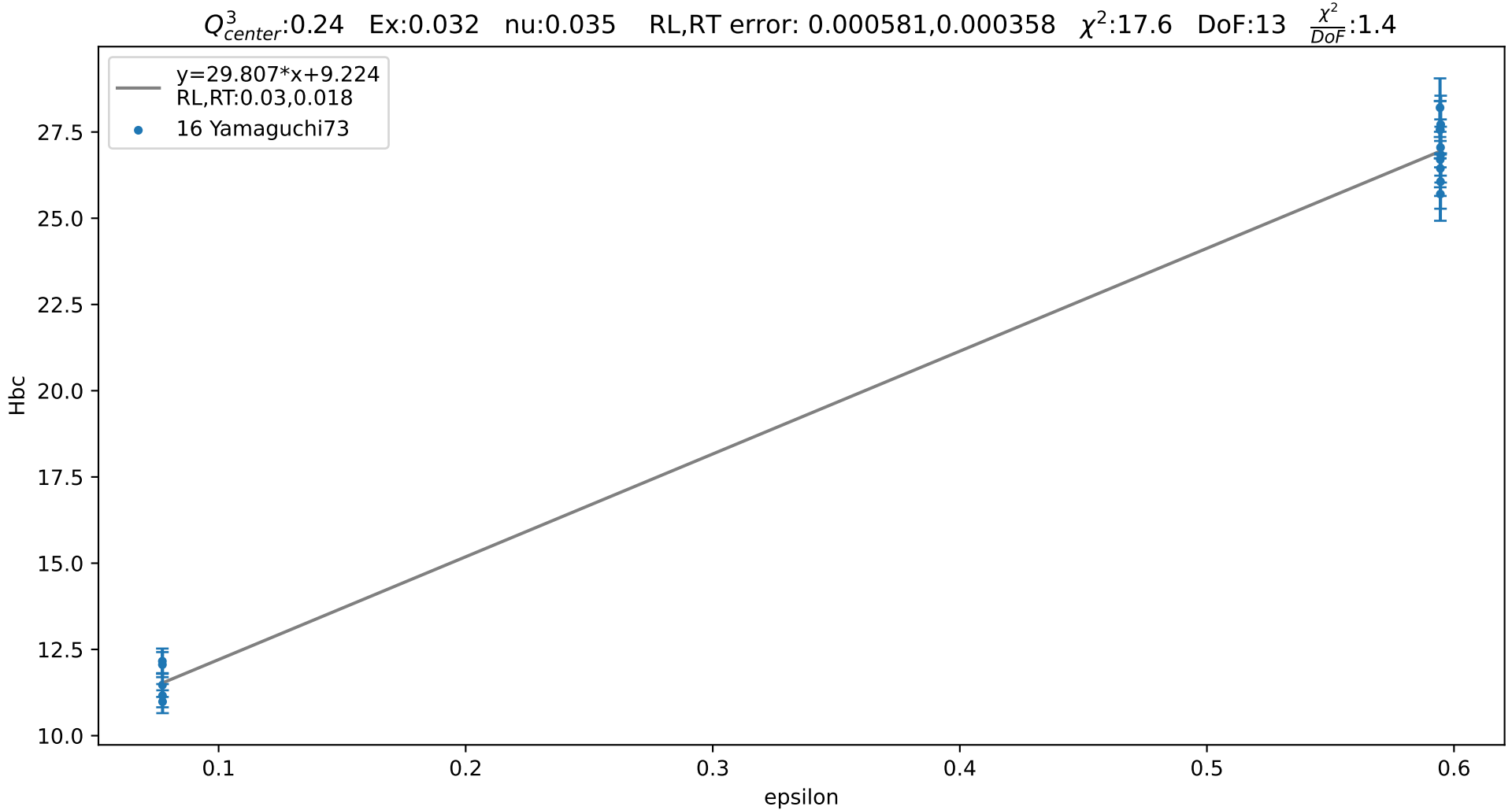

Q^3_{center}:0.24 Ex:0.027 nu:0.03 RL,RT error: 0.000678,0.000317 χ^2:5.2 DoF:10 $\frac{\chi^2}{DoF}$:0.5
y=35.858*x+7.124
RL,RT:0.036,0.014
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
0.1
0.2
0.3
0.4
0.5
0.6

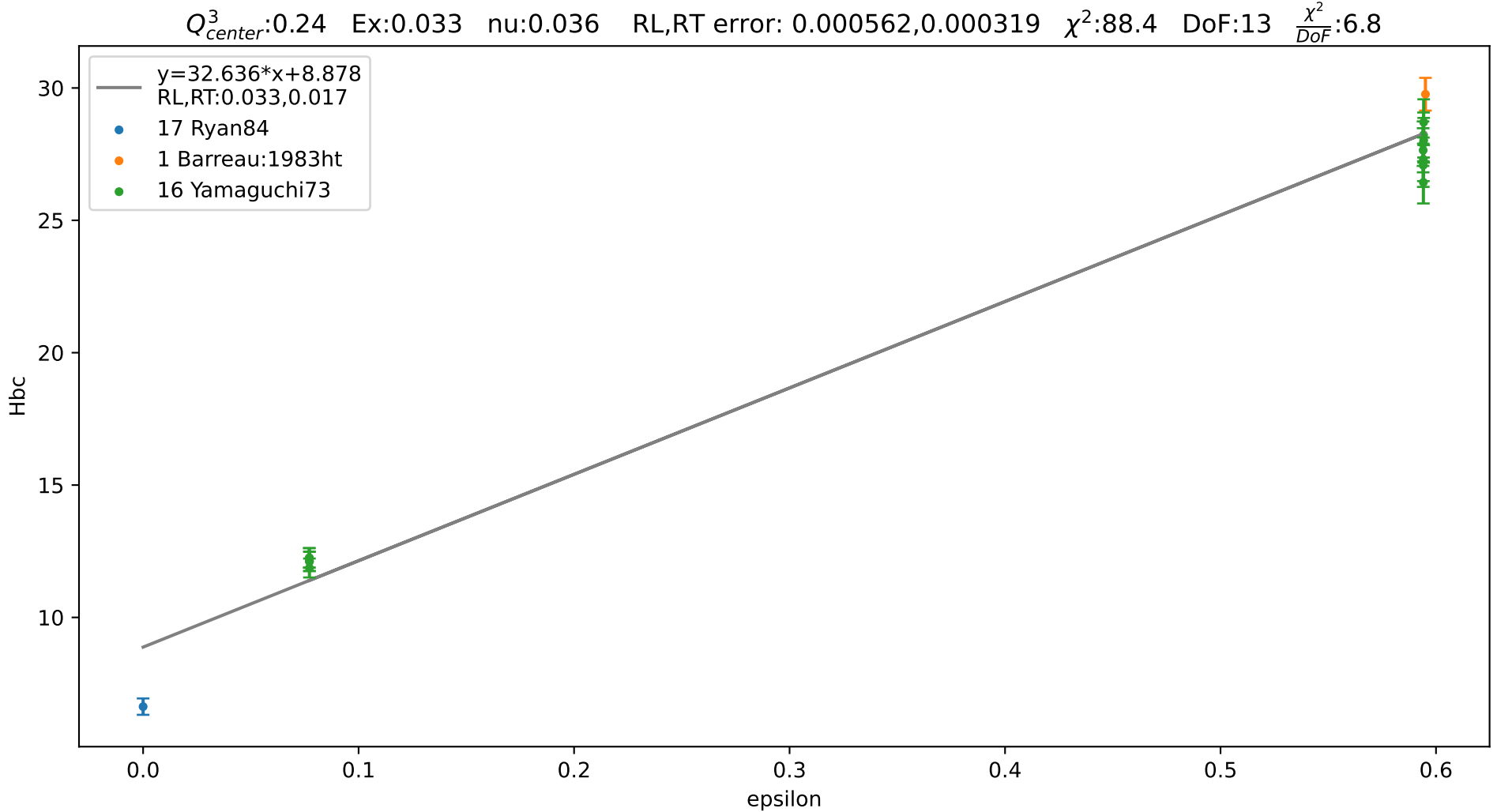

Q^3_{center}:0.24 Ex:0.028 nu:0.031 RL,RT error: 0.000567,0.000333 χ^2:10.9 DoF:13 $\frac{\chi^2}{DoF}$:0.8
y=34.305*x+7.968
RL,RT:0.034,0.016
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
0.1
0.2
0.3
0.4
0.5
0.6

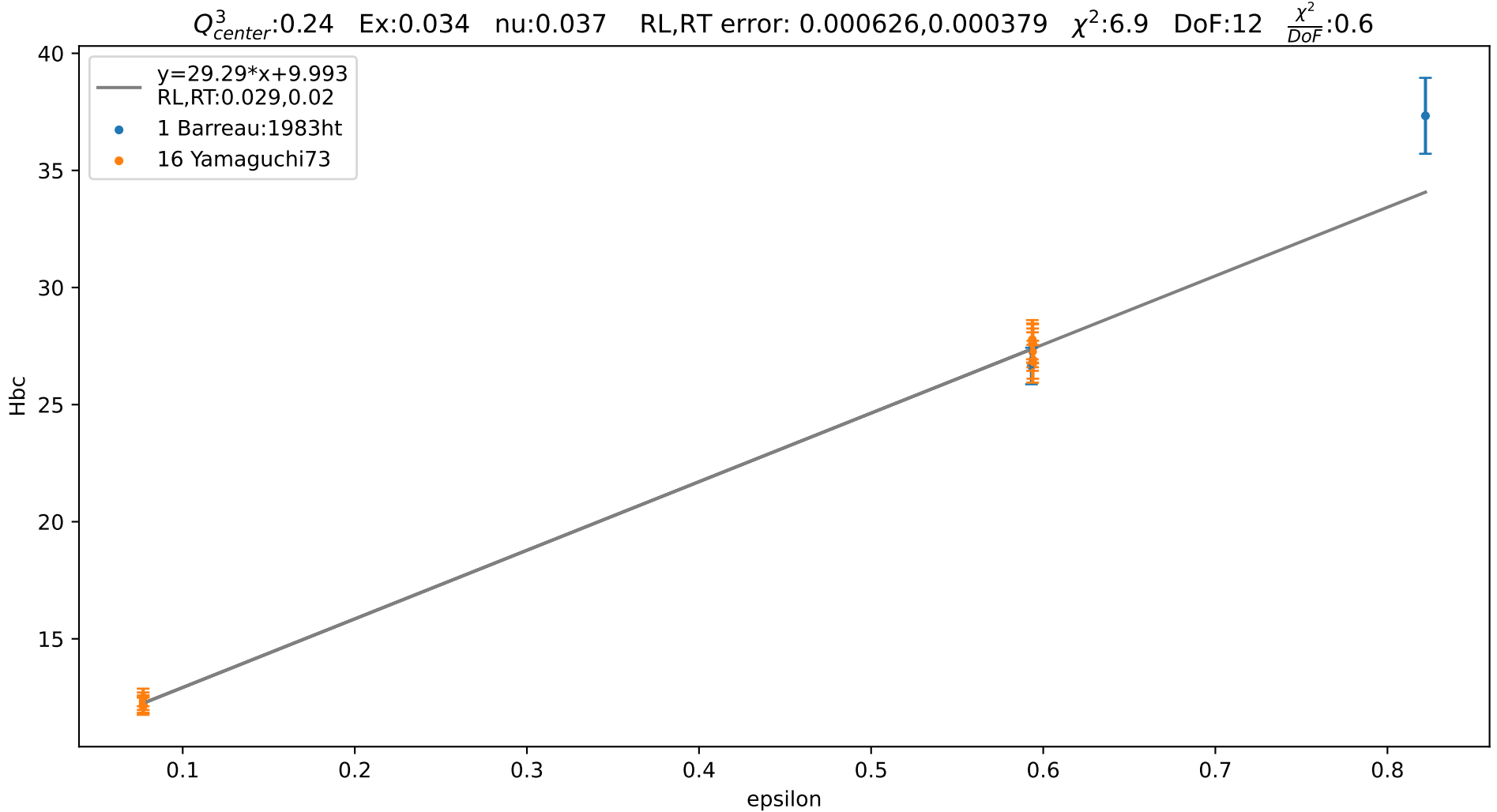

Q^3_{center}:0.24 Ex:0.029 nu:0.032 RL,RT error: 0.000527,0.000329 χ^2:16.5 DoF:15 $\frac{\chi^2}{DoF}$:1.1
y=30.79*x+8.192
RL,RT:0.031,0.016
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
35
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

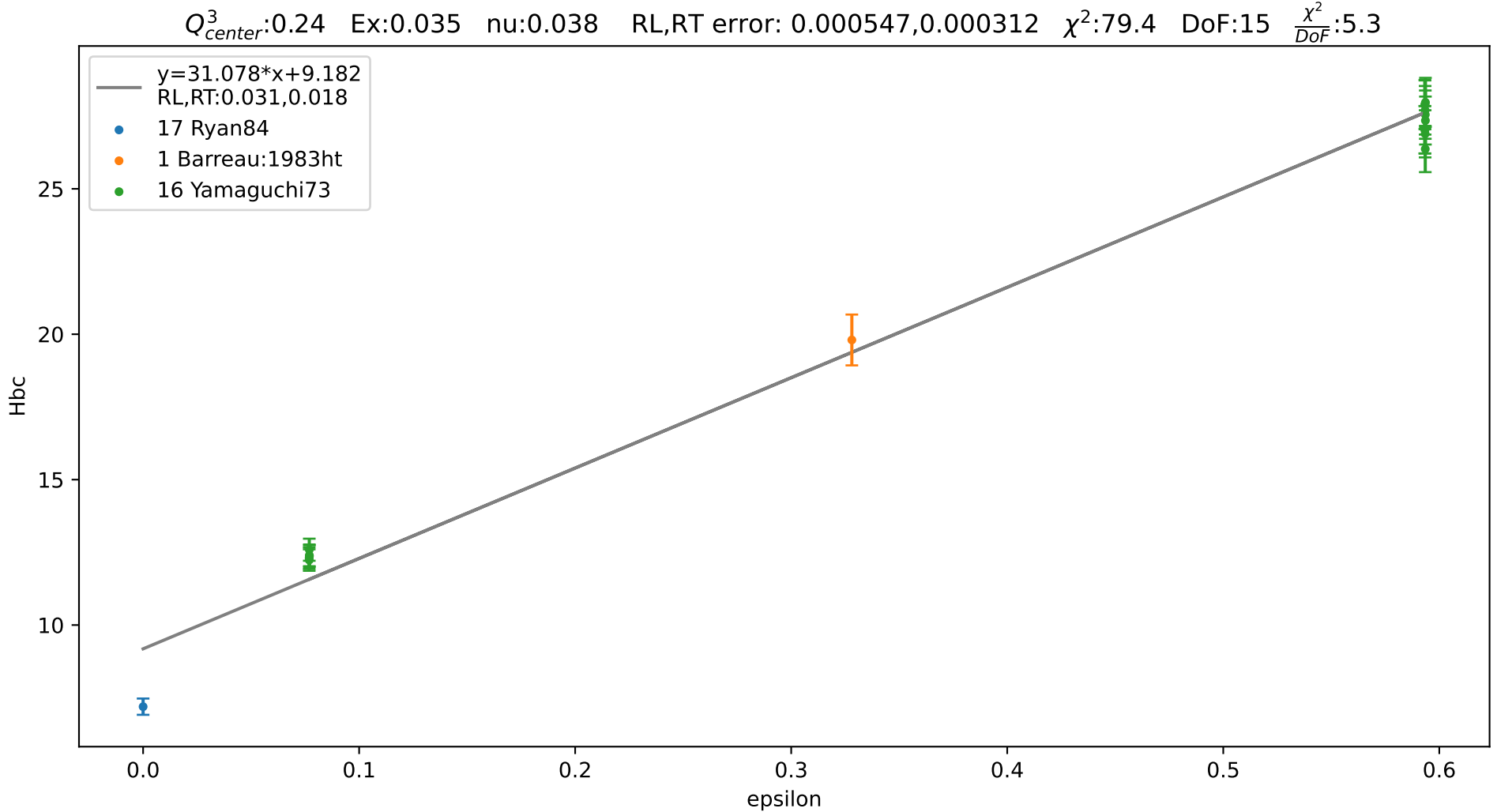

Q^3_{center}:0.24 Ex:0.03 nu:0.033 RL,RT error: 0.00062,0.000344 χ^2:5.4 DoF:12 $\frac{\chi^2}{DoF}$:0.5
y=30.804*x+8.574
RL,RT:0.031,0.017
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
0.1
0.2
0.3
0.4
0.5
0.6

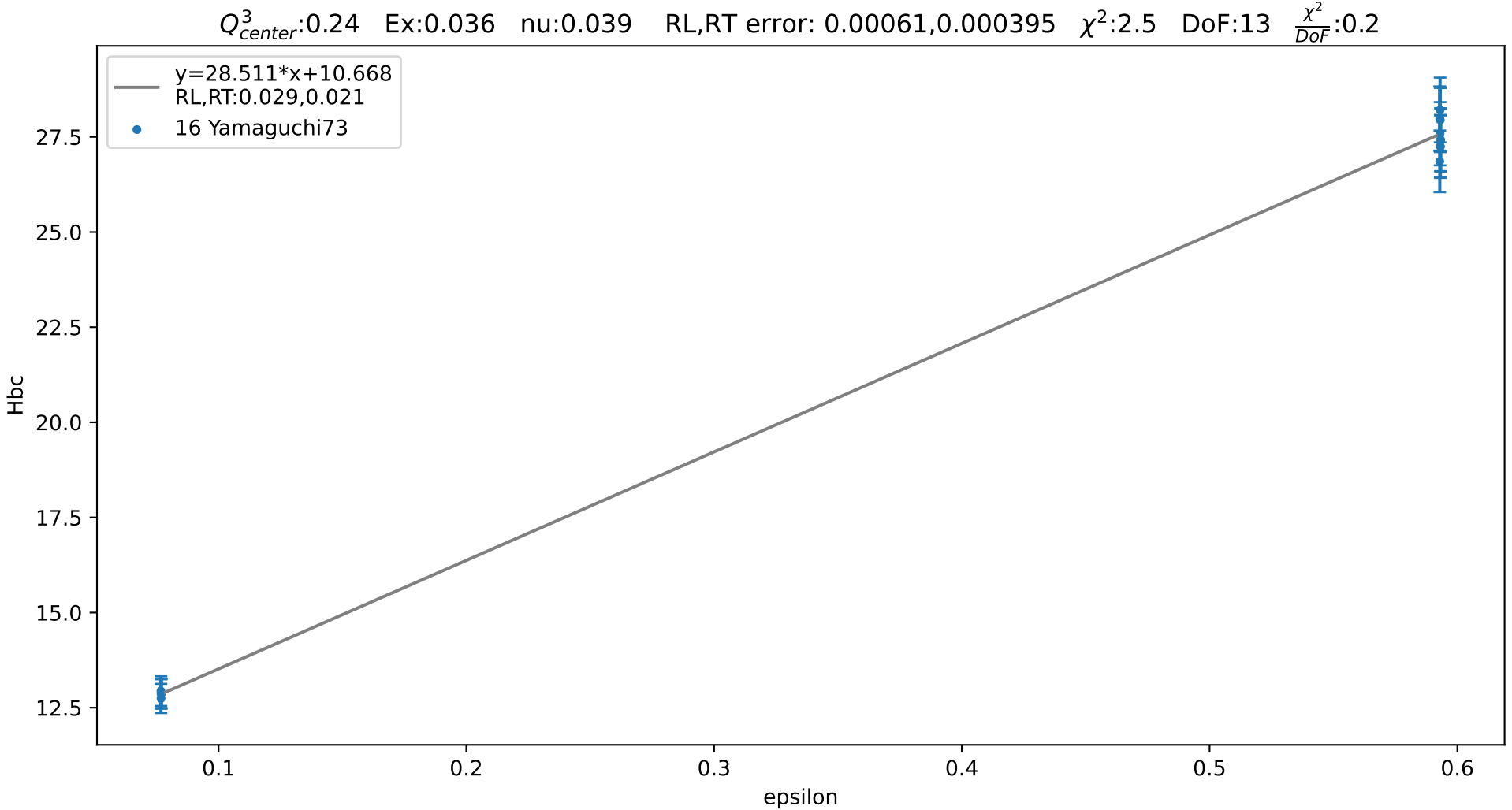

Q^3_{center}:0.24 Ex:0.031 nu:0.034 RL,RT error: 0.000617,0.000344 χ^2:3.8 DoF:12 $\frac{\chi^2}{DoF}$:0.3
y=33.207*x+8.409
RL,RT:0.033,0.016
16 Yamaguchi73
Hbc
epsilon
30.0
27.5
25.0
22.5
20.0
17.5
15.0
12.5
10.0
0.1
0.2
0.3
0.4
0.5
0.6

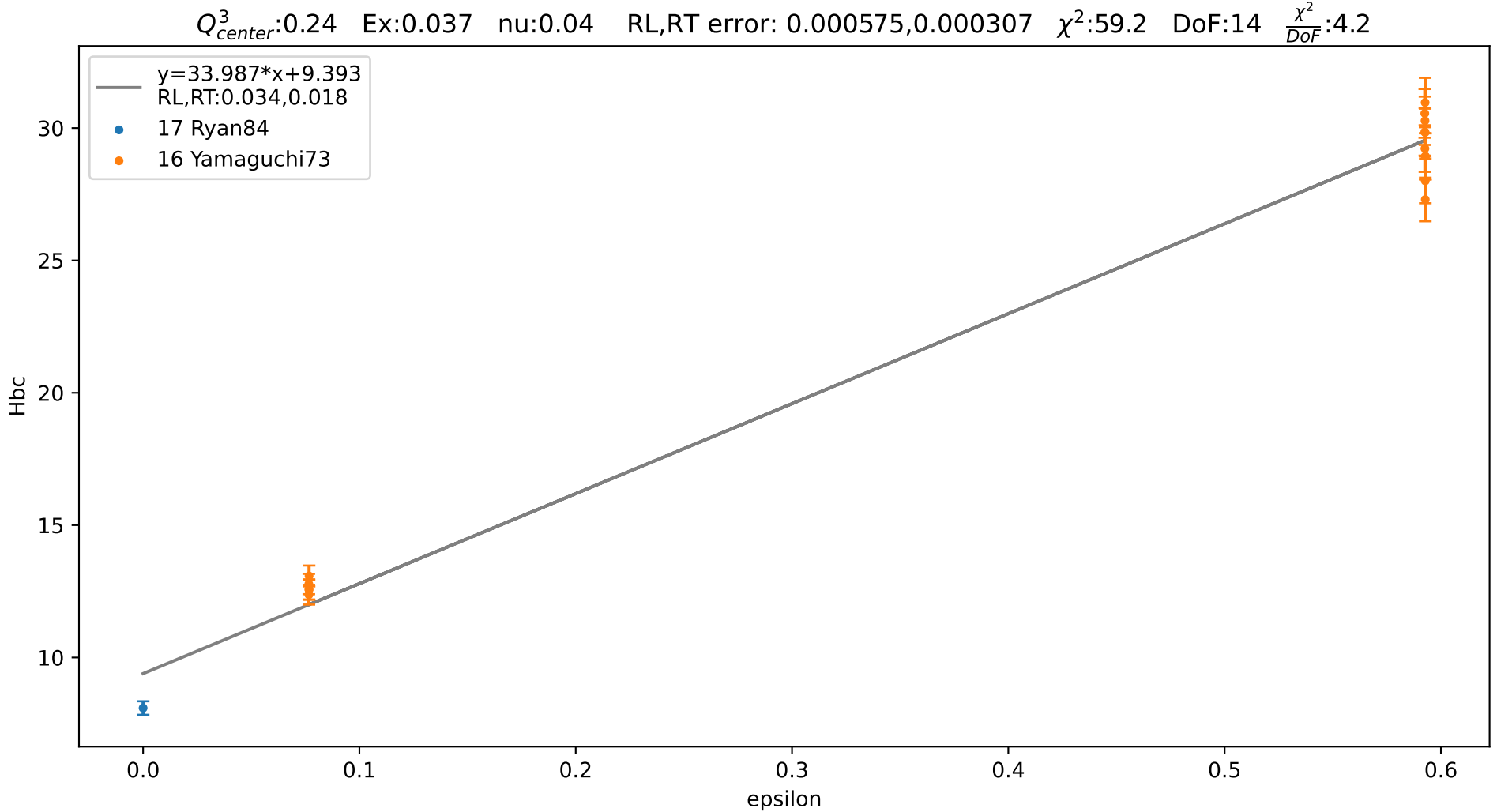

Q^3_{center}:0.24 Ex:0.032 nu:0.035 RL,RT error: 0.000581,0.000358 χ^2:17.6 DoF:13 $\frac{\chi^2}{DoF}$:1.4
y=29.807*x+9.224
RL,RT:0.03,0.018
16 Yamaguchi73
Hbc
epsilon
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
0.1
0.2
0.3
0.4
0.5
0.6

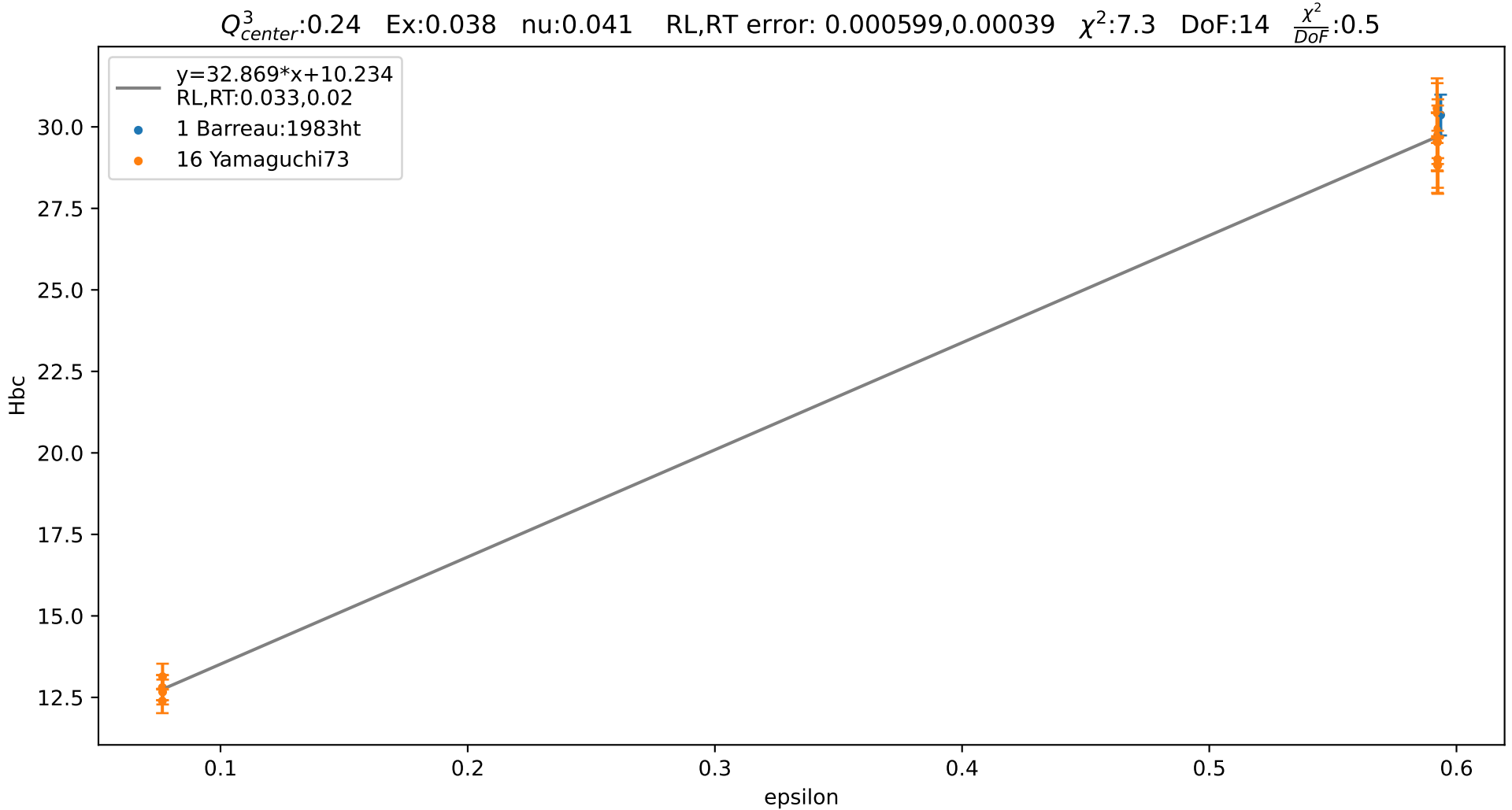

Q^3_{center}:0.24 Ex:0.033 nu:0.036 RL,RT error: 0.000562,0.000319 χ^2:88.4 DoF:13 $\frac{\chi^2}{DoF}$:6.8
y=32.636*x+8.878
RL,RT:0.033,0.017
17 Ryan84
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
0.0
0.1
0.2
0.3
0.4
0.5
0.6

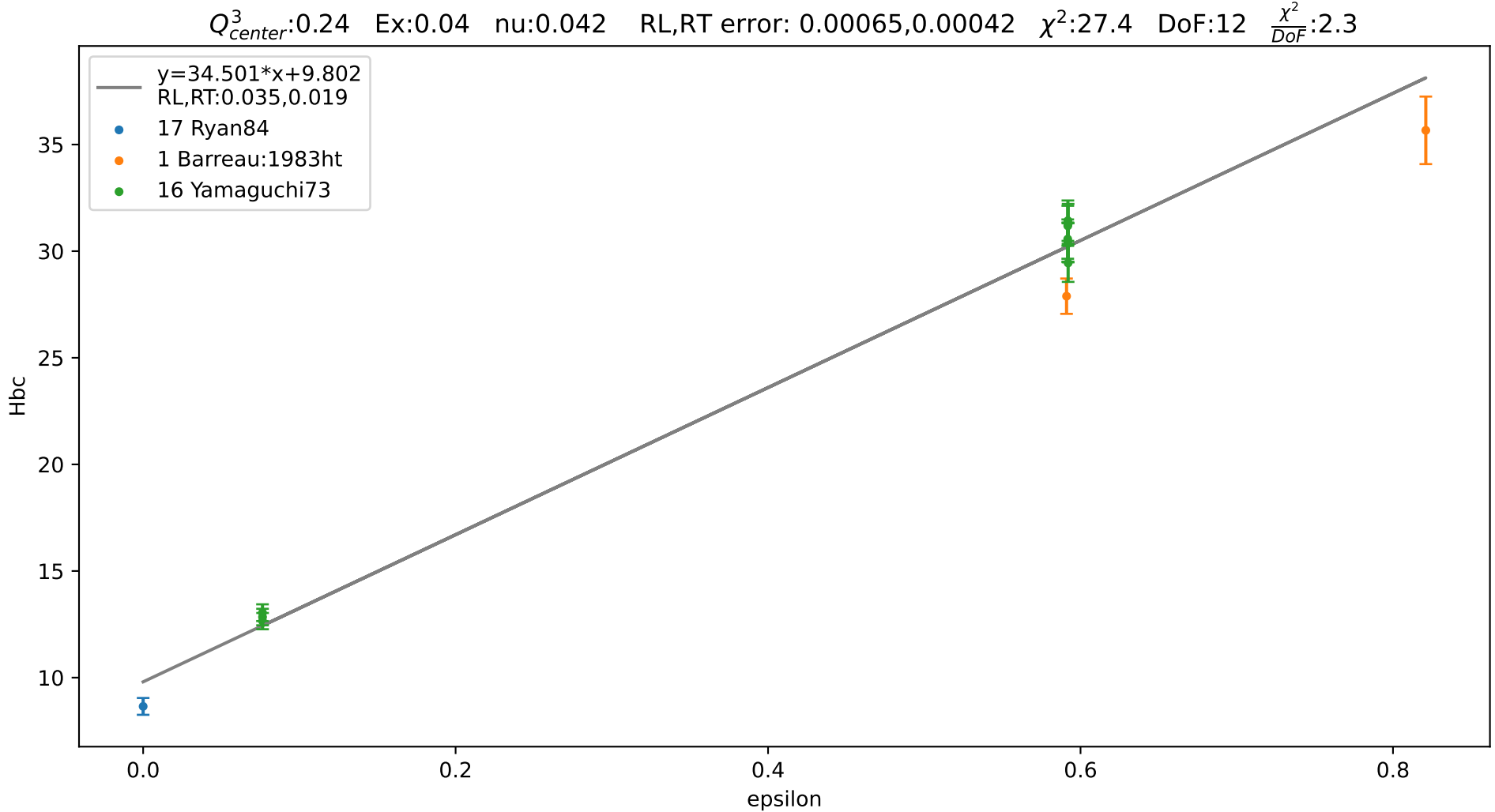

Q^3_{center}:0.24 Ex:0.034 nu:0.037 RL,RT error: 0.000626,0.000379 χ^2:6.9 DoF:12 $\frac{\chi^2}{DoF}$:0.6
y=29.29*x+9.993
RL,RT:0.029,0.02
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
40
35
30
25
20
15
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

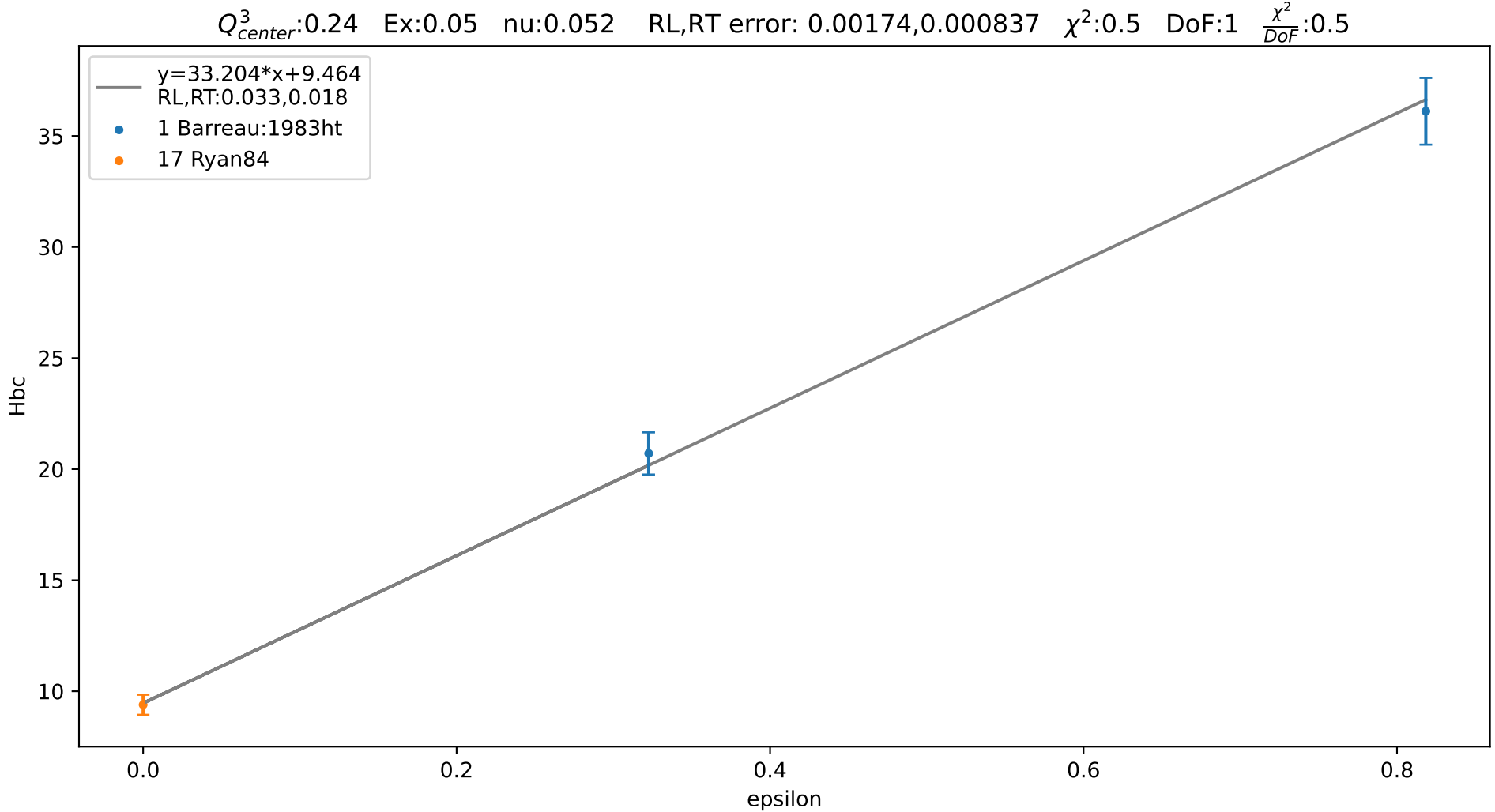

Q^3_{center}:0.24 Ex:0.035 nu:0.038 RL,RT error: 0.000547,0.000312 χ^2:79.4 DoF:15 $\frac{\chi^2}{DoF}$:5.3
y=31.078*x+9.182
RL,RT:0.031,0.018
17 Ryan84
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
0.0
0.1
0.2
0.3
0.4
0.5
0.6

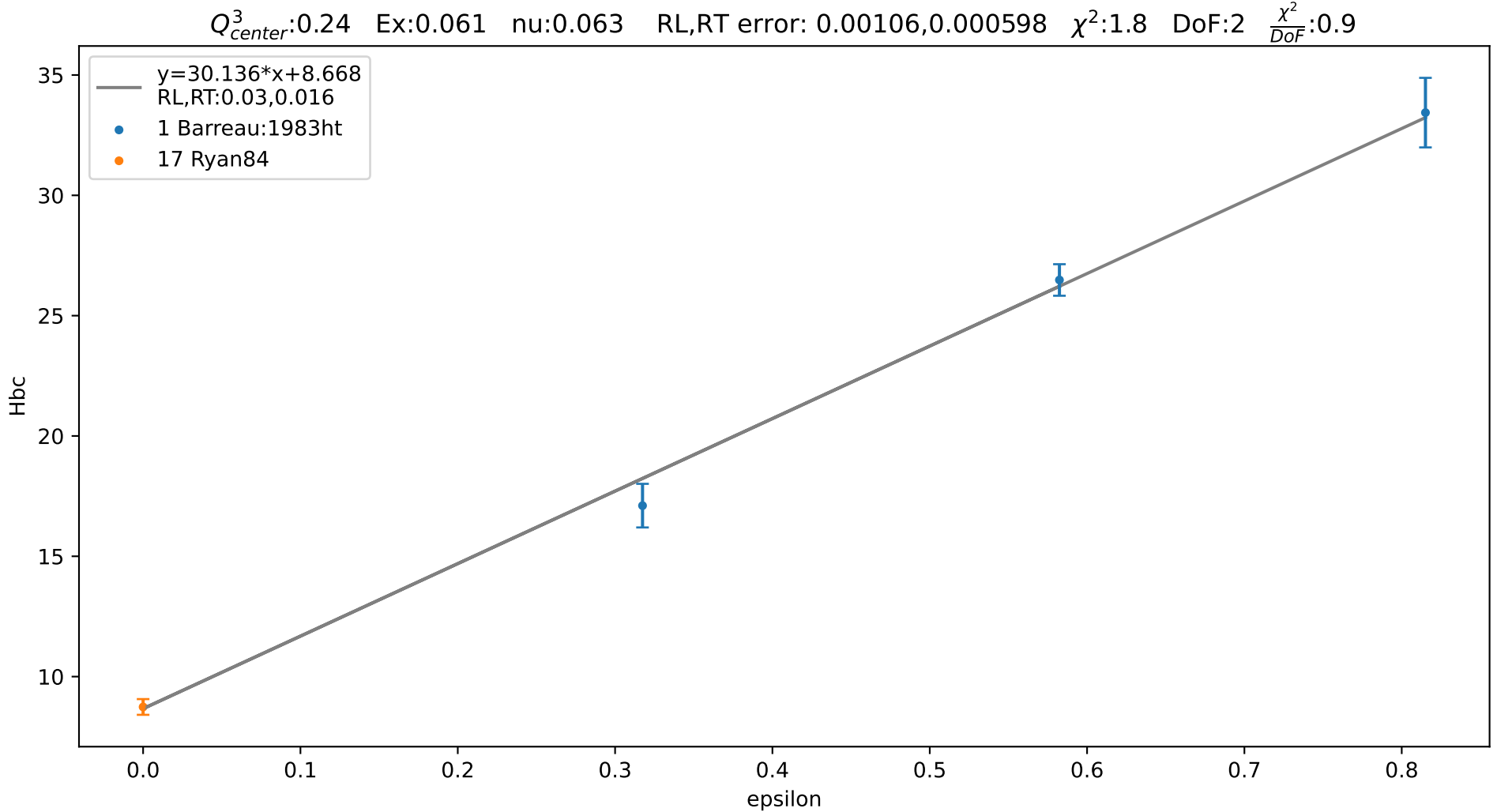

Q^3_{center}:0.24 Ex:0.036 nu:0.039 RL,RT error: 0.00061,0.000395 χ^2:2.5 DoF:13 $\frac{\chi^2}{DoF}$:0.2
y=28.511*x+10.668
RL,RT:0.029,0.021
16 Yamaguchi73
Hbc
epsilon
12.5
15.0
17.5
20.0
22.5
25.0
27.5
0.1
0.2
0.3
0.4
0.5
0.6

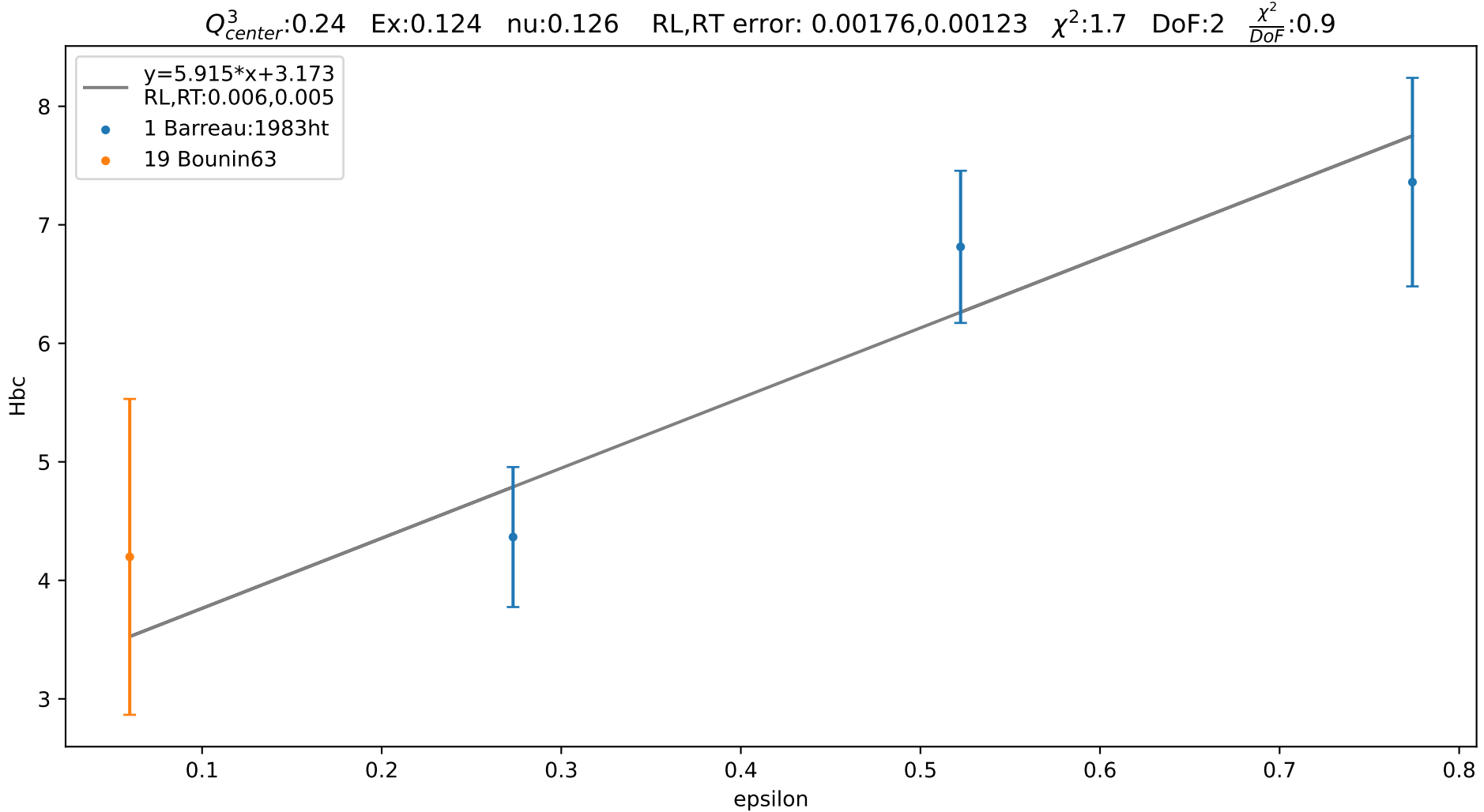

Q^3_{center}:0.24 Ex:0.037 nu:0.04 RL,RT error: 0.000575,0.000307 χ^2:59.2 DoF:14 $\frac{\chi^2}{DoF}$:4.2
y=33.987*x+9.393
RL,RT:0.034,0.018
17 Ryan84
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
0.0
0.1
0.2
0.3
0.4
0.5
0.6

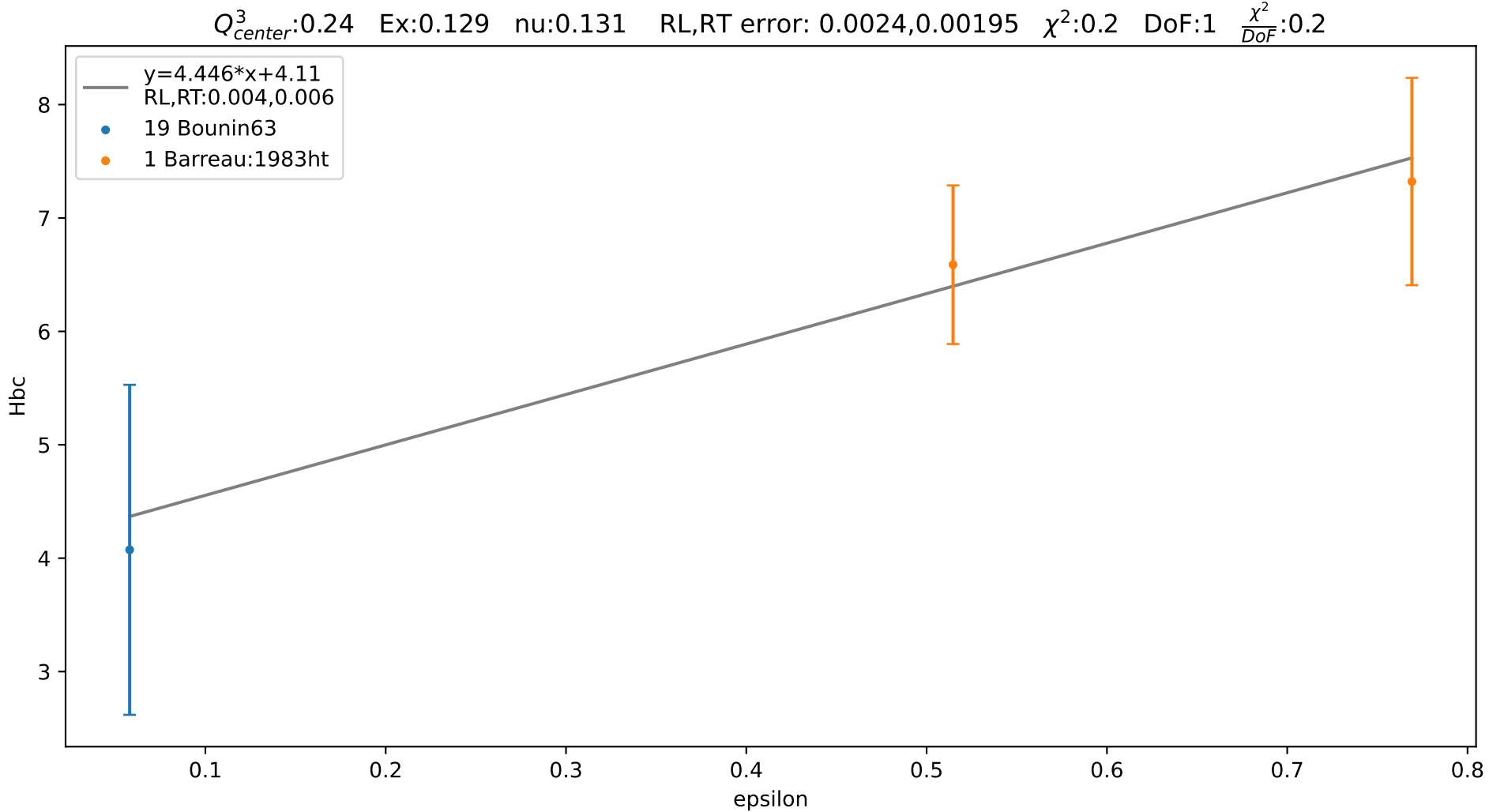

Q^3_{center}:0.24 Ex:0.038 nu:0.041 RL,RT error: 0.000599,0.00039 χ^2:7.3 DoF:14 $\frac{\chi^2}{DoF}$:0.5
y=32.869*x+10.234
RL,RT:0.033,0.02
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
0.1
0.2
0.3
0.4
0.5
0.6

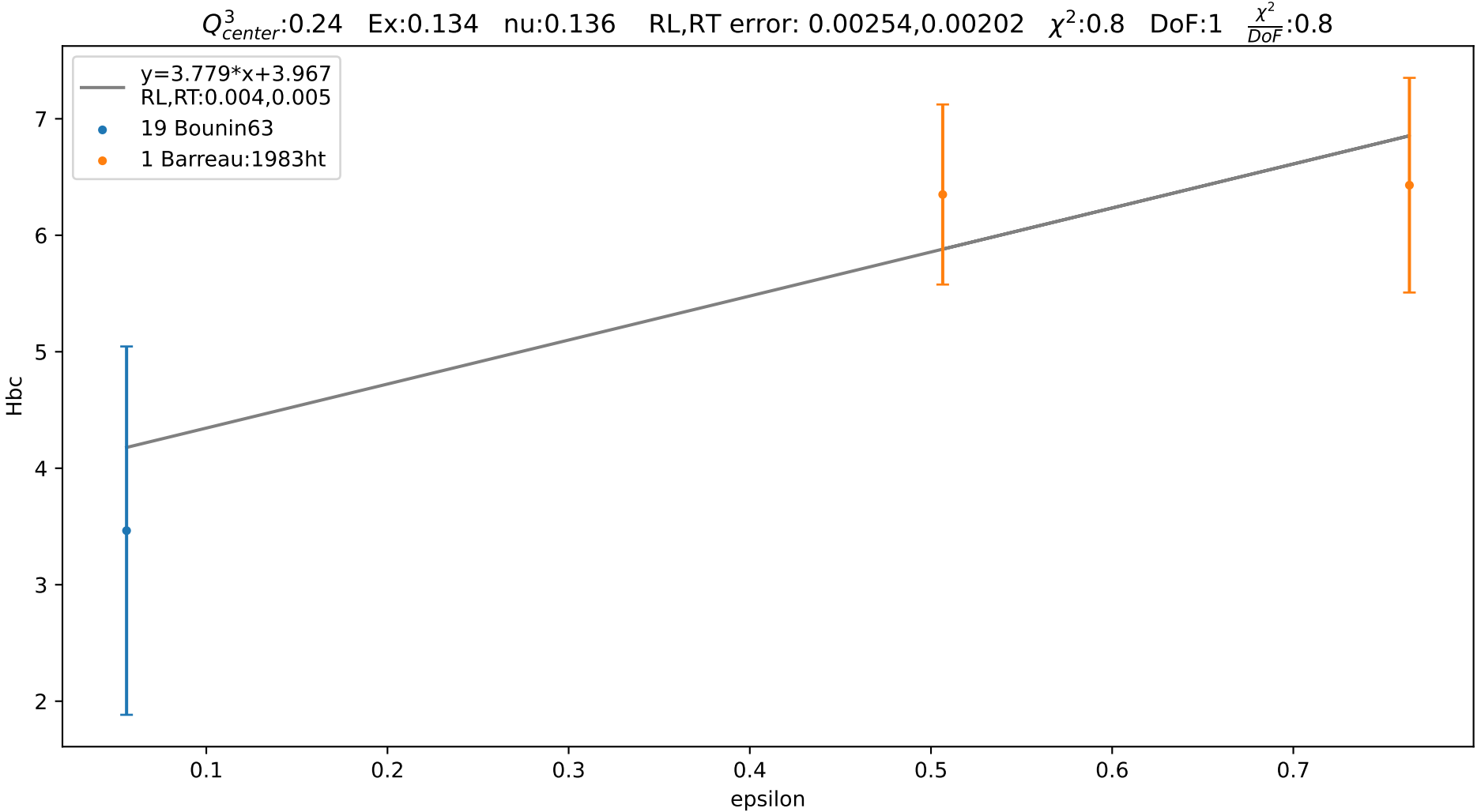

Q^3_{center}:0.24 Ex:0.04 nu:0.042 RL,RT error: 0.00065,0.00042 χ^2:27.4 DoF:12 $\frac{\chi^2}{DoF}$:2.3
y=34.501*x+9.802
RL,RT:0.035,0.019
17 Ryan84
1 Barreau:1983ht
16 Yamaguchi73
Hbc
epsilon
10
15
20
25
30
35
0.0
0.2
0.4
0.6
0.8

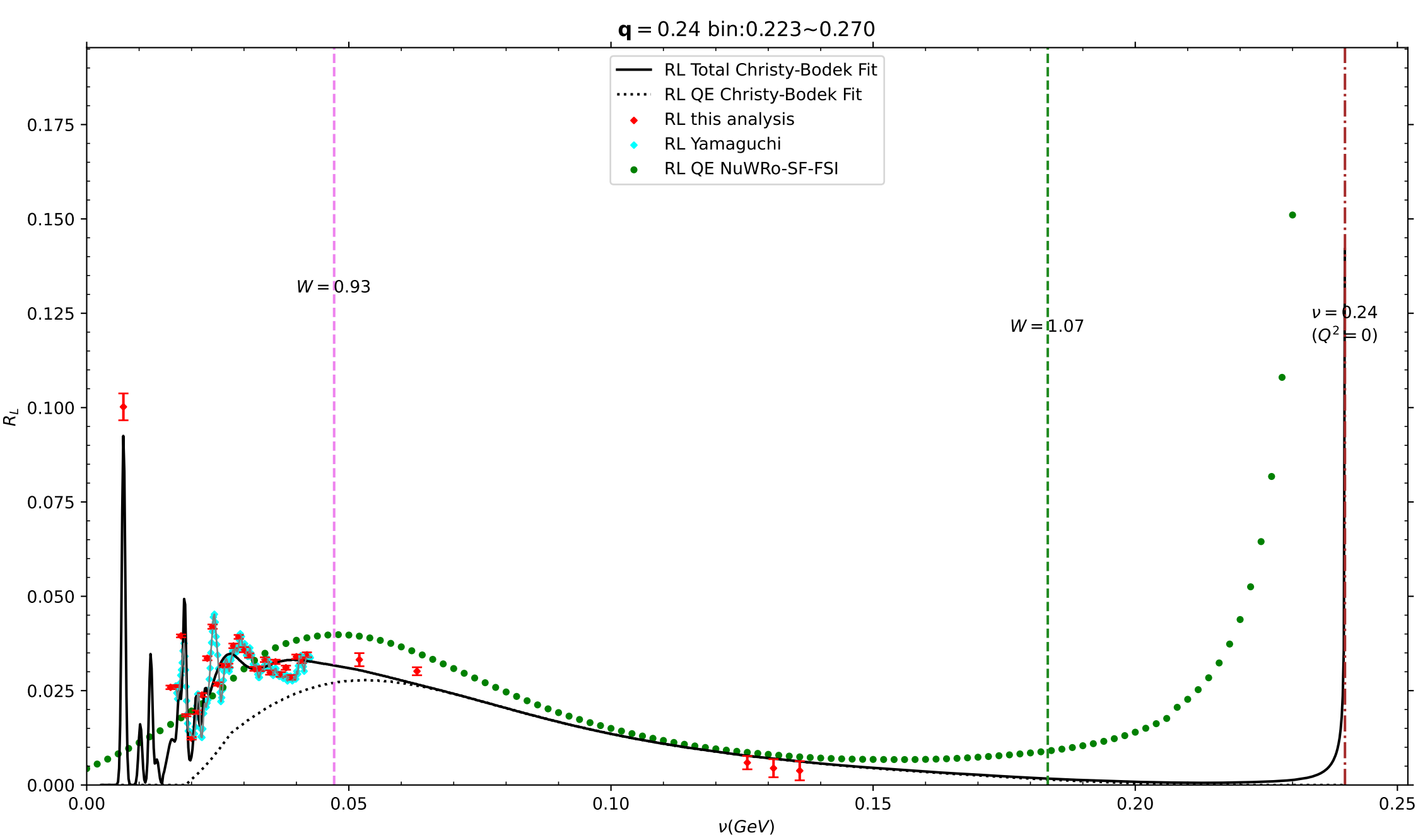

Q^3_{center}:0.24 Ex:0.05 nu:0.052 RL,RT error: 0.00174,0.000837 χ^2:0.5 DoF:1 $\frac{\chi^2}{DoF}$:0.5
y=33.204*x+9.464
RL,RT:0.033,0.018
1 Barreau:1983ht
17 Ryan84
Hbc
epsilon
10
15
20
25
30
35
0.0
0.2
0.4
0.6
0.8

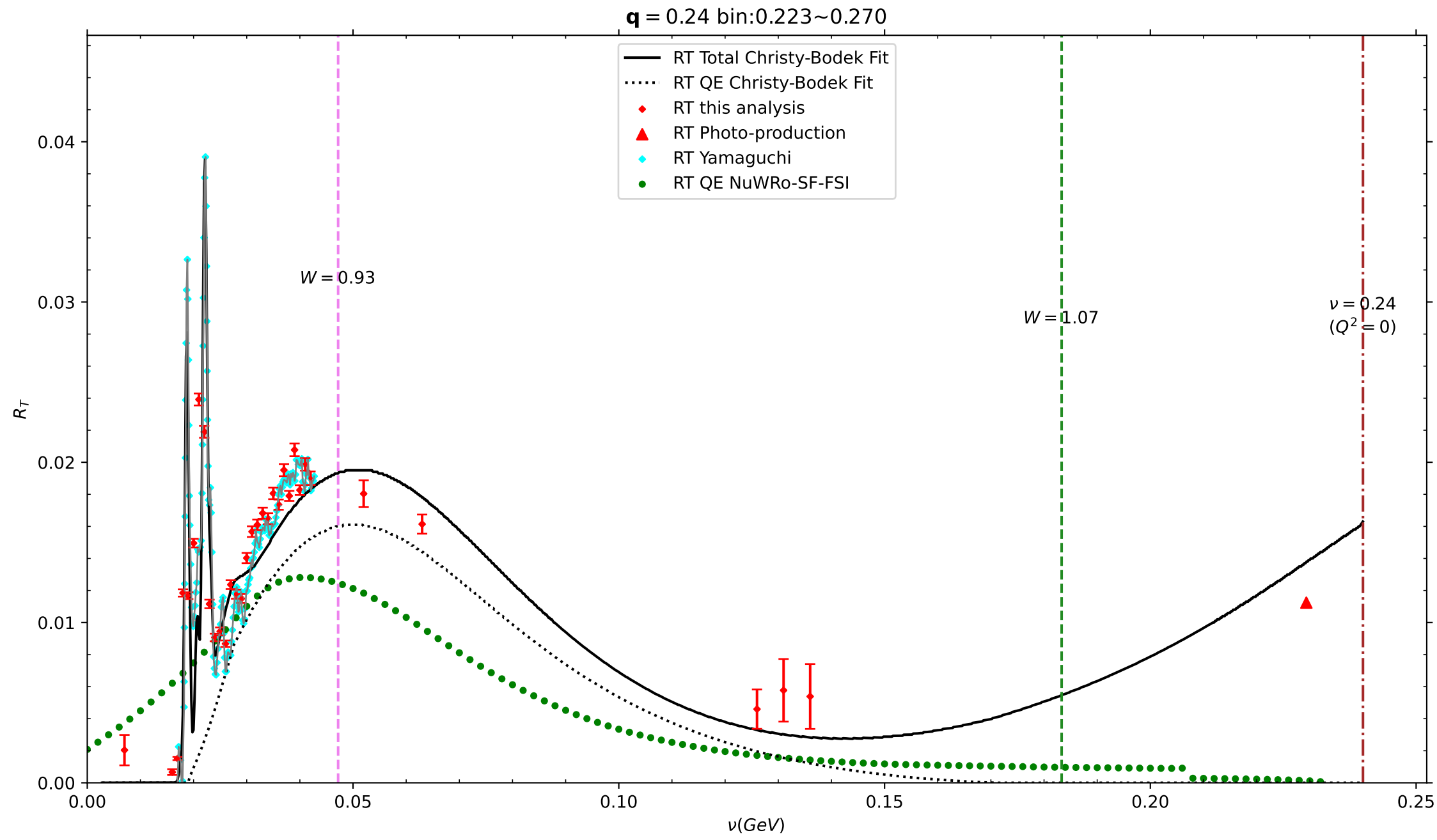

Q^3_{center}:0.24 Ex:0.061 nu:0.063 RL,RT error: 0.00106,0.000598 χ^2:1.8 DoF:2 $\frac{\chi^2}{DoF}$:0.9
y=30.136*x+8.668
RL,RT:0.03,0.016
1 Barreau:1983ht
17 Ryan84
Hbc
epsilon
35
30
25
20
15
10
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

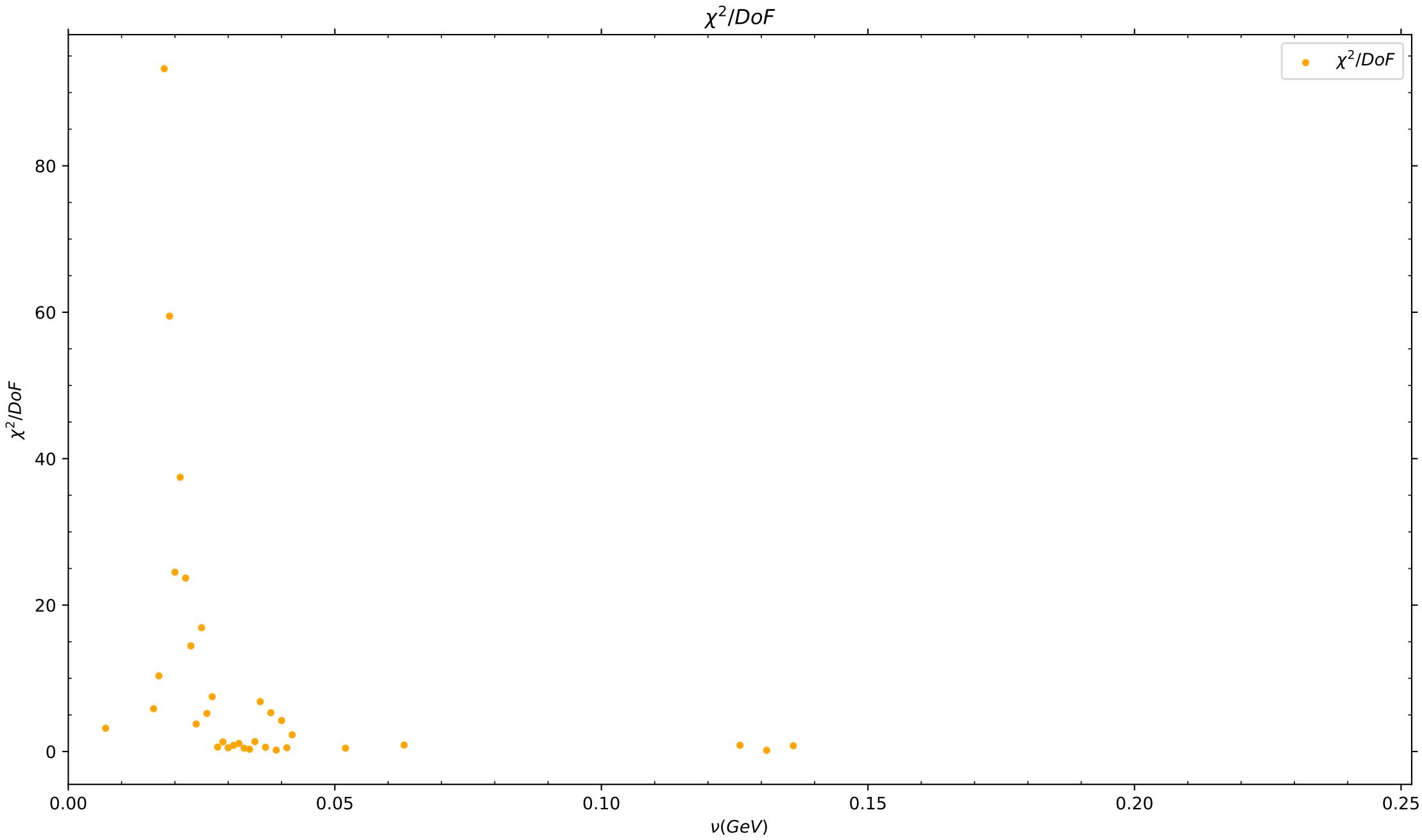

Q^3_{center}:0.24 Ex:0.124 nu:0.126 RL,RT error: 0.00176,0.00123 χ^2:1.7 DoF:2 $\frac{\chi^2}{DoF}$:0.9
y=5.915*x+3.173
RL,RT:0.006,0.005
1 Barreau:1983ht
19 Bounin63
Hbc
epsilon
3
4
5
6
7
8
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

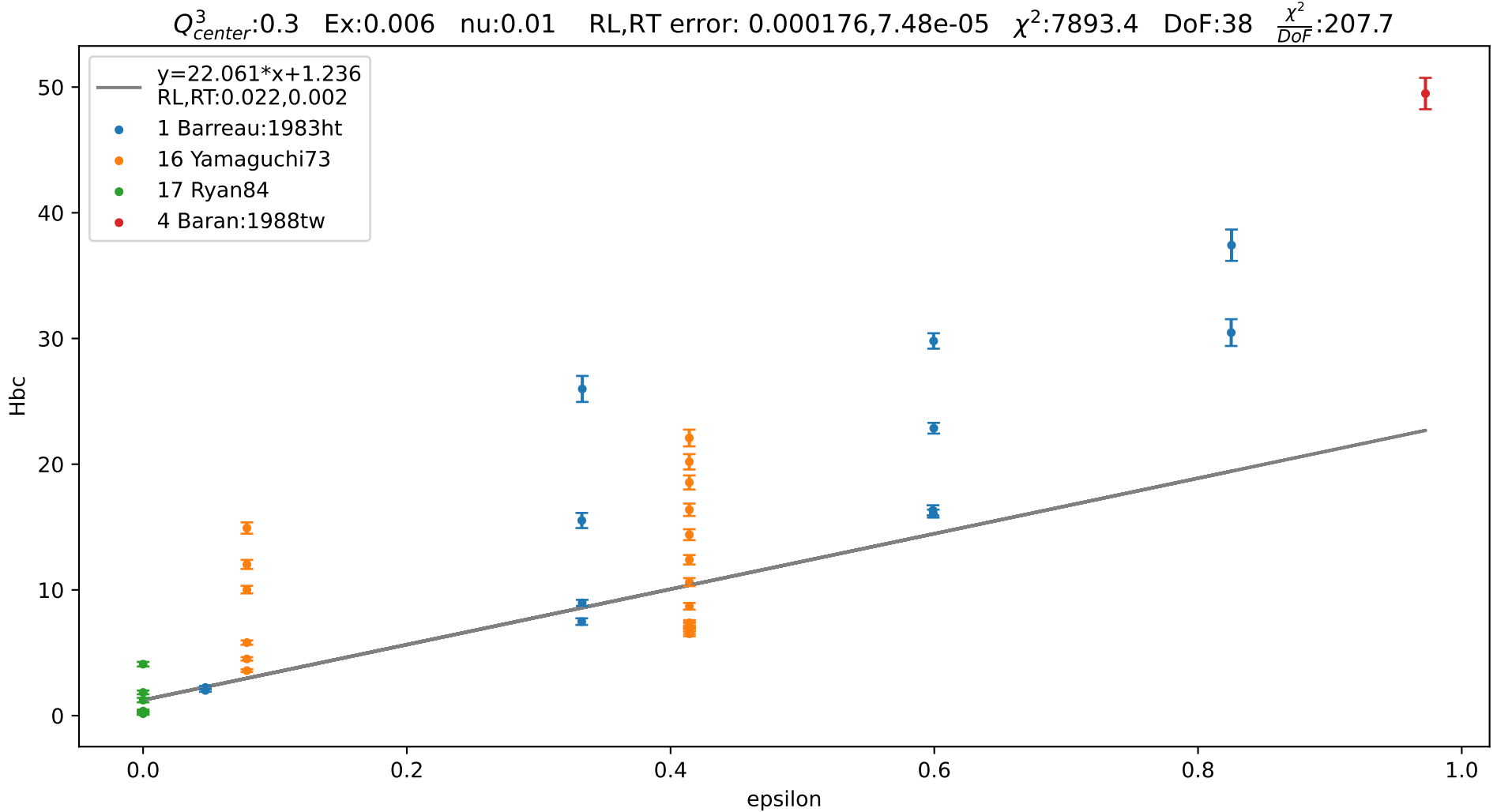

Q^3_{center}:0.24 Ex:0.129 nu:0.131 RL,RT error: 0.0024,0.00195 χ^2:0.2 DoF:1 $\frac{\chi^2}{DoF}$:0.2
y=4.446*x+4.11
RL,RT:0.004,0.006
19 Bounin63
1 Barreau:1983ht
Hbc
epsilon
3
4
5
6
7
8
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

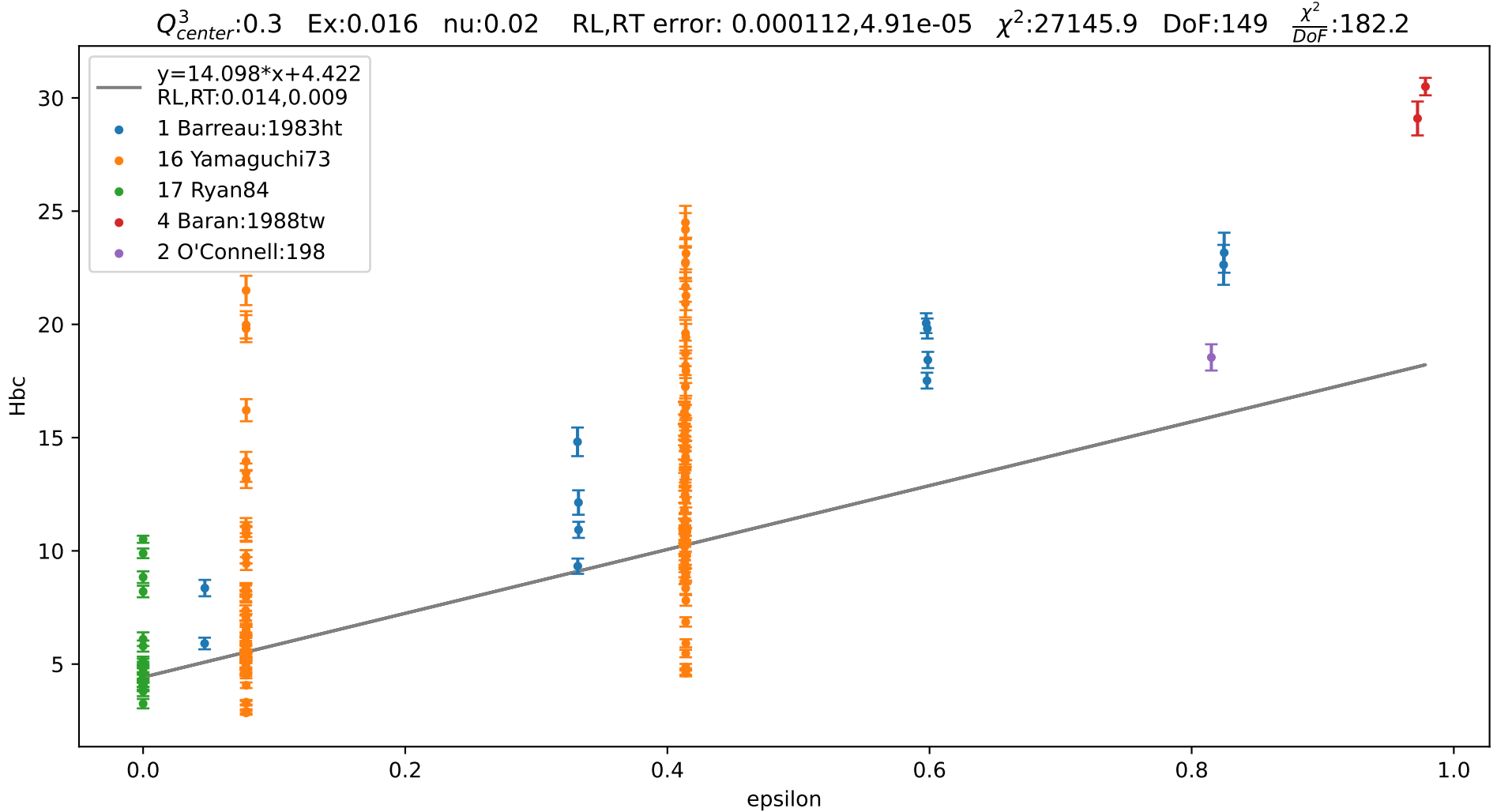

Q^3_{center}:0.24 Ex:0.134 nu:0.136 RL,RT error: 0.00254,0.00202 χ^2:0.8 DoF:1 $\frac{\chi^2}{DoF}$:0.8
y=3.779*x+3.967
RL,RT:0.004,0.005
19 Bounin63
1 Barreau:1983ht
Hbc
epsilon
2
3
4
5
6
7
0.1
0.2
0.3
0.4
0.5
0.6
0.7

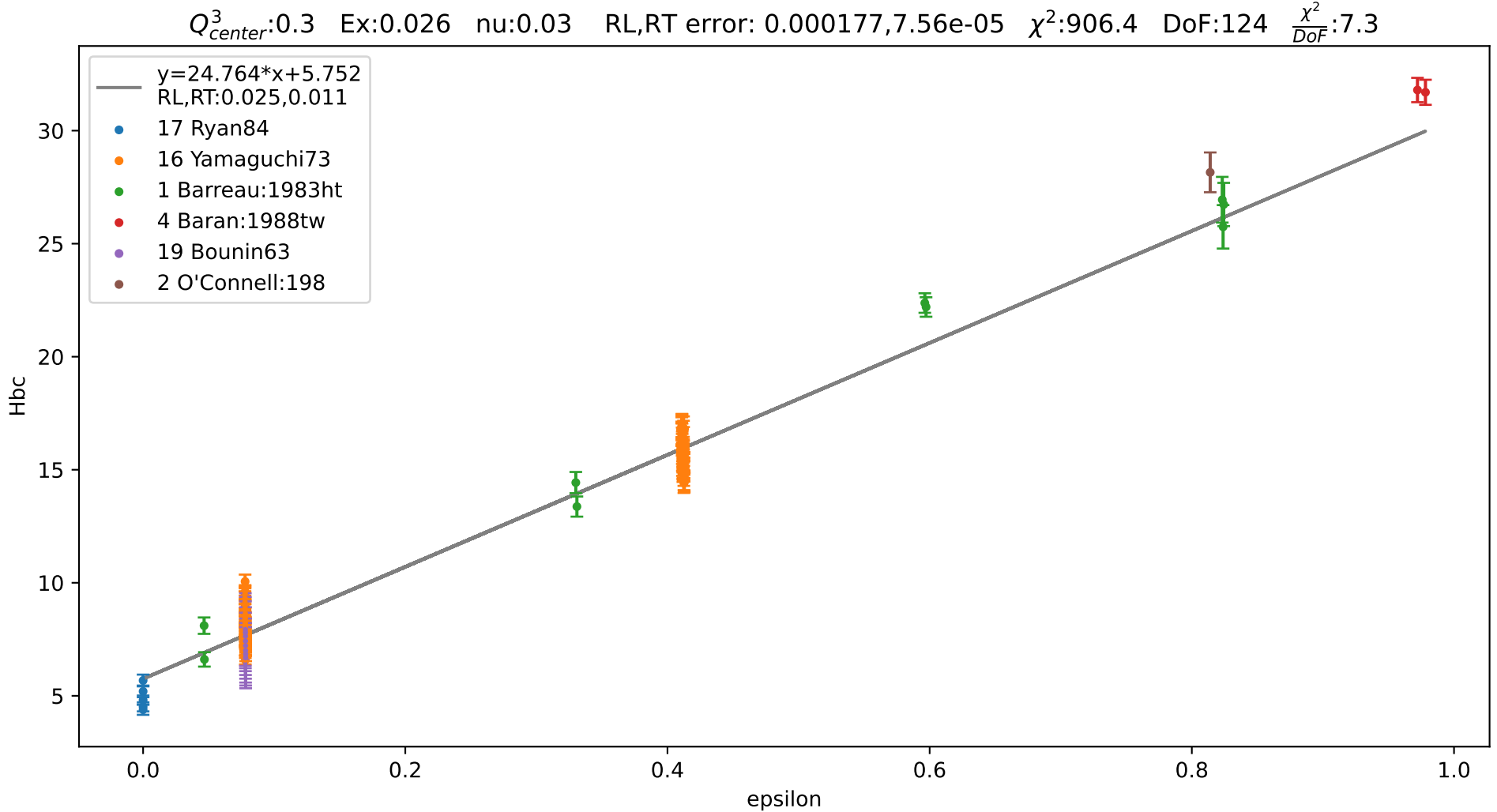

q = 0.24 bin:0.223~0.270
RL Total Christy-Bodek Fit
RL QE Christy-Bodek Fit
RL this analysis
RL Yamaguchi
RL QE NuWRo-SF-FSI
W = 0.93
W = 1.07
ν = 0.24
(Q² = 0)
R_L
ν(GeV)

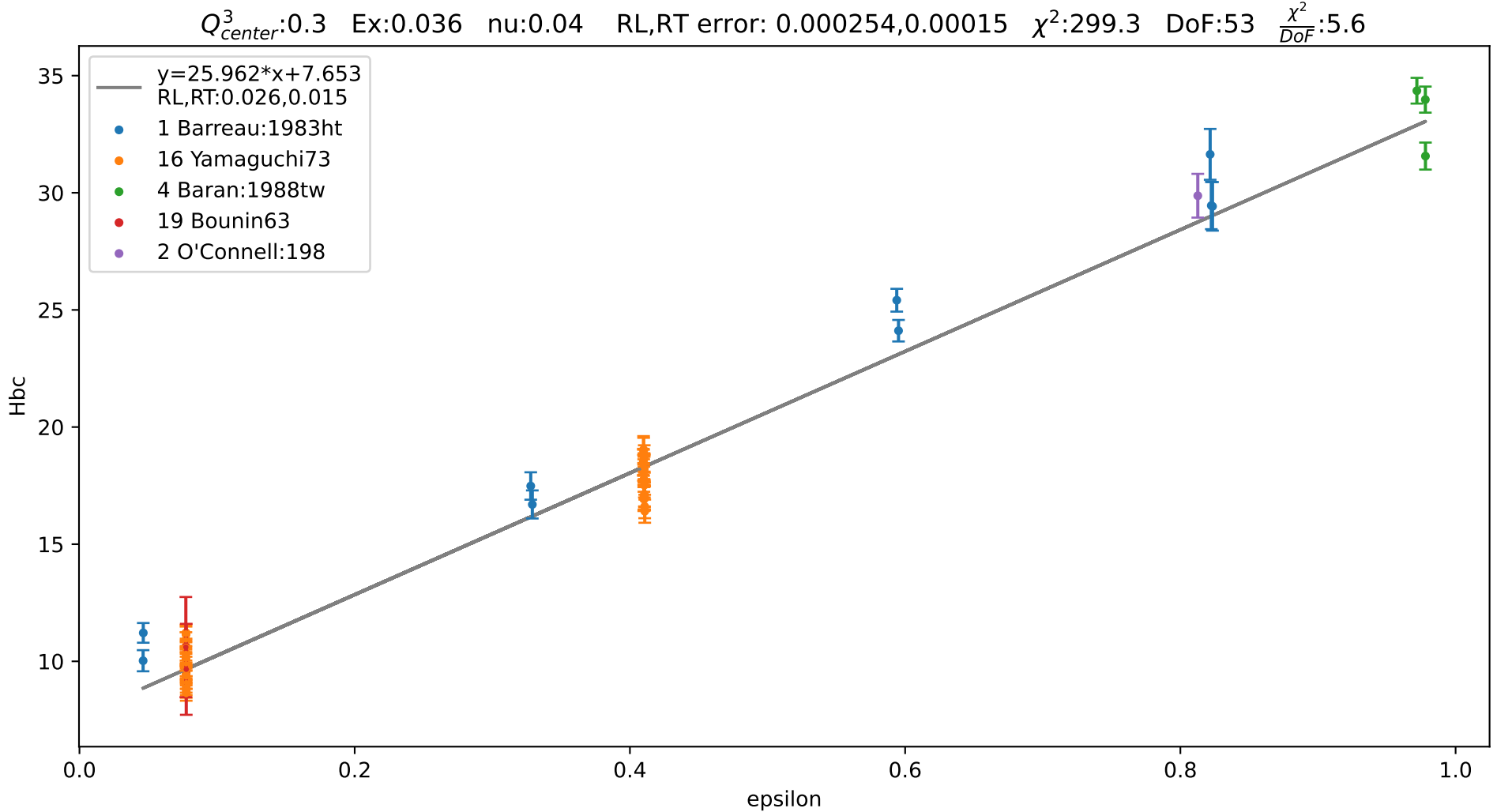

q = 0.24 bin:0.223~0.270
RT Total Christy-Bodek Fit
RT QE Christy-Bodek Fit
RT this analysis
RT Photo-production
RT Yamaguchi
RT QE NuWRo-SF-FSI
W = 0.93
W = 1.07
ν = 0.24
(Q² = 0)
R_T
ν(GeV)

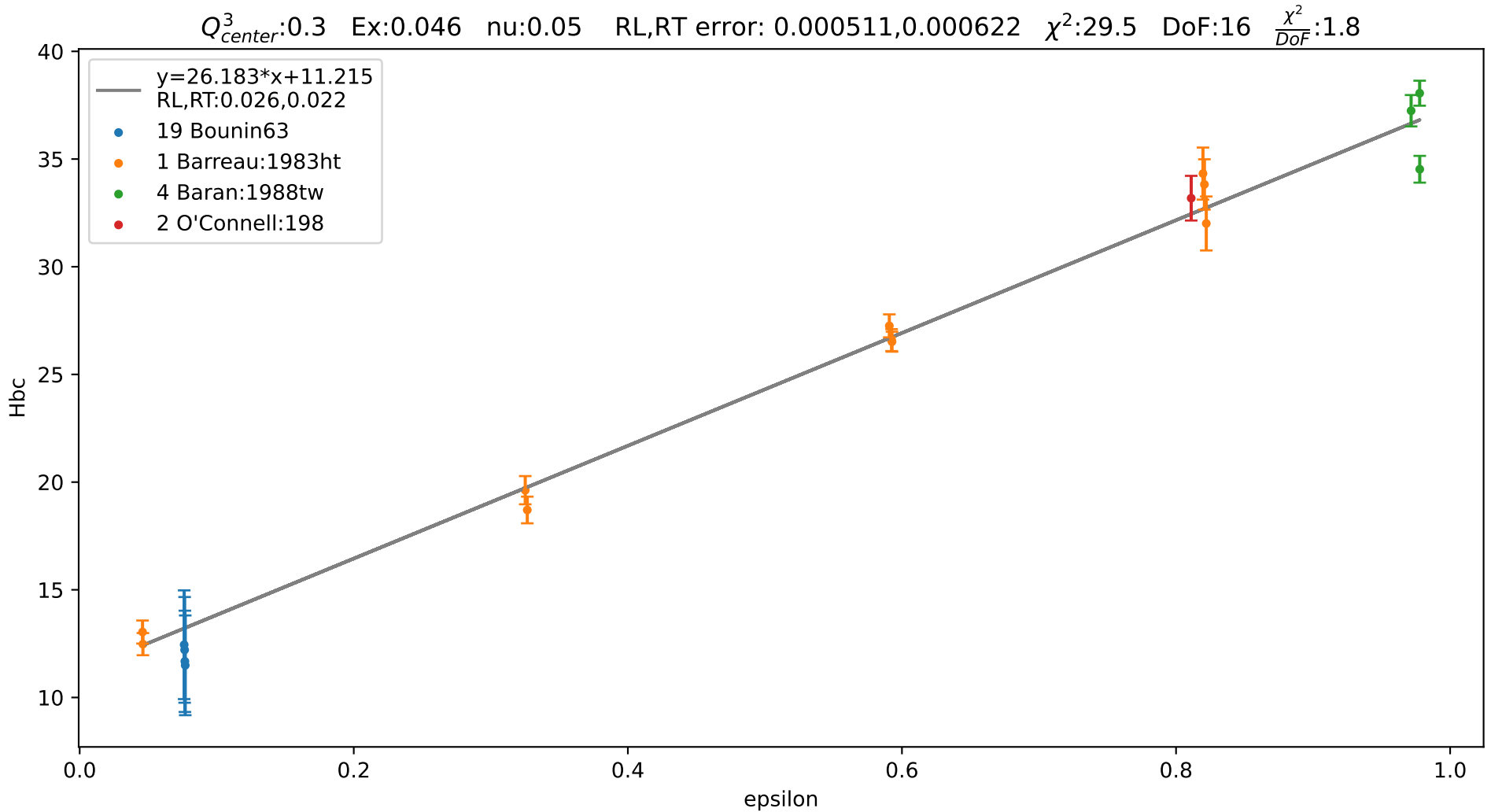

χ²/DoF
χ²/DoF
ν(GeV)

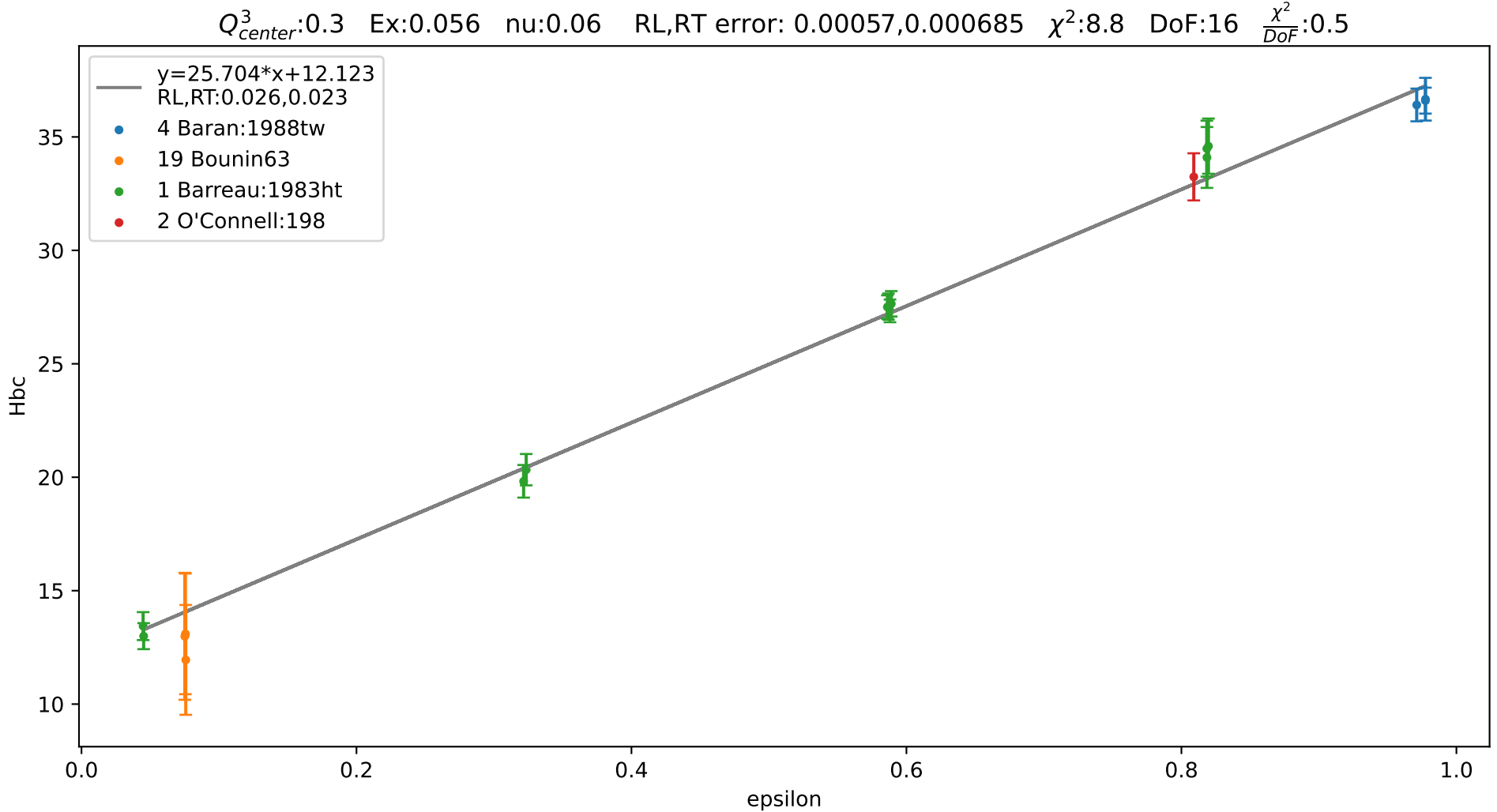

Q^3_{center}:0.3 Ex:0.006 nu:0.01 RL,RT error: 0.000176,7.48e-05 χ^2:7893.4 DoF:38 $\frac{\chi^2}{DoF}$:207.7
y=22.061*x+1.236
RL,RT:0.022,0.002
1 Barreau:1983ht
16 Yamaguchi73
17 Ryan84
4 Baran:1988tw
Hbc
epsilon
0
10
20
30
40
50
0.0
0.2
0.4
0.6
0.8
1.0

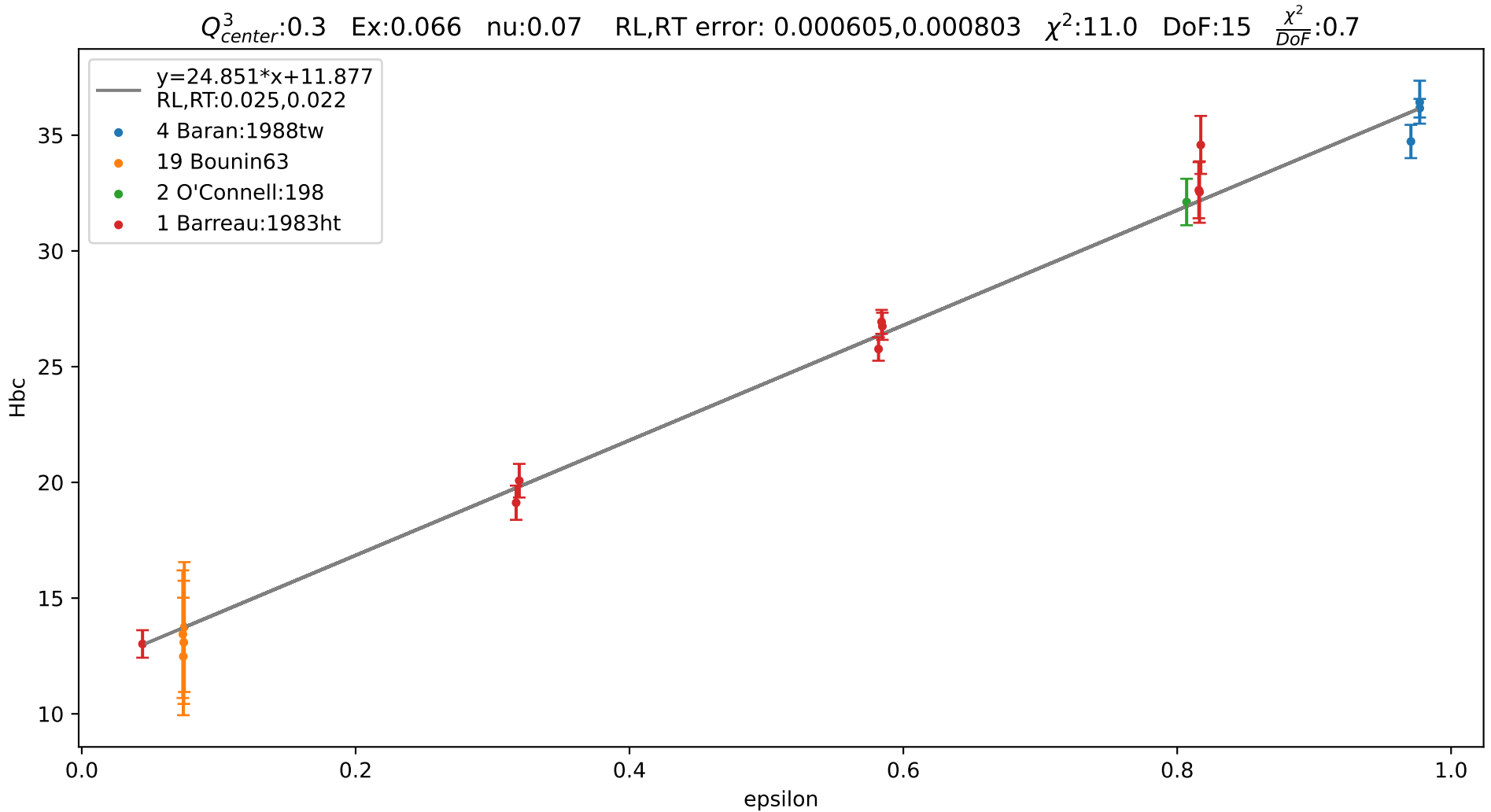

Q^3_{center}:0.3 Ex:0.016 nu:0.02 RL,RT error: 0.000112,4.91e-05 χ^2:27145.9 DoF:149 $\frac{\chi^2}{DoF}$:182.2
y=14.098*x+4.422
RL,RT:0.014,0.009
1 Barreau:1983ht
16 Yamaguchi73
17 Ryan84
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
0.0
0.2
0.4
0.6
0.8
1.0
5
10
15
20
25
30

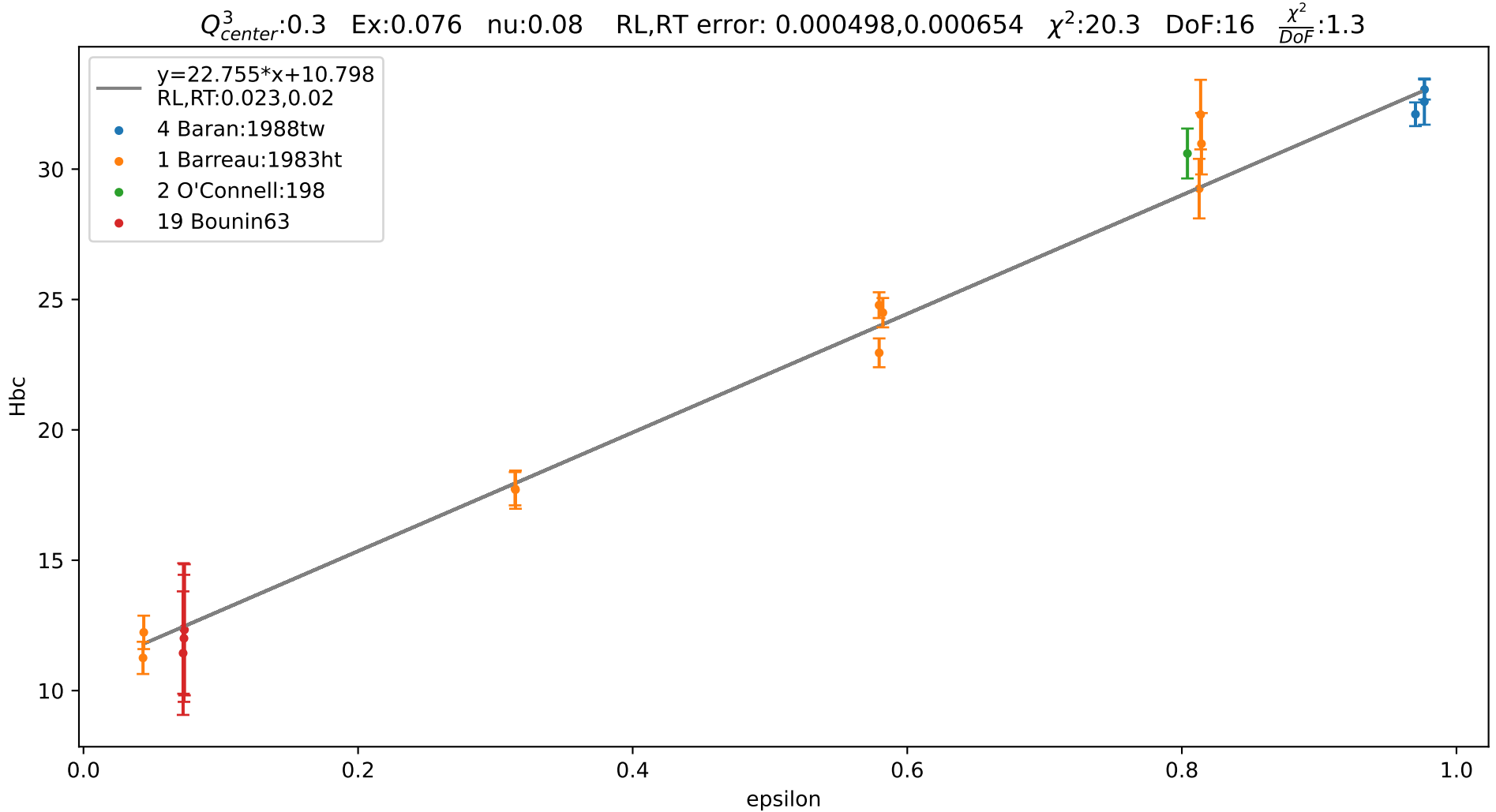

Q^3_{center}:0.3 Ex:0.026 nu:0.03 RL,RT error: 0.000177,7.56e-05 χ^2:906.4 DoF:124 $\frac{\chi^2}{DoF}$:7.3
y=24.764*x+5.752
RL,RT:0.025,0.011
17 Ryan84
16 Yamaguchi73
1 Barreau:1983ht
4 Baran:1988tw
19 Bounin63
2 O'Connell:198
Hbc
epsilon
5
10
15
20
25
30
0.0
0.2
0.4
0.6
0.8
1.0

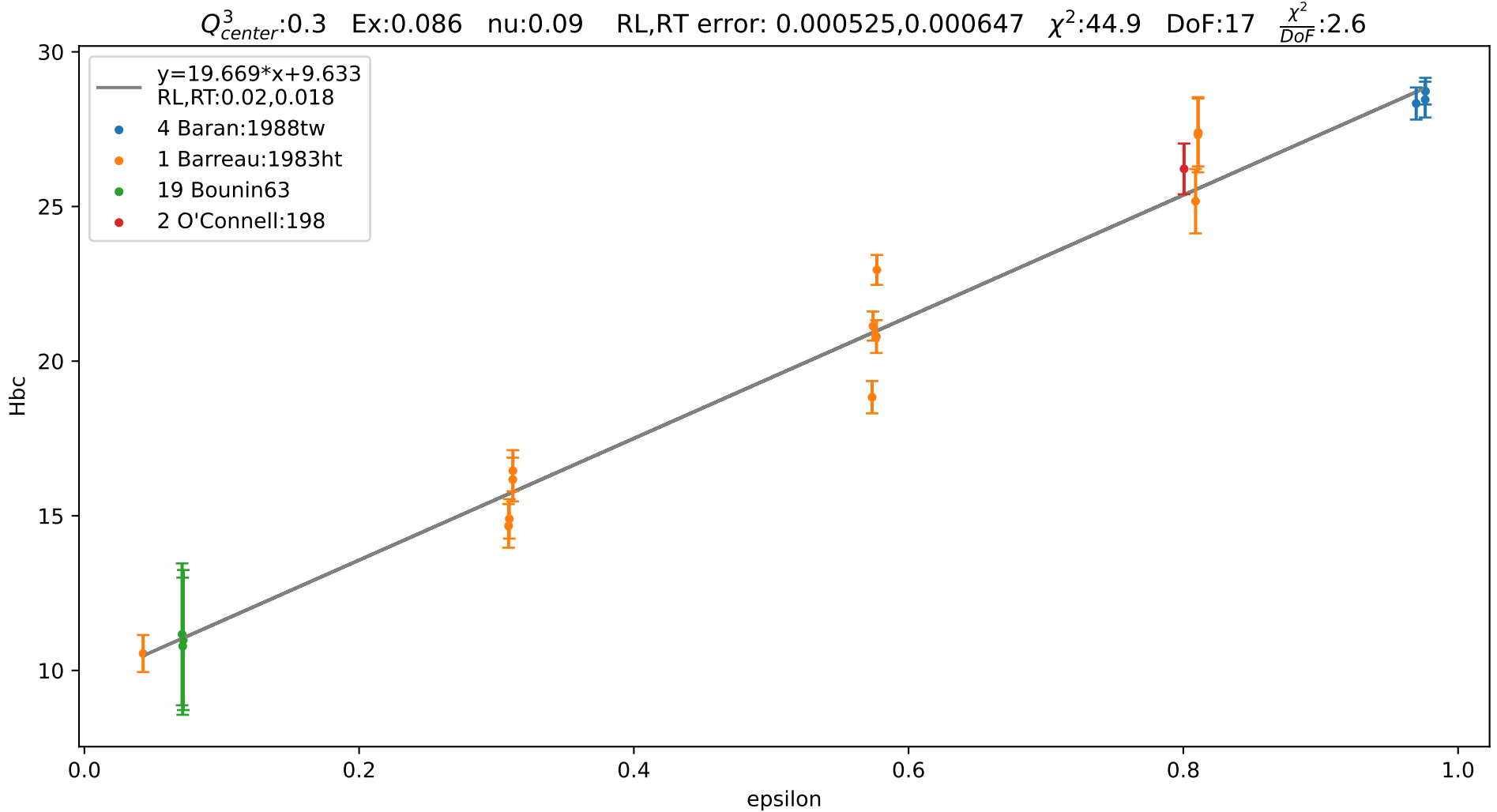

Q^3_{center}:0.3 Ex:0.036 nu:0.04 RL,RT error: 0.000254,0.00015 χ^2:299.3 DoF:53 $\frac{\chi^2}{DoF}$:5.6
y=25.962*x+7.653
RL,RT:0.026,0.015
1 Barreau:1983ht
16 Yamaguchi73
4 Baran:1988tw
19 Bounin63
2 O'Connell:198
Hbc
epsilon
35
30
25
20
15
10
0.0
0.2
0.4
0.6
0.8
1.0

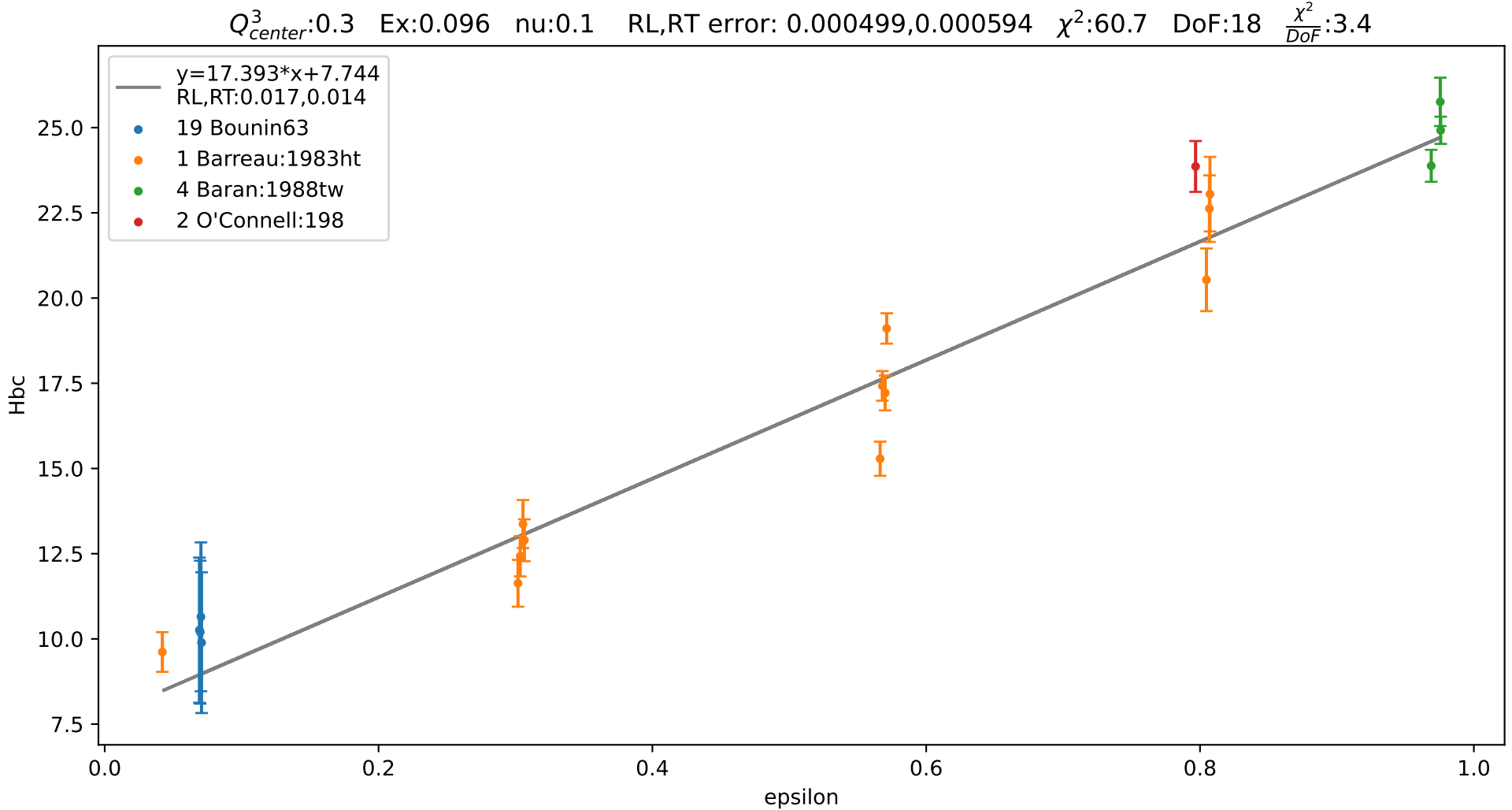

Q^3_{center}:0.3 Ex:0.046 nu:0.05 RL,RT error: 0.000511,0.000622 χ^2:29.5 DoF:16 $\frac{\chi^2}{DoF}$:1.8
y=26.183*x+11.215
RL,RT:0.026,0.022
19 Bounin63
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
40
35
30
25
20
15
10
0.0
0.2
0.4
0.6
0.8
1.0

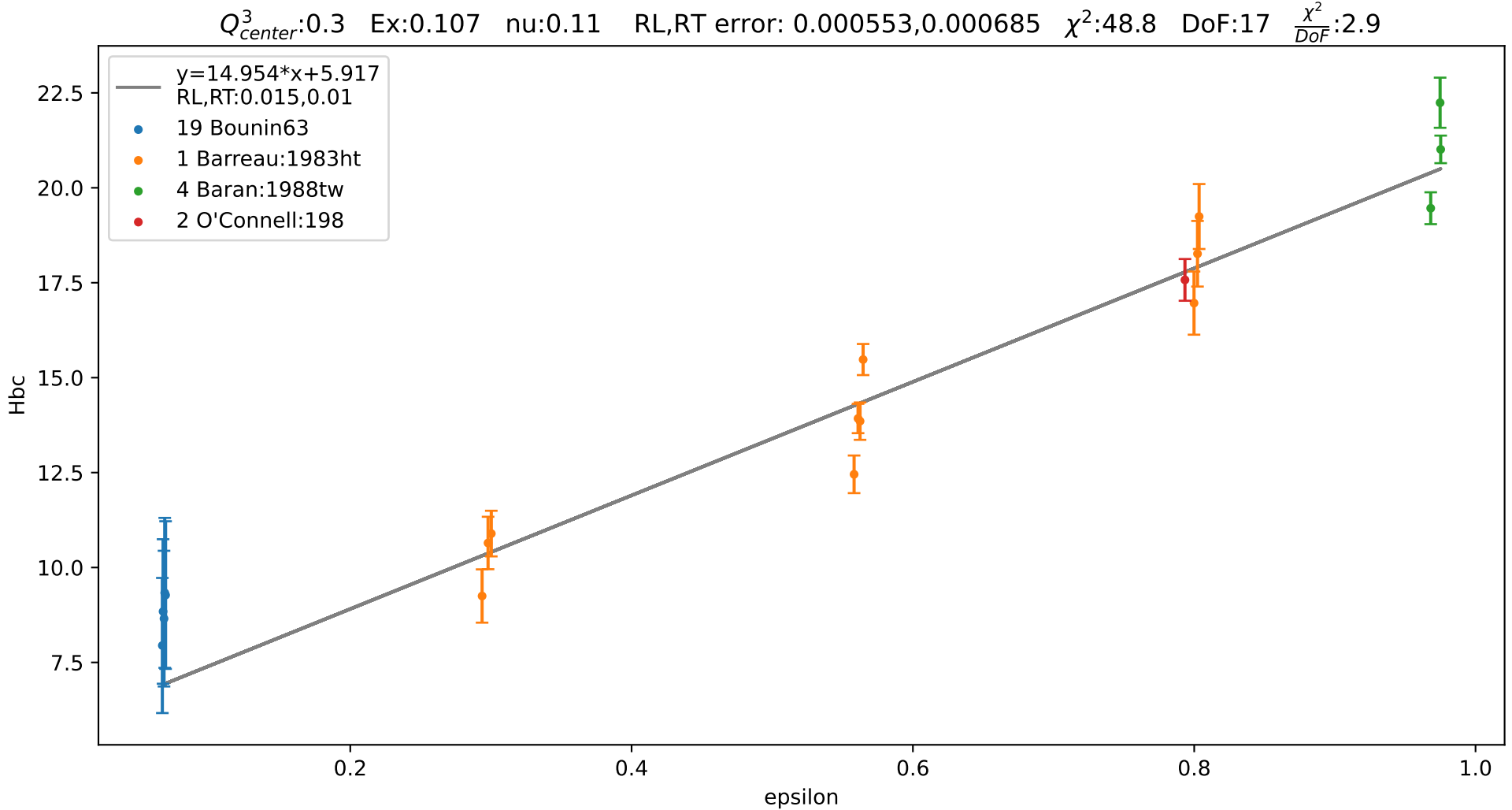

Q^3_{center}:0.3 Ex:0.056 nu:0.06 RL,RT error: 0.00057,0.000685 χ^2:8.8 DoF:16 $\frac{\chi^2}{DoF}$:0.5
y=25.704*x+12.123
RL,RT:0.026,0.023
4 Baran:1988tw
19 Bounin63
1 Barreau:1983ht
2 O'Connell:198
Hbc
epsilon
10
15
20
25
30
35
0.0
0.2
0.4
0.6
0.8
1.0

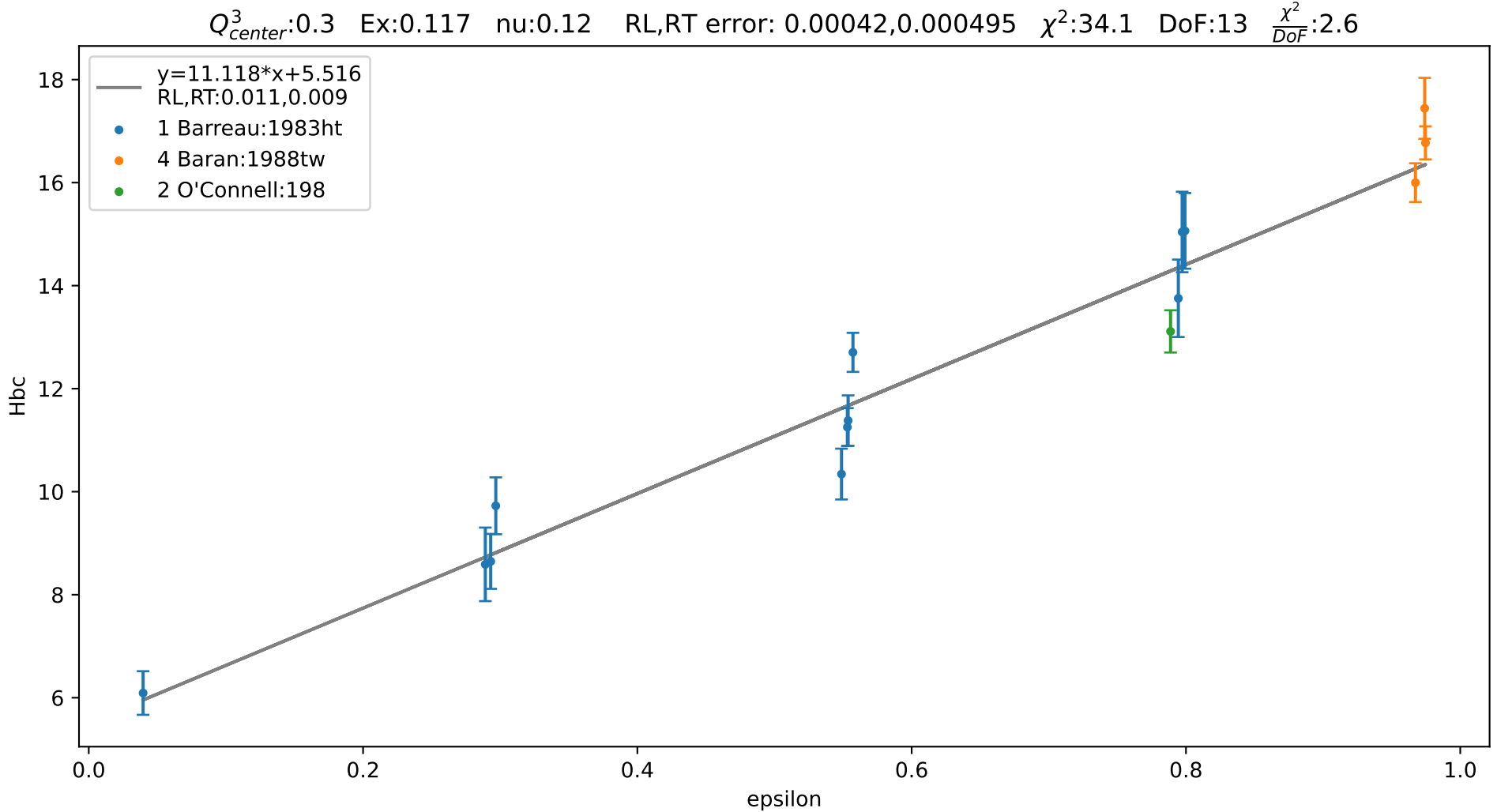

Q^3_{center}:0.3 Ex:0.066 nu:0.07 RL,RT error: 0.000605,0.000803 χ^2:11.0 DoF:15 $\frac{\chi^2}{DoF}$:0.7
y=24.851*x+11.877
RL,RT:0.025,0.022
4 Baran:1988tw
19 Bounin63
2 O'Connell:198
1 Barreau:1983ht
Hbc
epsilon
10
15
20
25
30
35
0.0
0.2
0.4
0.6
0.8
1.0

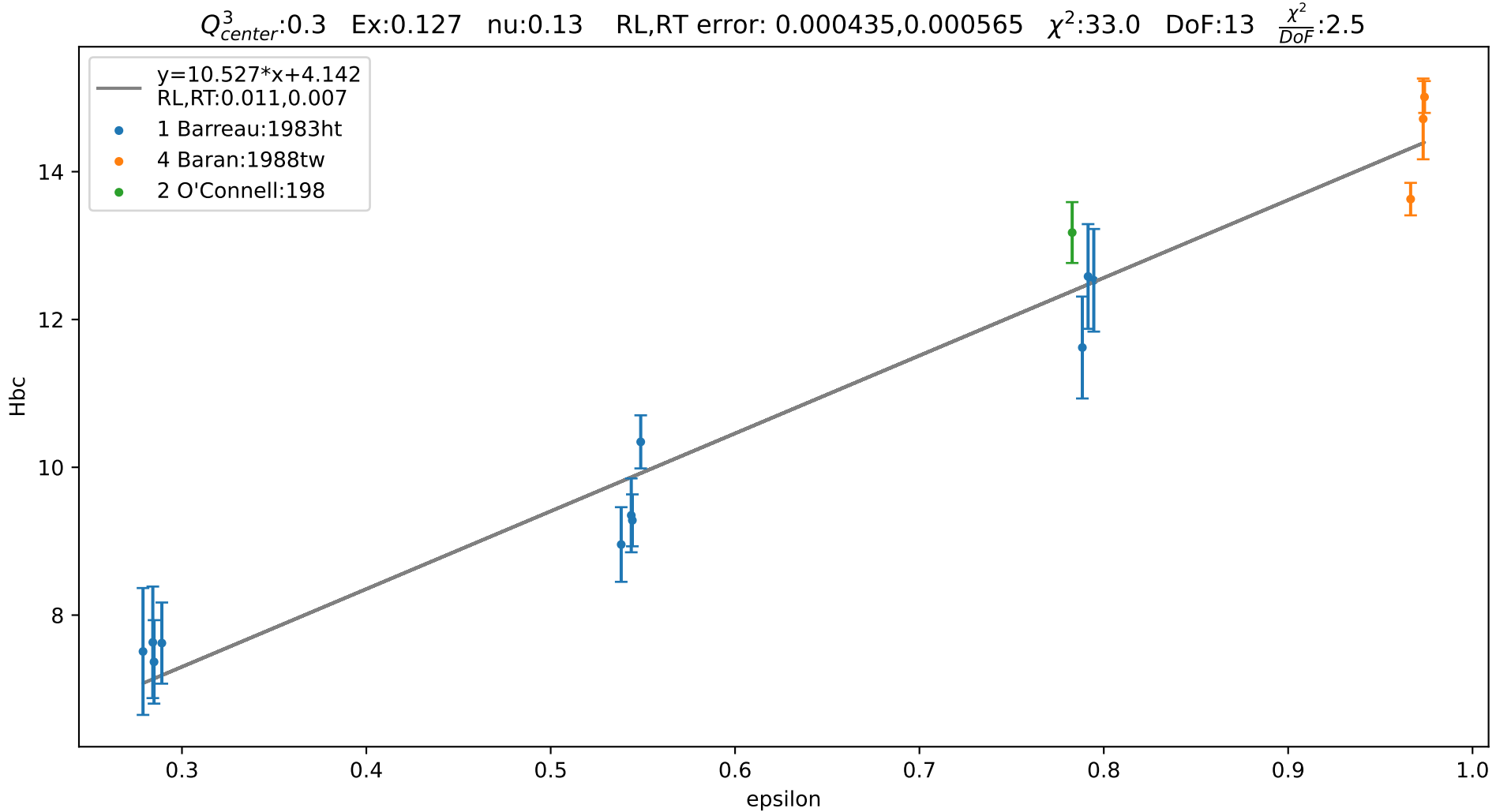

Q^3_{center}:0.3 Ex:0.076 nu:0.08 RL,RT error: 0.000498,0.000654 χ^2:20.3 DoF:16 $\frac{\chi^2}{DoF}$:1.3
y=22.755*x+10.798
RL,RT:0.023,0.02
4 Baran:1988tw
1 Barreau:1983ht
2 O'Connell:198
19 Bounin63
Hbc
epsilon
10
15
20
25
30
0.0
0.2
0.4
0.6
0.8
1.0

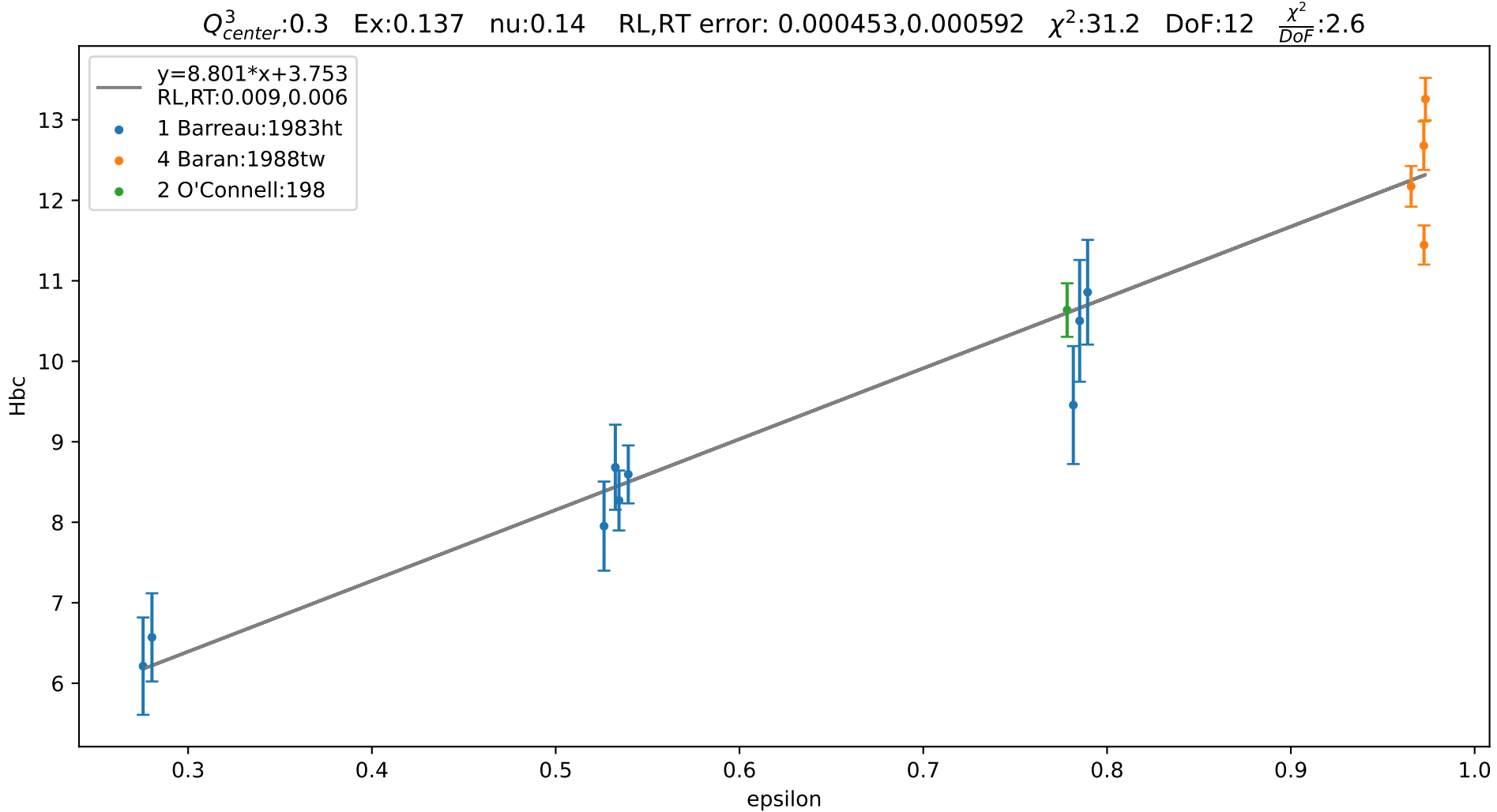

Q^3_{center}:0.3 Ex:0.086 nu:0.09 RL,RT error: 0.000525,0.000647 χ^2:44.9 DoF:17 $\frac{\chi^2}{DoF}$:2.6
y=19.669*x+9.633
RL,RT:0.02,0.018
4 Baran:1988tw
1 Barreau:1983ht
19 Bounin63
2 O'Connell:198
Hbc
epsilon
30
25
20
15
10
0.0
0.2
0.4
0.6
0.8
1.0

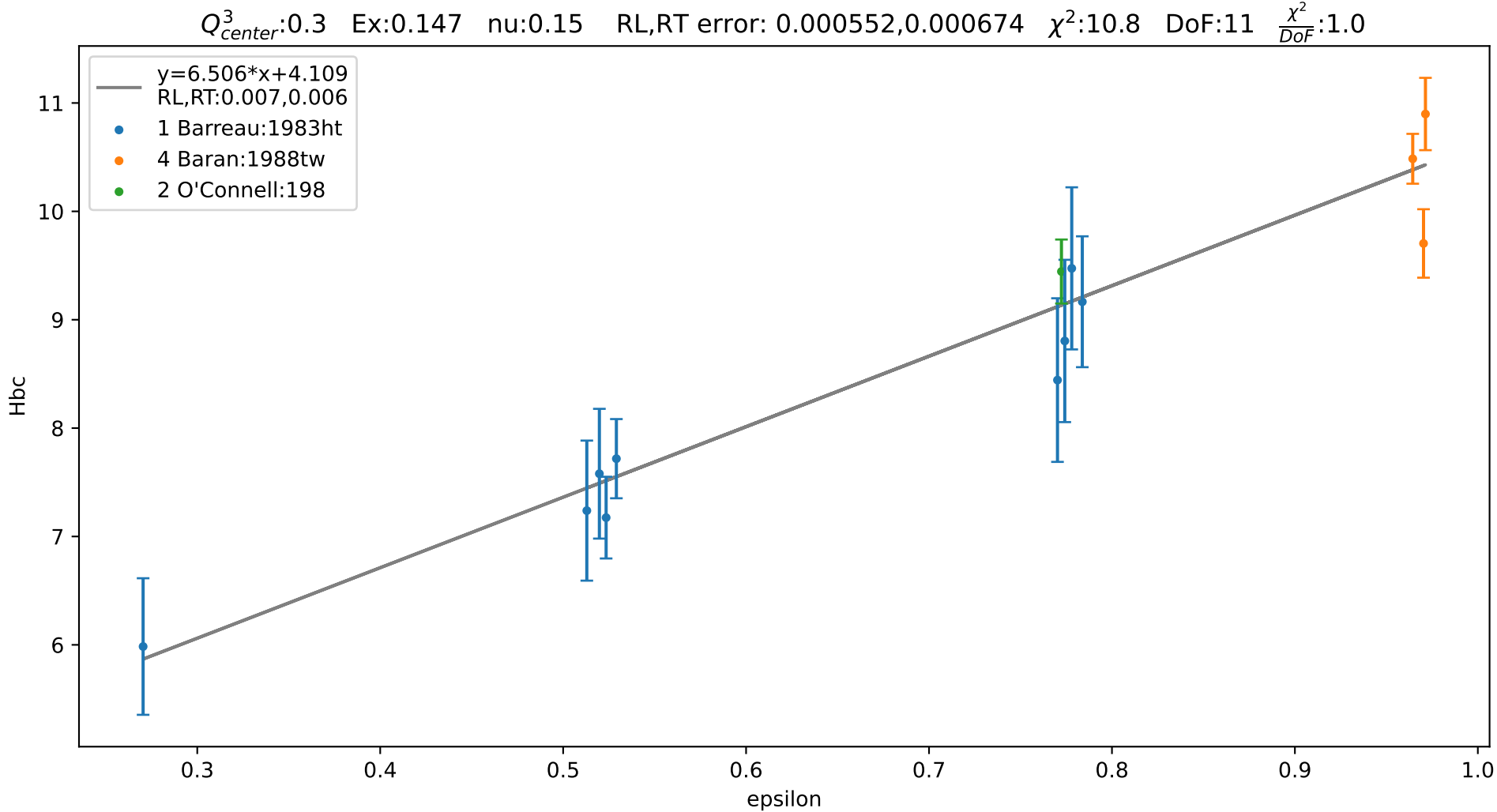

Q^3_{center}:0.3 Ex:0.096 nu:0.1 RL,RT error: 0.000499,0.000594 χ^2:60.7 DoF:18 $\frac{\chi^2}{DoF}$:3.4
y=17.393*x+7.744
RL,RT:0.017,0.014
19 Bounin63
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
25.0
22.5
20.0
17.5
15.0
12.5
10.0
7.5
0.0
0.2
0.4
0.6
0.8
1.0

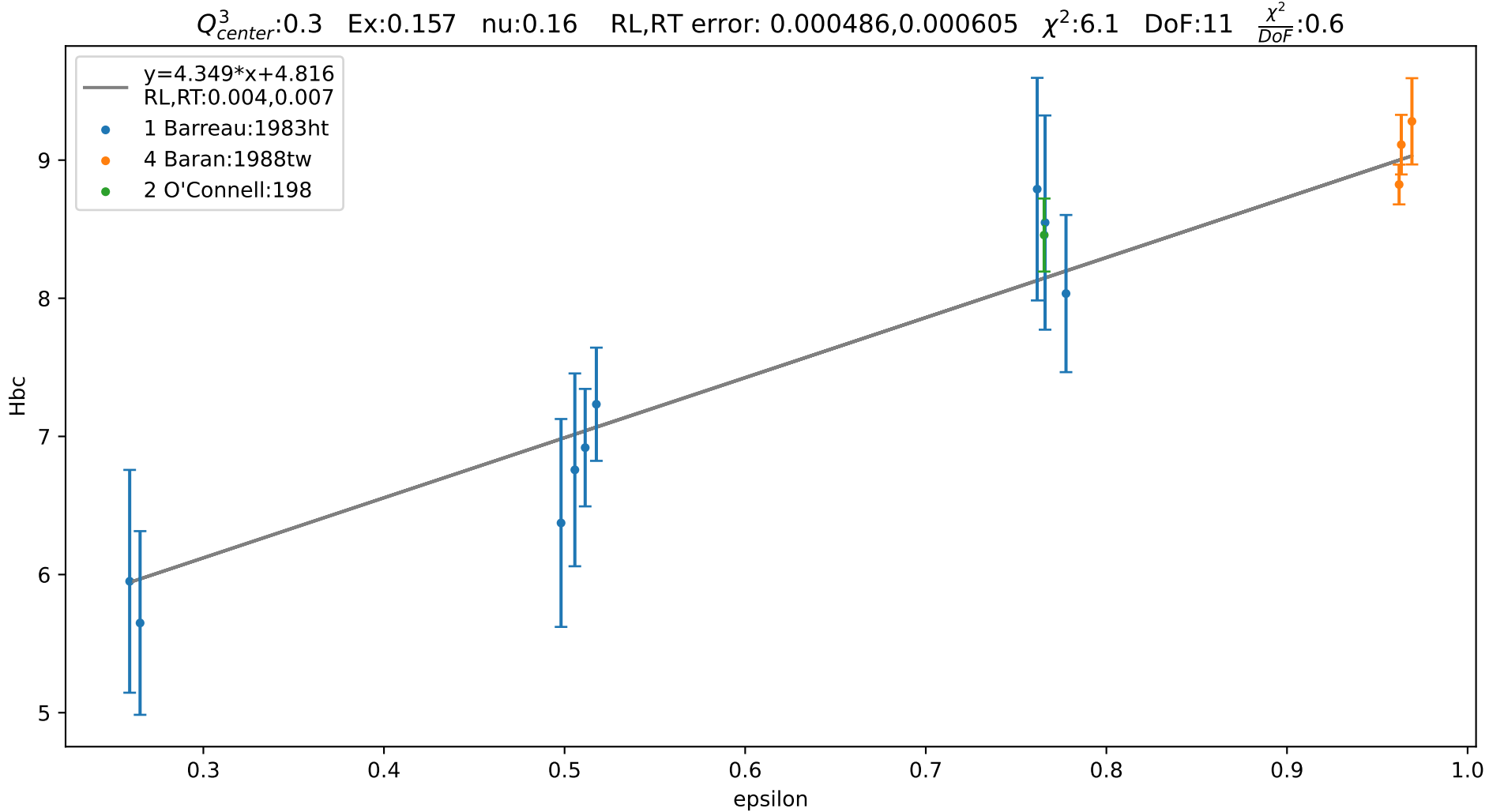

Q^3_{center}:0.3 Ex:0.107 nu:0.11 RL,RT error: 0.000553,0.000685 χ^2:48.8 DoF:17 $\frac{\chi^2}{DoF}$:2.9
y=14.954*x+5.917
RL,RT:0.015,0.01
19 Bounin63
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
22.5
20.0
17.5
15.0
12.5
10.0
7.5
0.2
0.4
0.6
0.8
1.0

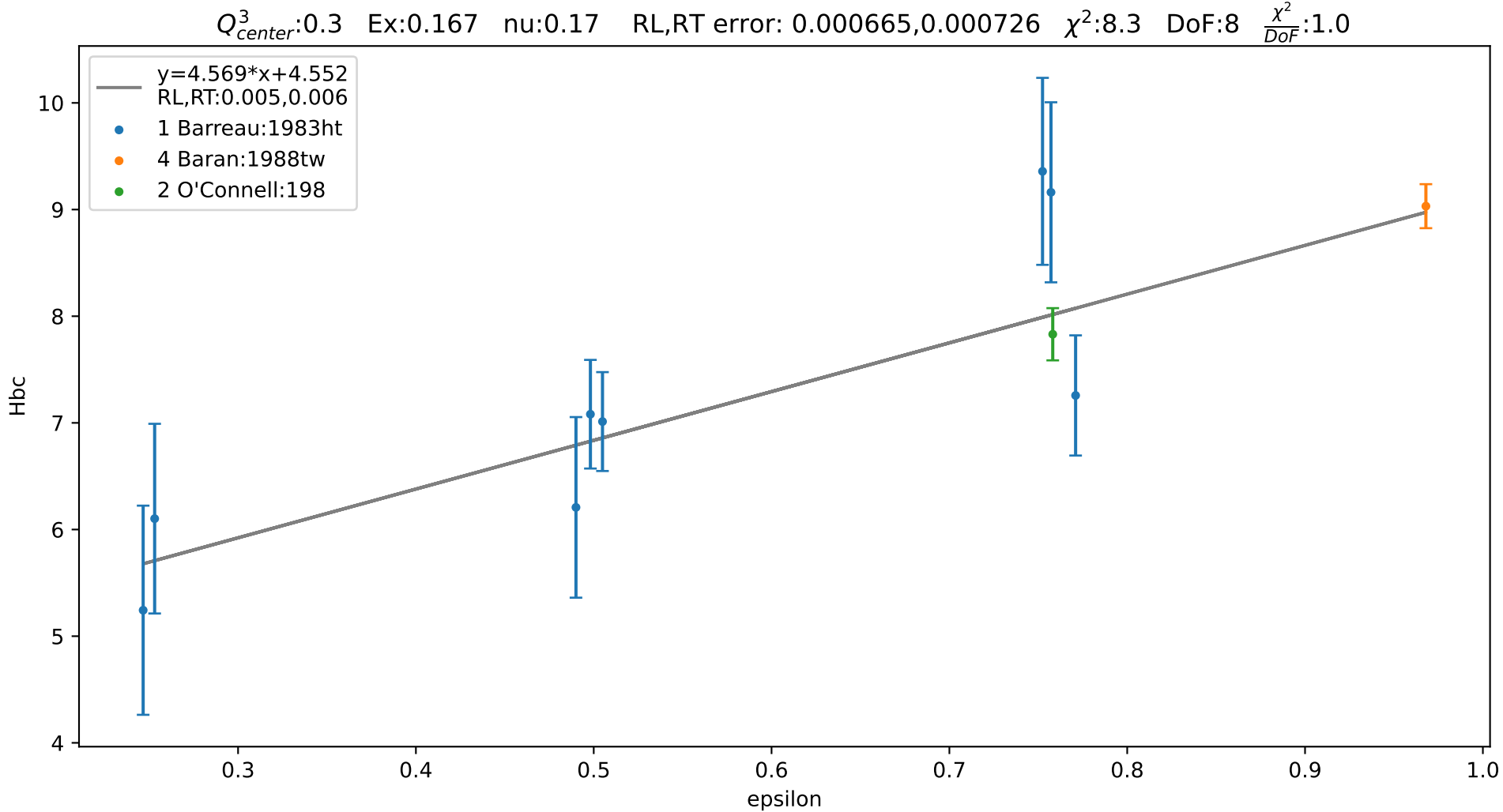

Q^3_{center}:0.3 Ex:0.117 nu:0.12 RL,RT error: 0.00042,0.000495 χ^2:34.1 DoF:13 $\frac{\chi^2}{DoF}$:2.6
y=11.118*x+5.516
RL,RT:0.011,0.009
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
18
16
14
12
10
8
6
0.0
0.2
0.4
0.6
0.8
1.0

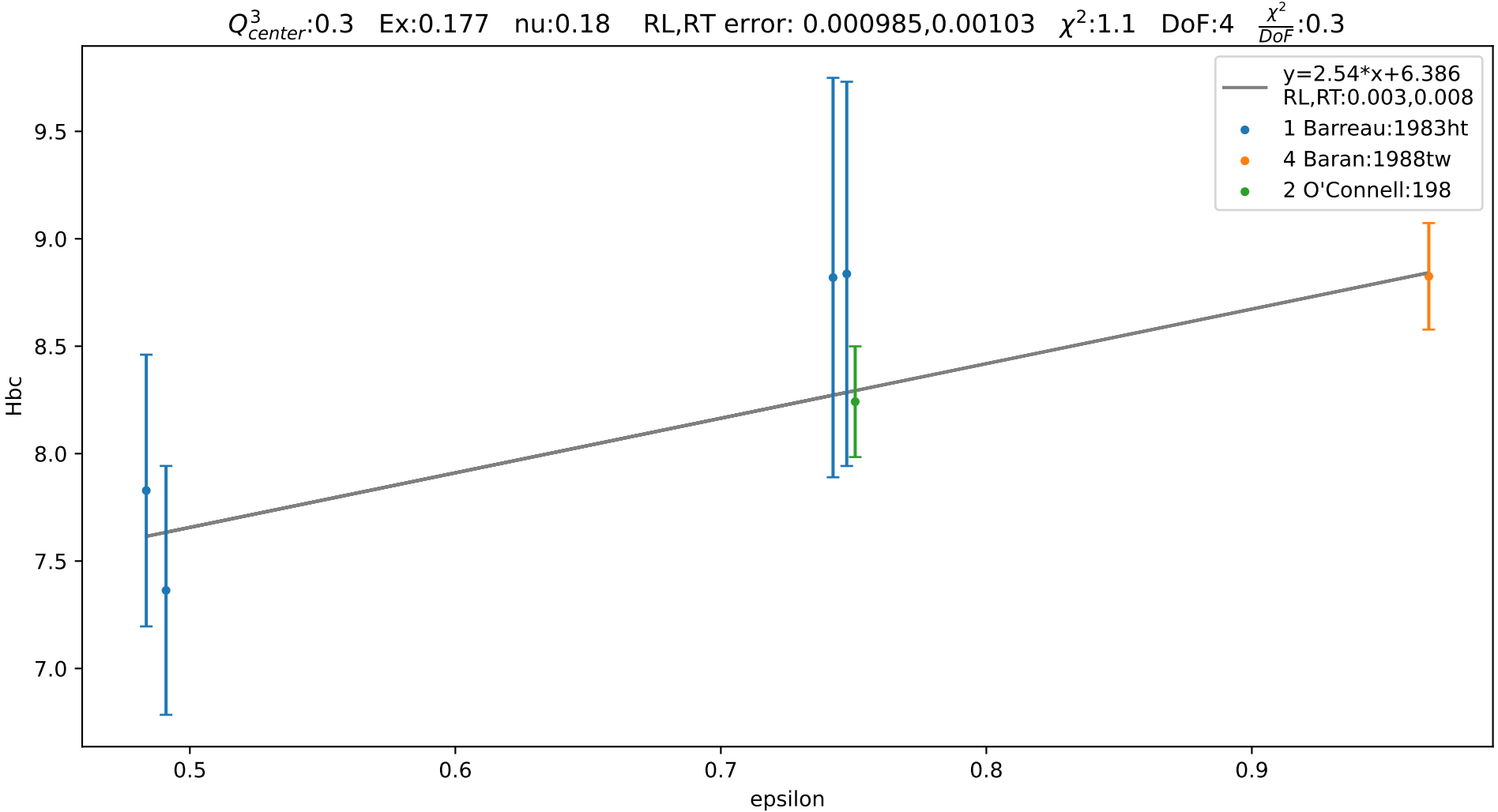

Q^3_{center}:0.3 Ex:0.127 nu:0.13 RL,RT error: 0.000435,0.000565 χ^2:33.0 DoF:13 $\frac{\chi^2}{DoF}$:2.5
y=10.527*x+4.142
RL,RT:0.011,0.007
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
8
10
12
14
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0

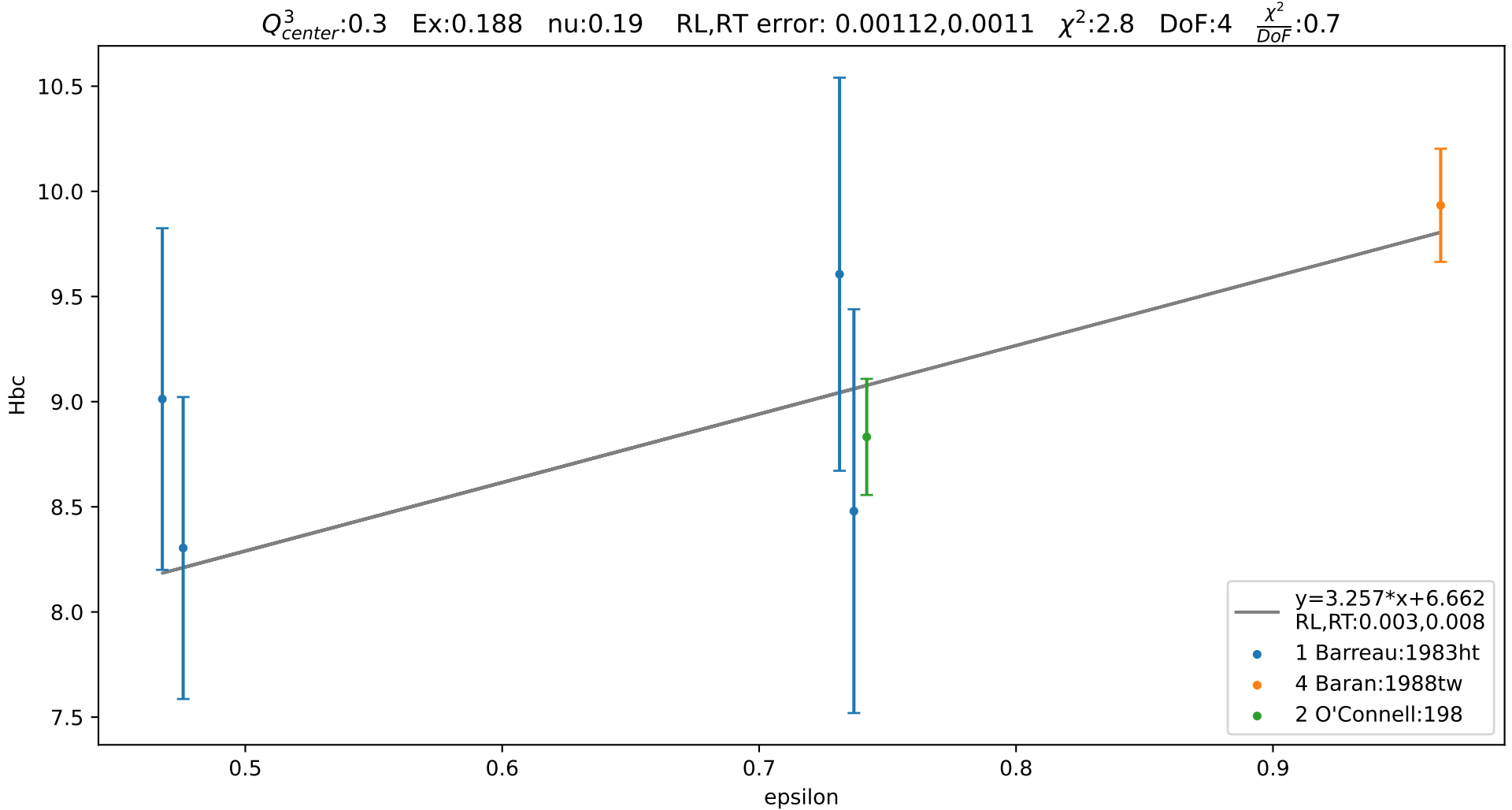

Q^3_{center}:0.3 Ex:0.137 nu:0.14 RL,RT error: 0.000453,0.000592 χ^2:31.2 DoF:12 $\frac{\chi^2}{DoF}$:2.6
y=8.801*x+3.753
RL,RT:0.009,0.006
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
13
12
11
10
9
8
7
6
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0

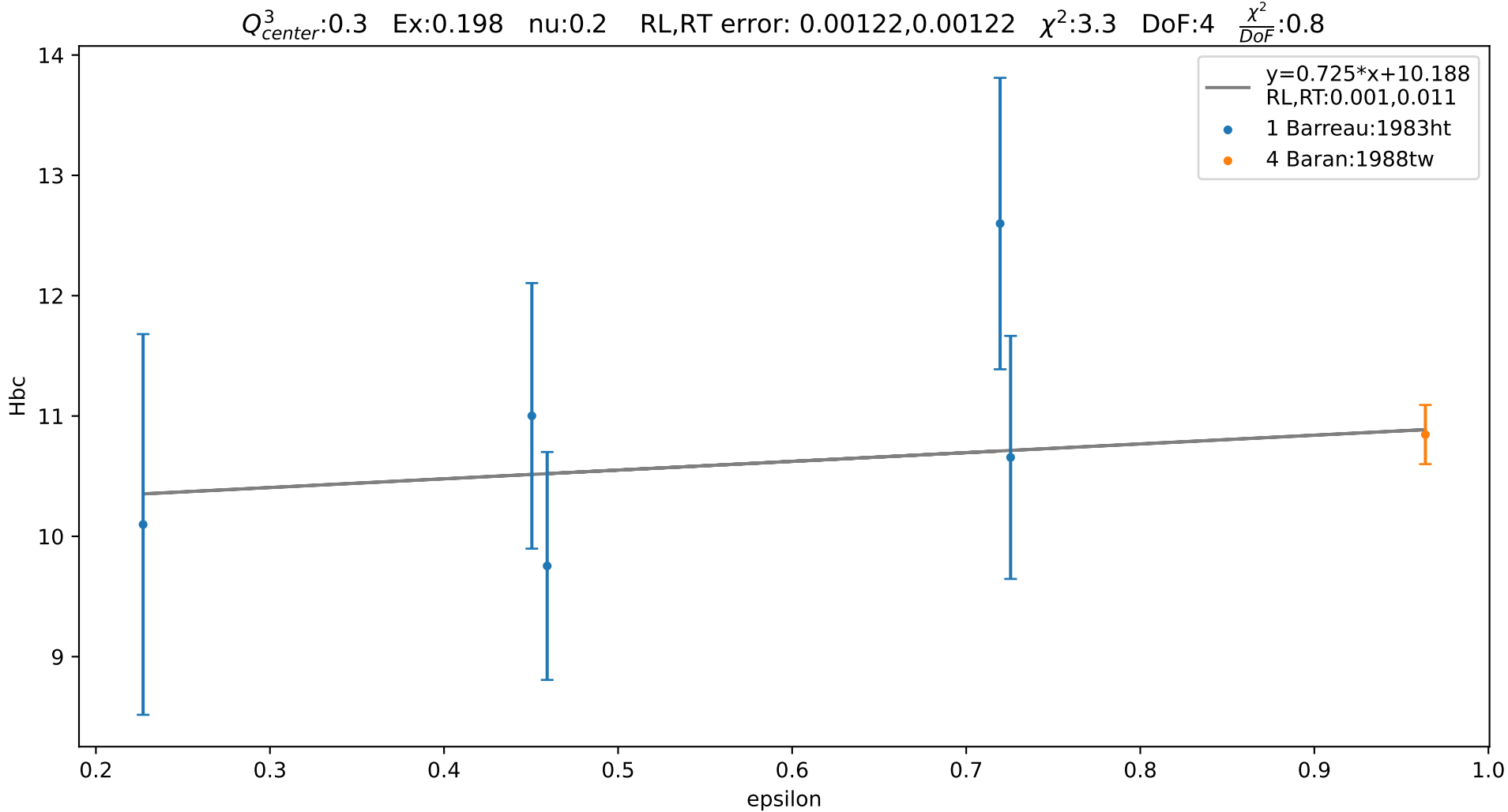

Q^3_{center}:0.3 Ex:0.147 nu:0.15 RL,RT error: 0.000552,0.000674 χ^2:10.8 DoF:11 $\frac{\chi^2}{DoF}$:1.0
y=6.506*x+4.109
RL,RT:0.007,0.006
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
11
10
9
8
7
6
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0

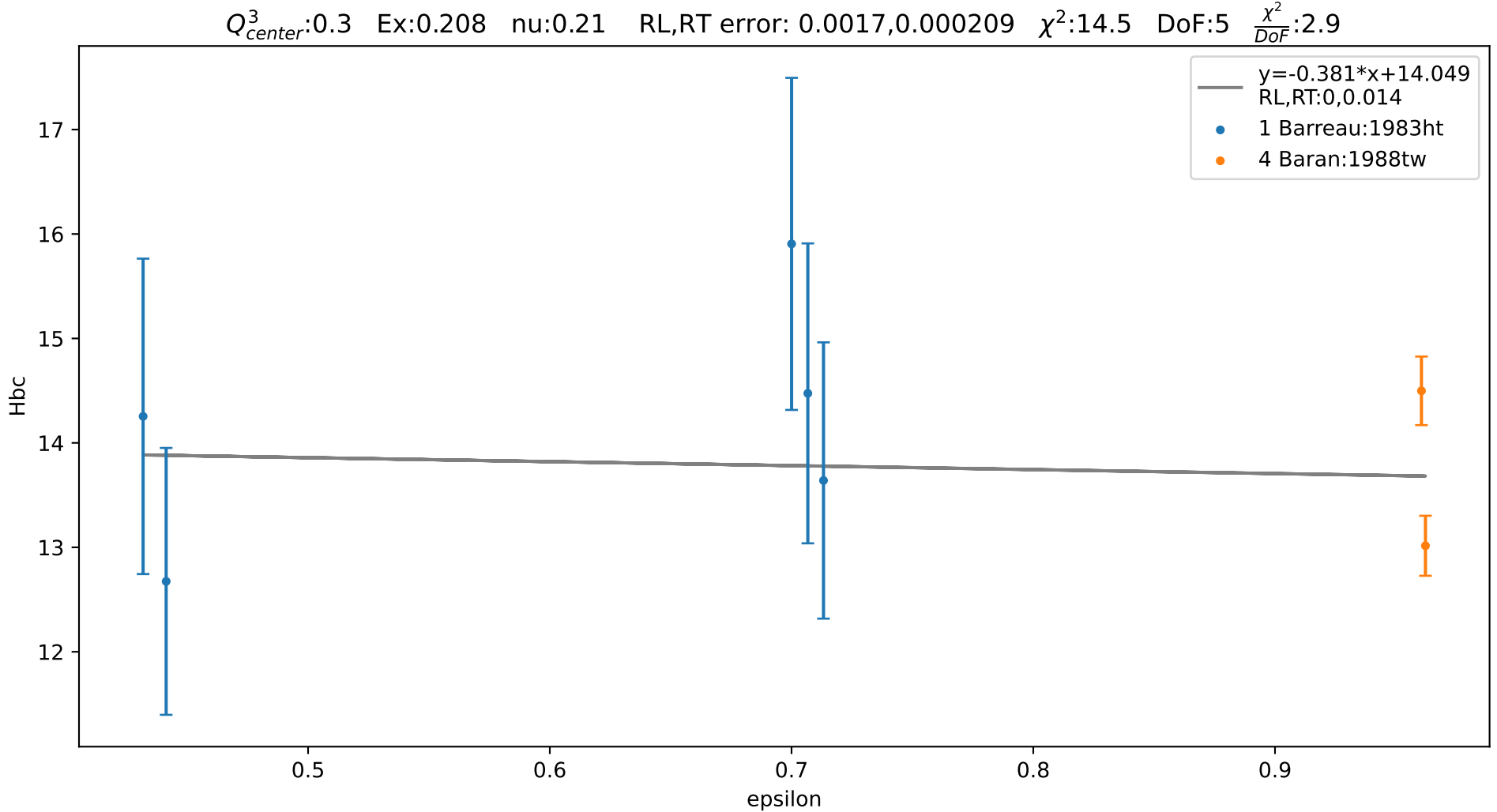

Q^3_{center}:0.3 Ex:0.157 nu:0.16 RL,RT error: 0.000486,0.000605 χ^2:6.1 DoF:11 $\frac{\chi^2}{DoF}$:0.6
y=4.349*x+4.816
RL,RT:0.004,0.007
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
5
6
7
8
9
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0

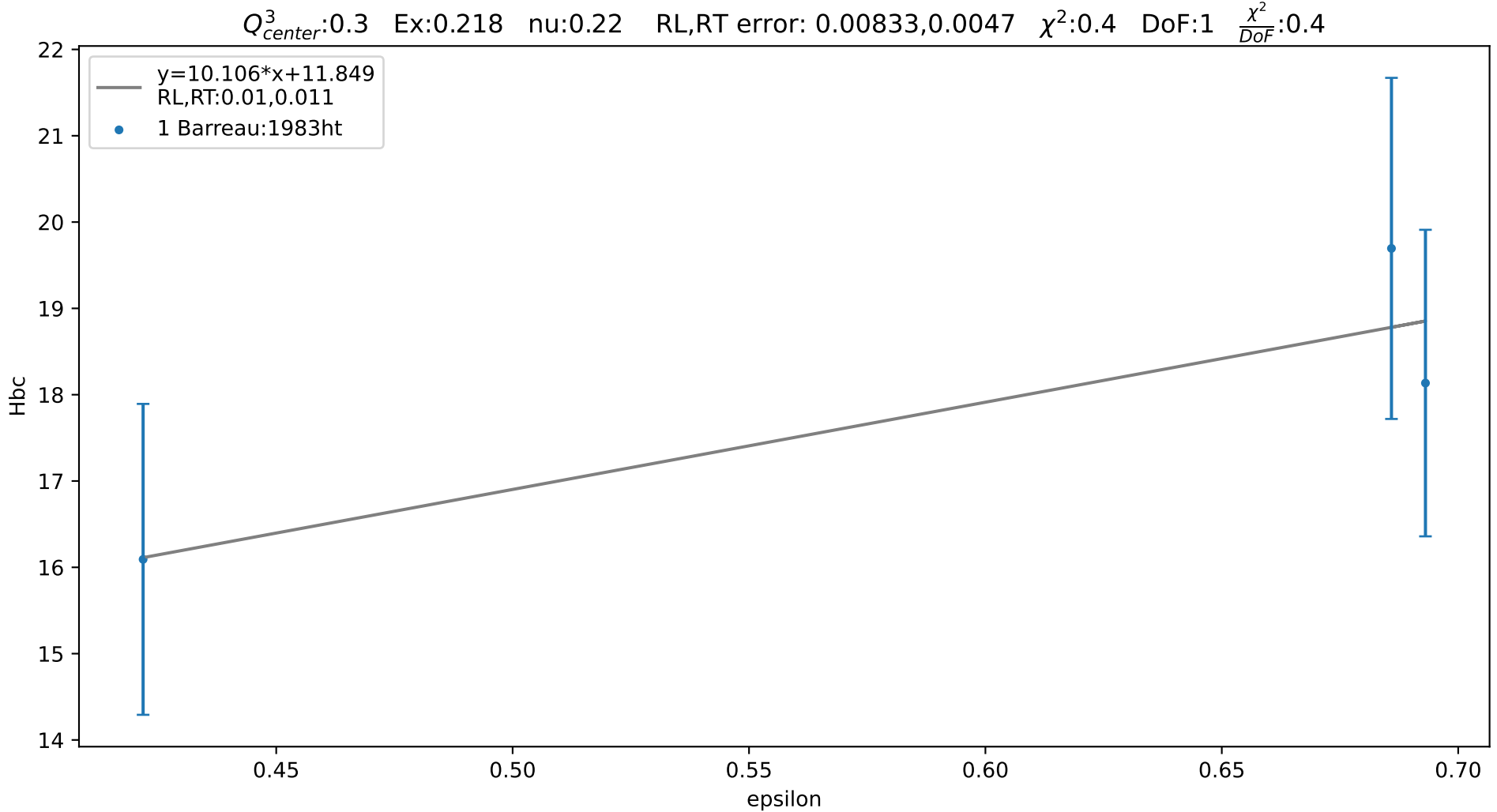

Q^3_{center}:0.3 Ex:0.167 nu:0.17 RL,RT error: 0.000665,0.000726 χ^2:8.3 DoF:8 $\frac{\chi^2}{DoF}$:1.0
y=4.569*x+4.552
RL,RT:0.005,0.006
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
10
9
8
7
6
5
4
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0

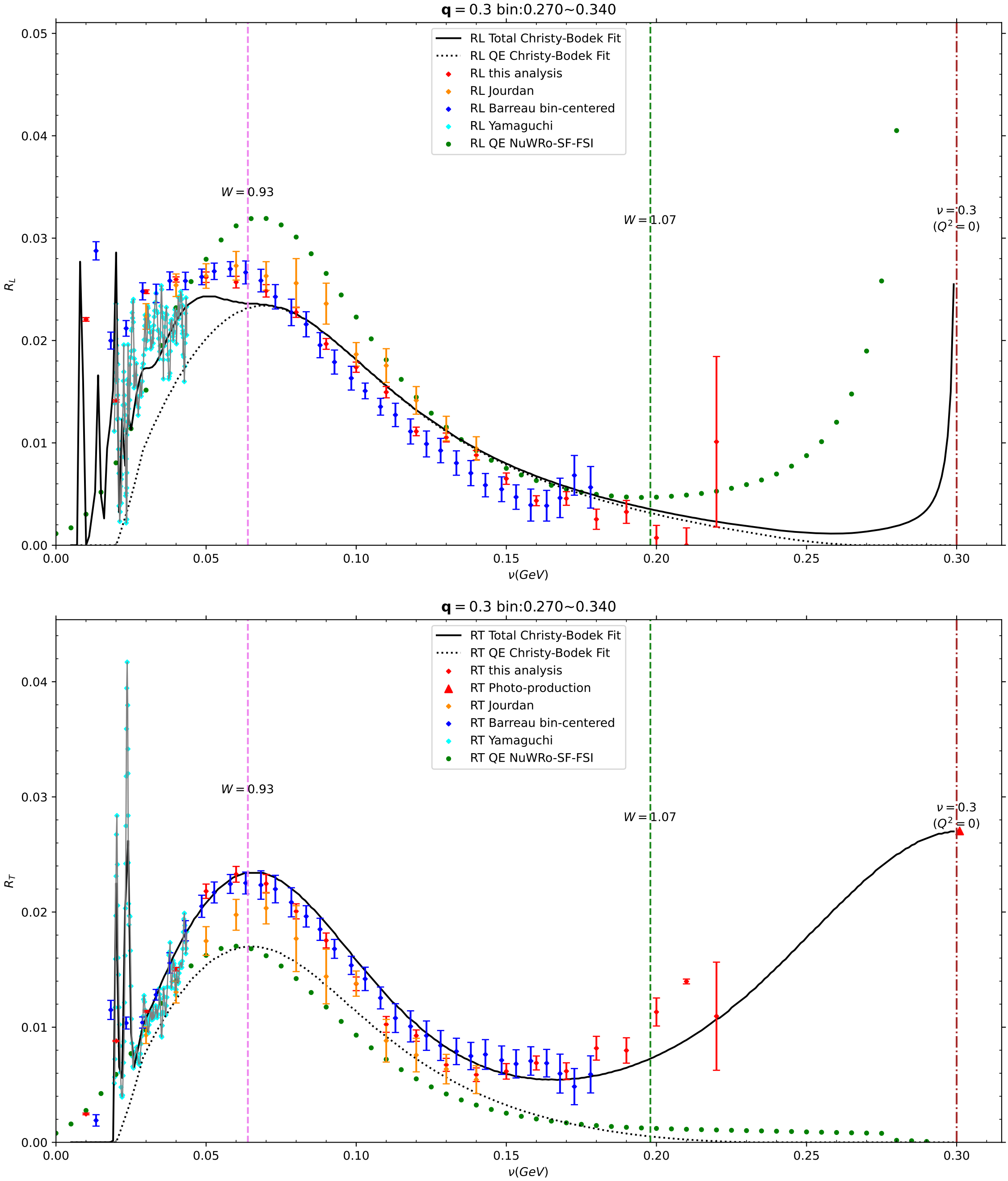

Q^3_{center}:0.3 Ex:0.177 nu:0.18 RL,RT error: 0.000985,0.00103 χ^2:1.1 DoF:4 $\frac{\chi^2}{DoF}$:0.3
y=2.54*x+6.386
RL,RT:0.003,0.008
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
9.5
9.0
8.5
8.0
7.5
7.0
0.5
0.6
0.7
0.8
0.9

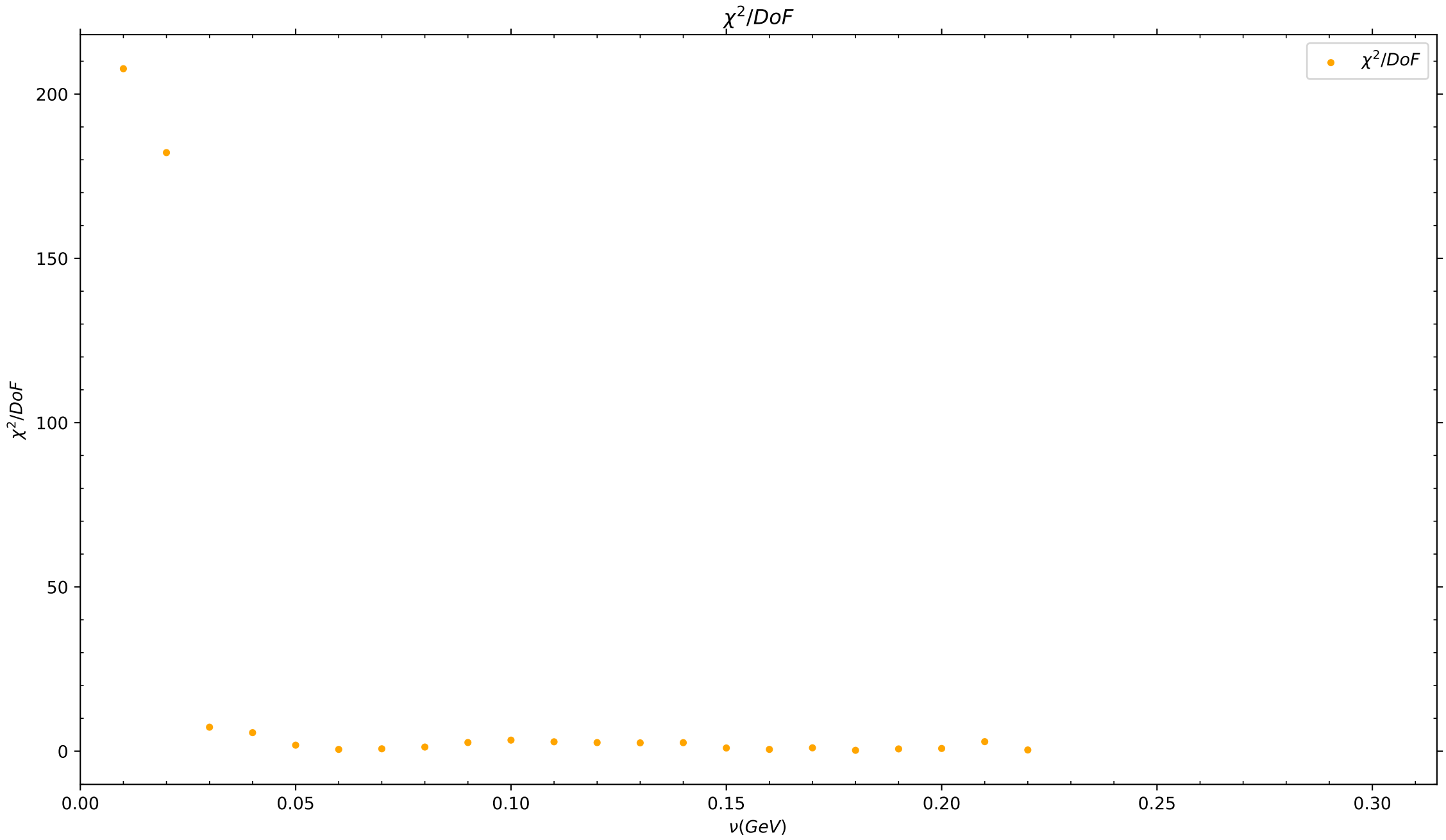

Q^3_{center}:0.3 Ex:0.188 nu:0.19 RL,RT error: 0.00112,0.0011 χ^2:2.8 DoF:4 $\frac{\chi^2}{DoF}$:0.7
Hbc
epsilon
10.5
10.0
9.5
9.0
8.5
8.0
7.5
0.5
0.6
0.7
0.8
0.9
y=3.257*x+6.662
RL,RT:0.003,0.008
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198

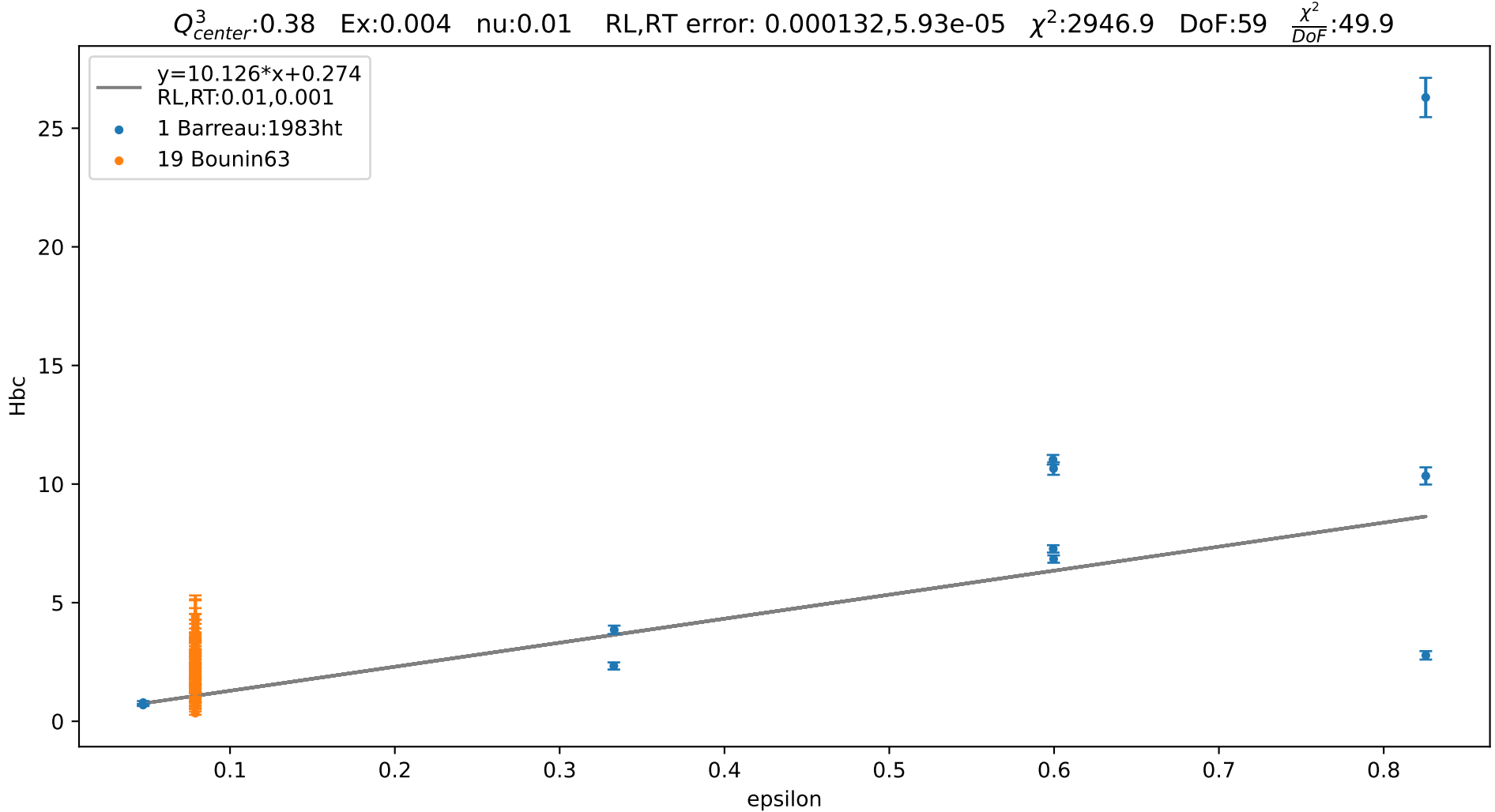

Q^3_{center}:0.3 Ex:0.198 nu:0.2 RL,RT error: 0.00122,0.00122 χ^2:3.3 DoF:4 $\frac{\chi^2}{DoF}$:0.8
y=0.725*x+10.188
RL,RT:0.001,0.011
1 Barreau:1983ht
4 Baran:1988tw
Hbc
epsilon
14
13
12
11
10
9
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0

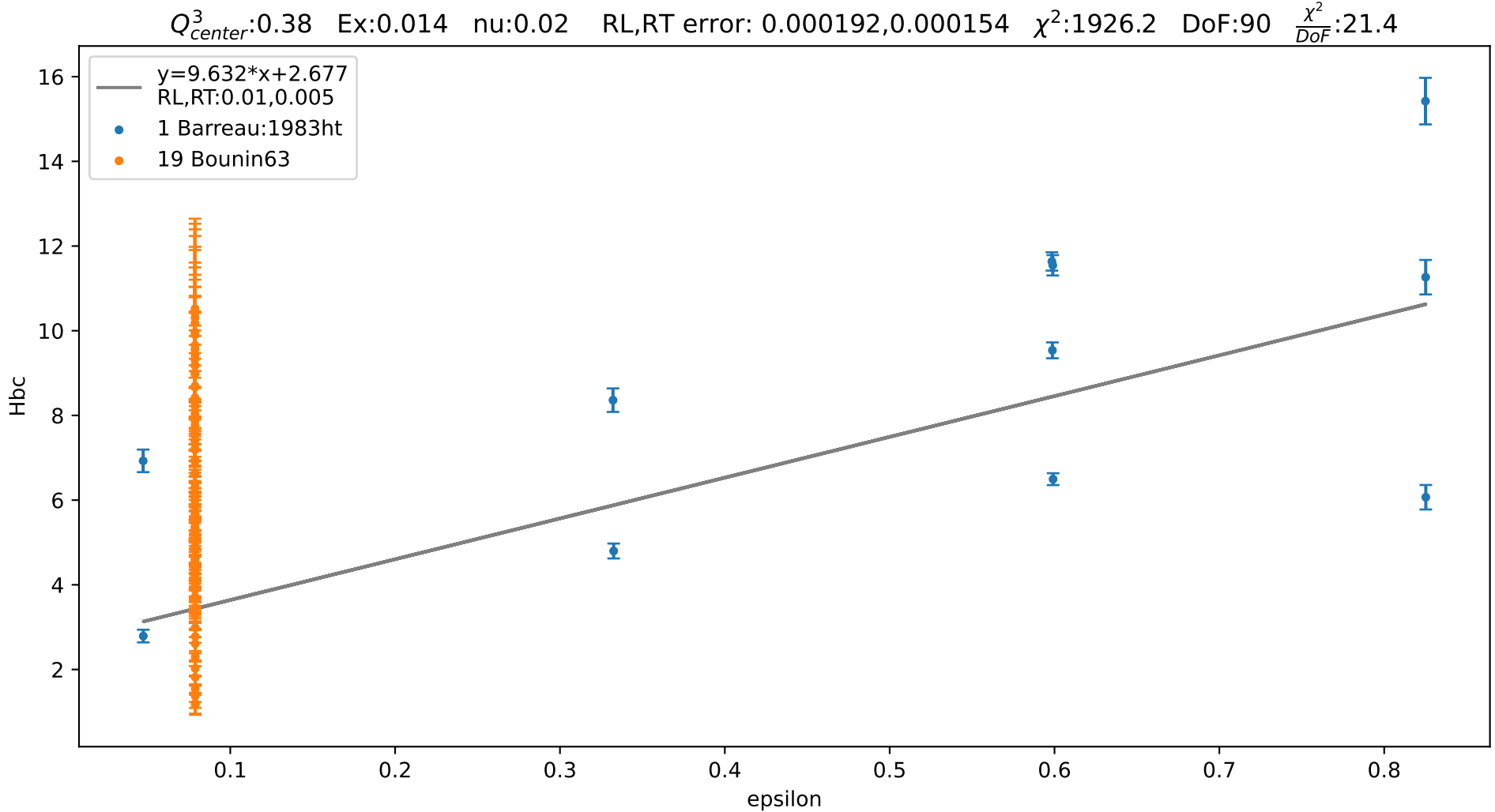

Q^3_{center}:0.3 Ex:0.208 nu:0.21 RL,RT error: 0.0017,0.000209 χ^2:14.5 DoF:5 $\frac{\chi^2}{DoF}$:2.9
y=-0.381*x+14.049
RL,RT:0,0.014
1 Barreau:1983ht
4 Baran:1988tw
Hbc
epsilon
17
16
15
14
13
12
0.5
0.6
0.7
0.8
0.9

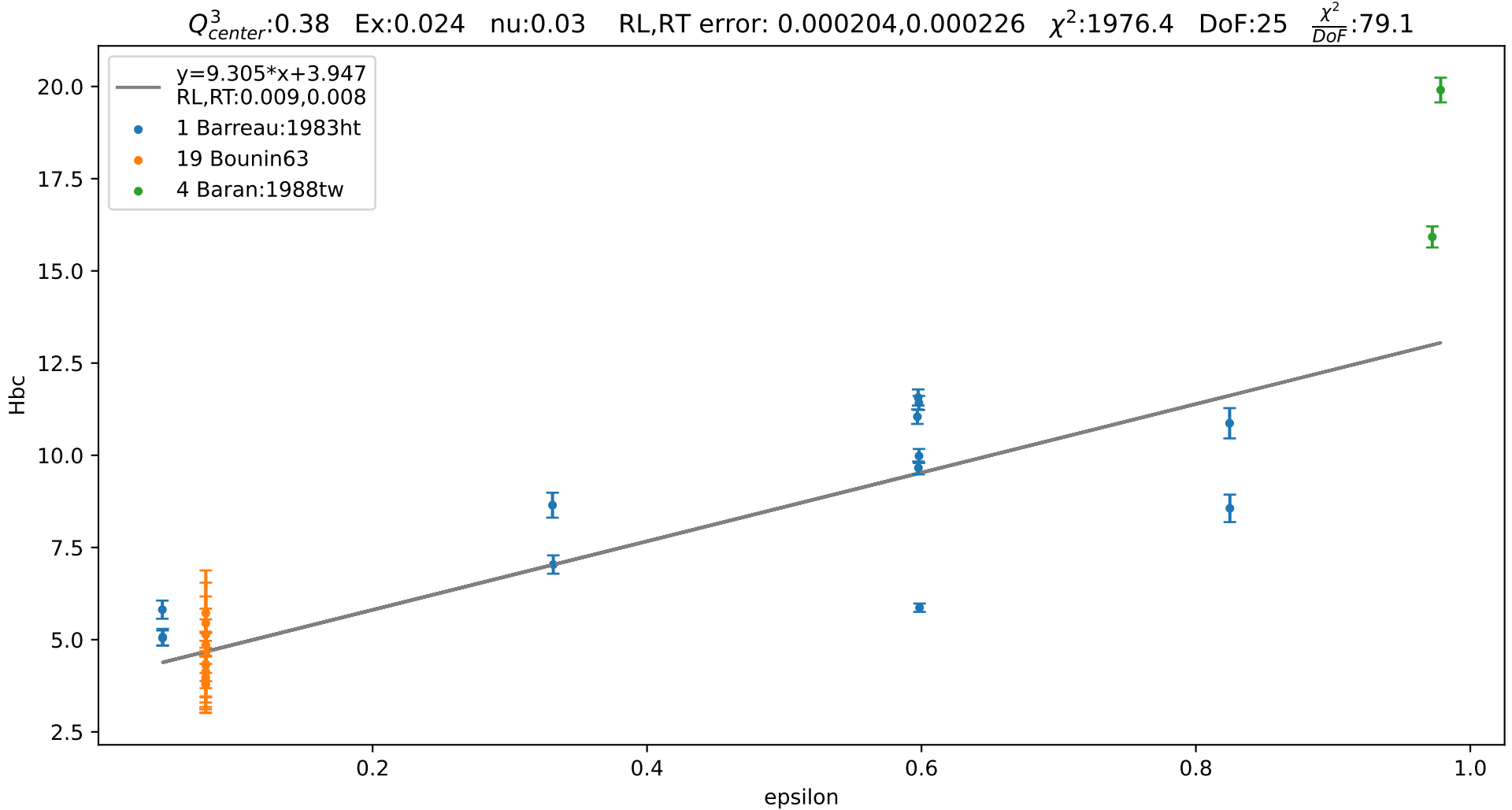

Q^3_{center}:0.3 Ex:0.218 nu:0.22 RL,RT error: 0.00833,0.0047 χ^2:0.4 DoF:1 $\frac{\chi^2}{DoF}$:0.4
y=10.106*x+11.849
RL,RT:0.01,0.011
1 Barreau:1983ht
Hbc
epsilon
22
21
20
19
18
17
16
15
14
0.45
0.50
0.55
0.60
0.65
0.70

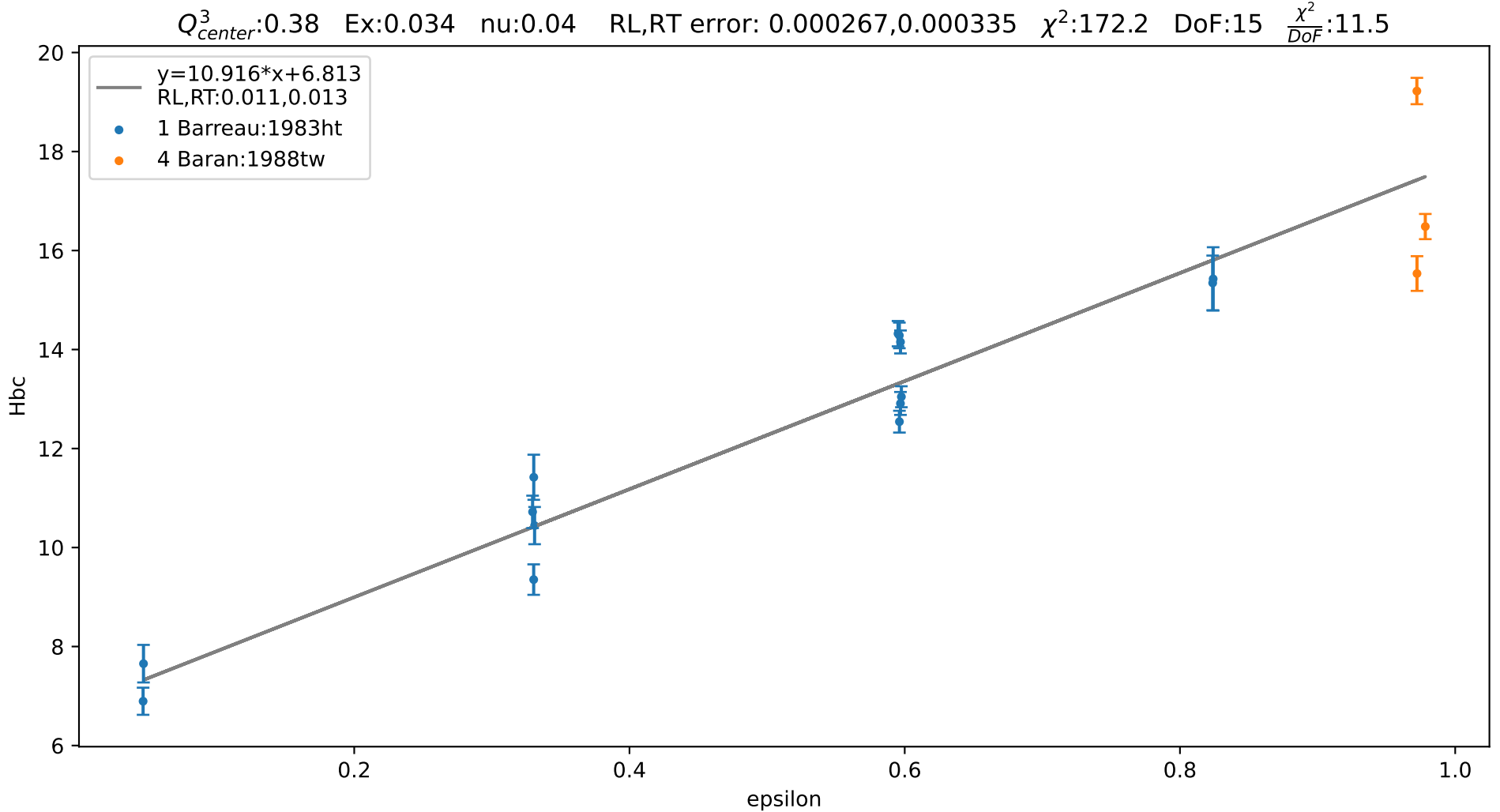

q = 0.3 bin:0.270~0.340
RL Total Christy-Bodek Fit
RL QE Christy-Bodek Fit
RL this analysis
RL Jourdan
RL Barreau bin-centered
RL Yamaguchi
RL QE NuWRo-SF-FSI
W = 0.93
W = 1.07
ν = 0.3
(Q² = 0)
R_L
ν(GeV)
q = 0.3 bin:0.270~0.340
RT Total Christy-Bodek Fit
RT QE Christy-Bodek Fit
RT this analysis
RT Photo-production
RT Jourdan
RT Barreau bin-centered
RT Yamaguchi
RT QE NuWRo-SF-FSI
W = 0.93
W = 1.07
ν = 0.3
(Q² = 0)
R_T
ν(GeV)

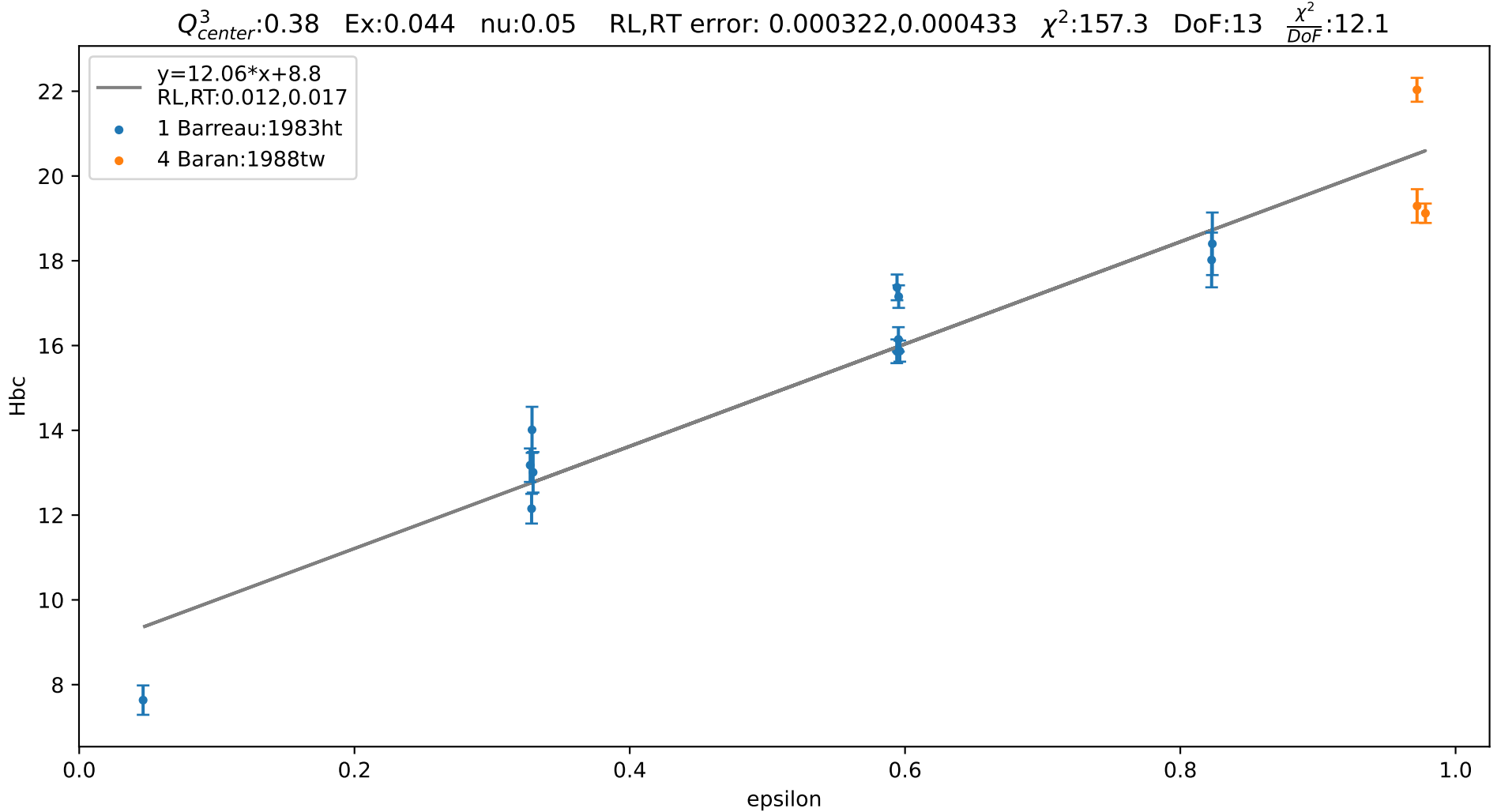

χ²/DoF
χ²/DoF
χ²/DoF
ν(GeV)

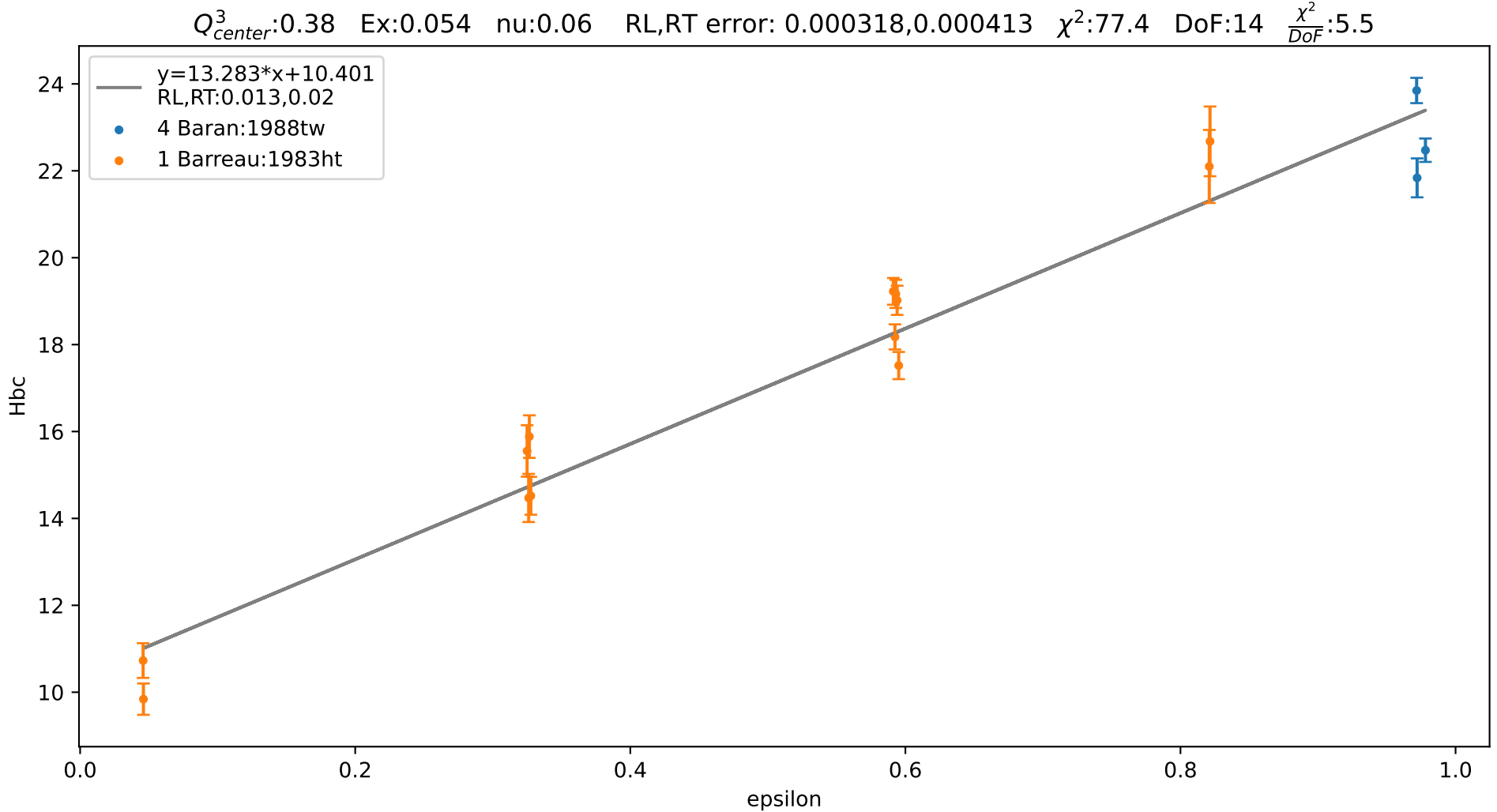

Q^3_{center}:0.38 Ex:0.004 nu:0.01 RL,RT error: 0.000132,5.93e-05 χ^2:2946.9 DoF:59 $\frac{\chi^2}{DoF}$:49.9
y=10.126*x+0.274
RL,RT:0.01,0.001
1 Barreau:1983ht
19 Bounin63
Hbc
epsilon
0
5
10
15
20
25
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

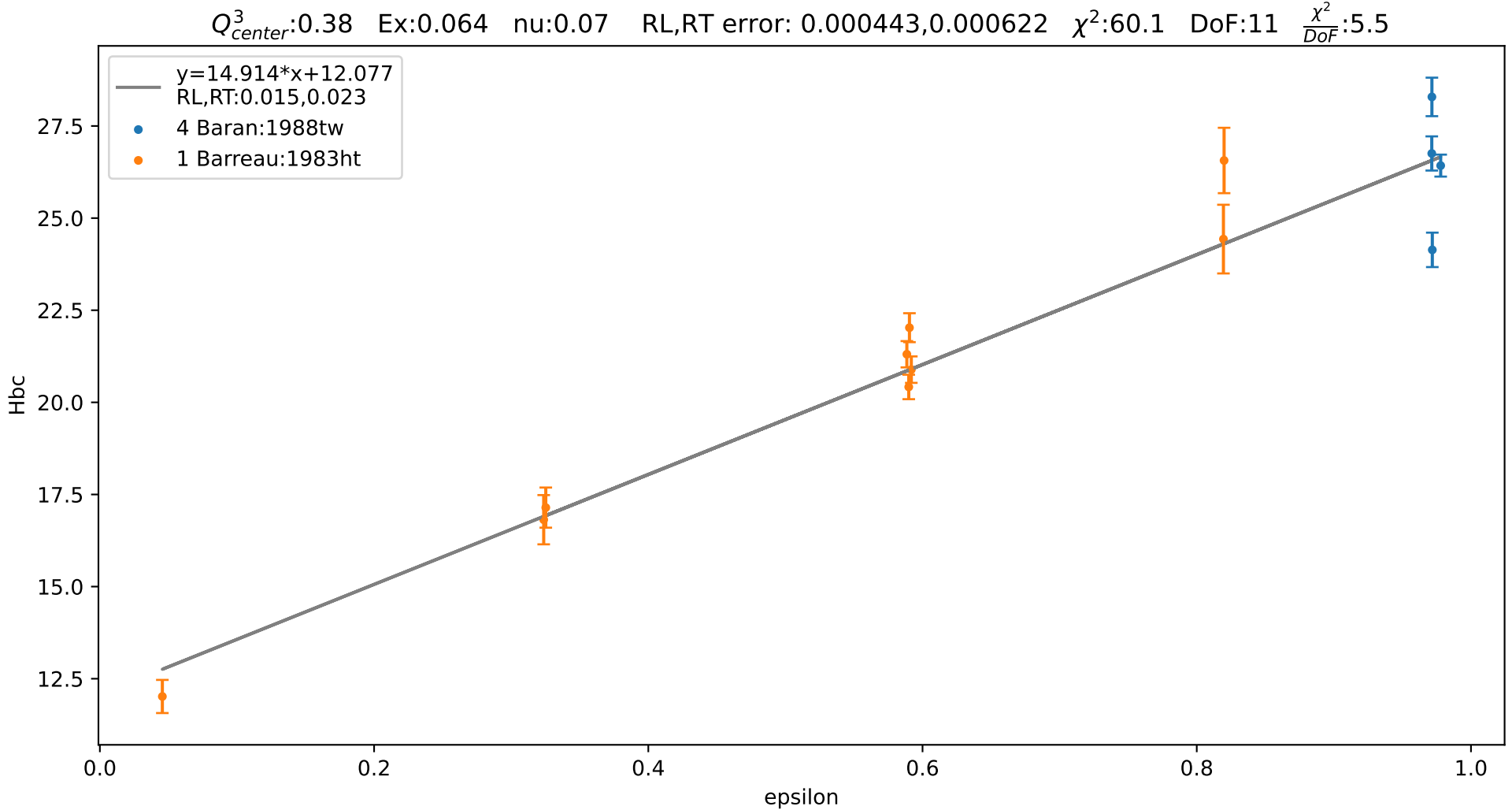

Q^3_{center}:0.38 Ex:0.014 nu:0.02 RL,RT error: 0.000192,0.000154 χ^2:1926.2 DoF:90 $\frac{\chi^2}{DoF}$:21.4
y=9.632*x+2.677
RL,RT:0.01,0.005
1 Barreau:1983ht
19 Bounin63
Hbc
epsilon
2
4
6
8
10
12
14
16
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

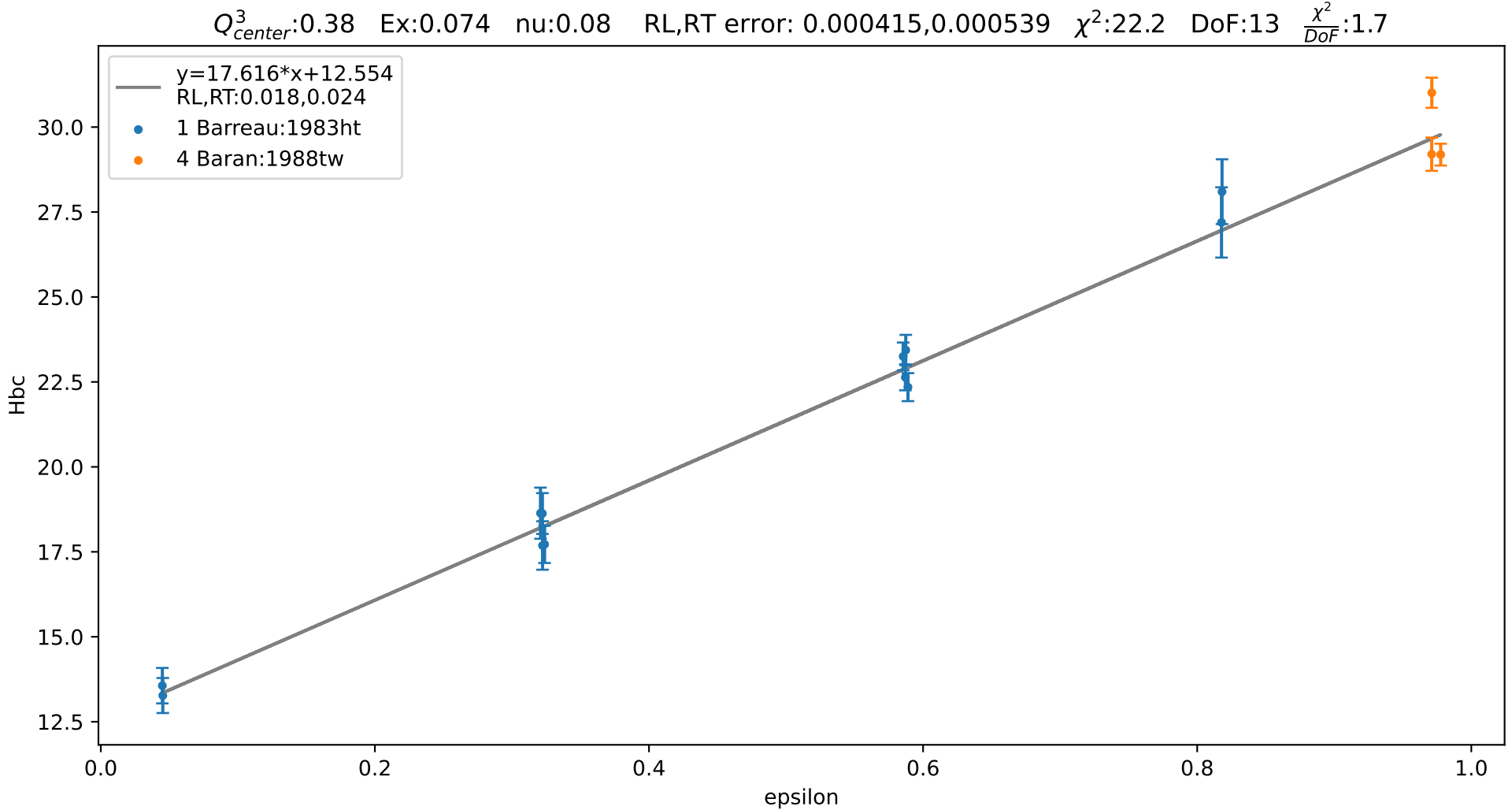

Q^3_{center}:0.38 Ex:0.024 nu:0.03 RL,RT error: 0.000204,0.000226 χ^2:1976.4 DoF:25 $\frac{\chi^2}{DoF}$:79.1
y=9.305*x+3.947
RL,RT:0.009,0.008
1 Barreau:1983ht
19 Bounin63
4 Baran:1988tw
Hbc
epsilon
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.2
0.4
0.6
0.8
1.0

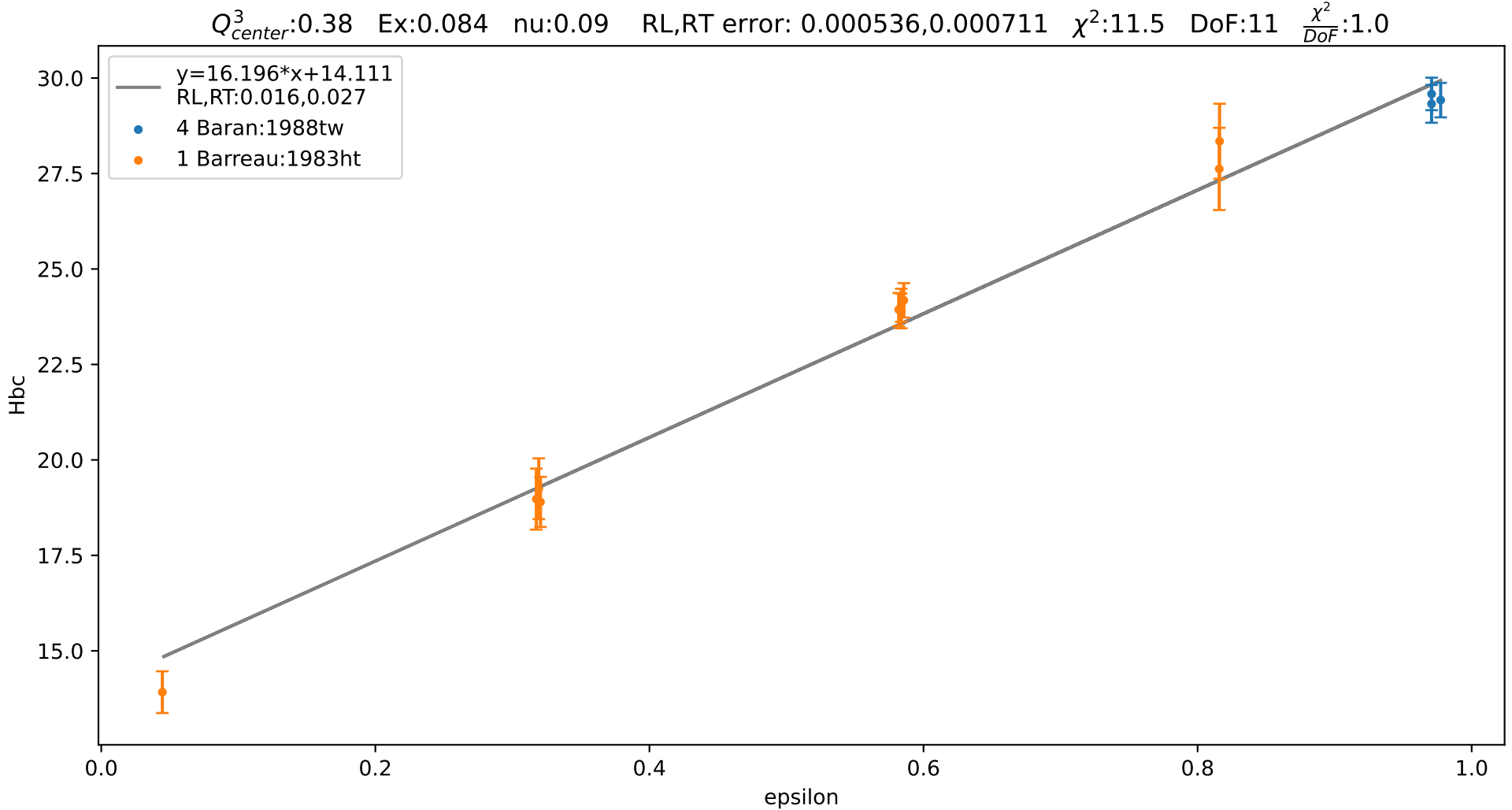

Q^3_{center}:0.38 Ex:0.034 nu:0.04 RL,RT error: 0.000267,0.000335 χ^2:172.2 DoF:15 $\frac{\chi^2}{DoF}$:11.5
y=10.916*x+6.813
RL,RT:0.011,0.013
1 Barreau:1983ht
4 Baran:1988tw
Hbc
epsilon
20
18
16
14
12
10
8
6
0.2
0.4
0.6
0.8
1.0

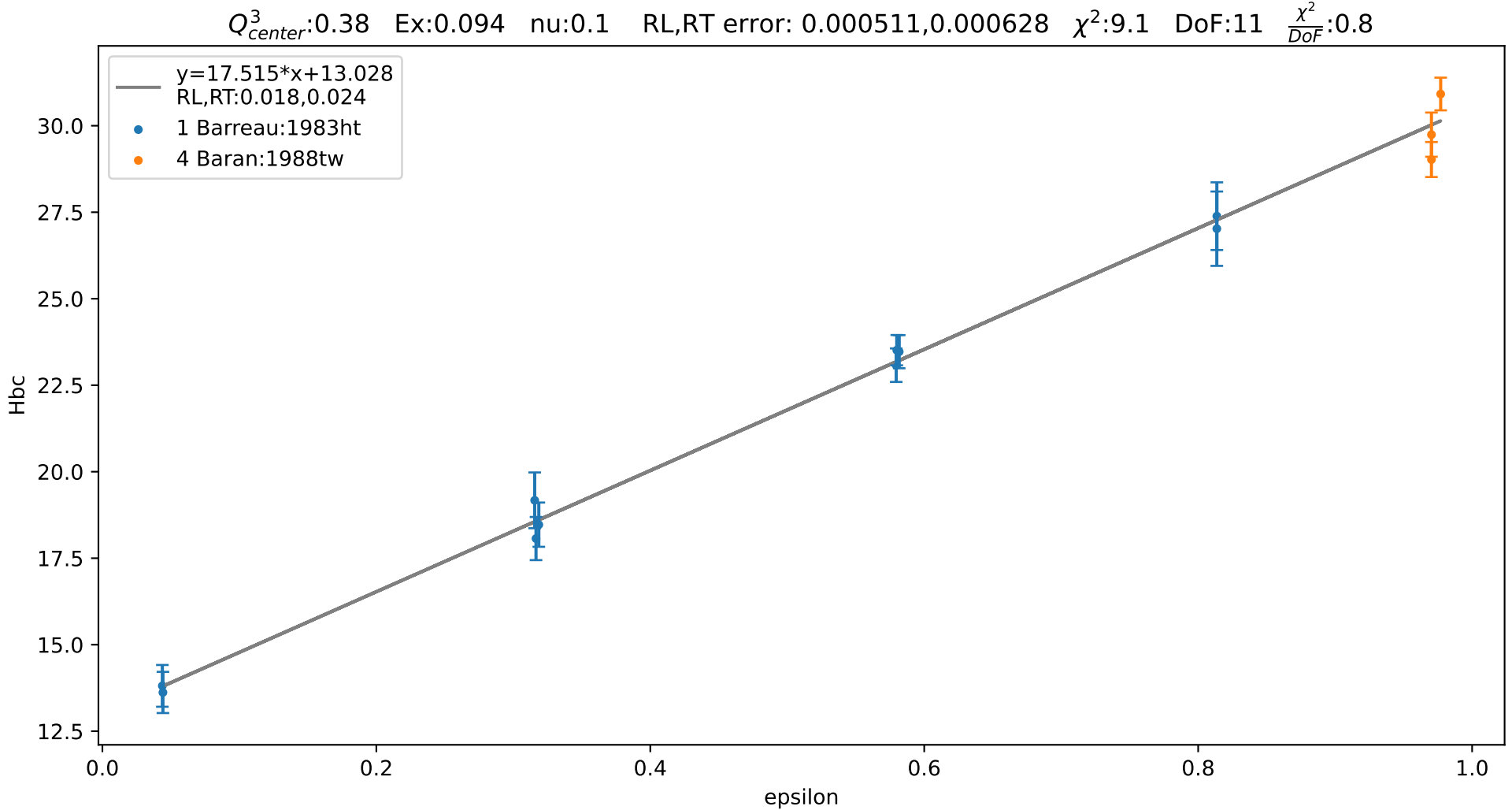

Q^3_{center}:0.38 Ex:0.044 nu:0.05 RL,RT error: 0.000322,0.000433 χ^2:157.3 DoF:13 $\frac{\chi^2}{DoF}$:12.1
y=12.06*x+8.8
RL,RT:0.012,0.017
1 Barreau:1983ht
4 Baran:1988tw
Hbc
epsilon
22
20
18
16
14
12
10
8
0.0
0.2
0.4
0.6
0.8
1.0

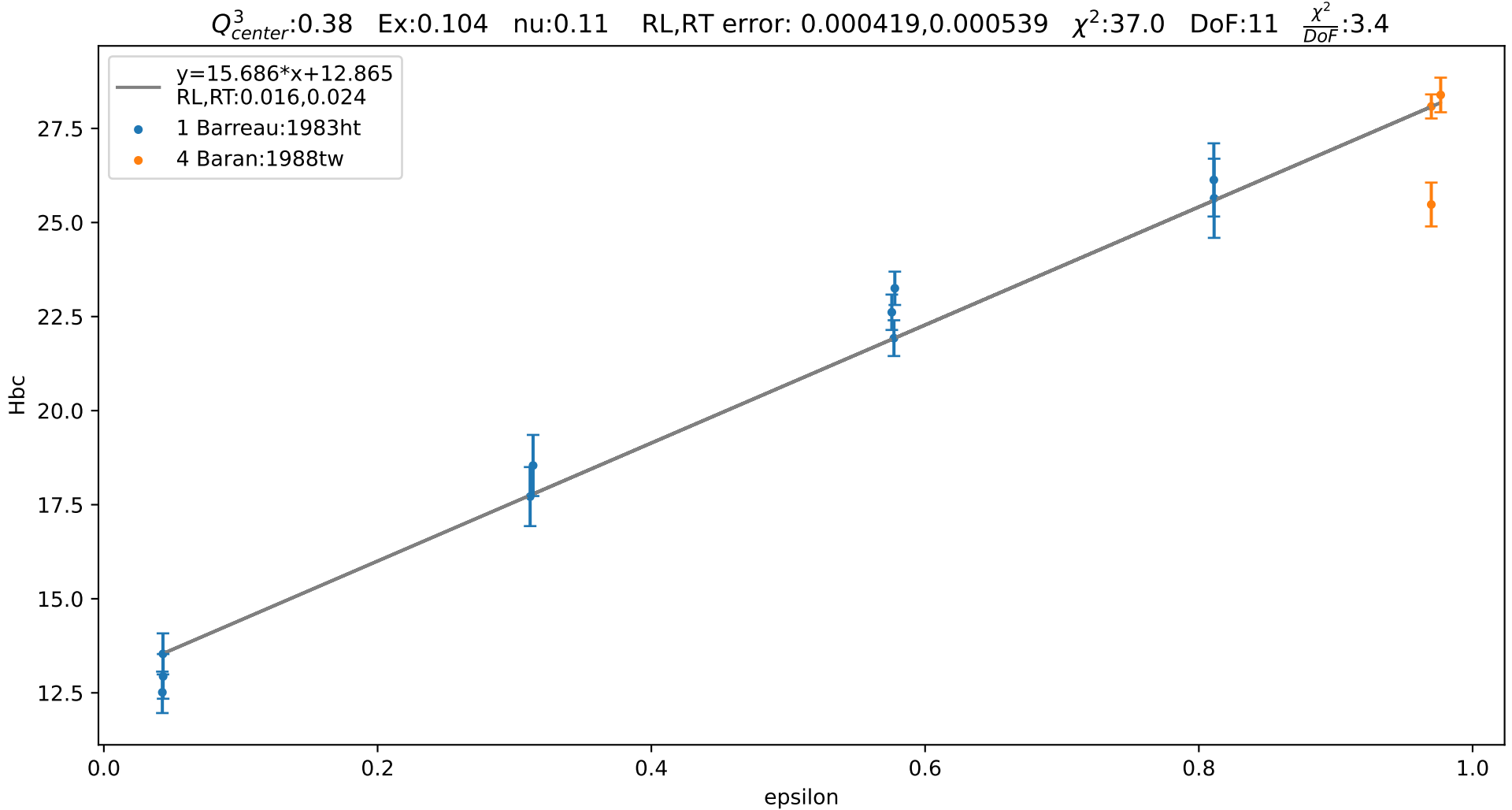

Q^3_{center}:0.38 Ex:0.054 nu:0.06 RL,RT error: 0.000318,0.000413 χ^2:77.4 DoF:14 $\frac{\chi^2}{DoF}$:5.5
y=13.283*x+10.401
RL,RT:0.013,0.02
4 Baran:1988tw
1 Barreau:1983ht
Hbc
epsilon
10
12
14
16
18
20
22
24
0.0
0.2
0.4
0.6
0.8
1.0

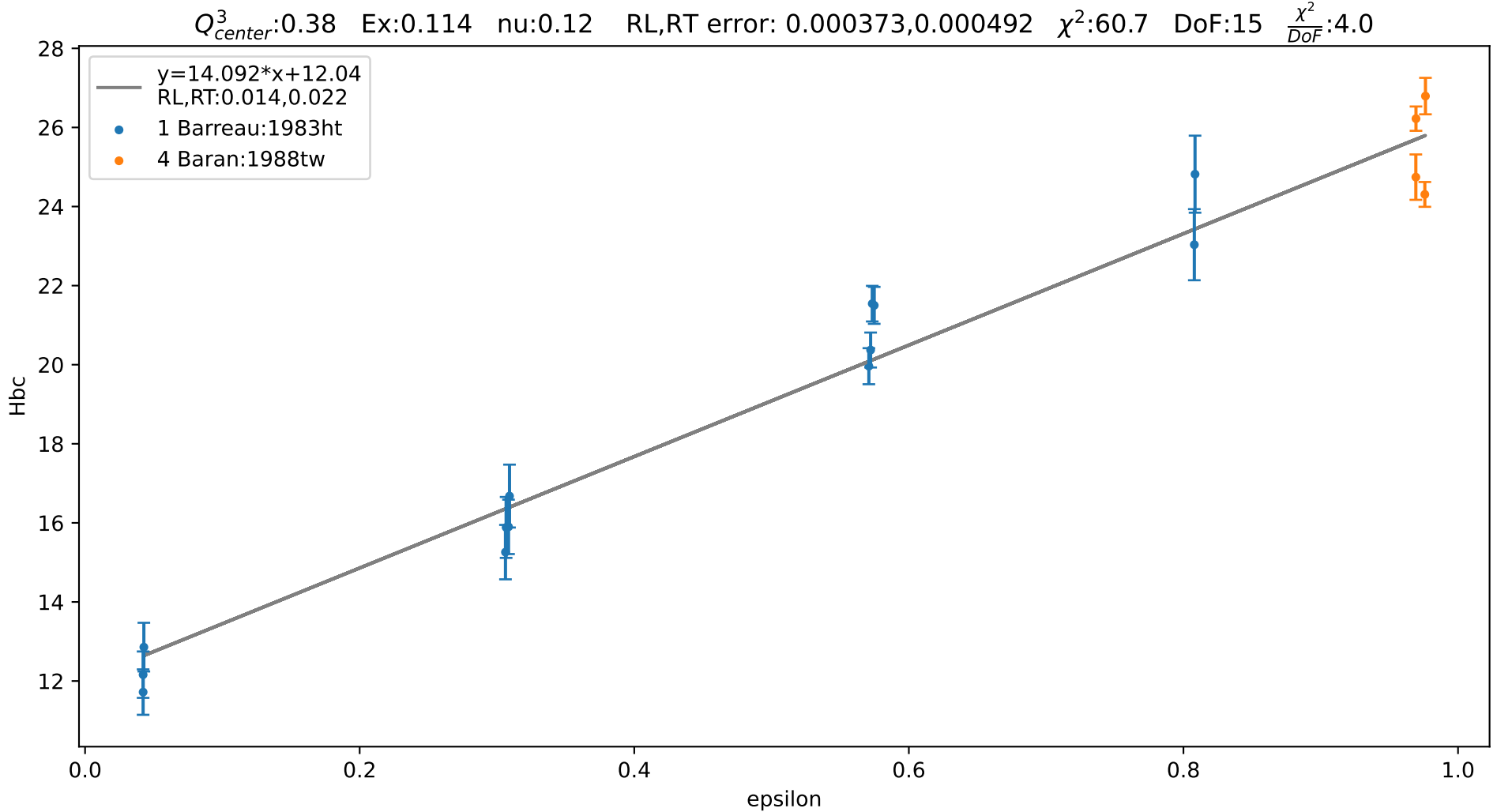

Q^3_{center}:0.38 Ex:0.064 nu:0.07 RL,RT error: 0.000443,0.000622 χ^2:60.1 DoF:11 $\frac{\chi^2}{DoF}$:5.5
y=14.914*x+12.077
RL,RT:0.015,0.023
4 Baran:1988tw
1 Barreau:1983ht
Hbc
epsilon
27.5
25.0
22.5
20.0
17.5
15.0
12.5
0.0
0.2
0.4
0.6
0.8
1.0

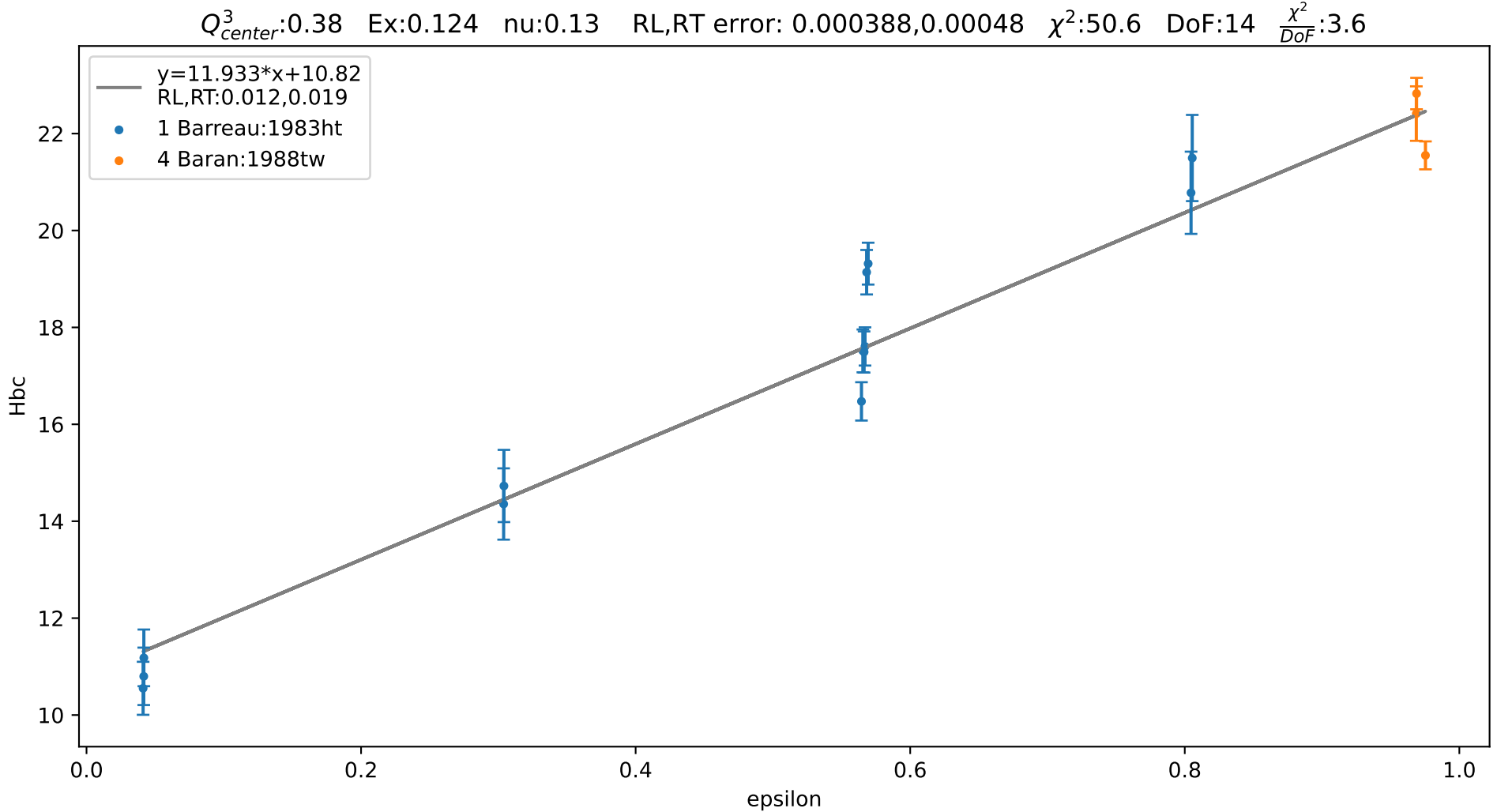

Q^3_{center}:0.38 Ex:0.074 nu:0.08 RL,RT error: 0.000415,0.000539 χ^2:22.2 DoF:13 $\frac{\chi^2}{DoF}$:1.7
y=17.616*x+12.554
RL,RT:0.018,0.024
1 Barreau:1983ht
4 Baran:1988tw
Hbc
epsilon
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
0.0
0.2
0.4
0.6
0.8
1.0

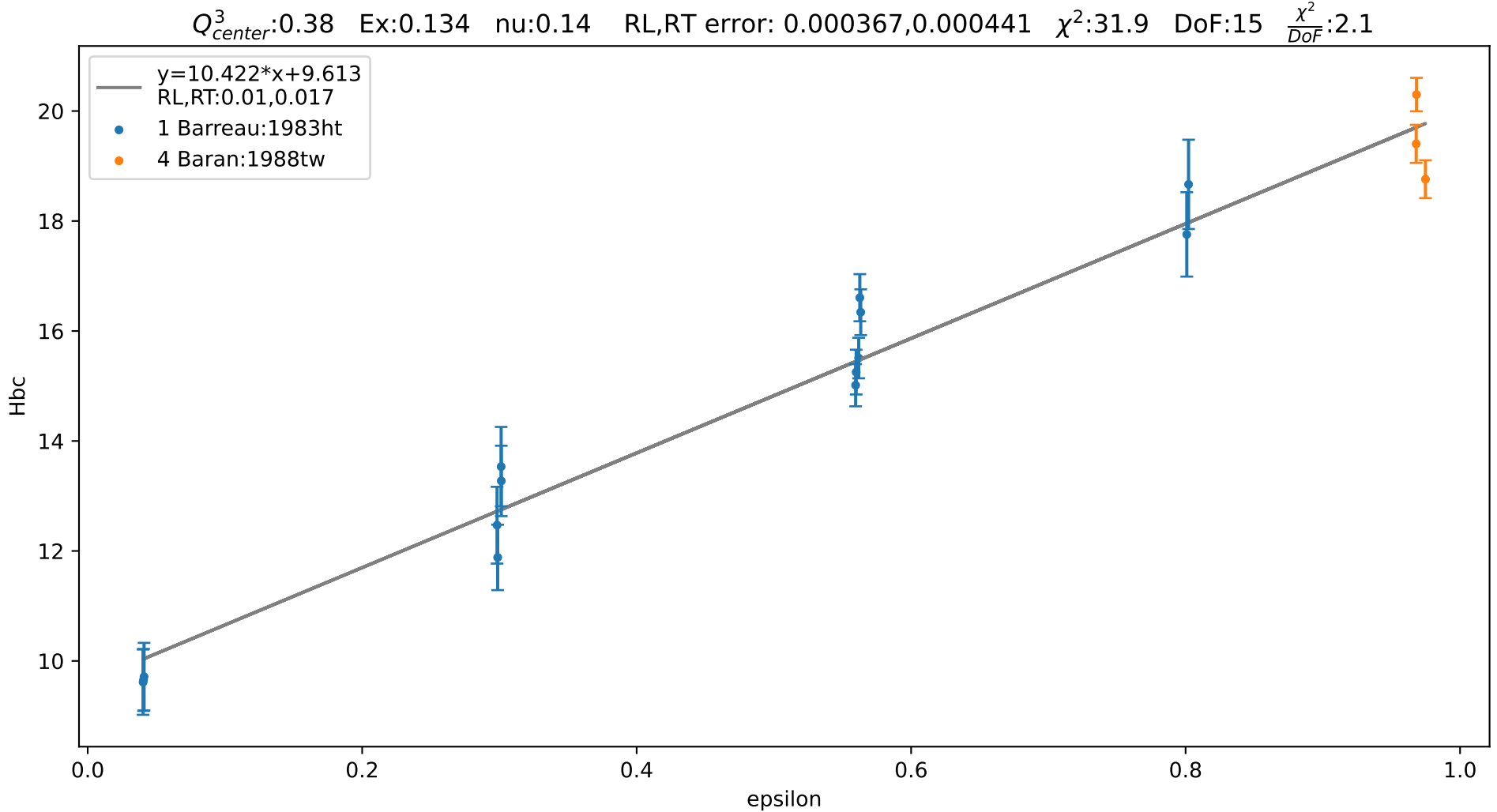

Q^3_{center}:0.38 Ex:0.084 nu:0.09 RL,RT error: 0.000536,0.000711 χ^2:11.5 DoF:11 $\frac{\chi^2}{DoF}$:1.0
y=16.196*x+14.111
RL,RT:0.016,0.027
4 Baran:1988tw
1 Barreau:1983ht
Hbc
epsilon
30.0
27.5
25.0
22.5
20.0
17.5
15.0
0.0
0.2
0.4
0.6
0.8
1.0

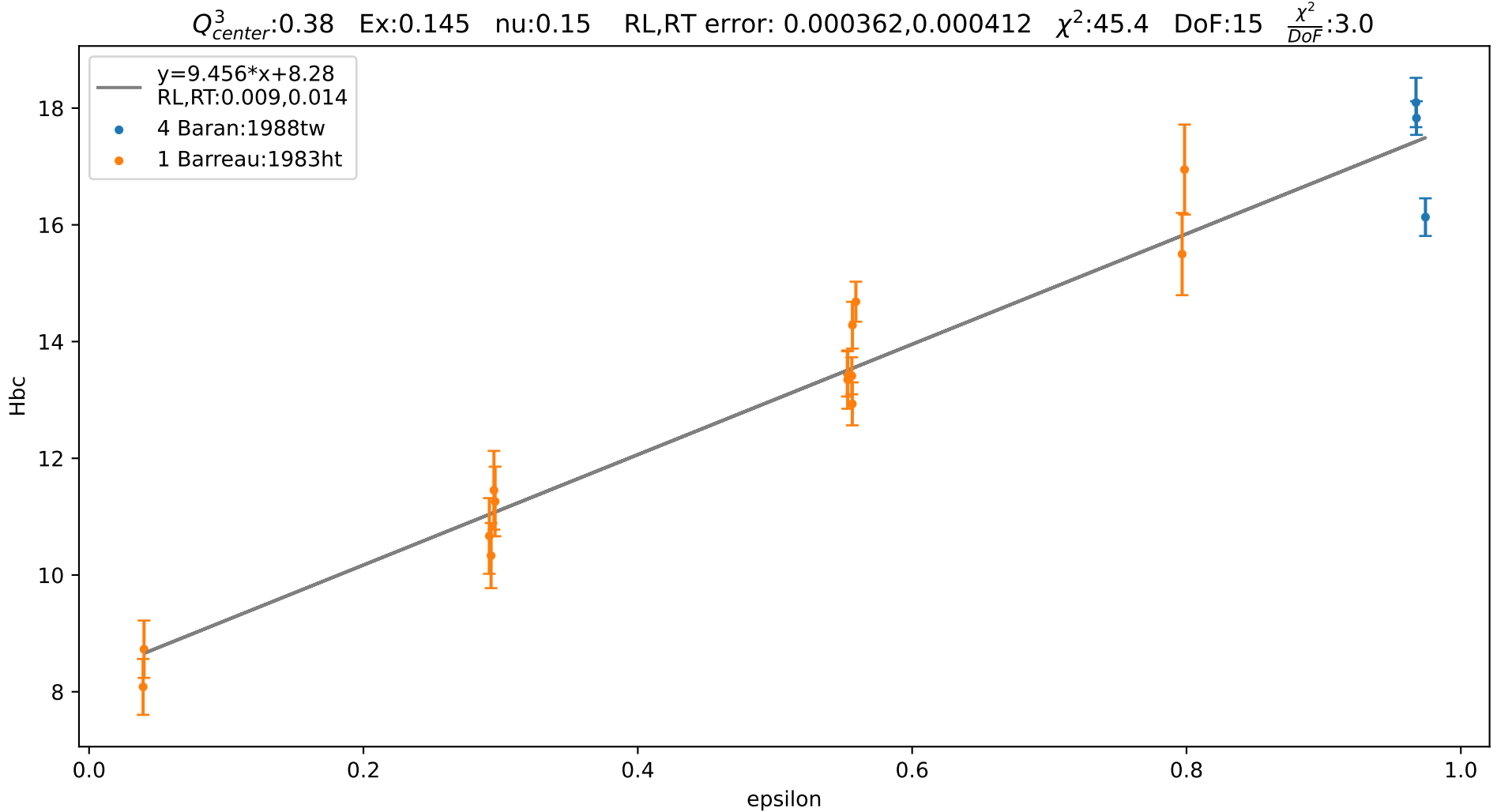

Q^3_{center}:0.38 Ex:0.094 nu:0.1 RL,RT error: 0.000511,0.000628 χ^2:9.1 DoF:11 $\frac{\chi^2}{DoF}$:0.8
y=17.515*x+13.028
RL,RT:0.018,0.024
1 Barreau:1983ht
4 Baran:1988tw
Hbc
epsilon
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
0.0
0.2
0.4
0.6
0.8
1.0

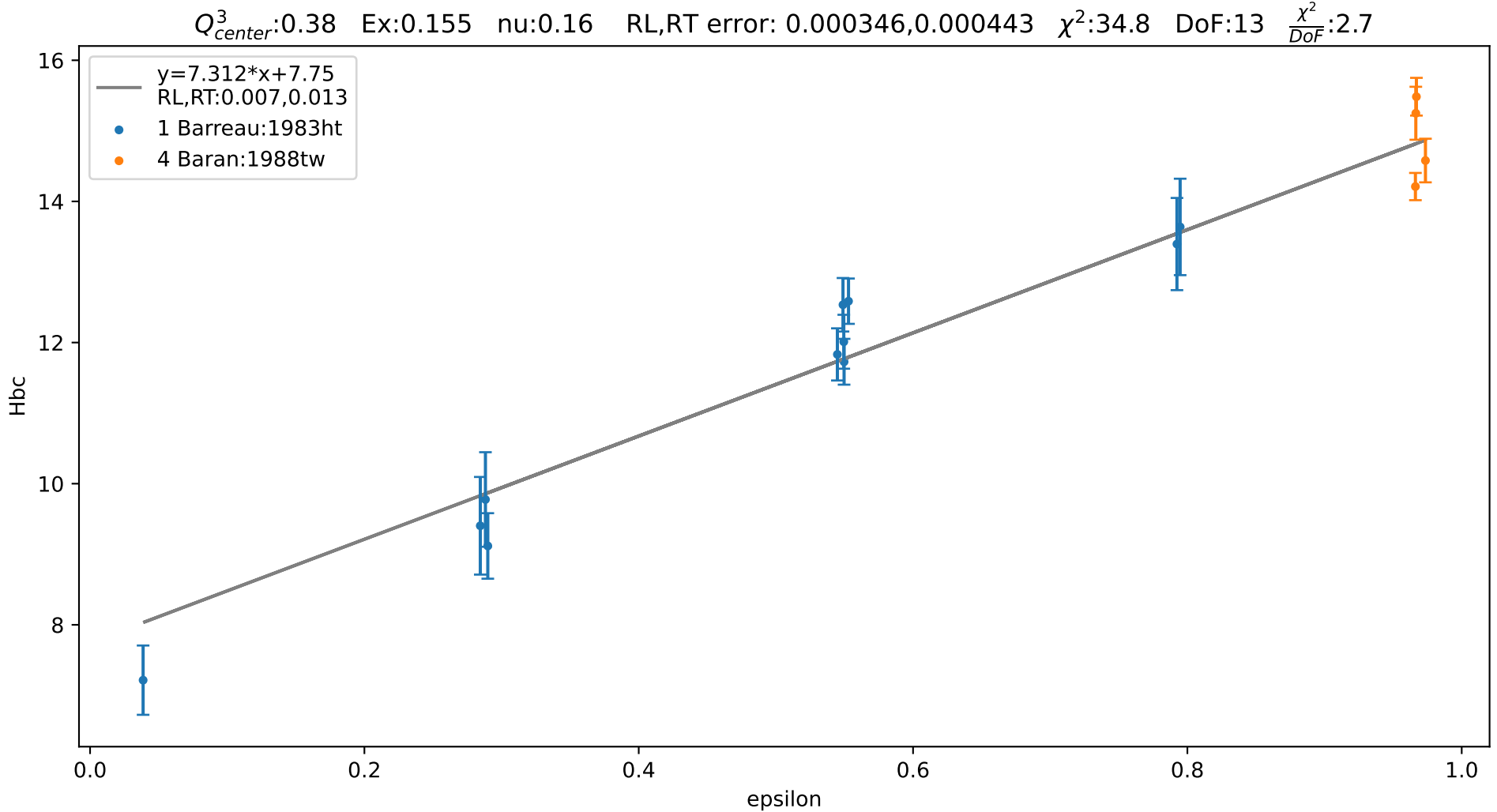

Q^3_{center}:0.38 Ex:0.104 nu:0.11 RL,RT error: 0.000419,0.000539 χ^2:37.0 DoF:11 $\frac{\chi^2}{DoF}$:3.4
y=15.686*x+12.865
RL,RT:0.016,0.024
1 Barreau:1983ht
4 Baran:1988tw
Hbc
epsilon
12.5
15.0
17.5
20.0
22.5
25.0
27.5
0.0
0.2
0.4
0.6
0.8
1.0

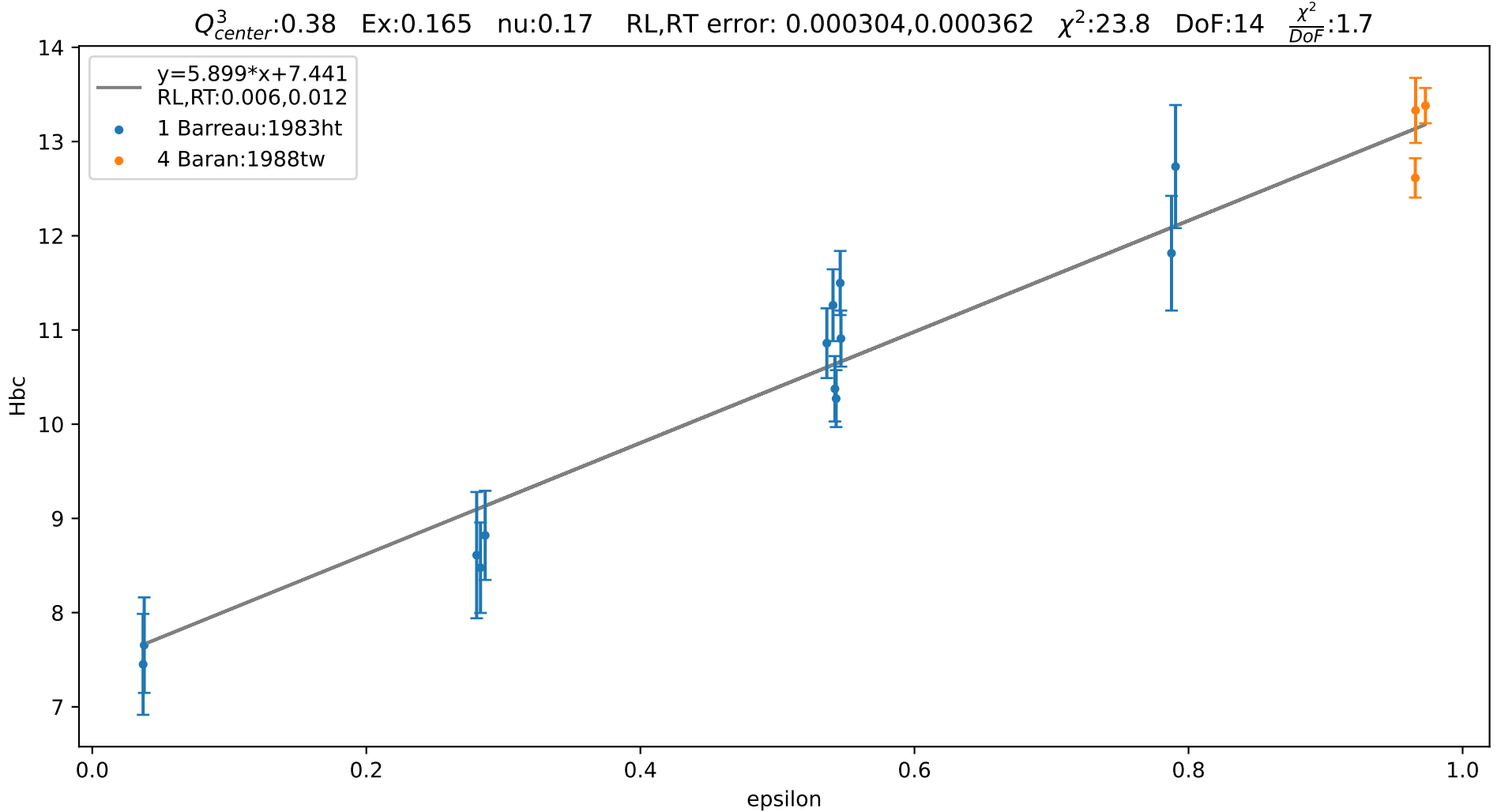

Q^3_{center}:0.38 Ex:0.114 nu:0.12 RL,RT error: 0.000373,0.000492 χ^2:60.7 DoF:15 $\frac{\chi^2}{DoF}$:4.0
y=14.092*x+12.04
RL,RT:0.014,0.022
1 Barreau:1983ht
4 Baran:1988tw
Hbc
epsilon
28
26
24
22
20
18
16
14
12
0.0
0.2
0.4
0.6
0.8
1.0

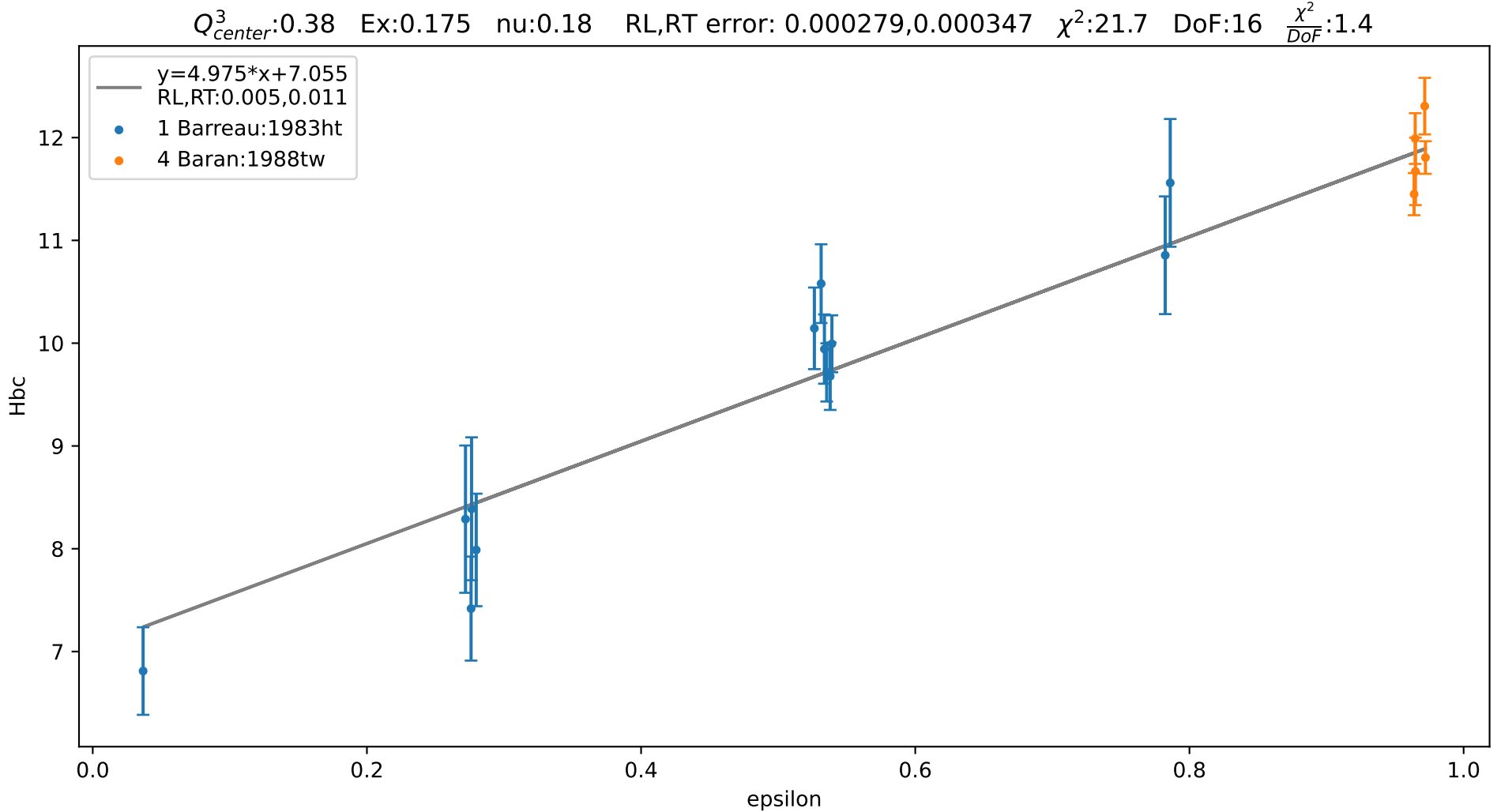

Q^3_{center}:0.38 Ex:0.124 nu:0.13 RL,RT error: 0.000388,0.00048 χ^2:50.6 DoF:14 $\frac{\chi^2}{DoF}$:3.6
y=11.933*x+10.82
RL,RT:0.012,0.019
1 Barreau:1983ht
4 Baran:1988tw
Hbc
epsilon
10
12
14
16
18
20
22
0.0
0.2
0.4
0.6
0.8
1.0

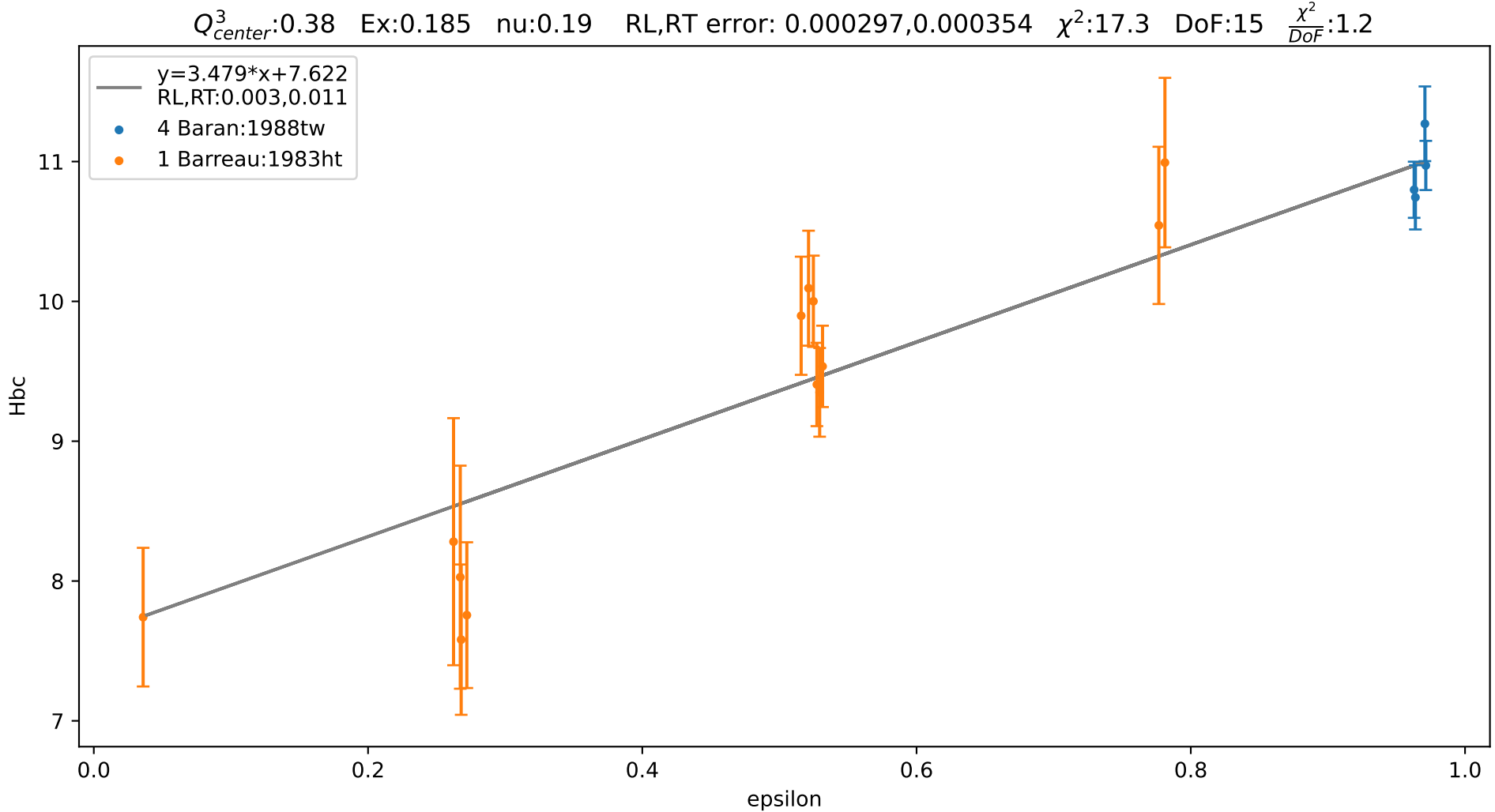

Q^3_{center}:0.38 Ex:0.134 nu:0.14 RL,RT error: 0.000367,0.000441 χ^2:31.9 DoF:15 $\frac{\chi^2}{DoF}$:2.1
y=10.422*x+9.613
RL,RT:0.01,0.017
1 Barreau:1983ht
4 Baran:1988tw
Hbc
epsilon
10
12
14
16
18
20
0.0
0.2
0.4
0.6
0.8
1.0

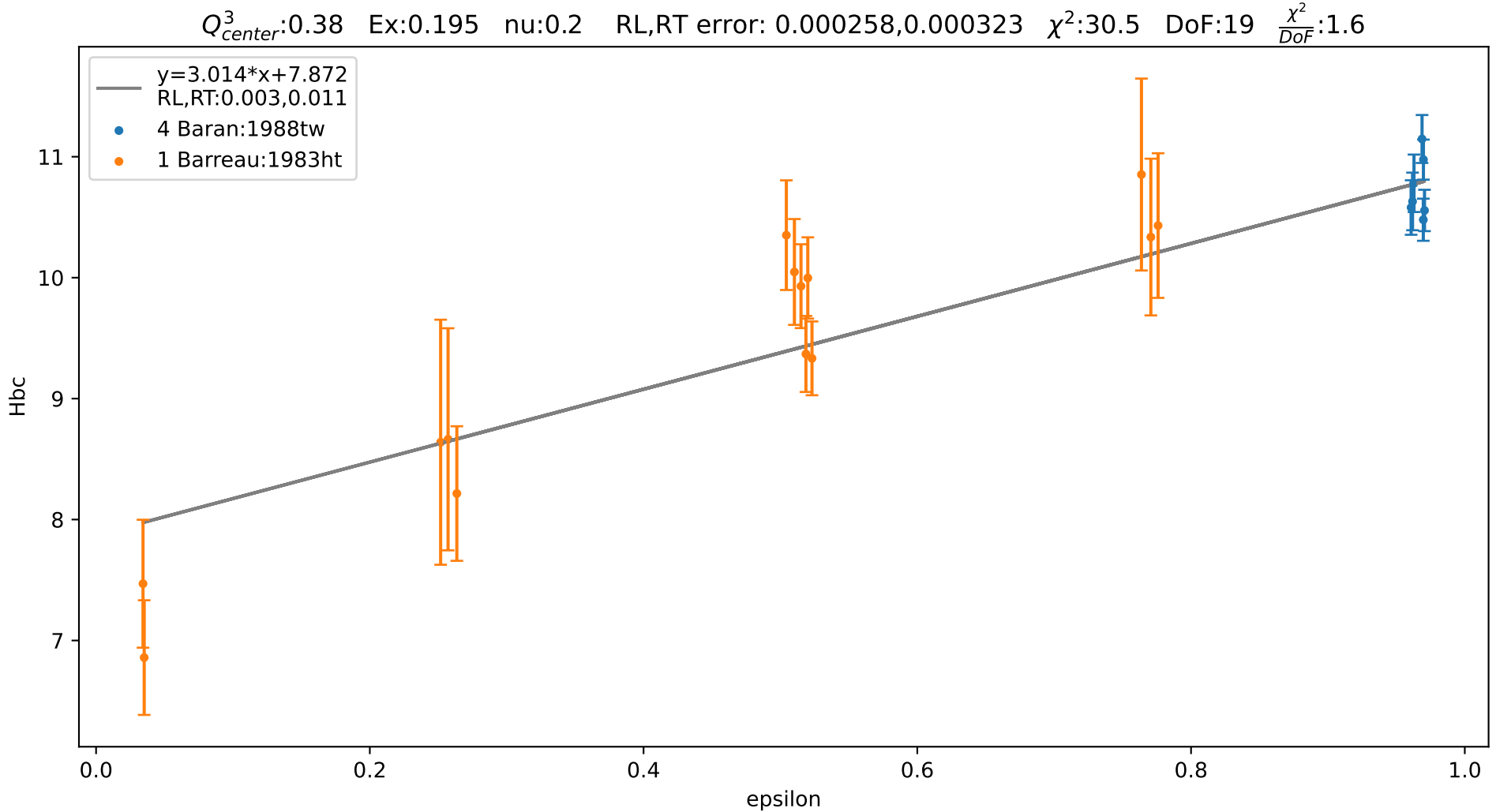

Q^3_{center}:0.38 Ex:0.145 nu:0.15 RL,RT error: 0.000362,0.000412 χ^2:45.4 DoF:15 $\frac{\chi^2}{DoF}$:3.0
y=9.456*x+8.28
RL,RT:0.009,0.014
4 Baran:1988tw
1 Barreau:1983ht
Hbc
epsilon
8
10
12
14
16
18
0.0
0.2
0.4
0.6
0.8
1.0

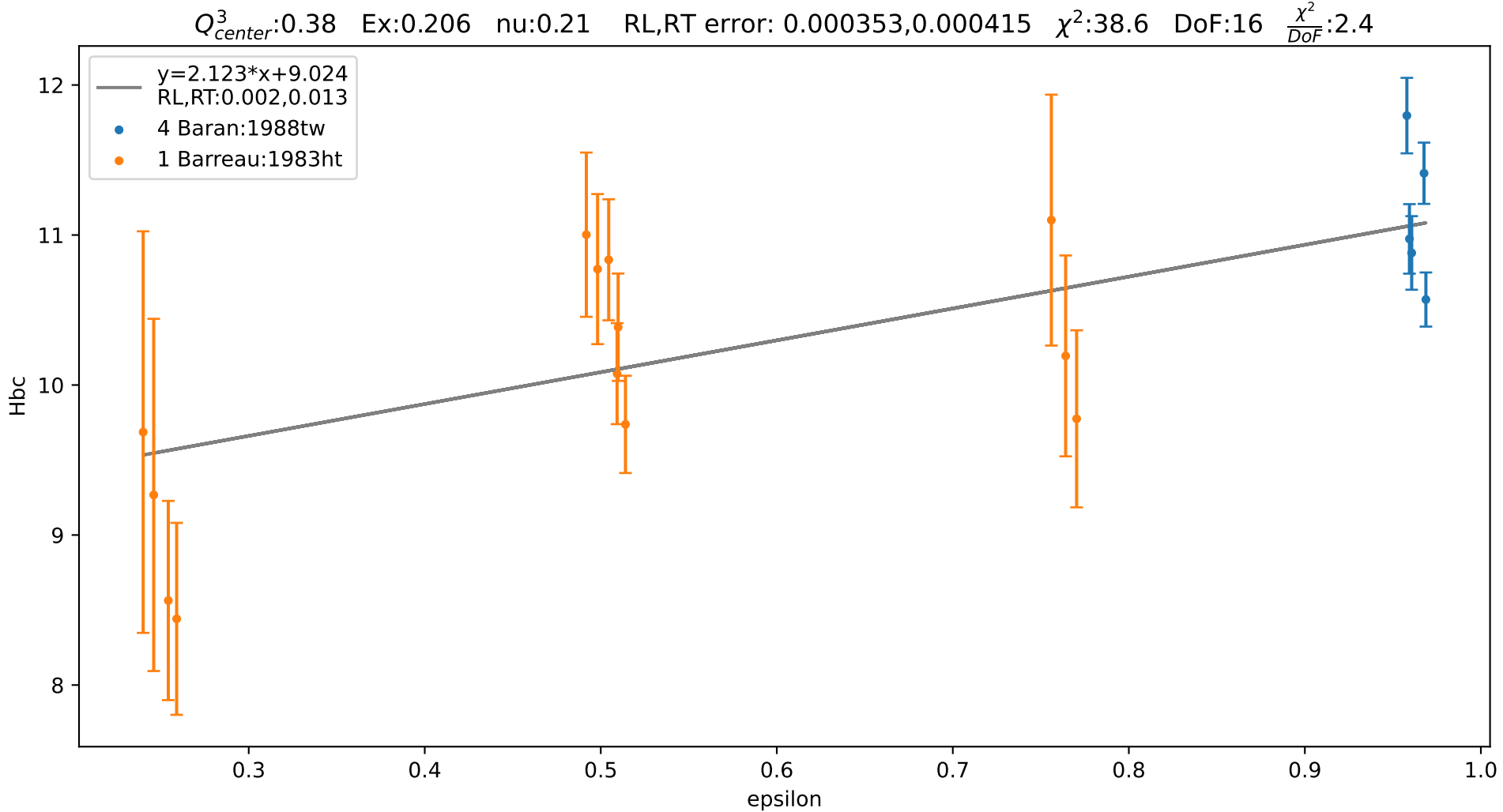

Q^3_{center}:0.38 Ex:0.155 nu:0.16 RL,RT error: 0.000346,0.000443 χ^2:34.8 DoF:13 $\frac{\chi^2}{DoF}$:2.7
y=7.312*x+7.75
RL,RT:0.007,0.013
1 Barreau:1983ht
4 Baran:1988tw
Hbc
epsilon
16
14
12
10
8
0.0
0.2
0.4
0.6
0.8
1.0

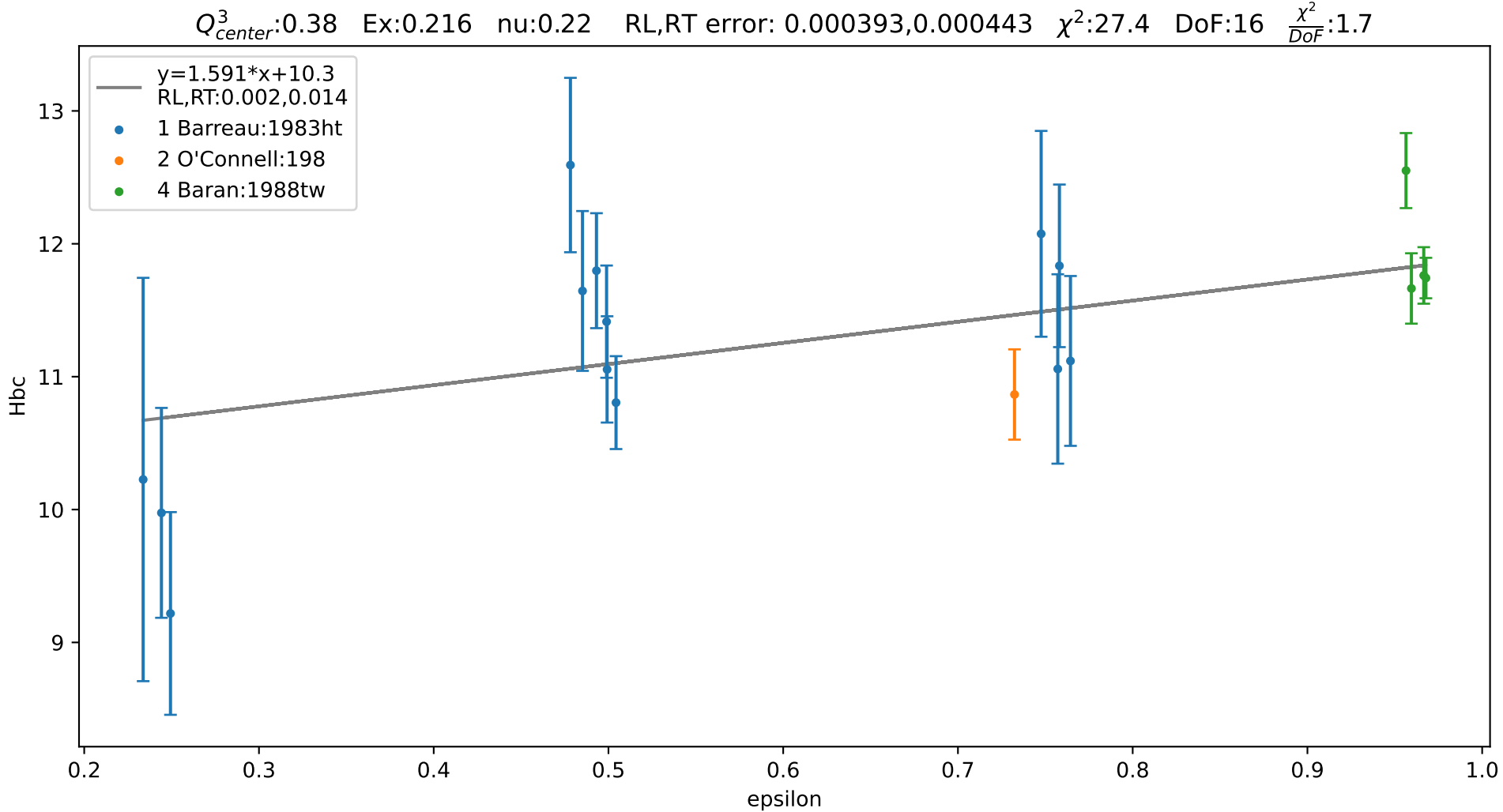

Q^3_{center}:0.38 Ex:0.165 nu:0.17 RL,RT error: 0.000304,0.000362 χ^2:23.8 DoF:14 $\frac{\chi^2}{DoF}$:1.7
y=5.899*x+7.441
RL,RT:0.006,0.012
1 Barreau:1983ht
4 Baran:1988tw
Hbc
epsilon
14
13
12
11
10
9
8
7
0.0
0.2
0.4
0.6
0.8
1.0

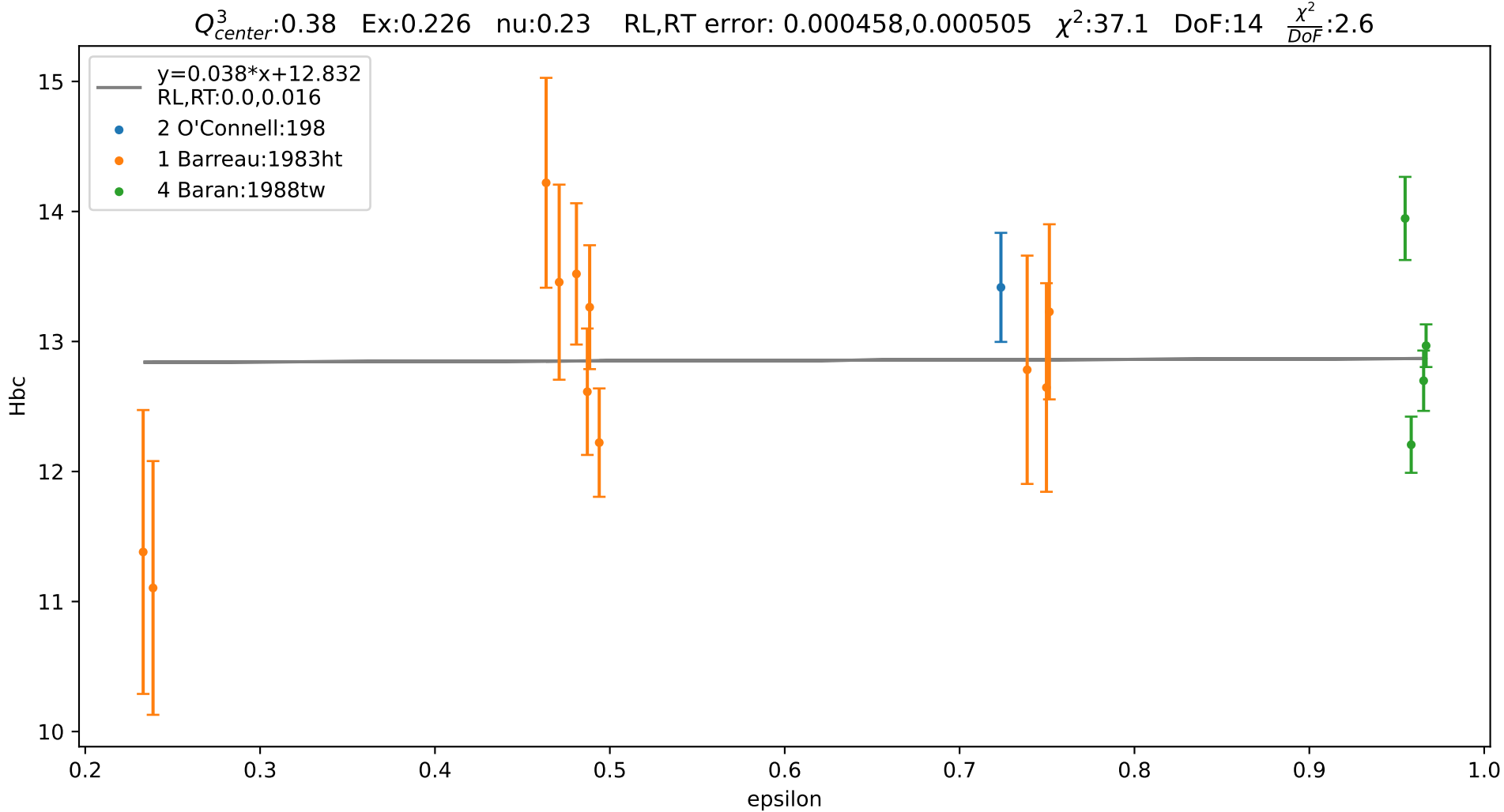

Q^3_{center}:0.38 Ex:0.175 nu:0.18 RL,RT error: 0.000279,0.000347 χ^2:21.7 DoF:16 $\frac{\chi^2}{DoF}$:1.4
y=4.975*x+7.055
RL,RT:0.005,0.011
1 Barreau:1983ht
4 Baran:1988tw
Hbc
epsilon
12
11
10
9
8
7
0.0
0.2
0.4
0.6
0.8
1.0

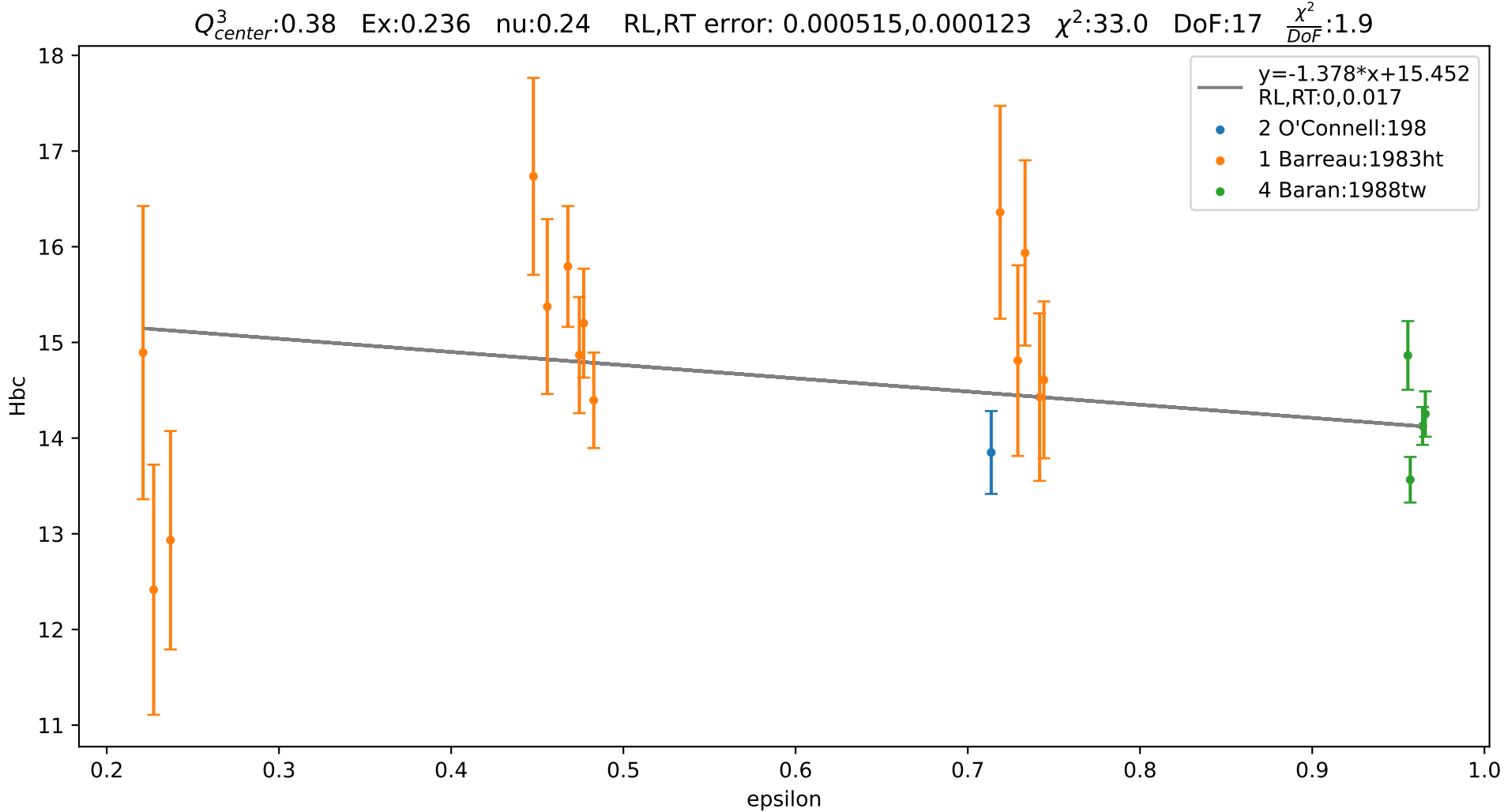

Q^3_{center}:0.38 Ex:0.185 nu:0.19 RL,RT error: 0.000297,0.000354 χ^2:17.3 DoF:15 $\frac{\chi^2}{DoF}$:1.2
y=3.479*x+7.622
RL,RT:0.003,0.011
4 Baran:1988tw
1 Barreau:1983ht
Hbc
epsilon
7
8
9
10
11
0.0
0.2
0.4
0.6
0.8
1.0

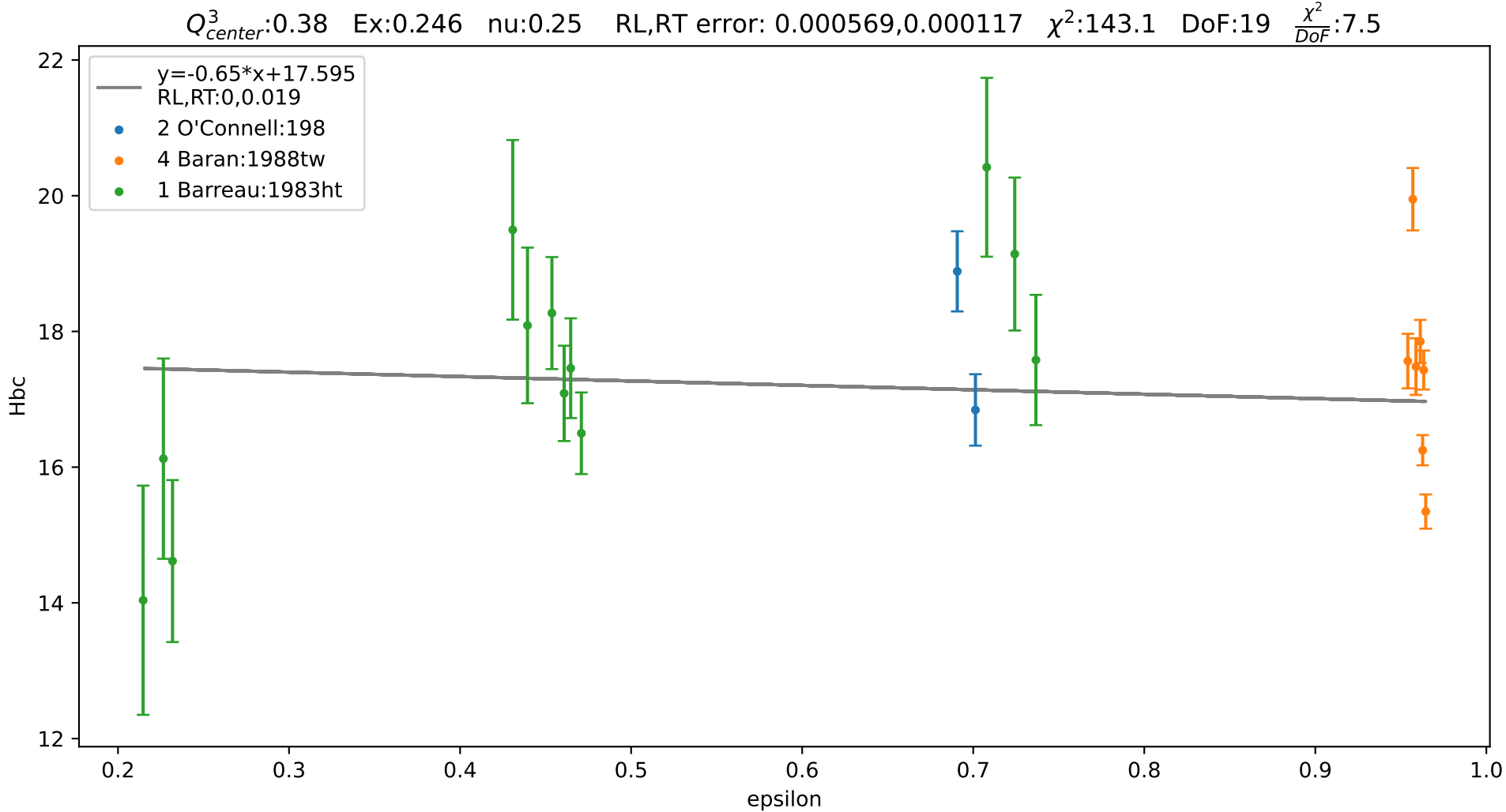

Q^3_{center}:0.38 Ex:0.195 nu:0.2 RL,RT error: 0.000258,0.000323 χ^2:30.5 DoF:19 $\frac{\chi^2}{DoF}$:1.6
y=3.014*x+7.872
RL,RT:0.003,0.011
4 Baran:1988tw
1 Barreau:1983ht
Hbc
epsilon
11
10
9
8
7
0.0
0.2
0.4
0.6
0.8
1.0

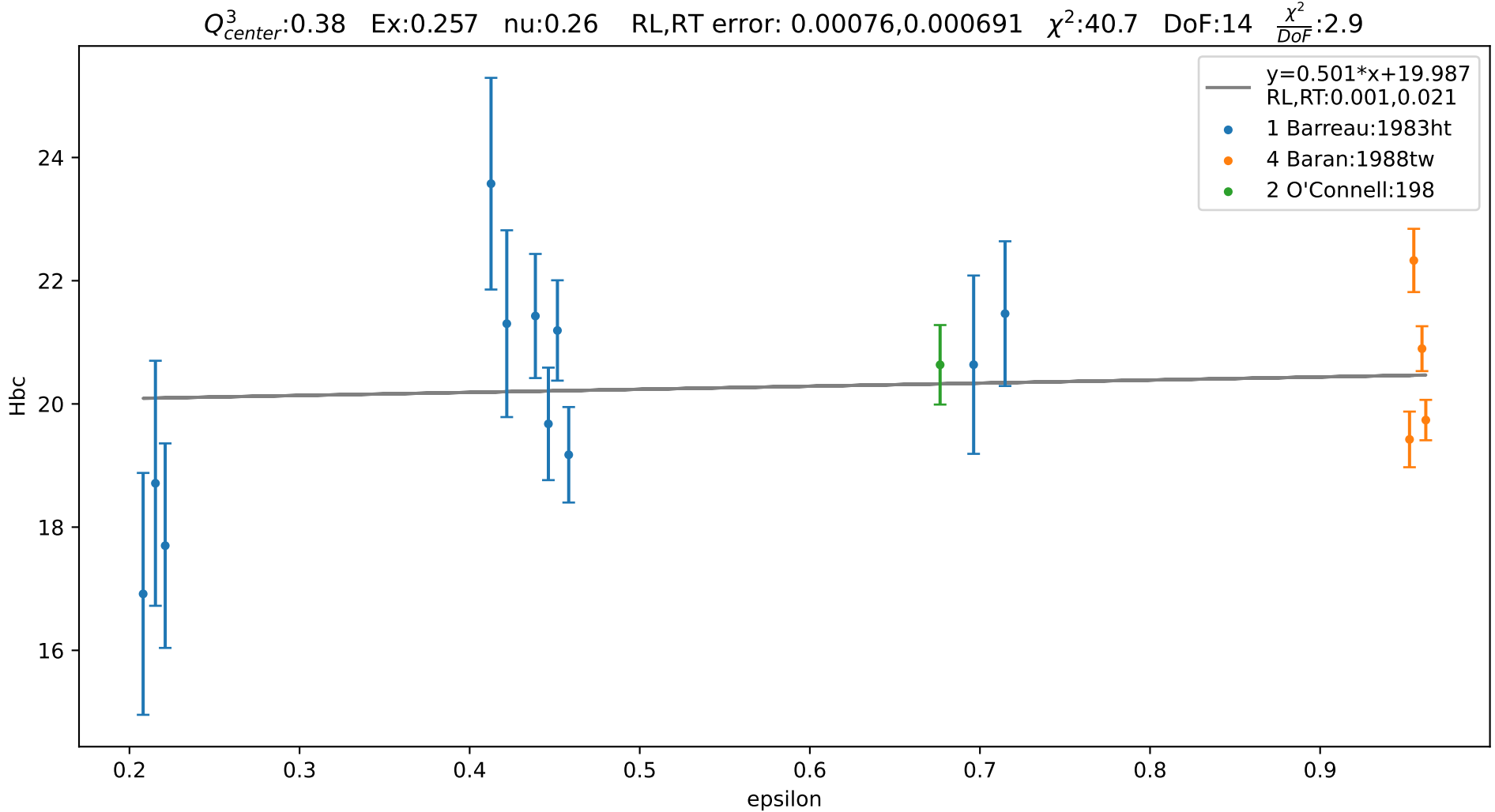

Q^3_{center}:0.38 Ex:0.206 nu:0.21 RL,RT error: 0.000353,0.000415 χ^2:38.6 DoF:16 $\frac{\chi^2}{DoF}$:2.4
y=2.123*x+9.024
RL,RT:0.002,0.013
4 Baran:1988tw
1 Barreau:1983ht
Hbc
epsilon
12
11
10
9
8
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0

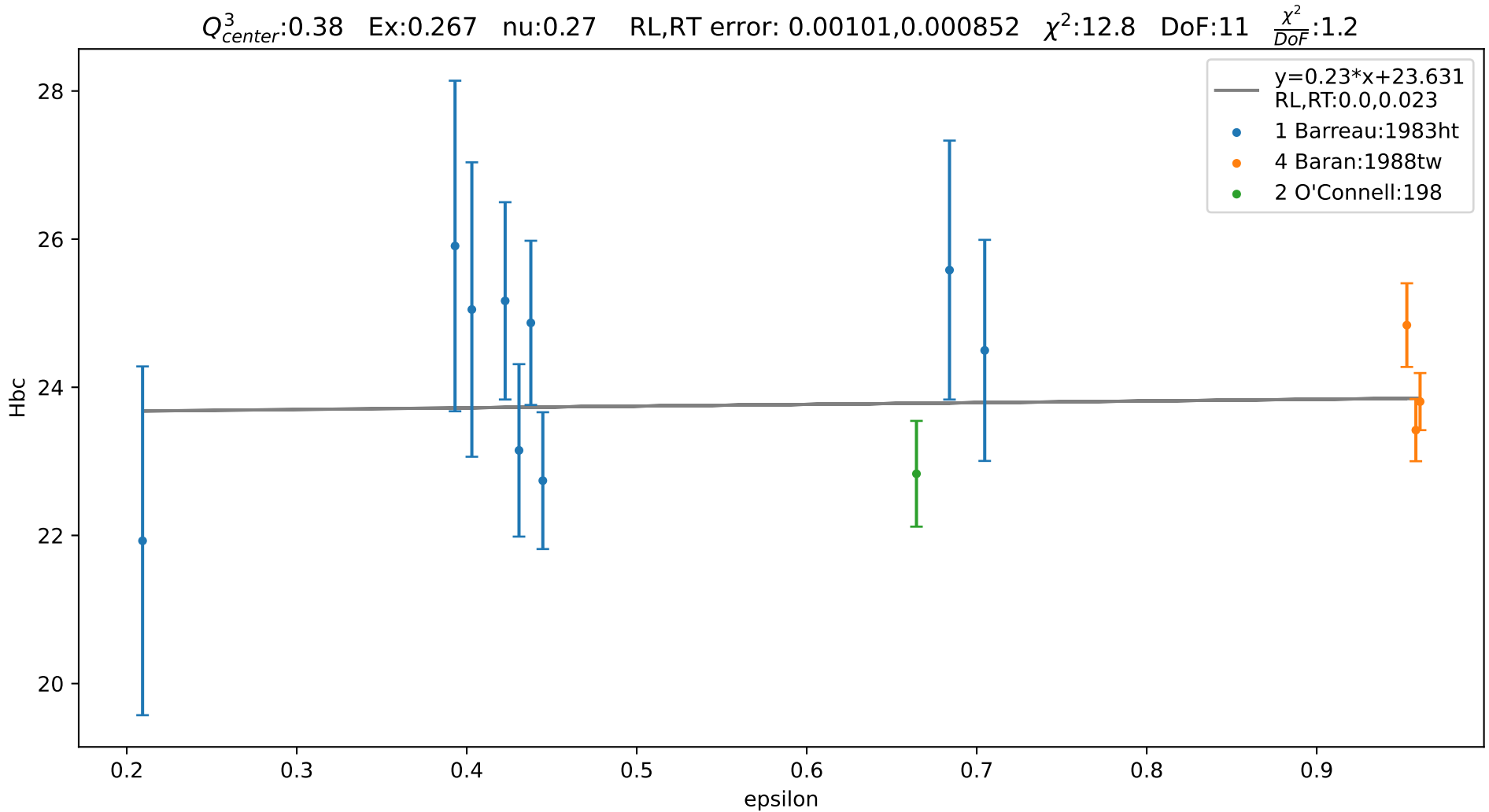

Q^3_{center}:0.38 Ex:0.216 nu:0.22 RL,RT error: 0.000393,0.000443 χ^2:27.4 DoF:16 $\frac{\chi^2}{DoF}$:1.7
y=1.591*x+10.3
RL,RT:0.002,0.014
1 Barreau:1983ht
2 O'Connell:198
4 Baran:1988tw
Hbc
epsilon
13
12
11
10
9
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0

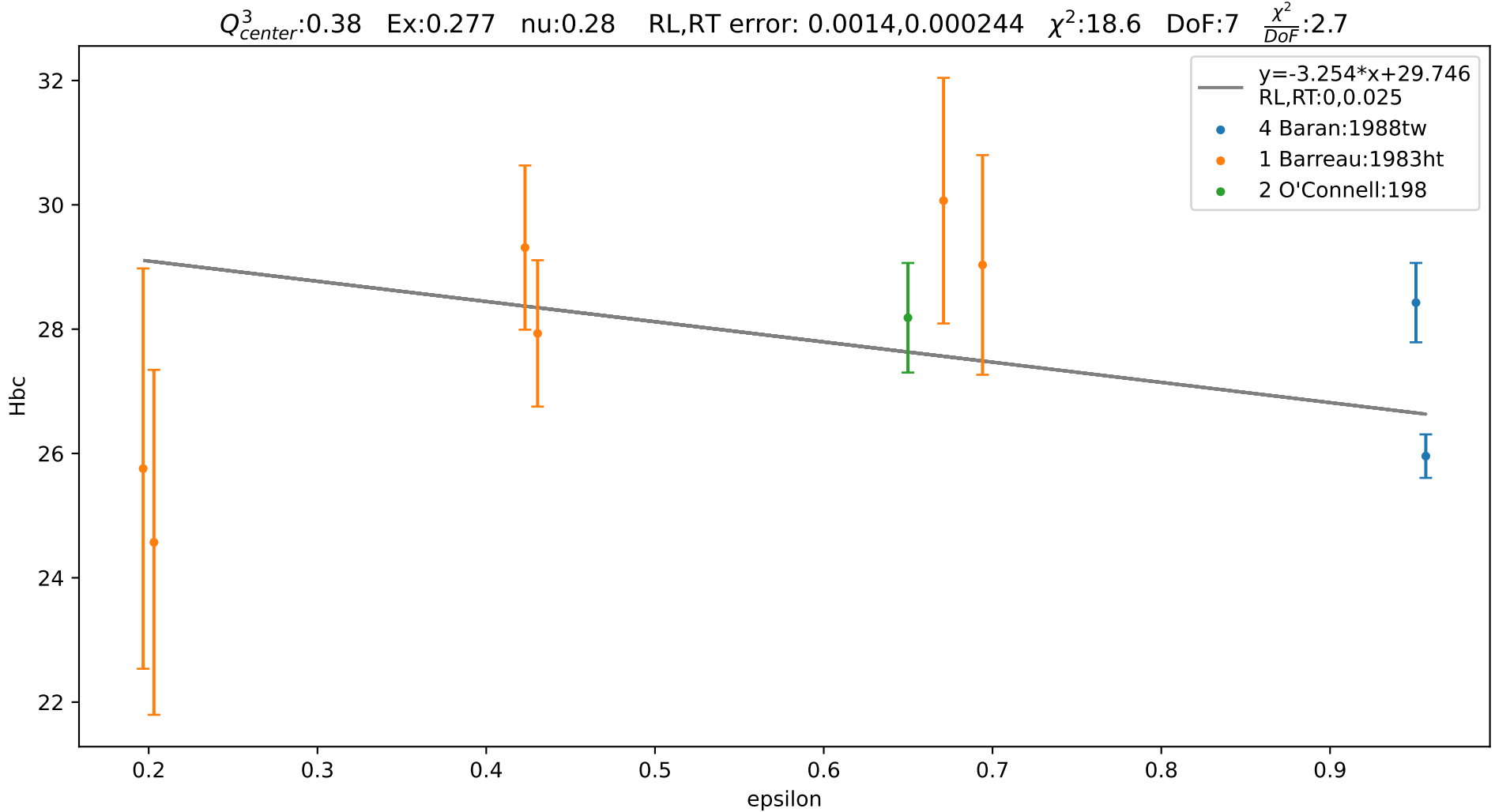

Q^3_{center}:0.38 Ex:0.226 nu:0.23 RL,RT error: 0.000458,0.000505 χ^2:37.1 DoF:14 $\frac{\chi^2}{DoF}$:2.6
y=0.038*x+12.832
RL,RT:0.0,0.016
2 O'Connell:198
1 Barreau:1983ht
4 Baran:1988tw
Hbc
epsilon
15
14
13
12
11
10
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0

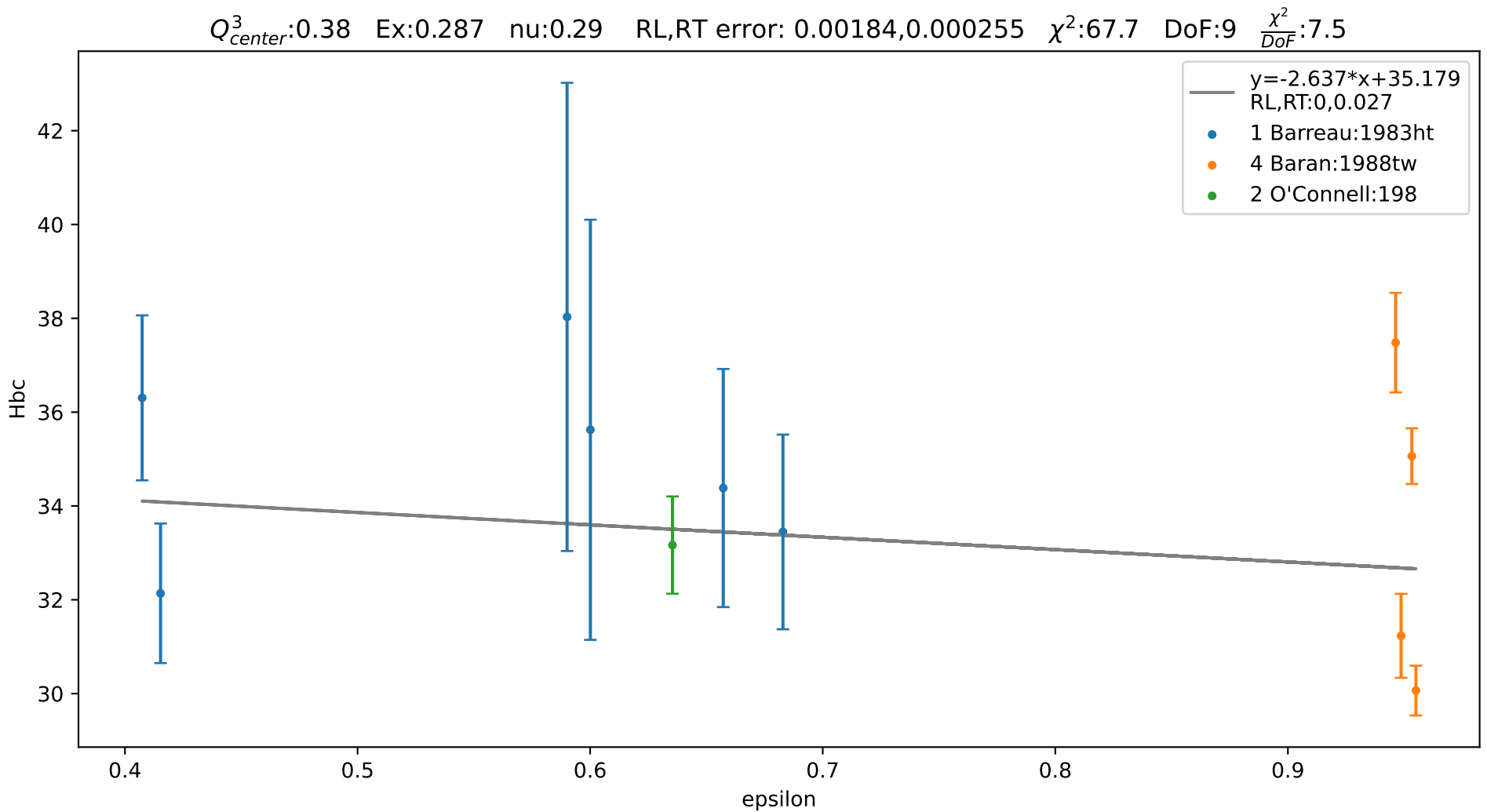

Q^3_{center}:0.38 Ex:0.236 nu:0.24 RL,RT error: 0.000515,0.000123 χ^2:33.0 DoF:17 $\frac{\chi^2}{DoF}$:1.9
y=-1.378*x+15.452
RL,RT:0,0.017
2 O'Connell:198
1 Barreau:1983ht
4 Baran:1988tw
Hbc
epsilon
18
17
16
15
14
13
12
11
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0

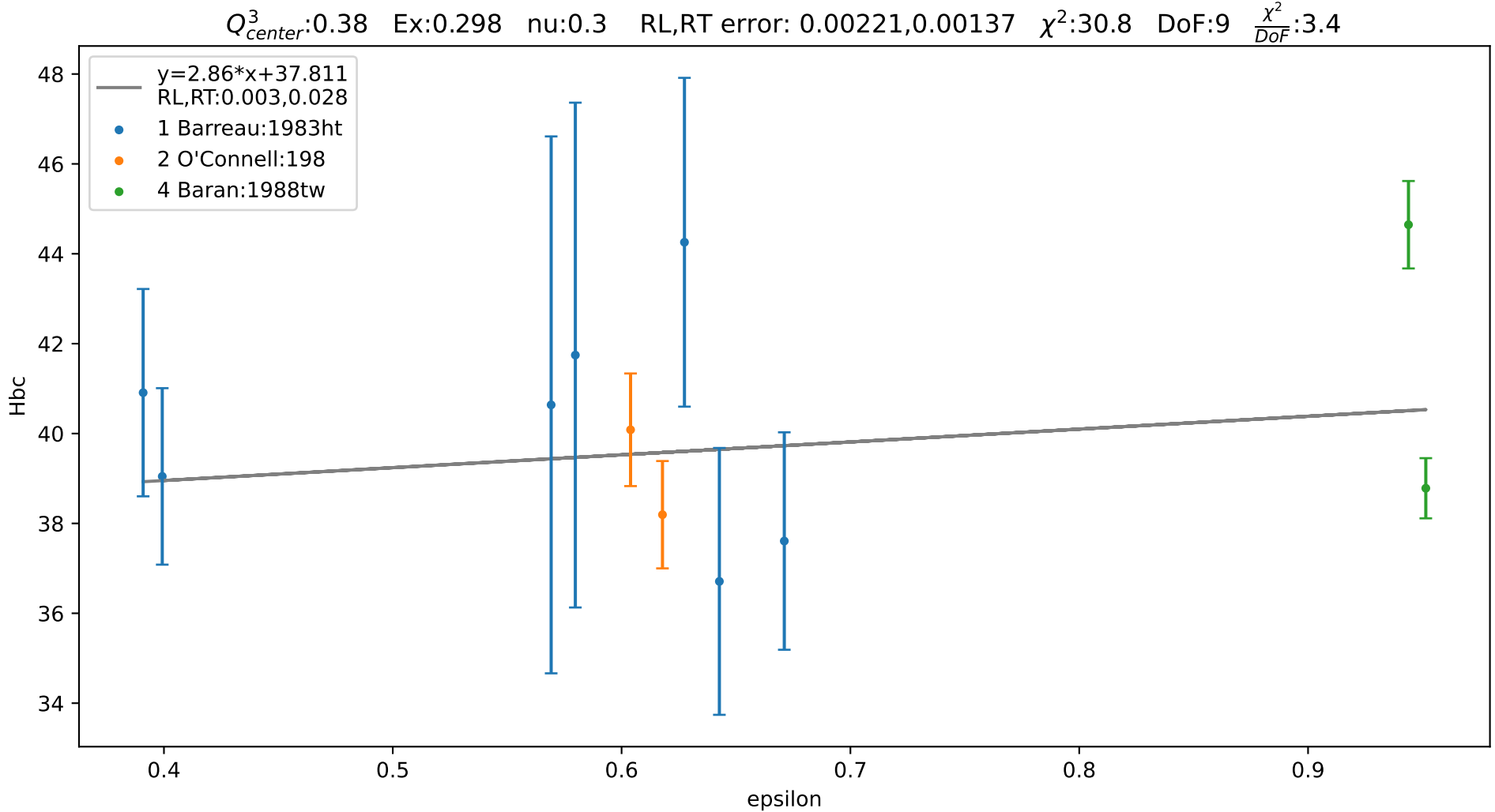

Q^3_{center}:0.38 Ex:0.246 nu:0.25 RL,RT error: 0.000569,0.000117 χ^2:143.1 DoF:19 $\frac{\chi^2}{DoF}$:7.5
y=-0.65*x+17.595
RL,RT:0,0.019
2 O'Connell:198
4 Baran:1988tw
1 Barreau:1983ht
Hbc
epsilon
22
20
18
16
14
12
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0

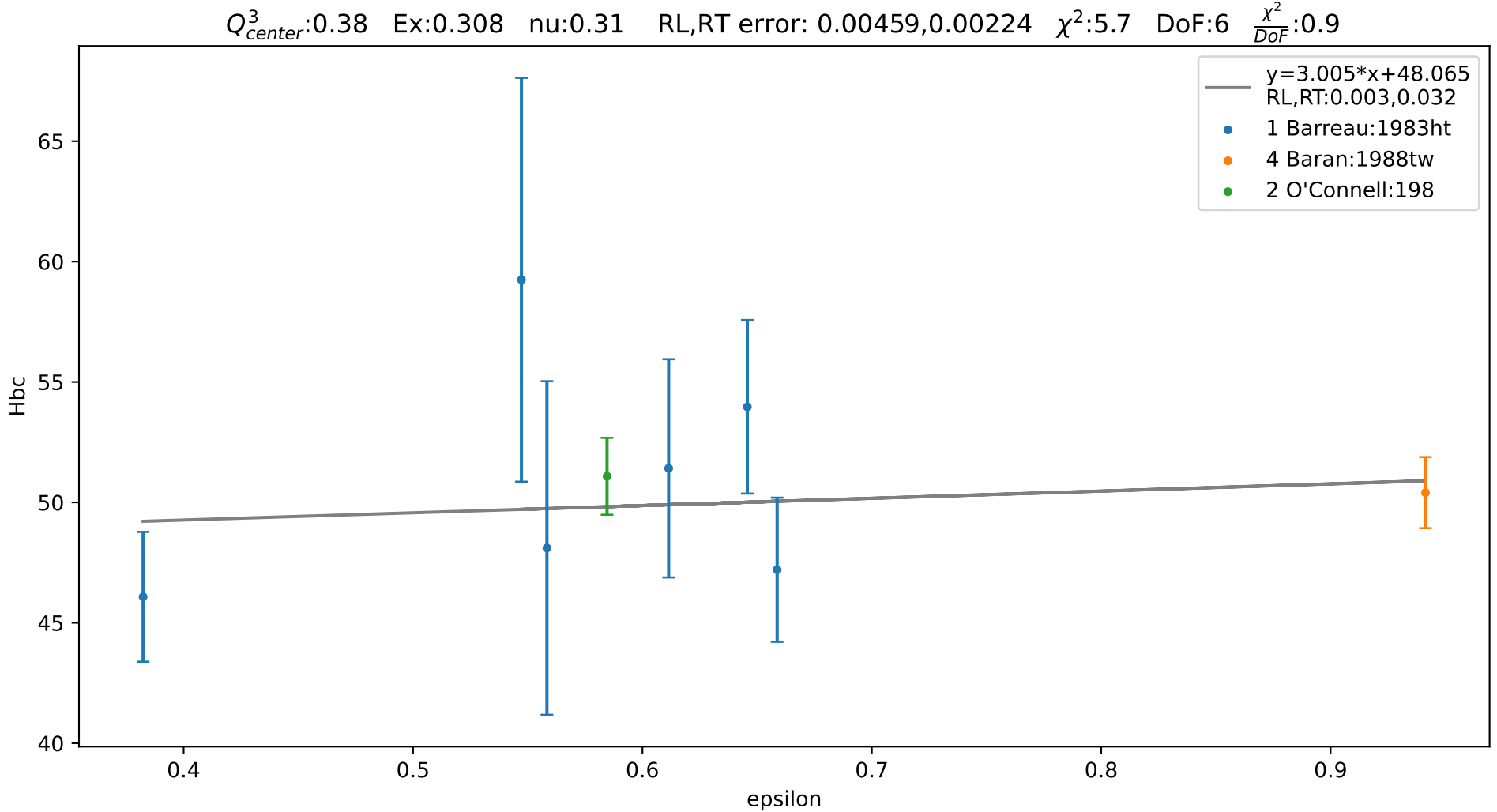

Q^3_{center}:0.38 Ex:0.257 nu:0.26 RL,RT error: 0.00076,0.000691 χ^2:40.7 DoF:14 $\frac{\chi^2}{DoF}$:2.9
y=0.501*x+19.987
RL,RT:0.001,0.021
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
16
18
20
22
24
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9

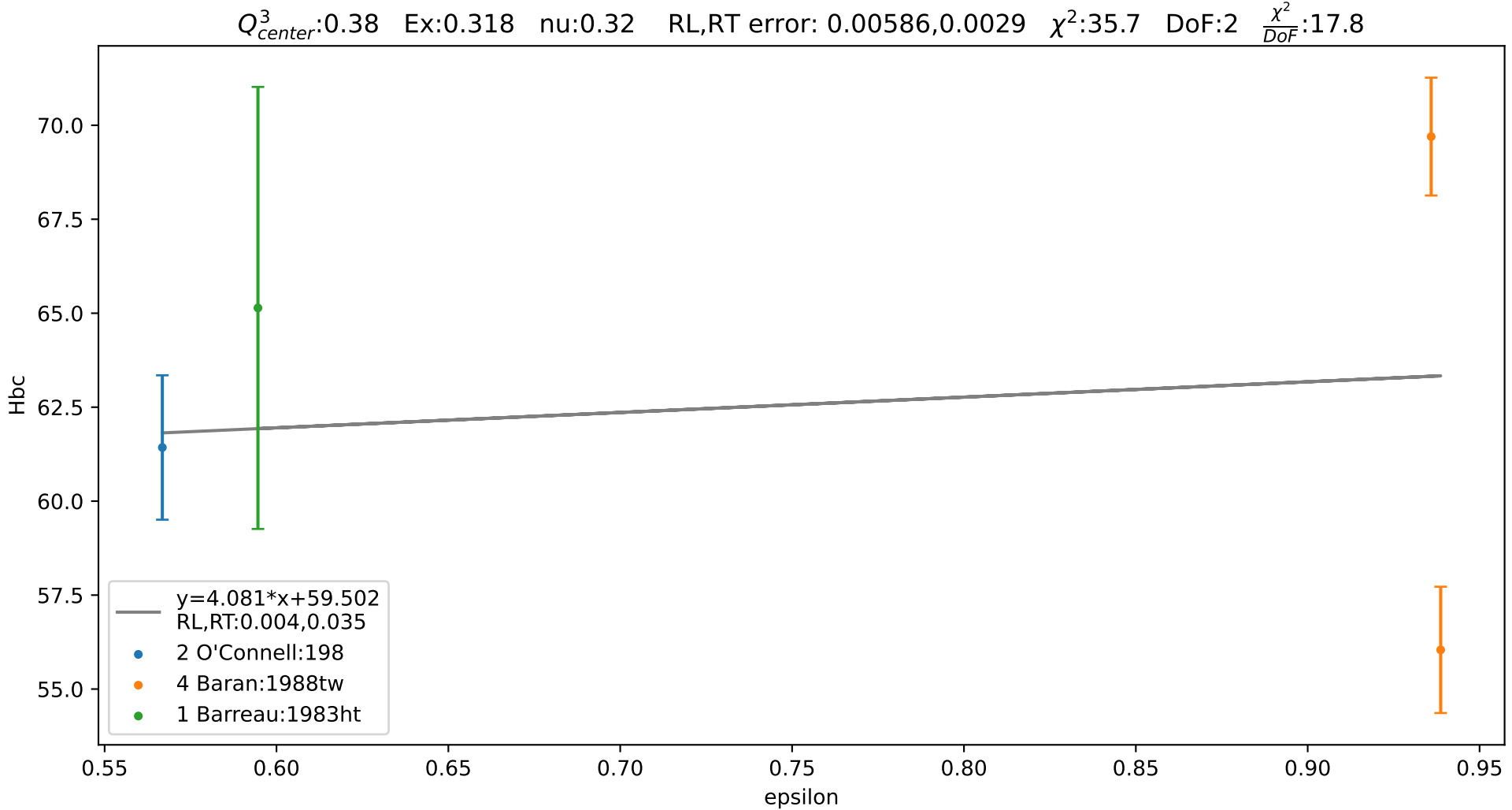

Q^3_{center}:0.38 Ex:0.267 nu:0.27 RL,RT error: 0.00101,0.000852 χ^2:12.8 DoF:11 $\frac{\chi^2}{DoF}$:1.2
y=0.23*x+23.631
RL,RT:0.0,0.023
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
28
26
24
22
20
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9

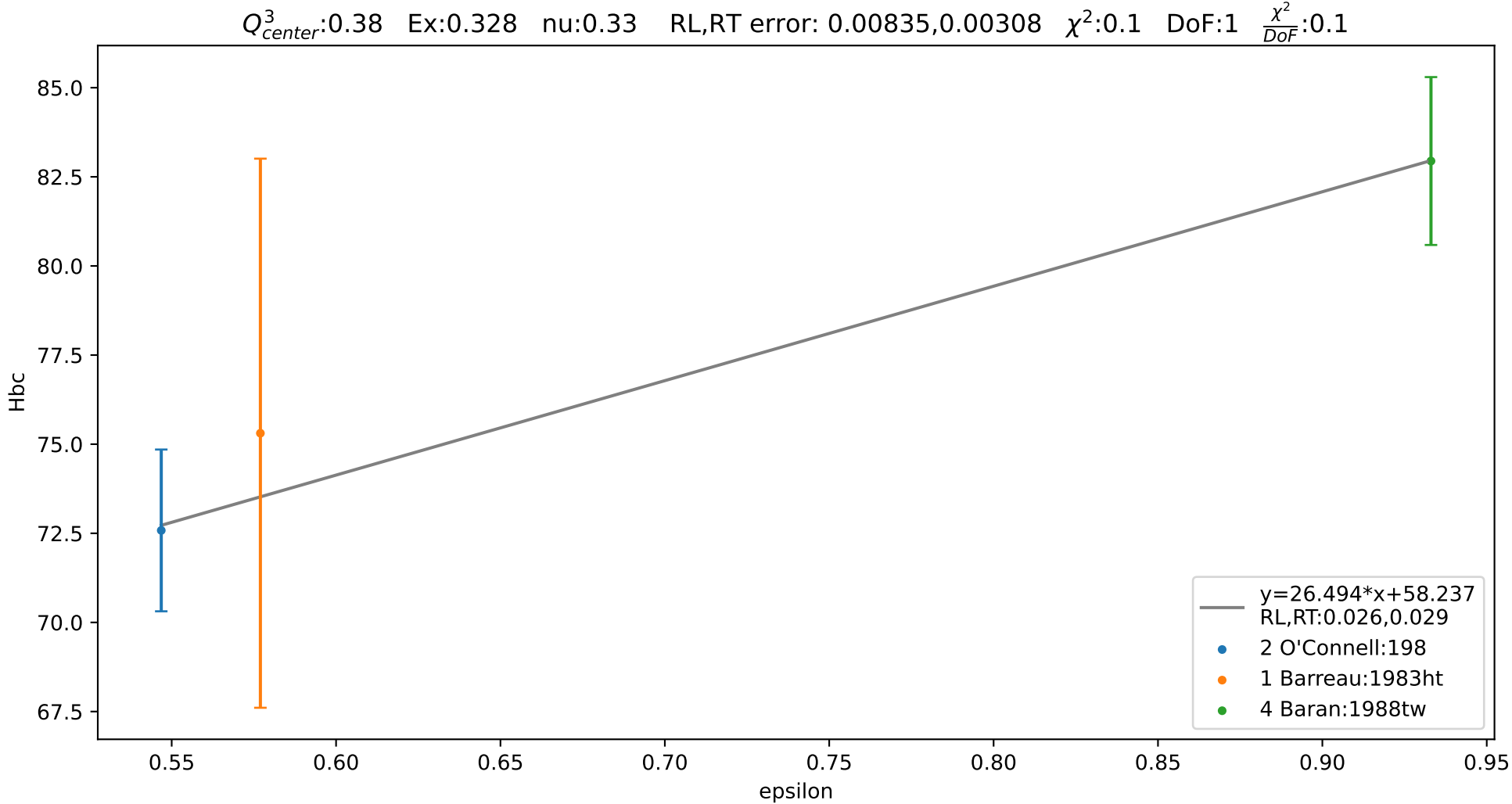

Q^3_{center}:0.38 Ex:0.277 nu:0.28 RL,RT error: 0.0014,0.000244 χ^2:18.6 DoF:7 $\frac{\chi^2}{DoF}$:2.7
y=-3.254*x+29.746
RL,RT:0,0.025
4 Baran:1988tw
1 Barreau:1983ht
2 O'Connell:198
Hbc
epsilon
32
30
28
26
24
22
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9

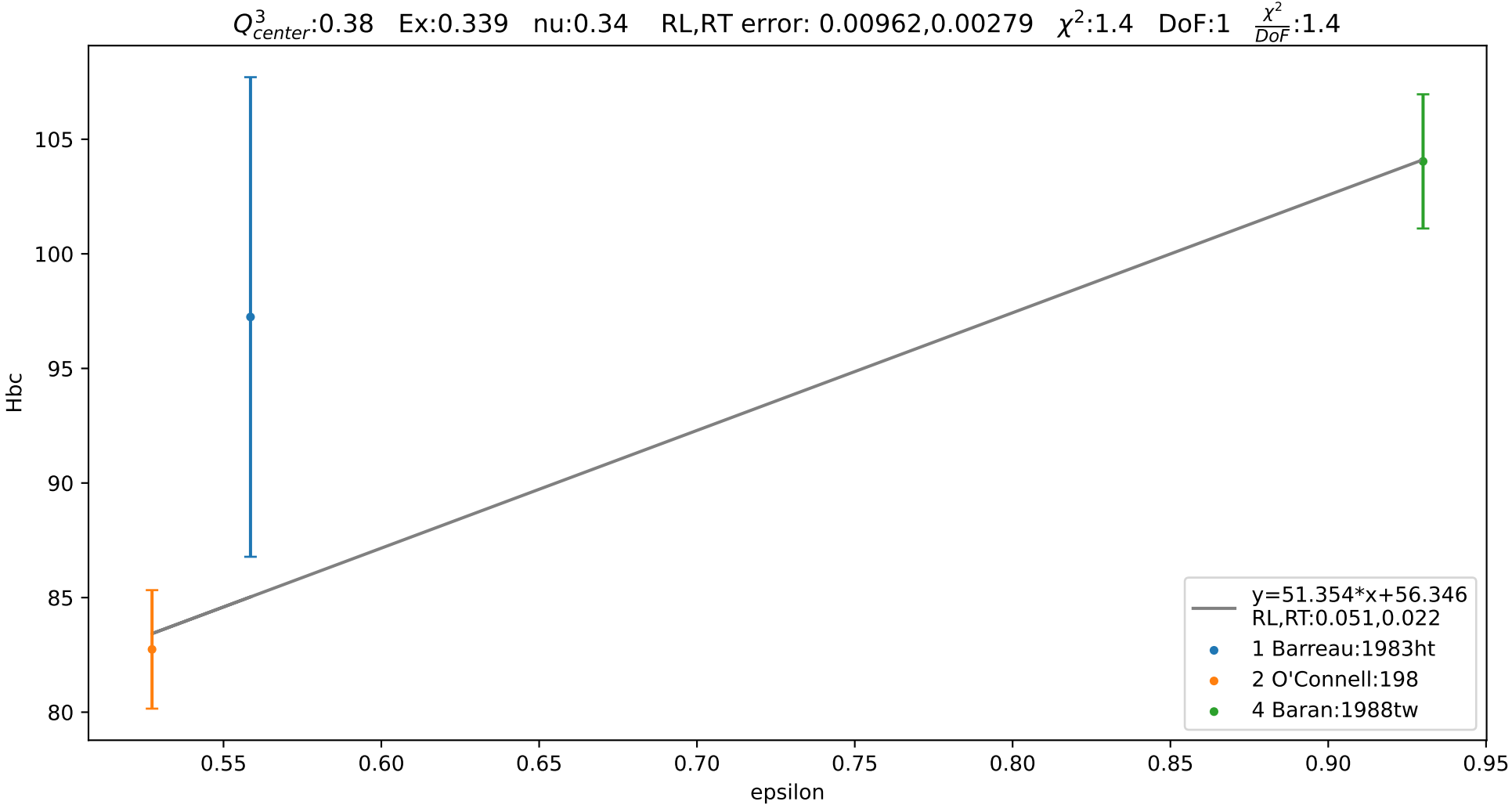

Q^3_{center}:0.38 Ex:0.287 nu:0.29 RL,RT error: 0.00184,0.000255 χ^2:67.7 DoF:9 $\frac{\chi^2}{DoF}$:7.5
y=-2.637*x+35.179
RL,RT:0,0.027
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
42
40
38
36
34
32
30
0.4
0.5
0.6
0.7
0.8
0.9

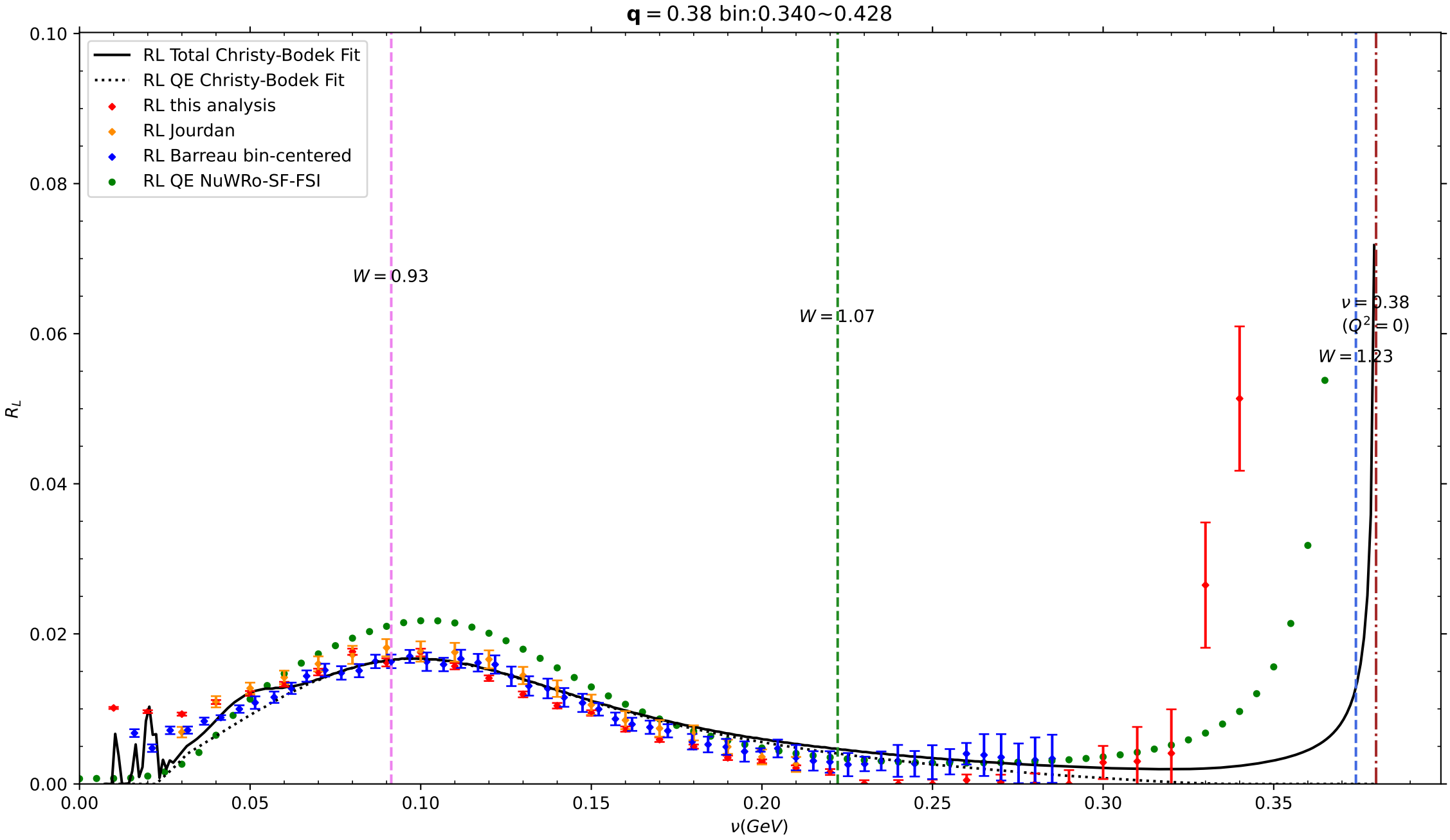

Q^3_{center}:0.38 Ex:0.298 nu:0.3 RL,RT error: 0.00221,0.00137 χ^2:30.8 DoF:9 $\frac{\chi^2}{DoF}$:3.4
y=2.86*x+37.811
RL,RT:0.003,0.028
1 Barreau:1983ht
2 O'Connell:198
4 Baran:1988tw
Hbc
epsilon
48
46
44
42
40
38
36
34
0.4
0.5
0.6
0.7
0.8
0.9

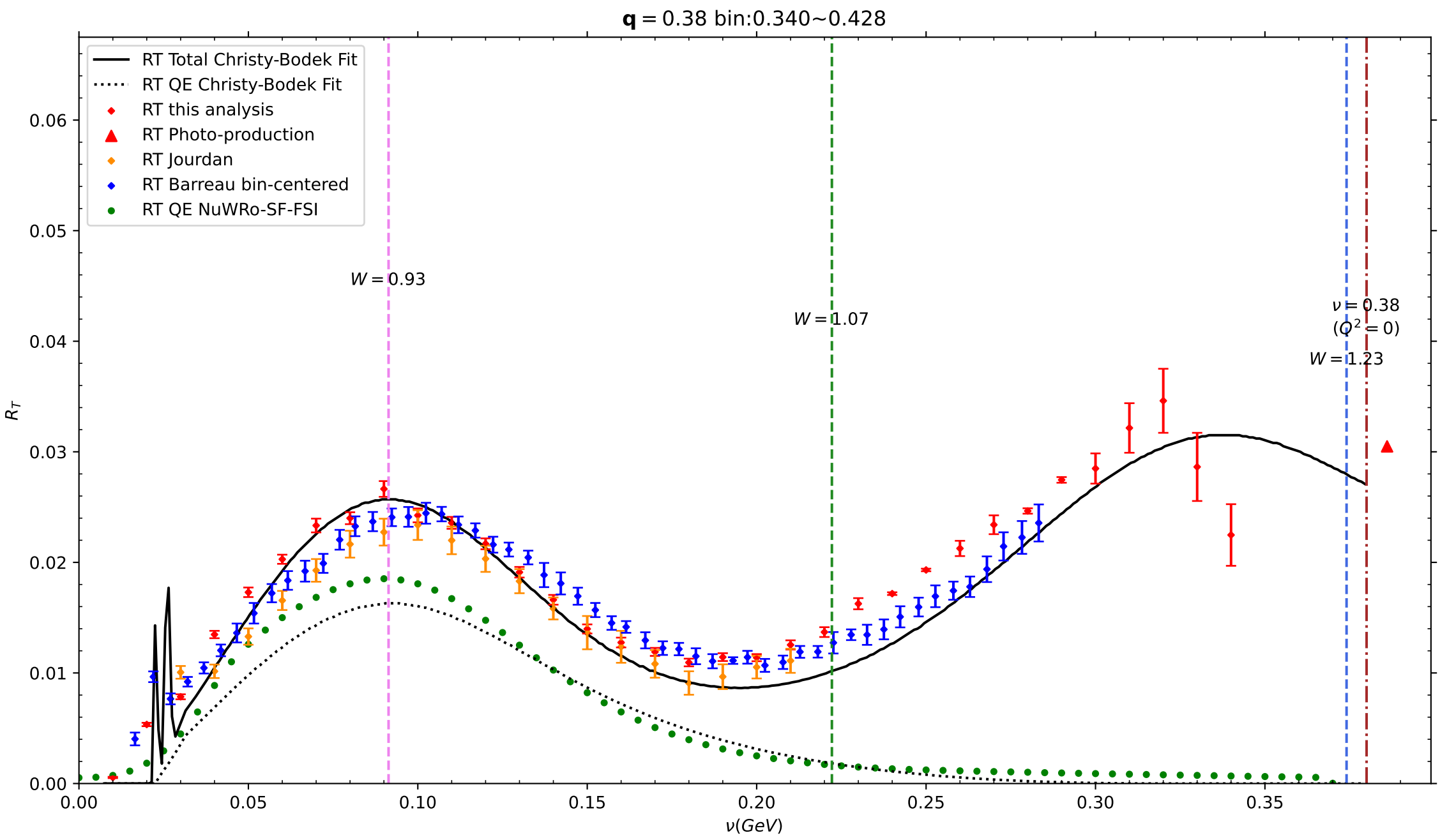

Q^3_{center}:0.38 Ex:0.308 nu:0.31 RL,RT error: 0.00459,0.00224 χ^2:5.7 DoF:6 $\frac{\chi^2}{DoF}$:0.9
y=3.005*x+48.065
RL,RT:0.003,0.032
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
65
60
55
50
45
40
0.4
0.5
0.6
0.7
0.8
0.9

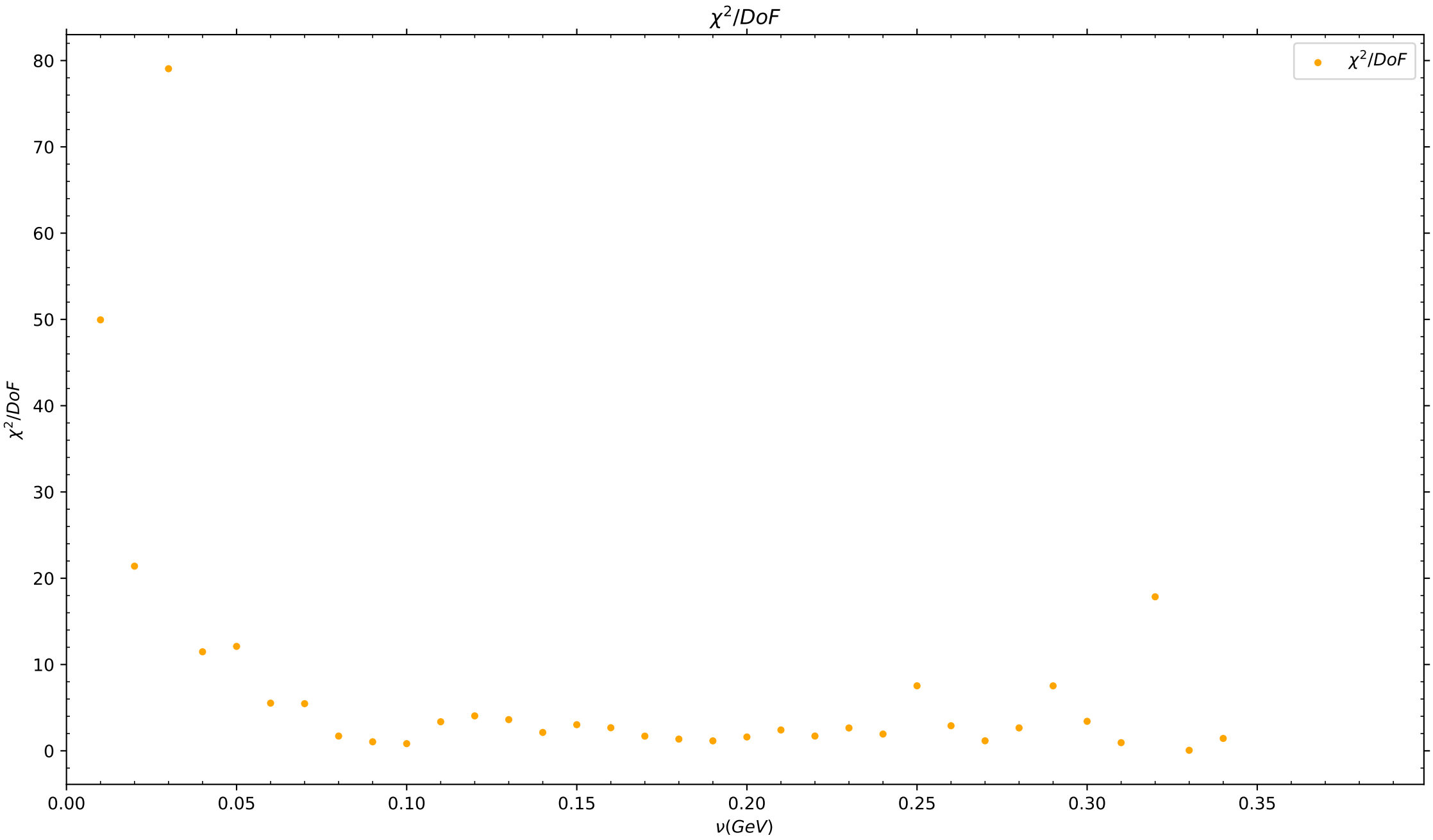

Q^3_{center}:0.38 Ex:0.318 nu:0.32 RL,RT error: 0.00586,0.0029 χ^2:35.7 DoF:2 $\frac{\chi^2}{DoF}$:17.8
Hbc
epsilon
70.0
67.5
65.0
62.5
60.0
57.5
55.0
0.55
0.60
0.65
0.70
0.75
0.80
0.85
0.90
0.95
y=4.081*x+59.502
RL,RT:0.004,0.035
2 O'Connell:198
4 Baran:1988tw
1 Barreau:1983ht

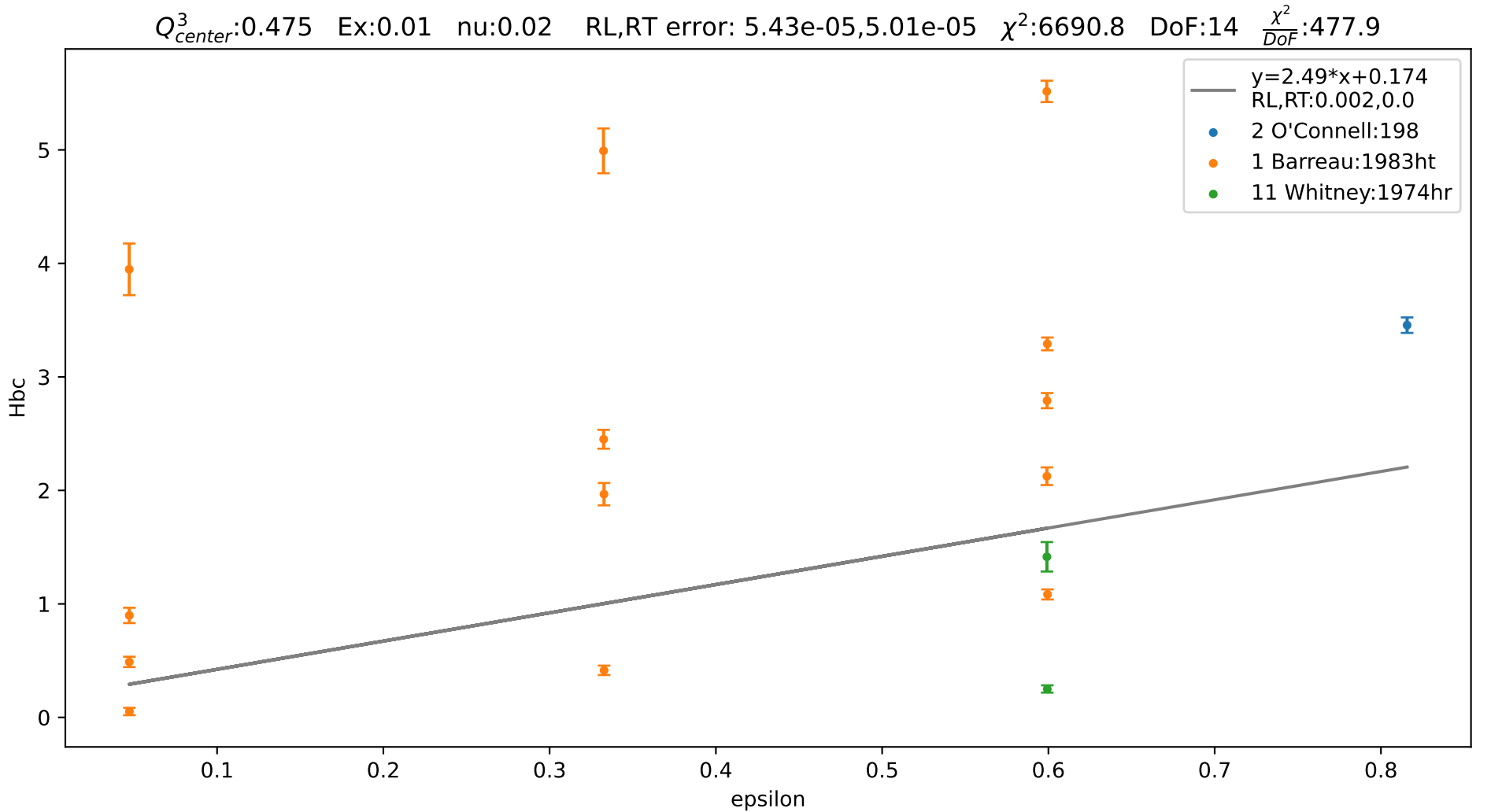

Q^3_{center}:0.38 Ex:0.328 nu:0.33 RL,RT error: 0.00835,0.00308 χ^2:0.1 DoF:1 $\frac{\chi^2}{DoF}$:0.1
Hbc
epsilon
85.0
82.5
80.0
77.5
75.0
72.5
70.0
67.5
0.55
0.60
0.65
0.70
0.75
0.80
0.85
0.90
0.95
y=26.494*x+58.237
RL,RT:0.026,0.029
2 O'Connell:198
1 Barreau:1983ht
4 Baran:1988tw

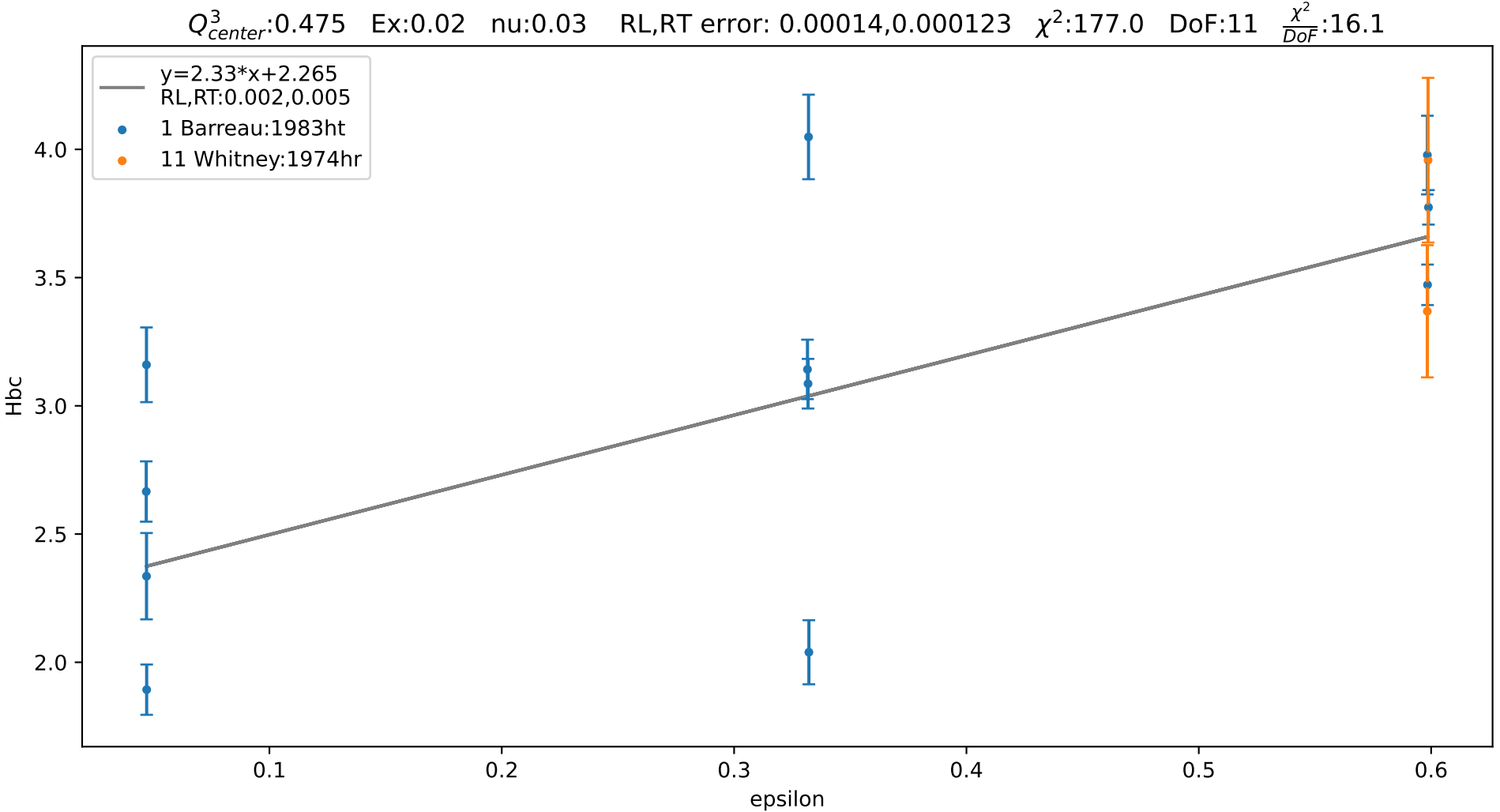

Q^3_{center}:0.38 Ex:0.339 nu:0.34 RL,RT error: 0.00962,0.00279 χ^2:1.4 DoF:1 $\frac{\chi^2}{DoF}$:1.4
Hbc
epsilon
105
100
95
90
85
80
0.55
0.60
0.65
0.70
0.75
0.80
0.85
0.90
0.95
y=51.354*x+56.346
RL,RT:0.051,0.022
1 Barreau:1983ht
2 O'Connell:198
4 Baran:1988tw

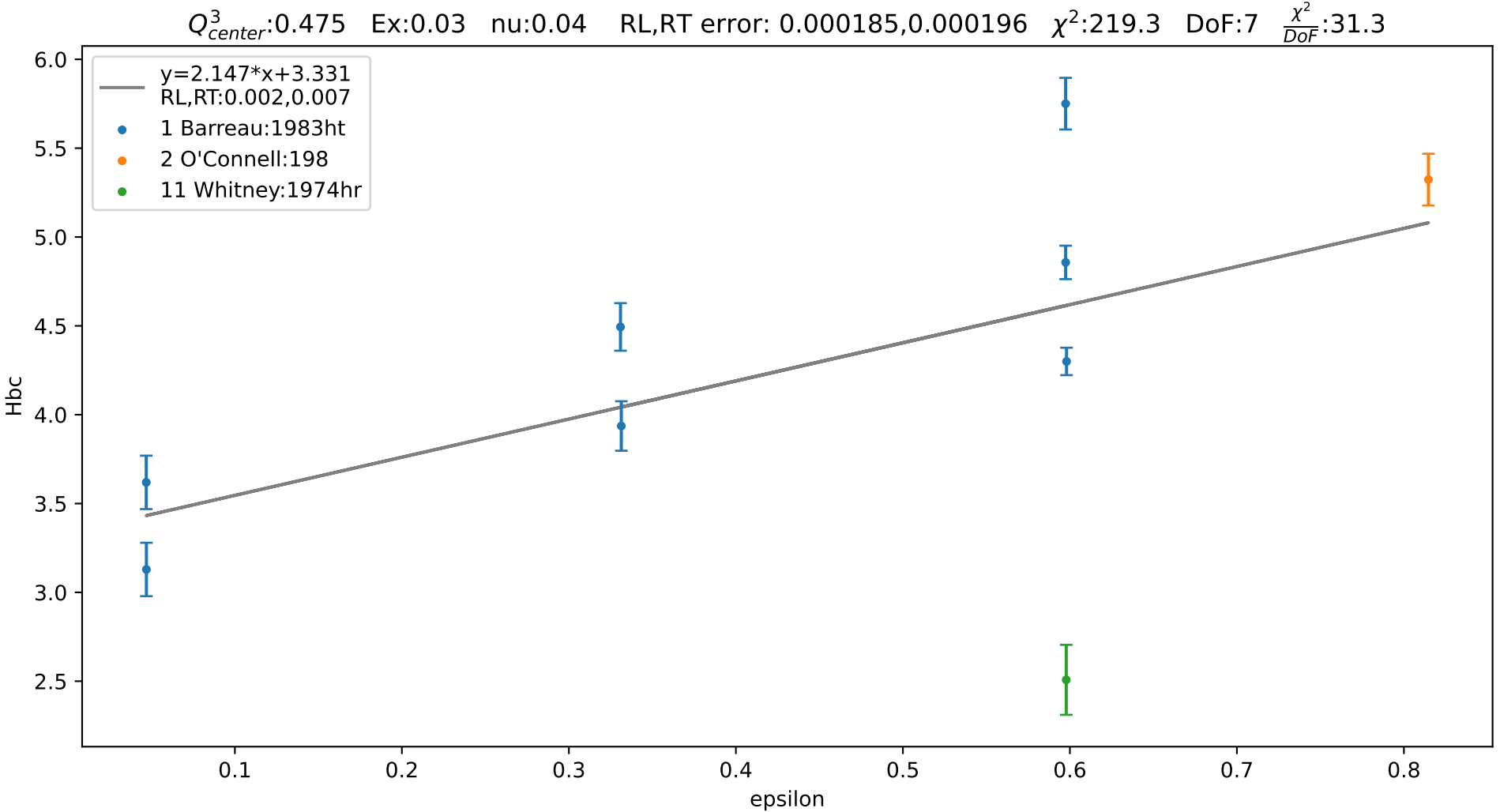

$\mathbf{q} = 0.38$ bin:0.340~0.428
RL Total Christy-Bodek Fit
RL QE Christy-Bodek Fit
RL this analysis
RL Jourdan
RL Barreau bin-centered
RL QE NuWRo-SF-FSI
$W = 0.93$
$W = 1.07$
$\nu = 0.38$
$(Q^2 = 0)$
$W = 1.23$
R_L
$\nu(GeV)$

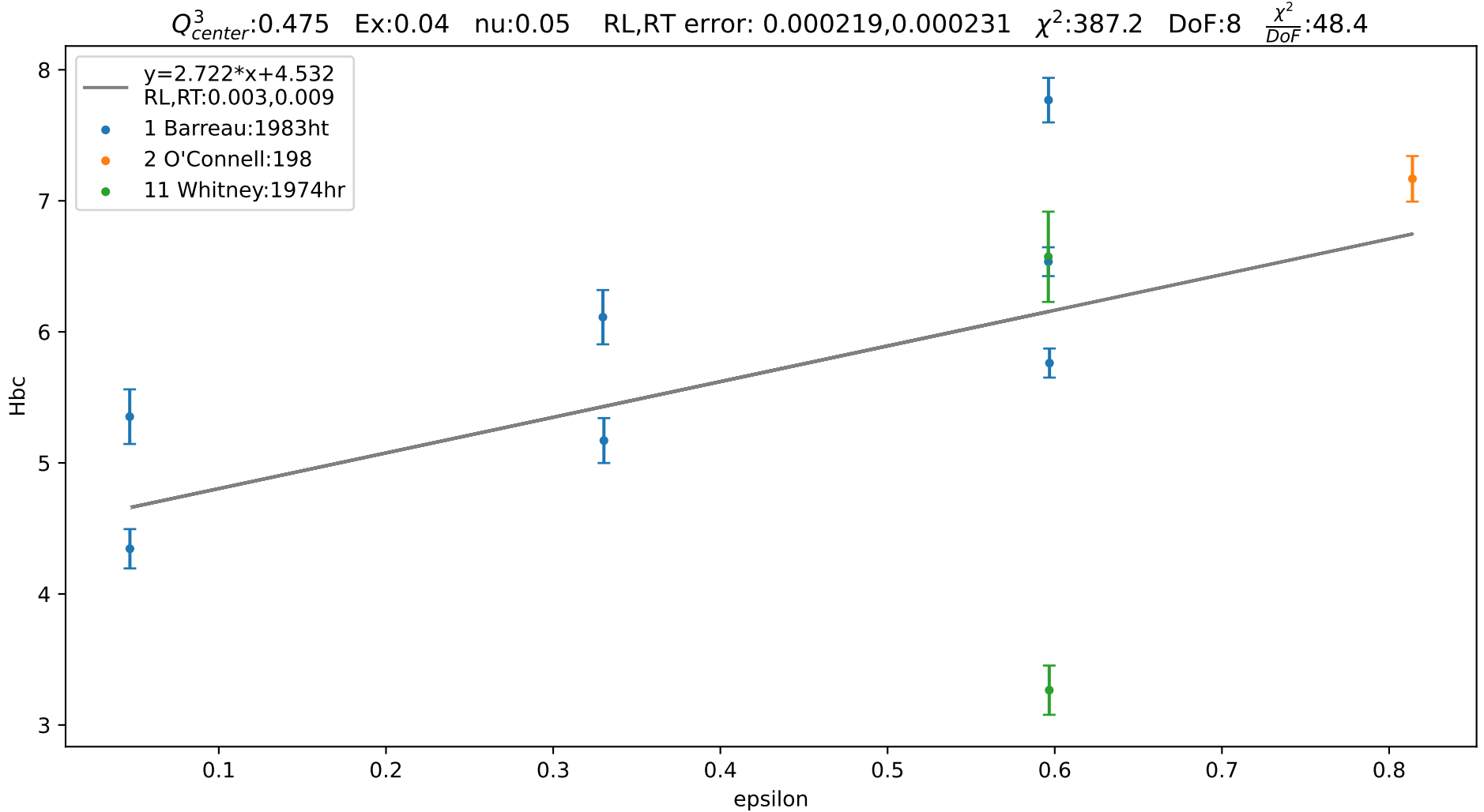

$\mathbf{q} = 0.38$ bin:0.340~0.428
RT Total Christy-Bodek Fit
RT QE Christy-Bodek Fit
RT this analysis
RT Photo-production
RT Jourdan
RT Barreau bin-centered
RT QE NuWRo-SF-FSI
$W = 0.93$
$W = 1.07$
$\nu = 0.38$
$(Q^2 = 0)$
$W = 1.23$
R_T
$\nu(GeV)$

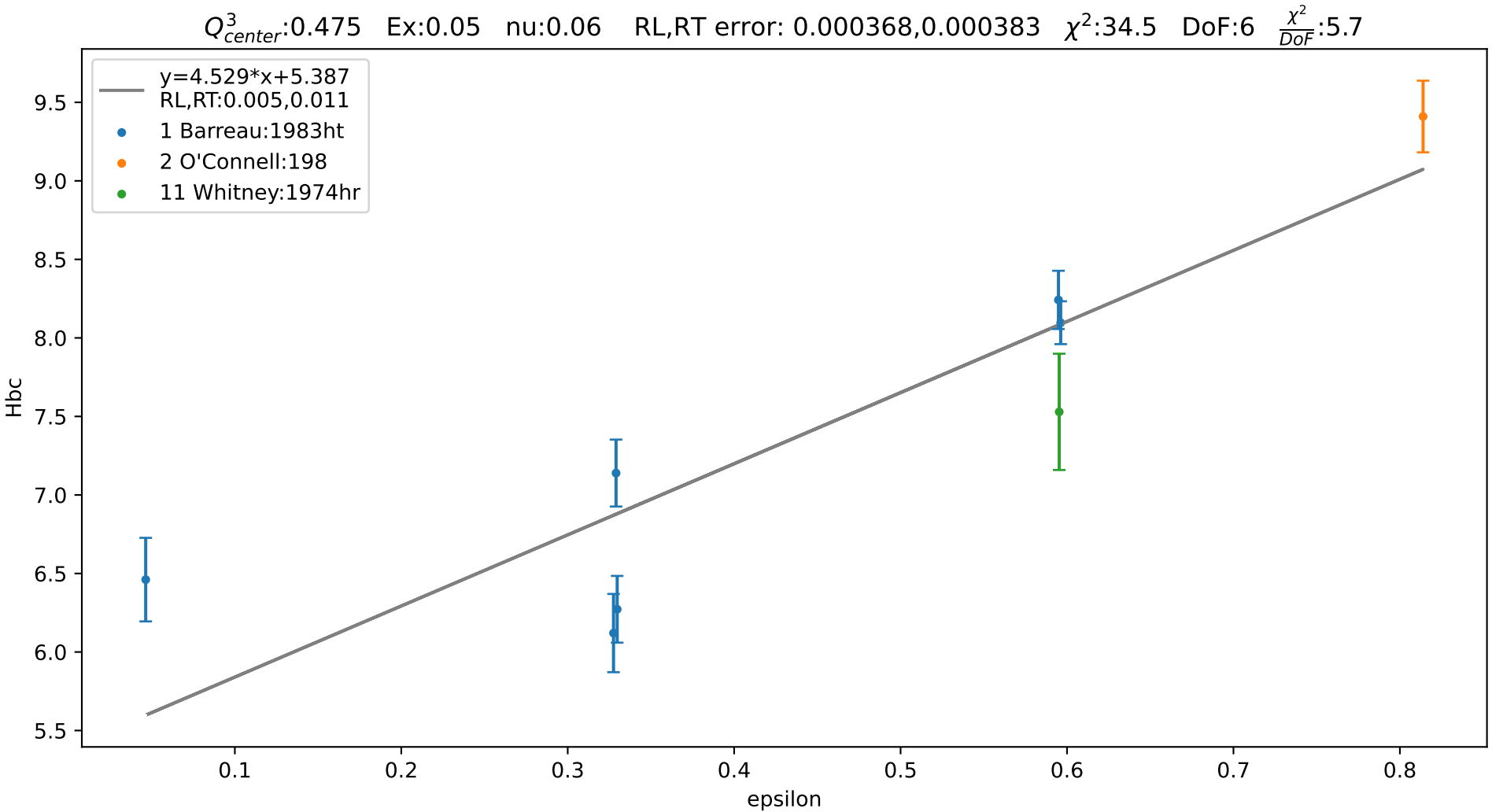

χ^2/DoF
χ^2/DoF
$\nu(GeV)$

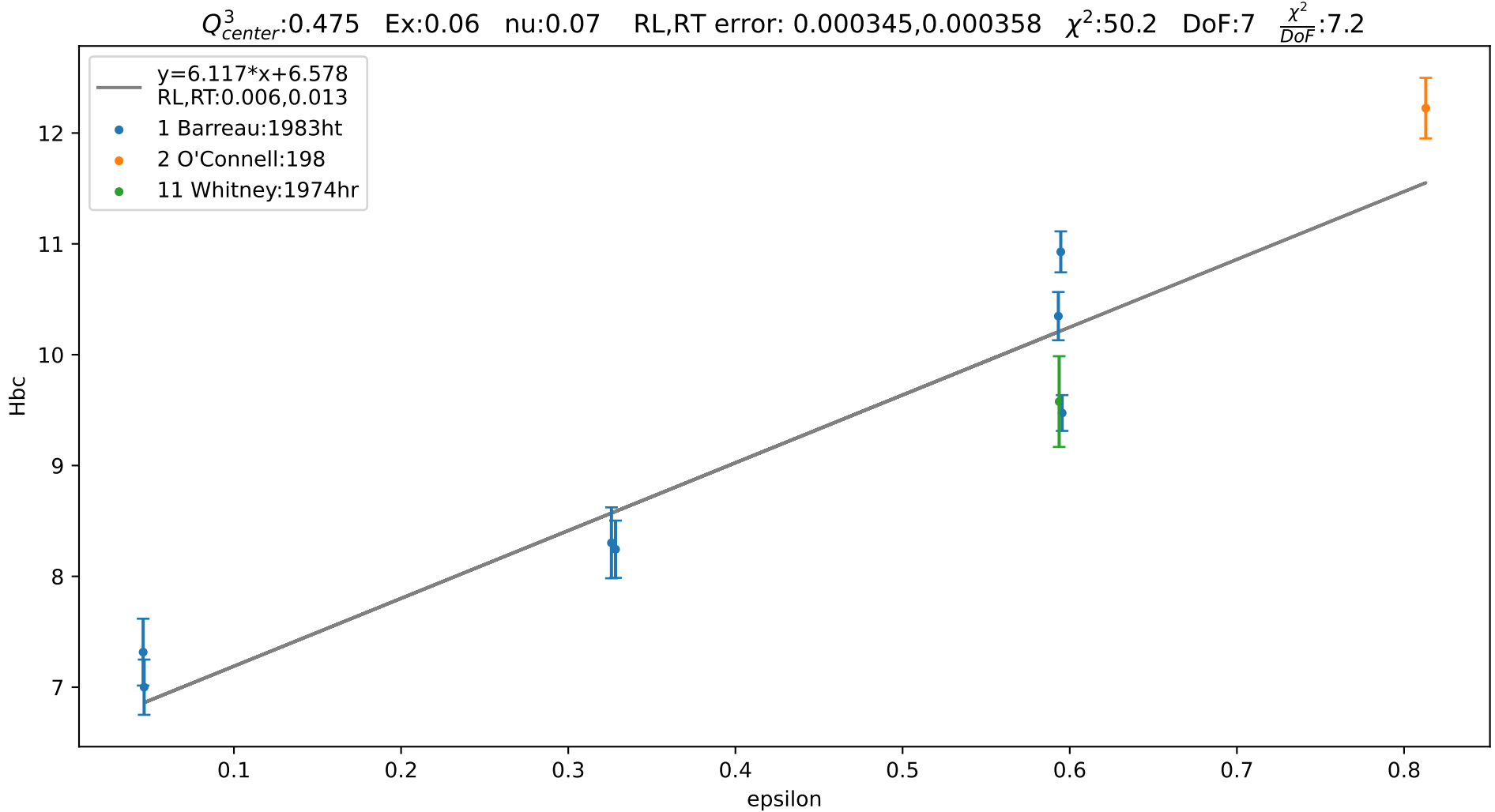

Q^3_{center}:0.475 Ex:0.01 nu:0.02 RL,RT error: 5.43e-05,5.01e-05 χ^2:6690.8 DoF:14 $\frac{\chi^2}{DoF}$:477.9
y=2.49*x+0.174
RL,RT:0.002,0.0
2 O'Connell:198
1 Barreau:1983ht
11 Whitney:1974hr
Hbc
epsilon
0
1
2
3
4
5
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.475 Ex:0.02 nu:0.03 RL,RT error: 0.00014,0.000123 χ^2:177.0 DoF:11 $\frac{\chi^2}{DoF}$:16.1
y=2.33*x+2.265
RL,RT:0.002,0.005
1 Barreau:1983ht
11 Whitney:1974hr
Hbc
epsilon
4.0
3.5
3.0
2.5
2.0
0.1
0.2
0.3
0.4
0.5
0.6


Q^3_{center}:0.475 Ex:0.03 nu:0.04 RL,RT error: 0.000185,0.000196 χ^2:219.3 DoF:7 $\frac{\chi^2}{DoF}$:31.3
y=2.147*x+3.331
RL,RT:0.002,0.007
1 Barreau:1983ht
2 O'Connell:198
11 Whitney:1974hr
Hbc
epsilon
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.475 Ex:0.04 nu:0.05 RL,RT error: 0.000219,0.000231 χ^2:387.2 DoF:8 $\frac{\chi^2}{DoF}$:48.4
y=2.722*x+4.532
RL,RT:0.003,0.009
1 Barreau:1983ht
2 O'Connell:198
11 Whitney:1974hr
Hbc
epsilon
8
7
6
5
4
3
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.475 Ex:0.05 nu:0.06 RL,RT error: 0.000368,0.000383 χ^2:34.5 DoF:6 $\frac{\chi^2}{DoF}$:5.7
y=4.529*x+5.387
RL,RT:0.005,0.011
1 Barreau:1983ht
2 O'Connell:198
11 Whitney:1974hr
Hbc
epsilon
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.475 Ex:0.06 nu:0.07 RL,RT error: 0.000345,0.000358 χ^2:50.2 DoF:7 $\frac{\chi^2}{DoF}$:7.2
y=6.117*x+6.578
RL,RT:0.006,0.013
1 Barreau:1983ht
2 O'Connell:198
11 Whitney:1974hr
Hbc
epsilon
12
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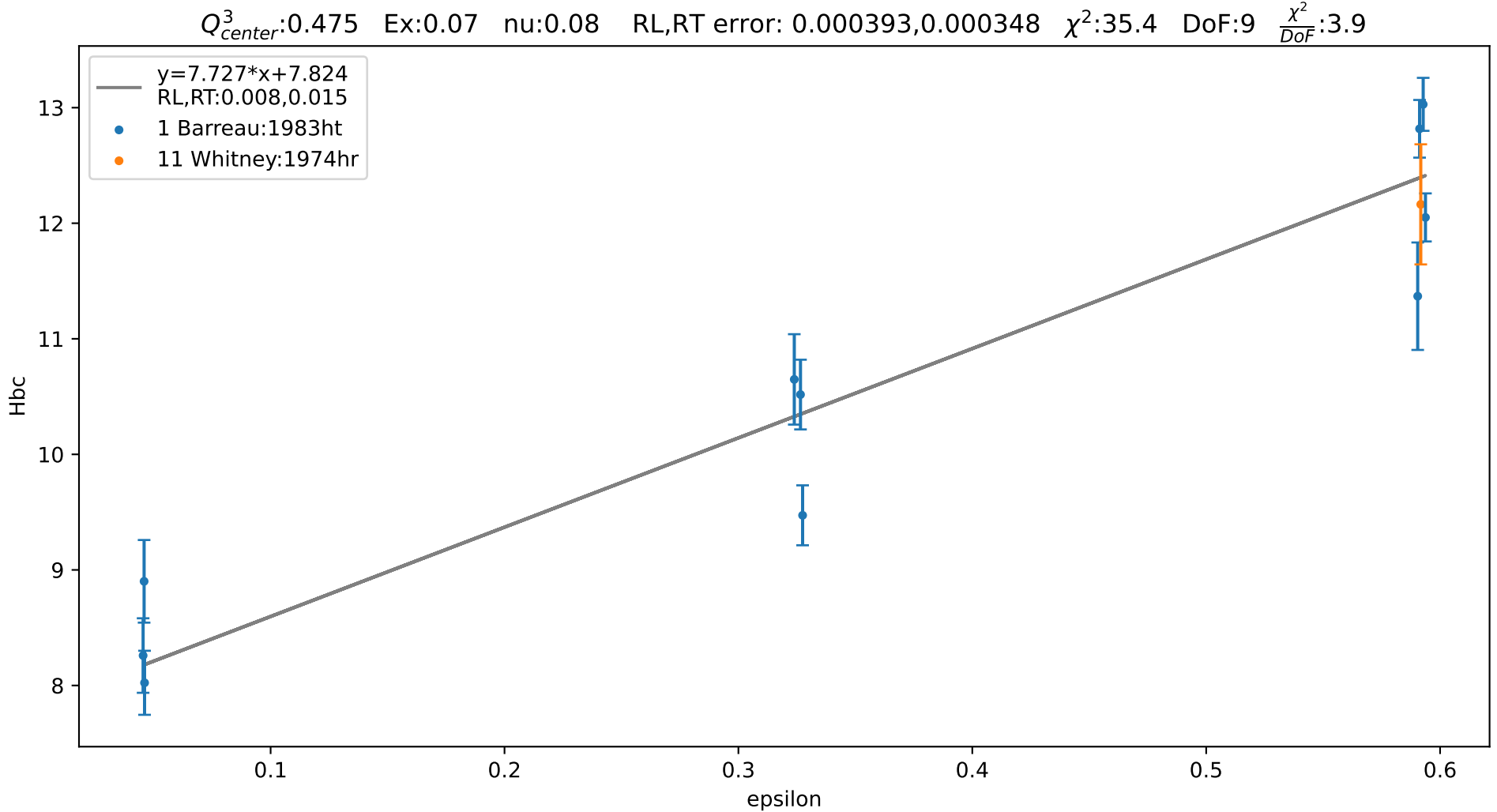
Q^3_{center}:0.475 Ex:0.07 nu:0.08 RL,RT error: 0.000393,0.000348 χ^2:35.4 DoF:9 $\frac{\chi^2}{DoF}$:3.9
y=7.727*x+7.824
RL,RT:0.008,0.015
1 Barreau:1983ht
11 Whitney:1974hr
Hbc
epsilon
8
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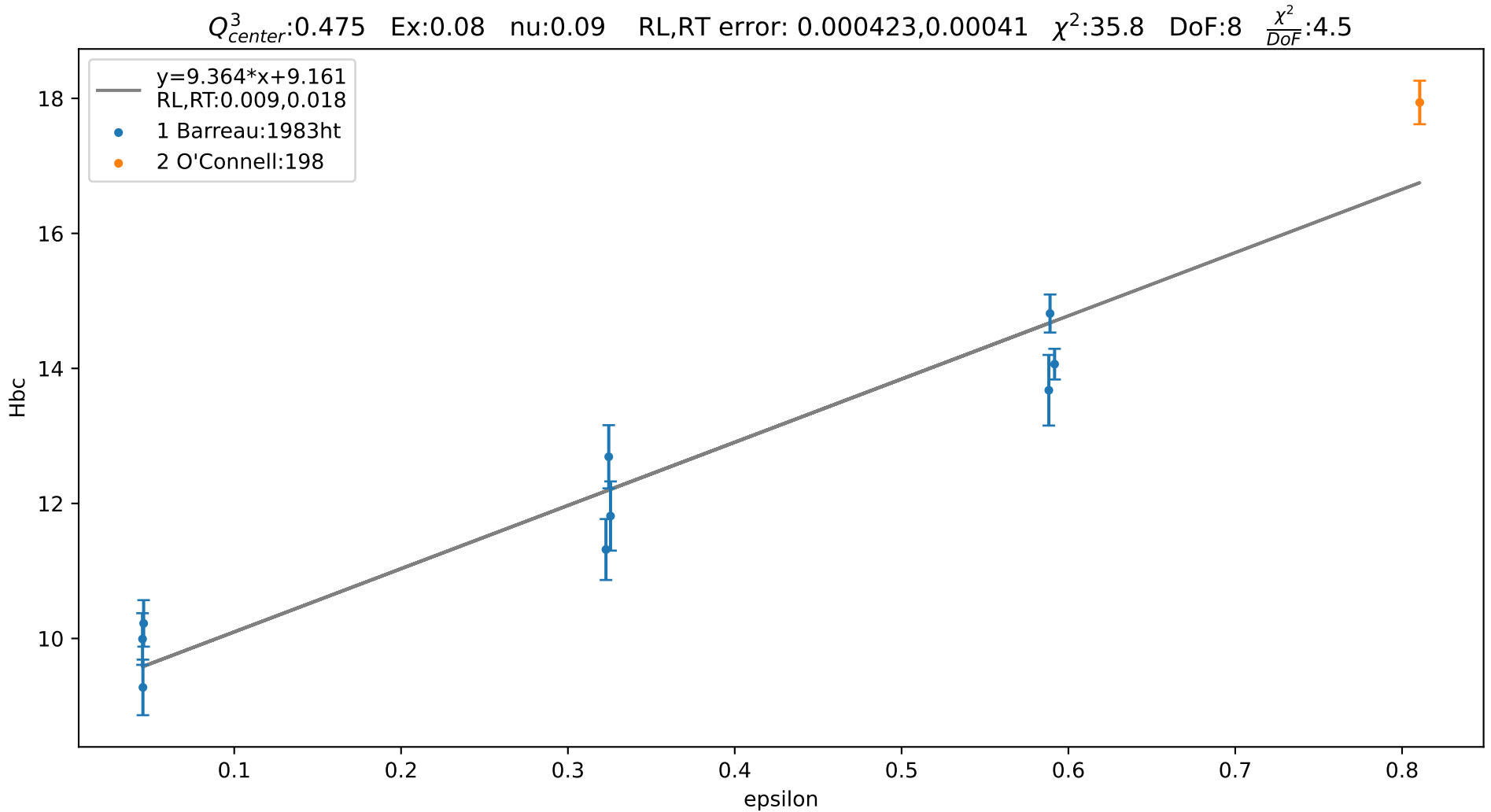
Q^3_{center}:0.475 Ex:0.08 nu:0.09 RL,RT error: 0.000423,0.00041 χ^2:35.8 DoF:8 $\frac{\chi^2}{DoF}$:4.5
y=9.364*x+9.161
RL,RT:0.009,0.018
1 Barreau:1983ht
2 O'Connell:198
Hbc
epsilon
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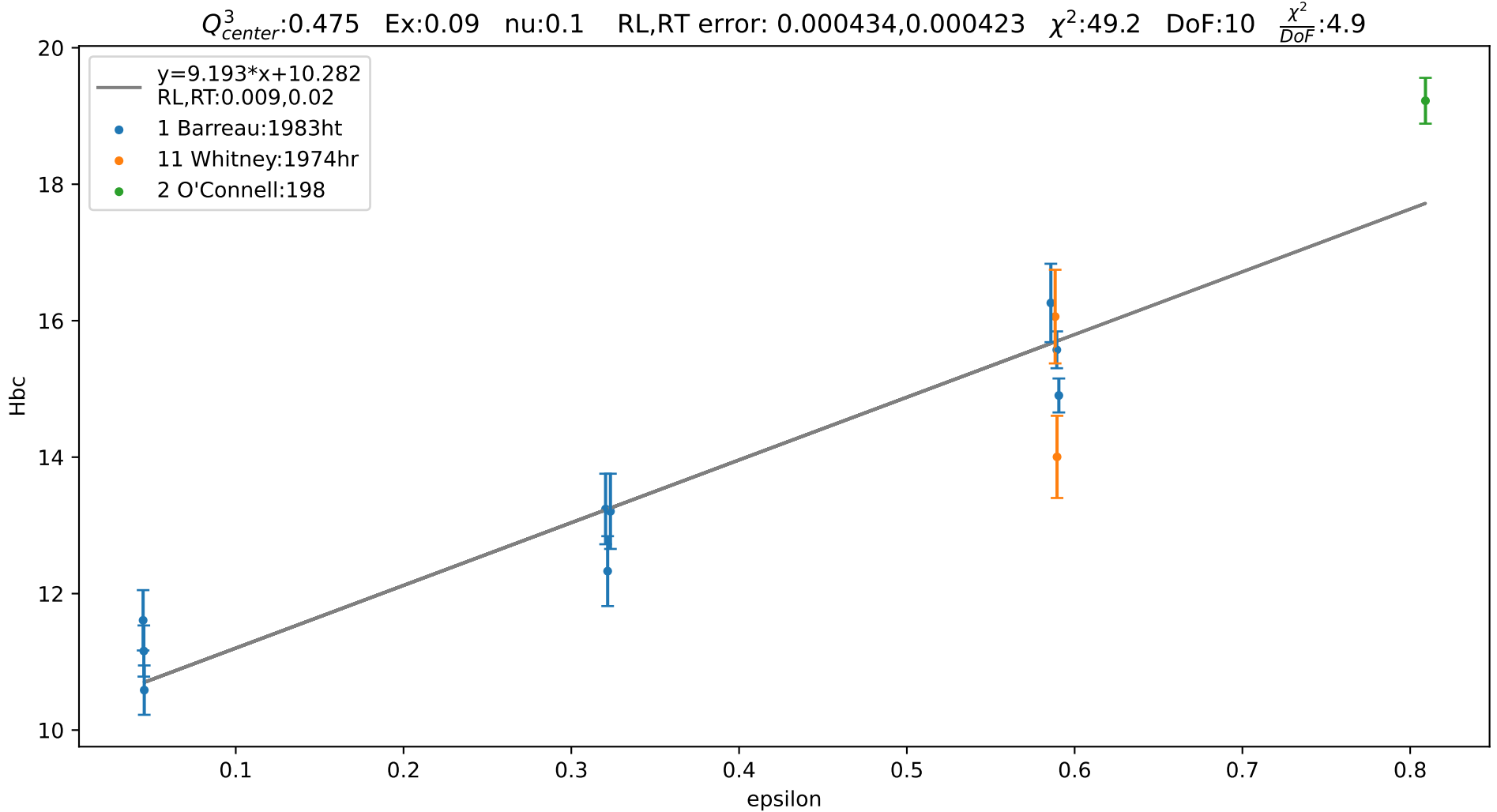
Q^3_{center}:0.475 Ex:0.09 nu:0.1 RL,RT error: 0.000434,0.000423 χ^2:49.2 DoF:10 $\frac{\chi^2}{DoF}$:4.9
y=9.193*x+10.282
RL,RT:0.009,0.02
1 Barreau:1983ht
11 Whitney:1974hr
2 O'Connell:198
Hbc
epsilon
20
18
16
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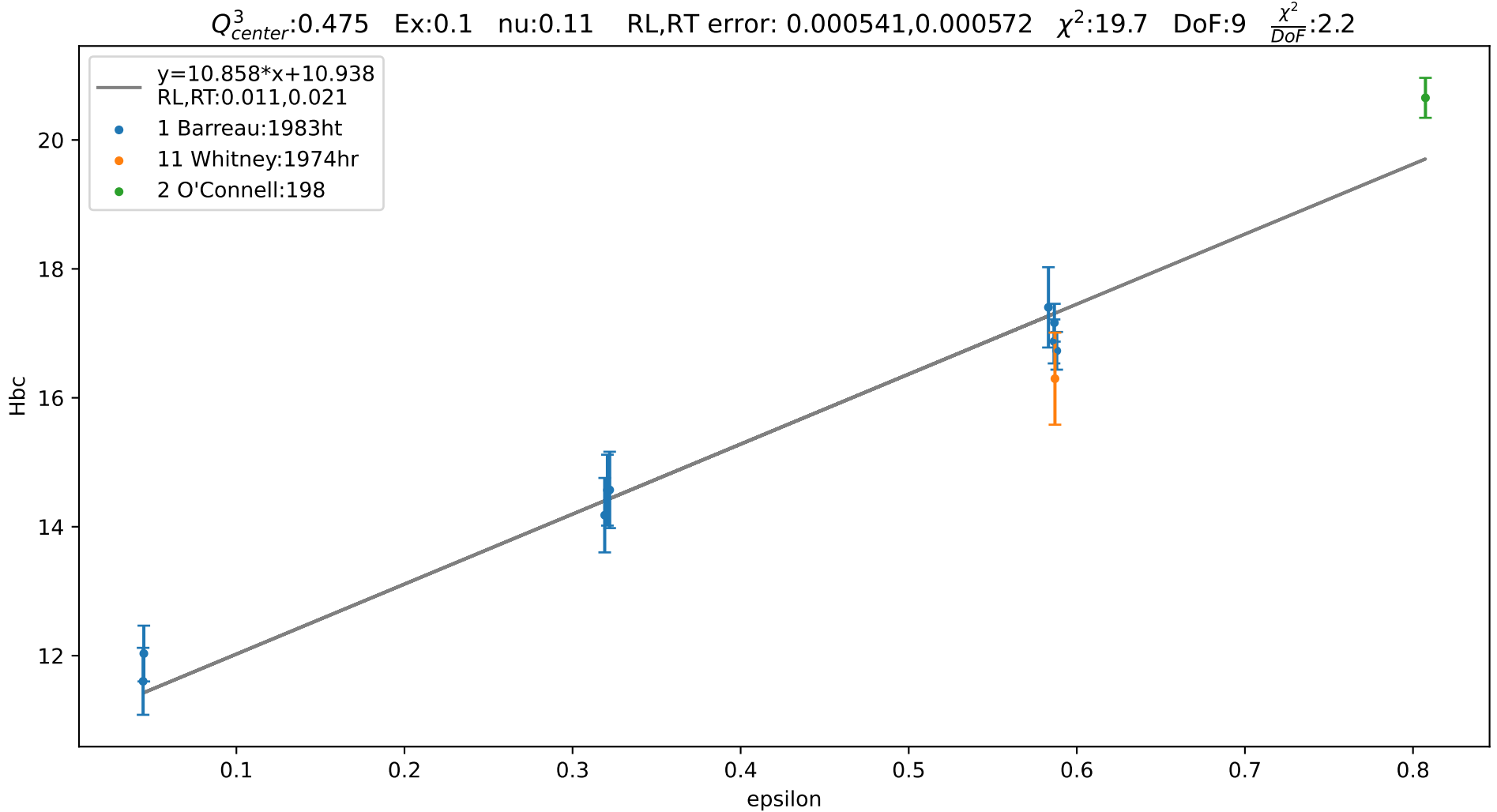
Q^3_{center}:0.475 Ex:0.1 nu:0.11 RL,RT error: 0.000541,0.000572 χ^2:19.7 DoF:9 $\frac{\chi^2}{DoF}$:2.2
y=10.858*x+10.938
RL,RT:0.011,0.021
1 Barreau:1983ht
11 Whitney:1974hr
2 O'Connell:198
Hbc
epsilon
12
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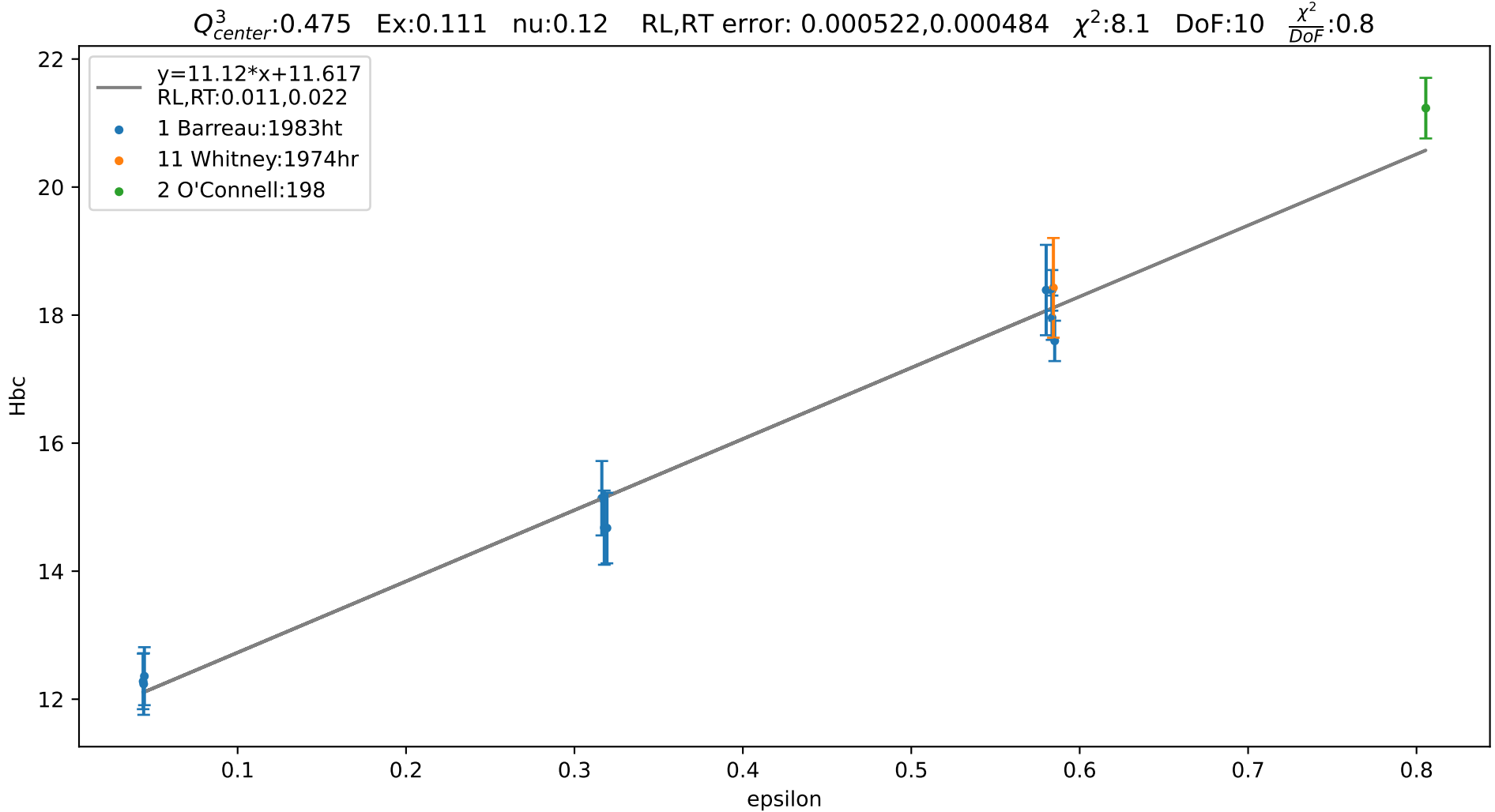
Q^3_{center}:0.475 Ex:0.111 nu:0.12 RL,RT error: 0.000522,0.000484 χ^2:8.1 DoF:10 $\frac{\chi^2}{DoF}$:0.8
y=11.12*x+11.617
RL,RT:0.011,0.022
1 Barreau:1983ht
11 Whitney:1974hr
2 O'Connell:198
Hbc
epsilon
22
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12
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0.2
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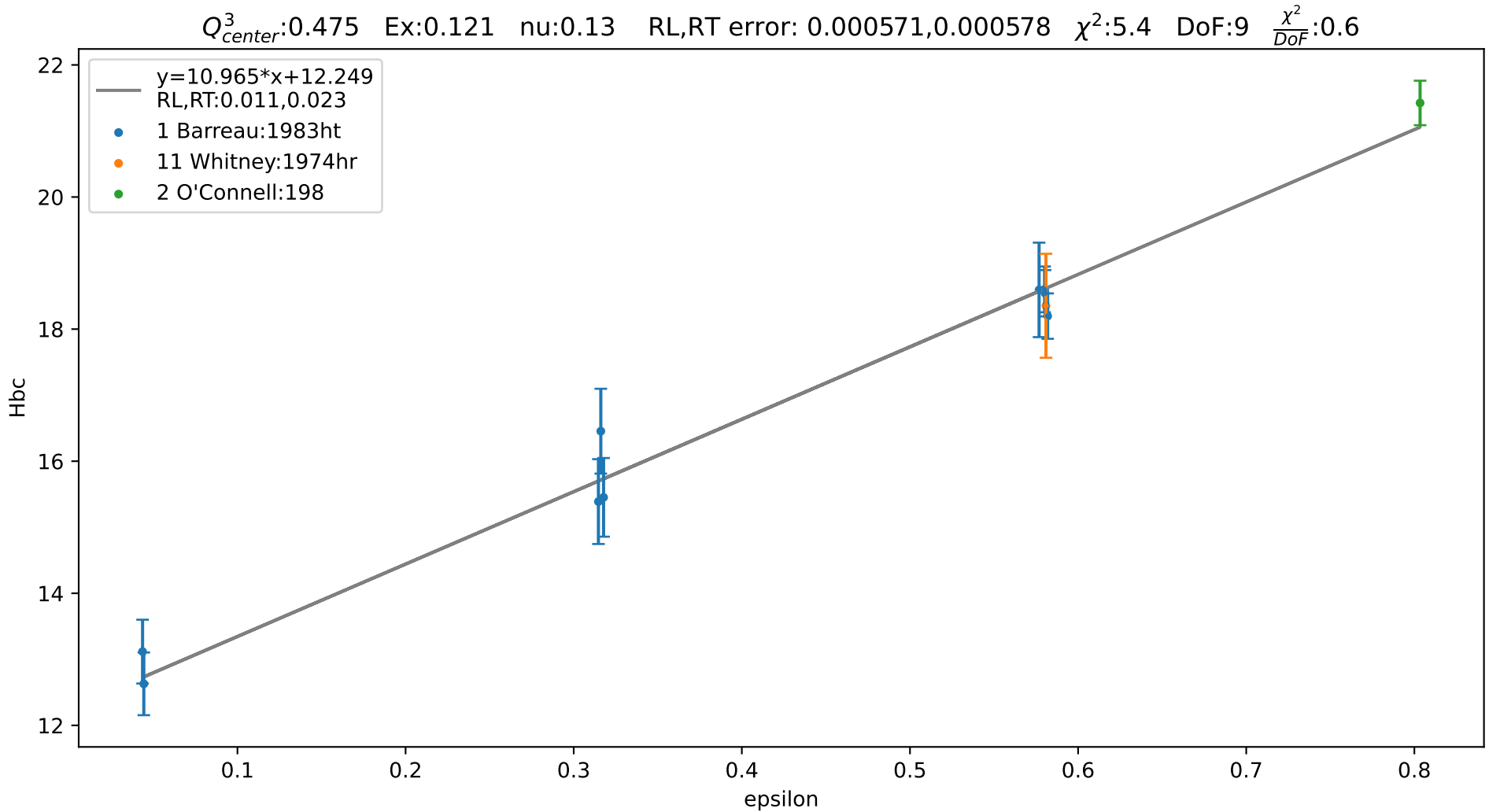
0.8


Q^3_{center}:0.475 Ex:0.121 nu:0.13 RL,RT error: 0.000571,0.000578 χ^2:5.4 DoF:9 $\frac{\chi^2}{DoF}$:0.6
y=10.965*x+12.249
RL,RT:0.011,0.023
1 Barreau:1983ht
11 Whitney:1974hr
2 O'Connell:198
Hbc
epsilon
22
20
18
16
14
12
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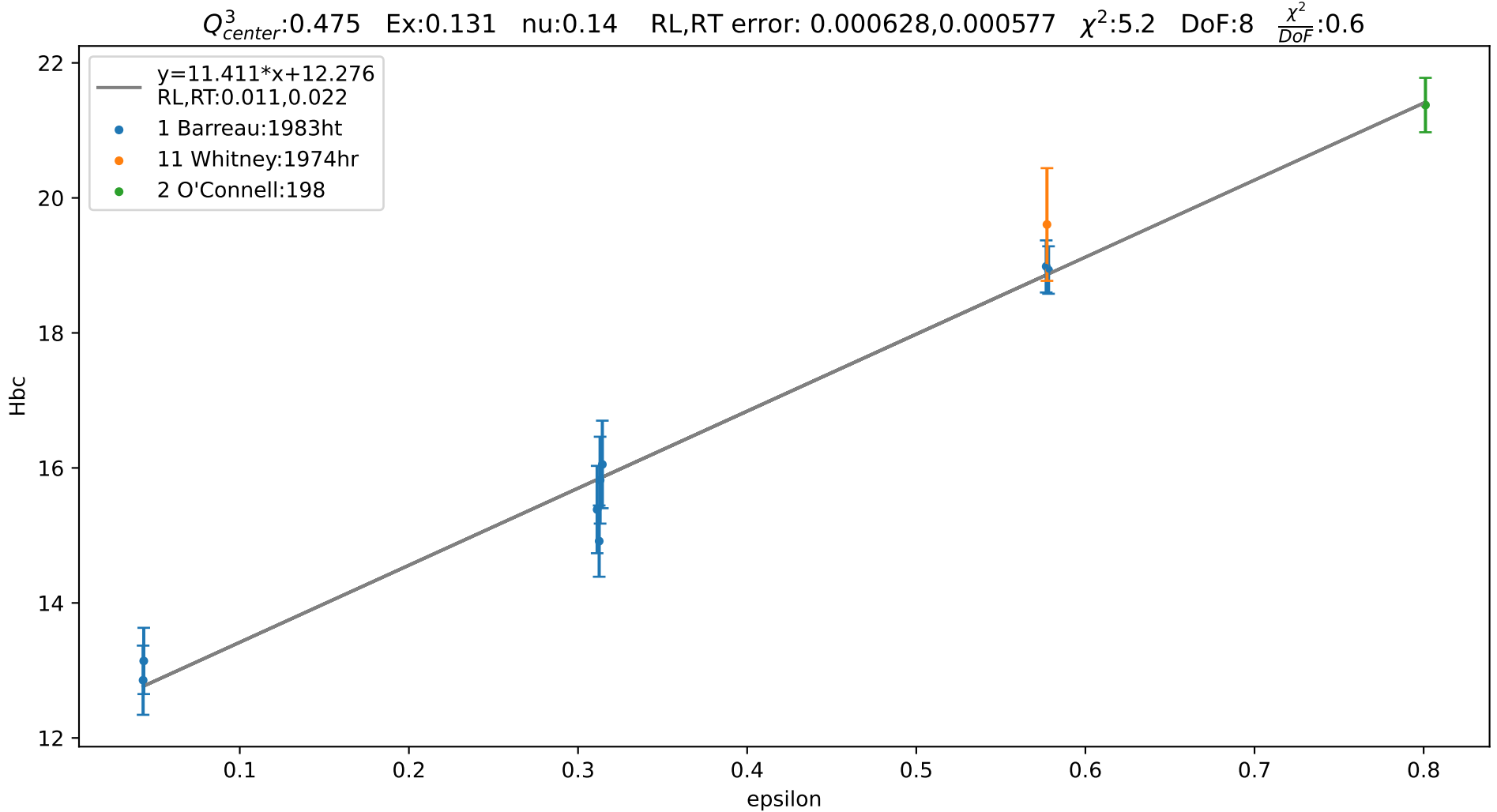
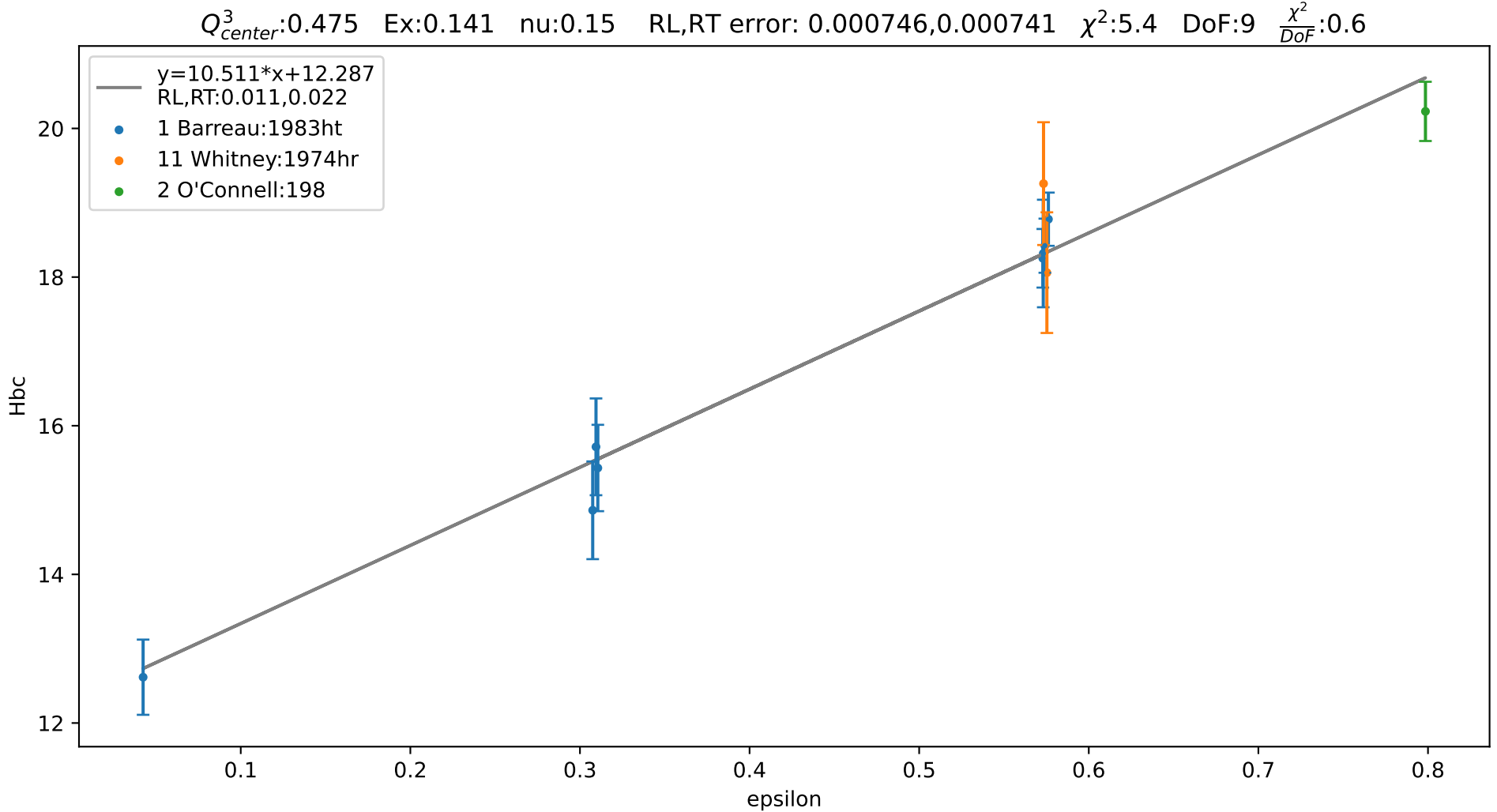
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.475 Ex:0.131 nu:0.14 RL,RT error: 0.000628,0.000577 χ^2:5.2 DoF:8 $\frac{\chi^2}{DoF}$:0.6
y=11.411*x+12.276
RL,RT:0.011,0.022
1 Barreau:1983ht
11 Whitney:1974hr
2 O'Connell:198
Hbc
epsilon
22
20
18
16
14
12
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Q^3_{center}:0.475 Ex:0.141 nu:0.15 RL,RT error: 0.000746,0.000741 χ^2:5.4 DoF:9 $\frac{\chi^2}{DoF}$:0.6
y=10.511*x+12.287
RL,RT:0.011,0.022
1 Barreau:1983ht
11 Whitney:1974hr
2 O'Connell:198
Hbc
epsilon
12
14
16
18
20
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0.2
0.3
0.4
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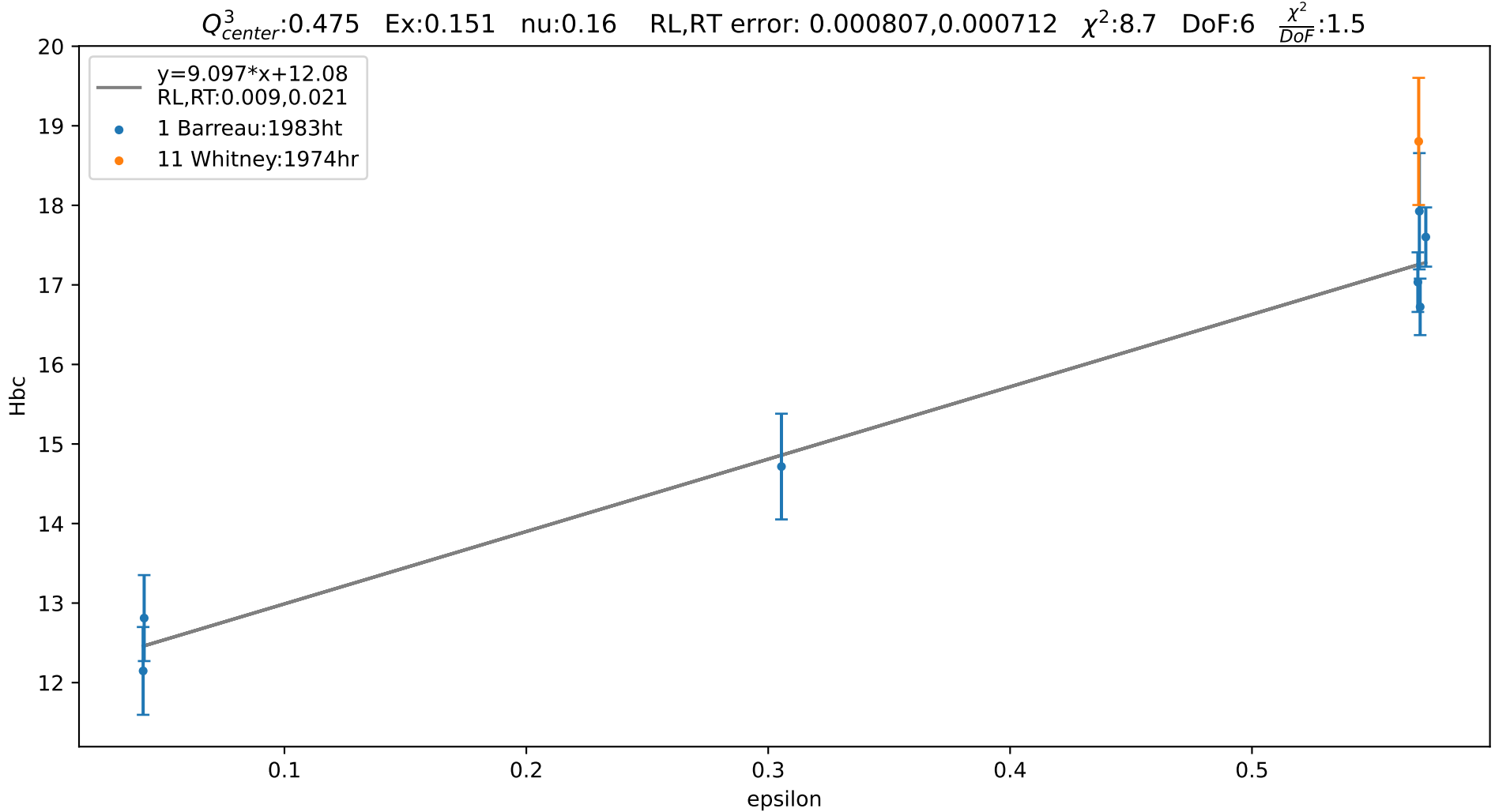
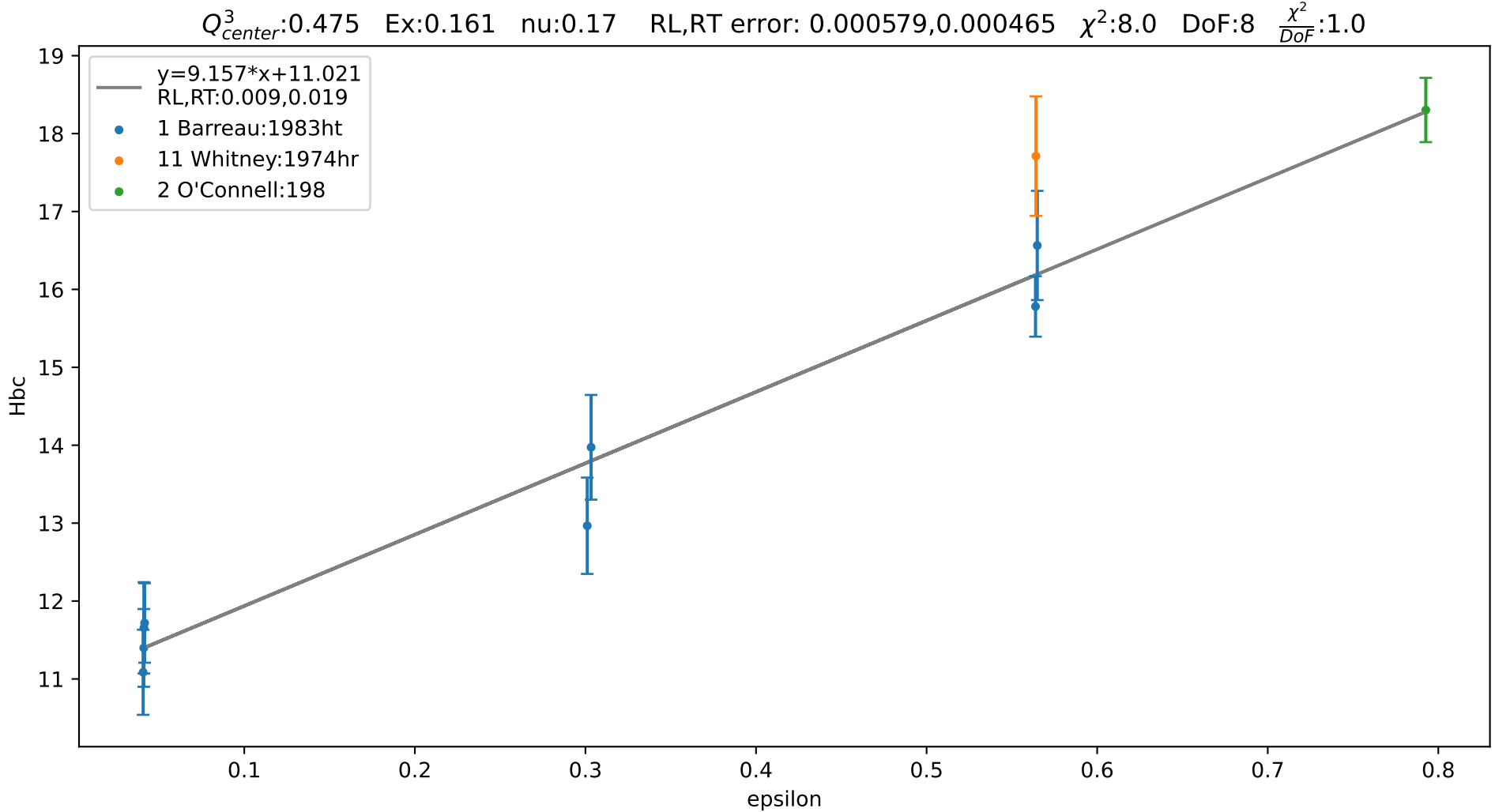
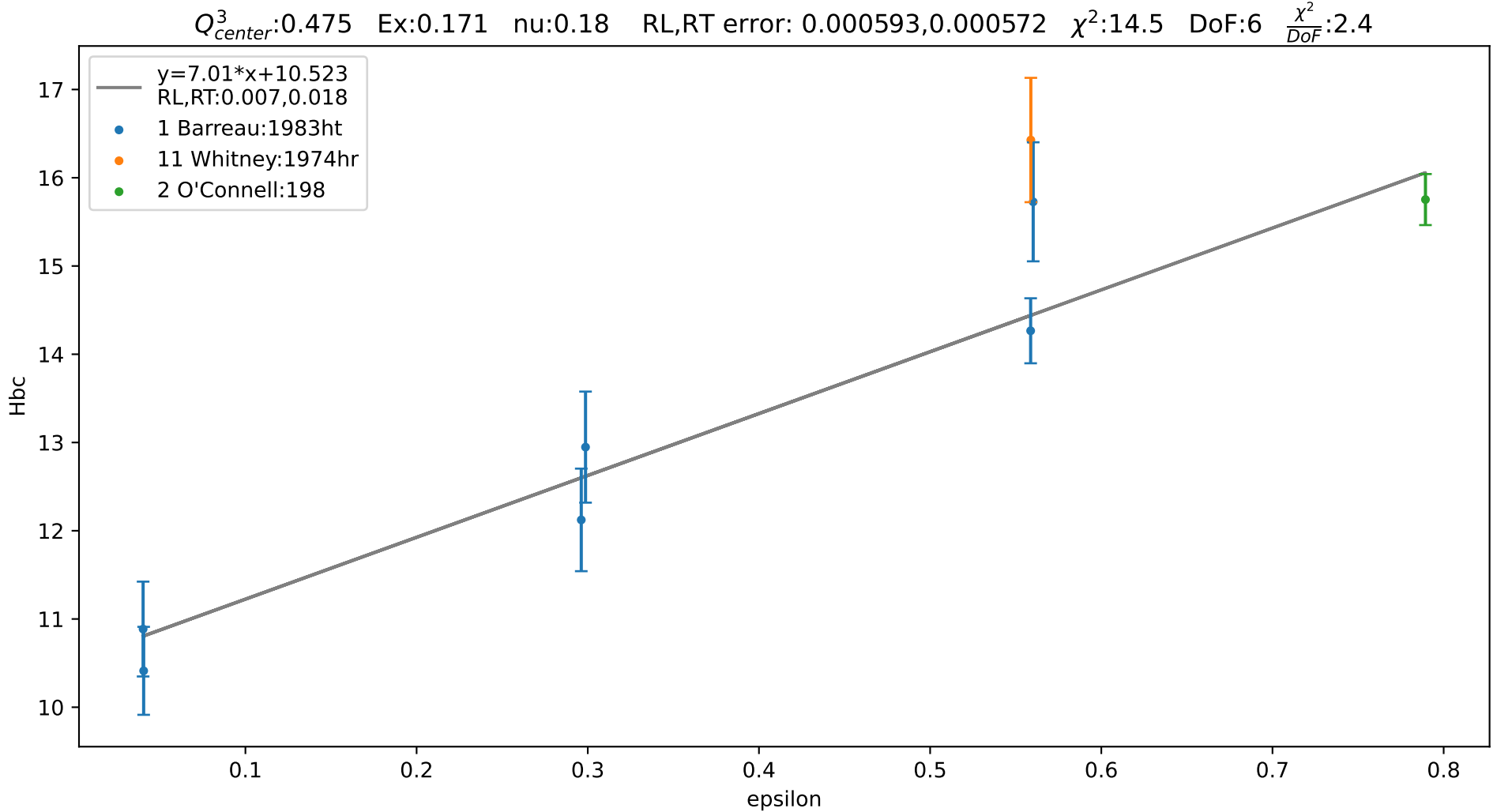
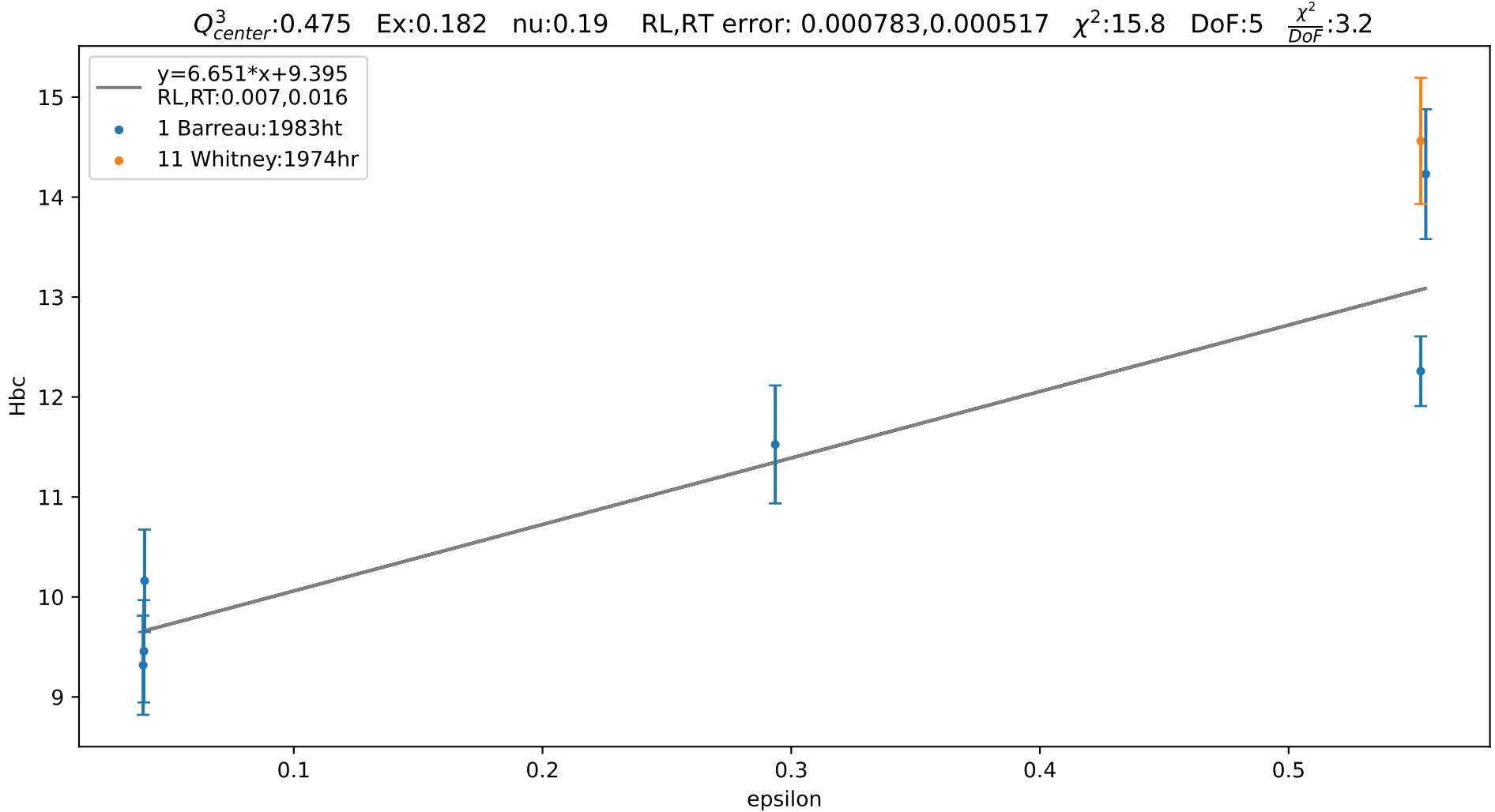
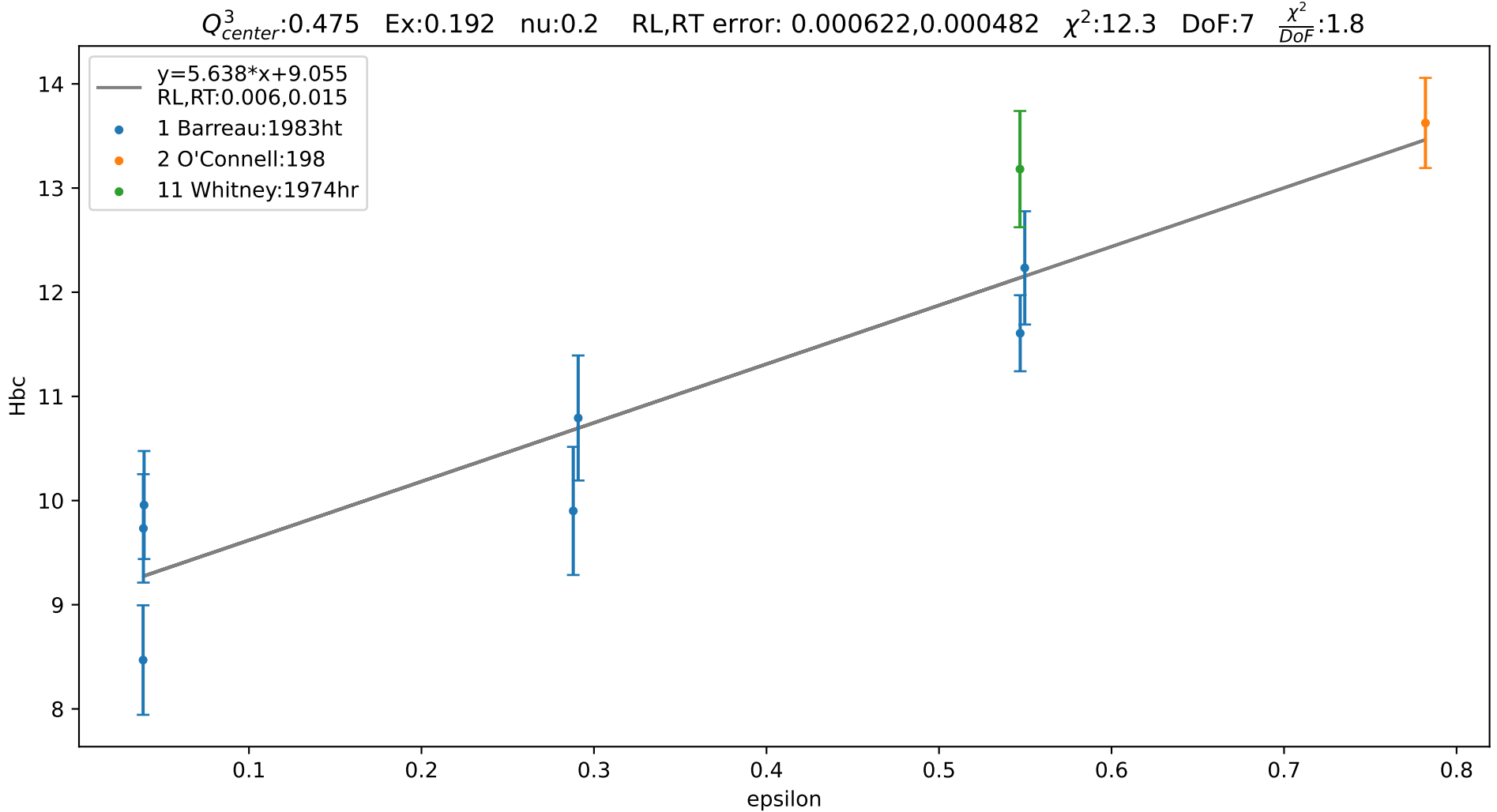
0.6
0.7
0.8

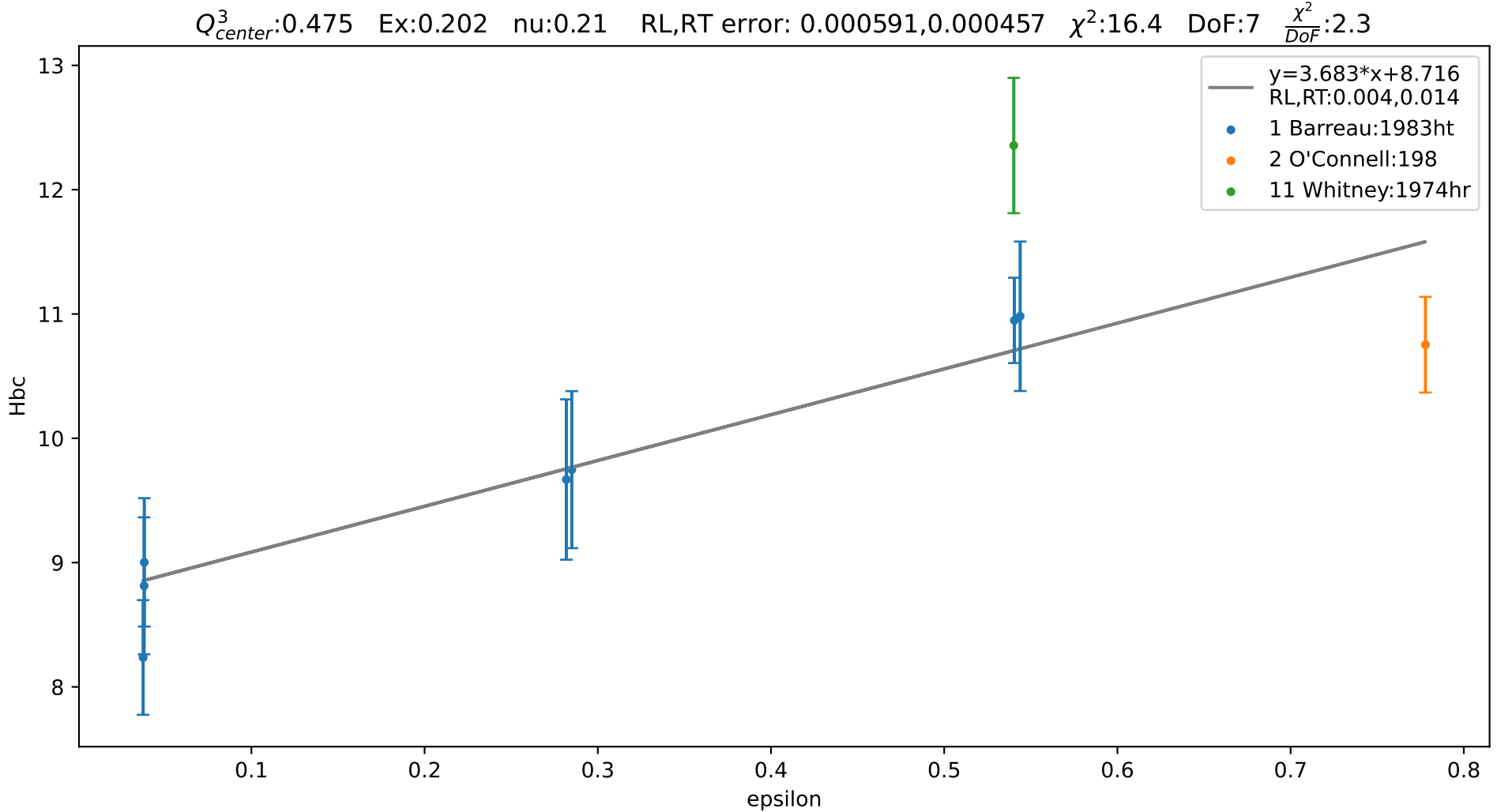

Q^3_{center}:0.475 Ex:0.151 nu:0.16 RL,RT error: 0.000807,0.000712 χ^2:8.7 DoF:6 $\frac{\chi^2}{DoF}$:1.5
y=9.097*x+12.08
RL,RT:0.009,0.021
1 Barreau:1983ht
11 Whitney:1974hr
Hbc
epsilon
20
19
18
17
16
15
14
13
12
0.1
0.2
0.3
0.4
0.5

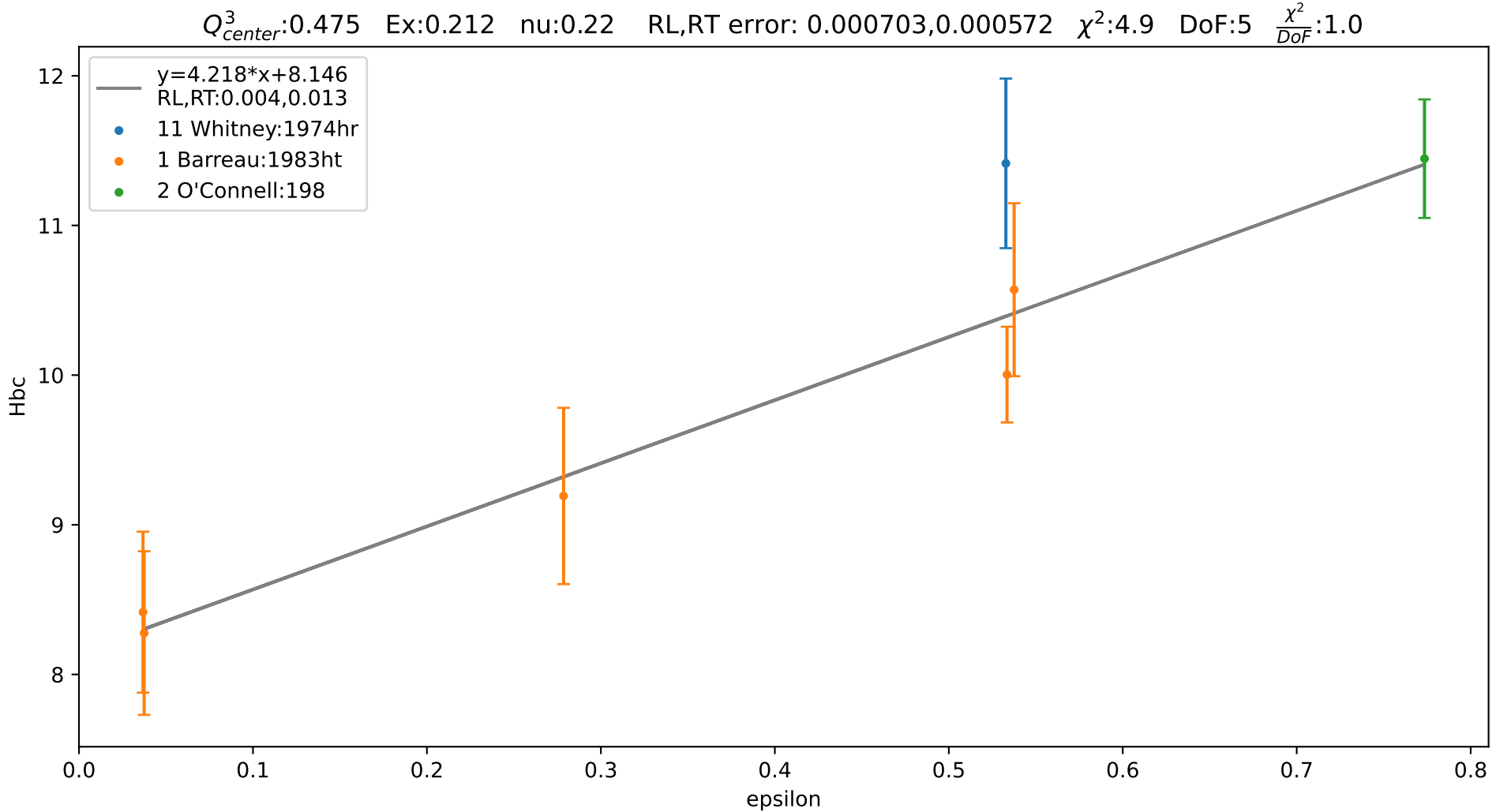

Q^3_{center}:0.475 Ex:0.161 nu:0.17 RL,RT error: 0.000579,0.000465 χ^2:8.0 DoF:8 $\frac{\chi^2}{DoF}$:1.0
y=9.157*x+11.021
RL,RT:0.009,0.019
1 Barreau:1983ht
11 Whitney:1974hr
2 O'Connell:198
Hbc
epsilon
19
18
17
16
15
14
13
12
11
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

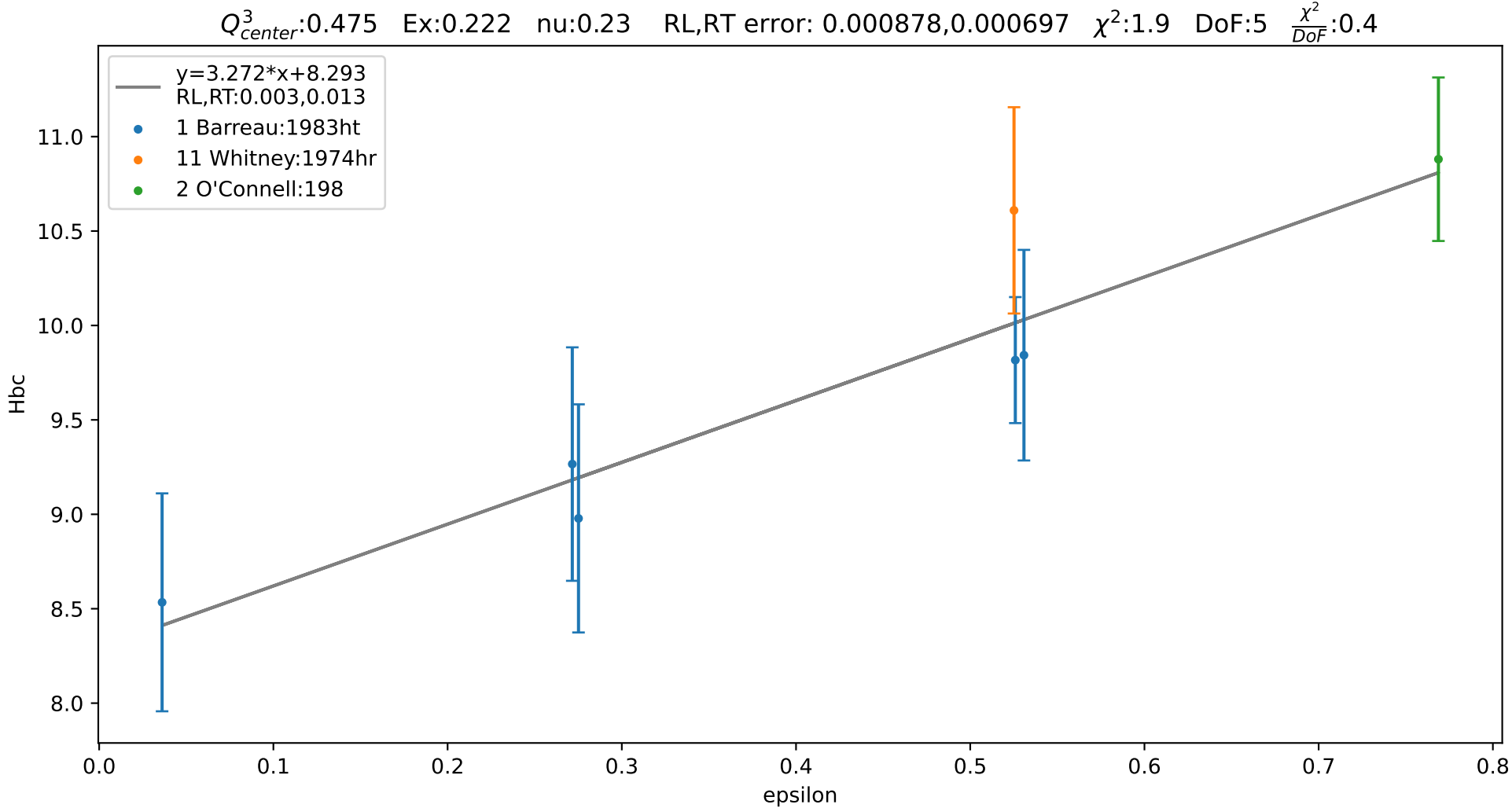

Q^3_{center}:0.475 Ex:0.171 nu:0.18 RL,RT error: 0.000593,0.000572 χ^2:14.5 DoF:6 $\frac{\chi^2}{DoF}$:2.4
y=7.01*x+10.523
RL,RT:0.007,0.018
1 Barreau:1983ht
11 Whitney:1974hr
2 O'Connell:198
Hbc
epsilon
10
11
12
13
14
15
16
17
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

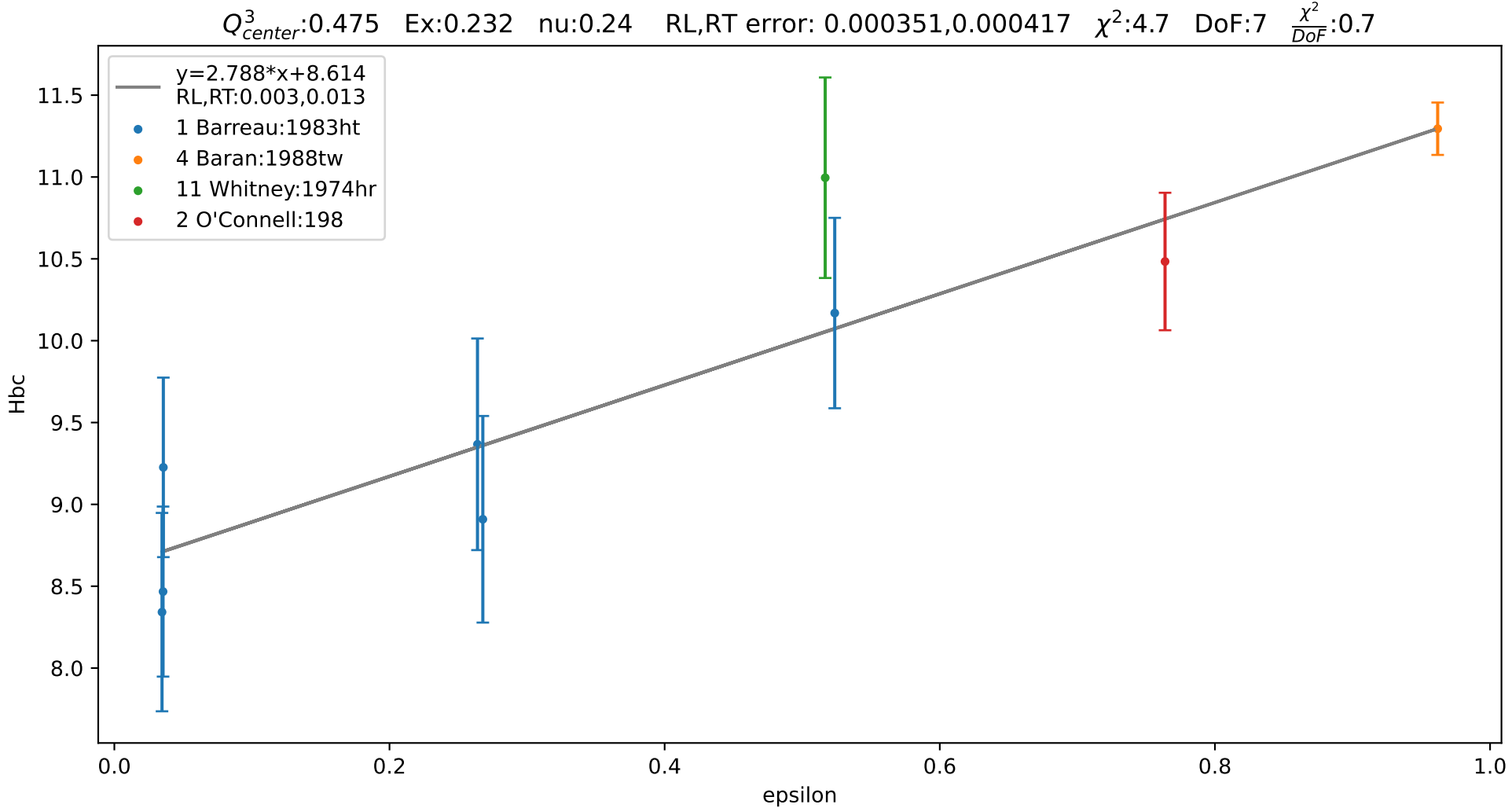

Q^3_{center}:0.475 Ex:0.182 nu:0.19 RL,RT error: 0.000783,0.000517 χ^2:15.8 DoF:5 $\frac{\chi^2}{DoF}$:3.2
y=6.651*x+9.395
RL,RT:0.007,0.016
1 Barreau:1983ht
11 Whitney:1974hr
Hbc
epsilon
9
10
11
12
13
14
15
0.1
0.2
0.3
0.4
0.5

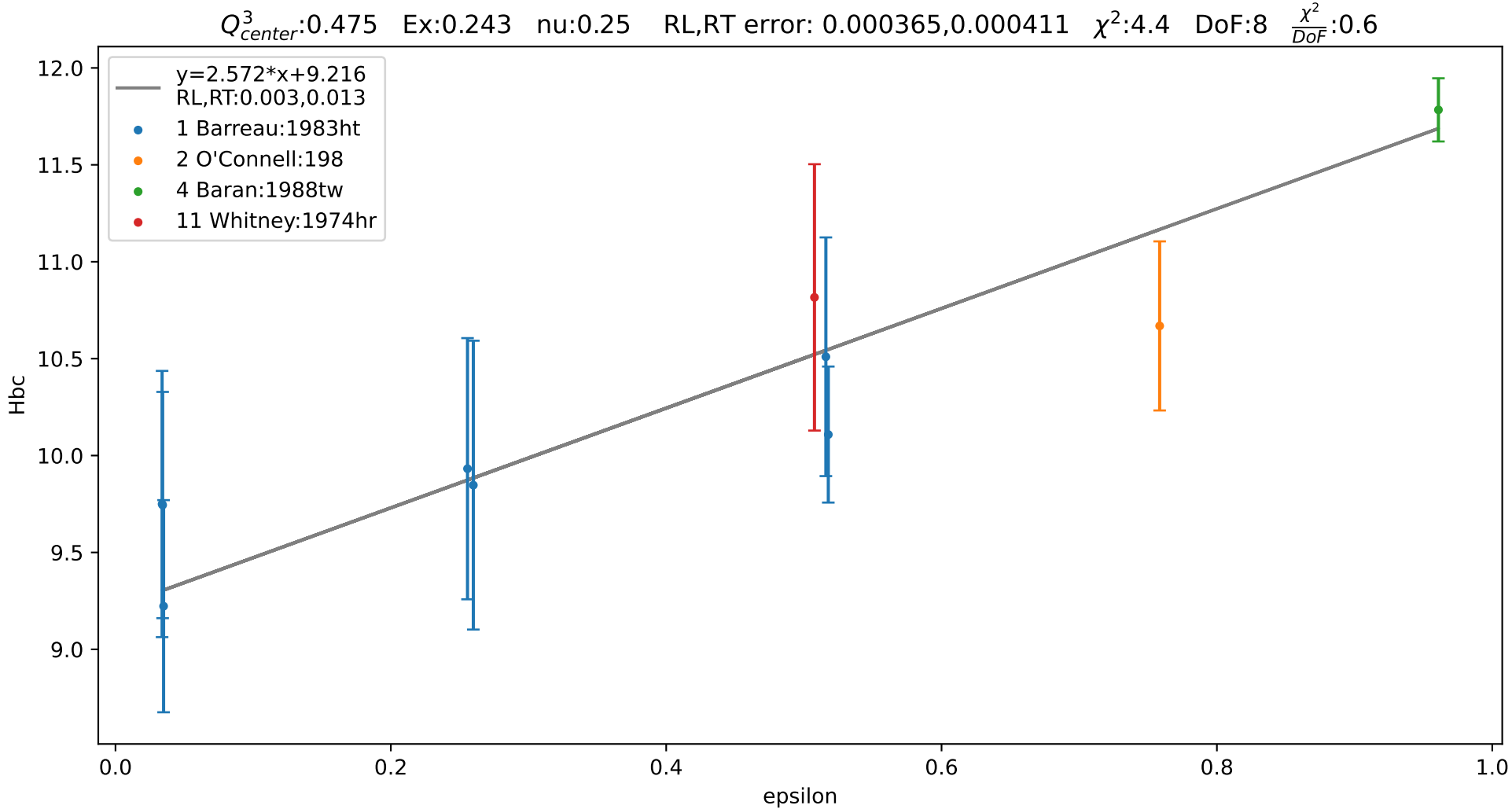

Q^3_{center}:0.475 Ex:0.192 nu:0.2 RL,RT error: 0.000622,0.000482 χ^2:12.3 DoF:7 $\frac{\chi^2}{DoF}$:1.8
y=5.638*x+9.055
RL,RT:0.006,0.015
1 Barreau:1983ht
2 O'Connell:198
11 Whitney:1974hr
Hbc
epsilon
14
13
12
11
10
9
8
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

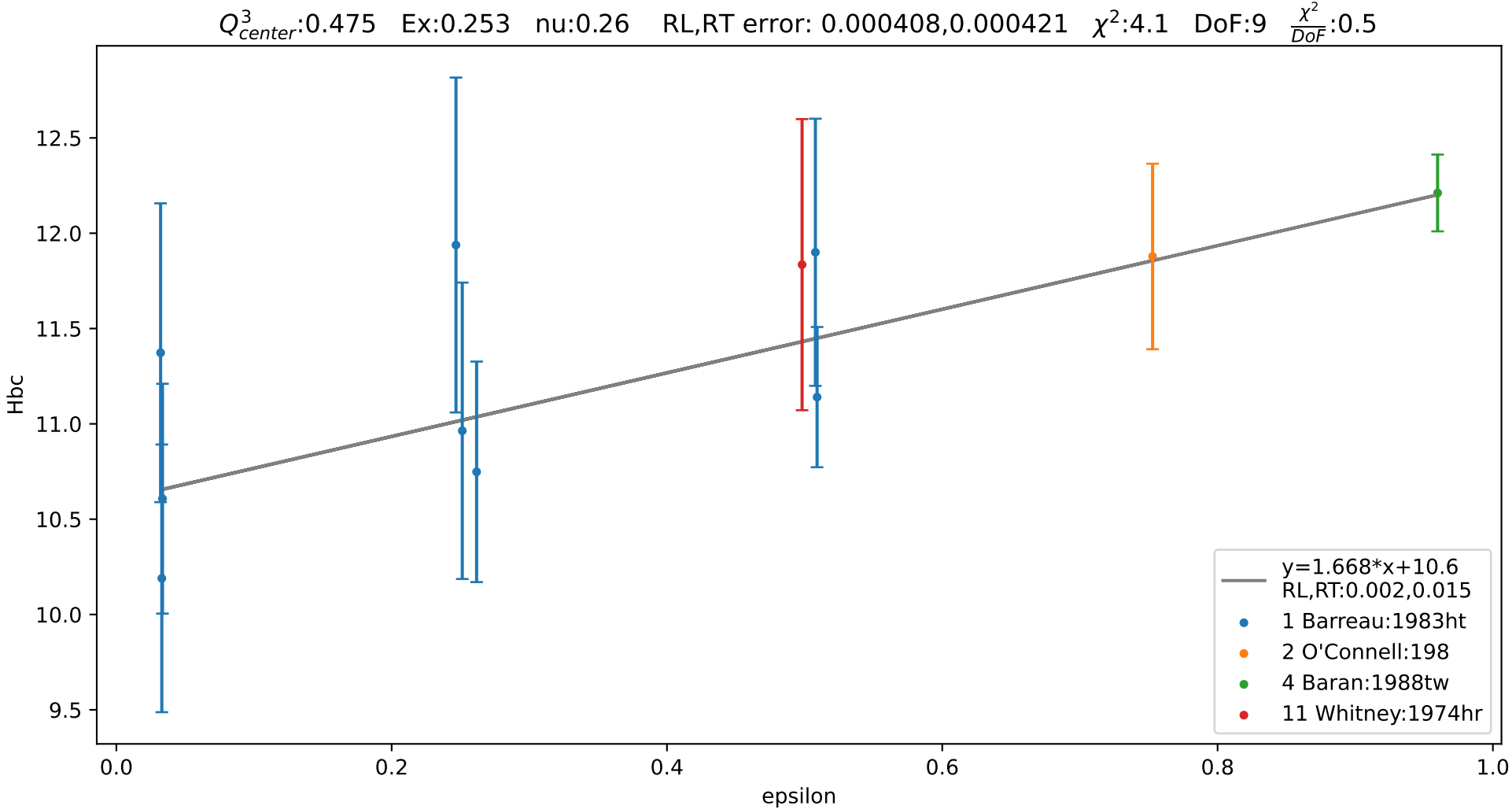

Q^3_{center}:0.475 Ex:0.202 nu:0.21 RL,RT error: 0.000591,0.000457 χ^2:16.4 DoF:7 $\frac{\chi^2}{DoF}$:2.3
y=3.683*x+8.716
RL,RT:0.004,0.014
1 Barreau:1983ht
2 O'Connell:198
11 Whitney:1974hr
Hbc
epsilon
13
12
11
10
9
8
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

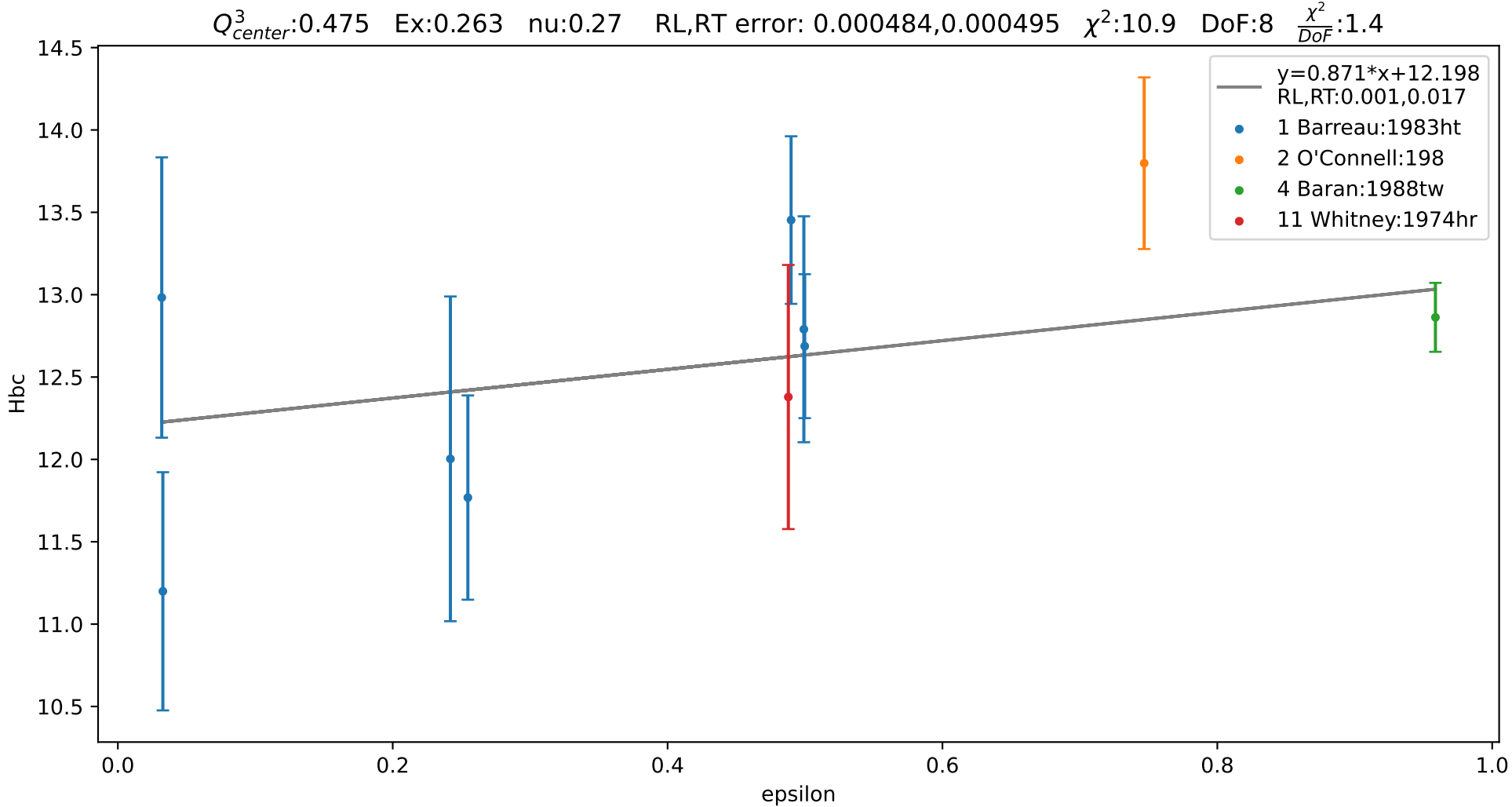

Q^3_{center}:0.475 Ex:0.212 nu:0.22 RL,RT error: 0.000703,0.000572 χ^2:4.9 DoF:5 $\frac{\chi^2}{DoF}$:1.0
y=4.218*x+8.146
RL,RT:0.004,0.013
11 Whitney:1974hr
1 Barreau:1983ht
2 O'Connell:198
Hbc
epsilon
12
11
10
9
8
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

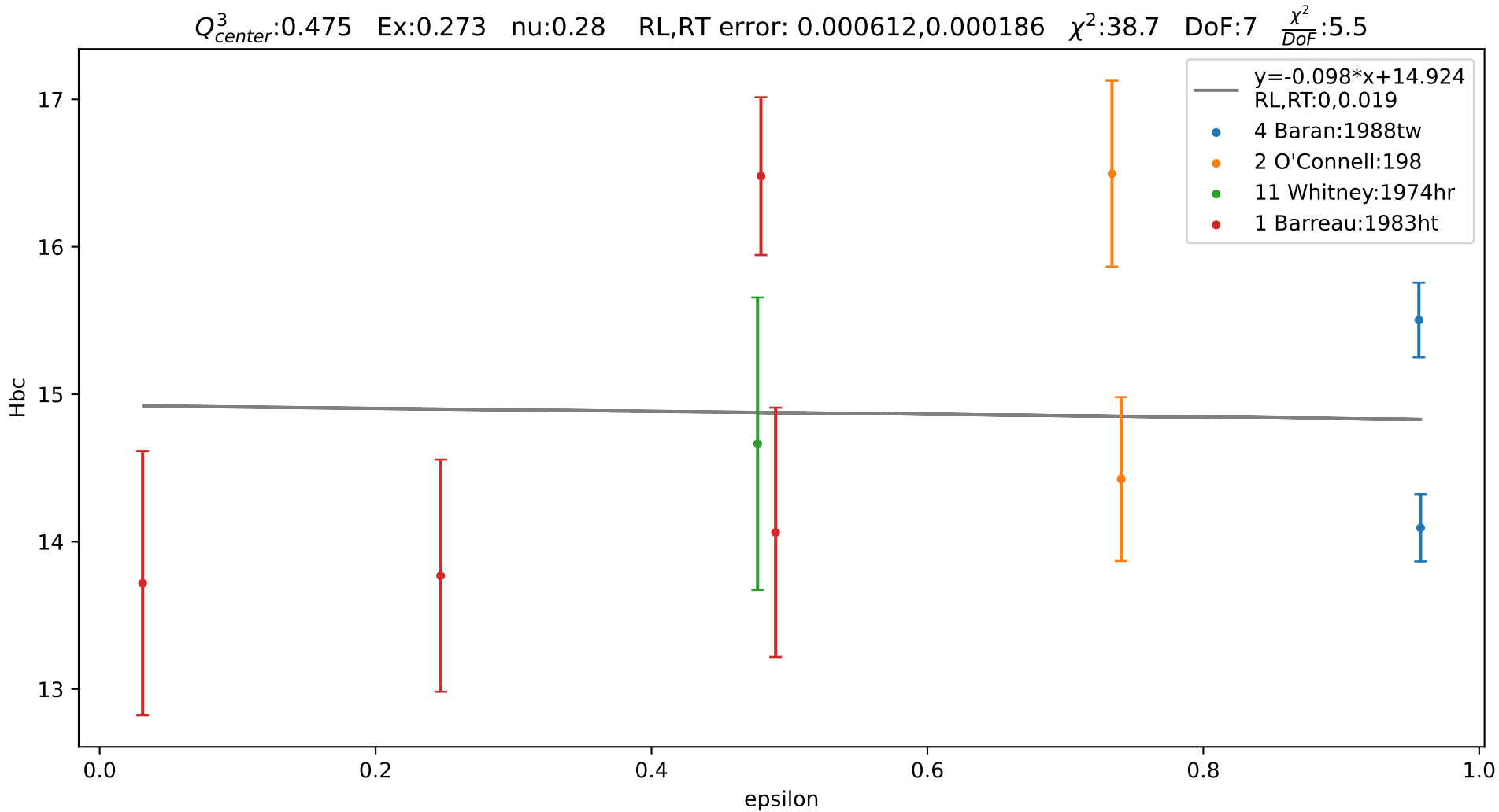

Q^3_{center}:0.475 Ex:0.222 nu:0.23 RL,RT error: 0.000878,0.000697 χ^2:1.9 DoF:5 $\frac{\chi^2}{DoF}$:0.4
y=3.272*x+8.293
RL,RT:0.003,0.013
1 Barreau:1983ht
11 Whitney:1974hr
2 O'Connell:198
Hbc
epsilon
11.0
10.5
10.0
9.5
9.0
8.5
8.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

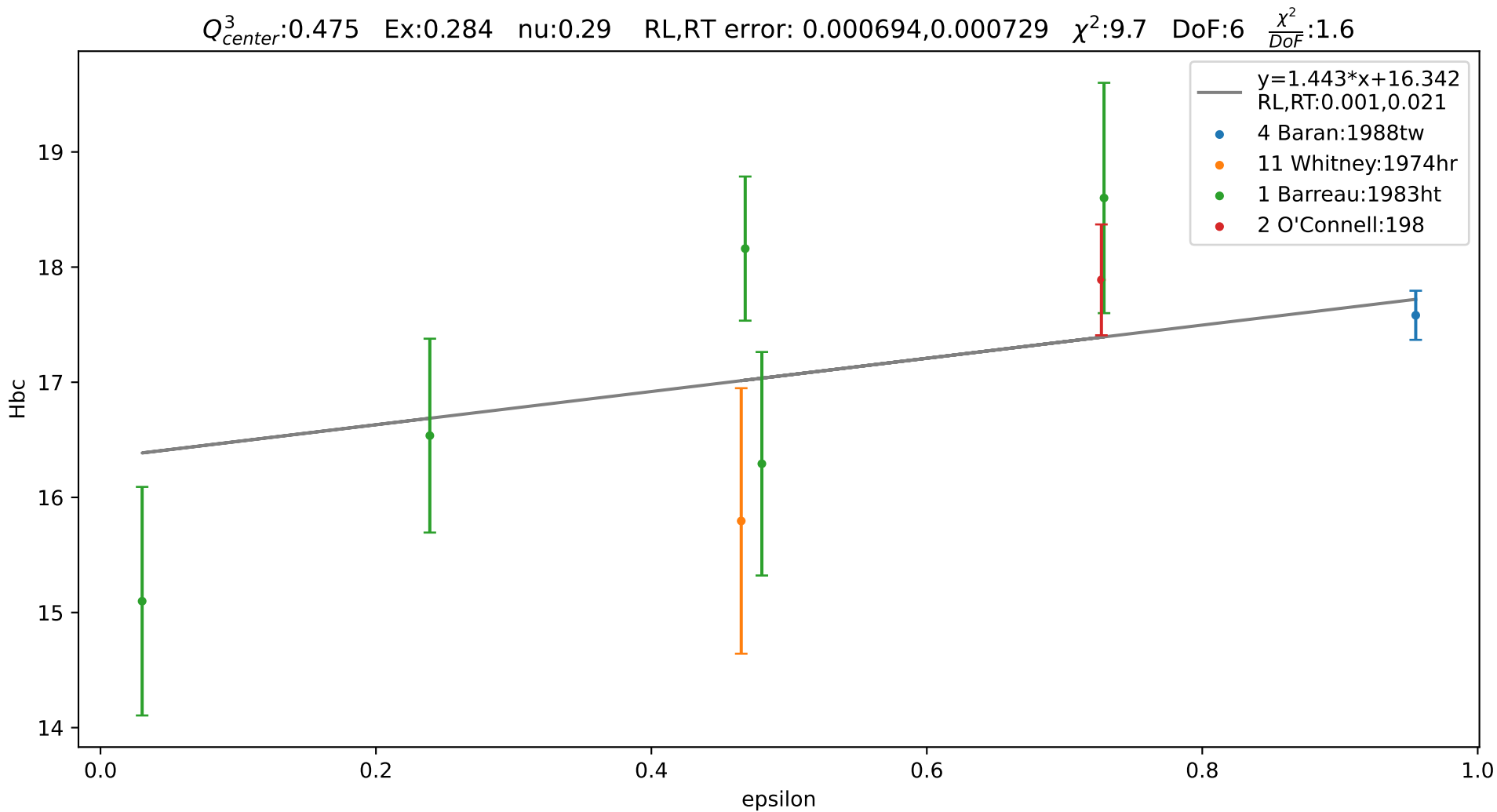

Q^3_{center}:0.475 Ex:0.232 nu:0.24 RL,RT error: 0.000351,0.000417 χ^2:4.7 DoF:7 $\frac{\chi^2}{DoF}$:0.7
y=2.788*x+8.614
RL,RT:0.003,0.013
1 Barreau:1983ht
4 Baran:1988tw
11 Whitney:1974hr
2 O'Connell:198
Hbc
epsilon
11.5
11.0
10.5
10.0
9.5
9.0
8.5
8.0
0.0
0.2
0.4
0.6
0.8
1.0

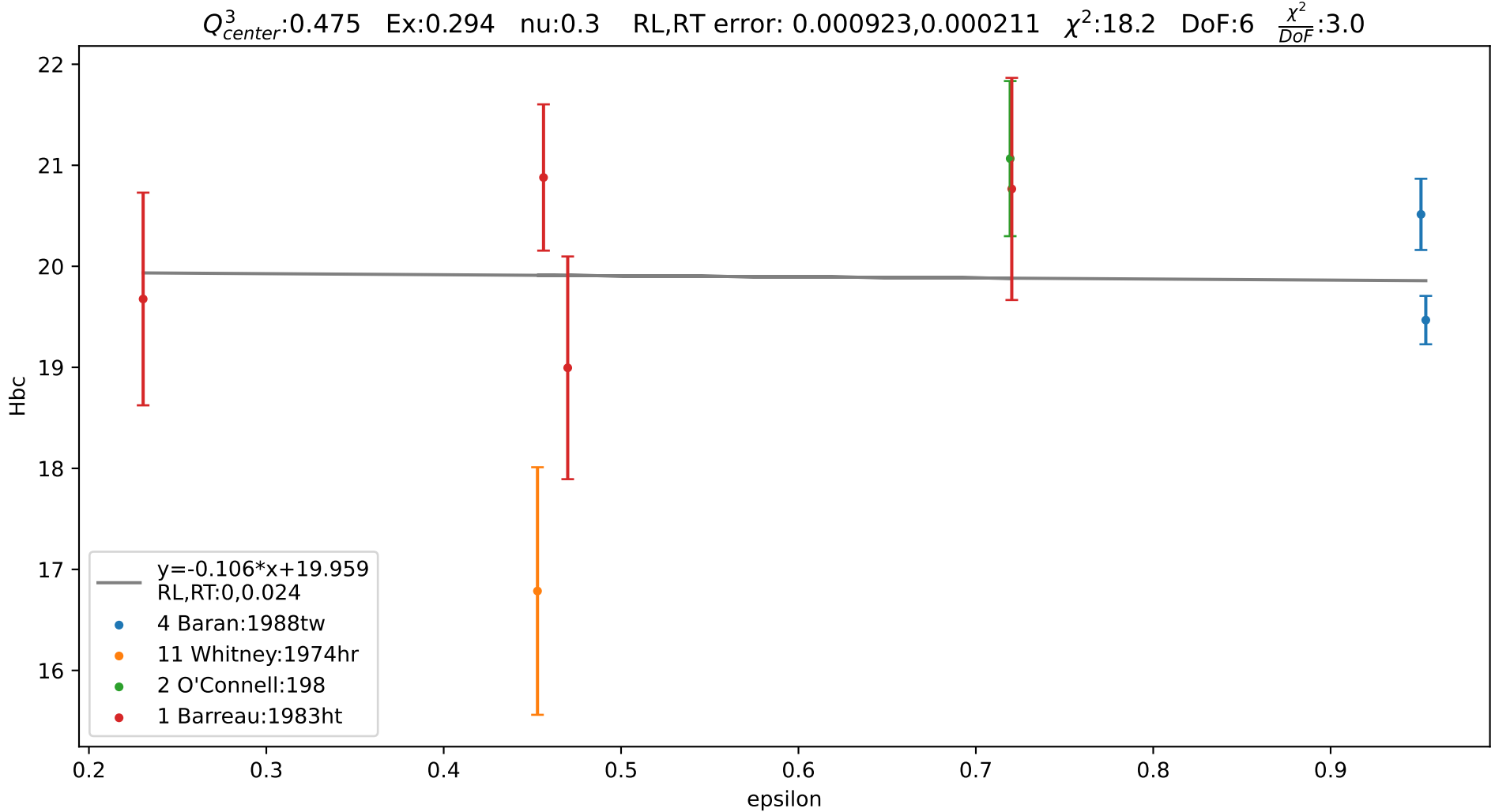

Q^3_{center}:0.475 Ex:0.243 nu:0.25 RL,RT error: 0.000365,0.000411 χ^2:4.4 DoF:8 $\frac{\chi^2}{DoF}$:0.6
y=2.572*x+9.216
RL,RT:0.003,0.013
1 Barreau:1983ht
2 O'Connell:198
4 Baran:1988tw
11 Whitney:1974hr
Hbc
epsilon
12.0
11.5
11.0
10.5
10.0
9.5
9.0
0.0
0.2
0.4
0.6
0.8
1.0

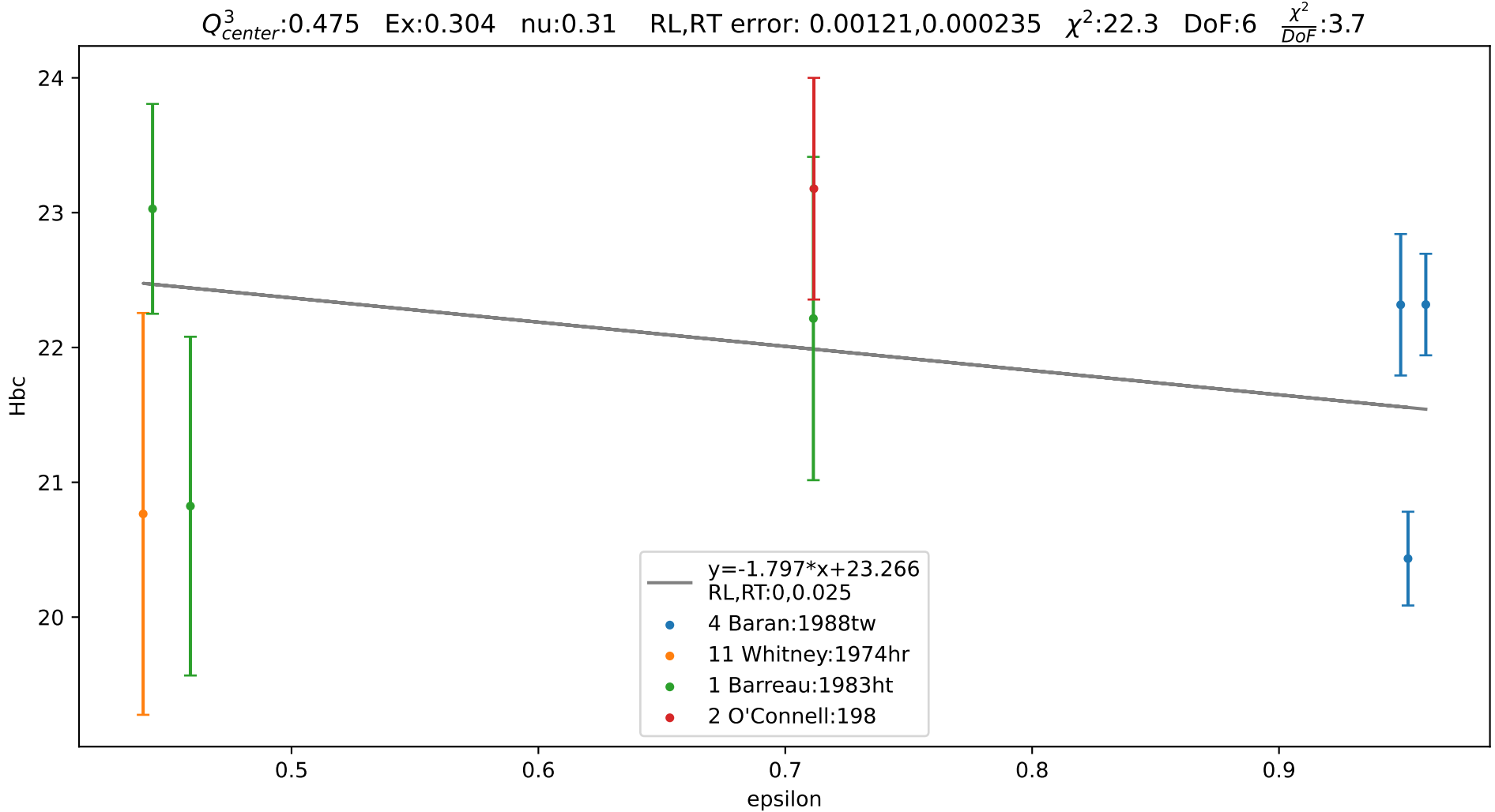

Q^3_{center}:0.475 Ex:0.253 nu:0.26 RL,RT error: 0.000408,0.000421 χ^2:4.1 DoF:9 $\frac{\chi^2}{DoF}$:0.5
Hbc
epsilon
y=1.668*x+10.6
RL,RT:0.002,0.015
1 Barreau:1983ht
2 O'Connell:198
4 Baran:1988tw
11 Whitney:1974hr

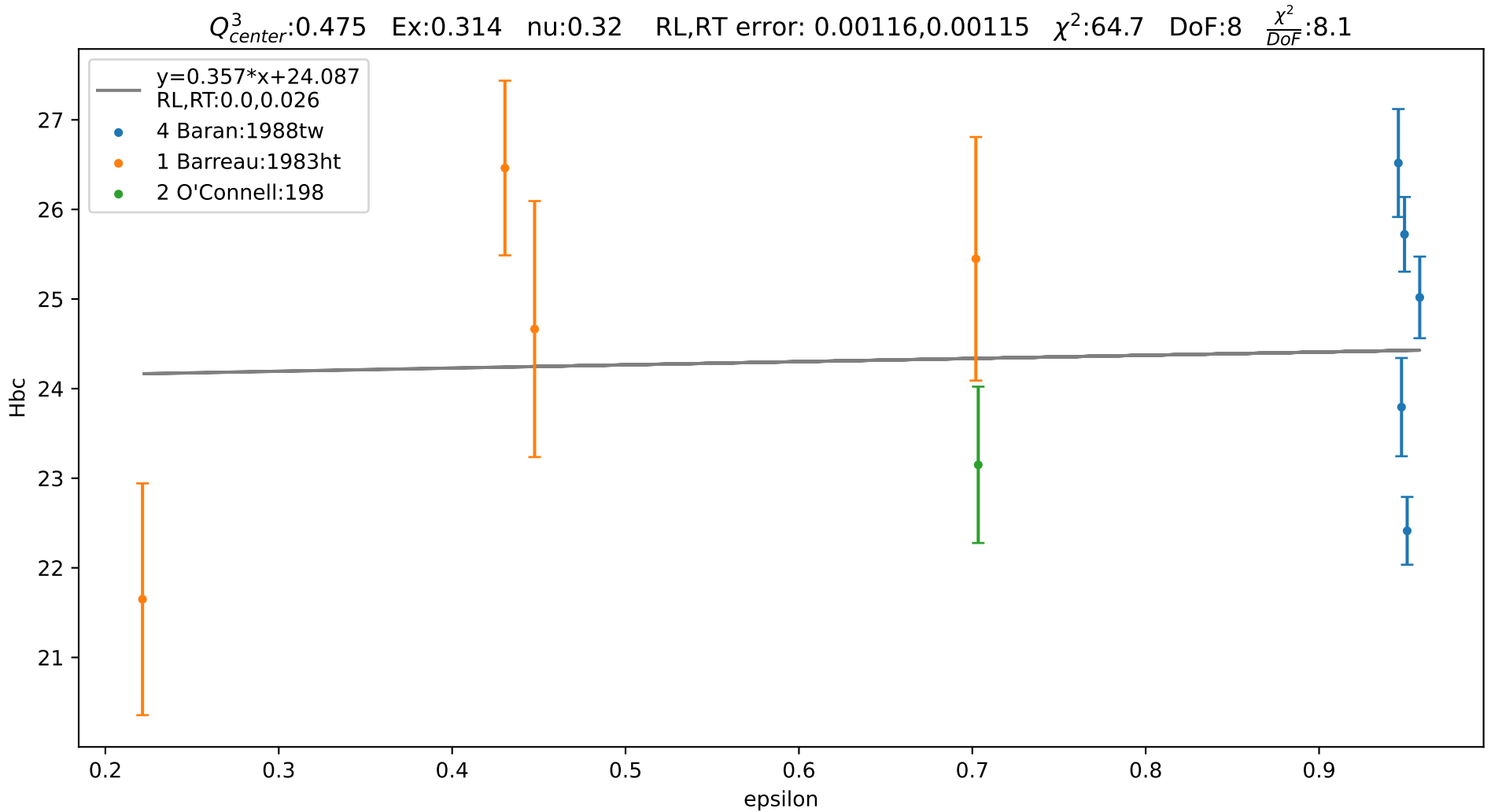

Q^3_{center}:0.475 Ex:0.263 nu:0.27 RL,RT error: 0.000484,0.000495 χ^2:10.9 DoF:8 $\frac{\chi^2}{DoF}$:1.4
y=0.871*x+12.198
RL,RT:0.001,0.017
1 Barreau:1983ht
2 O'Connell:198
4 Baran:1988tw
11 Whitney:1974hr
Hbc
epsilon
14.5
14.0
13.5
13.0
12.5
12.0
11.5
11.0
10.5
0.0
0.2
0.4
0.6
0.8
1.0

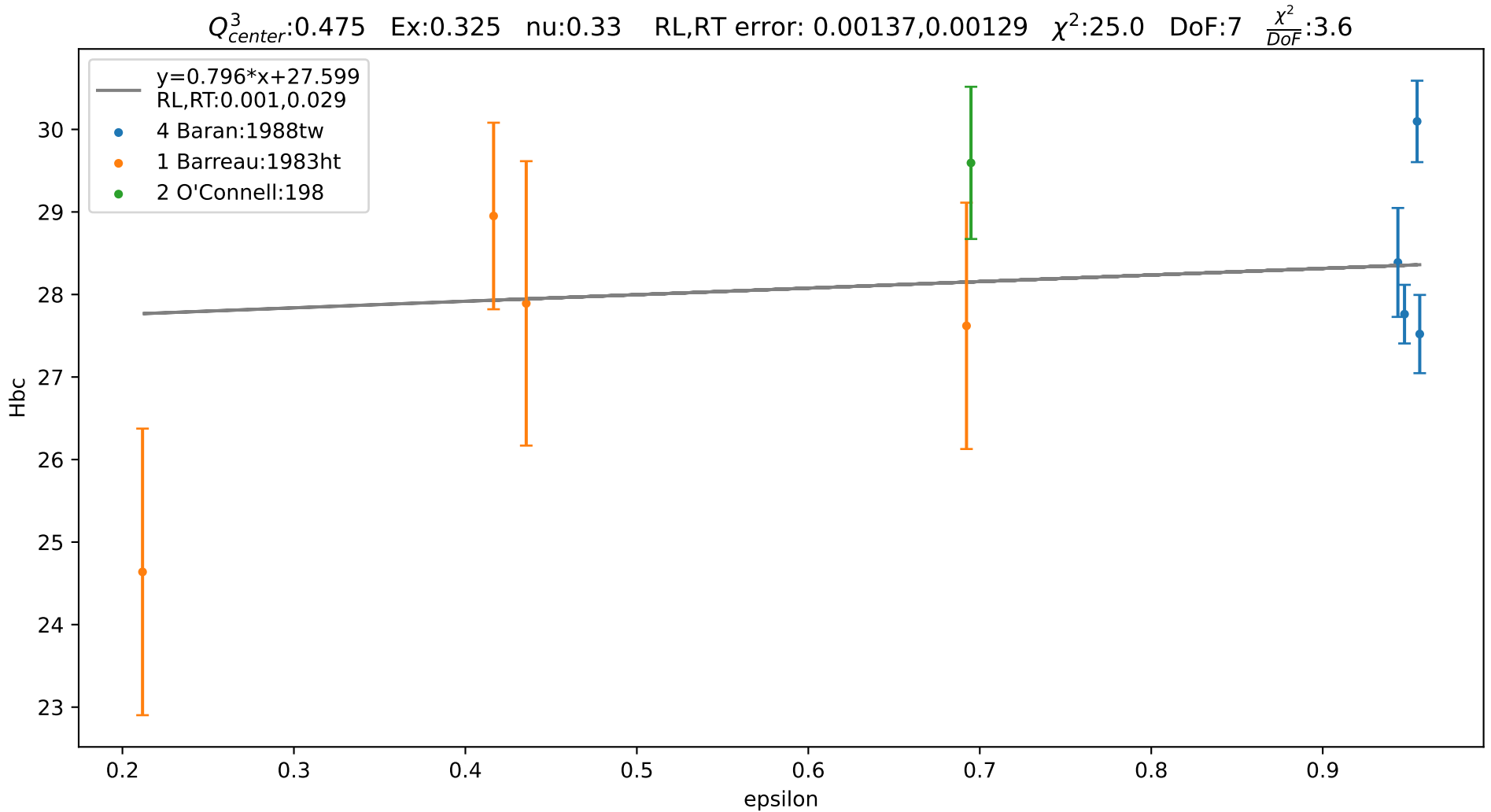

Q^3_{center}:0.475 Ex:0.273 nu:0.28 RL,RT error: 0.000612,0.000186 χ^2:38.7 DoF:7 $\frac{\chi^2}{DoF}$:5.5
y=-0.098*x+14.924
RL,RT:0,0.019
4 Baran:1988tw
2 O'Connell:198
11 Whitney:1974hr
1 Barreau:1983ht
Hbc
epsilon
17
16
15
14
13
0.0
0.2
0.4
0.6
0.8
1.0

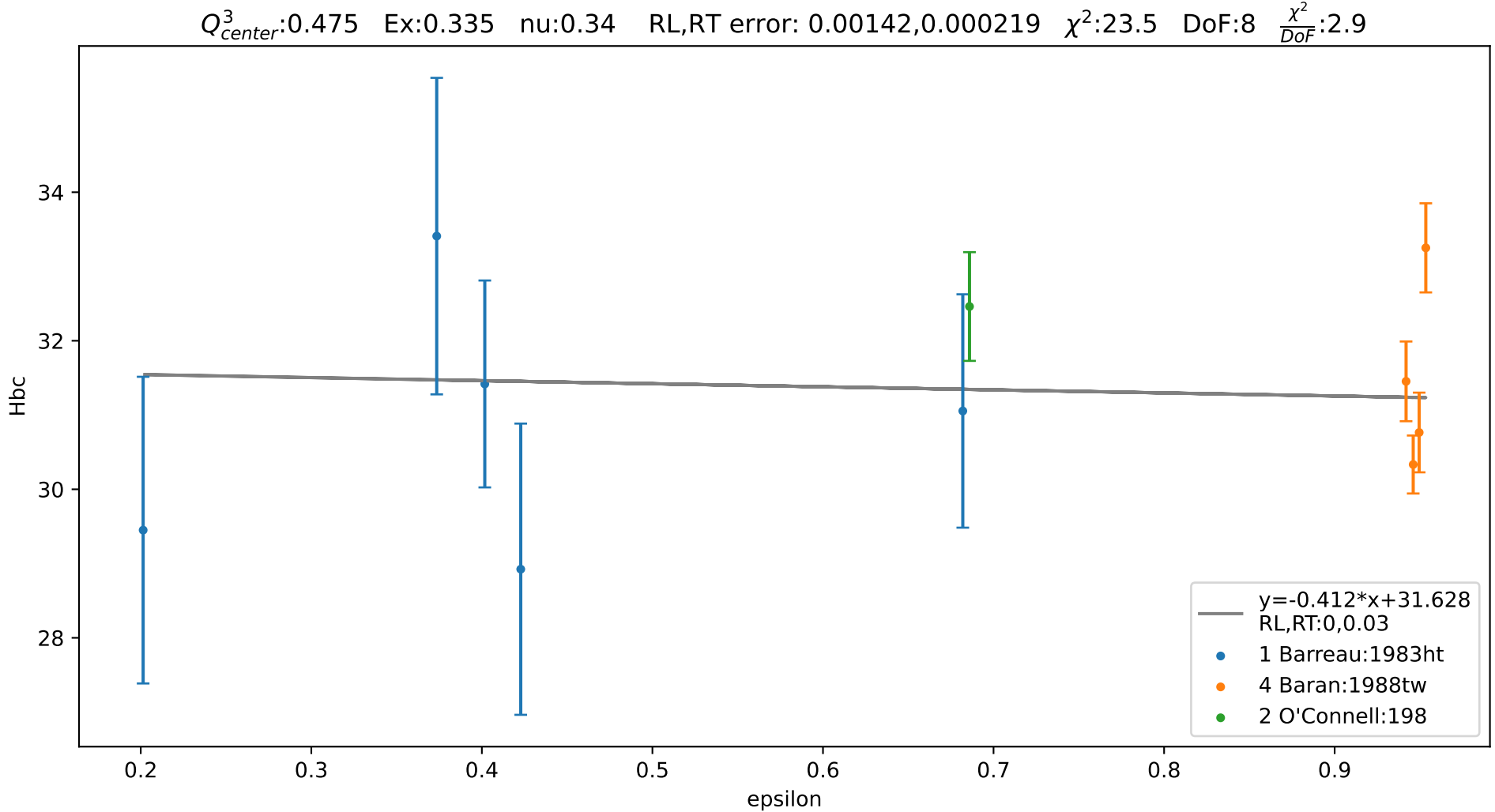

Q^3_{center}:0.475 Ex:0.284 nu:0.29 RL,RT error: 0.000694,0.000729 χ^2:9.7 DoF:6 $\frac{\chi^2}{DoF}$:1.6
y=1.443*x+16.342
RL,RT:0.001,0.021
4 Baran:1988tw
11 Whitney:1974hr
1 Barreau:1983ht
2 O'Connell:198
Hbc
epsilon
14
15
16
17
18
19
0.0
0.2
0.4
0.6
0.8
1.0

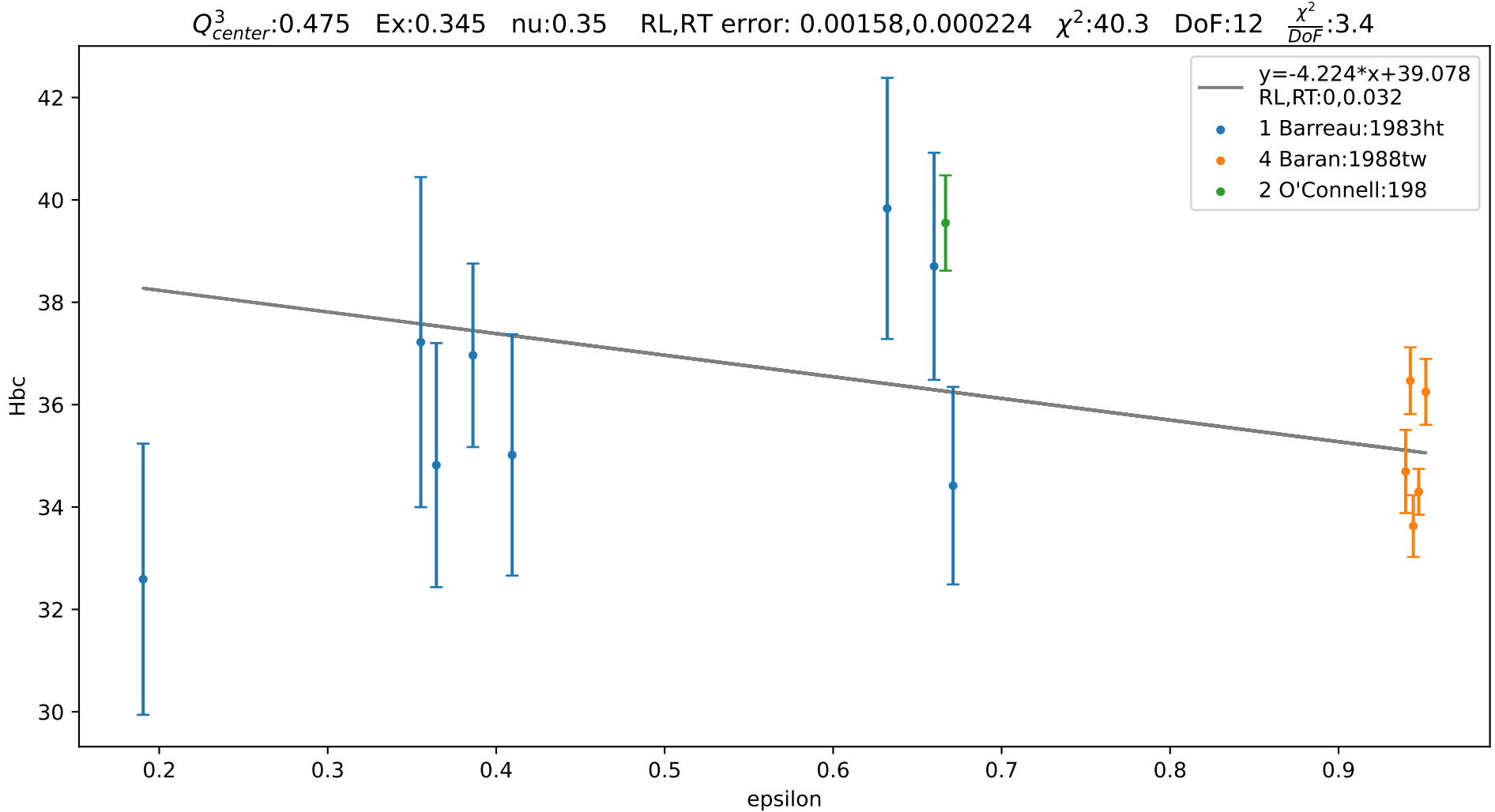

Q^3_{center}:0.475 Ex:0.294 nu:0.3 RL,RT error: 0.000923,0.000211 χ^2:18.2 DoF:6 $\frac{\chi^2}{DoF}$:3.0
Hbc
epsilon
22
21
20
19
18
17
16
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
y=-0.106*x+19.959
RL,RT:0,0.024
4 Baran:1988tw
11 Whitney:1974hr
2 O'Connell:198
1 Barreau:1983ht

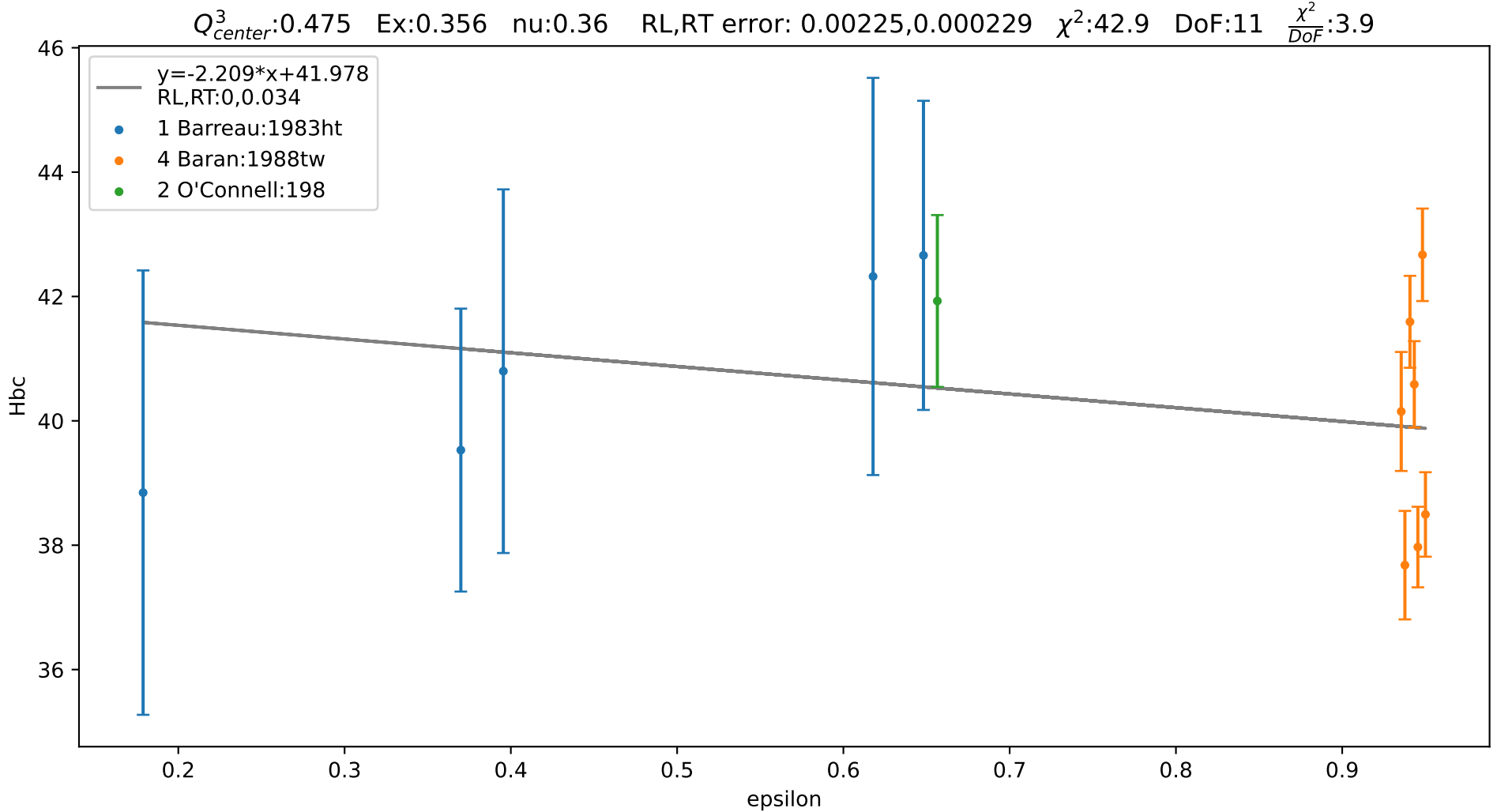

Q^3_{center}:0.475 Ex:0.304 nu:0.31 RL,RT error: 0.00121,0.000235 χ^2:22.3 DoF:6 $\frac{\chi^2}{DoF}$:3.7
Hbc
epsilon
y=-1.797*x+23.266
RL,RT:0,0.025
4 Baran:1988tw
11 Whitney:1974hr
1 Barreau:1983ht
2 O'Connell:198

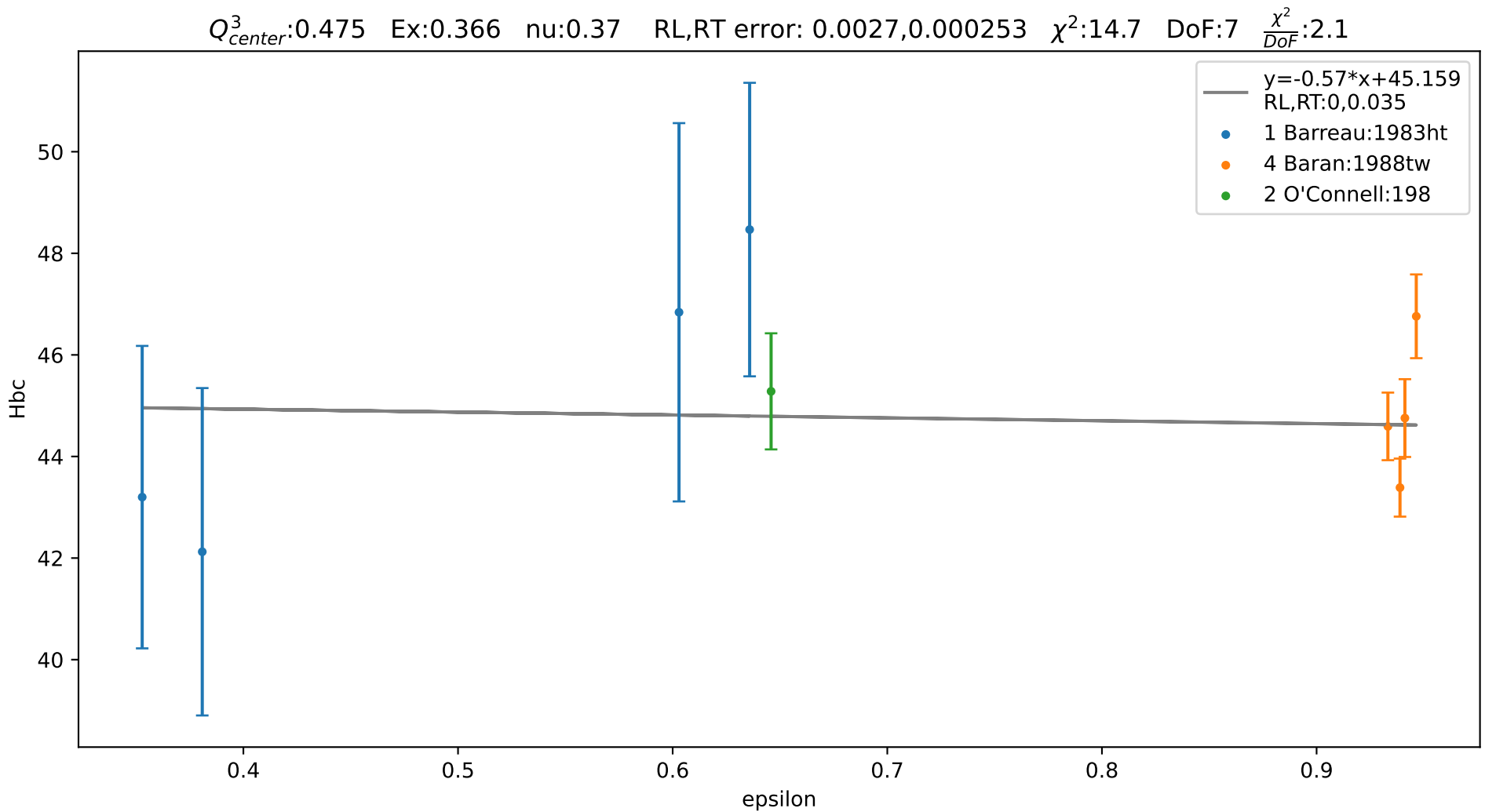

Q^3_{center}:0.475 Ex:0.314 nu:0.32 RL,RT error: 0.00116,0.00115 χ^2:64.7 DoF:8 $\frac{\chi^2}{DoF}$:8.1
y=0.357*x+24.087
RL,RT:0.0,0.026
4 Baran:1988tw
1 Barreau:1983ht
2 O'Connell:198
Hbc
epsilon
27
26
25
24
23
22
21
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9

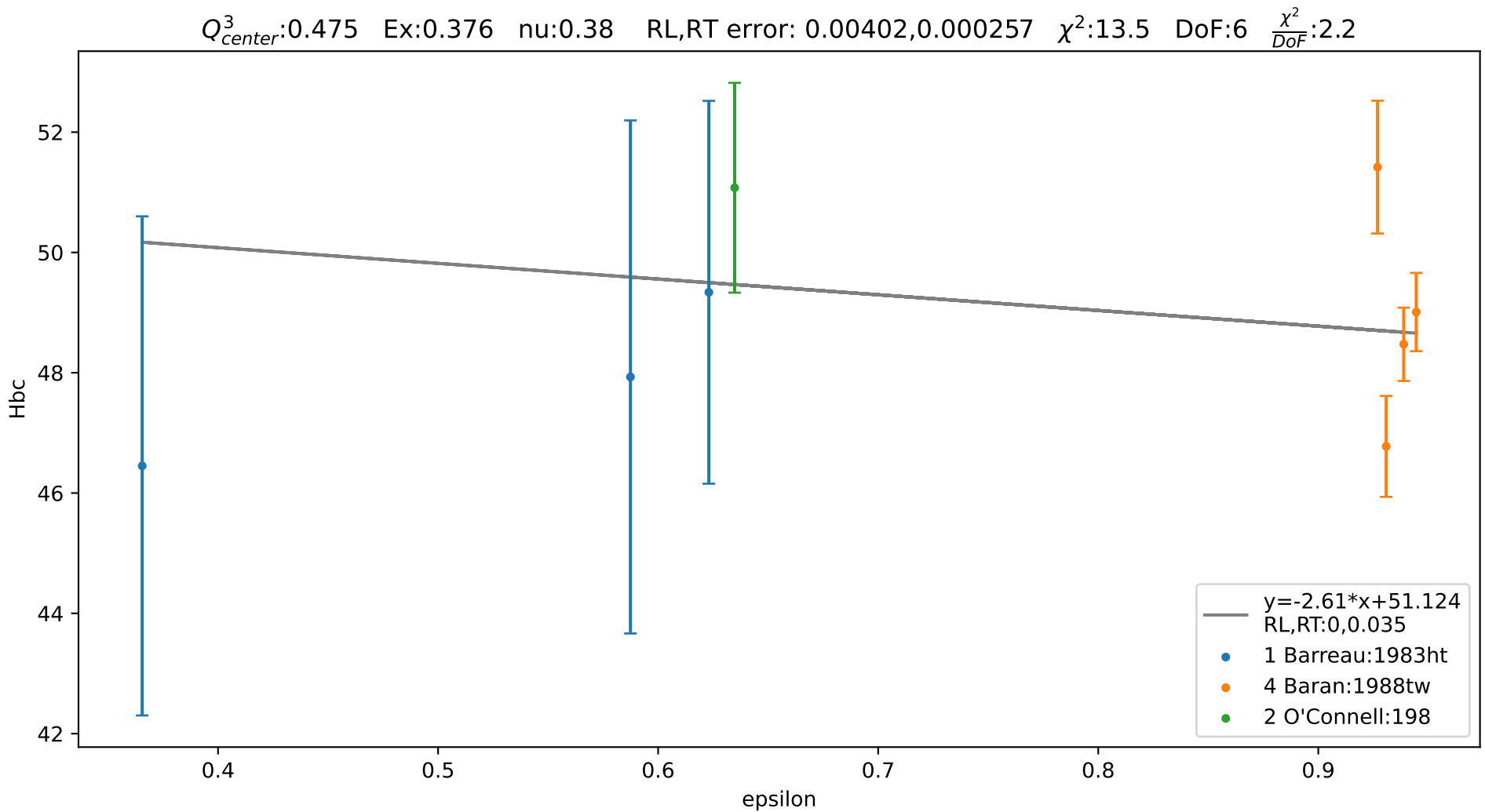

Q^3_{center}:0.475 Ex:0.325 nu:0.33 RL,RT error: 0.00137,0.00129 χ^2:25.0 DoF:7 $\frac{\chi^2}{DoF}$:3.6
y=0.796*x+27.599
RL,RT:0.001,0.029
4 Baran:1988tw
1 Barreau:1983ht
2 O'Connell:198
Hbc
epsilon
23
24
25
26
27
28
29
30
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9

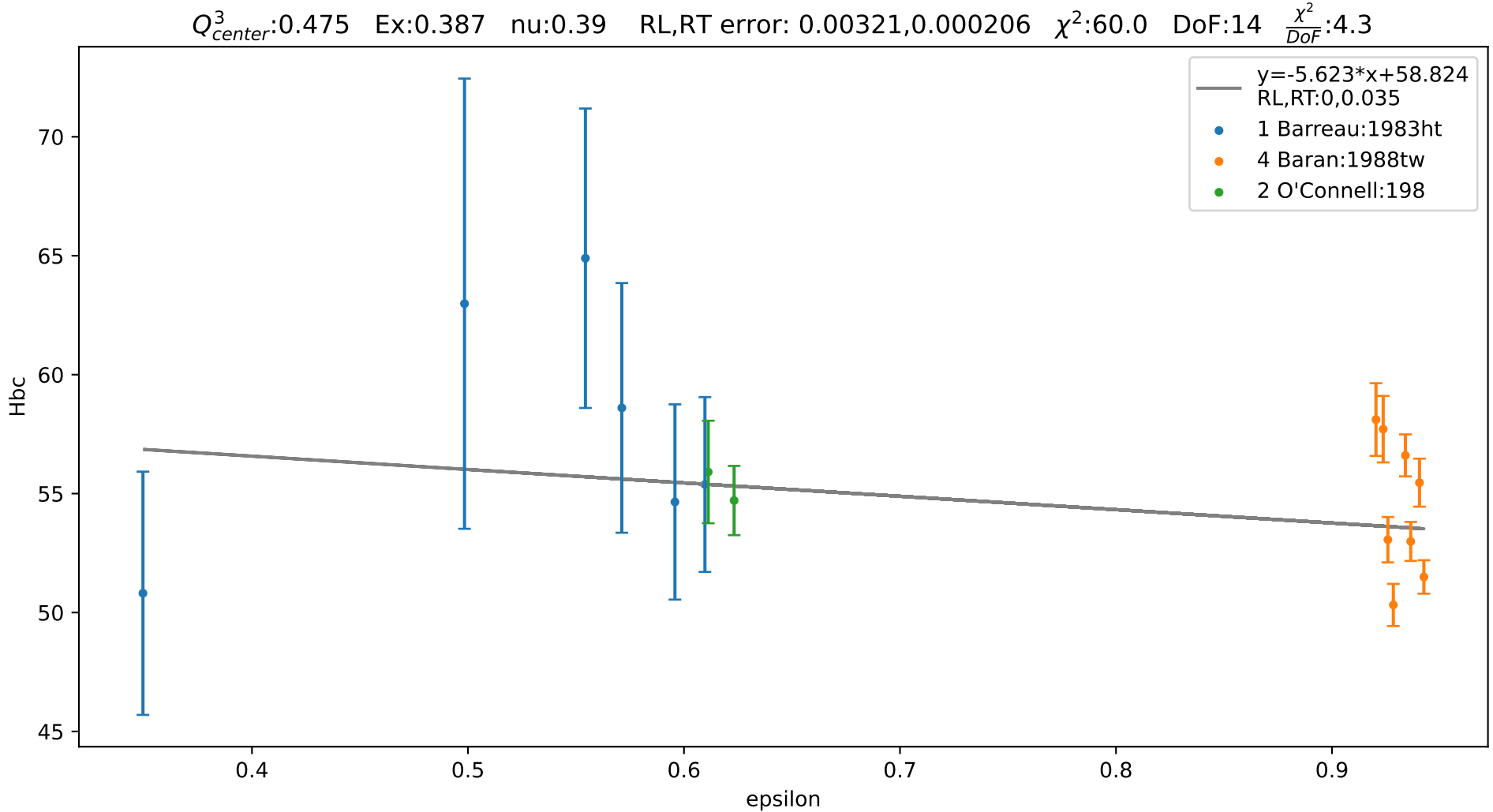

Q^3_{center}:0.475 Ex:0.335 nu:0.34 RL,RT error: 0.00142,0.000219 χ^2:23.5 DoF:8 $\frac{\chi^2}{DoF}$:2.9
Hbc
epsilon
34
32
30
28
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
y=-0.412*x+31.628
RL,RT:0,0.03
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198

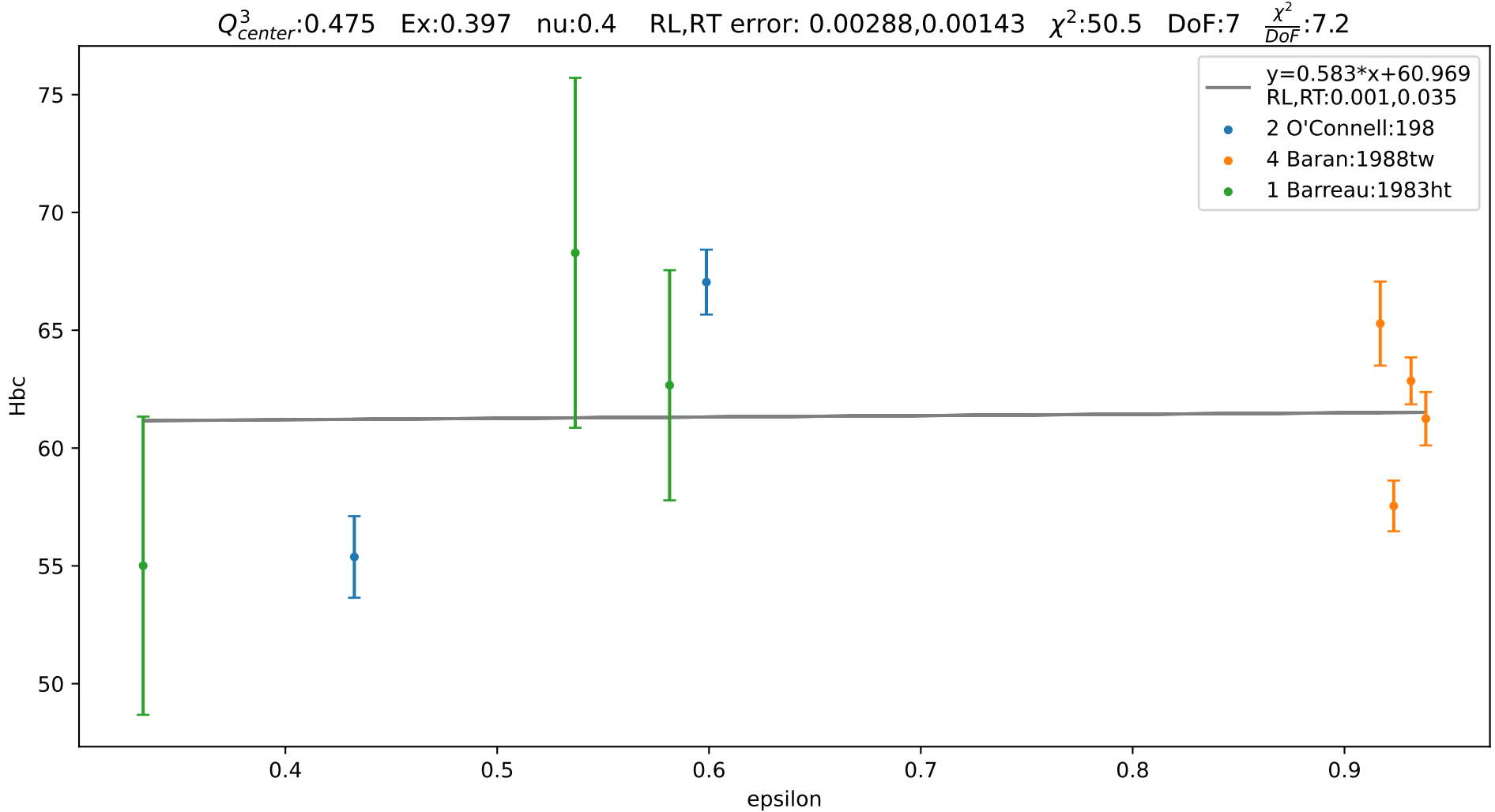

Q^3_{center}:0.475 Ex:0.345 nu:0.35 RL,RT error: 0.00158,0.000224 χ^2:40.3 DoF:12 $\frac{\chi^2}{DoF}$:3.4
y=-4.224*x+39.078
RL,RT:0,0.032
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
42
40
38
36
34
32
30
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9

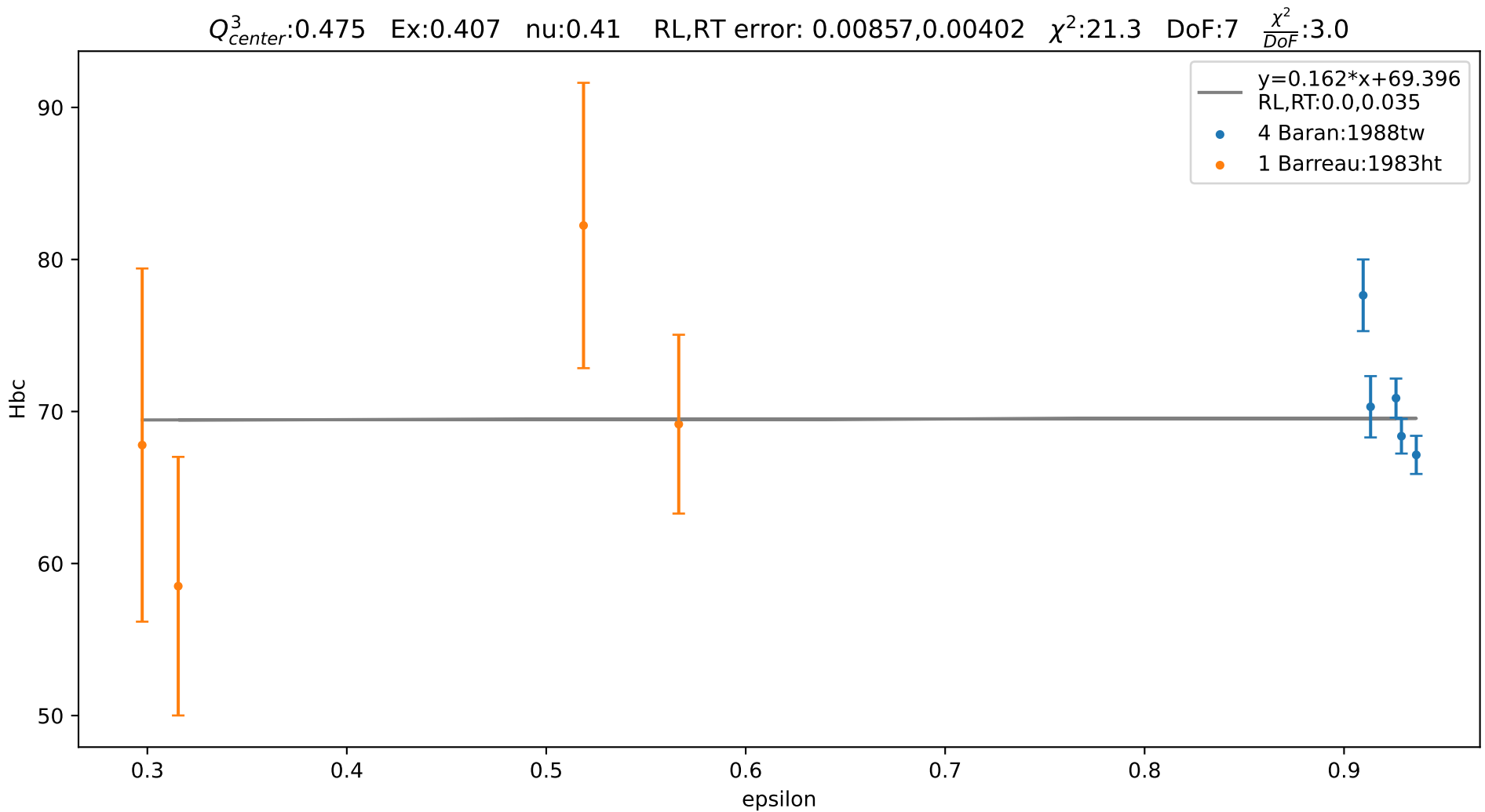

Q^3_{center}:0.475 Ex:0.356 nu:0.36 RL,RT error: 0.00225,0.000229 χ^2:42.9 DoF:11 $\frac{\chi^2}{DoF}$:3.9
y=-2.209*x+41.978
RL,RT:0,0.034
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
46
44
42
40
38
36
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9

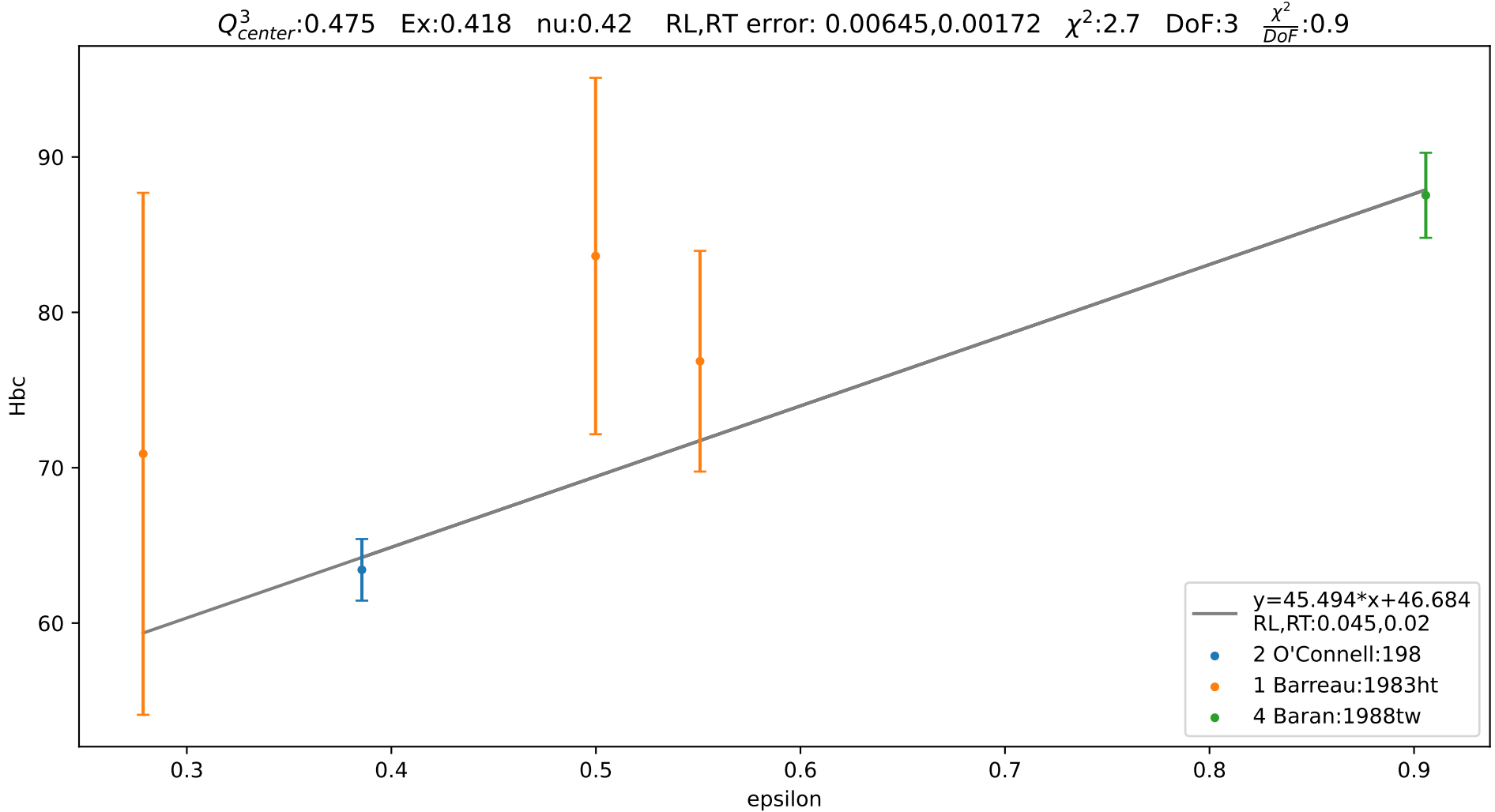

Q^3_{center}:0.475 Ex:0.366 nu:0.37 RL,RT error: 0.0027,0.000253 χ^2:14.7 DoF:7 $\frac{\chi^2}{DoF}$:2.1
y=-0.57*x+45.159
RL,RT:0,0.035
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
50
48
46
44
42
40
0.4
0.5
0.6
0.7
0.8
0.9

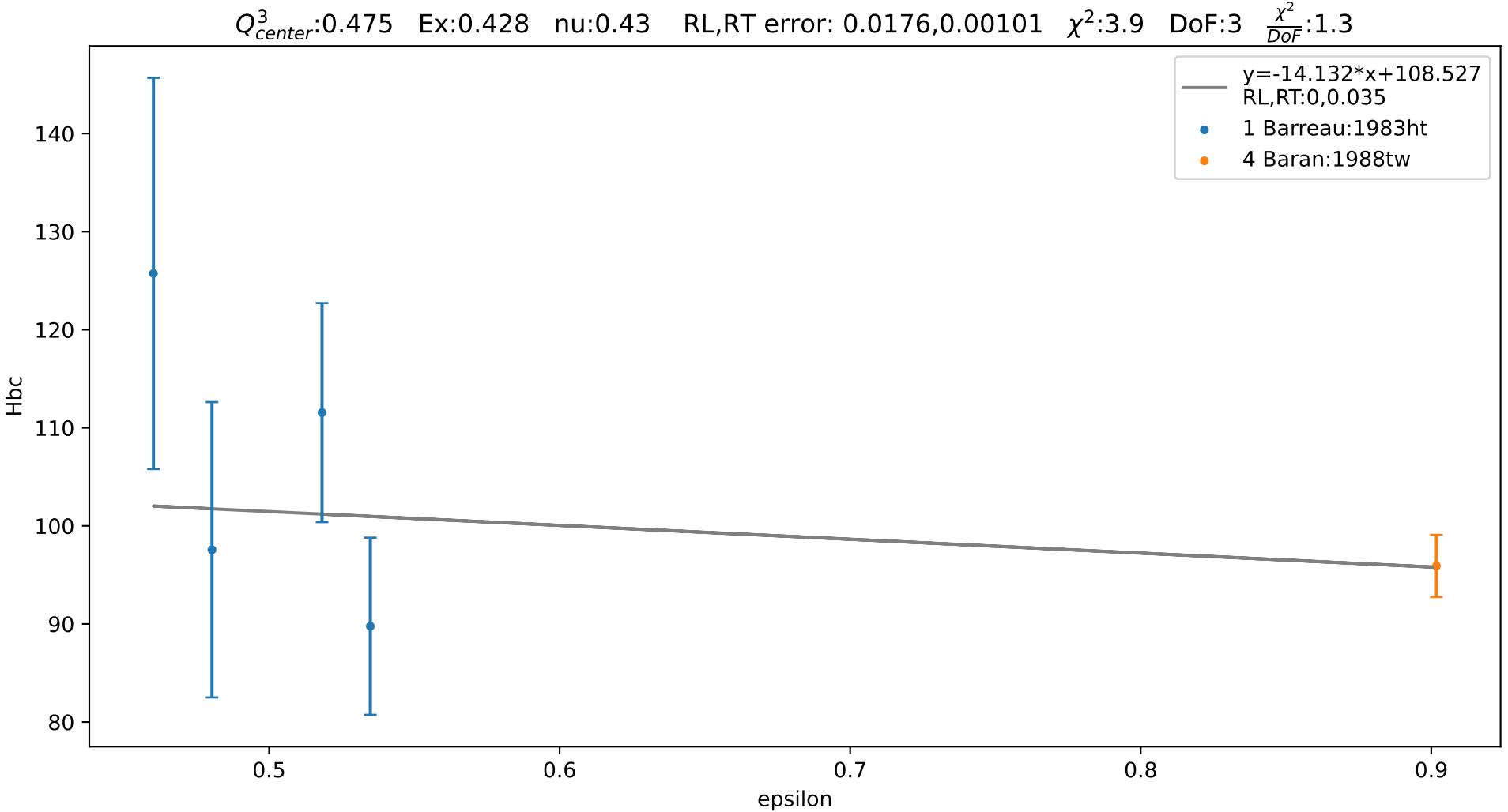

Q^3_{center}:0.475 Ex:0.376 nu:0.38 RL,RT error: 0.00402,0.000257 χ^2:13.5 DoF:6 $\frac{\chi^2}{DoF}$:2.2
Hbc
epsilon
y=-2.61*x+51.124
RL,RT:0,0.035
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198

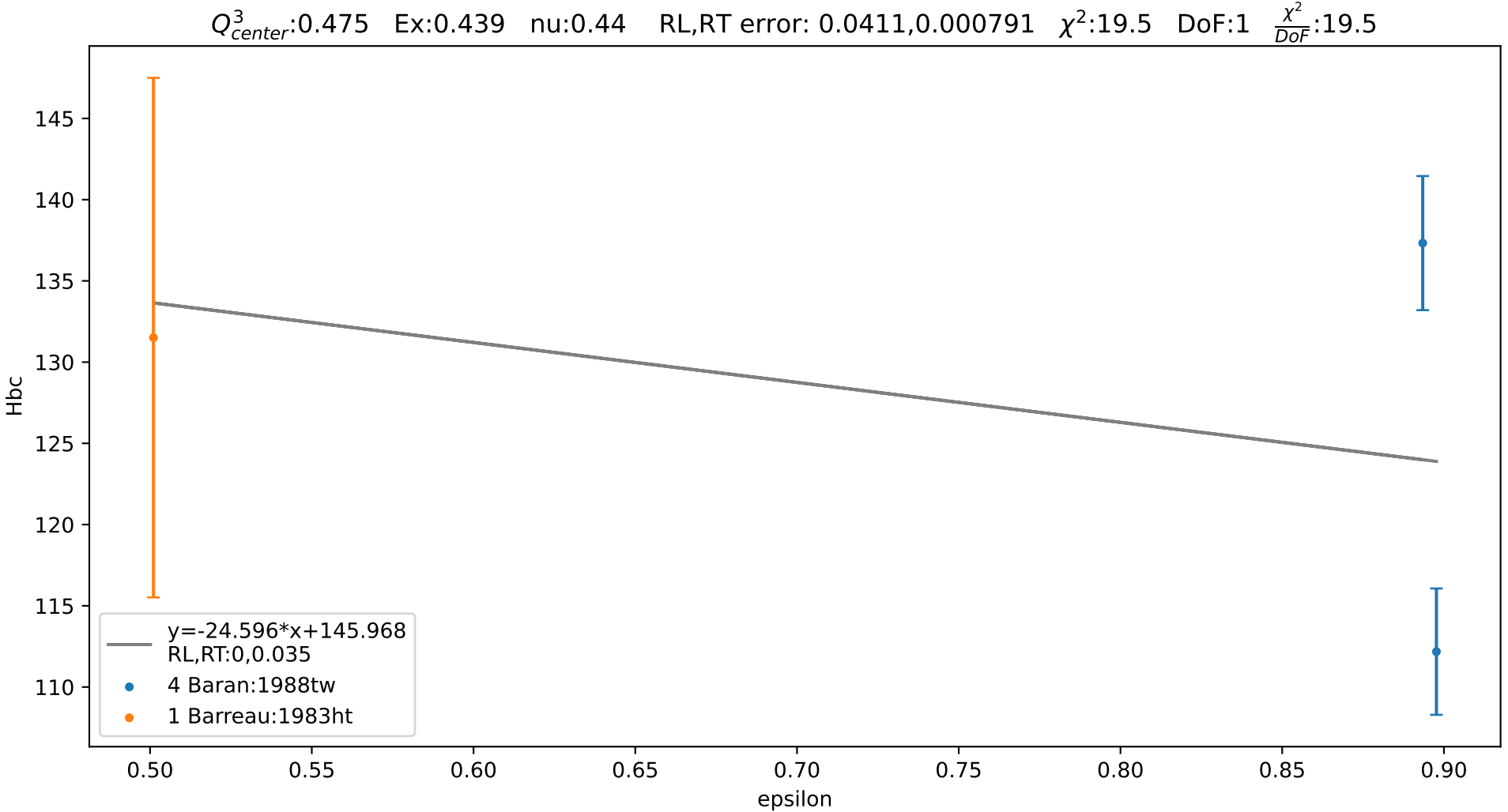

Q^3_{center}:0.475 Ex:0.387 nu:0.39 RL,RT error: 0.00321,0.000206 χ^2:60.0 DoF:14 $\frac{\chi^2}{DoF}$:4.3
y=-5.623*x+58.824
RL,RT:0,0.035
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
70
65
60
55
50
45
0.4
0.5
0.6
0.7
0.8
0.9

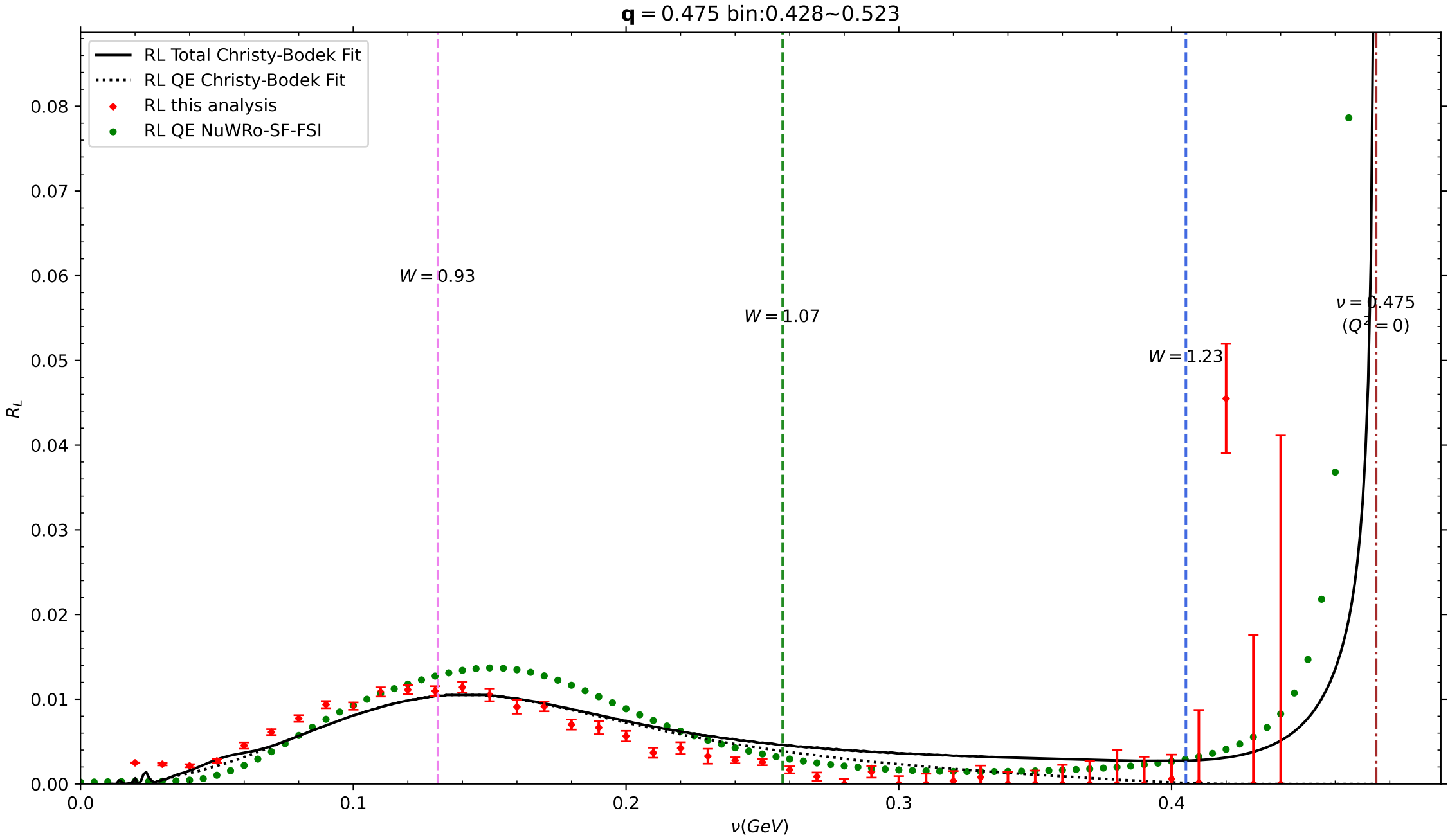

Q^3_{center}:0.475 Ex:0.397 nu:0.4 RL,RT error: 0.00288,0.00143 χ^2:50.5 DoF:7 $\frac{\chi^2}{DoF}$:7.2
y=0.583*x+60.969
RL,RT:0.001,0.035
2 O'Connell:198
4 Baran:1988tw
1 Barreau:1983ht
Hbc
epsilon
75
70
65
60
55
50
0.4
0.5
0.6
0.7
0.8
0.9

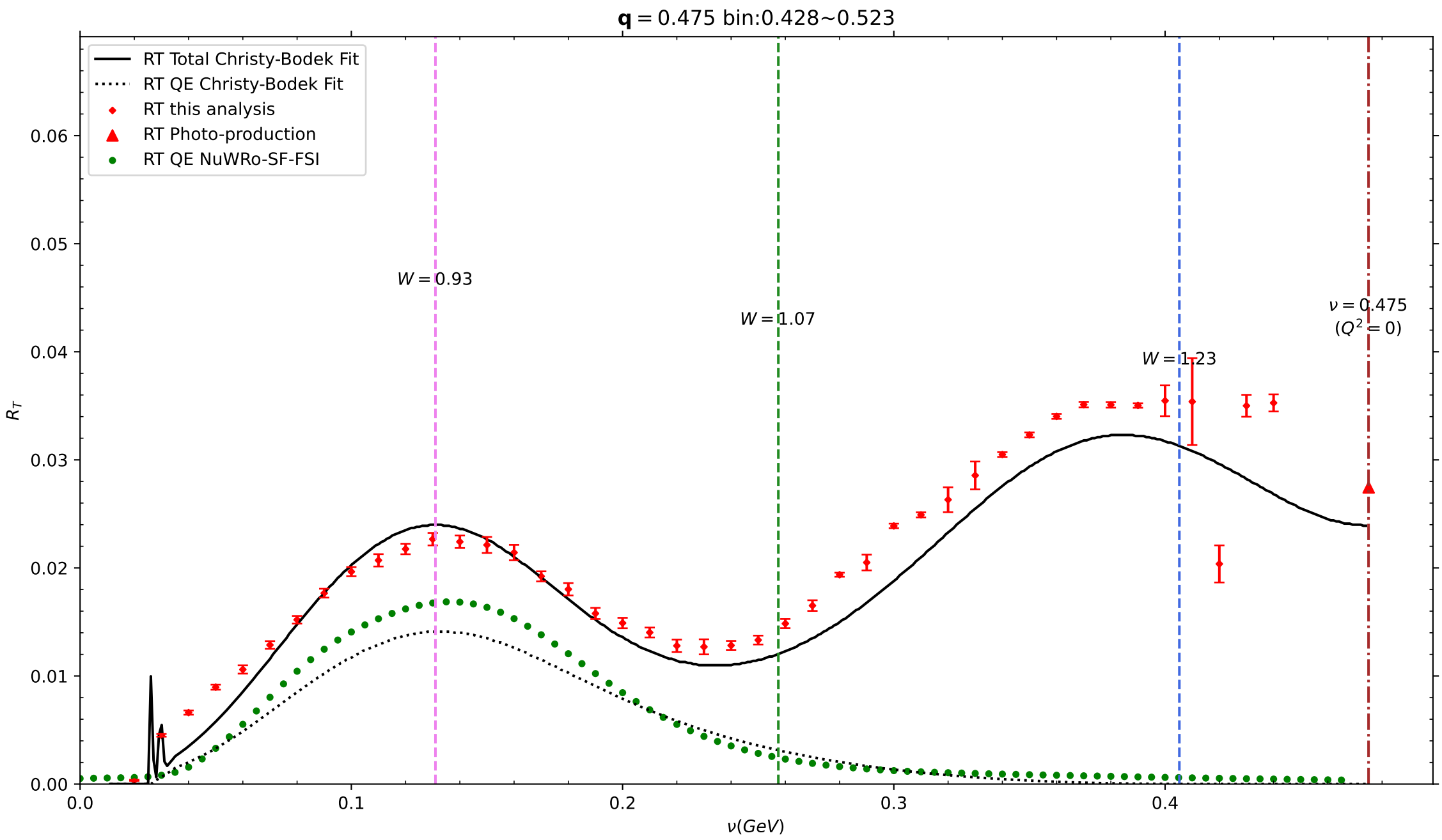

Q^3_{center}:0.475 Ex:0.407 nu:0.41 RL,RT error: 0.00857,0.00402 χ^2:21.3 DoF:7 $\frac{\chi^2}{DoF}$:3.0
y=0.162*x+69.396
RL,RT:0.0,0.035
4 Baran:1988tw
1 Barreau:1983ht
Hbc
epsilon
90
80
70
60
50
0.3
0.4
0.5
0.6
0.7
0.8
0.9

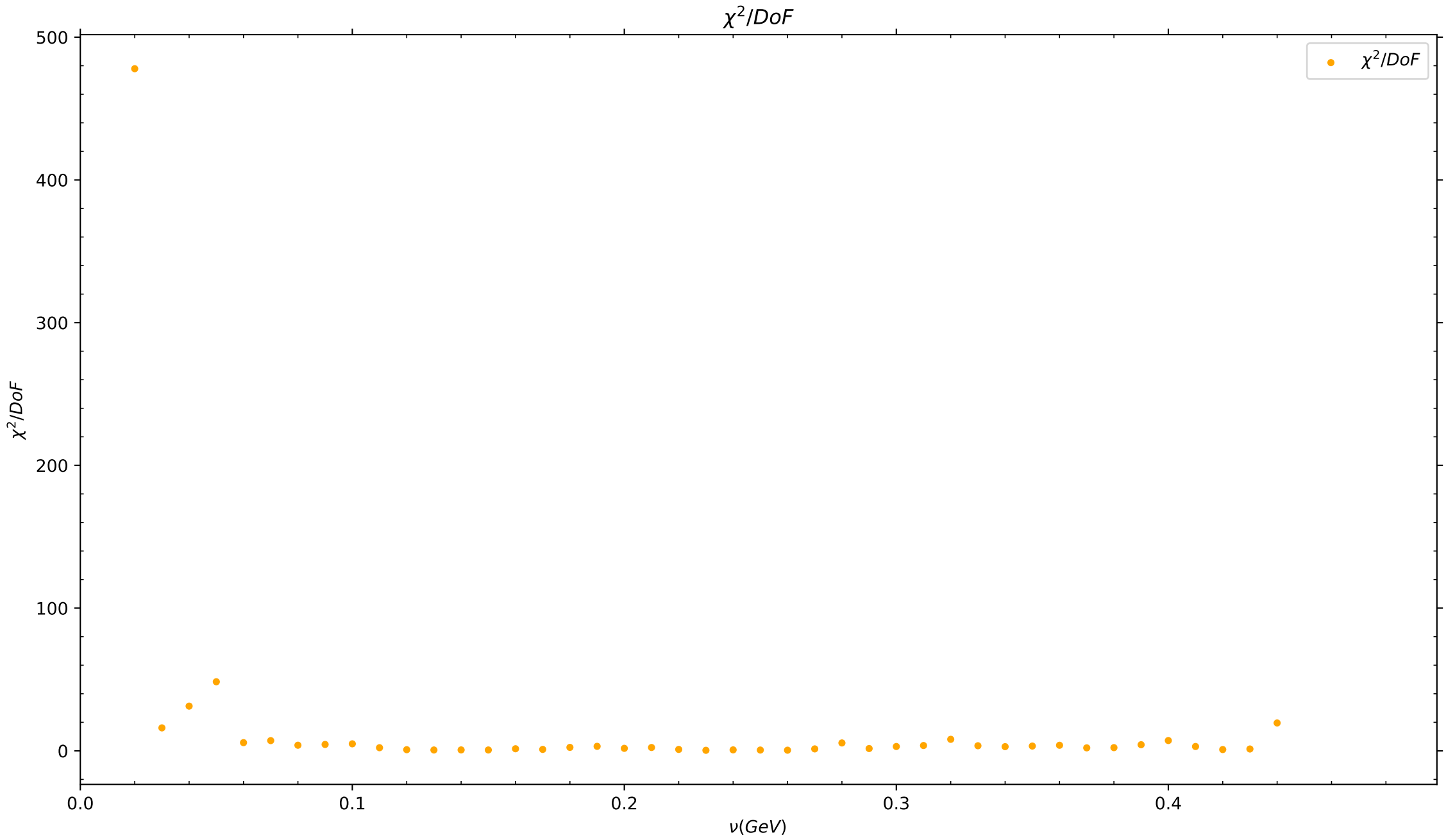

Q^3_{center}:0.475 Ex:0.418 nu:0.42 RL,RT error: 0.00645,0.00172 χ^2:2.7 DoF:3 $\frac{\chi^2}{DoF}$:0.9
Hbc
epsilon
90
80
70
60
0.3
0.4
0.5
0.6
0.7
0.8
0.9
y=45.494*x+46.684
RL,RT:0.045,0.02
2 O'Connell:198
1 Barreau:1983ht
4 Baran:1988tw

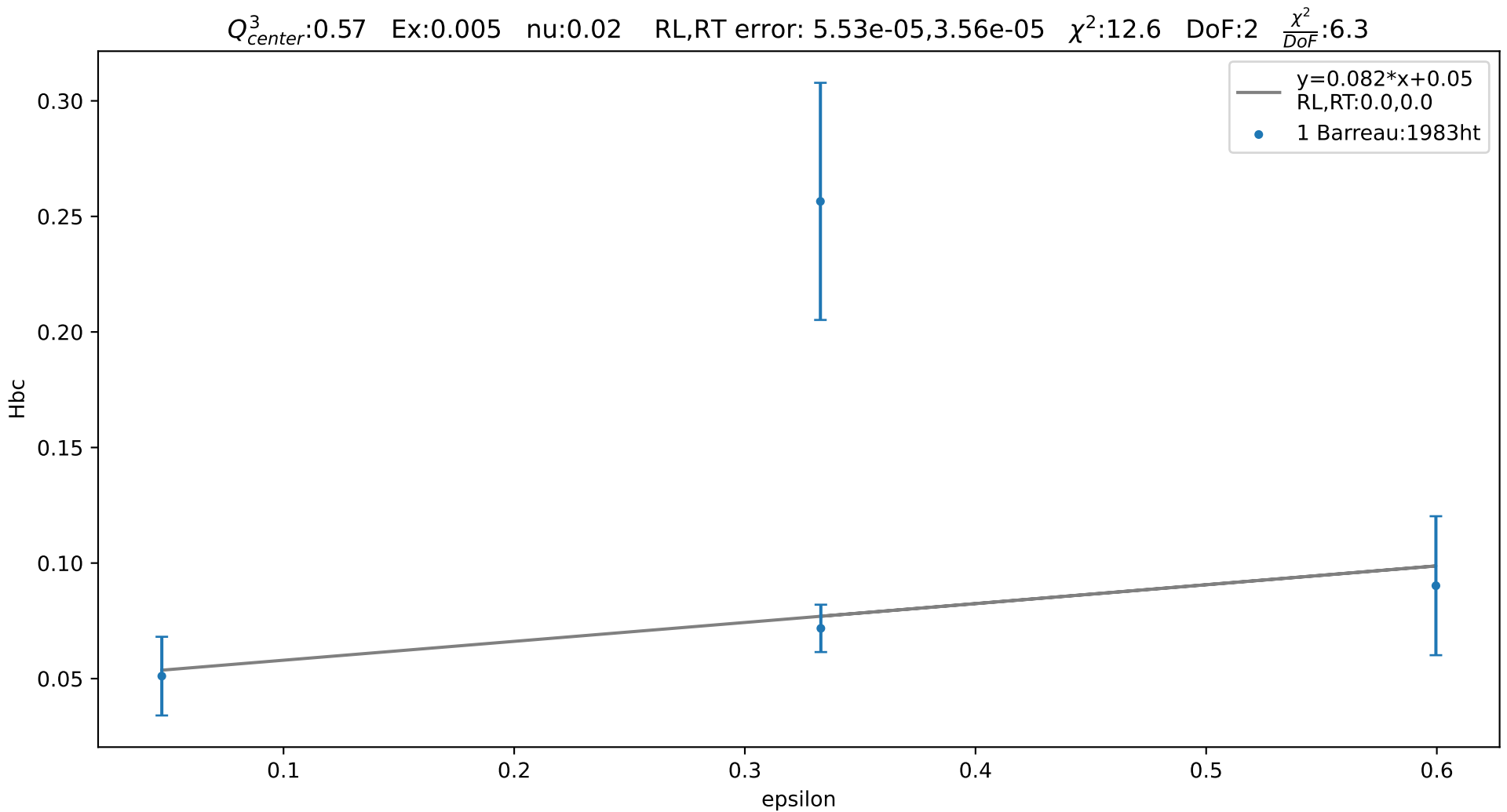

Q^3_{center}:0.475 Ex:0.428 nu:0.43 RL,RT error: 0.0176,0.00101 χ^2:3.9 DoF:3 $\frac{\chi^2}{DoF}$:1.3
y=-14.132*x+108.527
RL,RT:0,0.035
1 Barreau:1983ht
4 Baran:1988tw
Hbc
epsilon
140
130
120
110
100
90
80
0.5
0.6
0.7
0.8
0.9

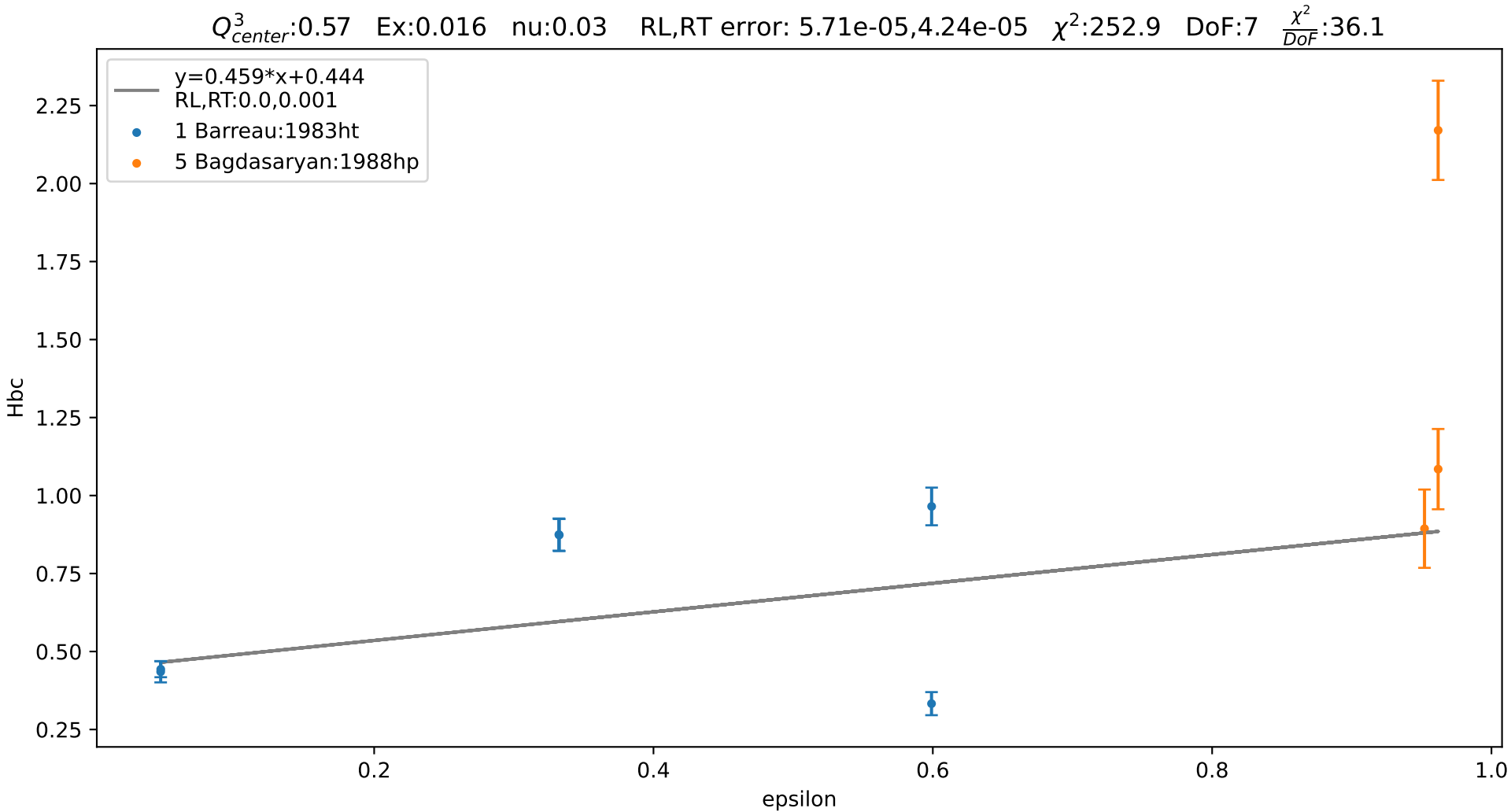

Q^3_{center}:0.475 Ex:0.439 nu:0.44 RL,RT error: 0.0411,0.000791 χ^2:19.5 DoF:1 $\frac{\chi^2}{DoF}$:19.5
Hbc
epsilon
145
140
135
130
125
120
115
110
0.50
0.55
0.60
0.65
0.70
0.75
0.80
0.85
0.90
y=-24.596*x+145.968
RL,RT:0,0.035
4 Baran:1988tw
1 Barreau:1983ht

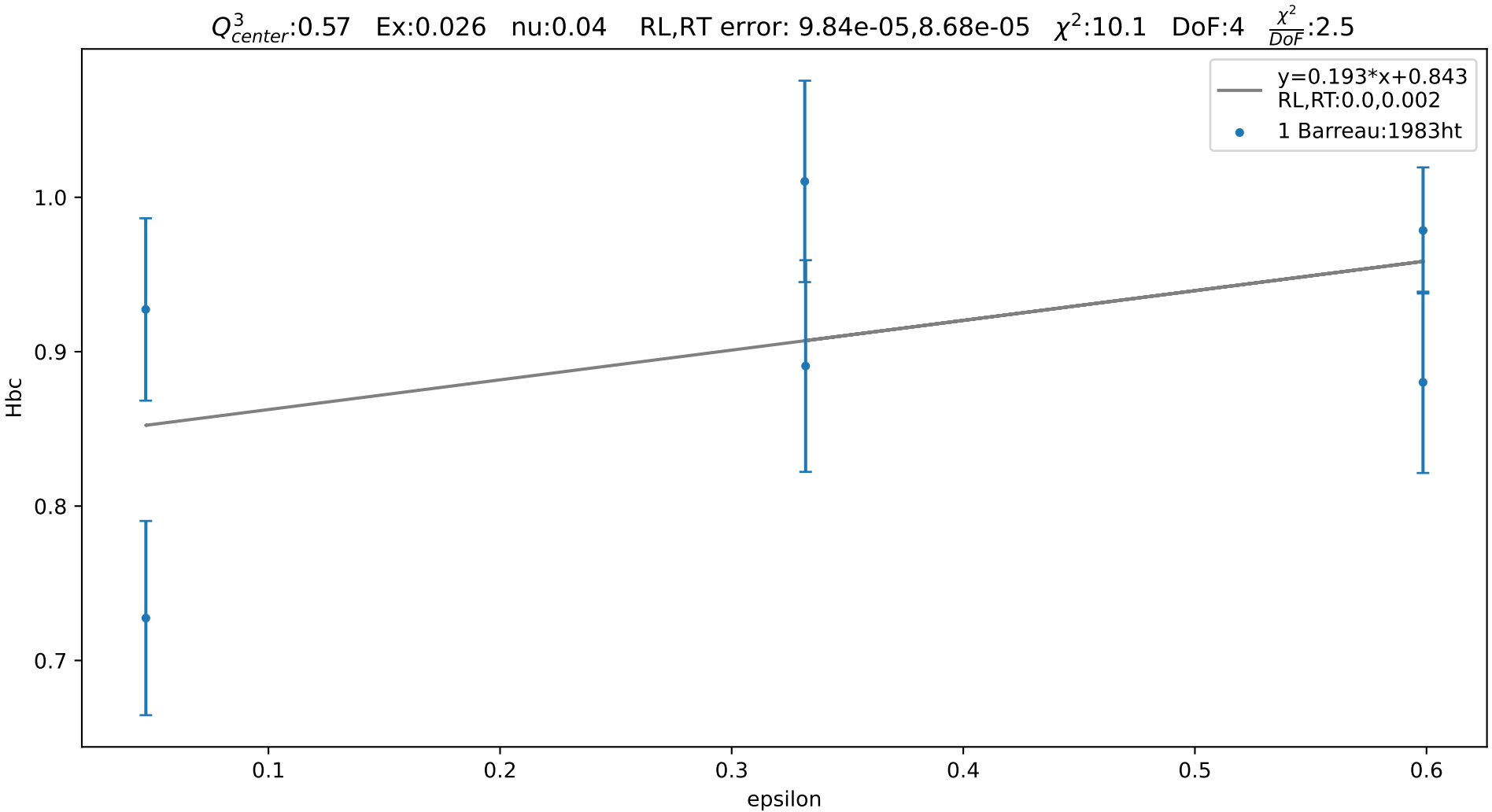

q = 0.475 bin:0.428~0.523
RL Total Christy-Bodek Fit
RL QE Christy-Bodek Fit
RL this analysis
RL QE NuWRo-SF-FSI
W = 0.93
W = 1.07
W = 1.23
ν = 0.475
(Q² = 0)
R_L
ν(GeV)

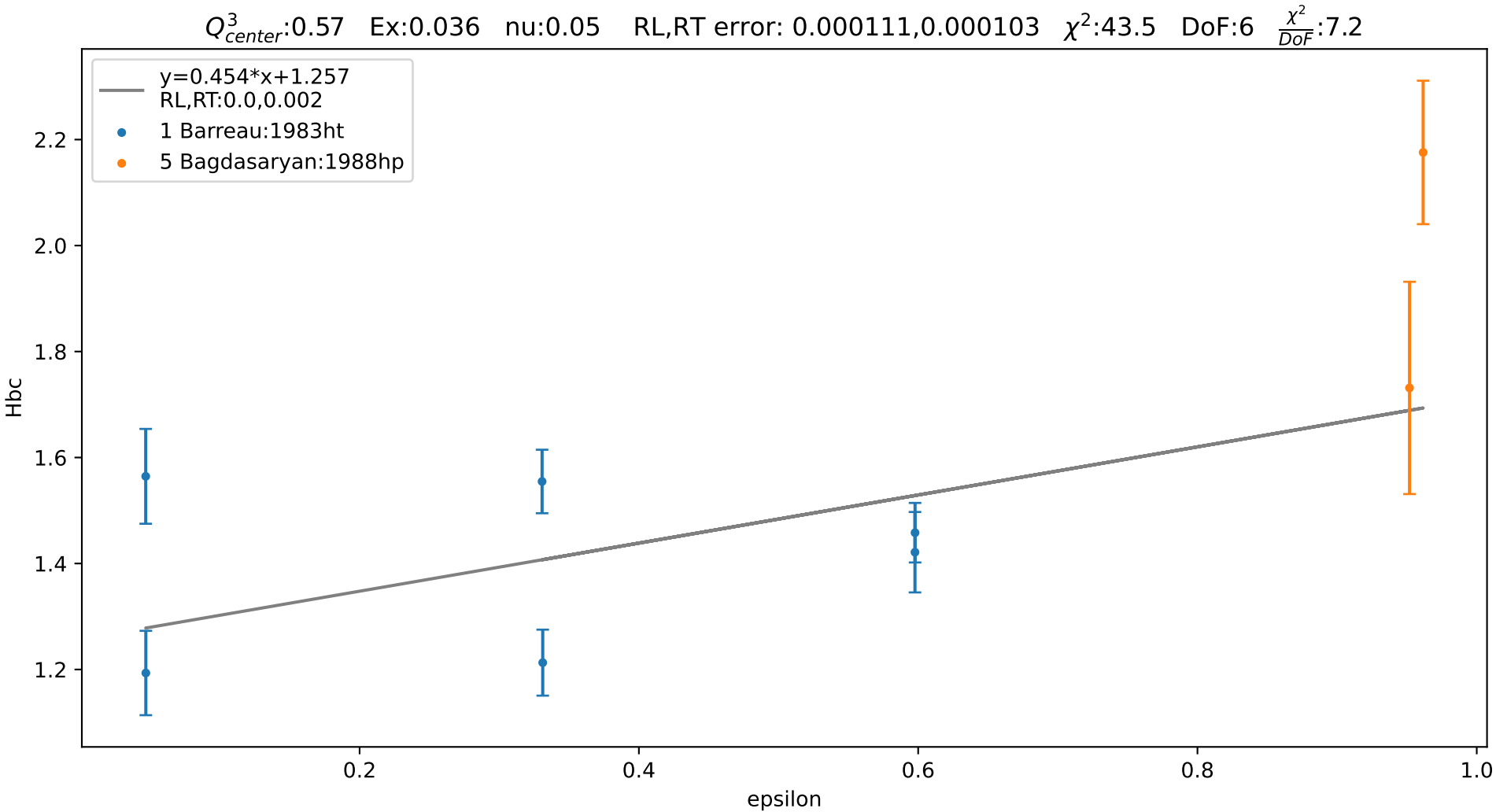

q = 0.475 bin:0.428~0.523
RT Total Christy-Bodek Fit
RT QE Christy-Bodek Fit
RT this analysis
RT Photo-production
RT QE NuWRo-SF-FSI
W = 0.93
W = 1.07
W = 1.23
ν = 0.475
(Q² = 0)
R_T
ν(GeV)

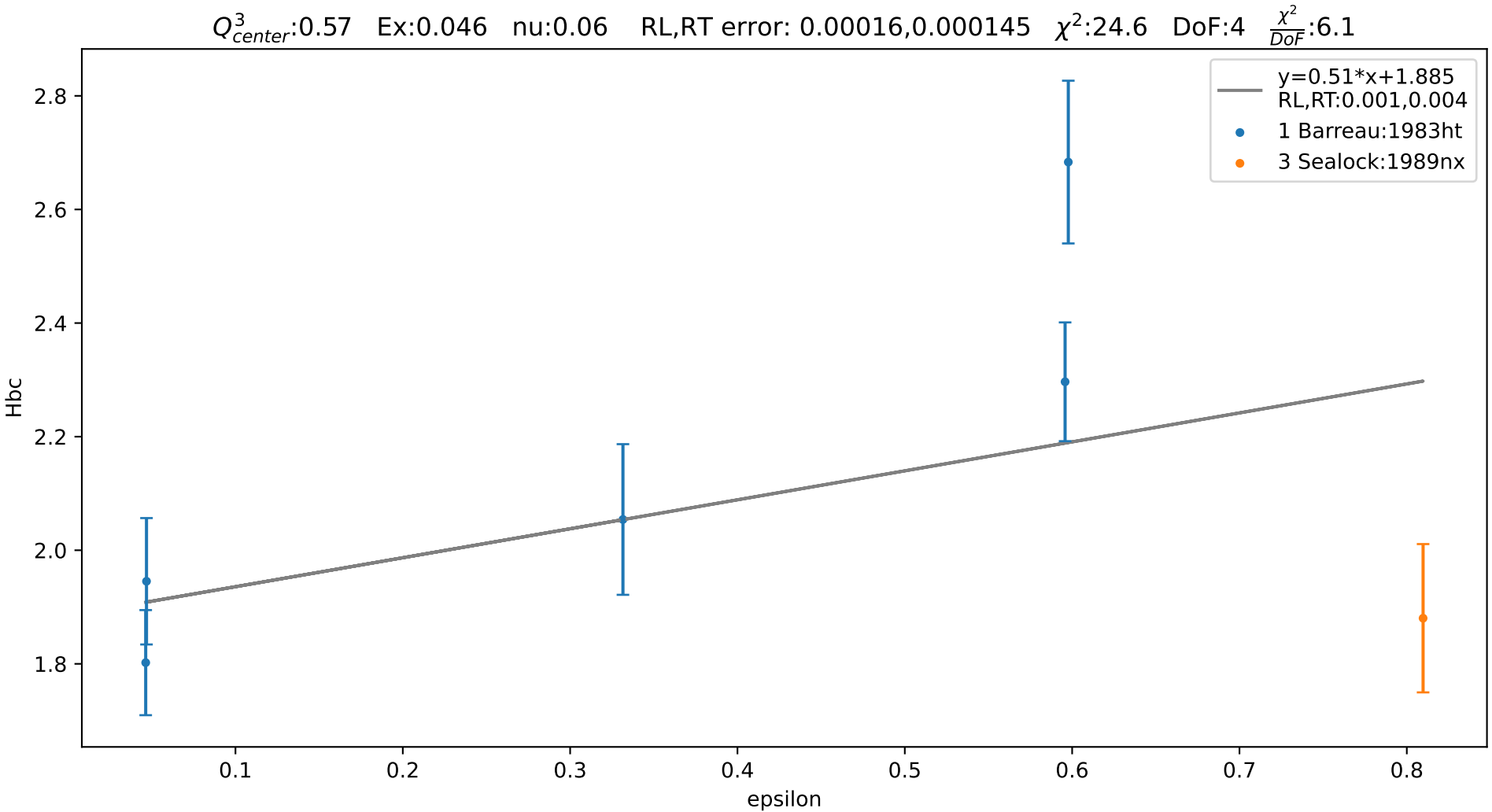

χ²/DoF
χ²/DoF
ν(GeV)

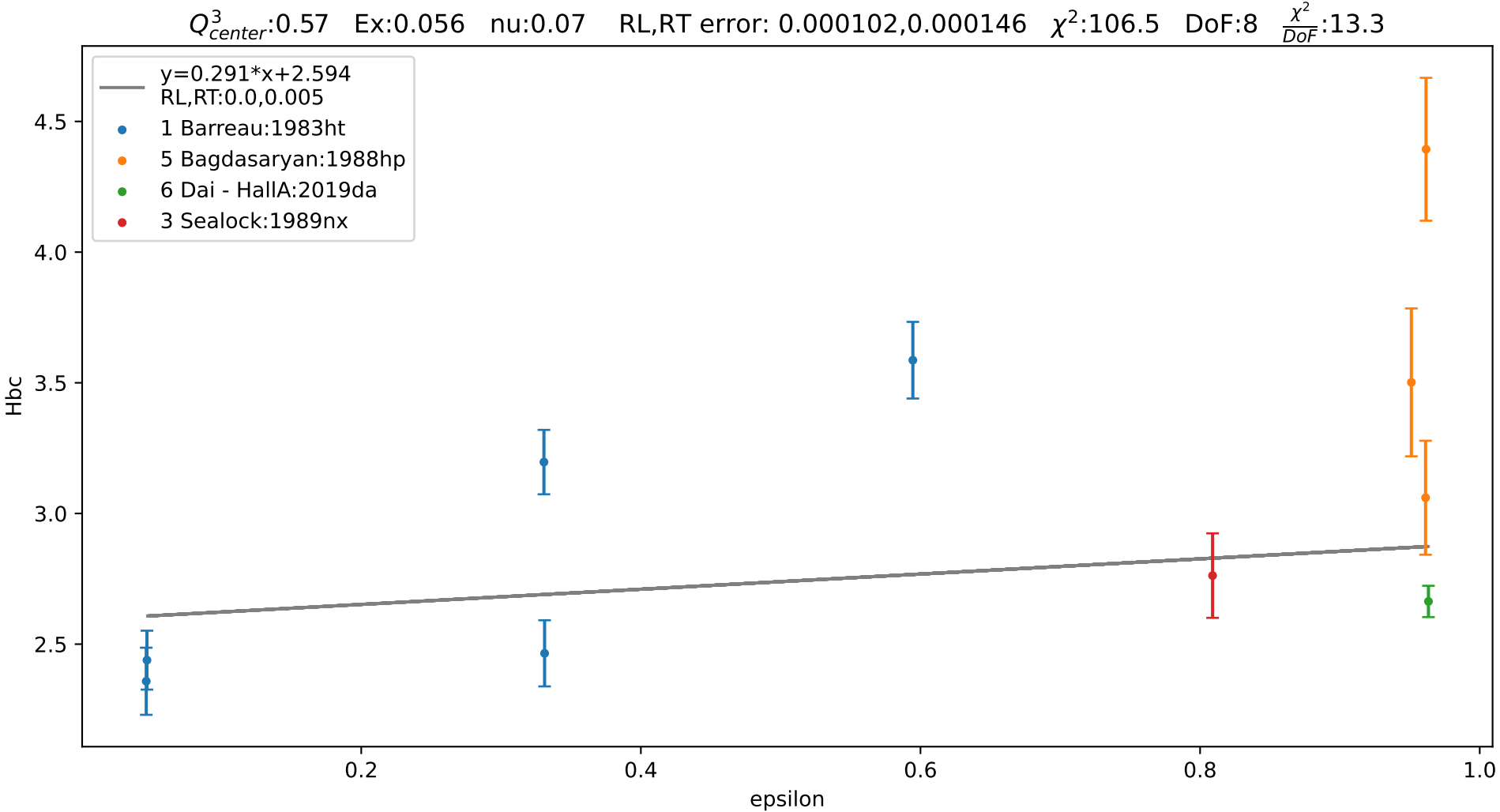

Q^3_{center}:0.57 Ex:0.005 nu:0.02 RL,RT error: 5.53e-05,3.56e-05 χ^2:12.6 DoF:2 $\frac{\chi^2}{DoF}$:6.3
y=0.082*x+0.05
RL,RT:0.0,0.0
1 Barreau:1983ht
Hbc
epsilon
0.30
0.25
0.20
0.15
0.10
0.05
0.1
0.2
0.3
0.4
0.5
0.6

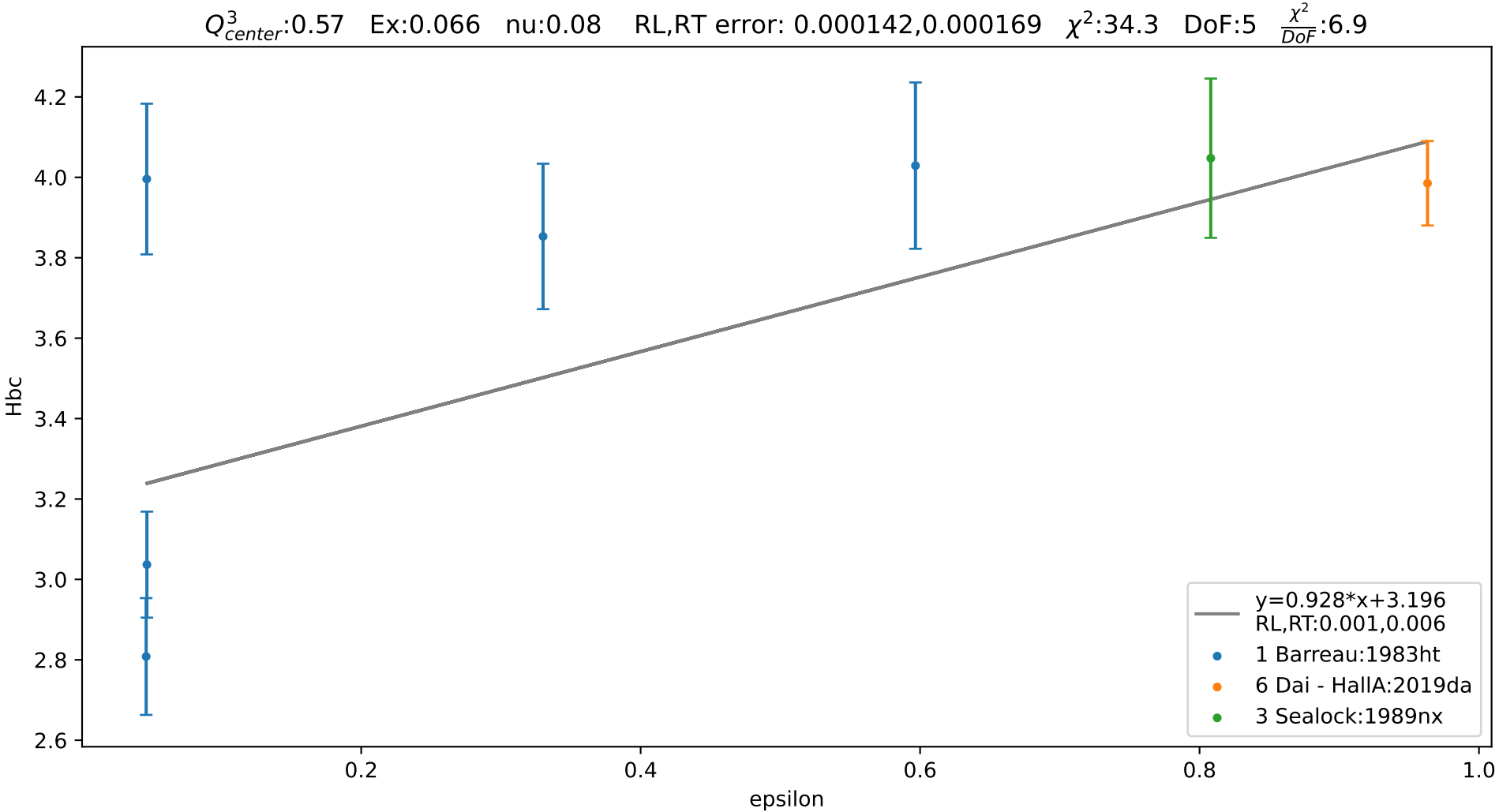

Q^3_{center}:0.57 Ex:0.016 nu:0.03 RL,RT error: 5.71e-05,4.24e-05 χ^2:252.9 DoF:7 $\frac{\chi^2}{DoF}$:36.1
y=0.459*x+0.444
RL,RT:0.0,0.001
1 Barreau:1983ht
5 Bagdasaryan:1988hp
Hbc
epsilon
0.25
0.50
0.75
1.00
1.25
1.50
1.75
2.00
2.25
0.2
0.4
0.6
0.8
1.0

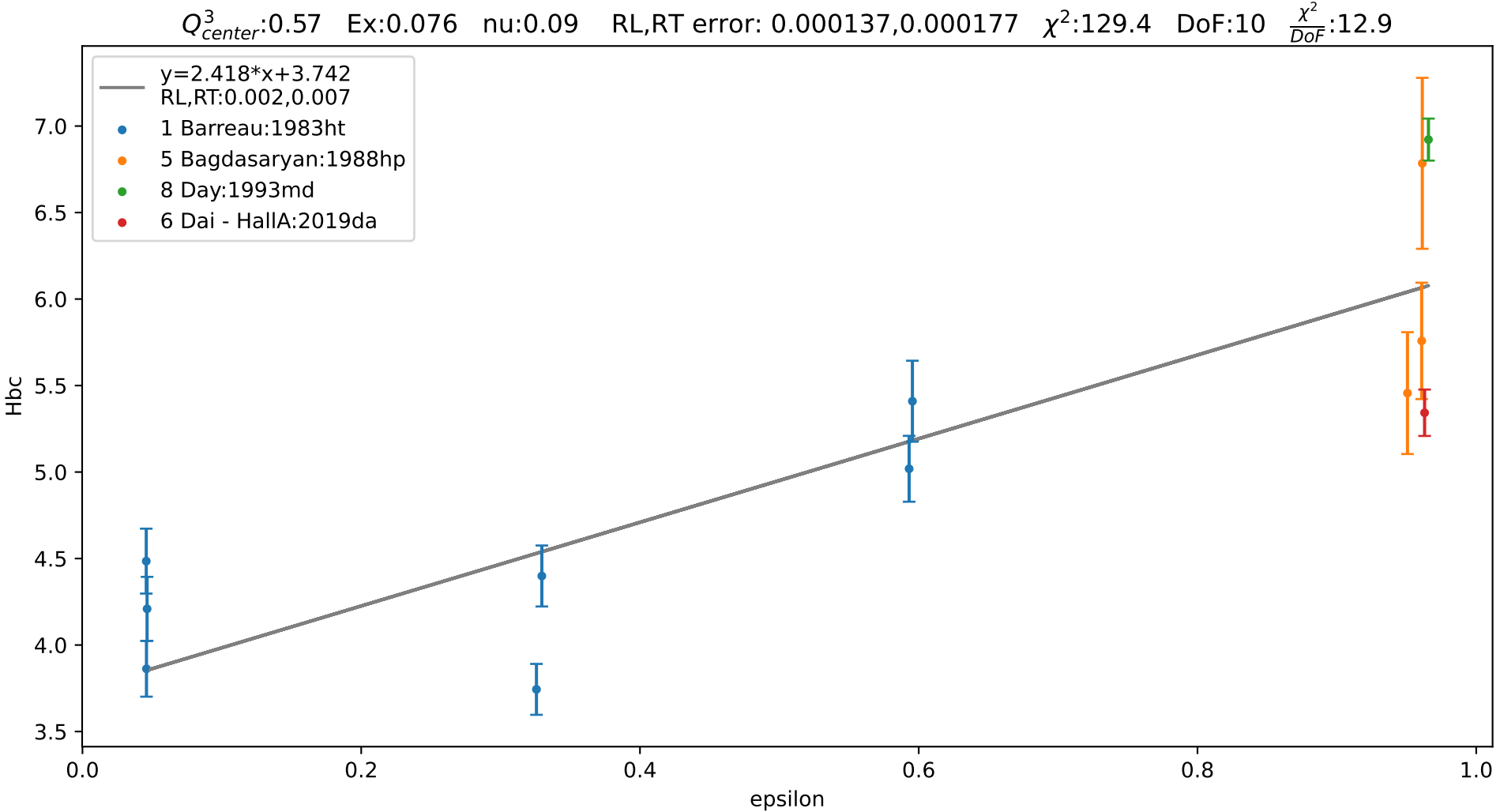

Q^3_{center}:0.57 Ex:0.026 nu:0.04 RL,RT error: 9.84e-05,8.68e-05 χ^2:10.1 DoF:4 $\frac{\chi^2}{DoF}$:2.5
y=0.193*x+0.843
RL,RT:0.0,0.002
1 Barreau:1983ht
Hbc
epsilon
1.0
0.9
0.8
0.7
0.1
0.2
0.3
0.4
0.5
0.6

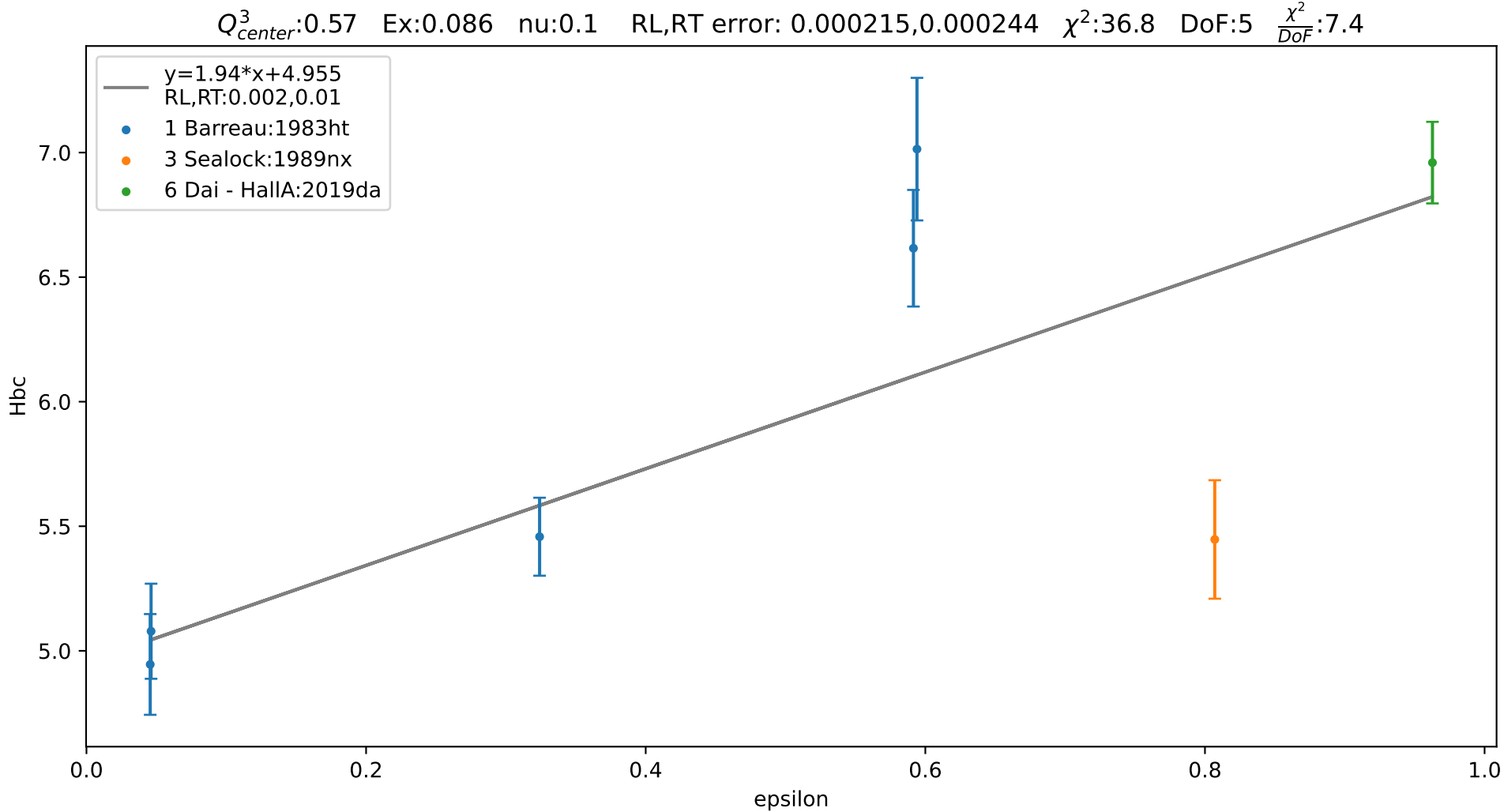

Q^3_{center}:0.57 Ex:0.036 nu:0.05 RL,RT error: 0.000111,0.000103 χ^2:43.5 DoF:6 $\frac{\chi^2}{DoF}$:7.2
y=0.454*x+1.257
RL,RT:0.0,0.002
1 Barreau:1983ht
5 Bagdasaryan:1988hp
Hbc
epsilon
1.2
1.4
1.6
1.8
2.0
2.2
0.2
0.4
0.6
0.8
1.0

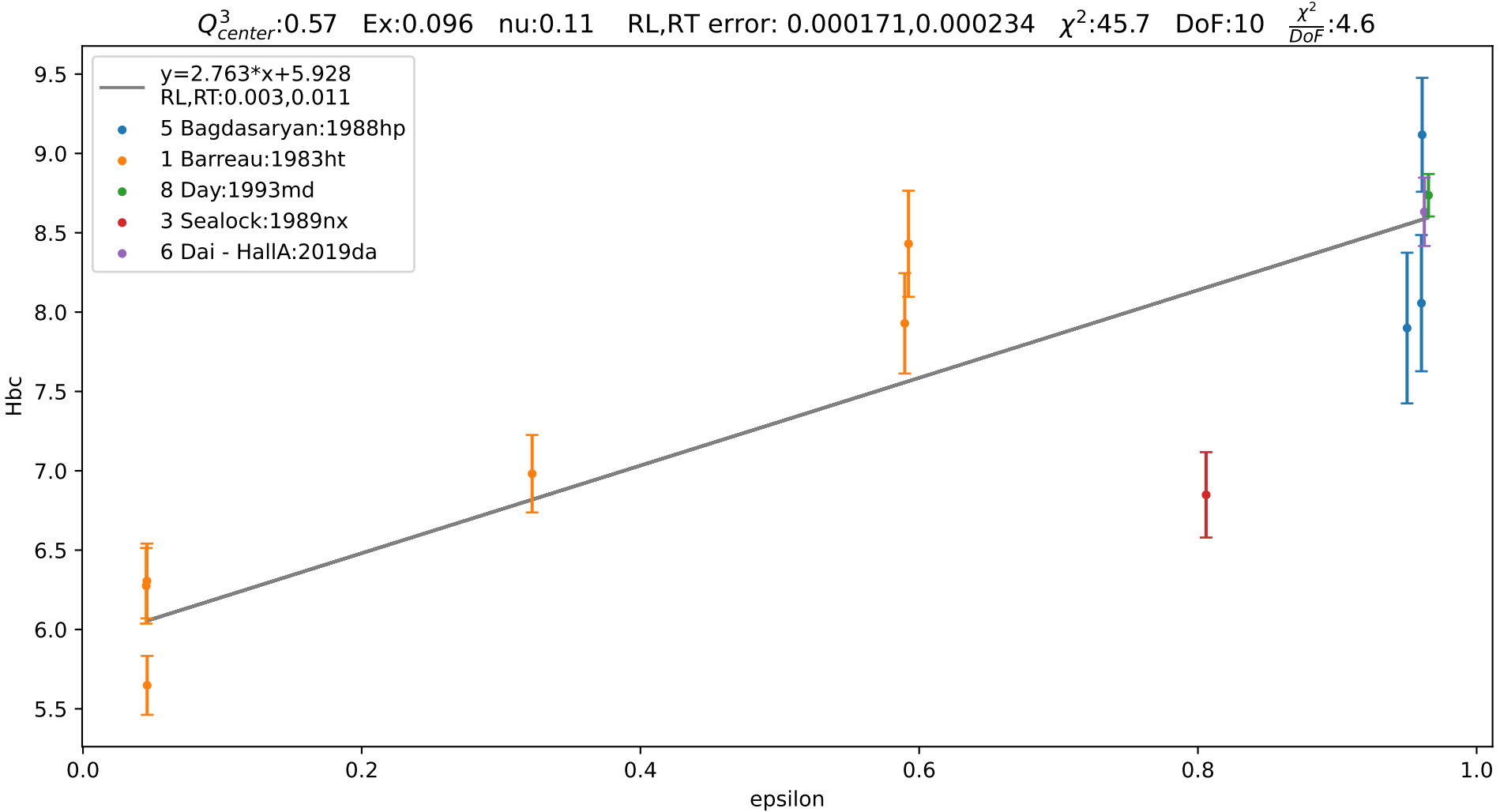

Q^3_{center}:0.57 Ex:0.046 nu:0.06 RL,RT error: 0.00016,0.000145 χ^2:24.6 DoF:4 $\frac{\chi^2}{DoF}$:6.1
y=0.51*x+1.885
RL,RT:0.001,0.004
1 Barreau:1983ht
3 Sealock:1989nx
Hbc
epsilon
2.8
2.6
2.4
2.2
2.0
1.8
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

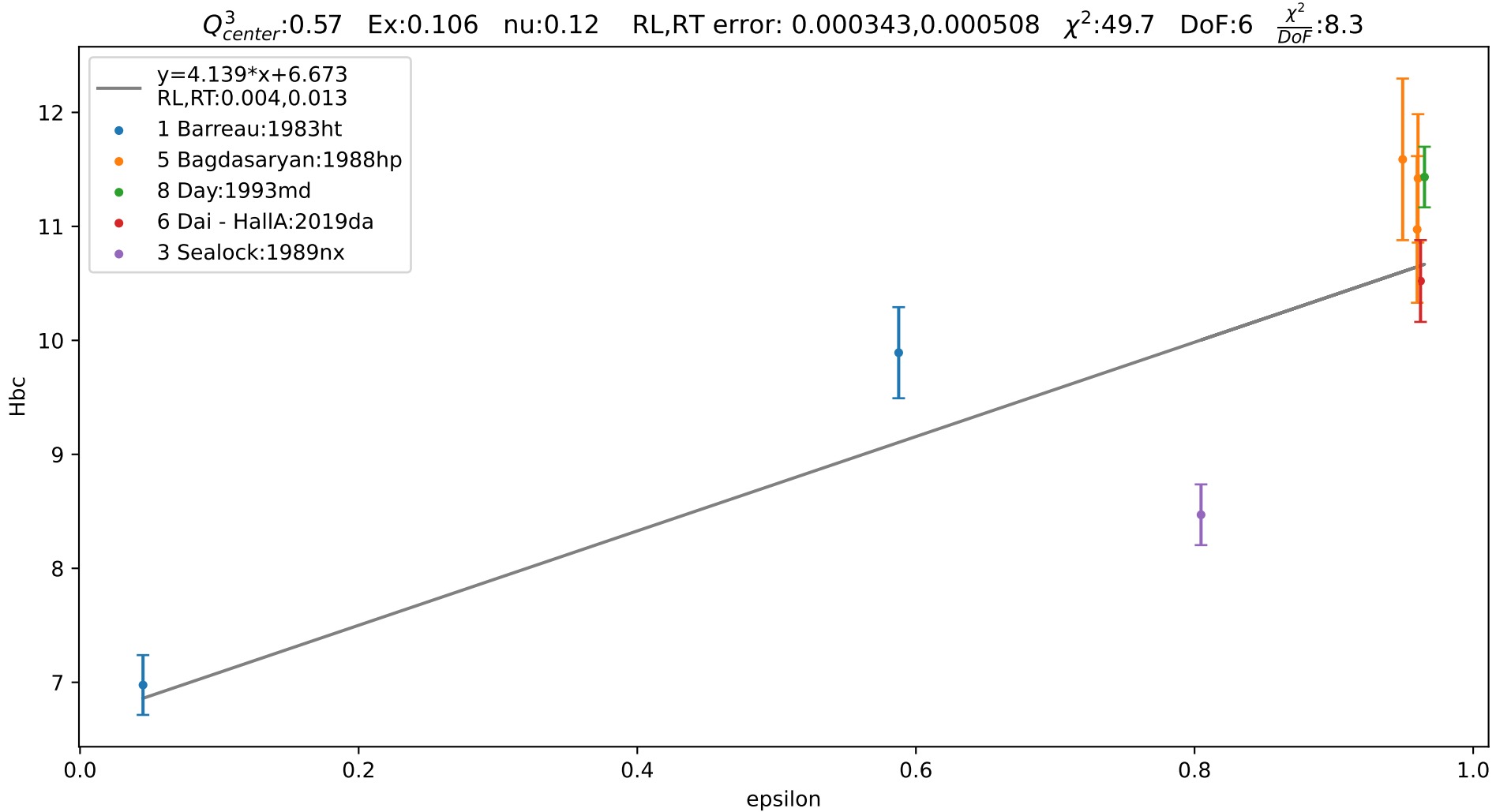

Q^3_{center}:0.57 Ex:0.056 nu:0.07 RL,RT error: 0.000102,0.000146 χ^2:106.5 DoF:8 $\frac{\chi^2}{DoF}$:13.3
y=0.291*x+2.594
RL,RT:0.0,0.005
1 Barreau:1983ht
5 Bagdasaryan:1988hp
6 Dai - HallA:2019da
3 Sealock:1989nx
Hbc
epsilon
2.5
3.0
3.5
4.0
4.5
0.2
0.4
0.6
0.8
1.0

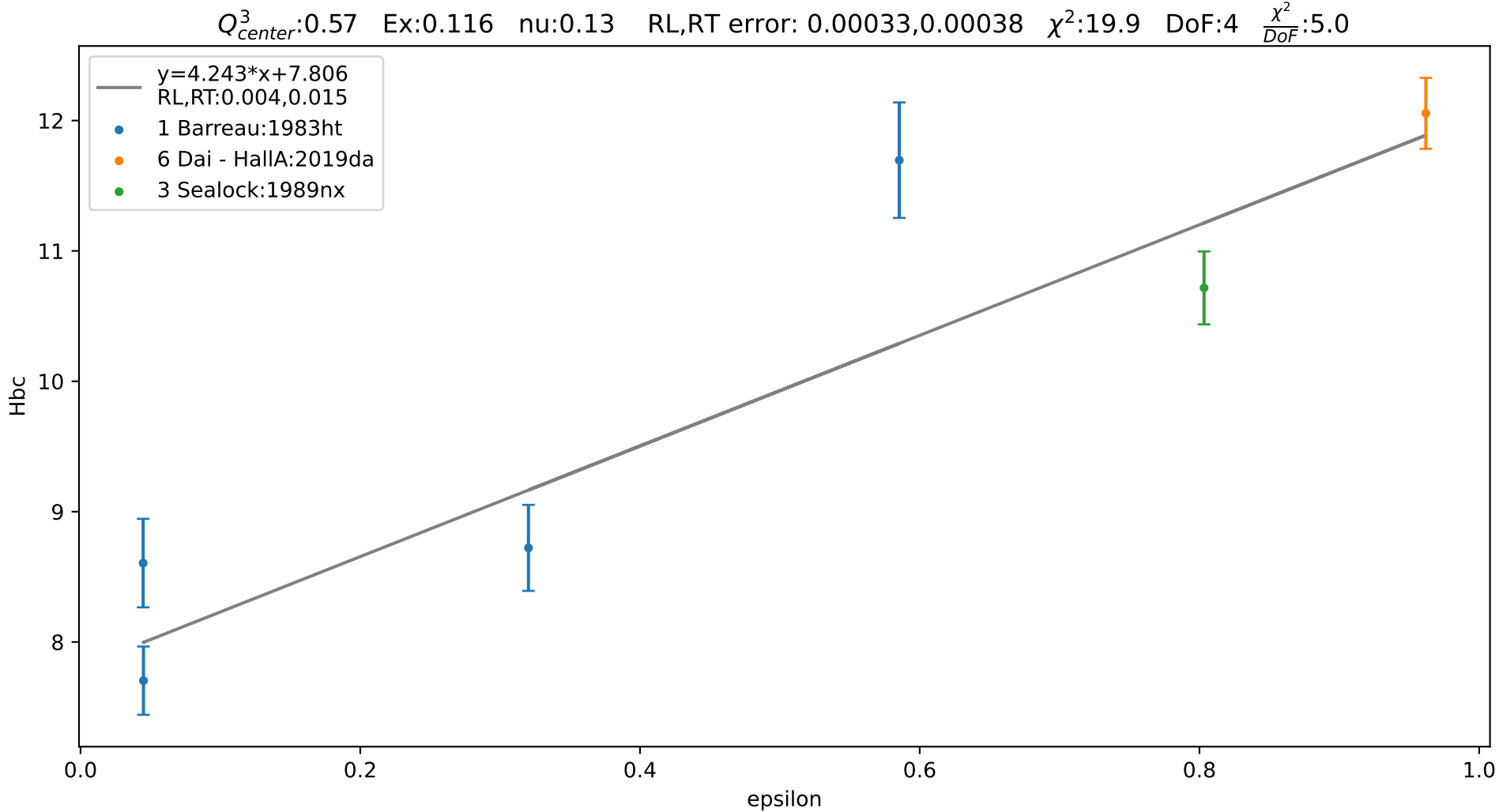

Q^3_{center}:0.57 Ex:0.066 nu:0.08 RL,RT error: 0.000142,0.000169 χ^2:34.3 DoF:5 $\frac{\chi^2}{DoF}$:6.9
Hbc
epsilon
y=0.928*x+3.196
RL,RT:0.001,0.006
1 Barreau:1983ht
6 Dai - HallA:2019da
3 Sealock:1989nx

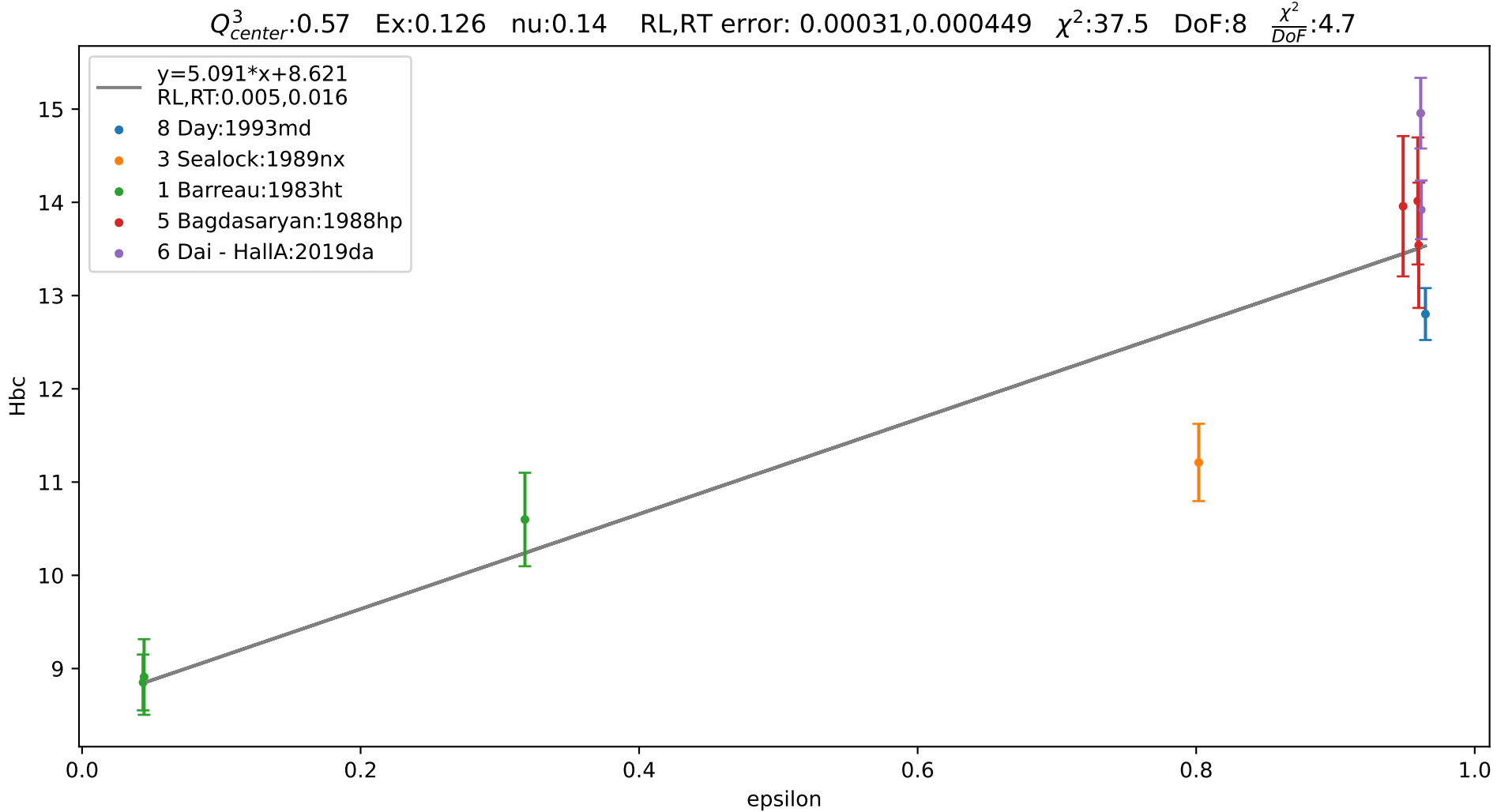

Q^3_{center}:0.57 Ex:0.076 nu:0.09 RL,RT error: 0.000137,0.000177 χ^2:129.4 DoF:10 $\frac{\chi^2}{DoF}$:12.9
y=2.418*x+3.742
RL,RT:0.002,0.007
1 Barreau:1983ht
5 Bagdasaryan:1988hp
8 Day:1993md
6 Dai - HallA:2019da
Hbc
epsilon
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
0.0
0.2
0.4
0.6
0.8
1.0


Q^3_{center}:0.57 Ex:0.086 nu:0.1 RL,RT error: 0.000215,0.000244 χ^2:36.8 DoF:5 $\frac{\chi^2}{DoF}$:7.4
y=1.94*x+4.955
RL,RT:0.002,0.01
1 Barreau:1983ht
3 Sealock:1989nx
6 Dai - HallA:2019da
Hbc
epsilon
5.0
5.5
6.0
6.5
7.0
0.0
0.2
0.4
0.6
0.8
1.0


Q^3_{center}:0.57 Ex:0.096 nu:0.11 RL,RT error: 0.000171,0.000234 χ^2:45.7 DoF:10 $\frac{\chi^2}{DoF}$:4.6
y=2.763*x+5.928
RL,RT:0.003,0.011
5 Bagdasaryan:1988hp
1 Barreau:1983ht
8 Day:1993md
3 Sealock:1989nx
6 Dai - HallA:2019da
Hbc
epsilon
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
0.0
0.2
0.4
0.6
0.8
1.0


Q^3_{center}:0.57 Ex:0.106 nu:0.12 RL,RT error: 0.000343,0.000508 χ^2:49.7 DoF:6 $\frac{\chi^2}{DoF}$:8.3
y=4.139*x+6.673
RL,RT:0.004,0.013
1 Barreau:1983ht
5 Bagdasaryan:1988hp
8 Day:1993md
6 Dai - HallA:2019da
3 Sealock:1989nx
Hbc
epsilon
12
11
10
9
8
7
0.0
0.2
0.4
0.6
0.8
1.0


Q^3_{center}:0.57 Ex:0.116 nu:0.13 RL,RT error: 0.00033,0.00038 χ^2:19.9 DoF:4 $\frac{\chi^2}{DoF}$:5.0
y=4.243*x+7.806
RL,RT:0.004,0.015
1 Barreau:1983ht
6 Dai - HallA:2019da
3 Sealock:1989nx
Hbc
epsilon
8
9
10
11
12
0.0
0.2
0.4
0.6
0.8
1.0


Q^3_{center}:0.57 Ex:0.126 nu:0.14 RL,RT error: 0.00031,0.000449 χ^2:37.5 DoF:8 $\frac{\chi^2}{DoF}$:4.7
y=5.091*x+8.621
RL,RT:0.005,0.016
8 Day:1993md
3 Sealock:1989nx
1 Barreau:1983ht
5 Bagdasaryan:1988hp
6 Dai - HallA:2019da
Hbc
epsilon
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0.4
0.6
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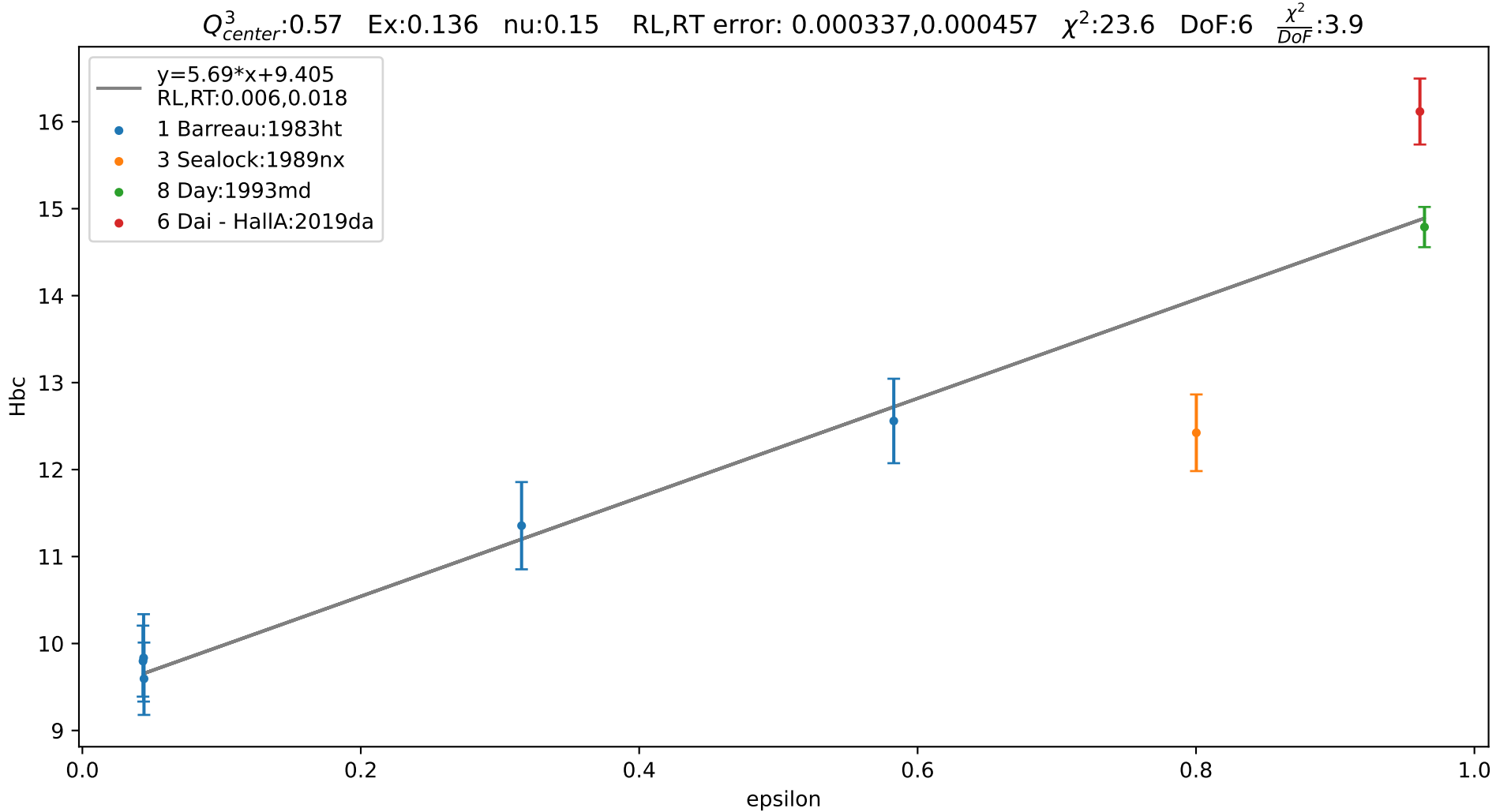
Q^3_{center}:0.57 Ex:0.136 nu:0.15 RL,RT error: 0.000337,0.000457 χ^2:23.6 DoF:6 $\frac{\chi^2}{DoF}$:3.9
y=5.69*x+9.405
RL,RT:0.006,0.018
1 Barreau:1983ht
3 Sealock:1989nx
8 Day:1993md
6 Dai - HallA:2019da
Hbc
epsilon
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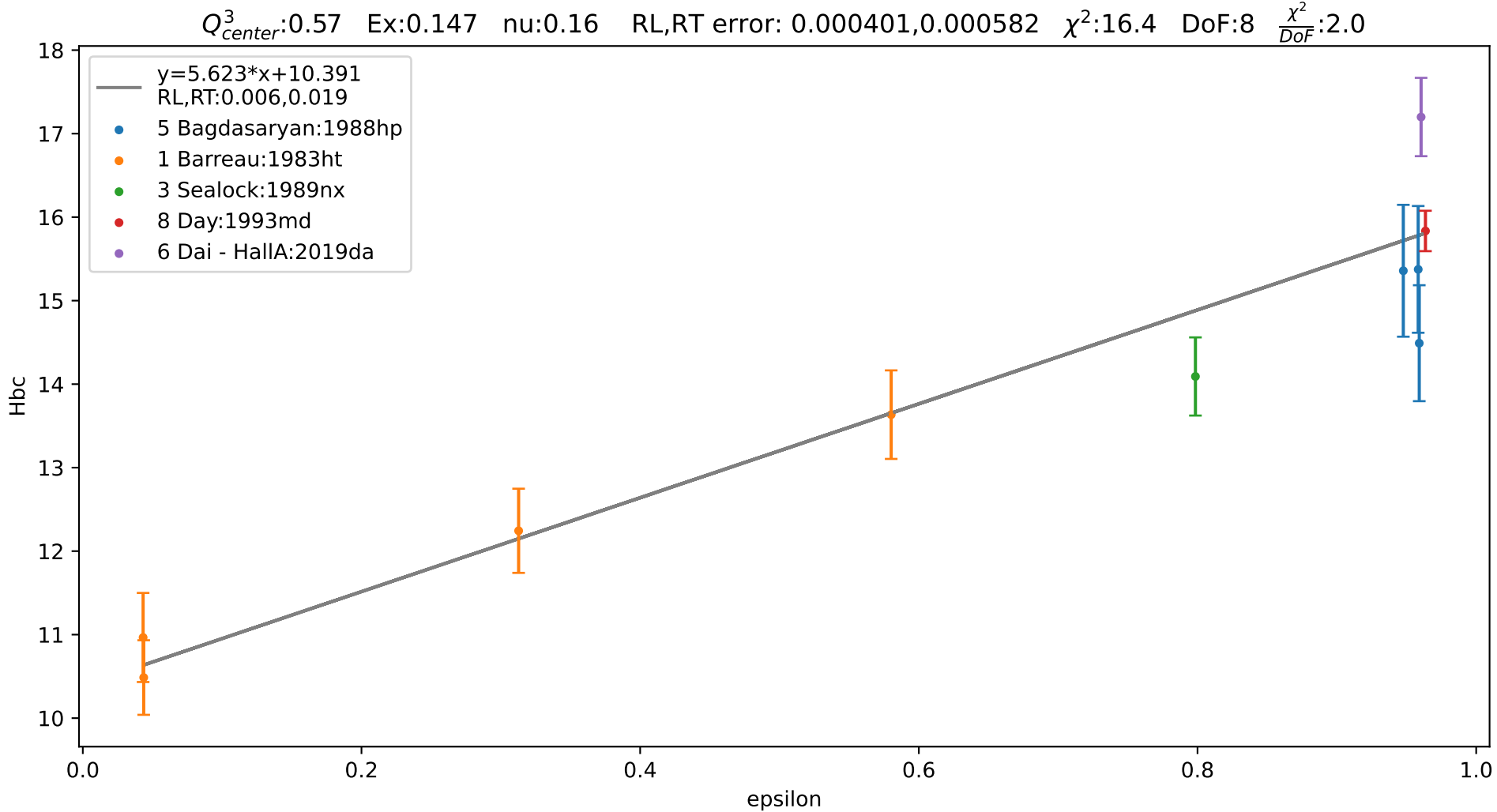
Q^3_{center}:0.57 Ex:0.147 nu:0.16 RL,RT error: 0.000401,0.000582 χ^2:16.4 DoF:8 $\frac{\chi^2}{DoF}$:2.0
y=5.623*x+10.391
RL,RT:0.006,0.019
5 Bagdasaryan:1988hp
1 Barreau:1983ht
3 Sealock:1989nx
8 Day:1993md
6 Dai - HallA:2019da
Hbc
epsilon
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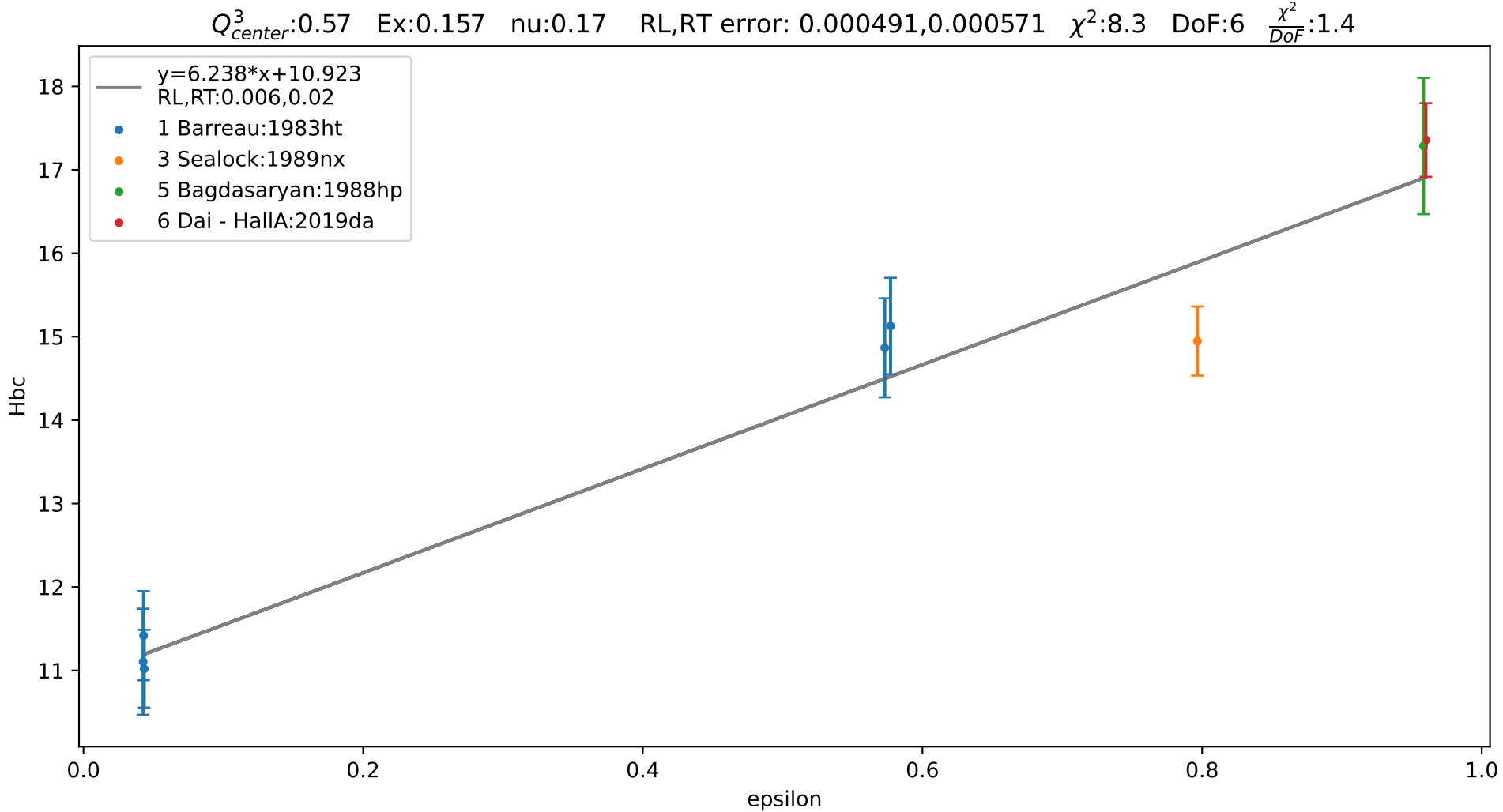
Q^3_{center}:0.57 Ex:0.157 nu:0.17 RL,RT error: 0.000491,0.000571 χ^2:8.3 DoF:6 $\frac{\chi^2}{DoF}$:1.4
y=6.238*x+10.923
RL,RT:0.006,0.02
1 Barreau:1983ht
3 Sealock:1989nx
5 Bagdasaryan:1988hp
6 Dai - HallA:2019da
Hbc
epsilon
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17
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0.2
0.4
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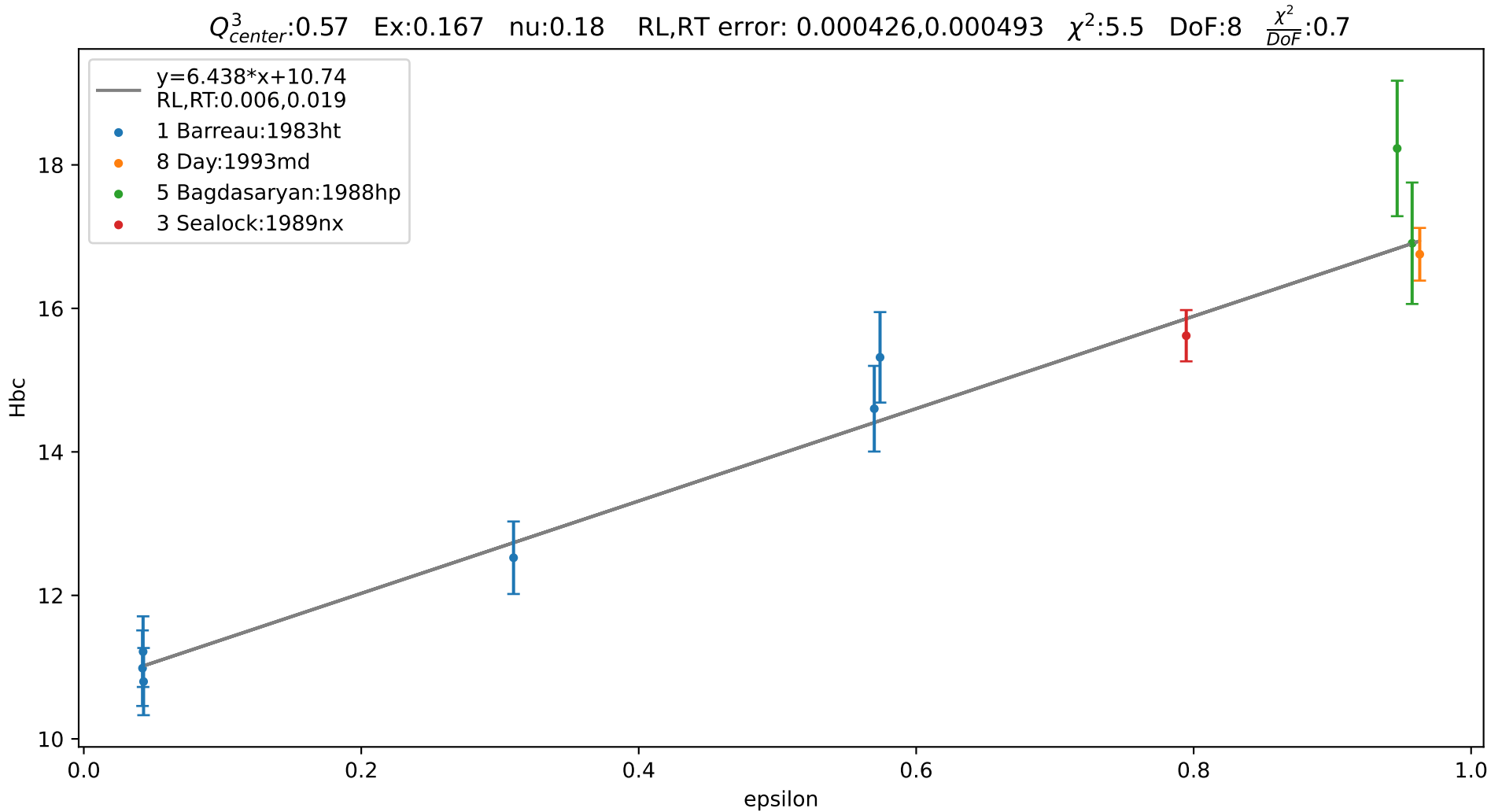
0.8
1.0


Q^3_{center}:0.57 Ex:0.167 nu:0.18 RL,RT error: 0.000426,0.000493 χ^2:5.5 DoF:8 $\frac{\chi^2}{DoF}$:0.7
y=6.438*x+10.74
RL,RT:0.006,0.019
1 Barreau:1983ht
8 Day:1993md
5 Bagdasaryan:1988hp
3 Sealock:1989nx
Hbc
epsilon
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12
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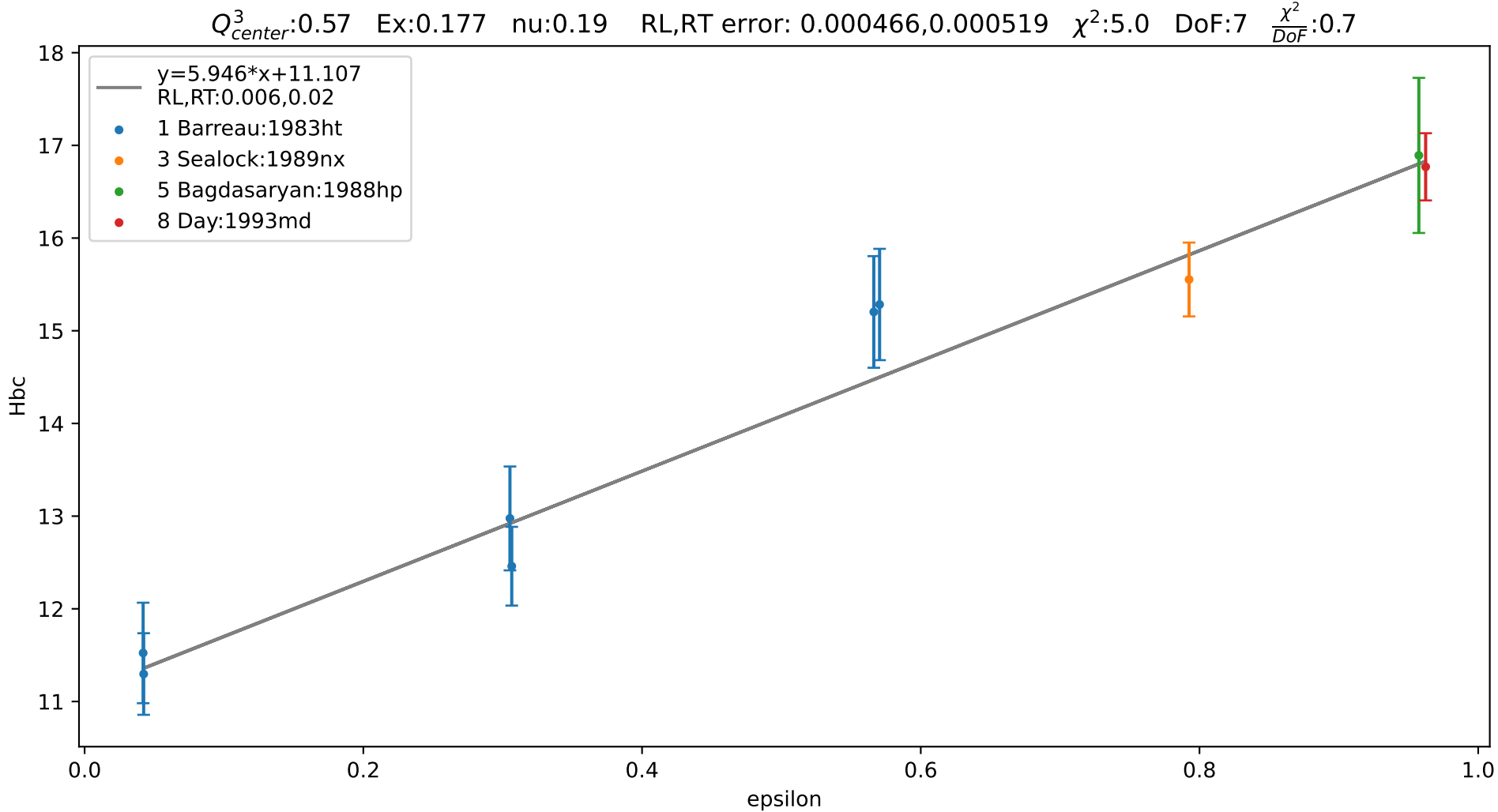
16
18
0.0
0.2
0.4
0.6
0.8
1.0


Q^3_{center}:0.57 Ex:0.177 nu:0.19 RL,RT error: 0.000466,0.000519 χ^2:5.0 DoF:7 $\frac{\chi^2}{DoF}$:0.7
y=5.946*x+11.107
RL,RT:0.006,0.02
1 Barreau:1983ht
3 Sealock:1989nx
5 Bagdasaryan:1988hp
8 Day:1993md
Hbc
epsilon
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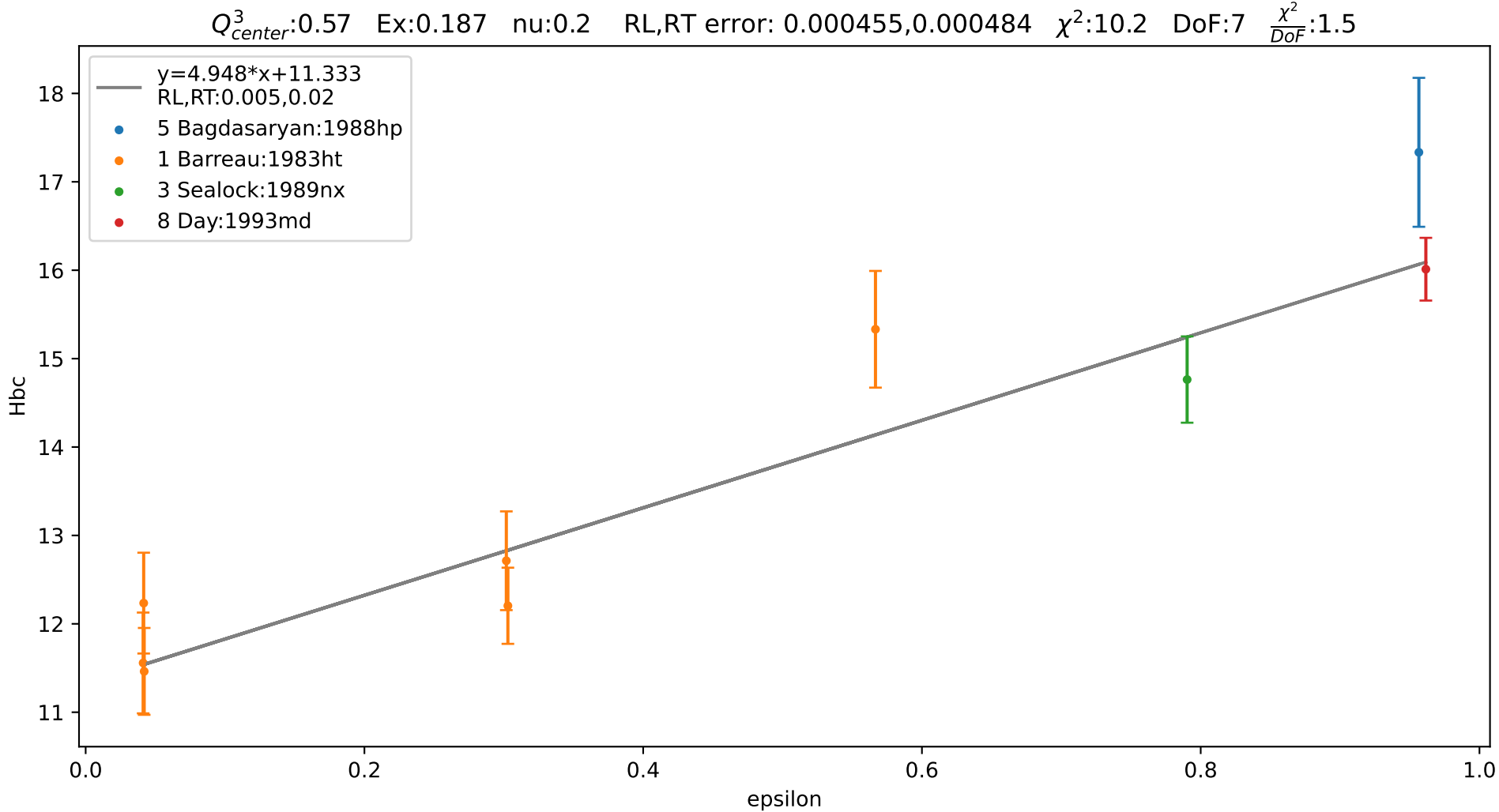
1.0


Q^3_{center}:0.57 Ex:0.187 nu:0.2 RL,RT error: 0.000455,0.000484 χ^2:10.2 DoF:7 $\frac{\chi^2}{DoF}$:1.5
y=4.948*x+11.333
RL,RT:0.005,0.02
5 Bagdasaryan:1988hp
1 Barreau:1983ht
3 Sealock:1989nx
8 Day:1993md
Hbc
epsilon
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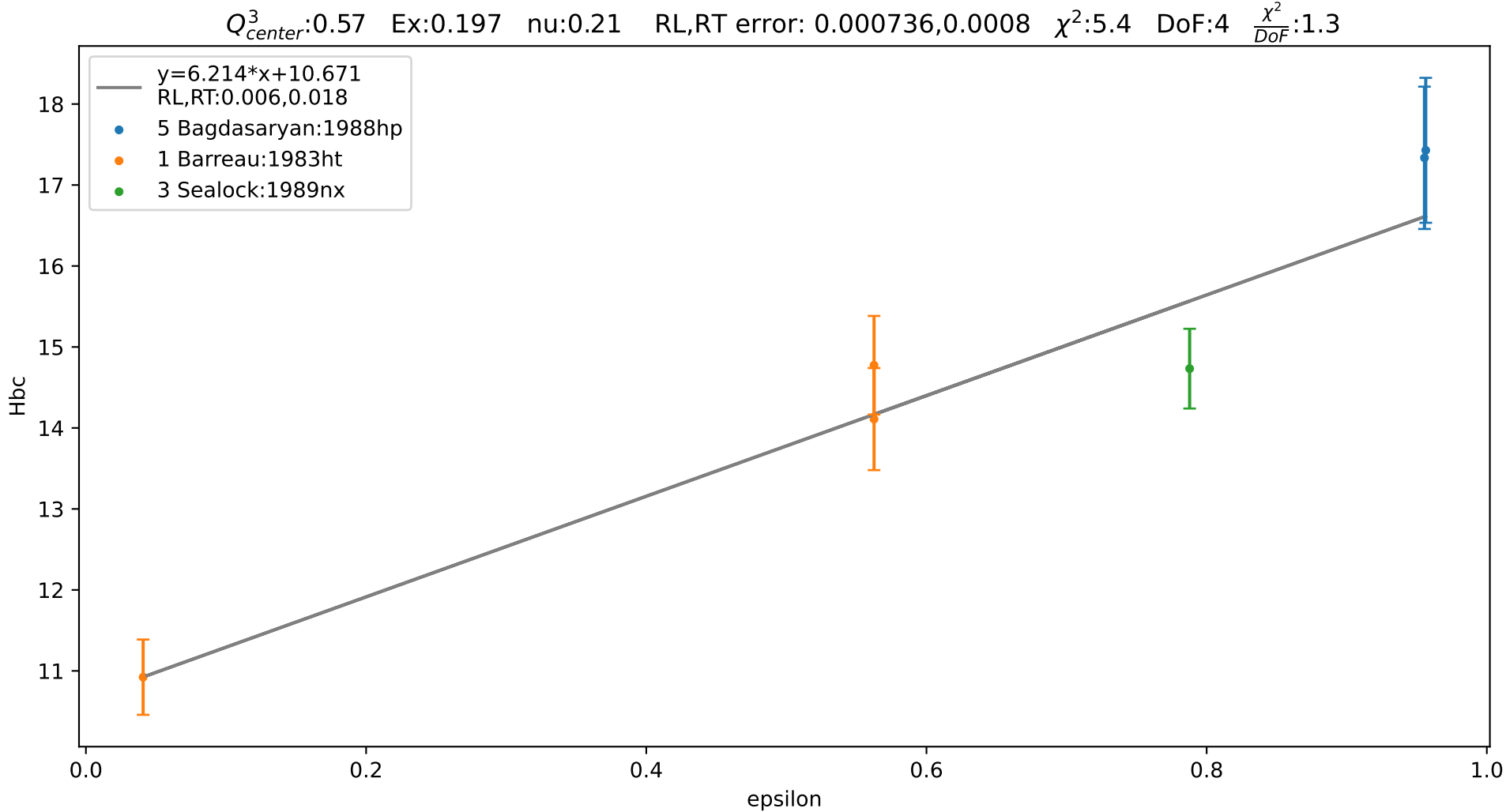
1.0


Q^3_{center}:0.57 Ex:0.197 nu:0.21 RL,RT error: 0.000736,0.0008 χ^2:5.4 DoF:4 $\frac{\chi^2}{DoF}$:1.3
y=6.214*x+10.671
RL,RT:0.006,0.018
5 Bagdasaryan:1988hp
1 Barreau:1983ht
3 Sealock:1989nx
Hbc
epsilon
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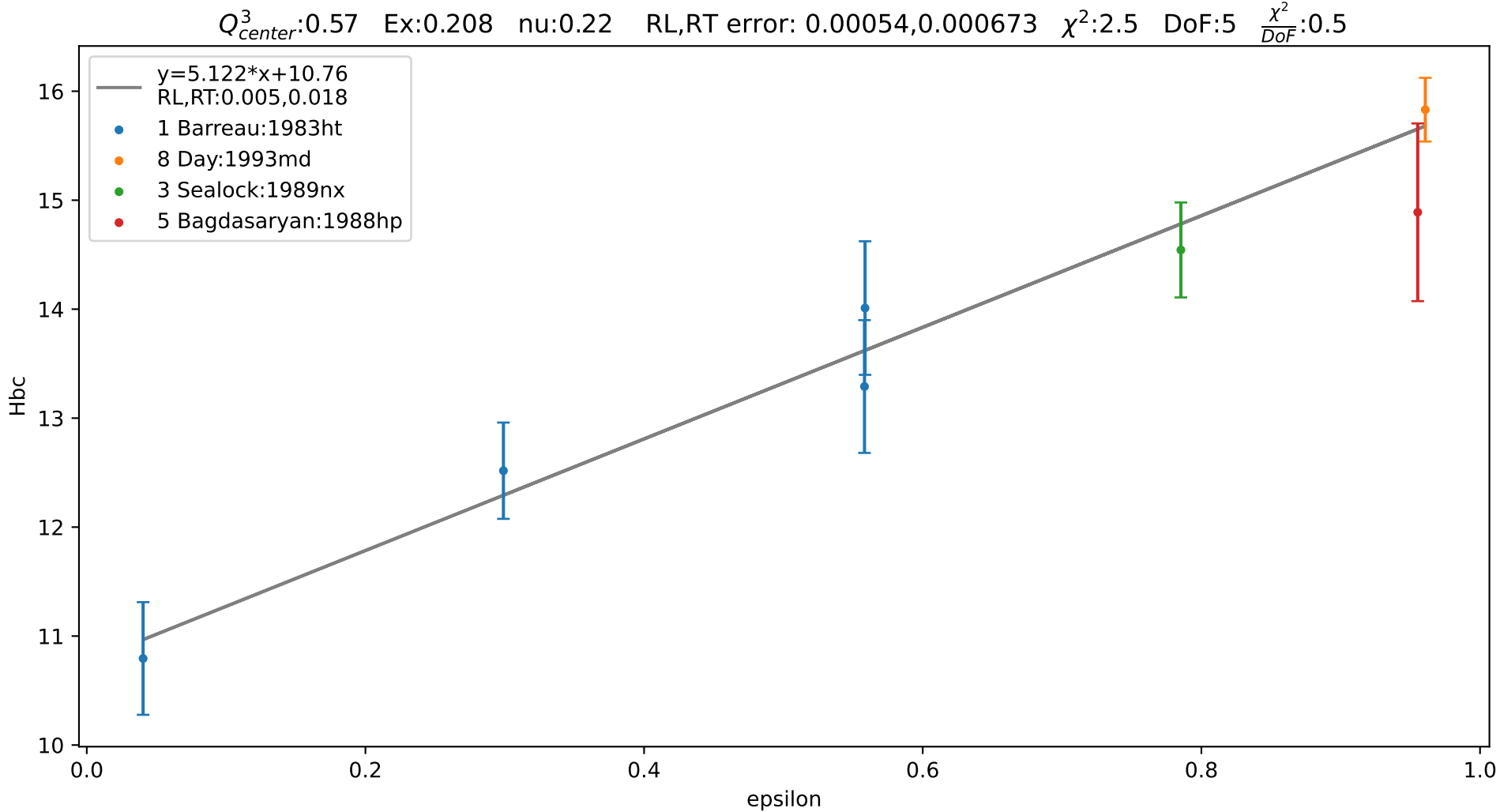
0.0
0.2
0.4
0.6
0.8
1.0


Q^3_{center}:0.57 Ex:0.208 nu:0.22 RL,RT error: 0.00054,0.000673 χ^2:2.5 DoF:5 $\frac{\chi^2}{DoF}$:0.5
y=5.122*x+10.76
RL,RT:0.005,0.018
1 Barreau:1983ht
8 Day:1993md
3 Sealock:1989nx
5 Bagdasaryan:1988hp
Hbc
epsilon
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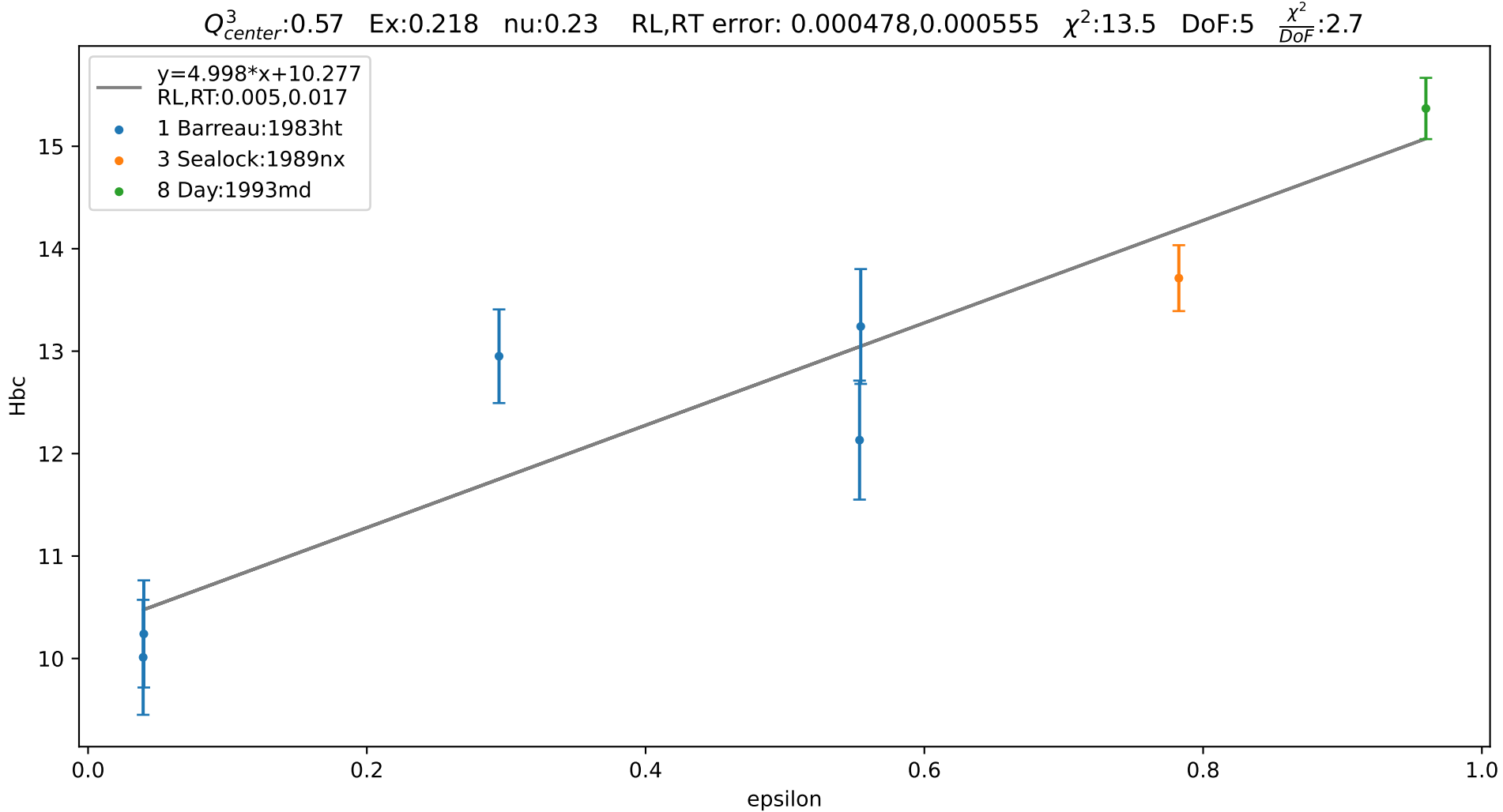
11
12
13
14
15
16
0.0
0.2
0.4
0.6
0.8
1.0


Q^3_{center}:0.57 Ex:0.218 nu:0.23 RL,RT error: 0.000478,0.000555 χ^2:13.5 DoF:5 $\frac{\chi^2}{DoF}$:2.7
y=4.998*x+10.277
RL,RT:0.005,0.017
1 Barreau:1983ht
3 Sealock:1989nx
8 Day:1993md
Hbc
epsilon
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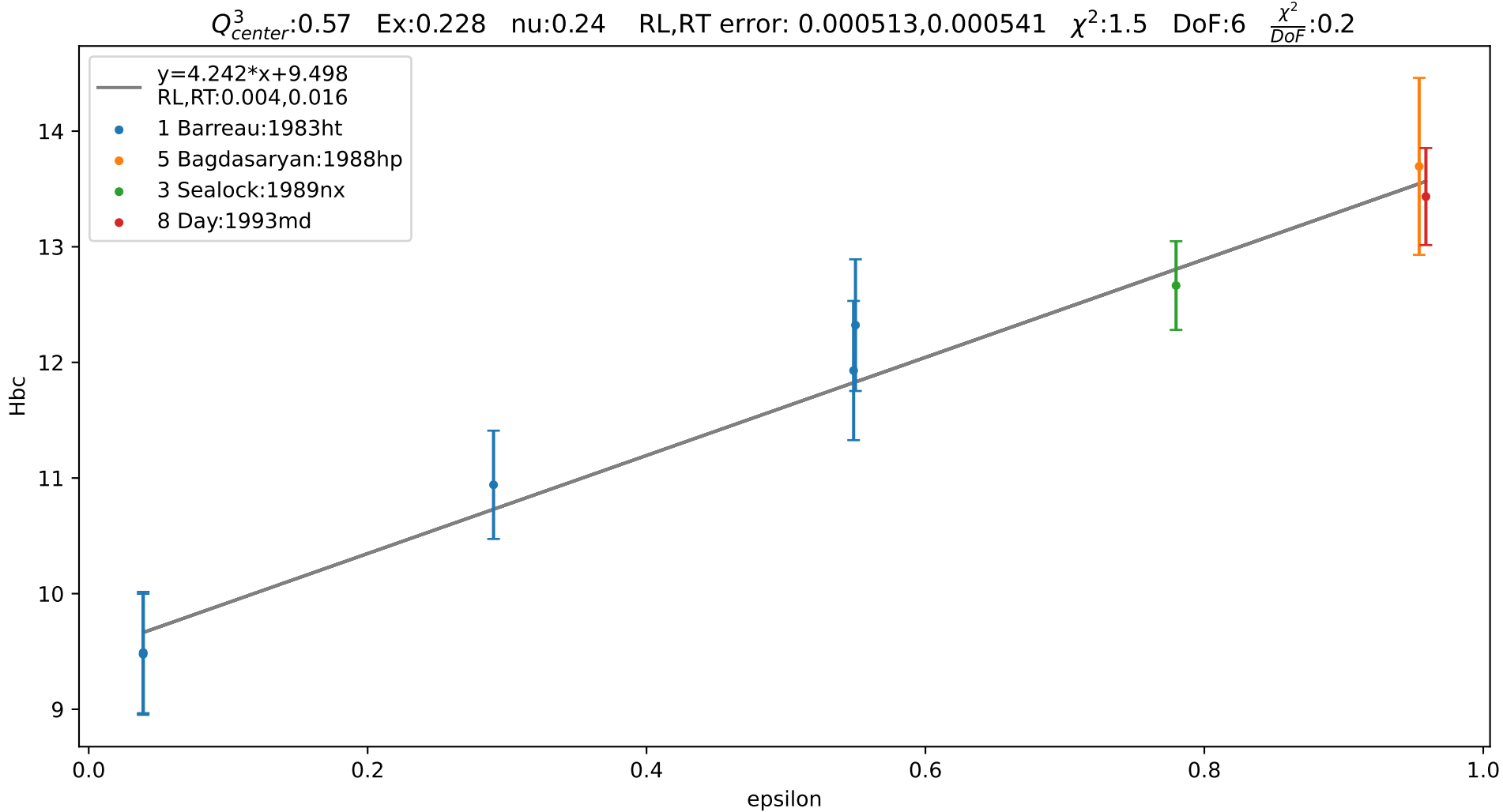
0.0
0.2
0.4
0.6
0.8
1.0


Q^3_{center}:0.57 Ex:0.228 nu:0.24 RL,RT error: 0.000513,0.000541 χ^2:1.5 DoF:6 $\frac{\chi^2}{DoF}$:0.2
y=4.242*x+9.498
RL,RT:0.004,0.016
1 Barreau:1983ht
5 Bagdasaryan:1988hp
3 Sealock:1989nx
8 Day:1993md
Hbc
epsilon
9
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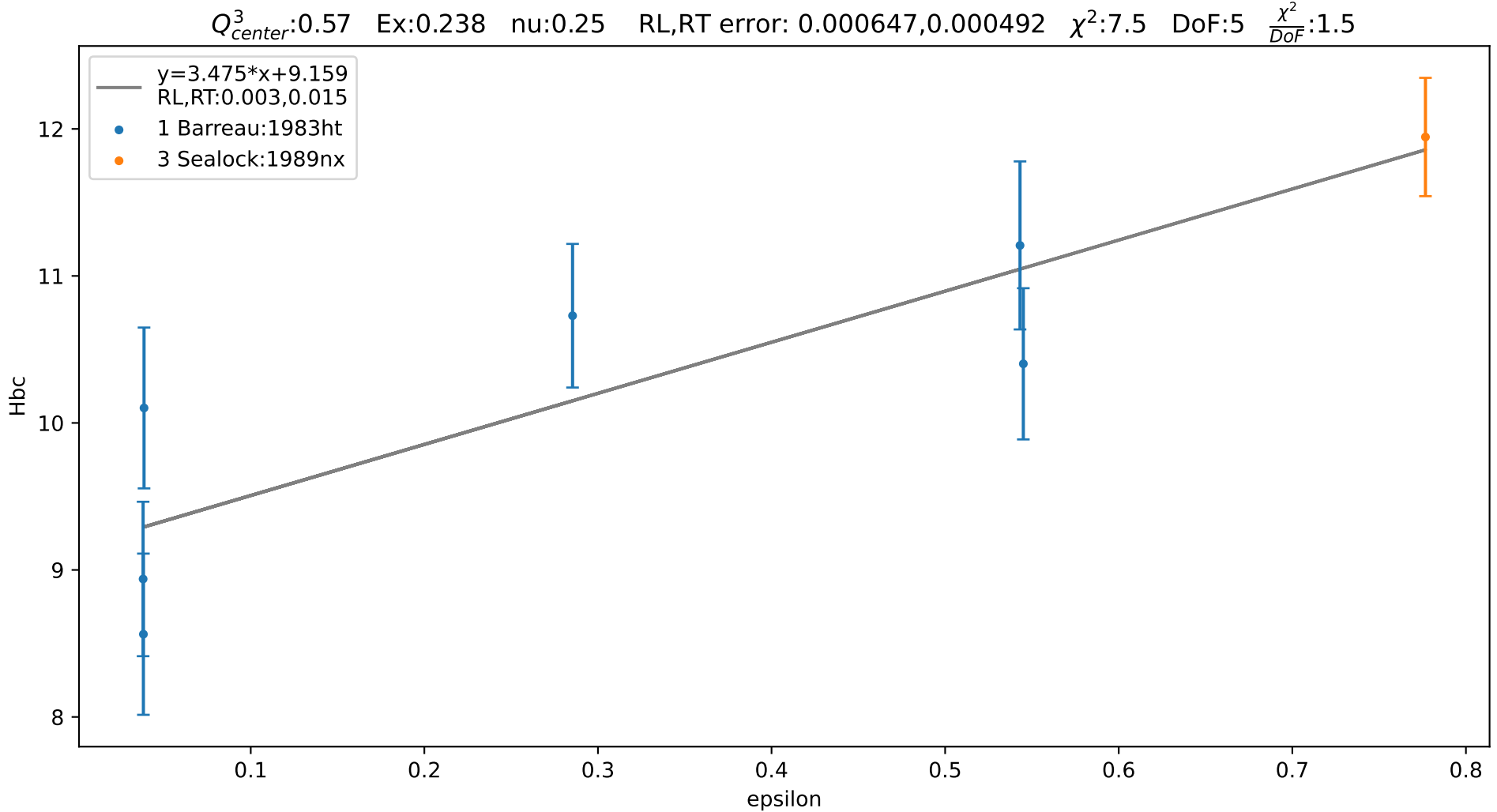
14
0.0
0.2
0.4
0.6
0.8
1.0


Q^3_{center}:0.57 Ex:0.238 nu:0.25 RL,RT error: 0.000647,0.000492 χ^2:7.5 DoF:5 $\frac{\chi^2}{DoF}$:1.5
y=3.475*x+9.159
RL,RT:0.003,0.015
1 Barreau:1983ht
3 Sealock:1989nx
Hbc
epsilon
8
9
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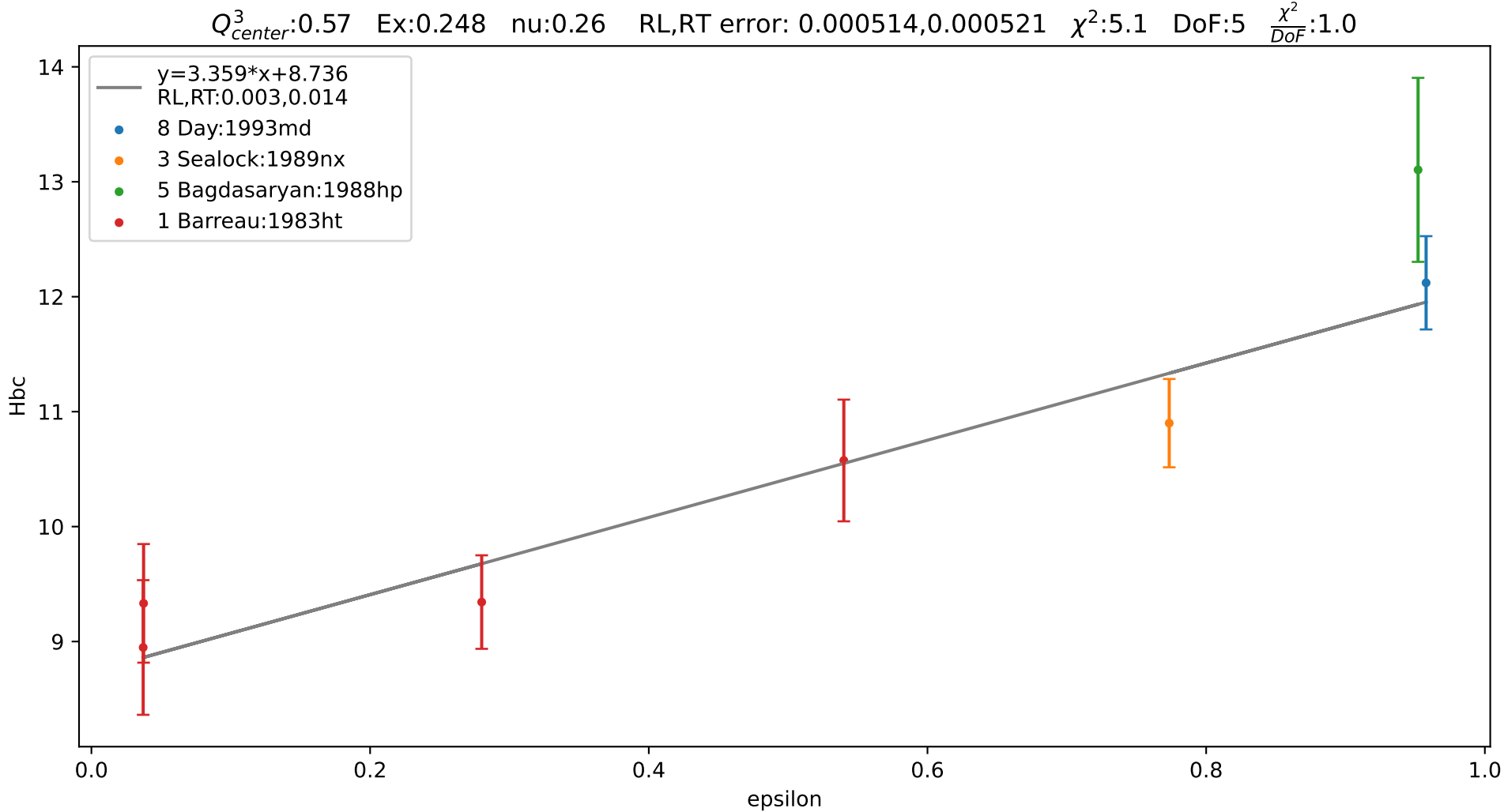
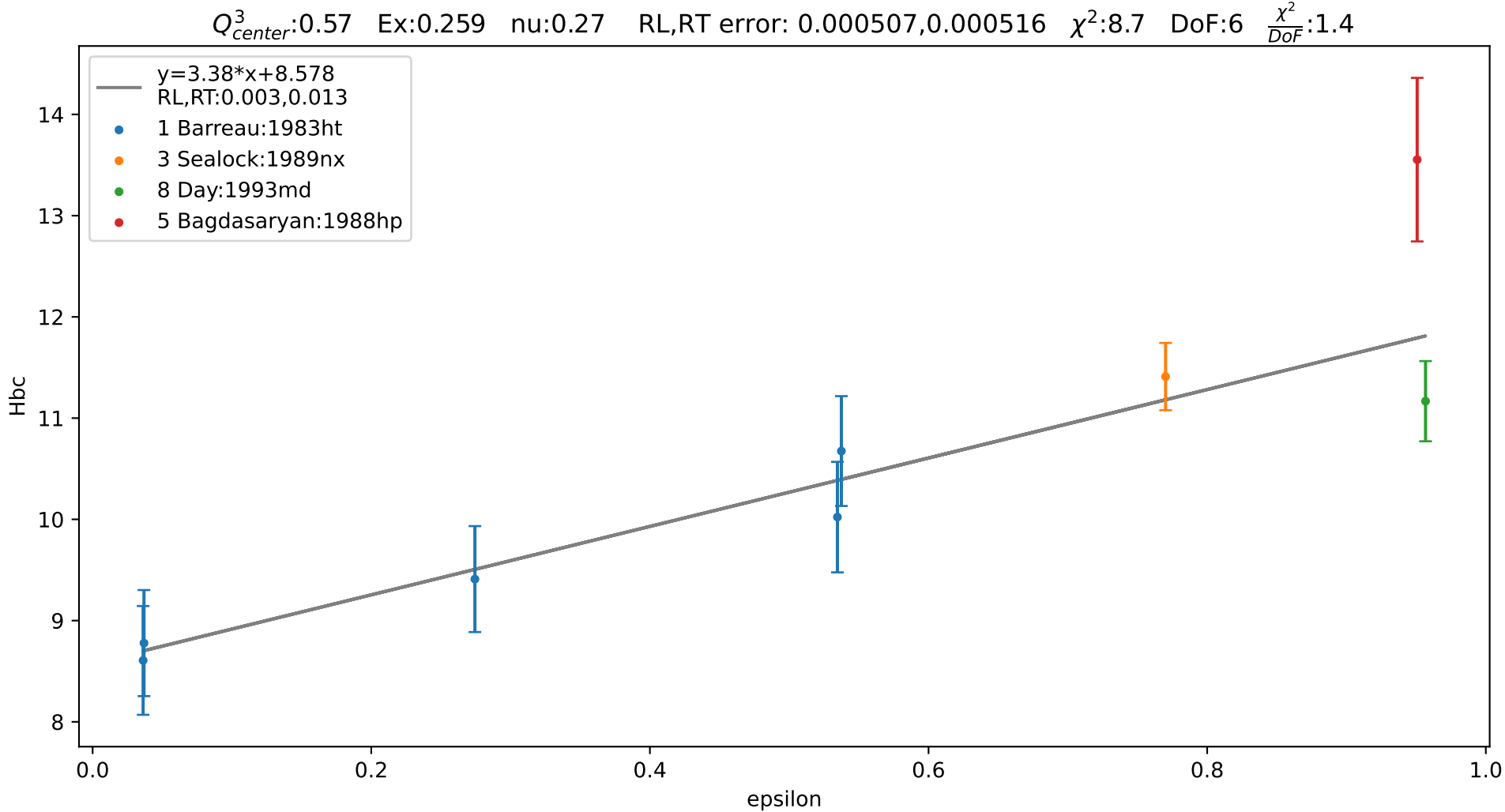
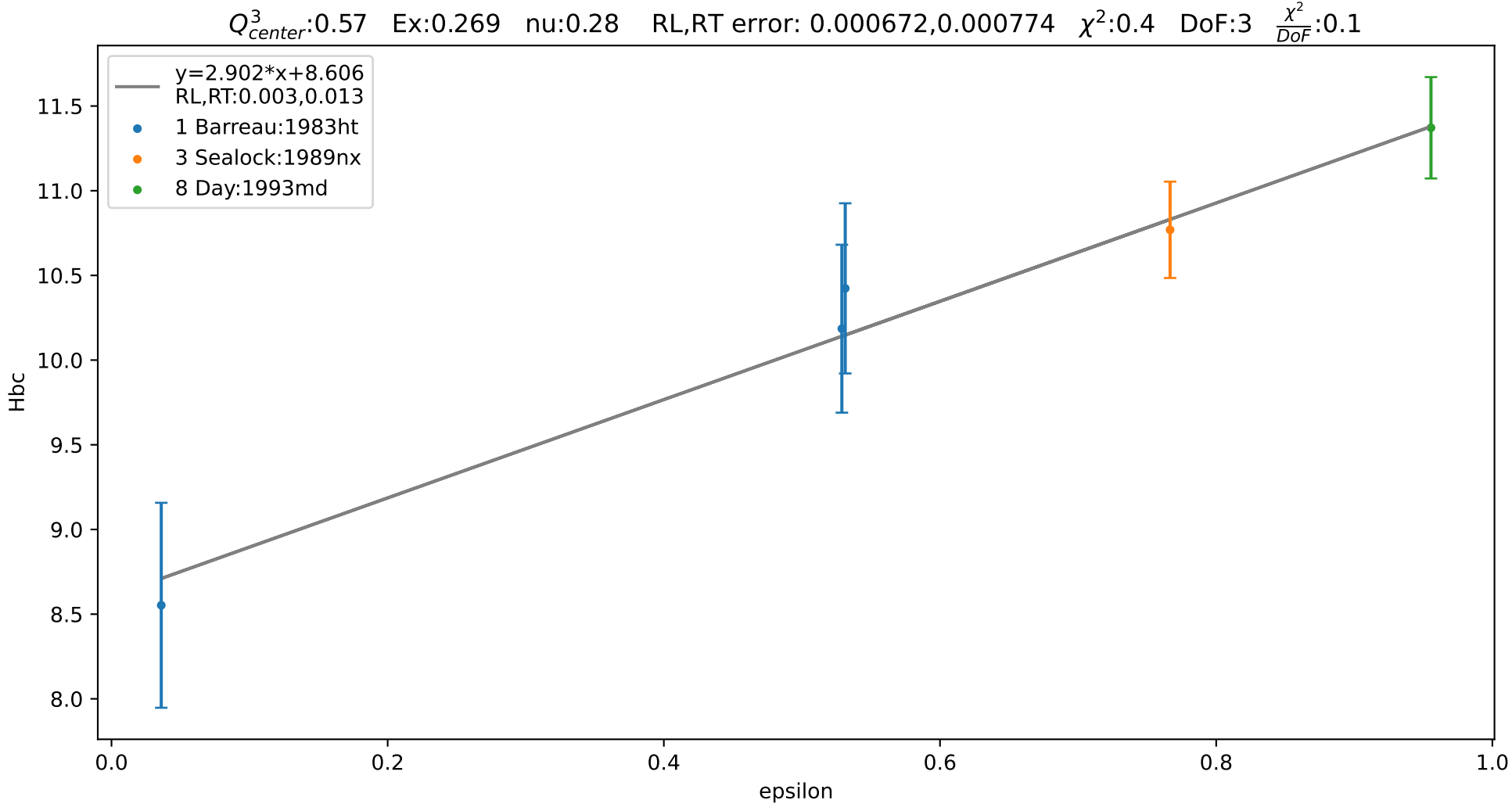
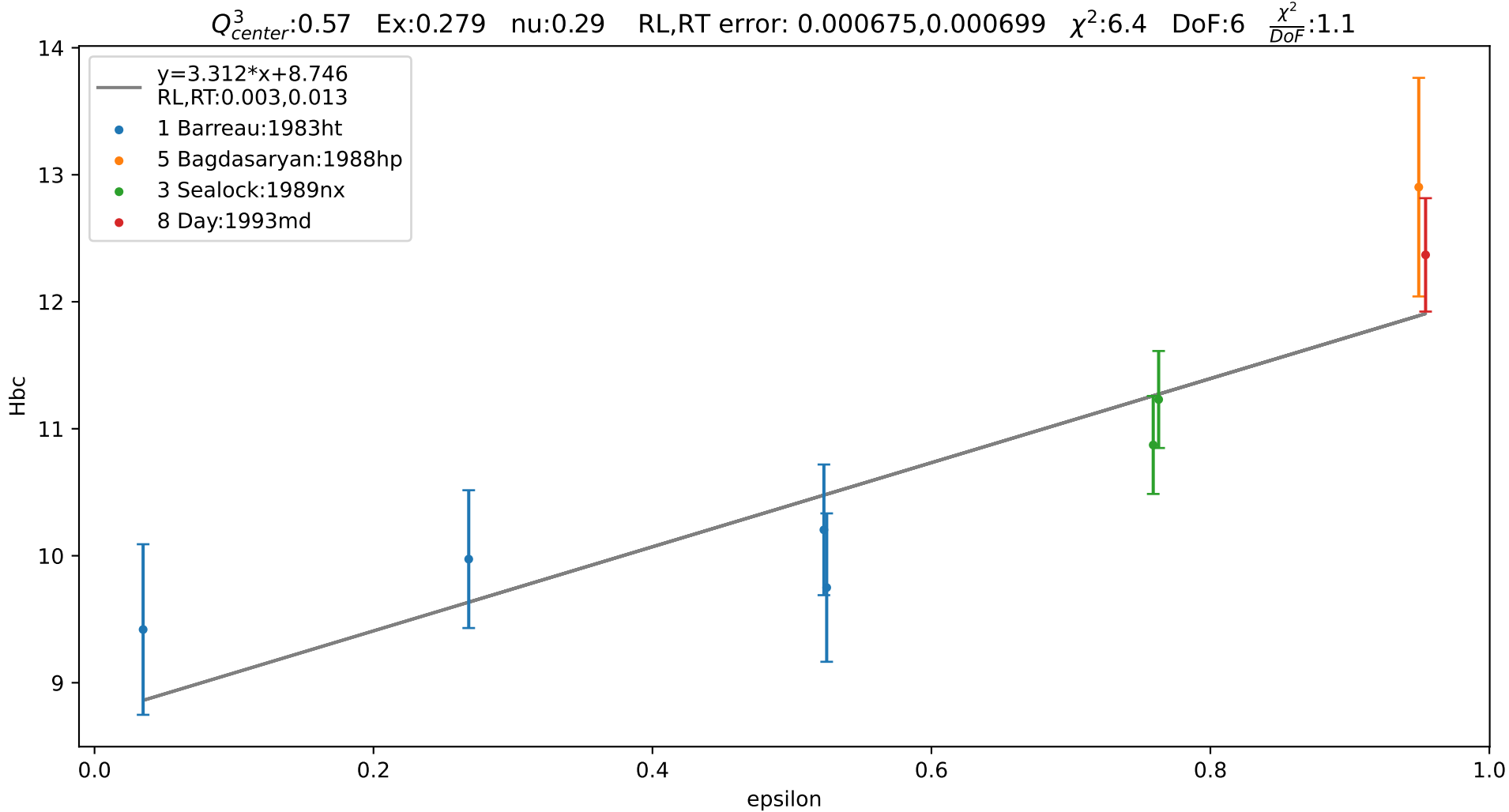
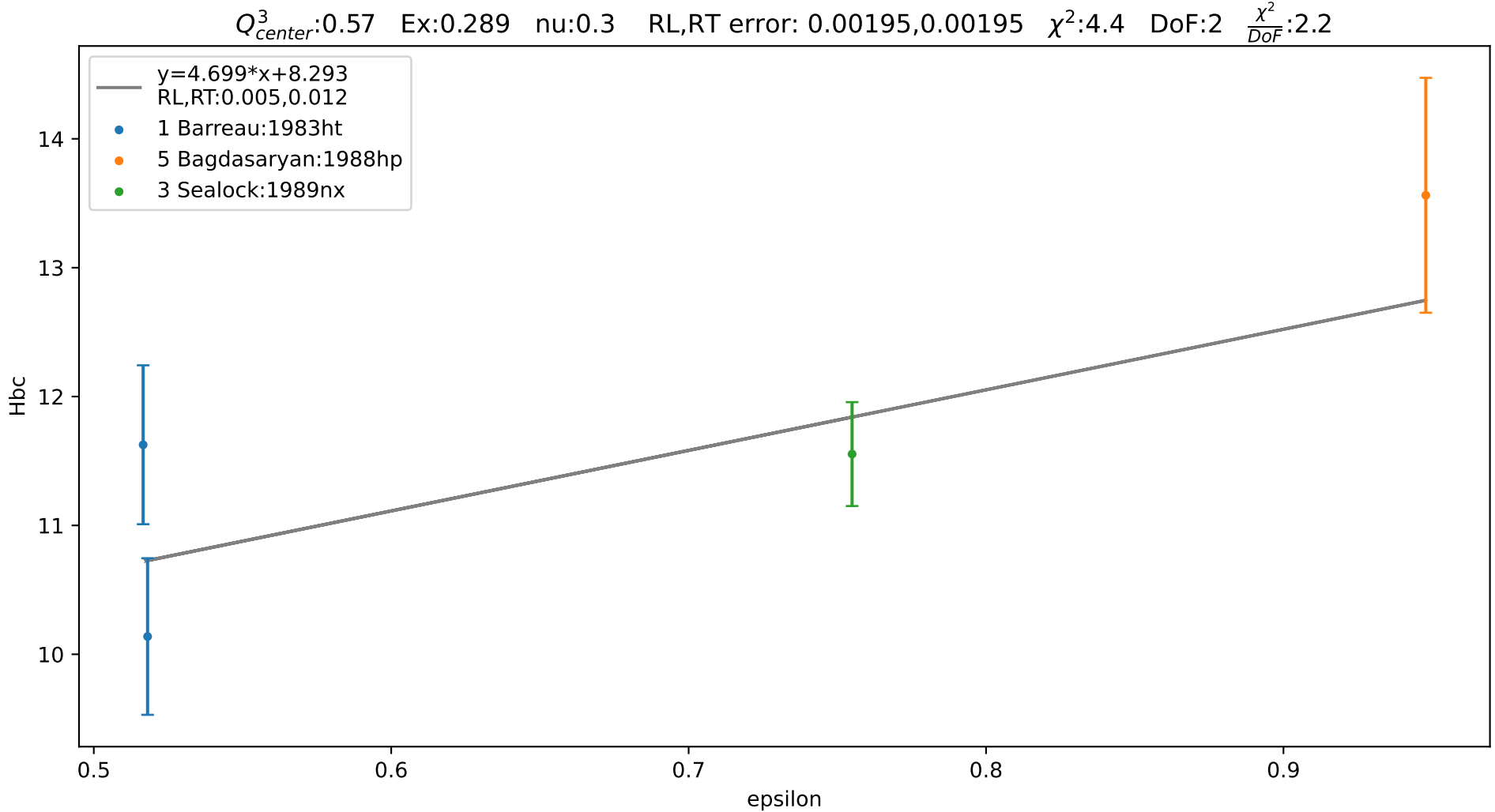
11
12
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

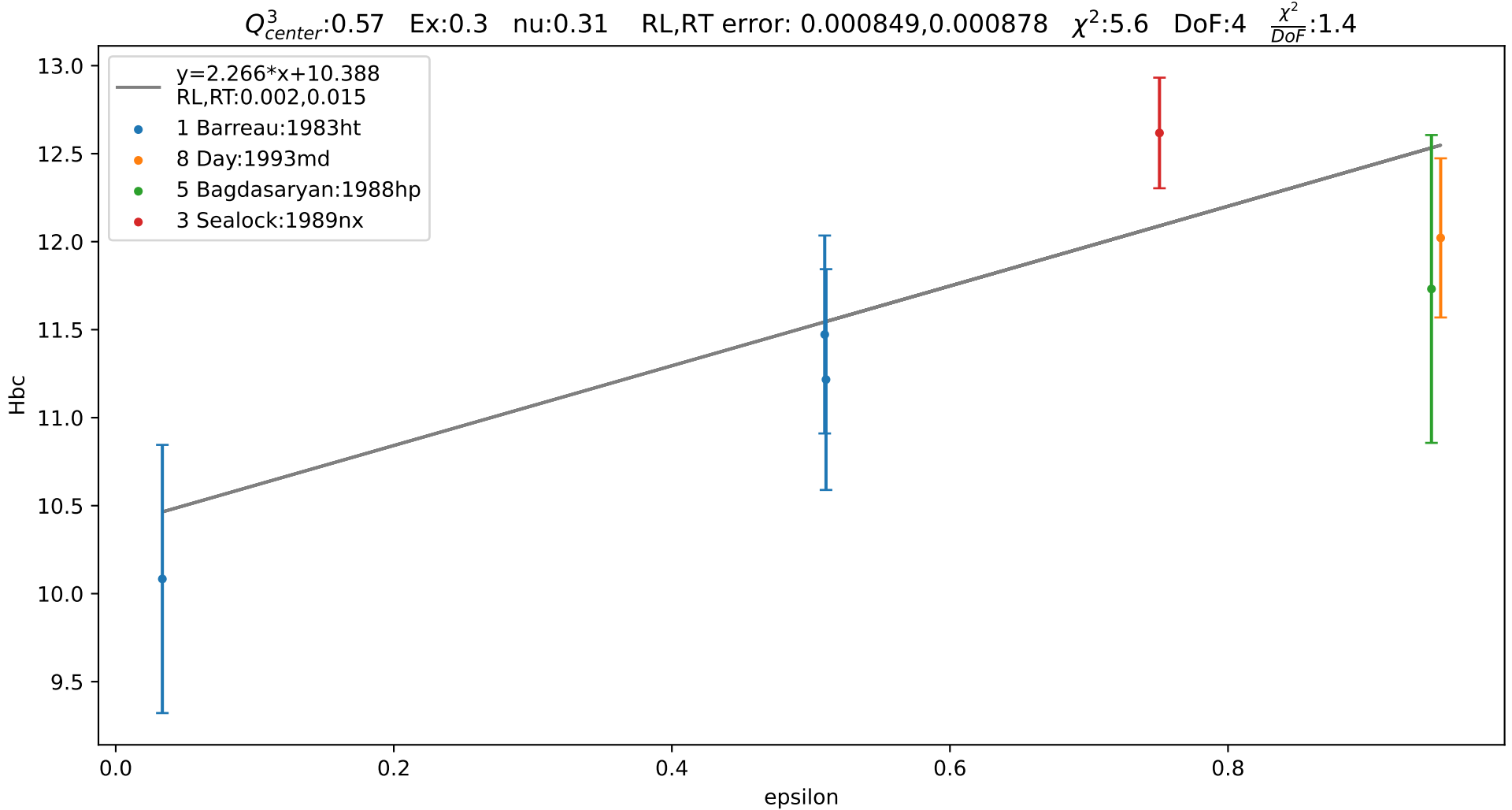

Q^3_{center}:0.57 Ex:0.248 nu:0.26 RL,RT error: 0.000514,0.000521 χ^2:5.1 DoF:5 $\frac{\chi^2}{DoF}$:1.0
y=3.359*x+8.736
RL,RT:0.003,0.014
8 Day:1993md
3 Sealock:1989nx
5 Bagdasaryan:1988hp
1 Barreau:1983ht
Hbc
epsilon
14
13
12
11
10
9
0.0
0.2
0.4
0.6
0.8
1.0

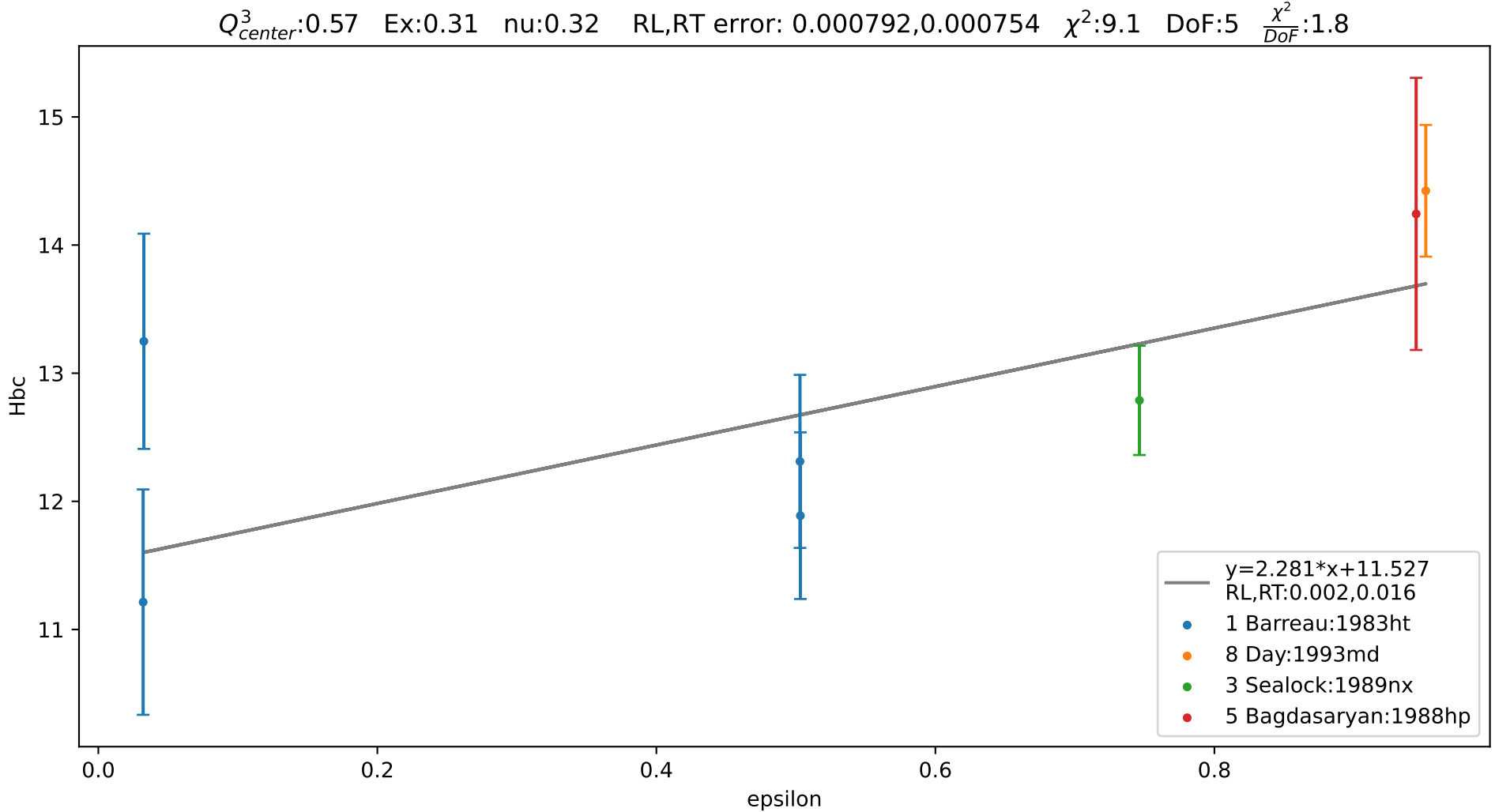

Q^3_{center}:0.57 Ex:0.259 nu:0.27 RL,RT error: 0.000507,0.000516 χ^2:8.7 DoF:6 $\frac{\chi^2}{DoF}$:1.4
y=3.38*x+8.578
RL,RT:0.003,0.013
1 Barreau:1983ht
3 Sealock:1989nx
8 Day:1993md
5 Bagdasaryan:1988hp
Hbc
epsilon
14
13
12
11
10
9
8
0.0
0.2
0.4
0.6
0.8
1.0

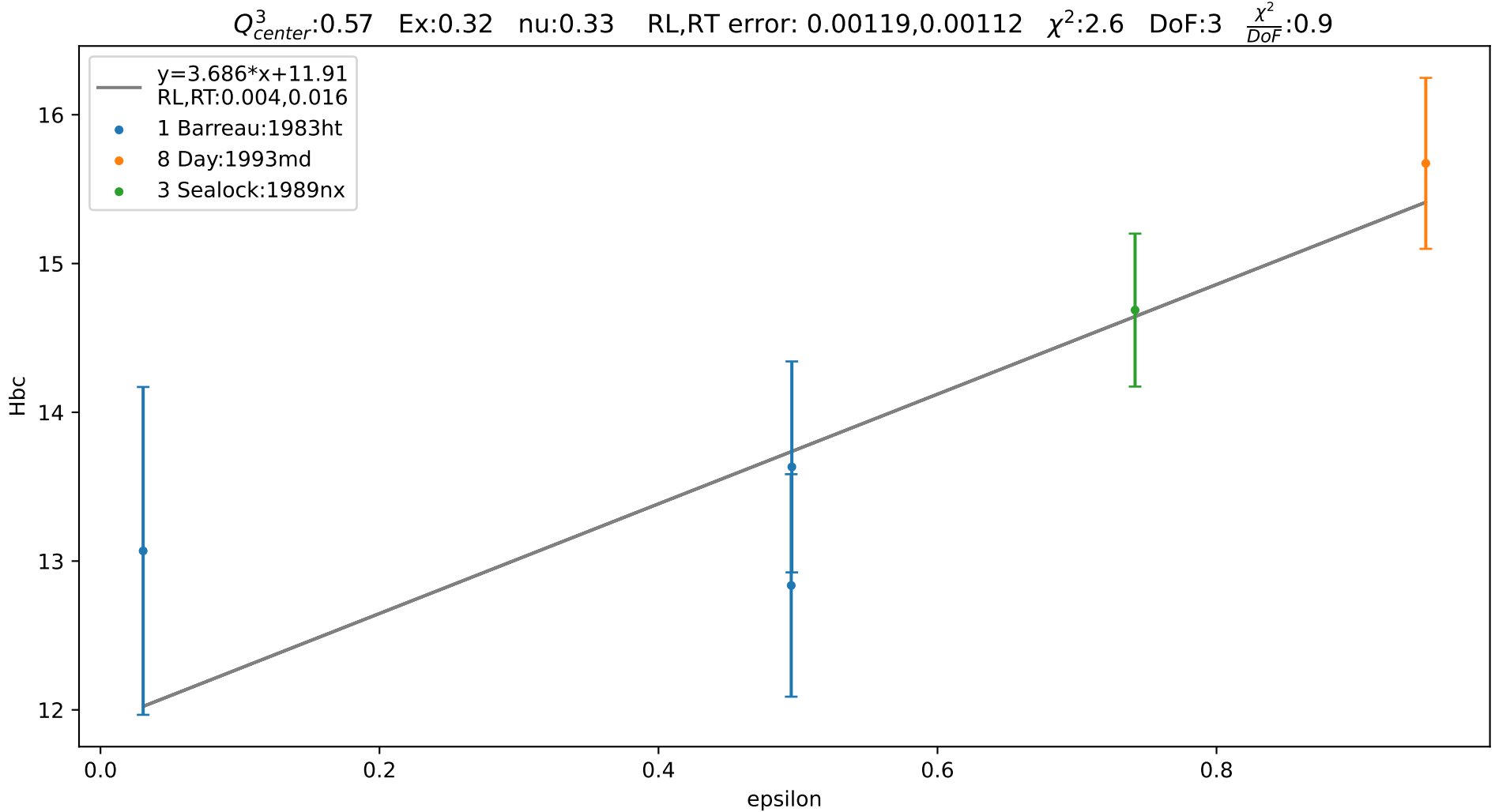

Q^3_{center}:0.57 Ex:0.269 nu:0.28 RL,RT error: 0.000672,0.000774 χ^2:0.4 DoF:3 $\frac{\chi^2}{DoF}$:0.1
y=2.902*x+8.606
RL,RT:0.003,0.013
1 Barreau:1983ht
3 Sealock:1989nx
8 Day:1993md
Hbc
epsilon
11.5
11.0
10.5
10.0
9.5
9.0
8.5
8.0
0.0
0.2
0.4
0.6
0.8
1.0

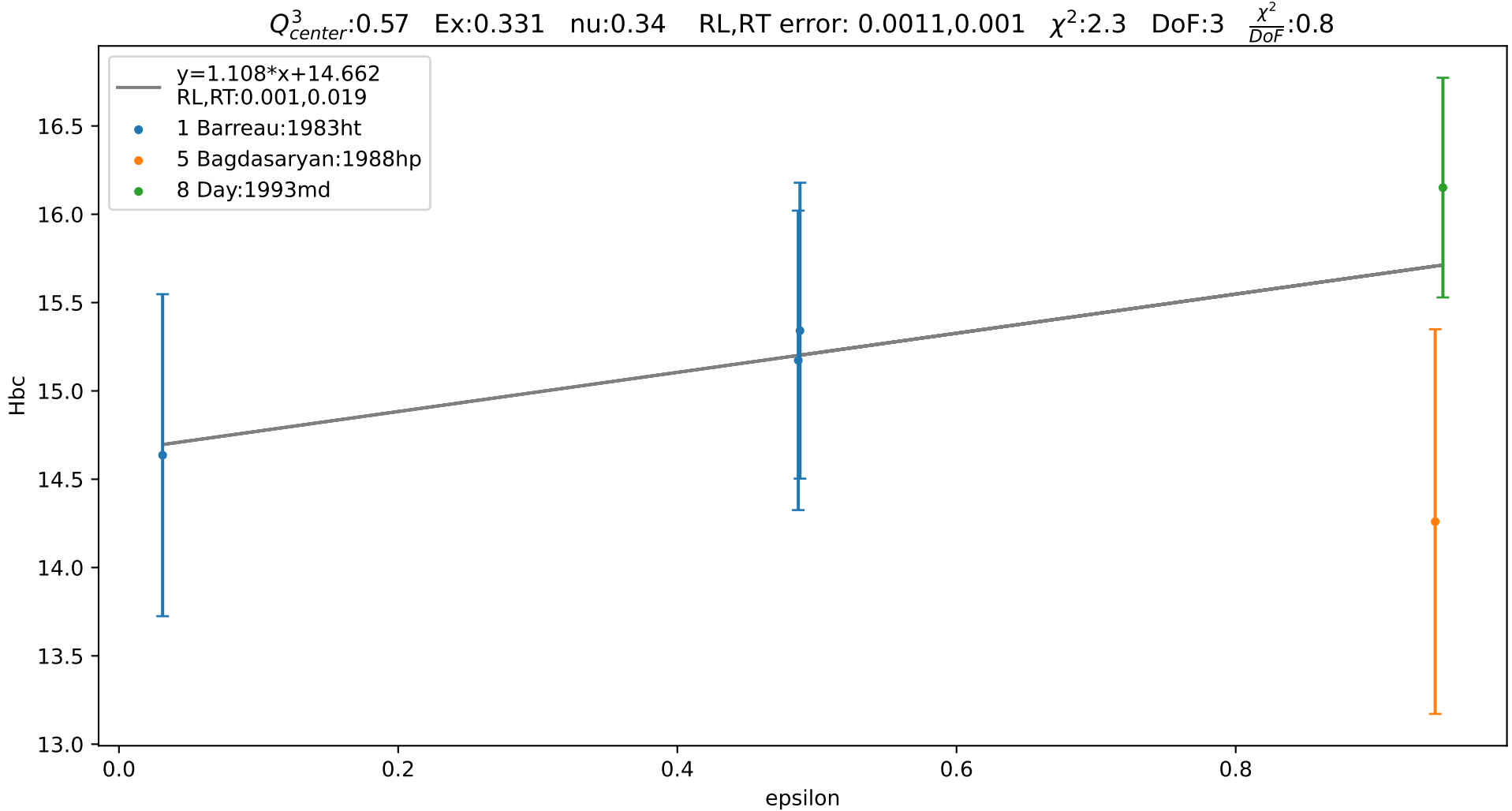

Q^3_{center}:0.57 Ex:0.279 nu:0.29 RL,RT error: 0.000675,0.000699 χ^2:6.4 DoF:6 $\frac{\chi^2}{DoF}$:1.1
y=3.312*x+8.746
RL,RT:0.003,0.013
1 Barreau:1983ht
5 Bagdasaryan:1988hp
3 Sealock:1989nx
8 Day:1993md
Hbc
epsilon
14
13
12
11
10
9
0.0
0.2
0.4
0.6
0.8
1.0

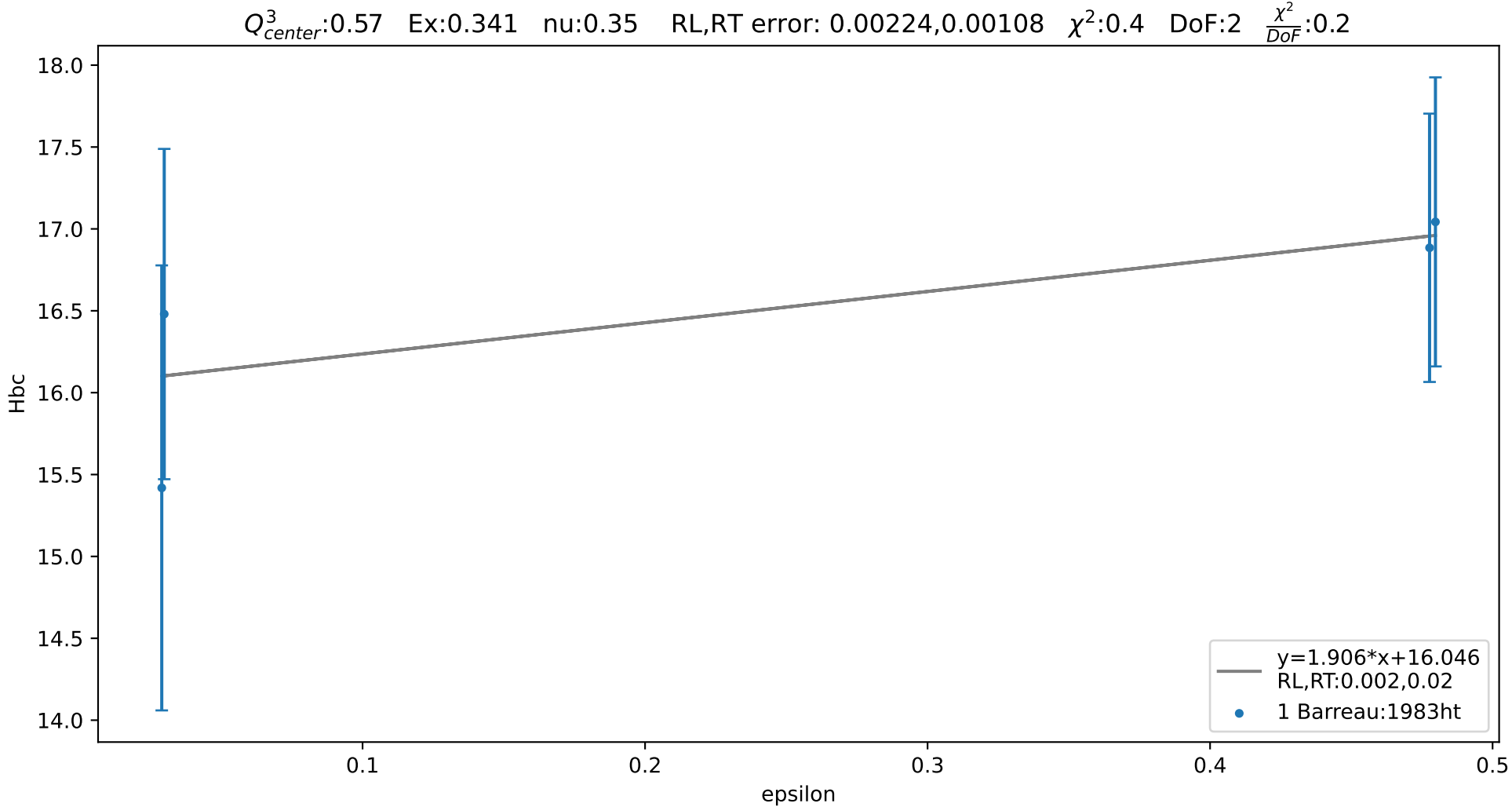

Q^3_{center}:0.57 Ex:0.289 nu:0.3 RL,RT error: 0.00195,0.00195 χ^2:4.4 DoF:2 $\frac{\chi^2}{DoF}$:2.2
y=4.699*x+8.293
RL,RT:0.005,0.012
1 Barreau:1983ht
5 Bagdasaryan:1988hp
3 Sealock:1989nx
Hbc
epsilon
10
11
12
13
14
0.5
0.6
0.7
0.8
0.9

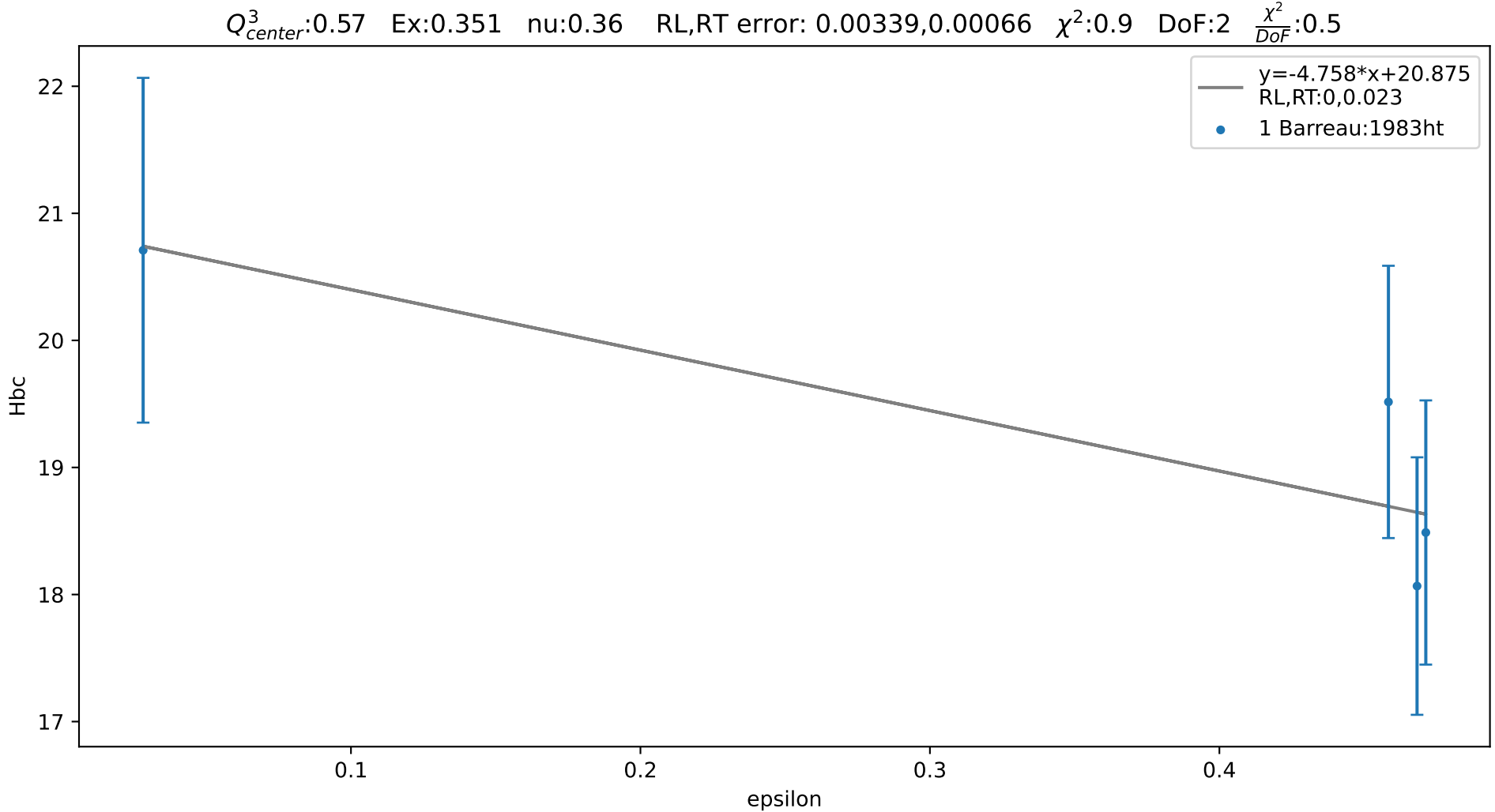

Q^3_{center}:0.57 Ex:0.3 nu:0.31 RL,RT error: 0.000849,0.000878 χ^2:5.6 DoF:4 $\frac{\chi^2}{DoF}$:1.4
y=2.266*x+10.388
RL,RT:0.002,0.015
1 Barreau:1983ht
8 Day:1993md
5 Bagdasaryan:1988hp
3 Sealock:1989nx
Hbc
epsilon
13.0
12.5
12.0
11.5
11.0
10.5
10.0
9.5
0.0
0.2
0.4
0.6
0.8

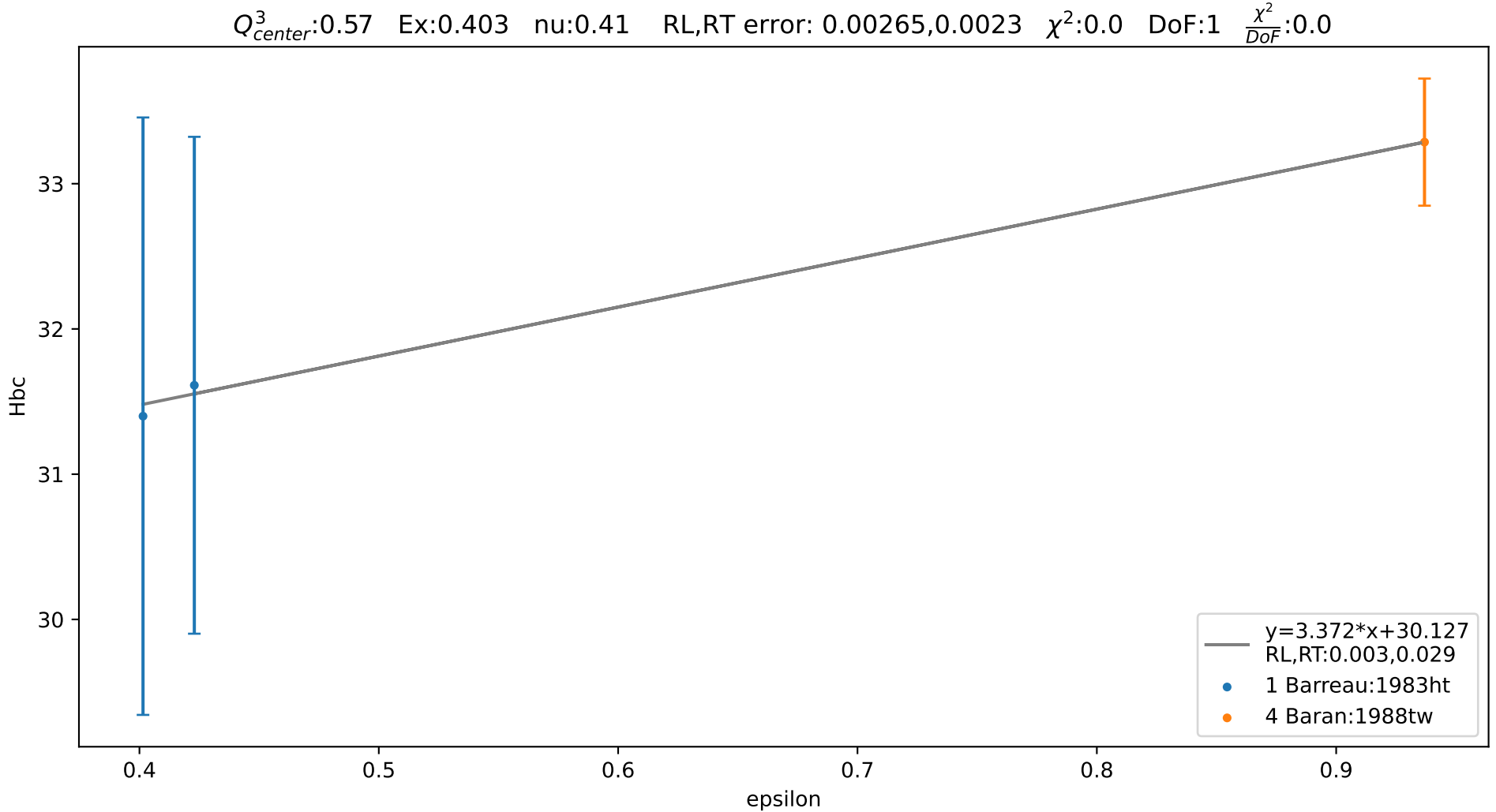

Q^3_{center}:0.57 Ex:0.31 nu:0.32 RL,RT error: 0.000792,0.000754 χ^2:9.1 DoF:5 $\frac{\chi^2}{DoF}$:1.8
Hbc
epsilon
y=2.281*x+11.527
RL,RT:0.002,0.016
1 Barreau:1983ht
8 Day:1993md
3 Sealock:1989nx
5 Bagdasaryan:1988hp

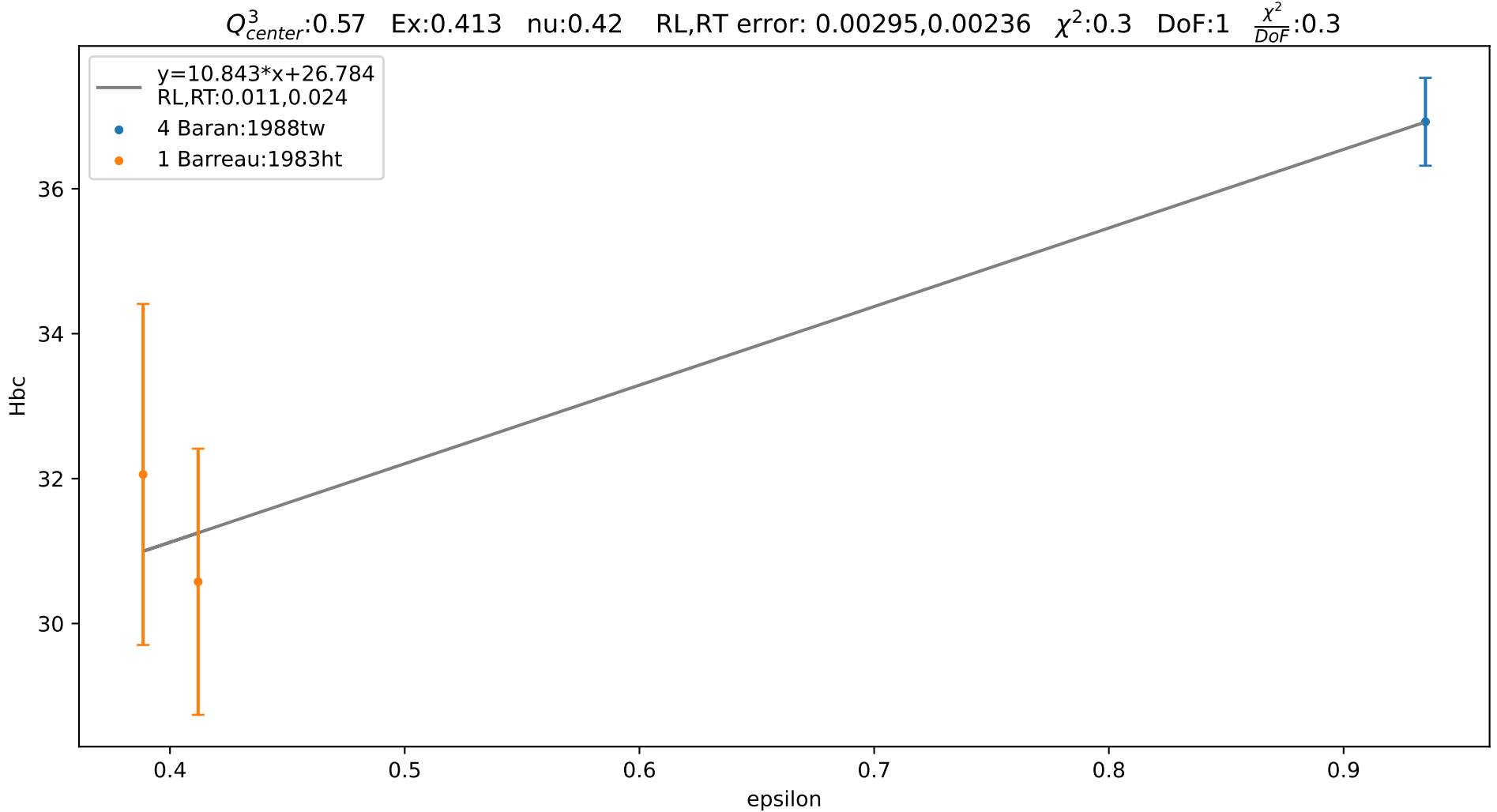

Q^3_{center}:0.57 Ex:0.32 nu:0.33 RL,RT error: 0.00119,0.00112 χ^2:2.6 DoF:3 $\frac{\chi^2}{DoF}$:0.9
y=3.686*x+11.91
RL,RT:0.004,0.016
1 Barreau:1983ht
8 Day:1993md
3 Sealock:1989nx
Hbc
epsilon
12
13
14
15
16
0.0
0.2
0.4
0.6
0.8

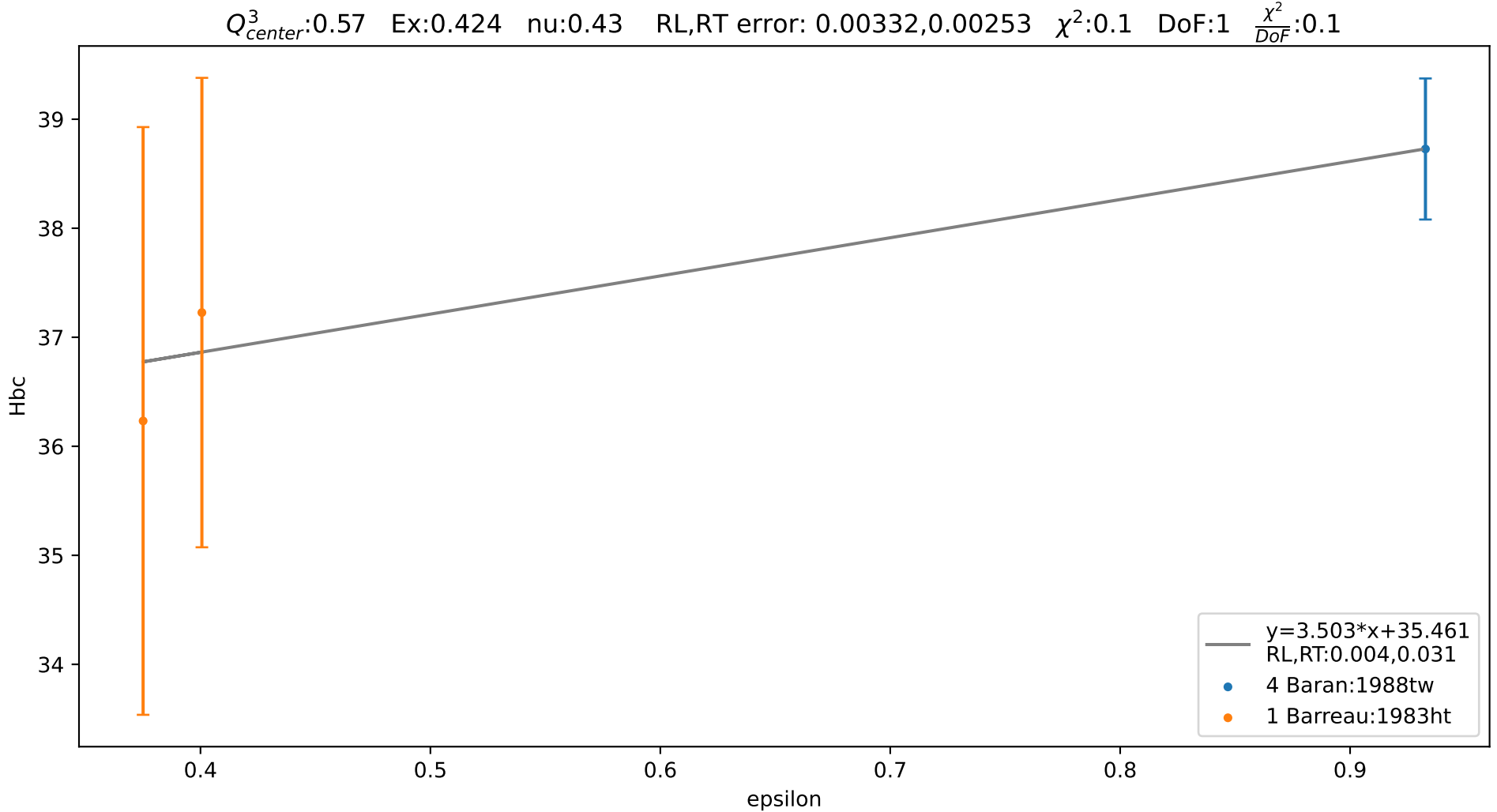

Q^3_{center}:0.57 Ex:0.331 nu:0.34 RL,RT error: 0.0011,0.001 χ^2:2.3 DoF:3 $\frac{\chi^2}{DoF}$:0.8
y=1.108*x+14.662
RL,RT:0.001,0.019
1 Barreau:1983ht
5 Bagdasaryan:1988hp
8 Day:1993md
Hbc
epsilon
16.5
16.0
15.5
15.0
14.5
14.0
13.5
13.0
0.0
0.2
0.4
0.6
0.8

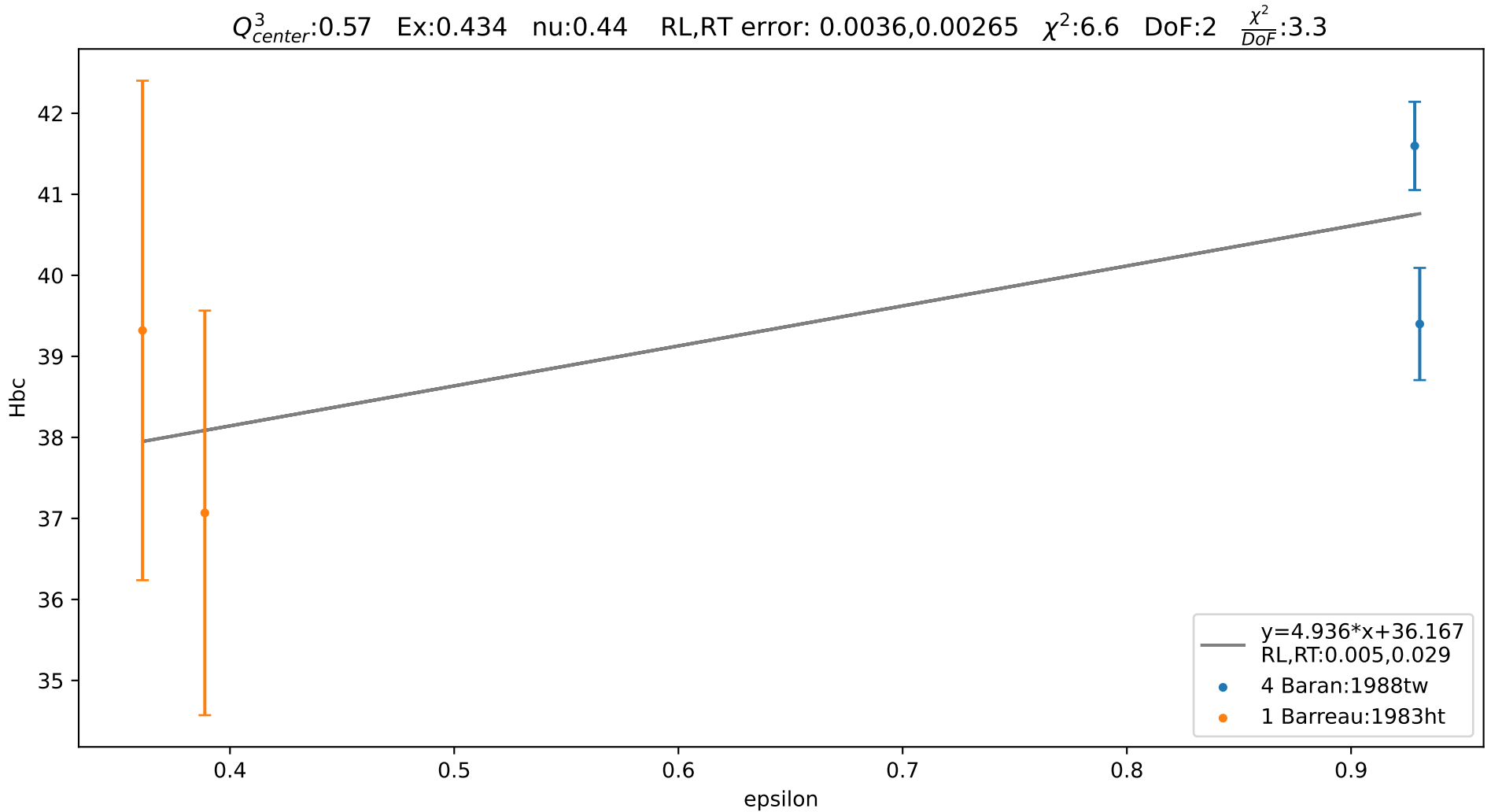

Q^3_{center}:0.57 Ex:0.341 nu:0.35 RL,RT error: 0.00224,0.00108 χ^2:0.4 DoF:2 $\frac{\chi^2}{DoF}$:0.2
Hbc
epsilon
y=1.906*x+16.046
RL,RT:0.002,0.02
1 Barreau:1983ht

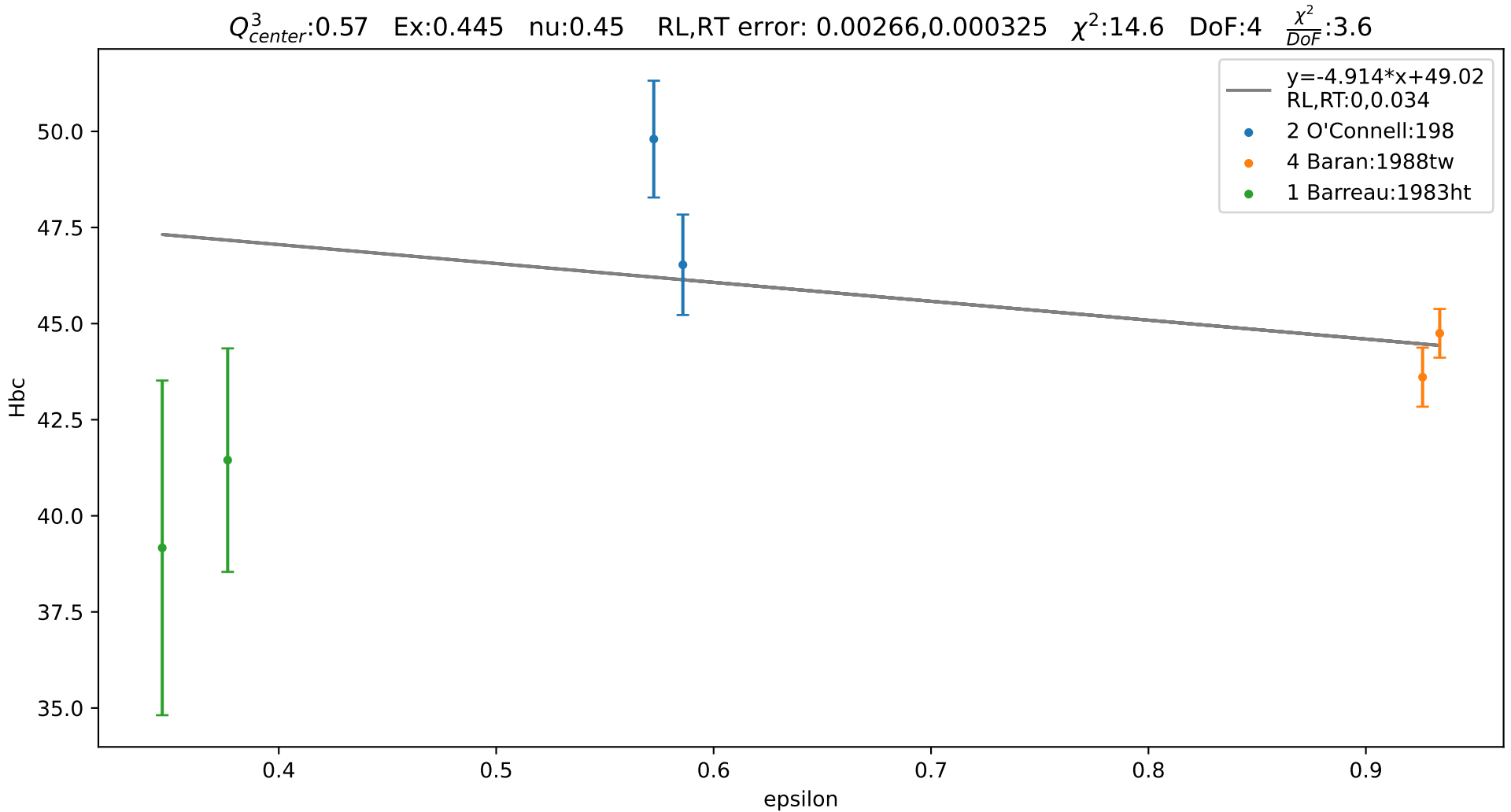

Q^3_{center}:0.57 Ex:0.351 nu:0.36 RL,RT error: 0.00339,0.00066 χ^2:0.9 DoF:2 $\frac{\chi^2}{DoF}$:0.5
y=-4.758*x+20.875
RL,RT:0,0.023
1 Barreau:1983ht
Hbc
epsilon
22
21
20
19
18
17
0.1
0.2
0.3
0.4

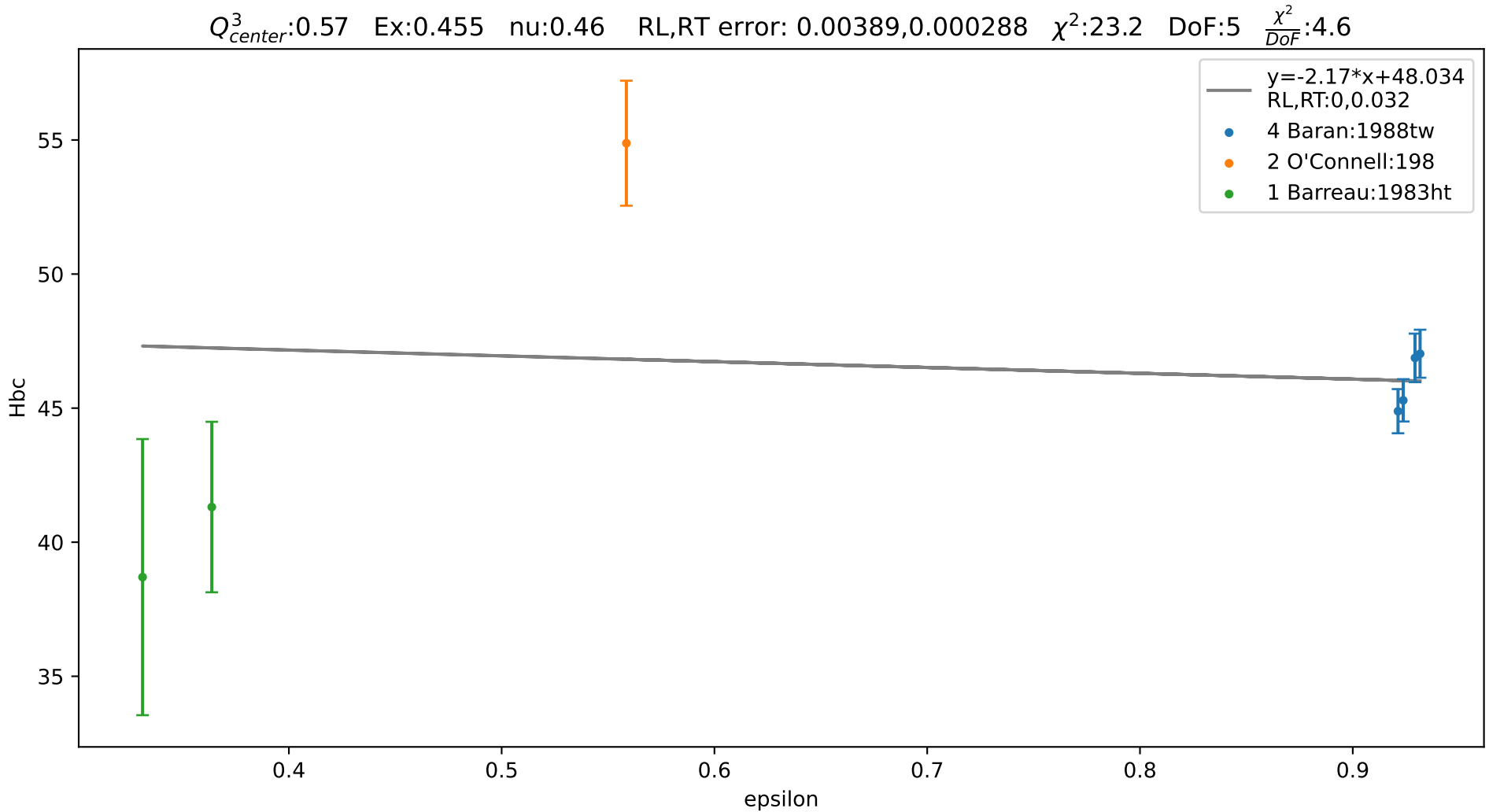

Q^3_{center}:0.57 Ex:0.403 nu:0.41 RL,RT error: 0.00265,0.0023 χ^2:0.0 DoF:1 $\frac{\chi^2}{DoF}$:0.0
Hbc
epsilon
33
32
31
30
0.4
0.5
0.6
0.7
0.8
0.9
y=3.372*x+30.127
RL,RT:0.003,0.029
1 Barreau:1983ht
4 Baran:1988tw

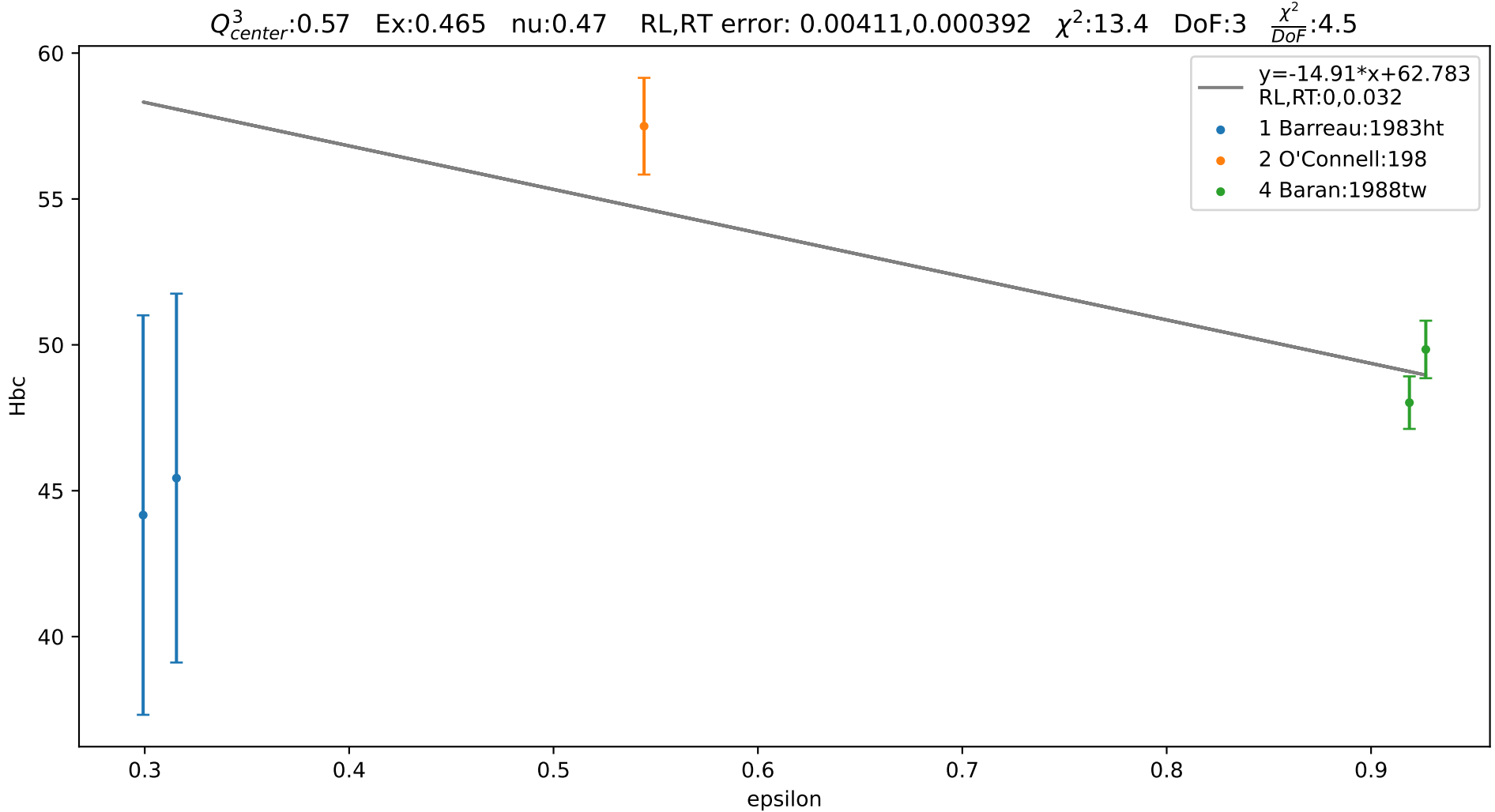

Q^3_{center}:0.57 Ex:0.413 nu:0.42 RL,RT error: 0.00295,0.00236 χ^2:0.3 DoF:1 $\frac{\chi^2}{DoF}$:0.3
y=10.843*x+26.784
RL,RT:0.011,0.024
4 Baran:1988tw
1 Barreau:1983ht
Hbc
epsilon
30
32
34
36
0.4
0.5
0.6
0.7
0.8
0.9

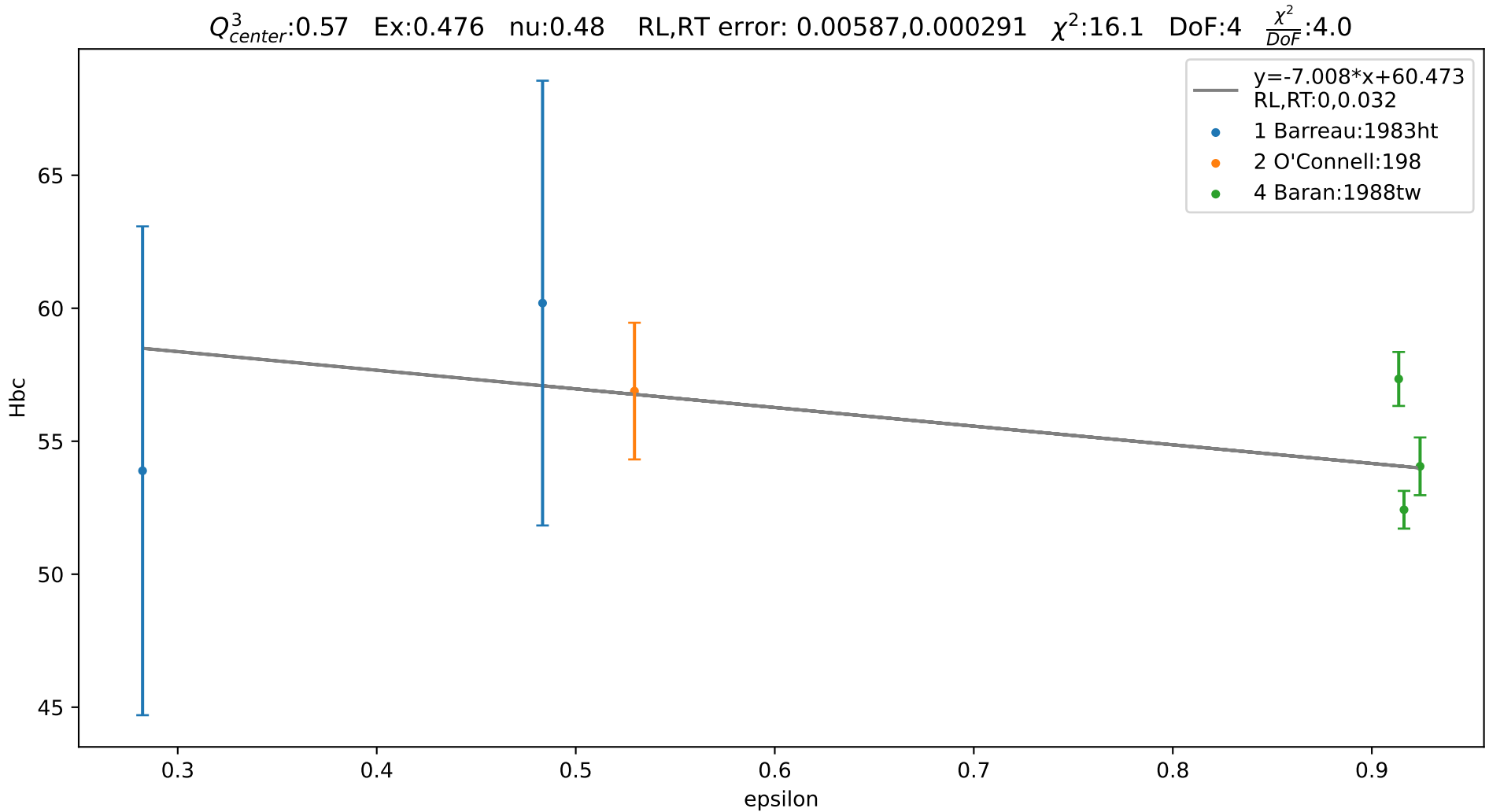

Q^3_{center}:0.57 Ex:0.424 nu:0.43 RL,RT error: 0.00332,0.00253 χ^2:0.1 DoF:1 $\frac{\chi^2}{DoF}$:0.1
Hbc
epsilon
34
35
36
37
38
39
0.4
0.5
0.6
0.7
0.8
0.9
y=3.503*x+35.461
RL,RT:0.004,0.031
4 Baran:1988tw
1 Barreau:1983ht

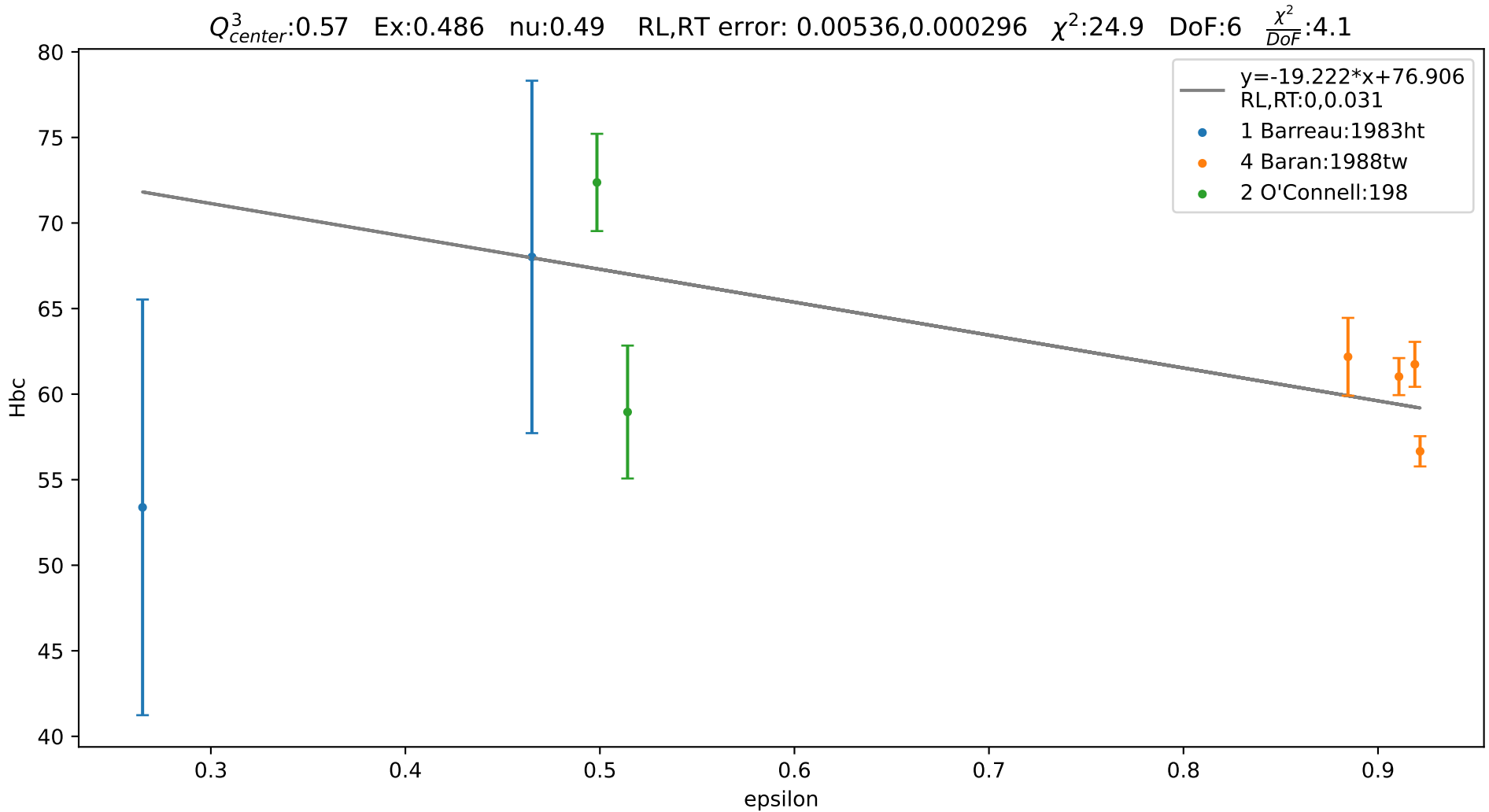

Q^3_{center}:0.57 Ex:0.434 nu:0.44 RL,RT error: 0.0036,0.00265 χ^2:6.6 DoF:2 $\frac{\chi^2}{DoF}$:3.3
Hbc
epsilon
y=4.936*x+36.167
RL,RT:0.005,0.029
4 Baran:1988tw
1 Barreau:1983ht

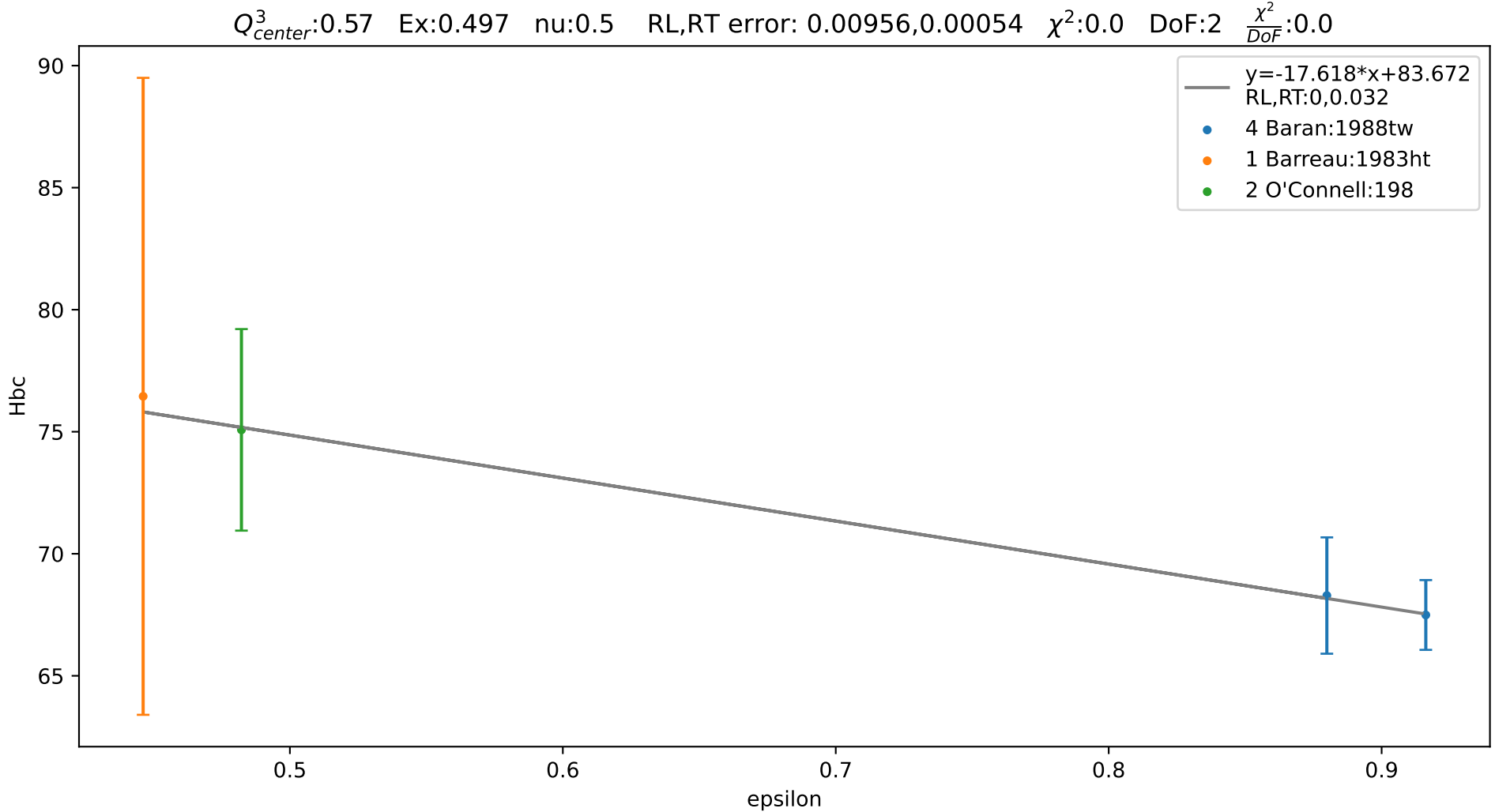

Q^3_{center}:0.57 Ex:0.445 nu:0.45 RL,RT error: 0.00266,0.000325 χ^2:14.6 DoF:4 $\frac{\chi^2}{DoF}$:3.6
y=-4.914*x+49.02
RL,RT:0,0.034
2 O'Connell:198
4 Baran:1988tw
1 Barreau:1983ht
Hbc
epsilon
50.0
47.5
45.0
42.5
40.0
37.5
35.0
0.4
0.5
0.6
0.7
0.8
0.9

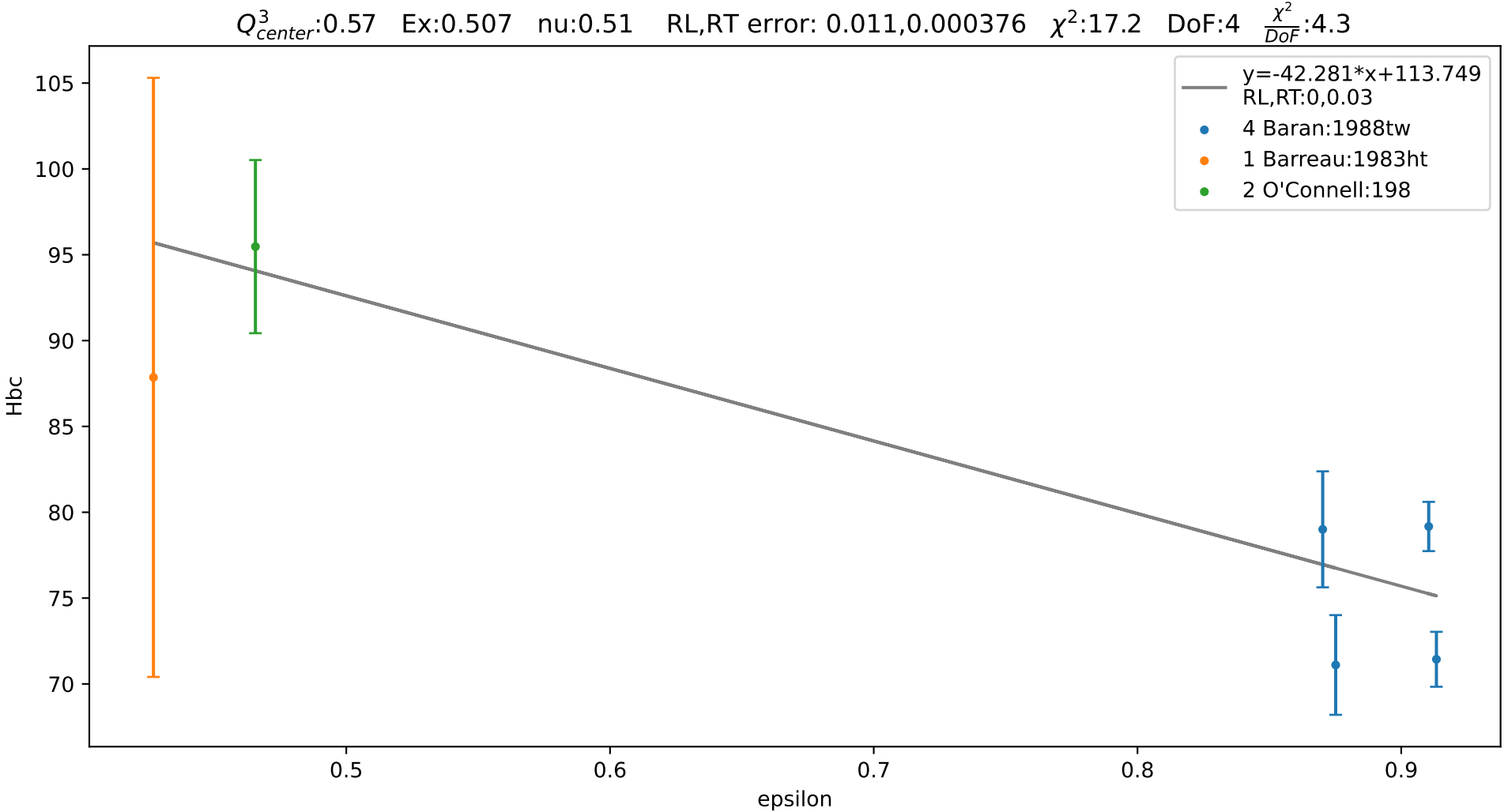

Q^3_{center}:0.57 Ex:0.455 nu:0.46 RL,RT error: 0.00389,0.000288 χ^2:23.2 DoF:5 $\frac{\chi^2}{DoF}$:4.6
y=-2.17*x+48.034
RL,RT:0,0.032
4 Baran:1988tw
2 O'Connell:198
1 Barreau:1983ht
Hbc
epsilon
55
50
45
40
35
0.4
0.5
0.6
0.7
0.8
0.9

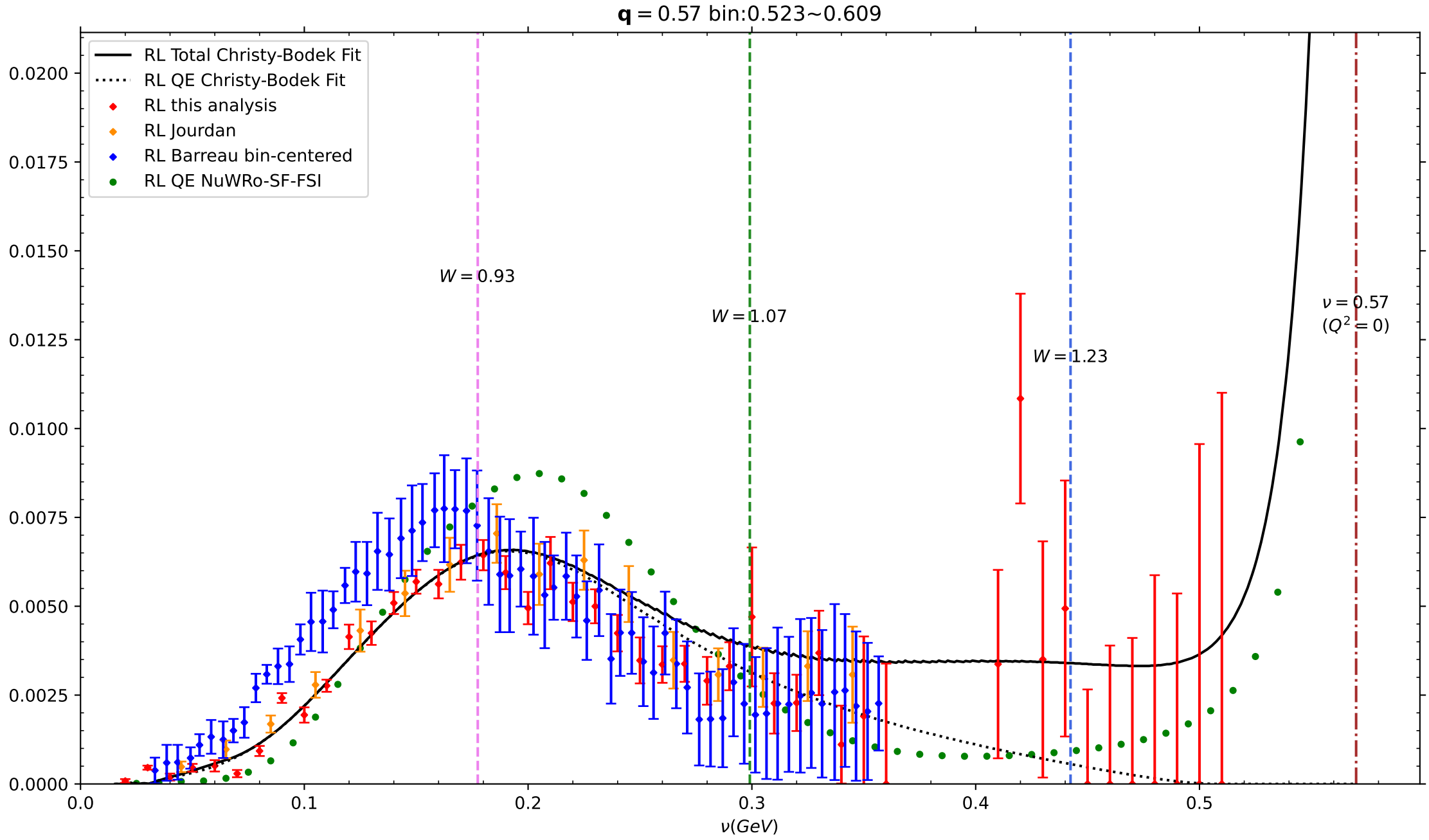

Q^3_{center}:0.57 Ex:0.465 nu:0.47 RL,RT error: 0.00411,0.000392 χ^2:13.4 DoF:3 $\frac{\chi^2}{DoF}$:4.5
y=-14.91*x+62.783
RL,RT:0,0.032
1 Barreau:1983ht
2 O'Connell:198
4 Baran:1988tw
Hbc
epsilon
60
55
50
45
40
0.3
0.4
0.5
0.6
0.7
0.8
0.9

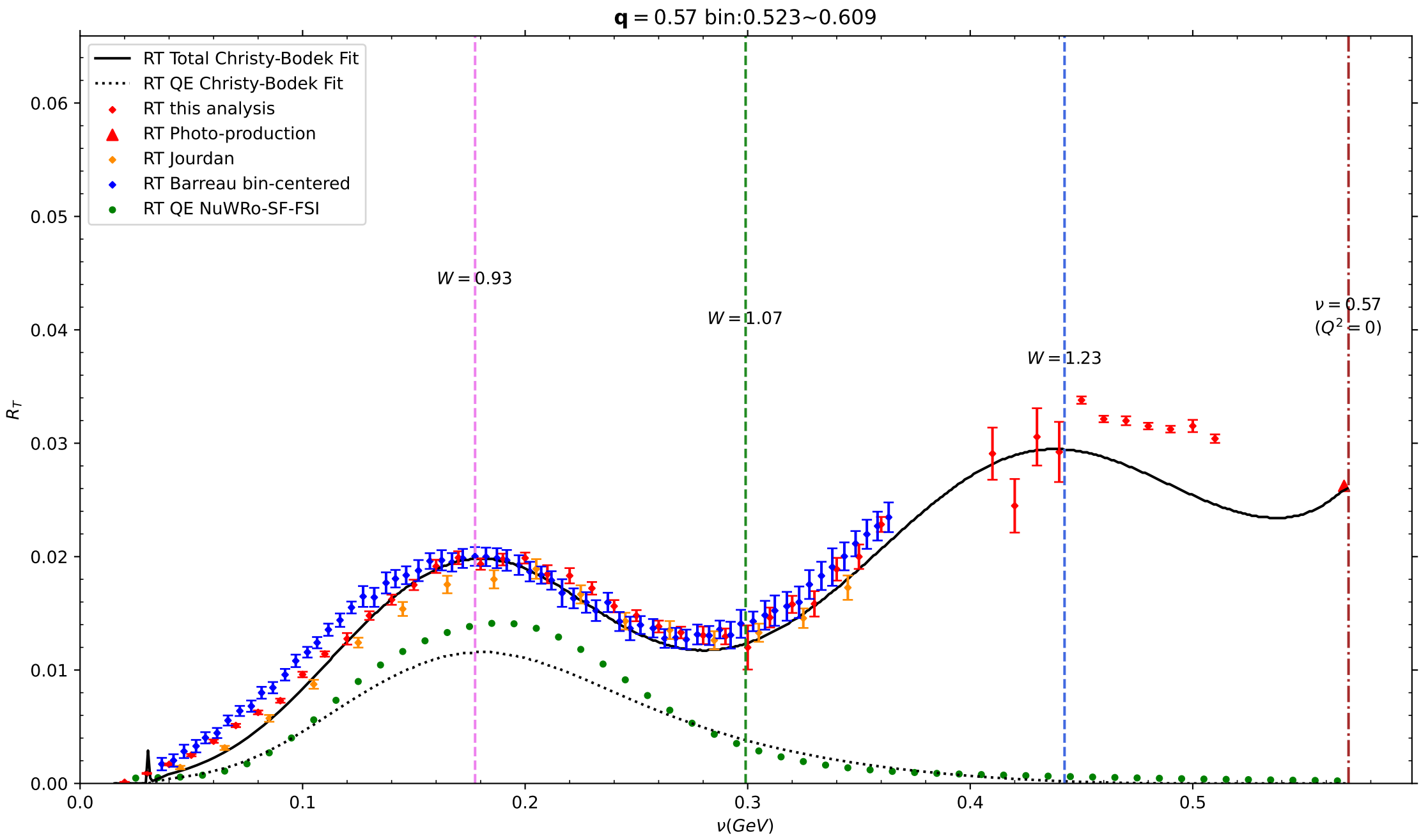

Q^3_{center}:0.57 Ex:0.476 nu:0.48 RL,RT error: 0.00587,0.000291 χ^2:16.1 DoF:4 $\frac{\chi^2}{DoF}$:4.0
y=-7.008*x+60.473
RL,RT:0,0.032
1 Barreau:1983ht
2 O'Connell:198
4 Baran:1988tw
Hbc
epsilon
65
60
55
50
45
0.3
0.4
0.5
0.6
0.7
0.8
0.9

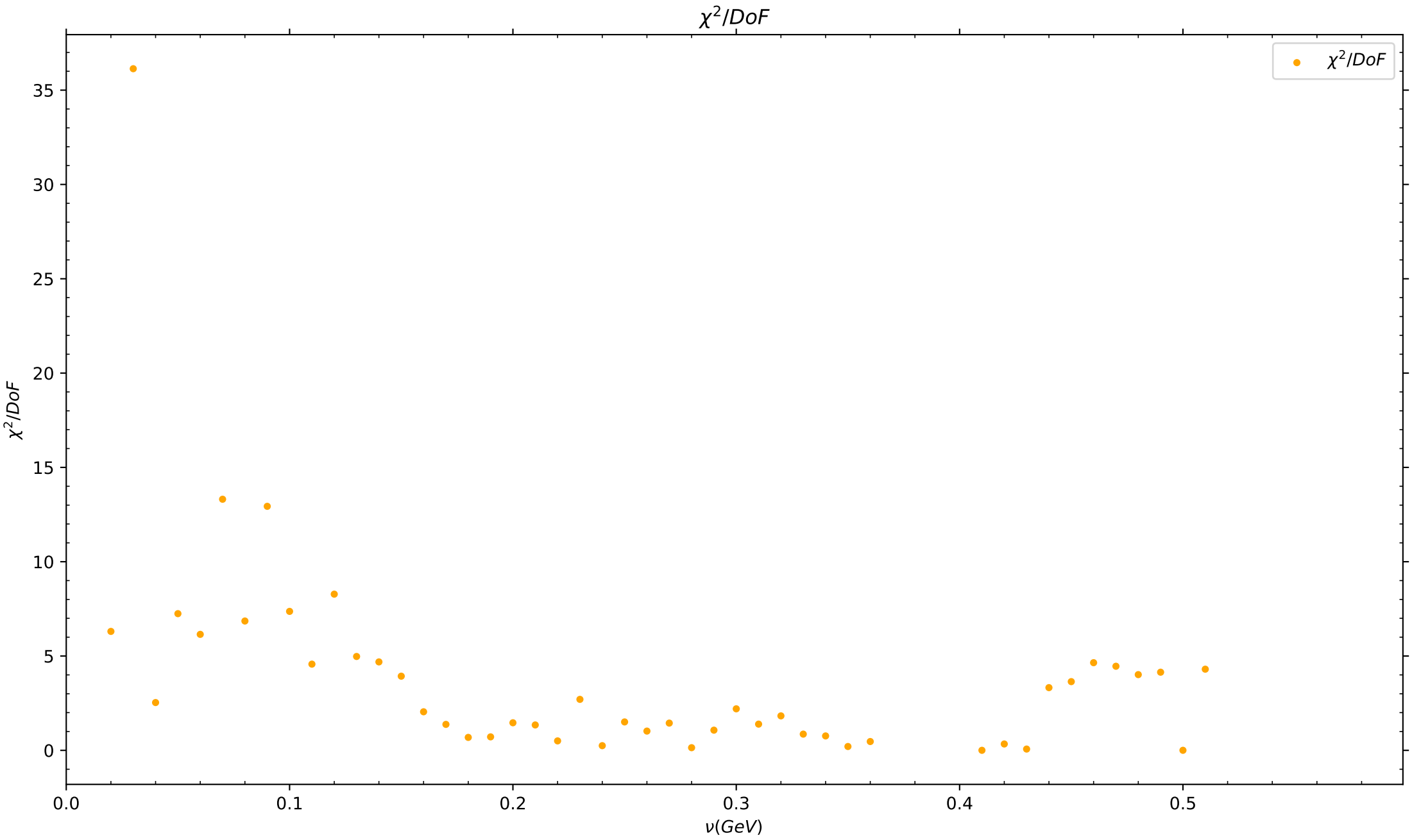

Q^3_{center}:0.57 Ex:0.486 nu:0.49 RL,RT error: 0.00536,0.000296 χ^2:24.9 DoF:6 $\frac{\chi^2}{DoF}$:4.1
y=-19.222*x+76.906
RL,RT:0,0.031
1 Barreau:1983ht
4 Baran:1988tw
2 O'Connell:198
Hbc
epsilon
80
75
70
65
60
55
50
45
40
0.3
0.4
0.5
0.6
0.7
0.8
0.9

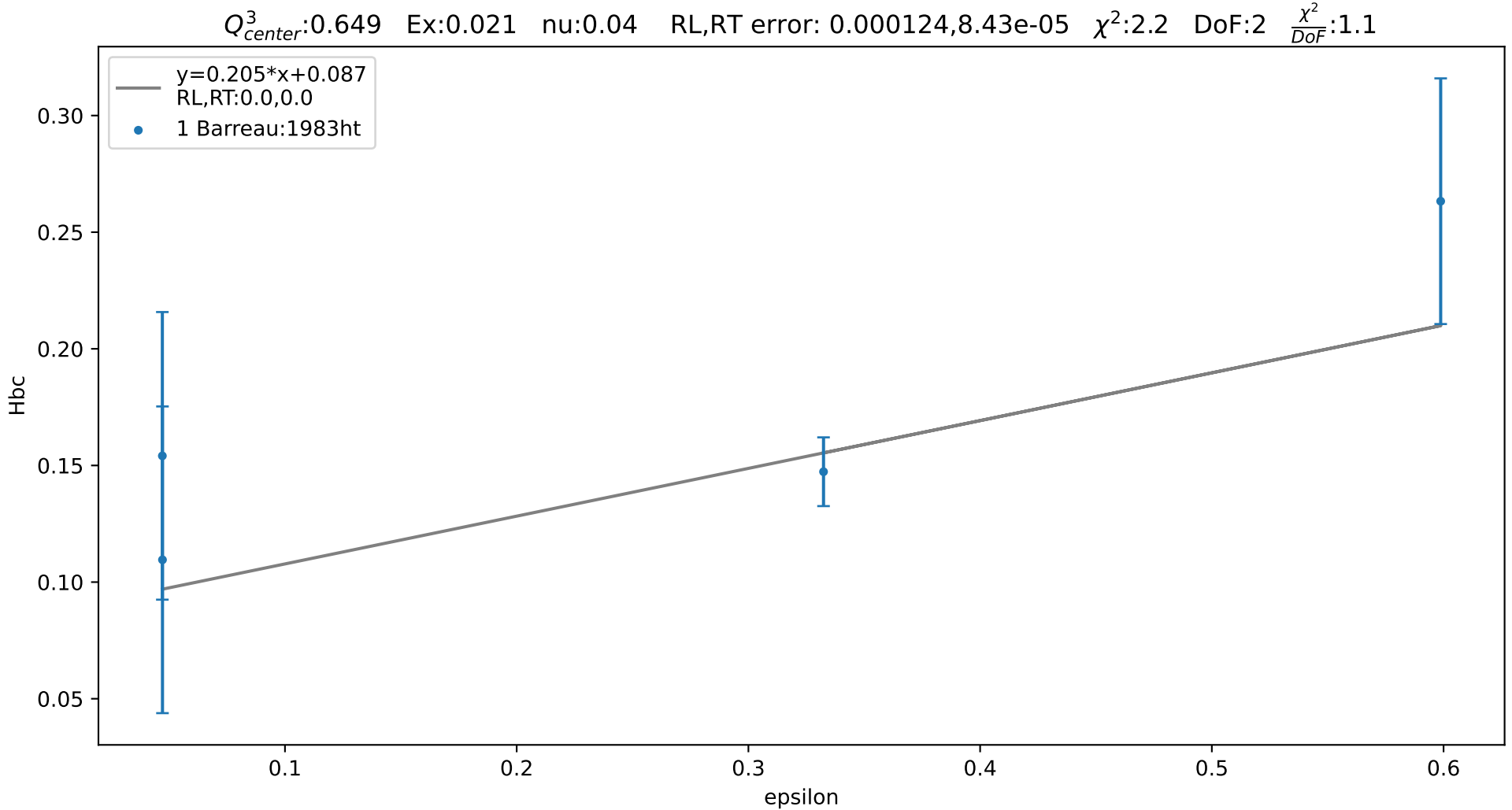

Q^3_{center}:0.57 Ex:0.497 nu:0.5 RL,RT error: 0.00956,0.00054 χ^2:0.0 DoF:2 $\frac{\chi^2}{DoF}$:0.0
y=-17.618*x+83.672
RL,RT:0,0.032
4 Baran:1988tw
1 Barreau:1983ht
2 O'Connell:198
Hbc
epsilon
90
85
80
75
70
65
0.5
0.6
0.7
0.8
0.9

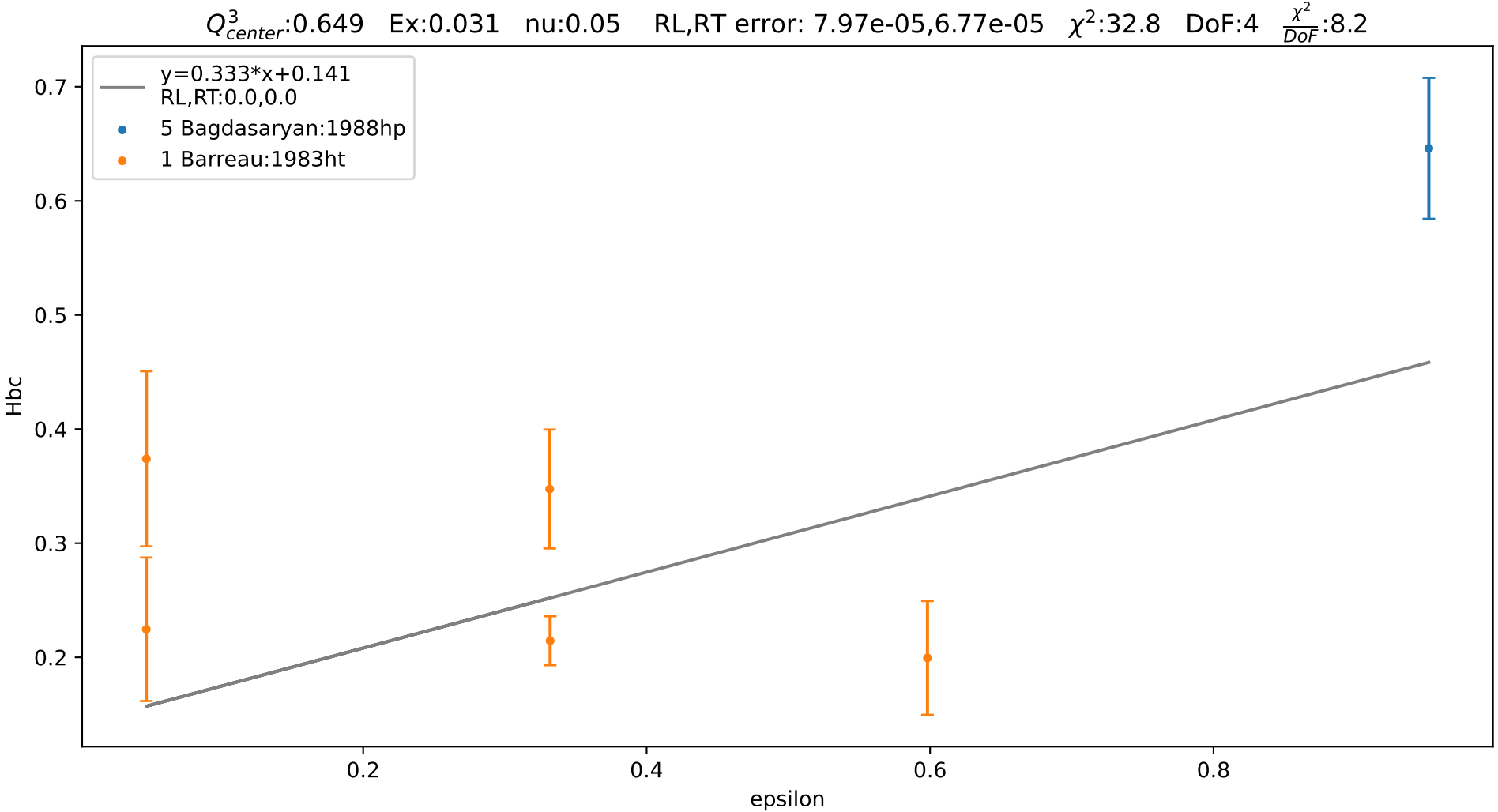

Q^3_{center}:0.57 Ex:0.507 nu:0.51 RL,RT error: 0.011,0.000376 χ^2:17.2 DoF:4 $\frac{\chi^2}{DoF}$:4.3
y=-42.281*x+113.749
RL,RT:0,0.03
4 Baran:1988tw
1 Barreau:1983ht
2 O'Connell:198
Hbc
epsilon
105
100
95
90
85
80
75
70
0.5
0.6
0.7
0.8
0.9

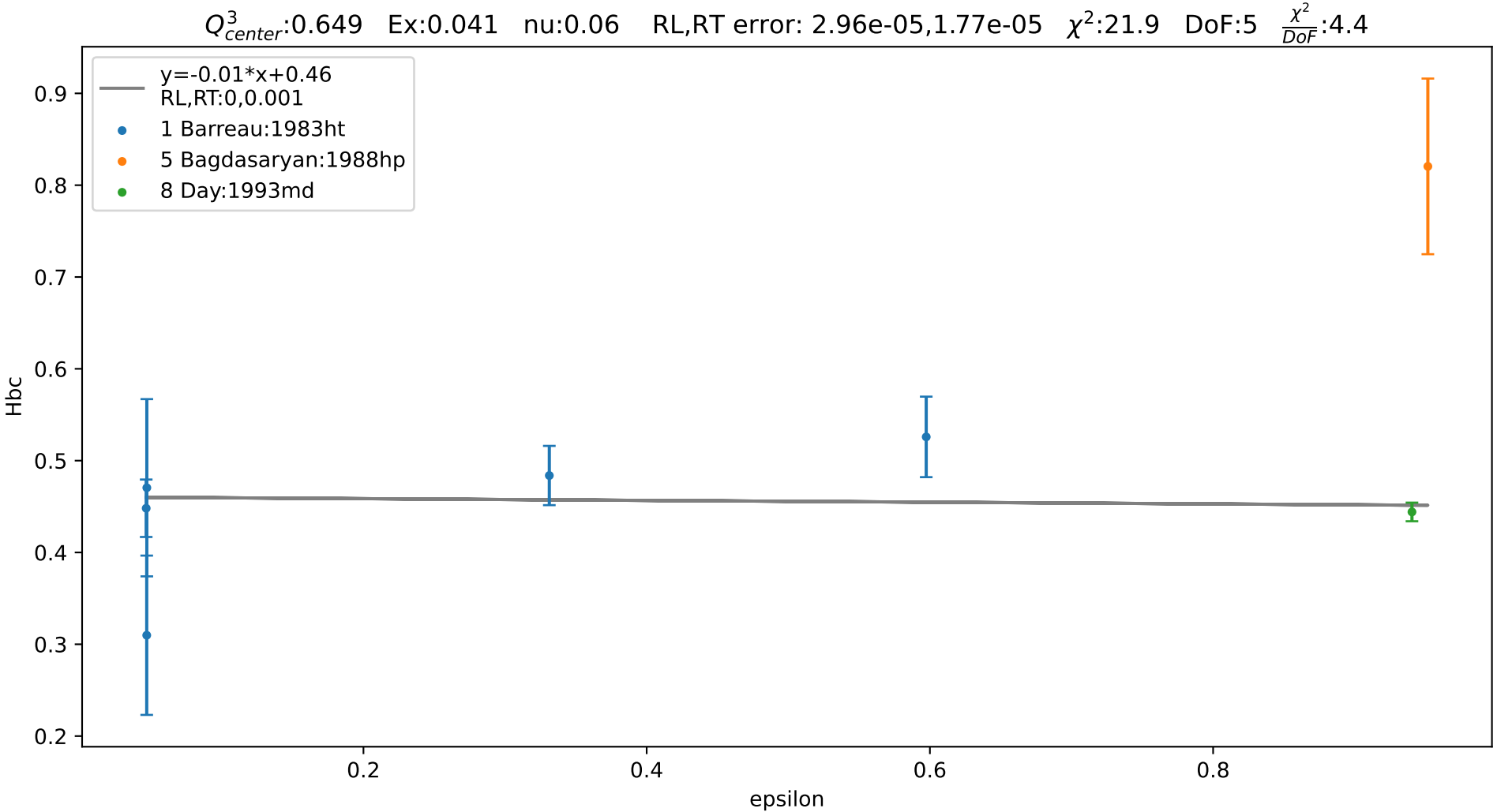

q = 0.57 bin:0.523~0.609
RL Total Christy-Bodek Fit
RL QE Christy-Bodek Fit
RL this analysis
RL Jourdan
RL Barreau bin-centered
RL QE NuWRo-SF-FSI
W = 0.93
W = 1.07
W = 1.23
ν = 0.57
(Q² = 0)
R_L
ν(GeV)

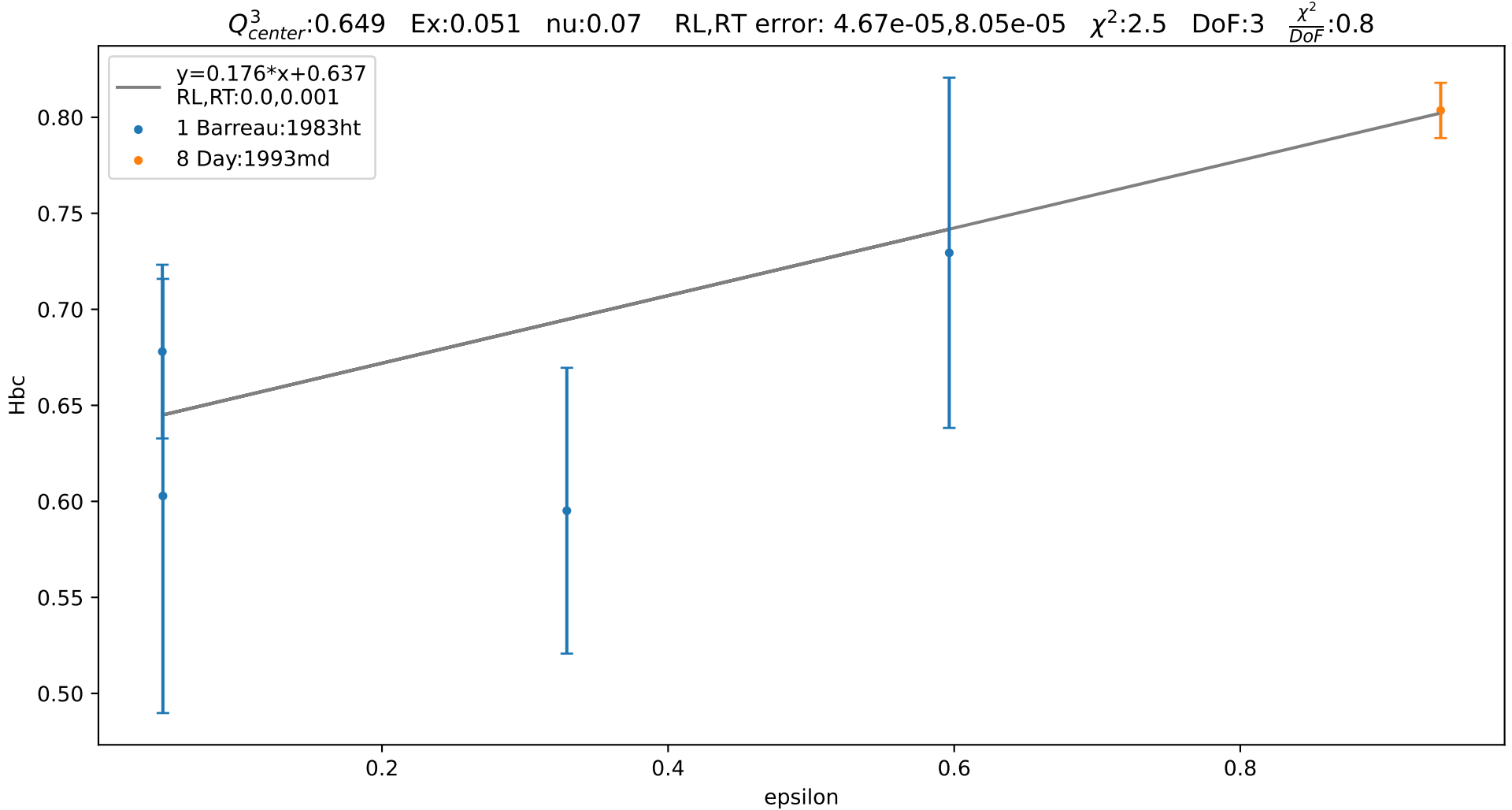

q = 0.57 bin:0.523~0.609
RT Total Christy-Bodek Fit
RT QE Christy-Bodek Fit
RT this analysis
RT Photo-production
RT Jourdan
RT Barreau bin-centered
RT QE NuWRo-SF-FSI
W = 0.93
W = 1.07
W = 1.23
ν = 0.57
(Q² = 0)
R_T
ν(GeV)

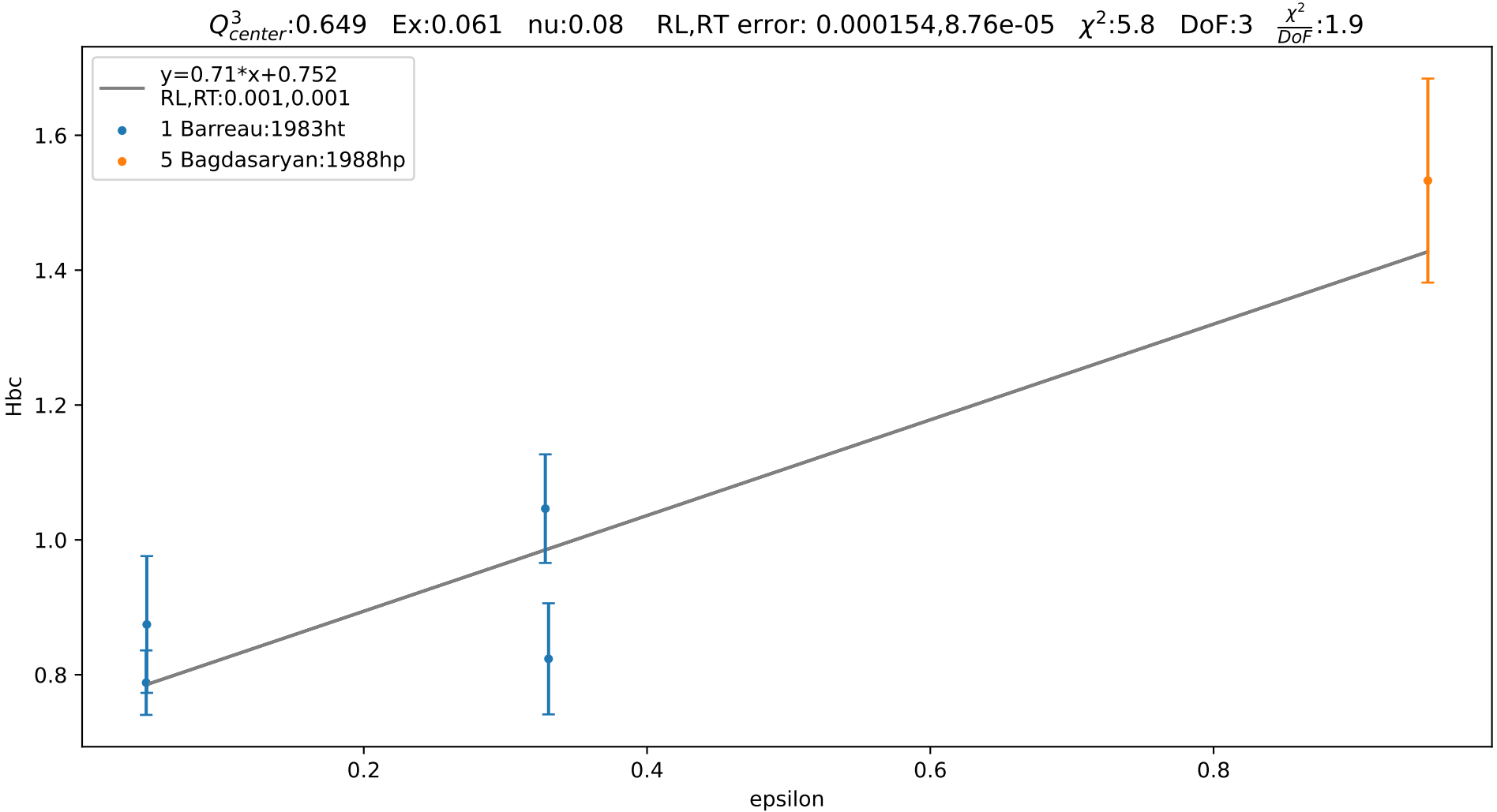

χ²/DoF
χ²/DoF
ν(GeV)

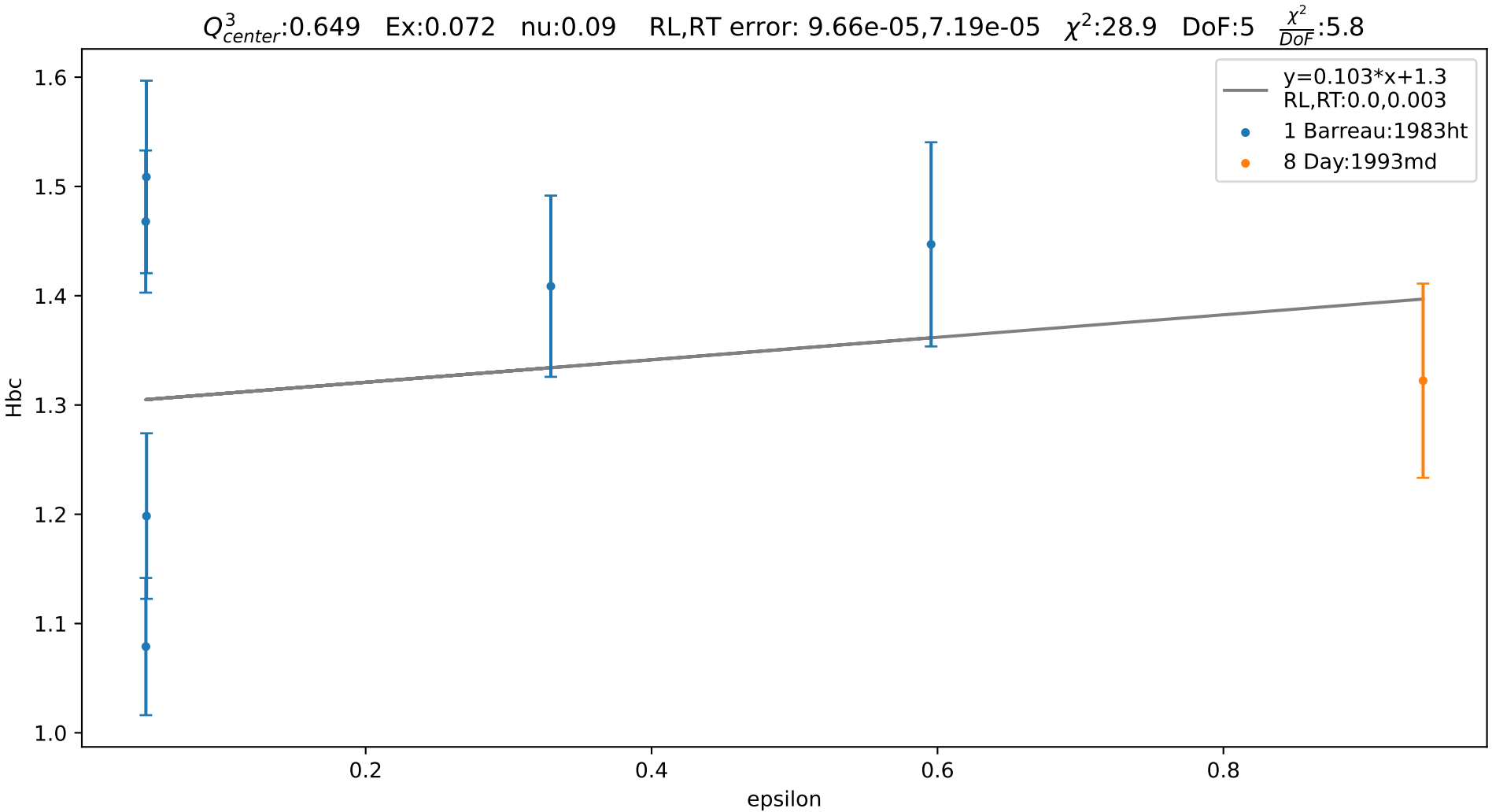

Q^3_{center}:0.649 Ex:0.021 nu:0.04 RL,RT error: 0.000124,8.43e-05 χ^2:2.2 DoF:2 $\frac{\chi^2}{DoF}$:1.1
y=0.205*x+0.087
RL,RT:0.0,0.0
1 Barreau:1983ht
Hbc
epsilon
0.05
0.10
0.15
0.20
0.25
0.30
0.1
0.2
0.3
0.4
0.5
0.6

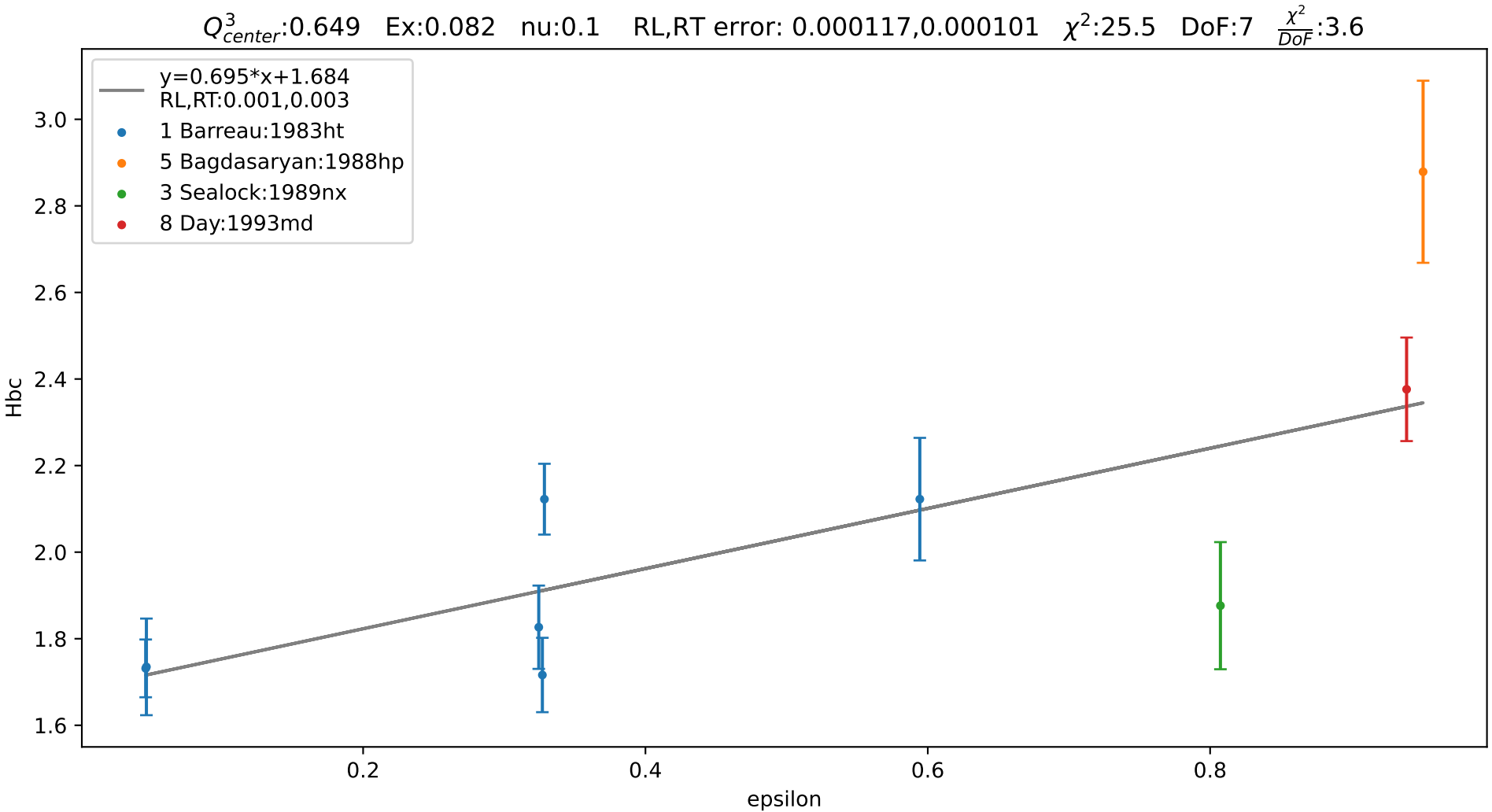

Q^3_{center}:0.649 Ex:0.031 nu:0.05 RL,RT error: 7.97e-05,6.77e-05 χ^2:32.8 DoF:4 $\frac{\chi^2}{DoF}$:8.2
y=0.333*x+0.141
RL,RT:0.0,0.0
5 Bagdasaryan:1988hp
1 Barreau:1983ht
Hbc
epsilon
0.2
0.3
0.4
0.5
0.6
0.7
0.2
0.4
0.6
0.8

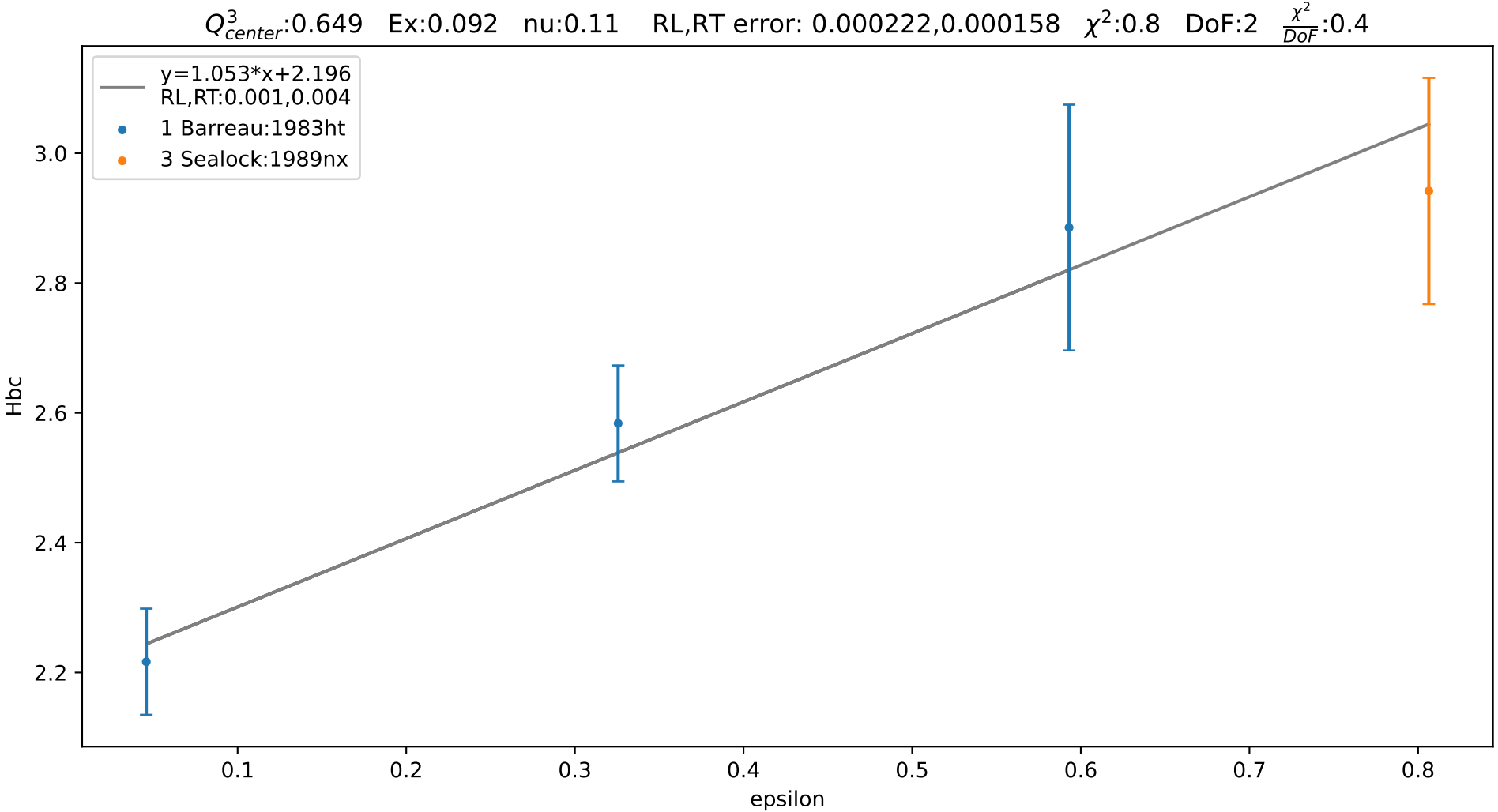

Q^3_{center}:0.649 Ex:0.041 nu:0.06 RL,RT error: 2.96e-05,1.77e-05 χ^2:21.9 DoF:5 $\frac{\chi^2}{DoF}$:4.4
y=-0.01*x+0.46
RL,RT:0,0.001
1 Barreau:1983ht
5 Bagdasaryan:1988hp
8 Day:1993md
Hbc
epsilon
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.2
0.4
0.6
0.8

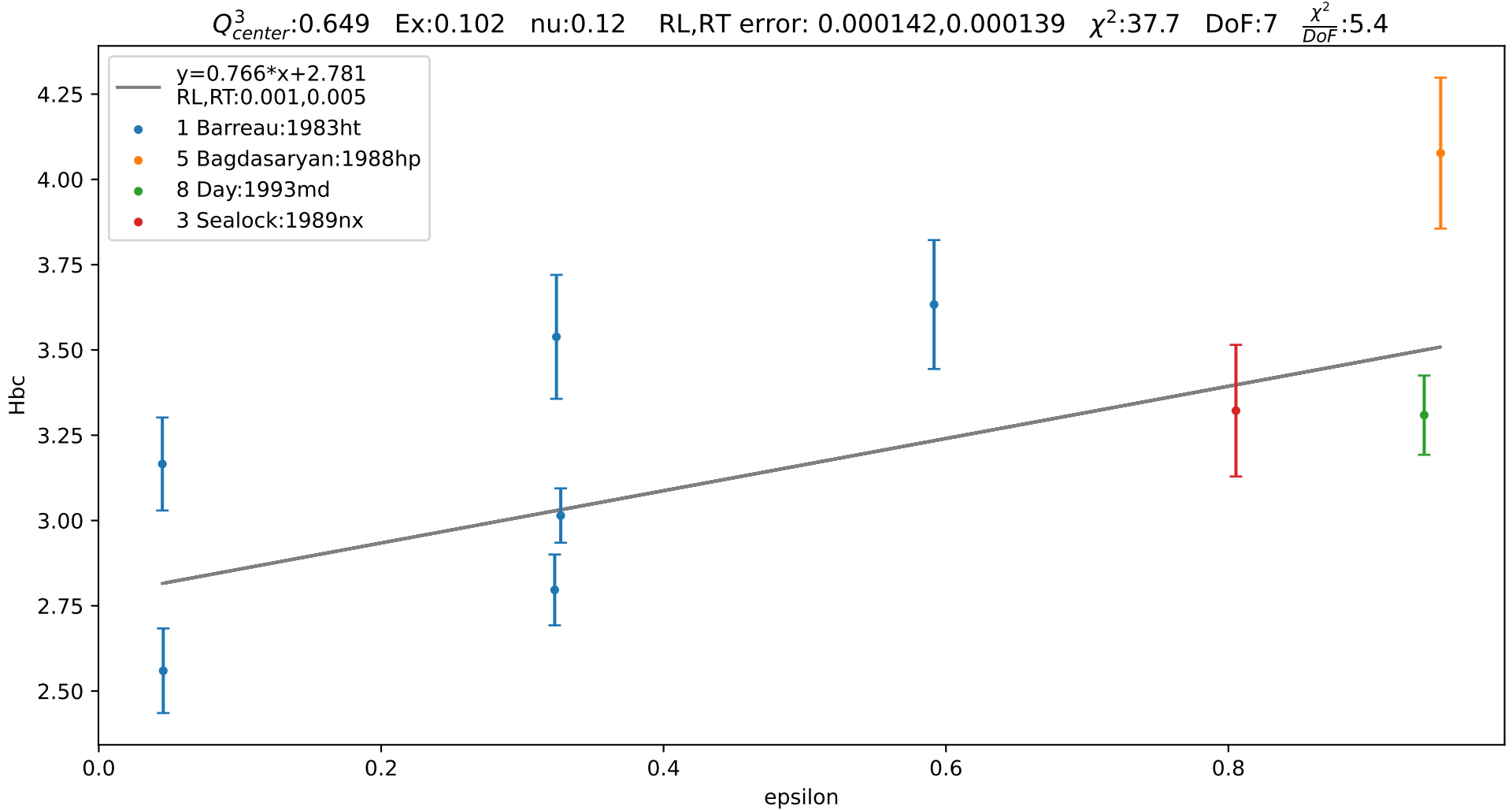

Q^3_{center}:0.649 Ex:0.051 nu:0.07 RL,RT error: 4.67e-05,8.05e-05 χ^2:2.5 DoF:3 $\frac{\chi^2}{DoF}$:0.8
y=0.176*x+0.637
RL,RT:0.0,0.001
1 Barreau:1983ht
8 Day:1993md
Hbc
epsilon
0.50
0.55
0.60
0.65
0.70
0.75
0.80
0.2
0.4
0.6
0.8

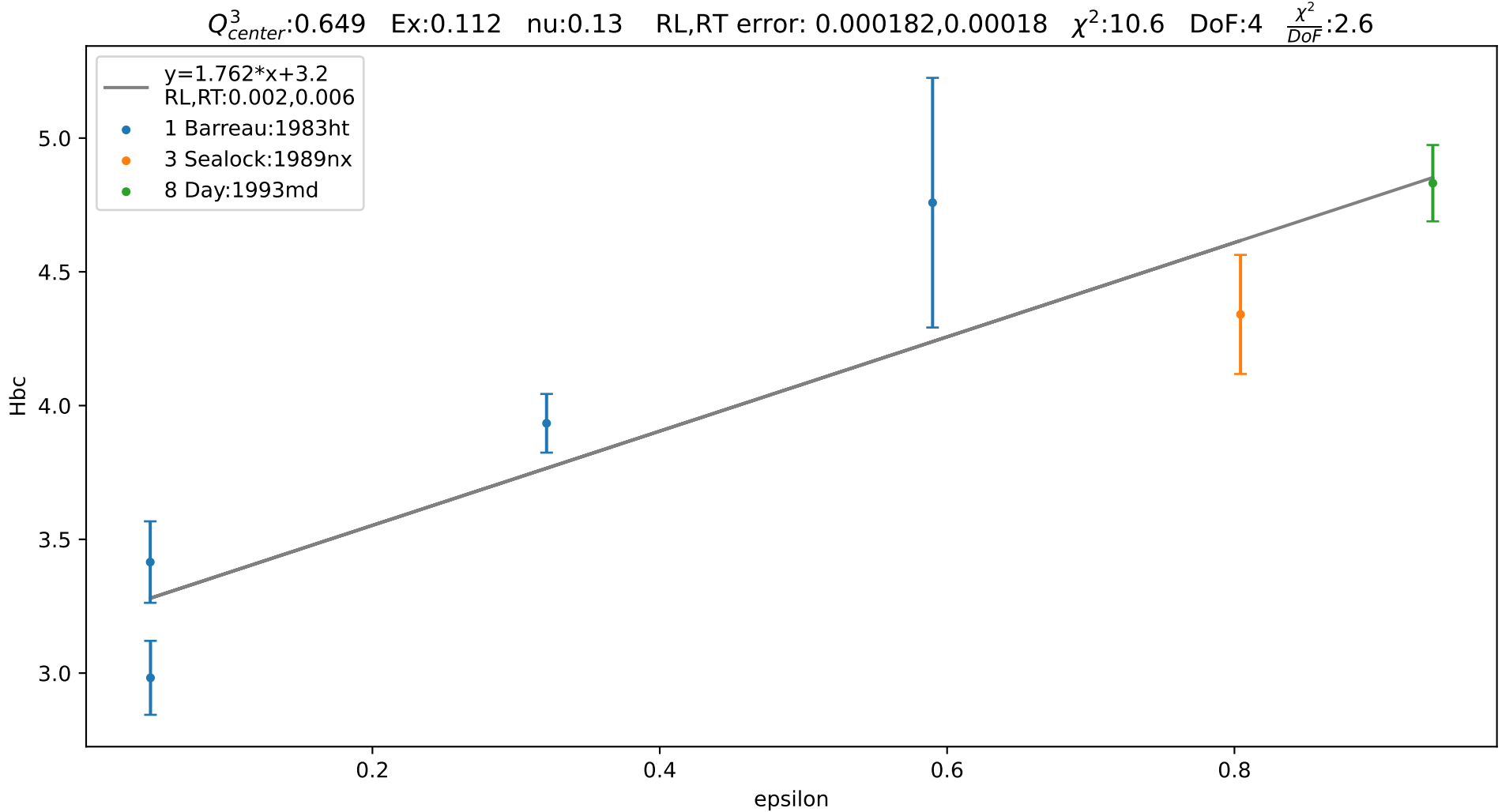

Q^3_{center}:0.649 Ex:0.061 nu:0.08 RL,RT error: 0.000154,8.76e-05 χ^2:5.8 DoF:3 $\frac{\chi^2}{DoF}$:1.9
y=0.71*x+0.752
RL,RT:0.001,0.001
1 Barreau:1983ht
5 Bagdasaryan:1988hp
Hbc
epsilon
0.8
1.0
1.2
1.4
1.6
0.2
0.4
0.6
0.8

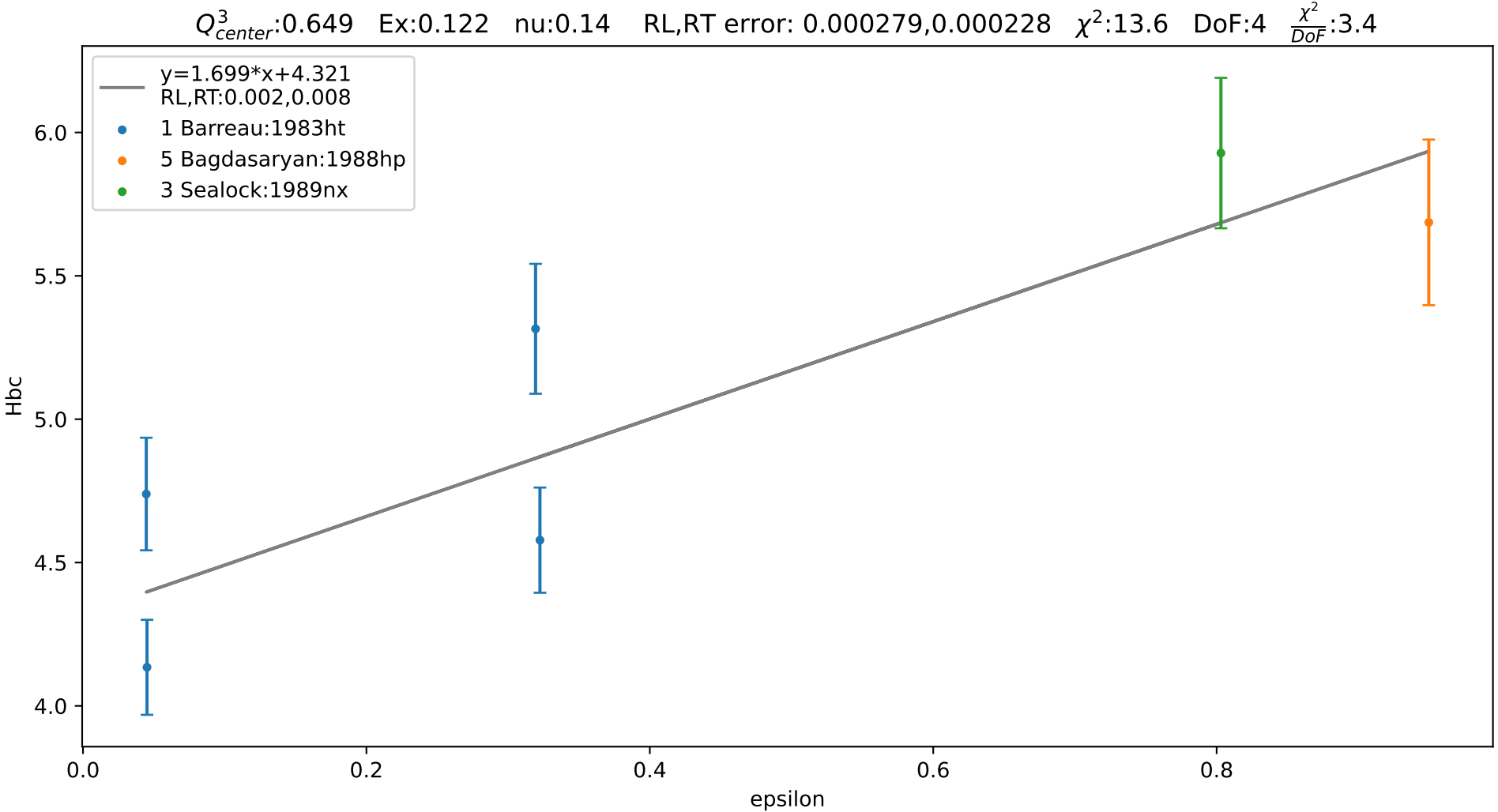

Q^3_{center}:0.649 Ex:0.072 nu:0.09 RL,RT error: 9.66e-05,7.19e-05 χ^2:28.9 DoF:5 $\frac{\chi^2}{DoF}$:5.8
y=0.103*x+1.3
RL,RT:0.0,0.003
1 Barreau:1983ht
8 Day:1993md
Hbc
epsilon
1.0
1.1
1.2
1.3
1.4
1.5
1.6
0.2
0.4
0.6
0.8

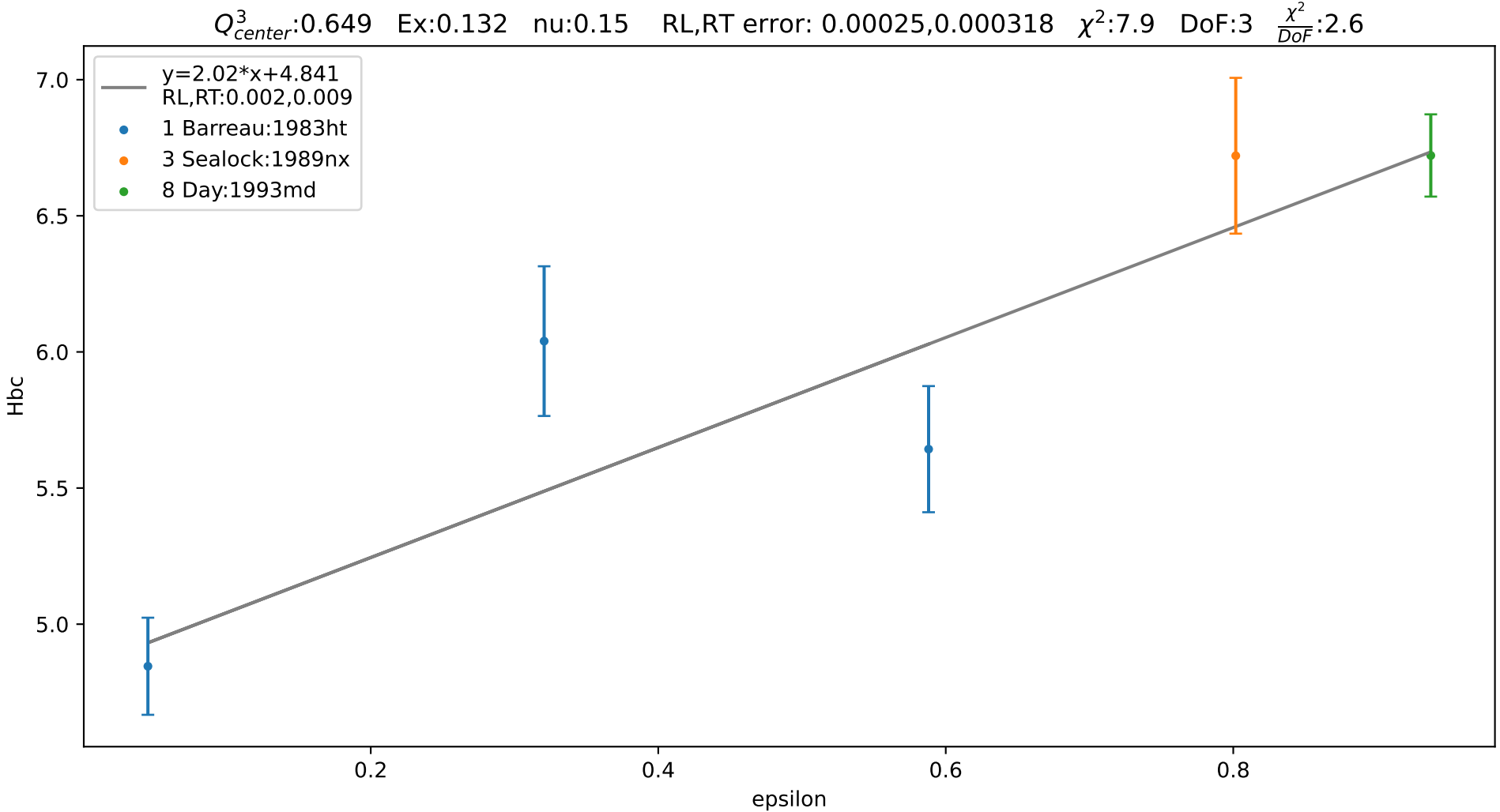

Q^3_{center}:0.649 Ex:0.082 nu:0.1 RL,RT error: 0.000117,0.000101 χ^2:25.5 DoF:7 $\frac{\chi^2}{DoF}$:3.6
y=0.695*x+1.684
RL,RT:0.001,0.003
1 Barreau:1983ht
5 Bagdasaryan:1988hp
3 Sealock:1989nx
8 Day:1993md
Hbc
epsilon
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
0.2
0.4
0.6
0.8

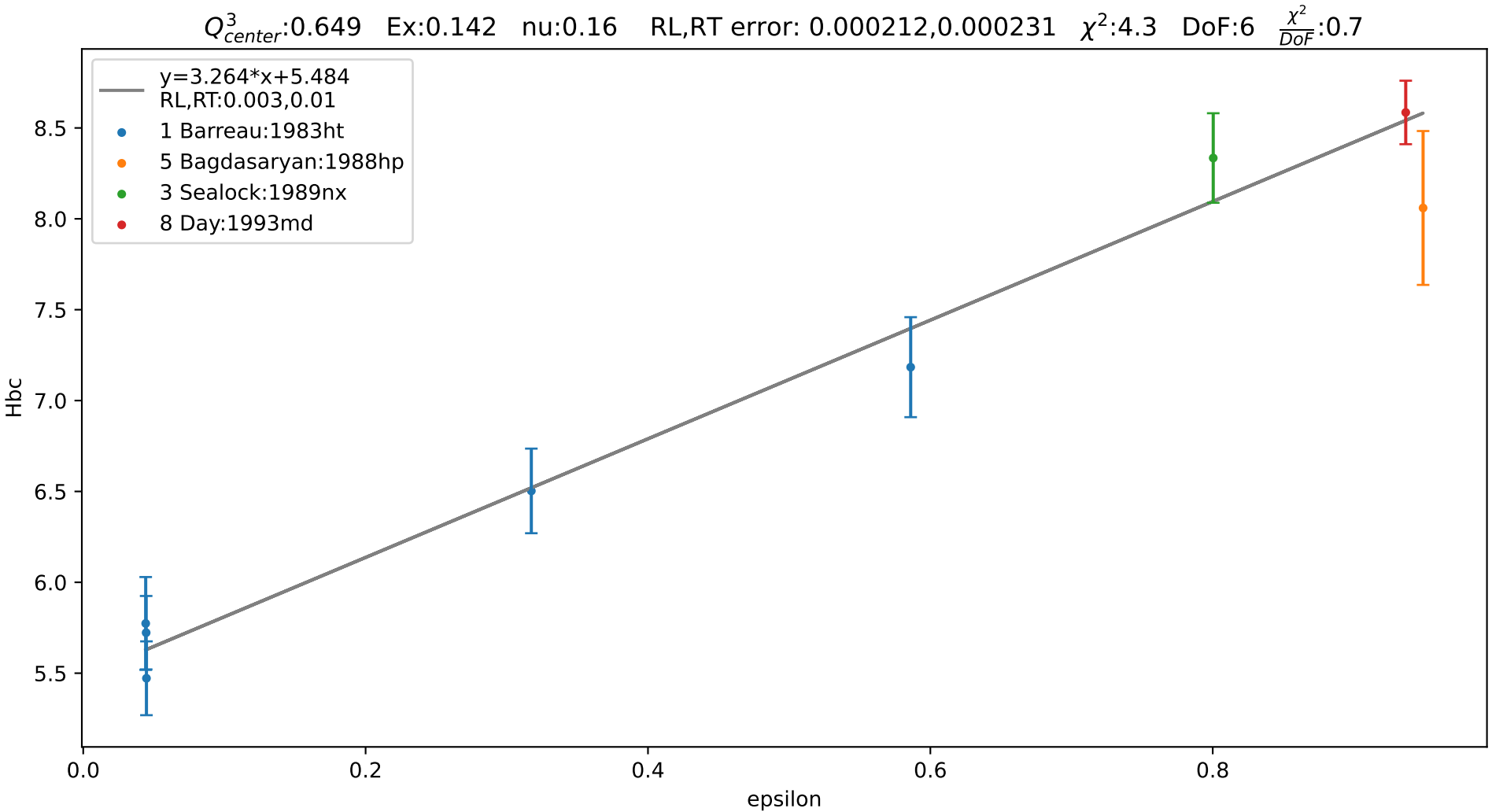

Q^3_{center}:0.649 Ex:0.092 nu:0.11 RL,RT error: 0.000222,0.000158 χ^2:0.8 DoF:2 $\frac{\chi^2}{DoF}$:0.4
y=1.053*x+2.196
RL,RT:0.001,0.004
1 Barreau:1983ht
3 Sealock:1989nx
Hbc
epsilon
2.2
2.4
2.6
2.8
3.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

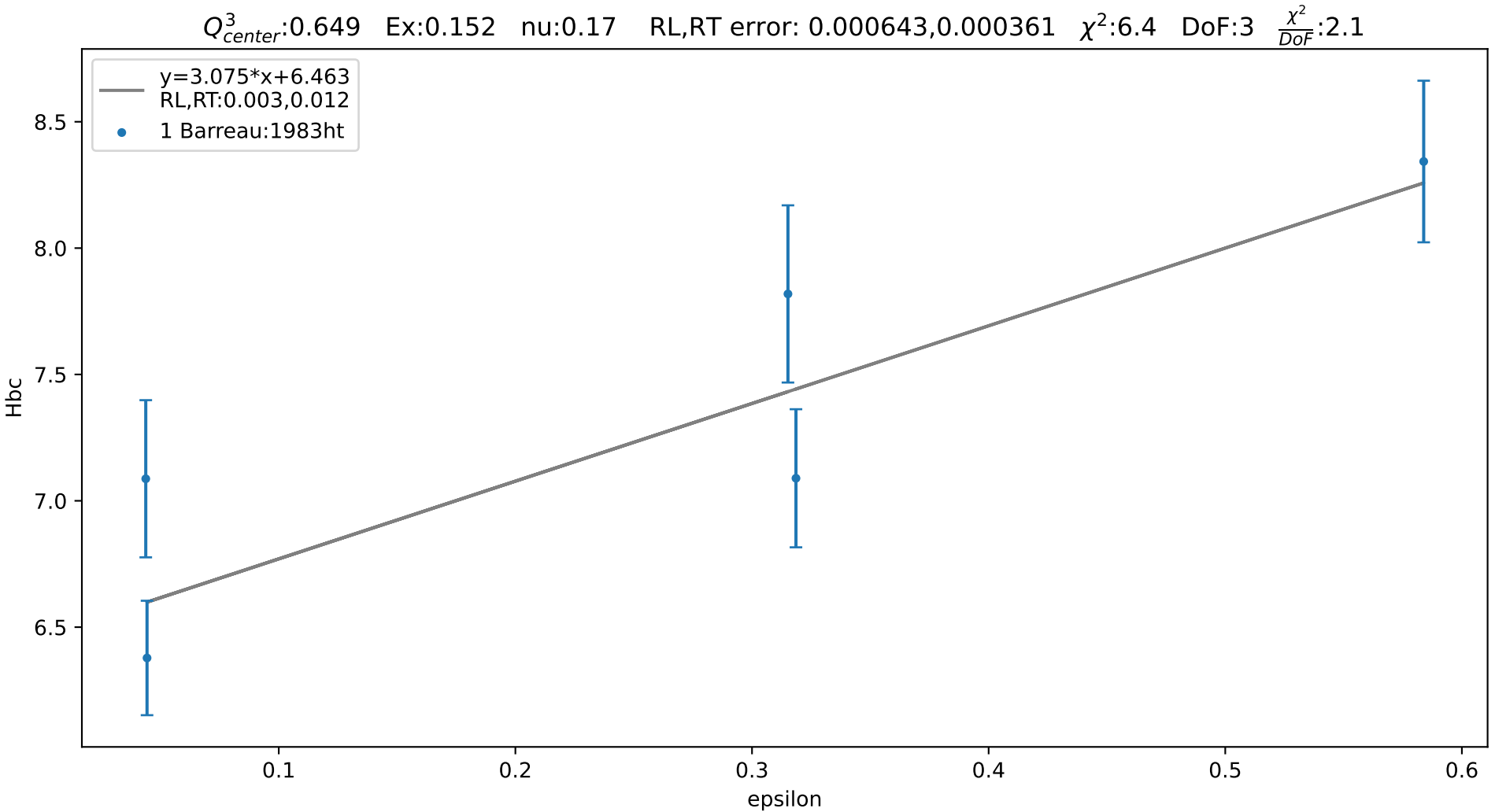

Q^3_{center}:0.649 Ex:0.102 nu:0.12 RL,RT error: 0.000142,0.000139 χ^2:37.7 DoF:7 $\frac{\chi^2}{DoF}$:5.4
y=0.766*x+2.781
RL,RT:0.001,0.005
1 Barreau:1983ht
5 Bagdasaryan:1988hp
8 Day:1993md
3 Sealock:1989nx
Hbc
epsilon
4.25
4.00
3.75
3.50
3.25
3.00
2.75
2.50
0.0
0.2
0.4
0.6
0.8

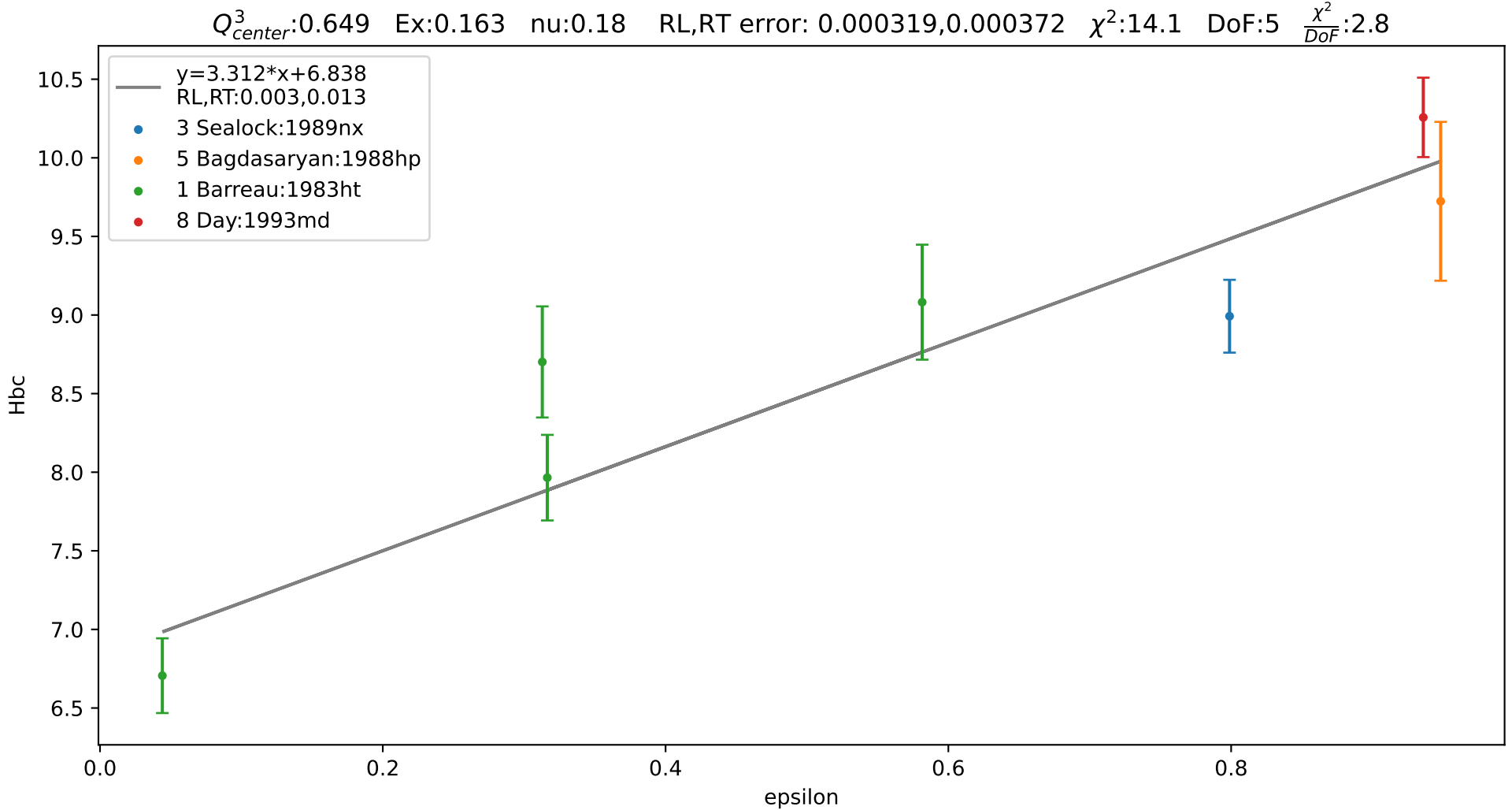

Q^3_{center}:0.649 Ex:0.112 nu:0.13 RL,RT error: 0.000182,0.00018 χ^2:10.6 DoF:4 $\frac{\chi^2}{DoF}$:2.6
y=1.762*x+3.2
RL,RT:0.002,0.006
1 Barreau:1983ht
3 Sealock:1989nx
8 Day:1993md
Hbc
epsilon
5.0
4.5
4.0
3.5
3.0
0.2
0.4
0.6
0.8

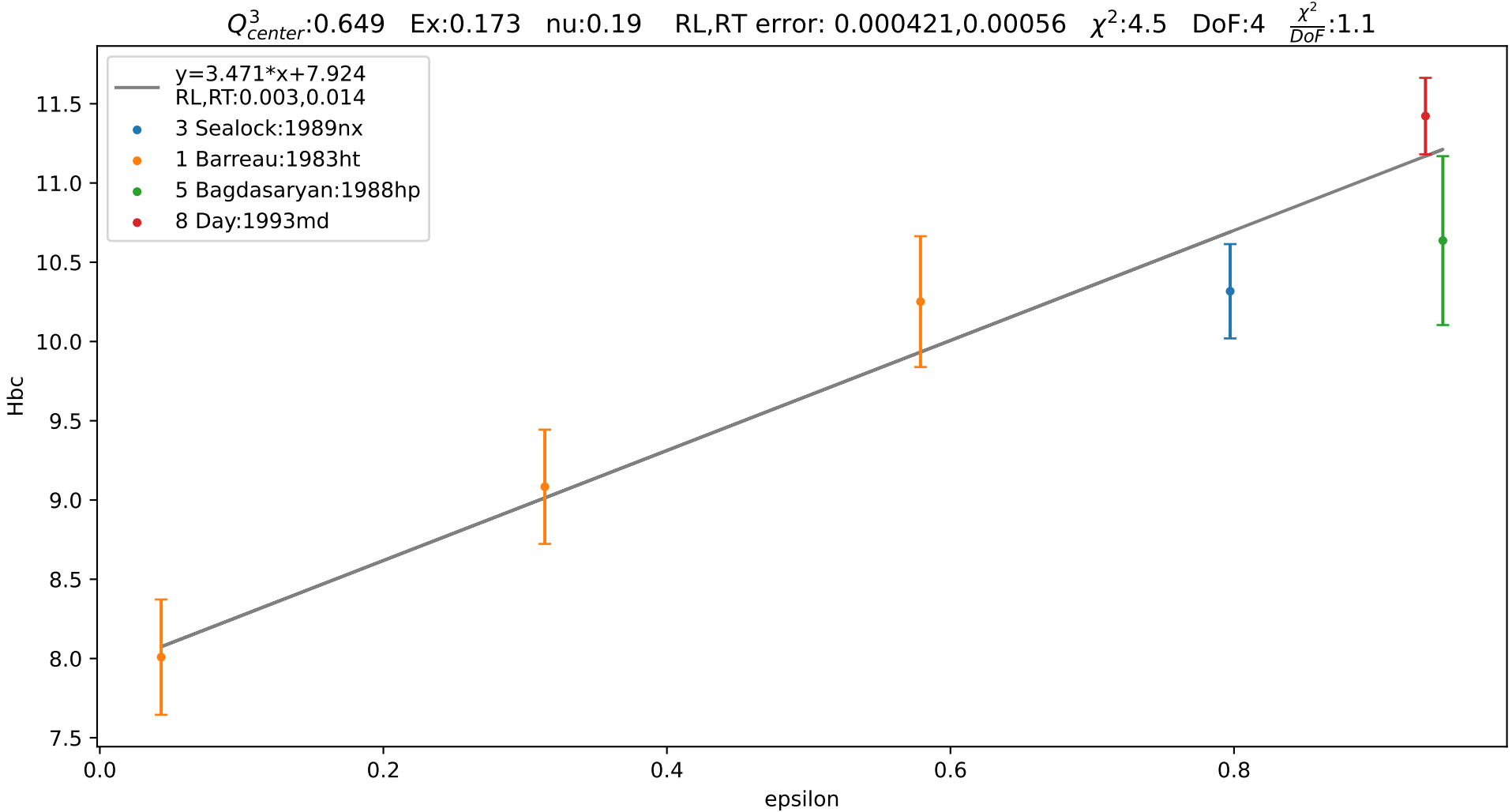

Q^3_{center}:0.649 Ex:0.122 nu:0.14 RL,RT error: 0.000279,0.000228 χ^2:13.6 DoF:4 $\frac{\chi^2}{DoF}$:3.4
y=1.699*x+4.321
RL,RT:0.002,0.008
1 Barreau:1983ht
5 Bagdasaryan:1988hp
3 Sealock:1989nx
Hbc
epsilon
6.0
5.5
5.0
4.5
4.0
0.0
0.2
0.4
0.6
0.8

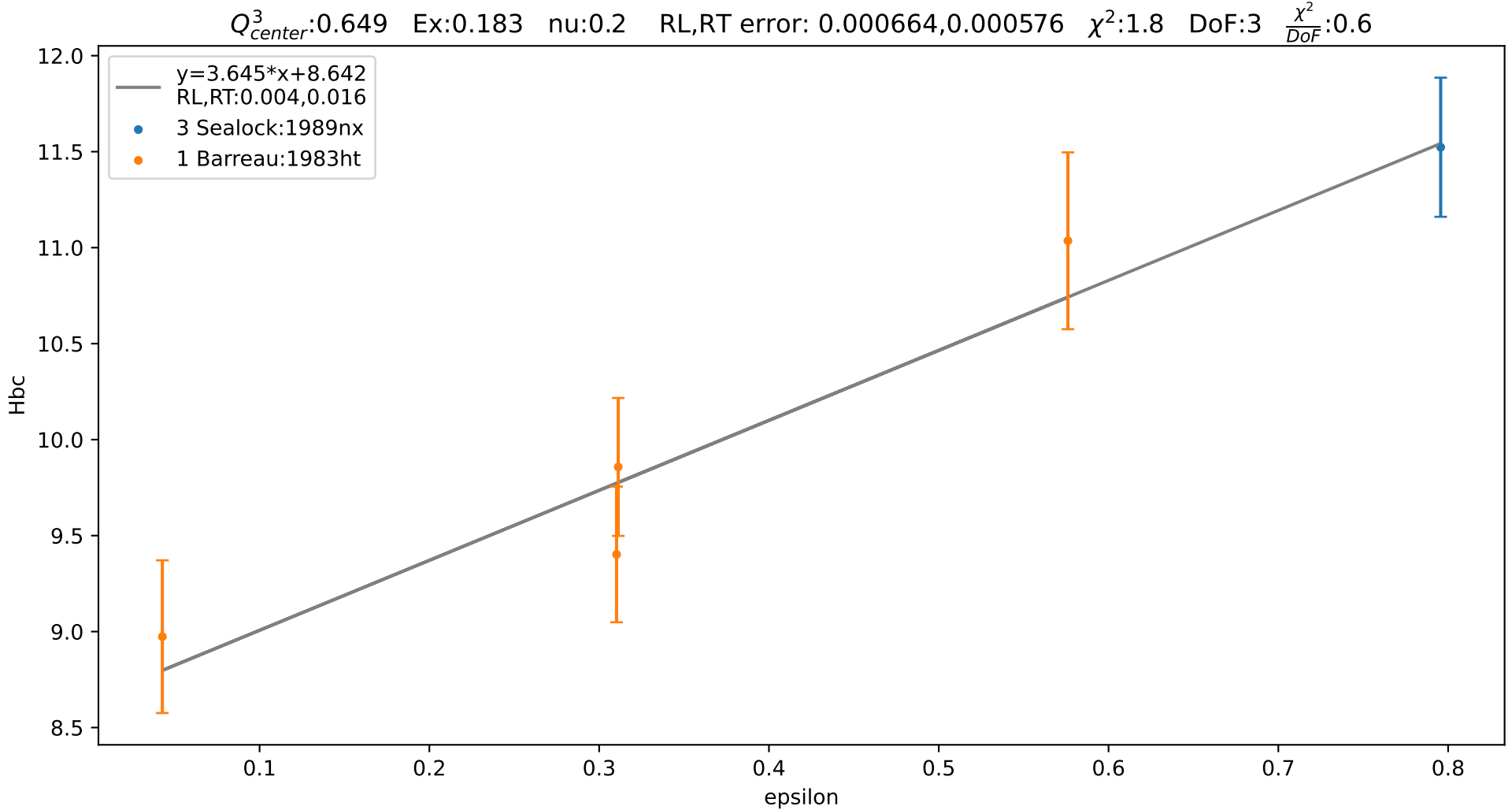

Q^3_{center}:0.649 Ex:0.132 nu:0.15 RL,RT error: 0.00025,0.000318 χ^2:7.9 DoF:3 $\frac{\chi^2}{DoF}$:2.6
y=2.02*x+4.841
RL,RT:0.002,0.009
1 Barreau:1983ht
3 Sealock:1989nx
8 Day:1993md
Hbc
epsilon
7.0
6.5
6.0
5.5
5.0
0.2
0.4
0.6
0.8

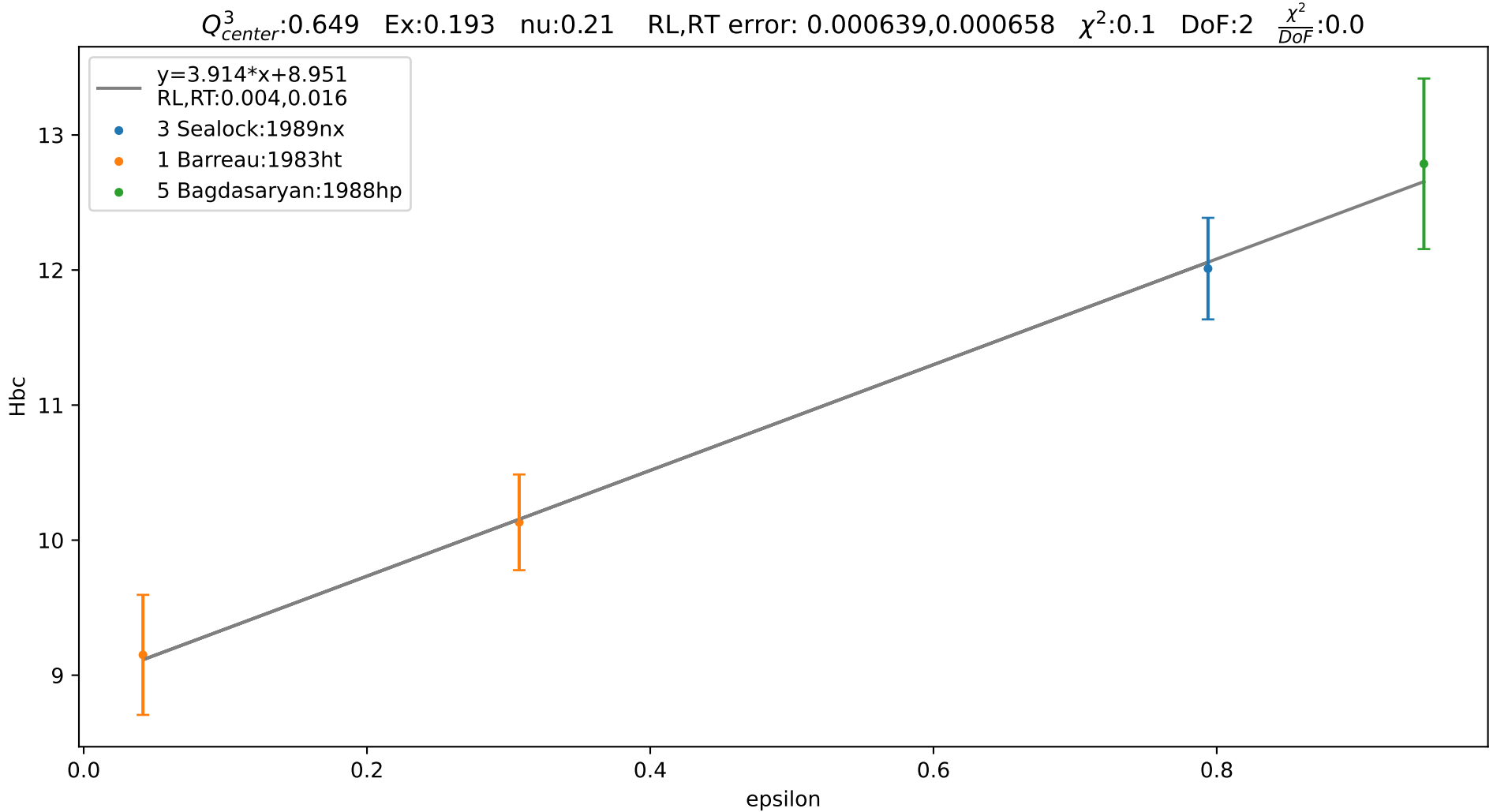

Q^3_{center}:0.649 Ex:0.142 nu:0.16 RL,RT error: 0.000212,0.000231 χ^2:4.3 DoF:6 $\frac{\chi^2}{DoF}$:0.7
y=3.264*x+5.484
RL,RT:0.003,0.01
1 Barreau:1983ht
5 Bagdasaryan:1988hp
3 Sealock:1989nx
8 Day:1993md
Hbc
epsilon
8.5
8.0
7.5
7.0
6.5
6.0
5.5
0.0
0.2
0.4
0.6
0.8

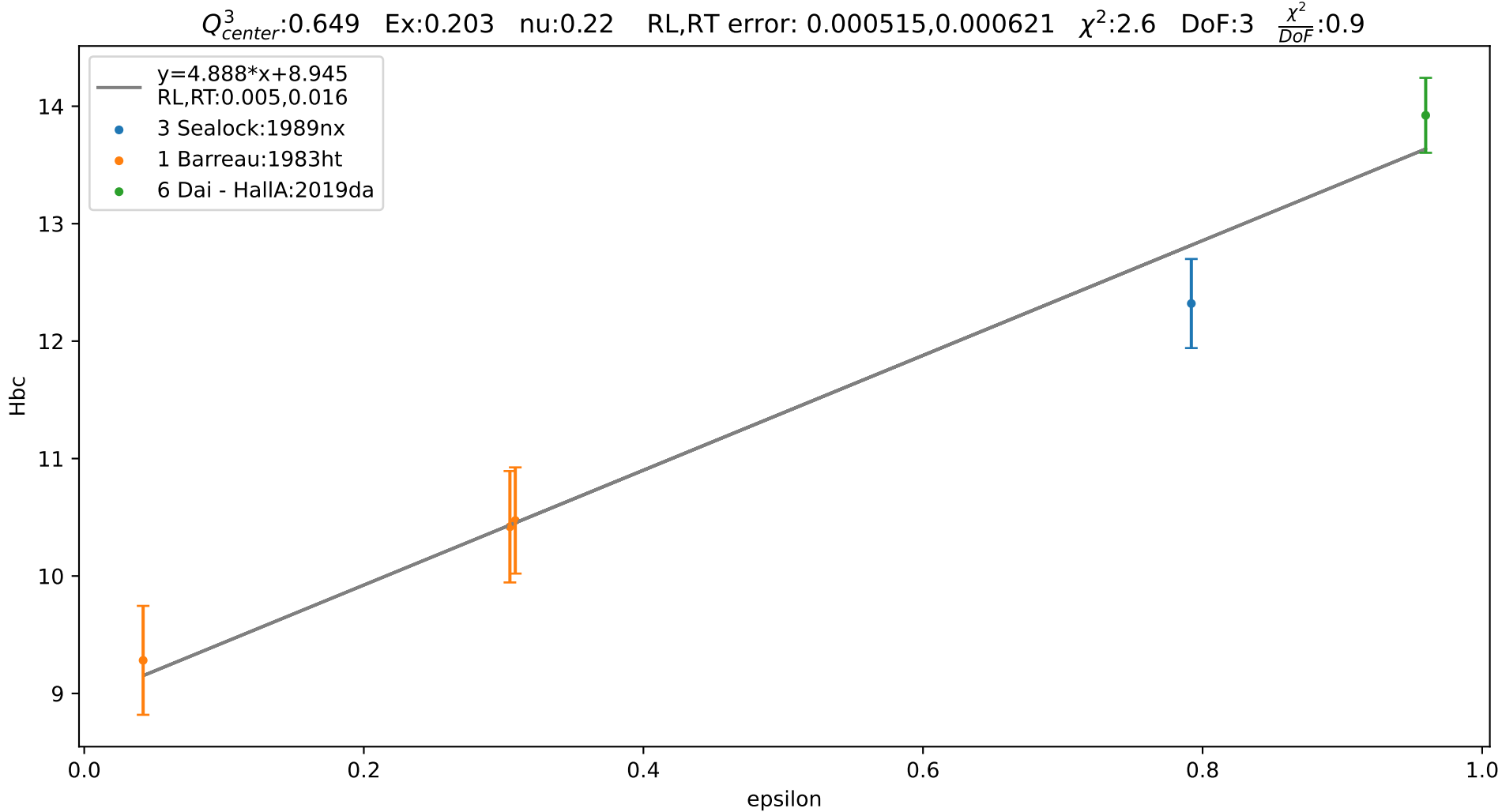

Q^3_{center}:0.649 Ex:0.152 nu:0.17 RL,RT error: 0.000643,0.000361 χ^2:6.4 DoF:3 $\frac{\chi^2}{DoF}$:2.1
y=3.075*x+6.463
RL,RT:0.003,0.012
1 Barreau:1983ht
Hbc
epsilon
8.5
8.0
7.5
7.0
6.5
0.1
0.2
0.3
0.4
0.5
0.6

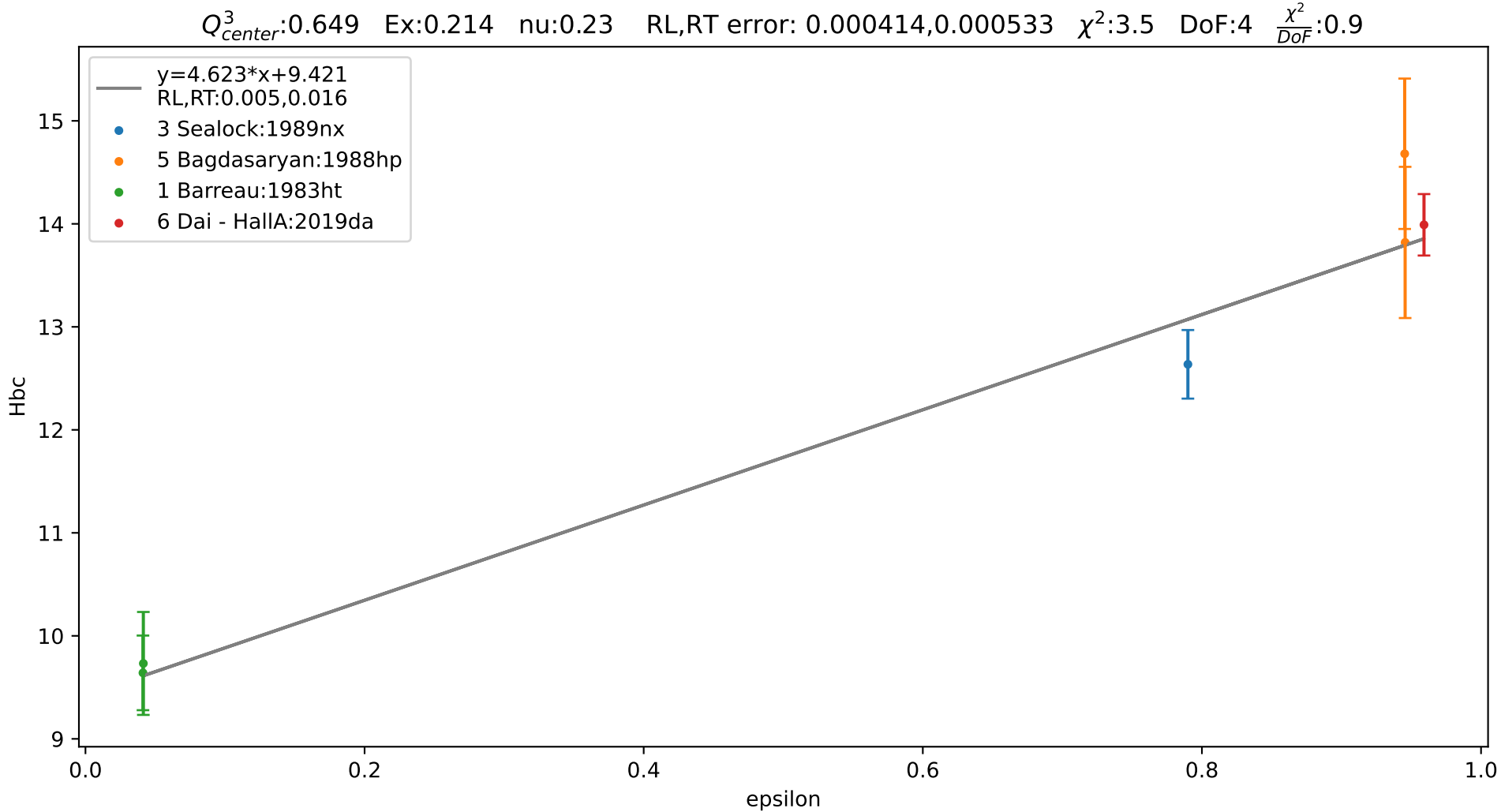

Q^3_{center}:0.649 Ex:0.163 nu:0.18 RL,RT error: 0.000319,0.000372 χ^2:14.1 DoF:5 $\frac{\chi^2}{DoF}$:2.8
y=3.312*x+6.838
RL,RT:0.003,0.013
3 Sealock:1989nx
5 Bagdasaryan:1988hp
1 Barreau:1983ht
8 Day:1993md
Hbc
epsilon
10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
0.0
0.2
0.4
0.6
0.8

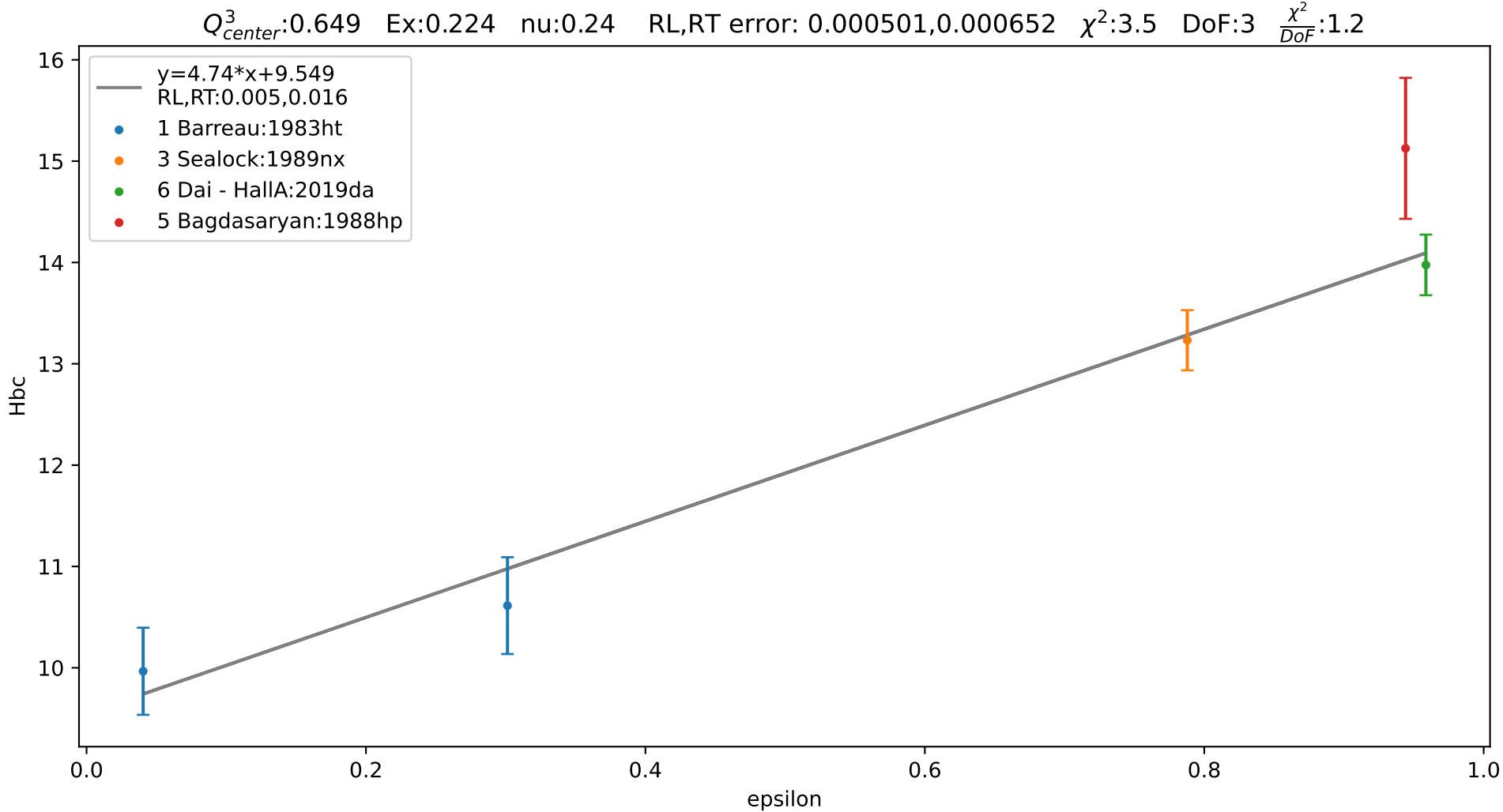

Q^3_{center}:0.649 Ex:0.173 nu:0.19 RL,RT error: 0.000421,0.00056 χ^2:4.5 DoF:4 $\frac{\chi^2}{DoF}$:1.1
y=3.471*x+7.924
RL,RT:0.003,0.014
3 Sealock:1989nx
1 Barreau:1983ht
5 Bagdasaryan:1988hp
8 Day:1993md
Hbc
epsilon
11.5
11.0
10.5
10.0
9.5
9.0
8.5
8.0
7.5
0.0
0.2
0.4
0.6
0.8

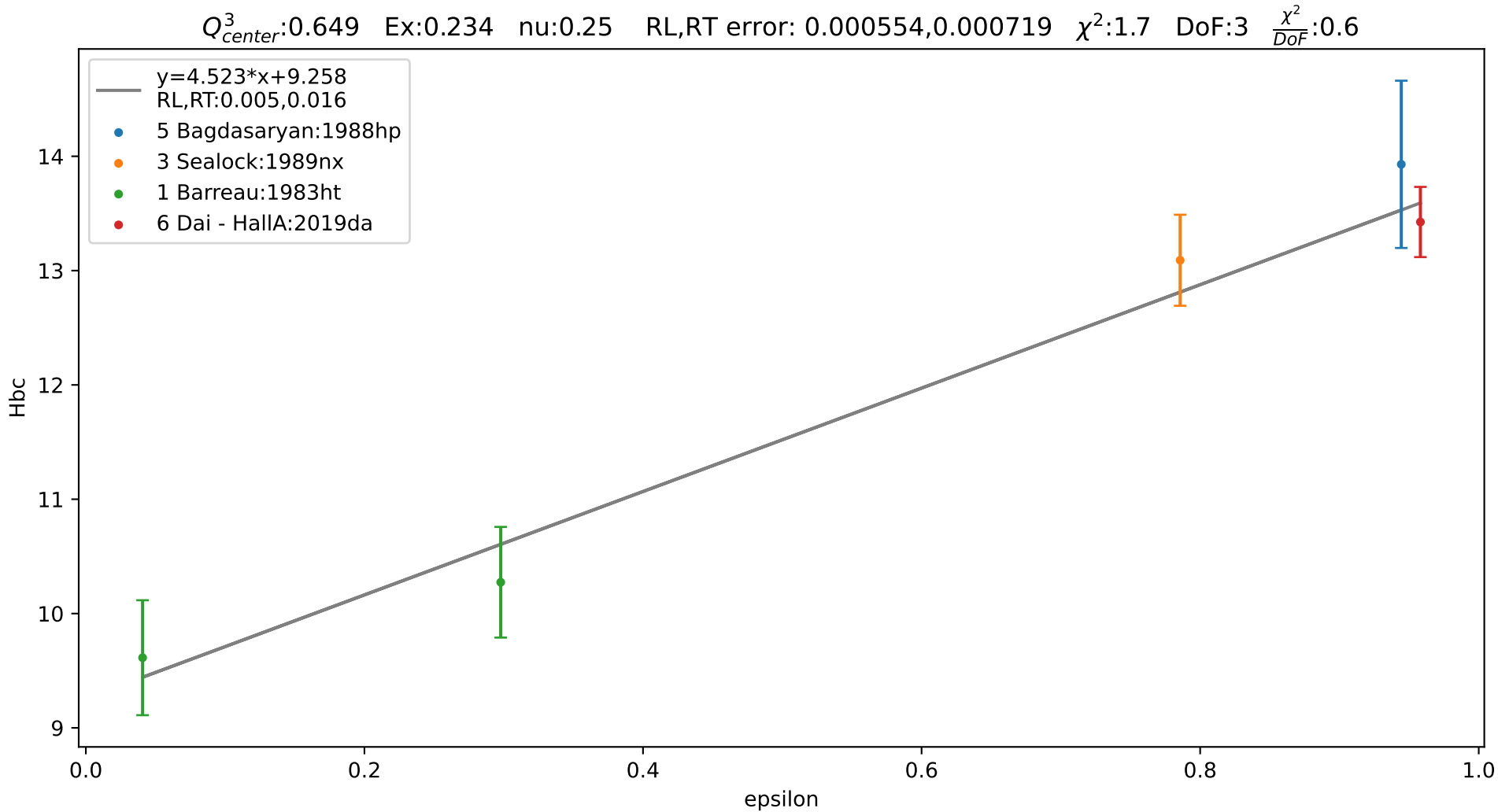

Q^3_{center}:0.649 Ex:0.183 nu:0.2 RL,RT error: 0.000664,0.000576 χ^2:1.8 DoF:3 $\frac{\chi^2}{DoF}$:0.6
y=3.645*x+8.642
RL,RT:0.004,0.016
3 Sealock:1989nx
1 Barreau:1983ht
Hbc
epsilon
12.0
11.5
11.0
10.5
10.0
9.5
9.0
8.5
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

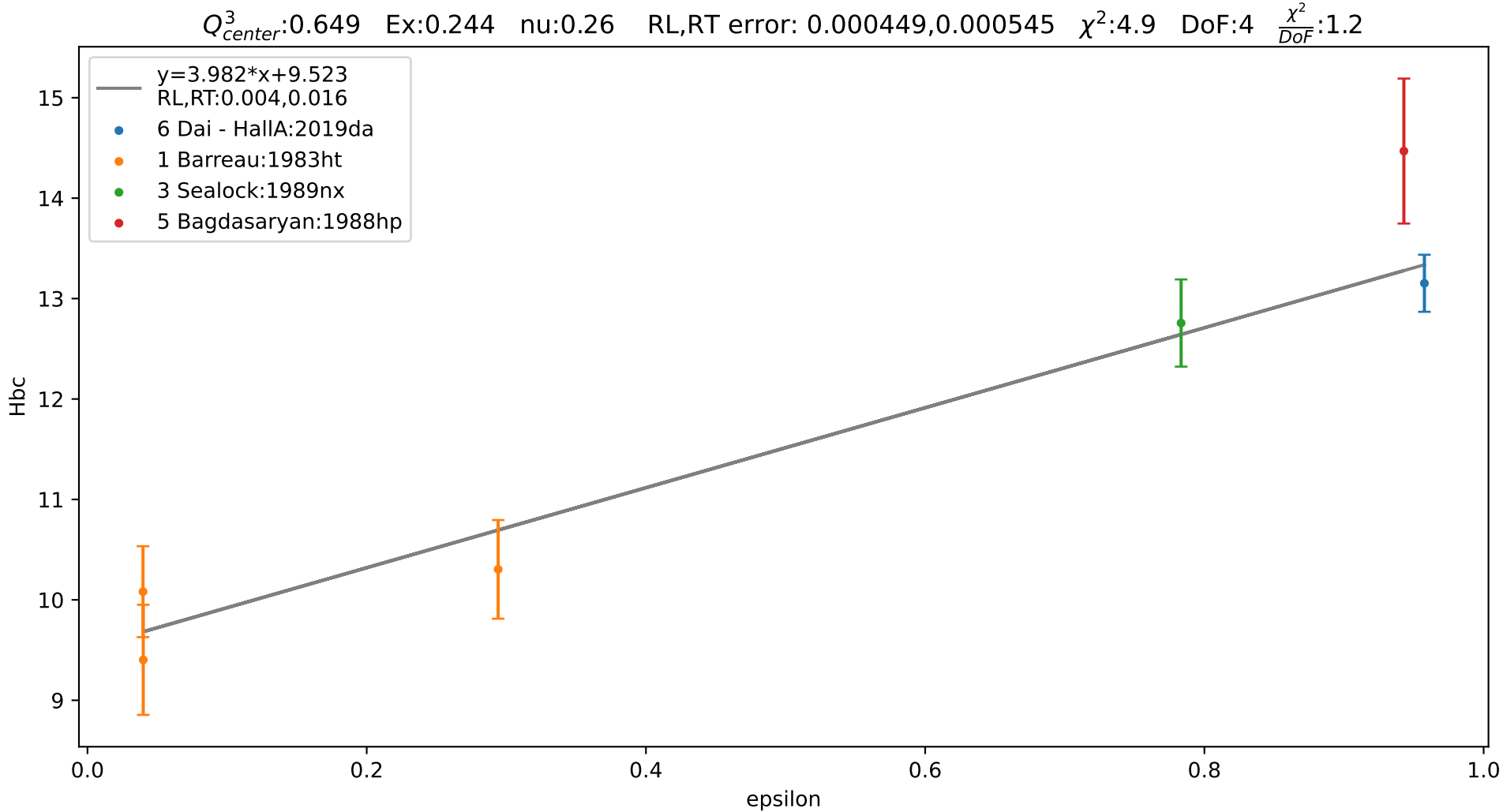

Q^3_{center}:0.649 Ex:0.193 nu:0.21 RL,RT error: 0.000639,0.000658 χ^2:0.1 DoF:2 $\frac{\chi^2}{DoF}$:0.0
y=3.914*x+8.951
RL,RT:0.004,0.016
3 Sealock:1989nx
1 Barreau:1983ht
5 Bagdasaryan:1988hp
Hbc
epsilon
9
10
11
12
13
0.0
0.2
0.4
0.6
0.8

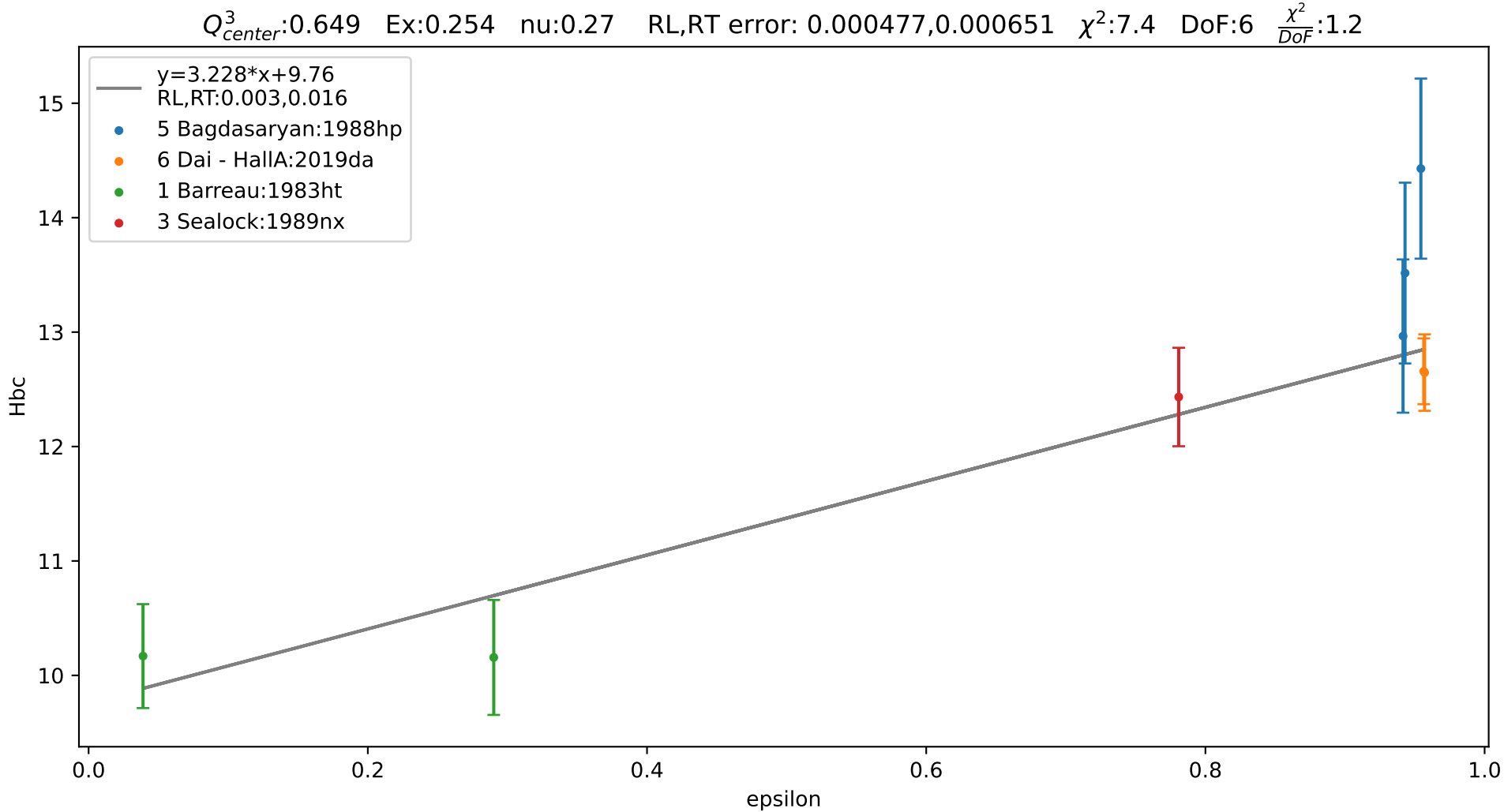

Q^3_{center}:0.649 Ex:0.203 nu:0.22 RL,RT error: 0.000515,0.000621 χ^2:2.6 DoF:3 $\frac{\chi^2}{DoF}$:0.9
y=4.888*x+8.945
RL,RT:0.005,0.016
3 Sealock:1989nx
1 Barreau:1983ht
6 Dai - HallA:2019da
Hbc
epsilon
14
13
12
11
10
9
0.0
0.2
0.4
0.6
0.8
1.0

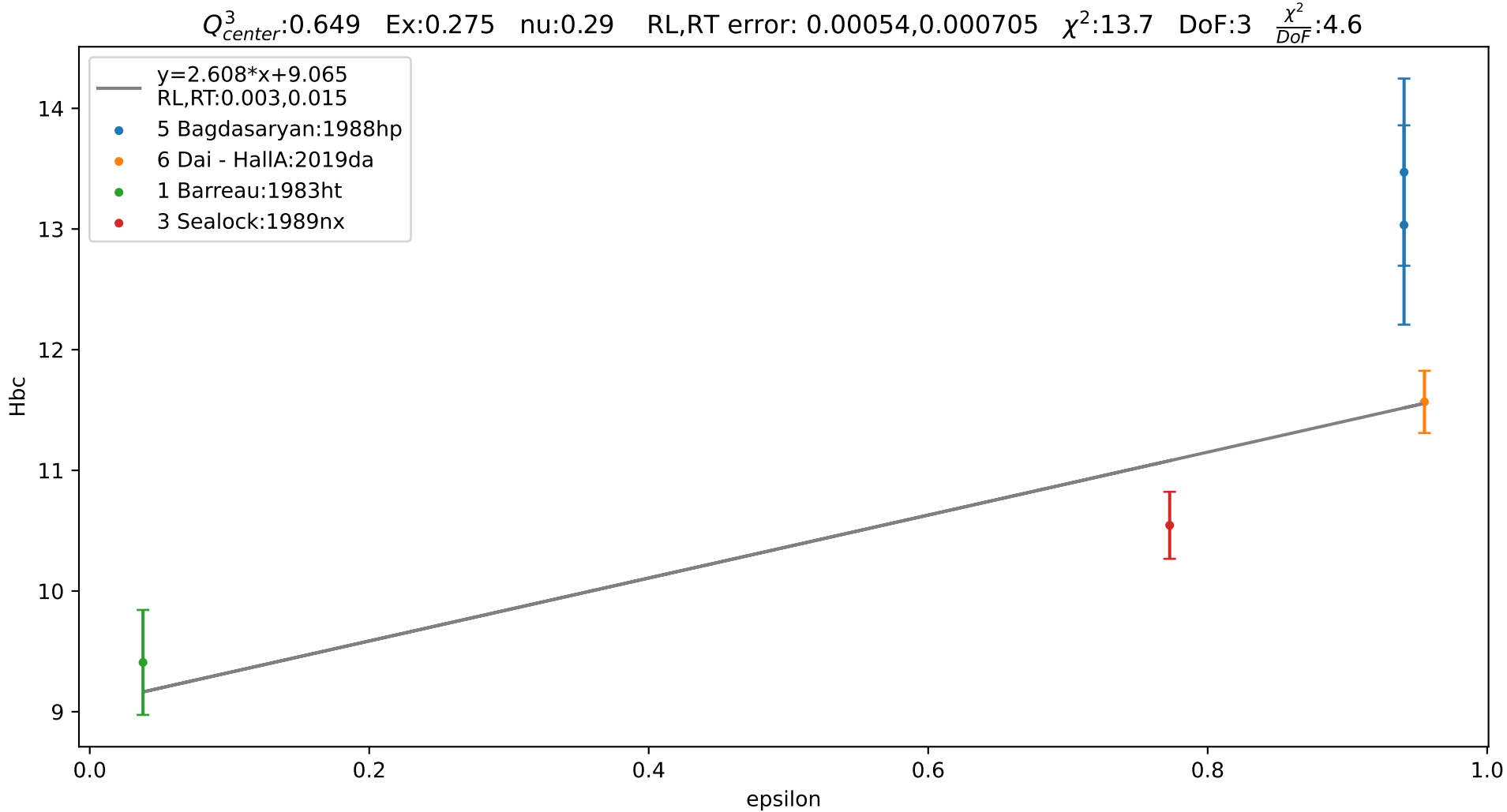

Q^3_{center}:0.649 Ex:0.214 nu:0.23 RL,RT error: 0.000414,0.000533 χ^2:3.5 DoF:4 $\frac{\chi^2}{DoF}$:0.9
y=4.623*x+9.421
RL,RT:0.005,0.016
3 Sealock:1989nx
5 Bagdasaryan:1988hp
1 Barreau:1983ht
6 Dai - HallA:2019da
Hbc
epsilon
9
10
11
12
13
14
15
0.0
0.2
0.4
0.6
0.8
1.0

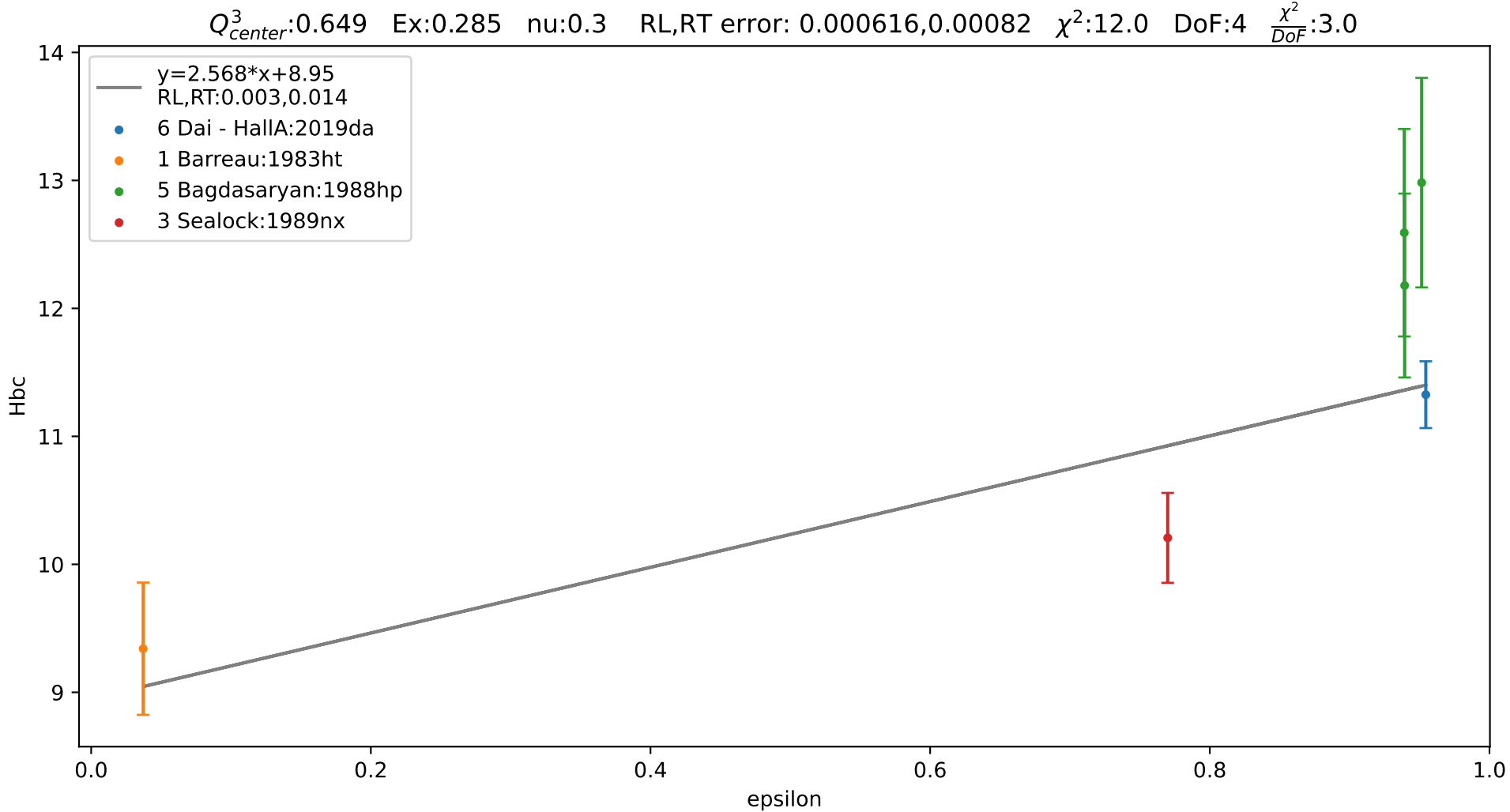

Q^3_{center}:0.649 Ex:0.224 nu:0.24 RL,RT error: 0.000501,0.000652 χ^2:3.5 DoF:3 $\frac{\chi^2}{DoF}$:1.2
y=4.74*x+9.549
RL,RT:0.005,0.016
1 Barreau:1983ht
3 Sealock:1989nx
6 Dai - HallA:2019da
5 Bagdasaryan:1988hp
Hbc
epsilon
16
15
14
13
12
11
10
0.0
0.2
0.4
0.6
0.8
1.0

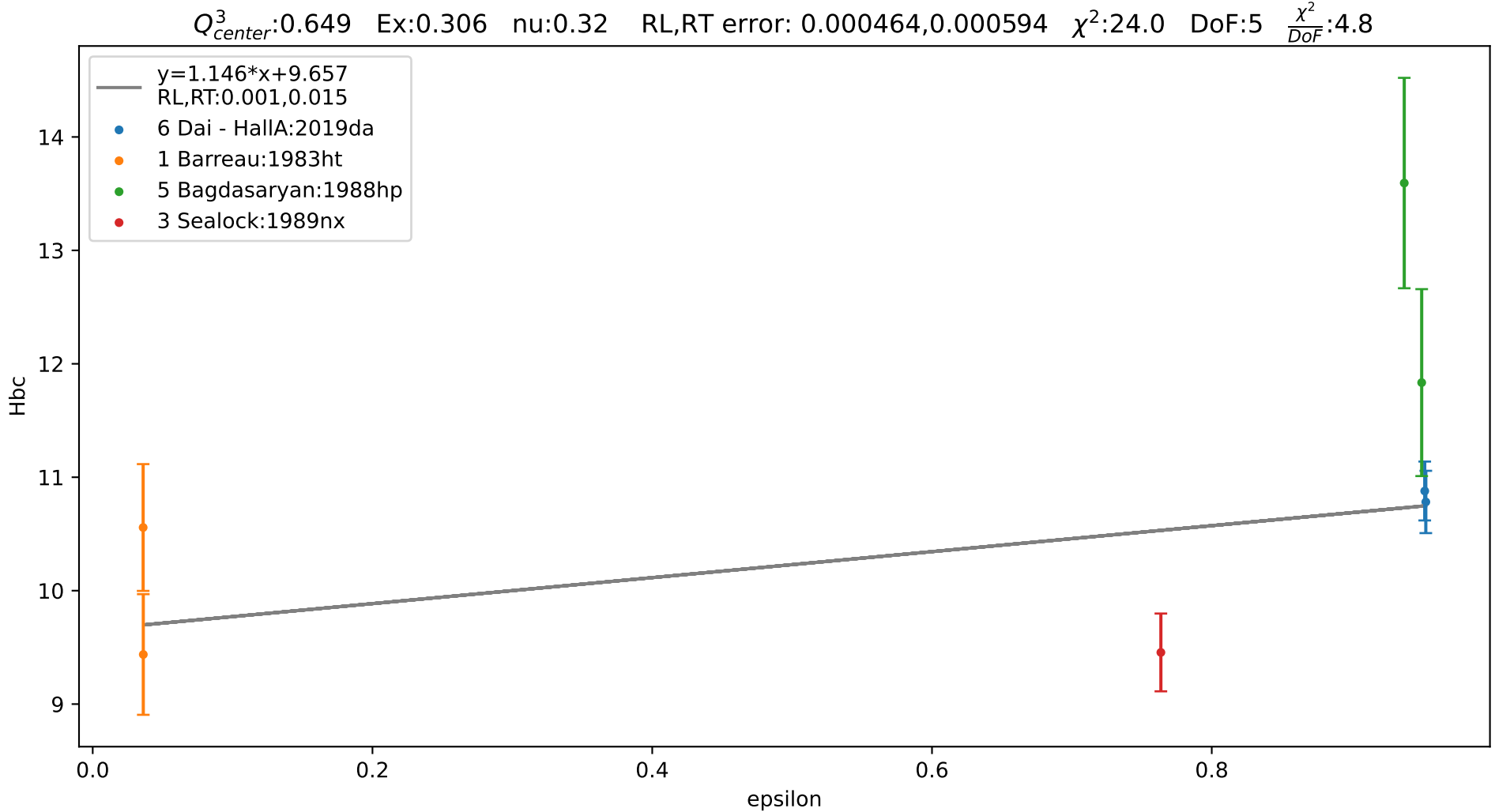

Q^3_{center}:0.649 Ex:0.234 nu:0.25 RL,RT error: 0.000554,0.000719 χ^2:1.7 DoF:3 $\frac{\chi^2}{DoF}$:0.6
y=4.523*x+9.258
RL,RT:0.005,0.016
5 Bagdasaryan:1988hp
3 Sealock:1989nx
1 Barreau:1983ht
6 Dai - HallA:2019da
Hbc
epsilon
9
10
11
12
13
14
0.0
0.2
0.4
0.6
0.8
1.0

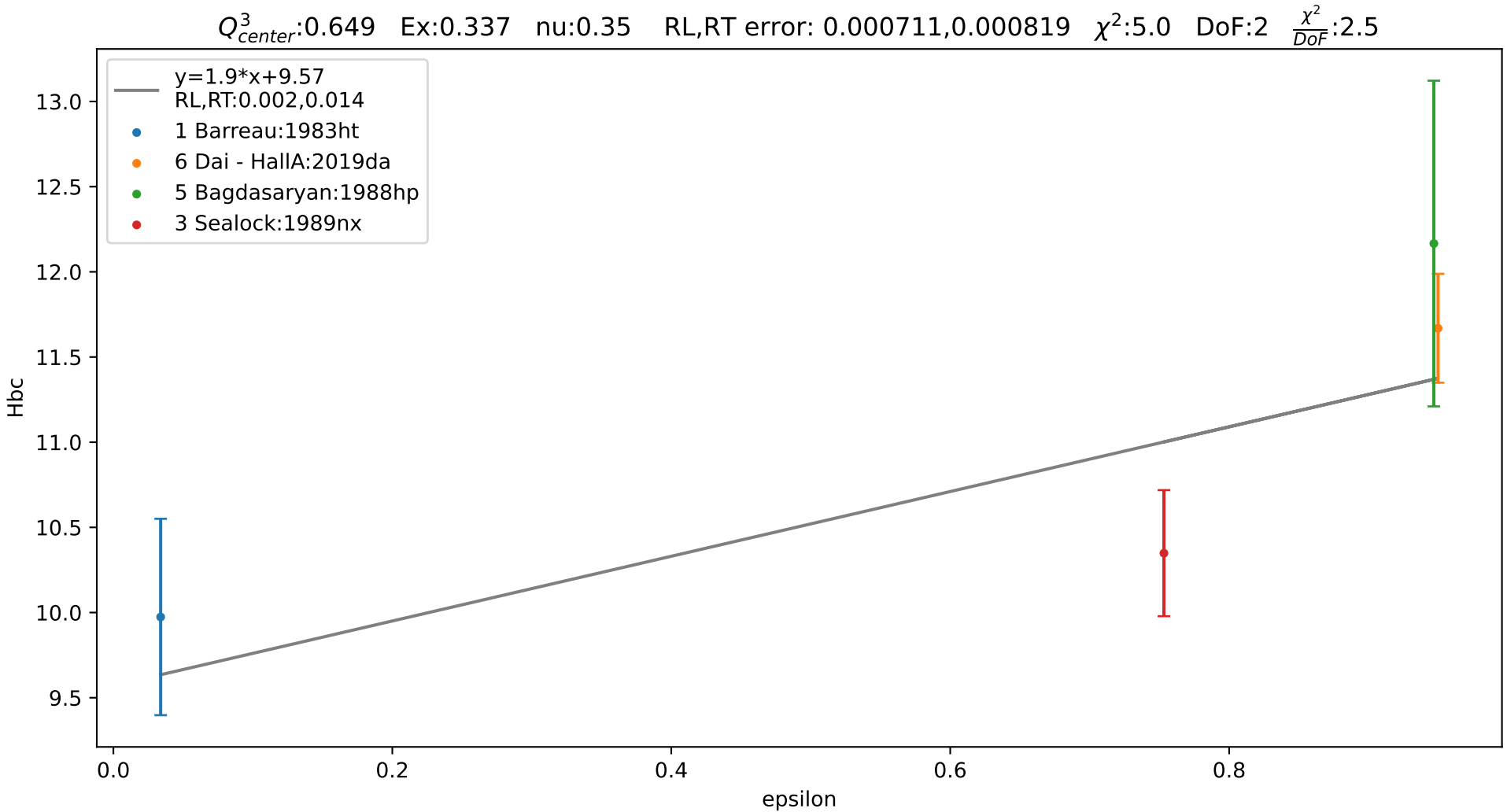

Q^3_{center}:0.649 Ex:0.244 nu:0.26 RL,RT error: 0.000449,0.000545 χ^2:4.9 DoF:4 $\frac{\chi^2}{DoF}$:1.2
y=3.982*x+9.523
RL,RT:0.004,0.016
6 Dai - HallA:2019da
1 Barreau:1983ht
3 Sealock:1989nx
5 Bagdasaryan:1988hp
Hbc
epsilon
15
14
13
12
11
10
9
0.0
0.2
0.4
0.6
0.8
1.0

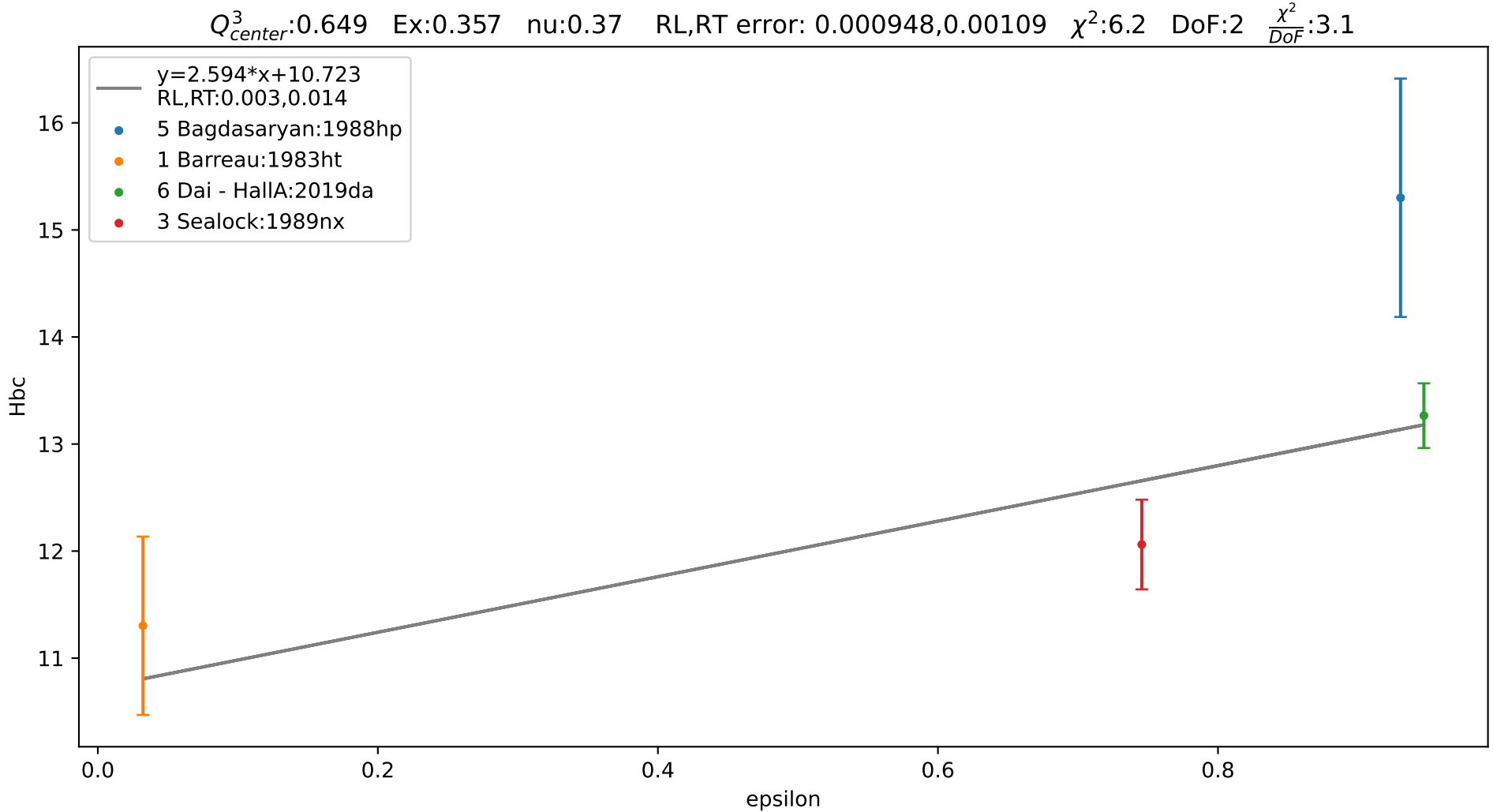

Q^3_{center}:0.649 Ex:0.254 nu:0.27 RL,RT error: 0.000477,0.000651 χ^2:7.4 DoF:6 $\frac{\chi^2}{DoF}$:1.2
y=3.228*x+9.76
RL,RT:0.003,0.016
5 Bagdasaryan:1988hp
6 Dai - HallA:2019da
1 Barreau:1983ht
3 Sealock:1989nx
Hbc
epsilon
15
14
13
12
11
10
0.0
0.2
0.4
0.6
0.8
1.0

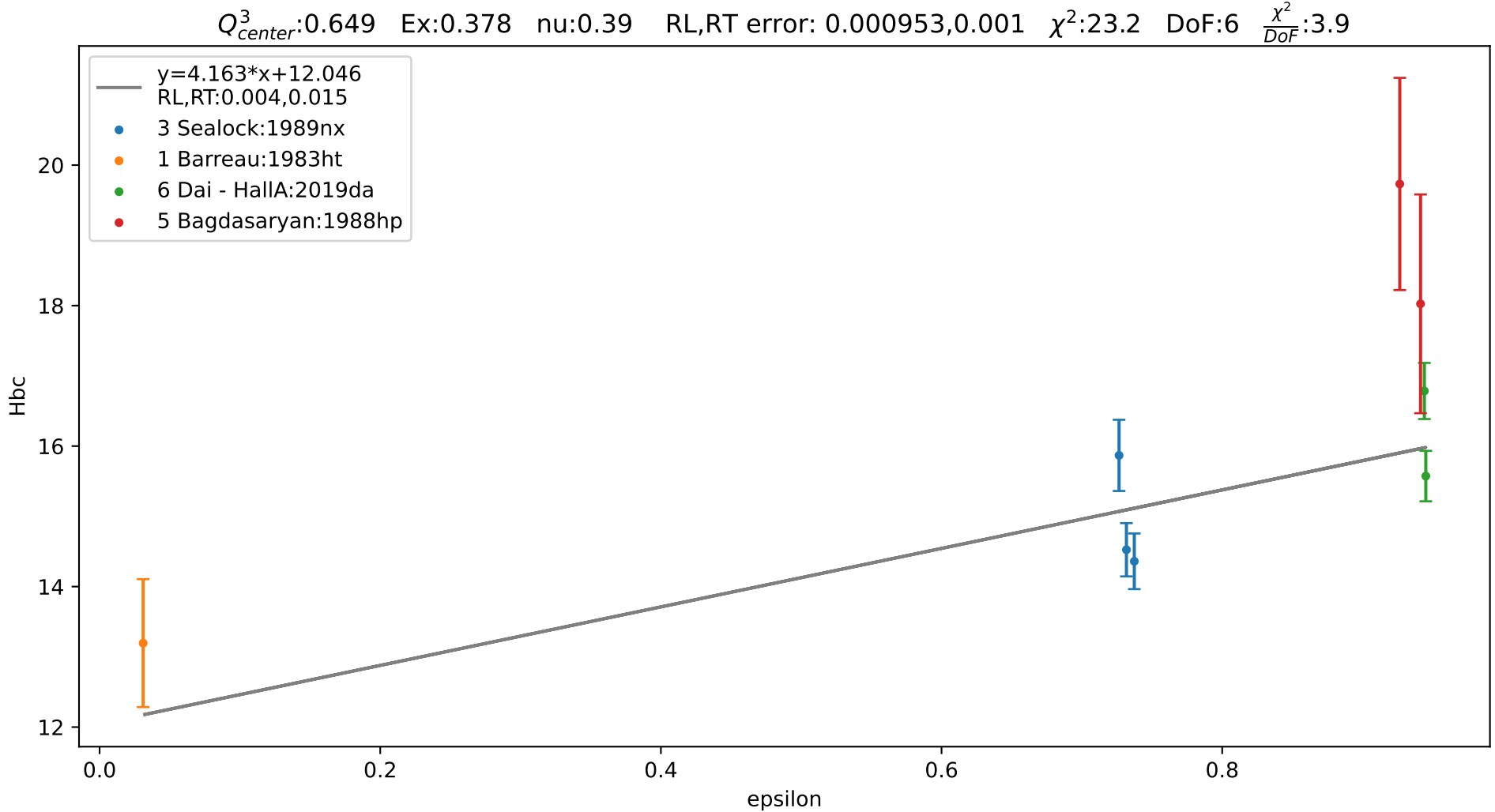

Q^3_{center}:0.649 Ex:0.275 nu:0.29 RL,RT error: 0.00054,0.000705 χ^2:13.7 DoF:3 $\frac{\chi^2}{DoF}$:4.6
y=2.608*x+9.065
RL,RT:0.003,0.015
5 Bagdasaryan:1988hp
6 Dai - HallA:2019da
1 Barreau:1983ht
3 Sealock:1989nx
Hbc
epsilon
14
13
12
11
10
9
0.0
0.2
0.4
0.6
0.8
1.0

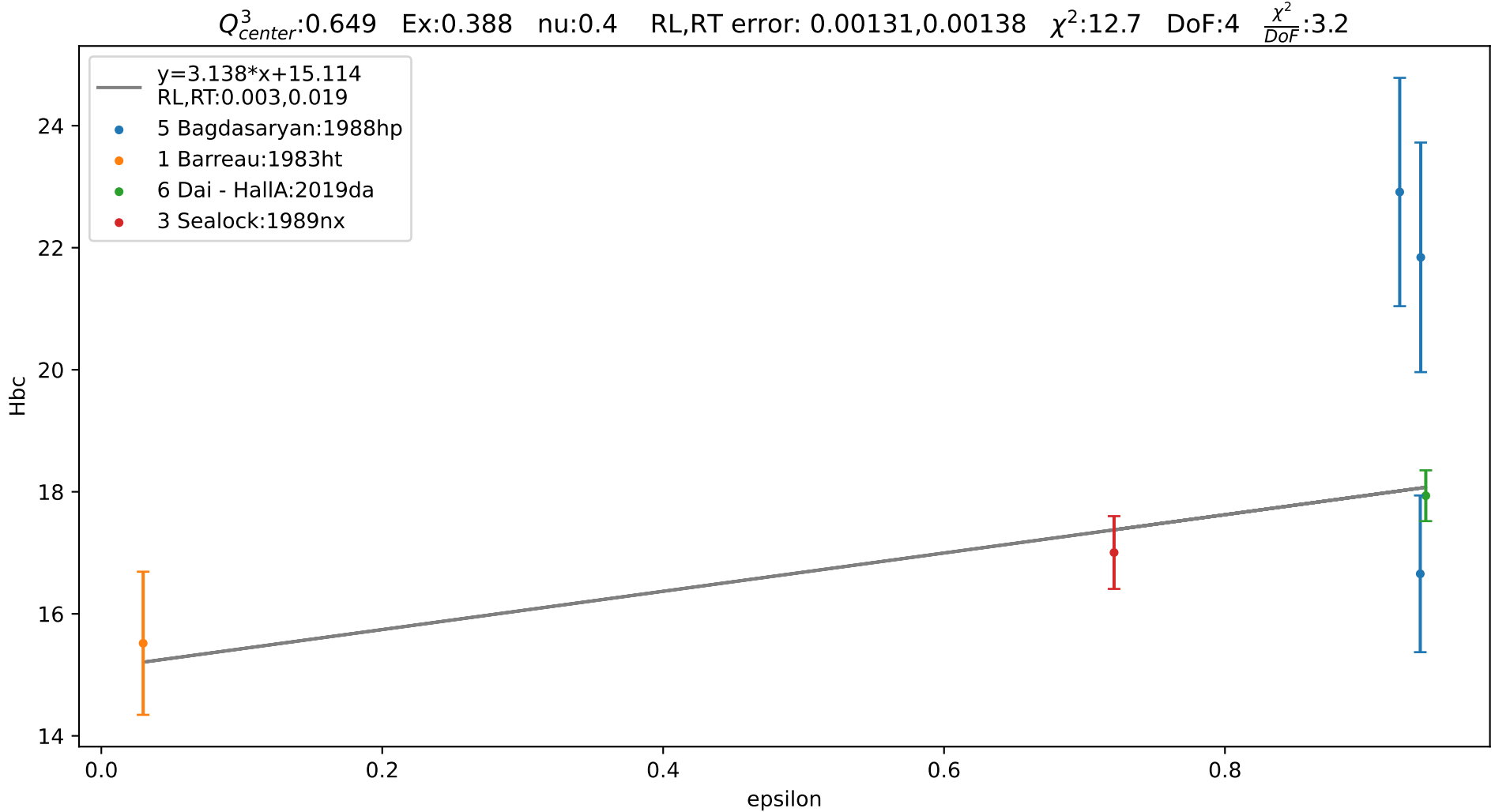

Q^3_{center}:0.649 Ex:0.285 nu:0.3 RL,RT error: 0.000616,0.00082 χ^2:12.0 DoF:4 $\frac{\chi^2}{DoF}$:3.0
y=2.568*x+8.95
RL,RT:0.003,0.014
6 Dai - HallA:2019da
1 Barreau:1983ht
5 Bagdasaryan:1988hp
3 Sealock:1989nx
Hbc
epsilon
14
13
12
11
10
9
0.0
0.2
0.4
0.6
0.8
1.0

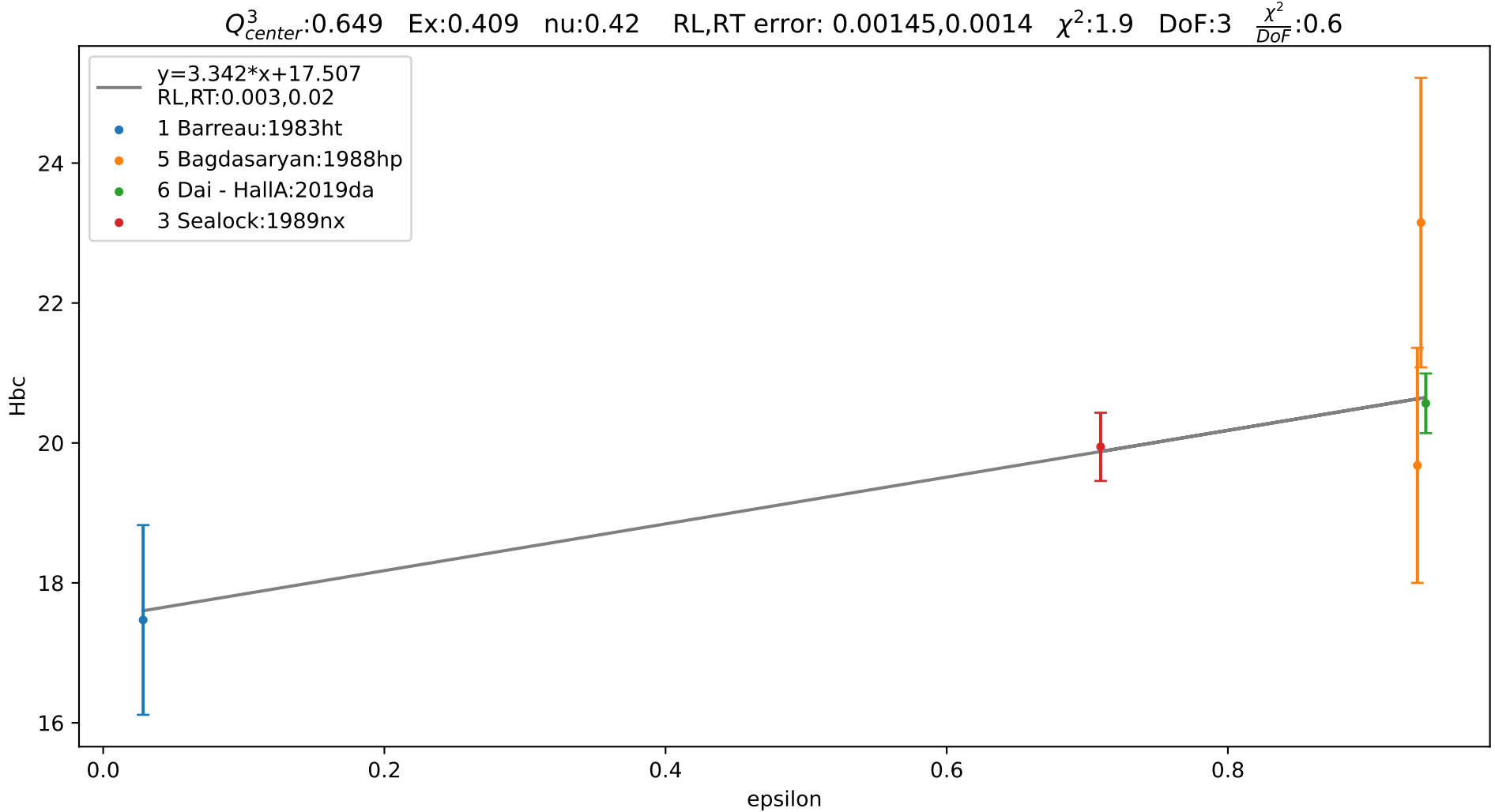

Q^3_{center}:0.649 Ex:0.306 nu:0.32 RL,RT error: 0.000464,0.000594 χ^2:24.0 DoF:5 $\frac{\chi^2}{DoF}$:4.8
y=1.146*x+9.657
RL,RT:0.001,0.015
6 Dai - HallA:2019da
1 Barreau:1983ht
5 Bagdasaryan:1988hp
3 Sealock:1989nx
Hbc
epsilon
14
13
12
11
10
9
0.0
0.2
0.4
0.6
0.8

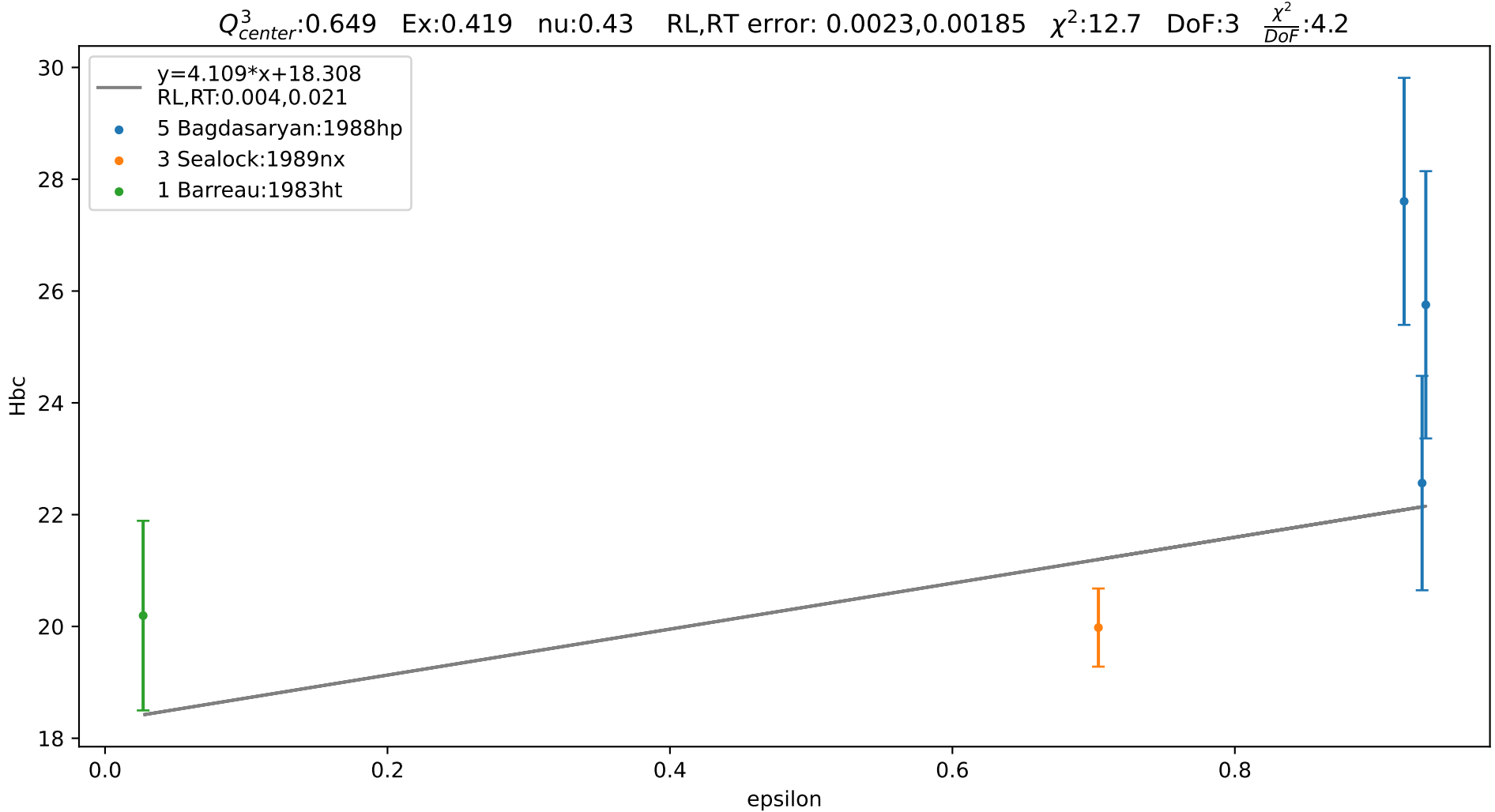

Q^3_{center}:0.649 Ex:0.337 nu:0.35 RL,RT error: 0.000711,0.000819 χ^2:5.0 DoF:2 $\frac{\chi^2}{DoF}$:2.5
y=1.9*x+9.57
RL,RT:0.002,0.014
1 Barreau:1983ht
6 Dai - HallA:2019da
5 Bagdasaryan:1988hp
3 Sealock:1989nx
Hbc
epsilon
13.0
12.5
12.0
11.5
11.0
10.5
10.0
9.5
0.0
0.2
0.4
0.6
0.8

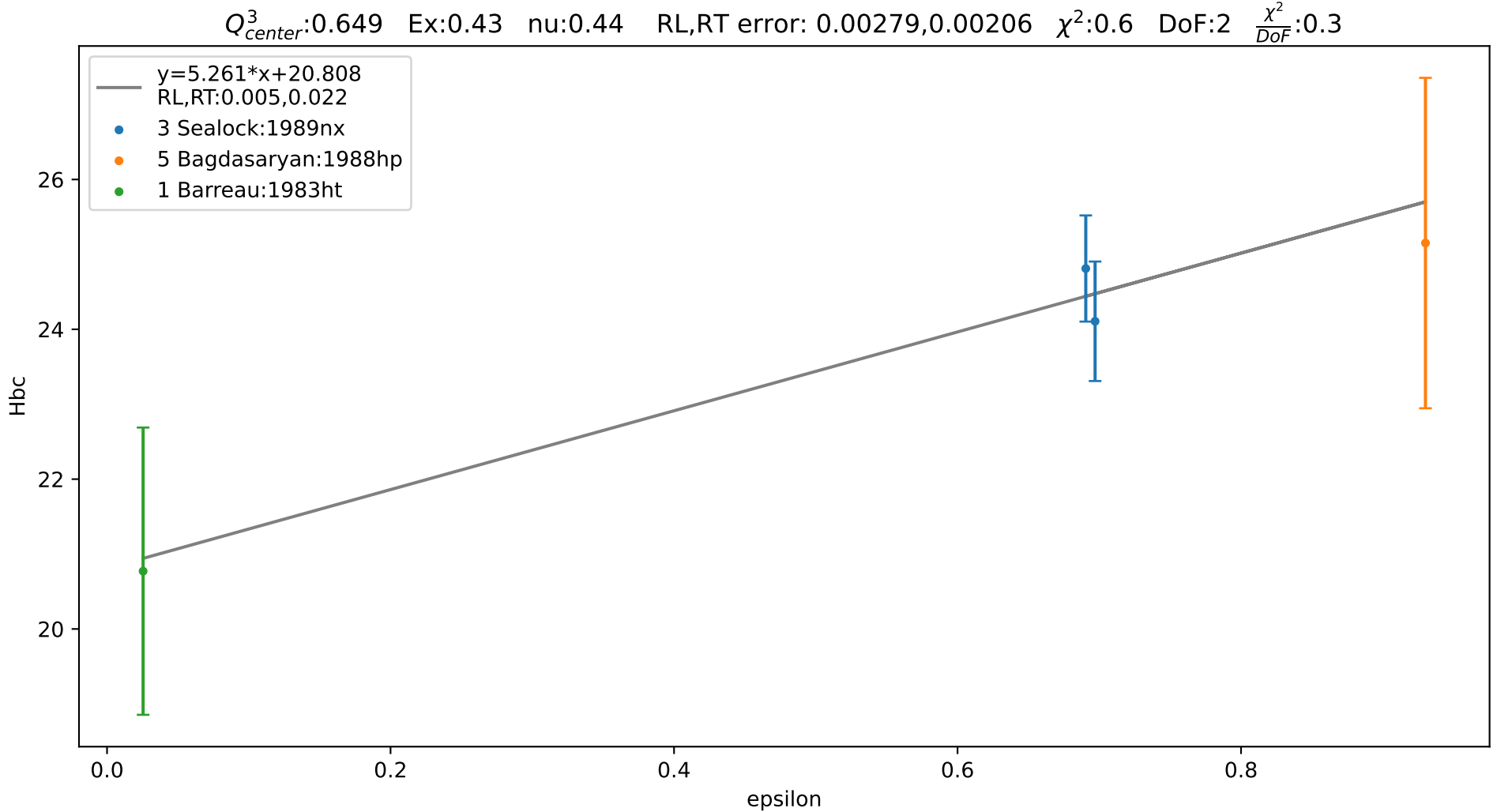

Q^3_{center}:0.649 Ex:0.357 nu:0.37 RL,RT error: 0.000948,0.00109 χ^2:6.2 DoF:2 $\frac{\chi^2}{DoF}$:3.1
y=2.594*x+10.723
RL,RT:0.003,0.014
5 Bagdasaryan:1988hp
1 Barreau:1983ht
6 Dai - HallA:2019da
3 Sealock:1989nx
Hbc
epsilon
16
15
14
13
12
11
0.0
0.2
0.4
0.6
0.8

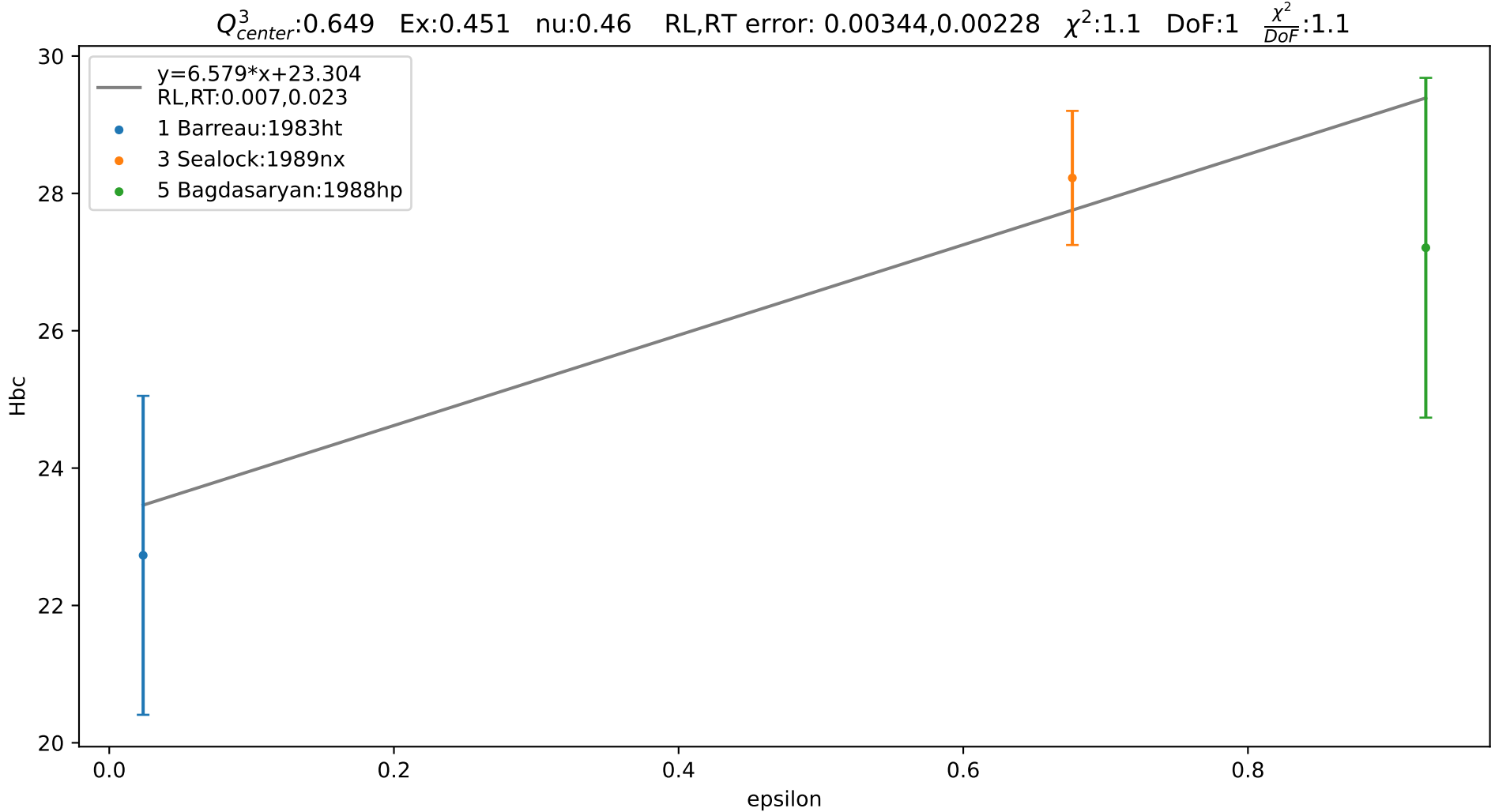

Q^3_{center}:0.649 Ex:0.378 nu:0.39 RL,RT error: 0.000953,0.001 χ^2:23.2 DoF:6 $\frac{\chi^2}{DoF}$:3.9
y=4.163*x+12.046
RL,RT:0.004,0.015
3 Sealock:1989nx
1 Barreau:1983ht
6 Dai - HallA:2019da
5 Bagdasaryan:1988hp
Hbc
epsilon
12
14
16
18
20
0.0
0.2
0.4
0.6
0.8

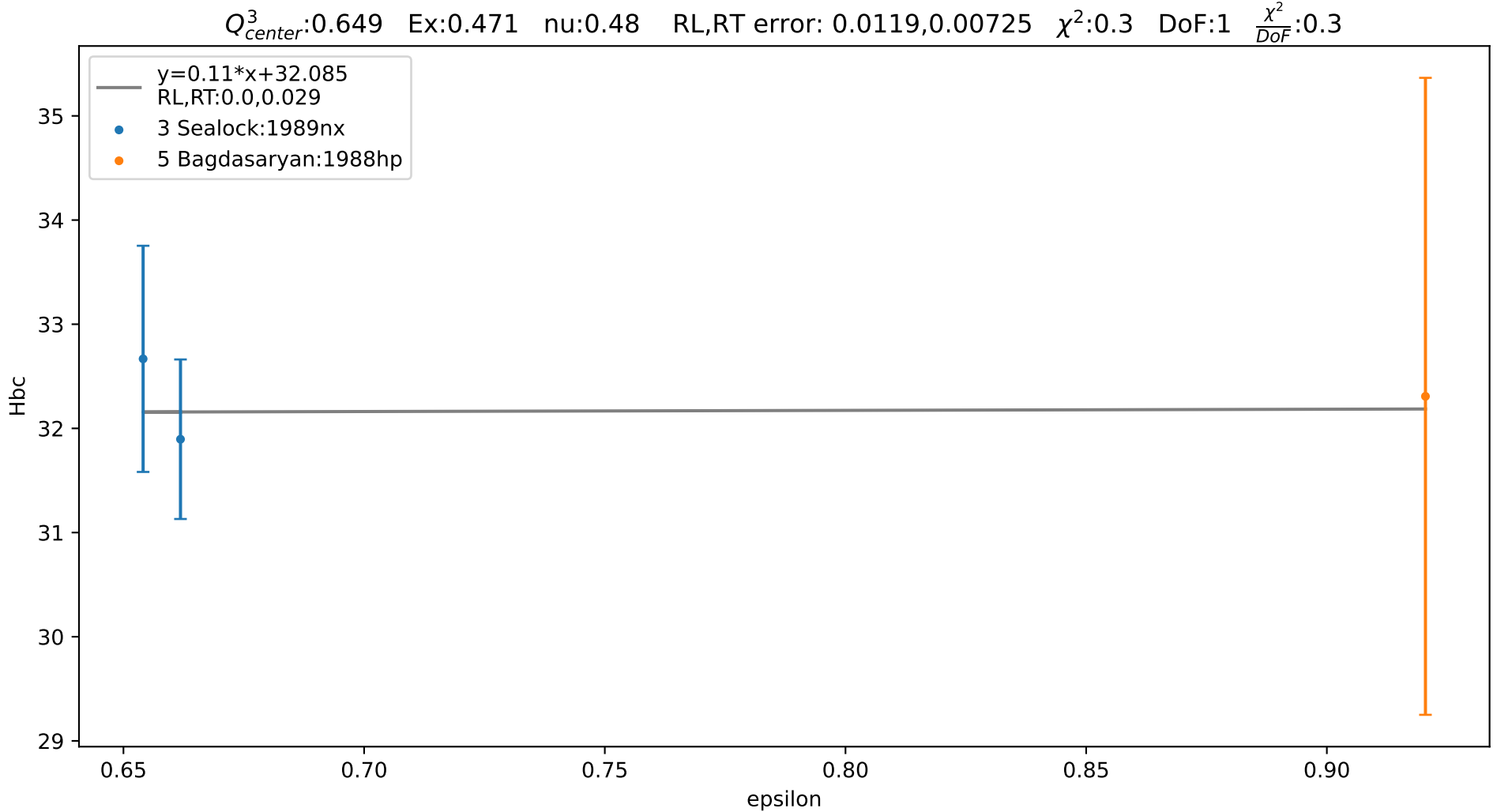

Q^3_{center}:0.649 Ex:0.388 nu:0.4 RL,RT error: 0.00131,0.00138 χ^2:12.7 DoF:4 $\frac{\chi^2}{DoF}$:3.2
y=3.138*x+15.114
RL,RT:0.003,0.019
5 Bagdasaryan:1988hp
1 Barreau:1983ht
6 Dai - HallA:2019da
3 Sealock:1989nx
Hbc
epsilon
14
16
18
20
22
24
0.0
0.2
0.4
0.6
0.8

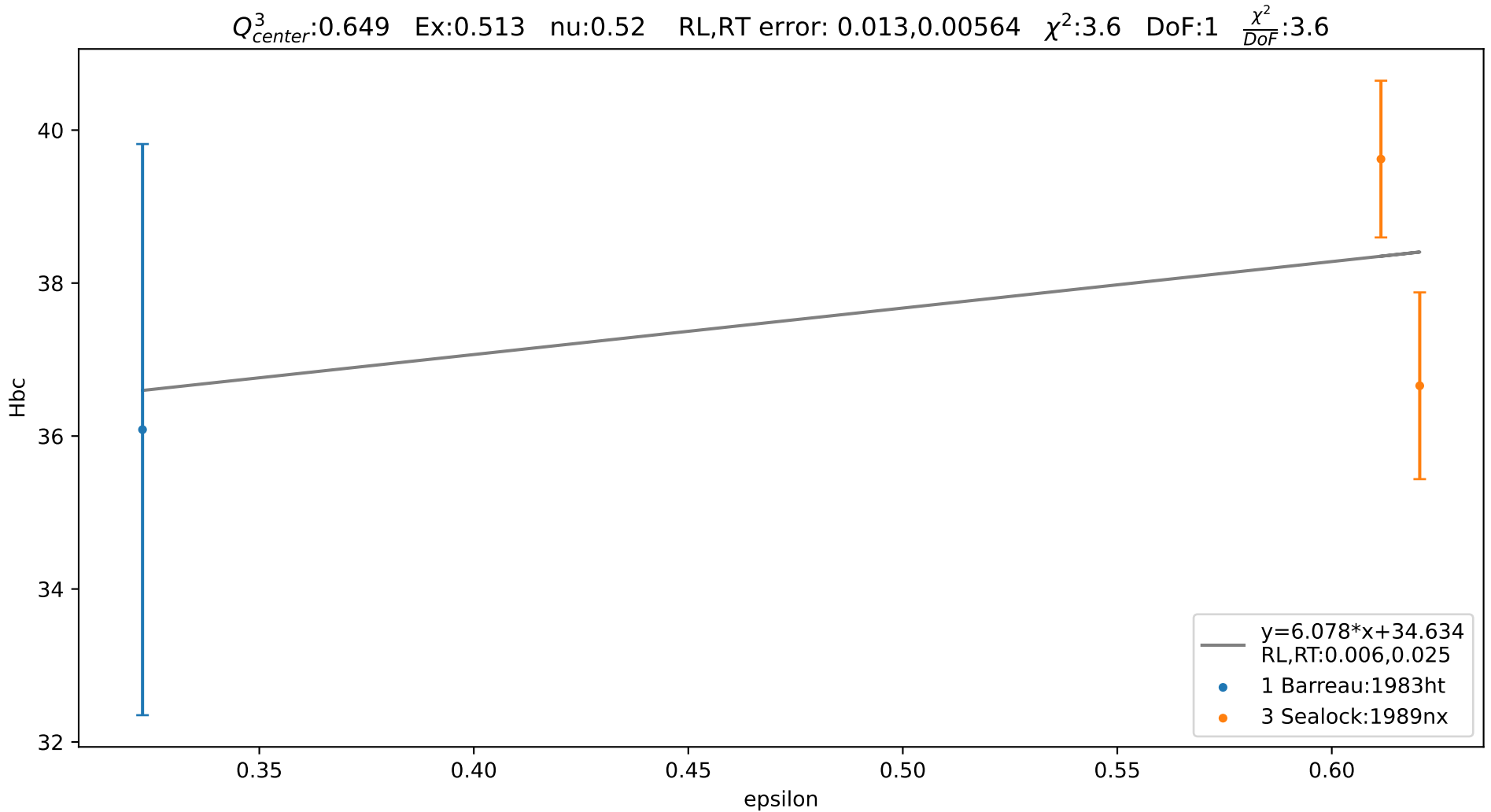

Q^3_{center}:0.649 Ex:0.409 nu:0.42 RL,RT error: 0.00145,0.0014 χ^2:1.9 DoF:3 $\frac{\chi^2}{DoF}$:0.6
y=3.342*x+17.507
RL,RT:0.003,0.02
1 Barreau:1983ht
5 Bagdasaryan:1988hp
6 Dai - HallA:2019da
3 Sealock:1989nx
Hbc
epsilon
16
18
20
22
24
0.0
0.2
0.4
0.6
0.8

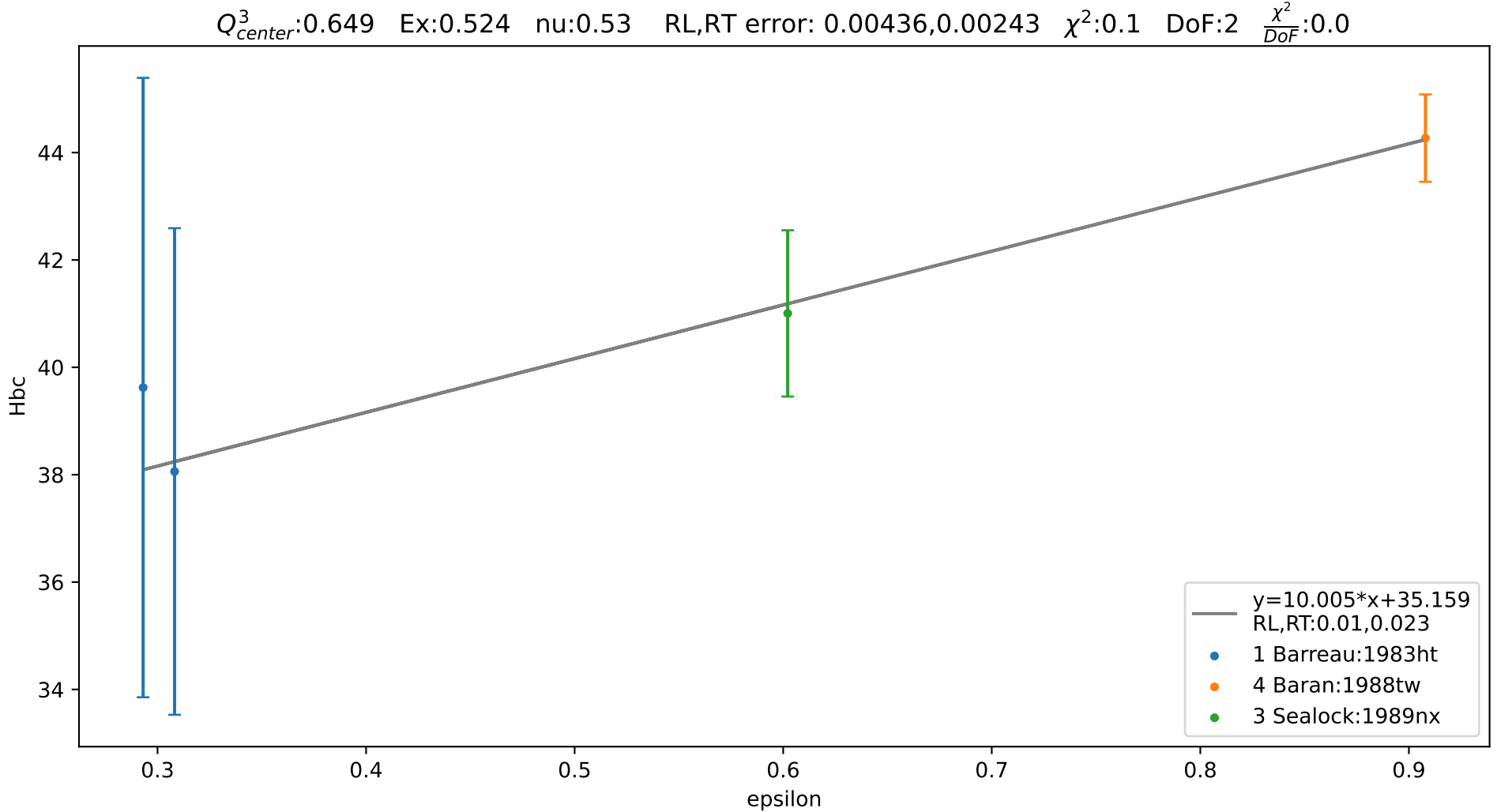

Q^3_{center}:0.649 Ex:0.419 nu:0.43 RL,RT error: 0.0023,0.00185 χ^2:12.7 DoF:3 $\frac{\chi^2}{DoF}$:4.2
y=4.109*x+18.308
RL,RT:0.004,0.021
5 Bagdasaryan:1988hp
3 Sealock:1989nx
1 Barreau:1983ht
Hbc
epsilon
30
28
26
24
22
20
18
0.0
0.2
0.4
0.6
0.8

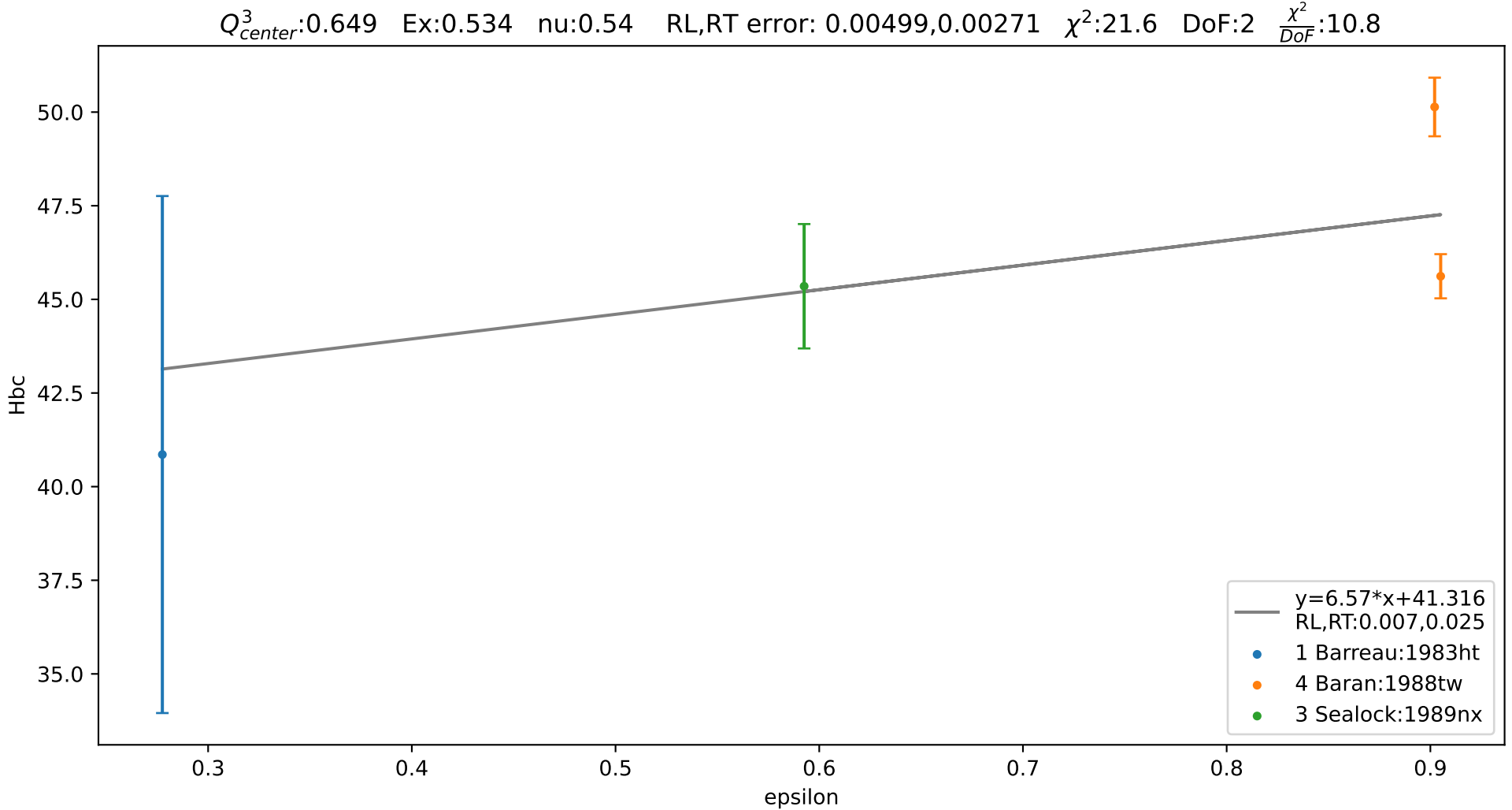

Q^3_{center}:0.649 Ex:0.43 nu:0.44 RL,RT error: 0.00279,0.00206 χ^2:0.6 DoF:2 $\frac{\chi^2}{DoF}$:0.3
y=5.261*x+20.808
RL,RT:0.005,0.022
3 Sealock:1989nx
5 Bagdasaryan:1988hp
1 Barreau:1983ht
Hbc
epsilon
20
22
24
26
0.0
0.2
0.4
0.6
0.8

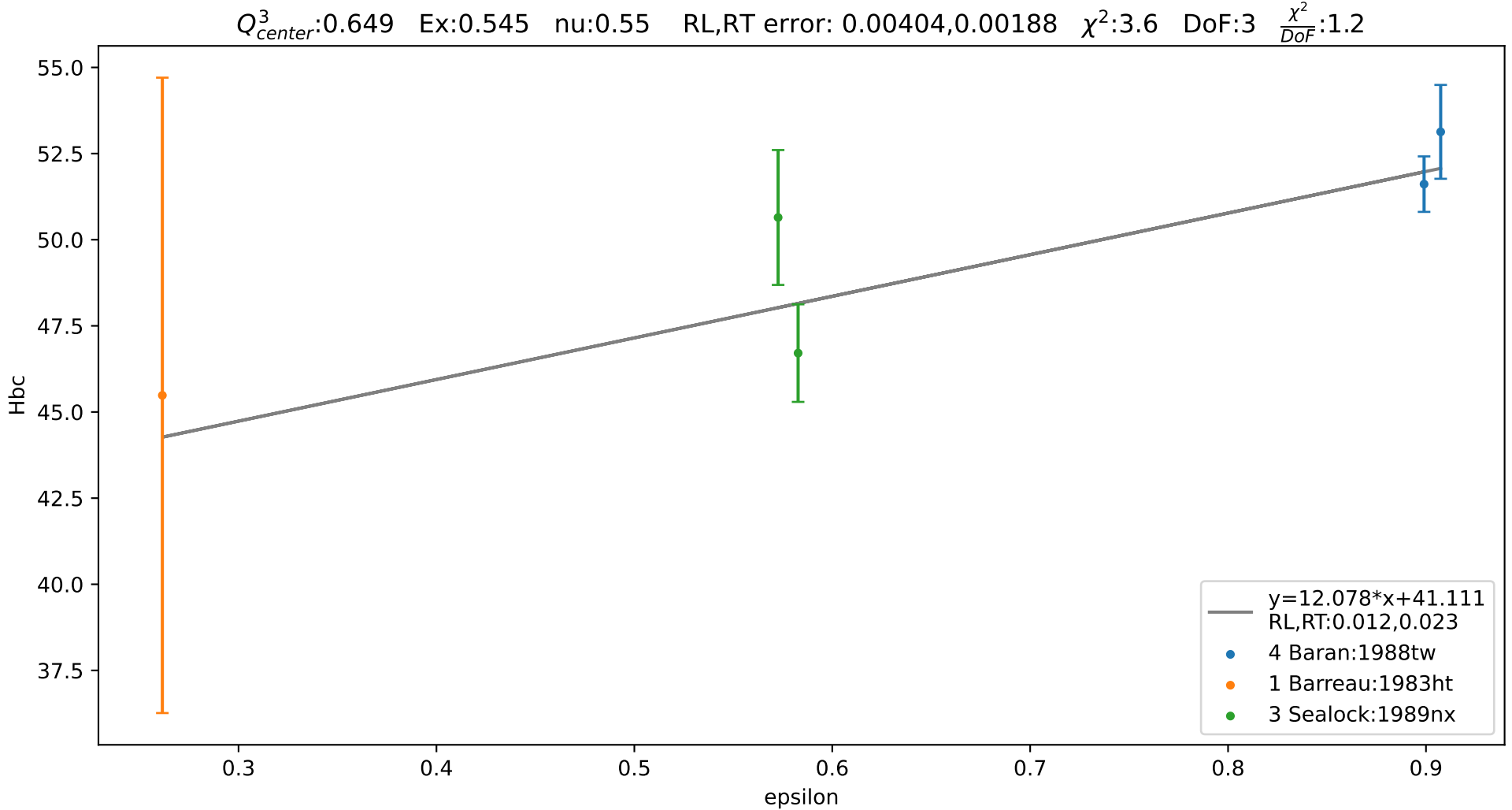

Q^3_{center}:0.649 Ex:0.451 nu:0.46 RL,RT error: 0.00344,0.00228 χ^2:1.1 DoF:1 $\frac{\chi^2}{DoF}$:1.1
y=6.579*x+23.304
RL,RT:0.007,0.023
1 Barreau:1983ht
3 Sealock:1989nx
5 Bagdasaryan:1988hp
Hbc
epsilon
30
28
26
24
22
20
0.0
0.2
0.4
0.6
0.8

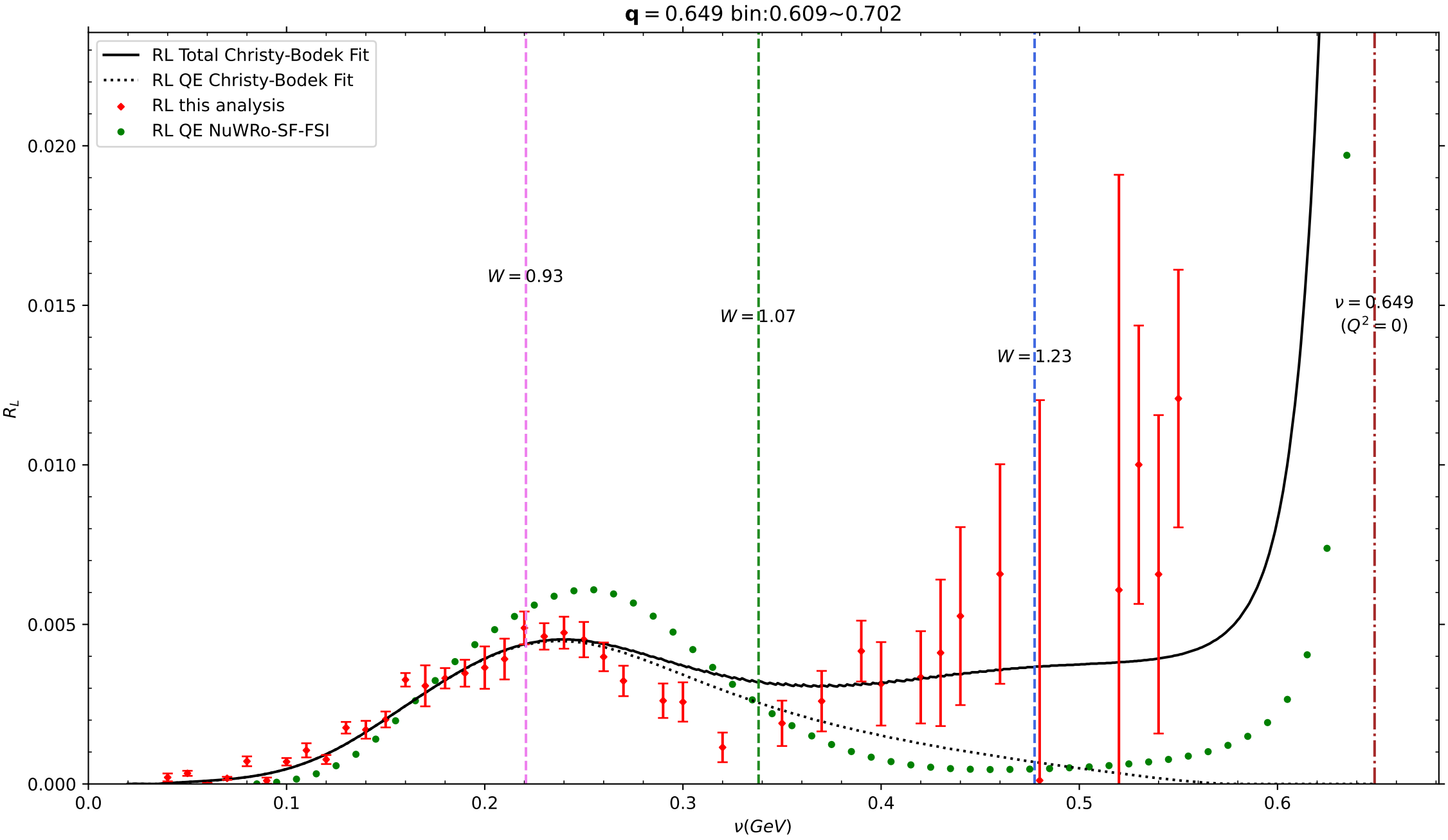

Q^3_{center}:0.649 Ex:0.471 nu:0.48 RL,RT error: 0.0119,0.00725 χ^2:0.3 DoF:1 $\frac{\chi^2}{DoF}$:0.3
y=0.11*x+32.085
RL,RT:0.0,0.029
3 Sealock:1989nx
5 Bagdasaryan:1988hp
Hbc
epsilon
35
34
33
32
31
30
29
0.65
0.70
0.75
0.80
0.85
0.90

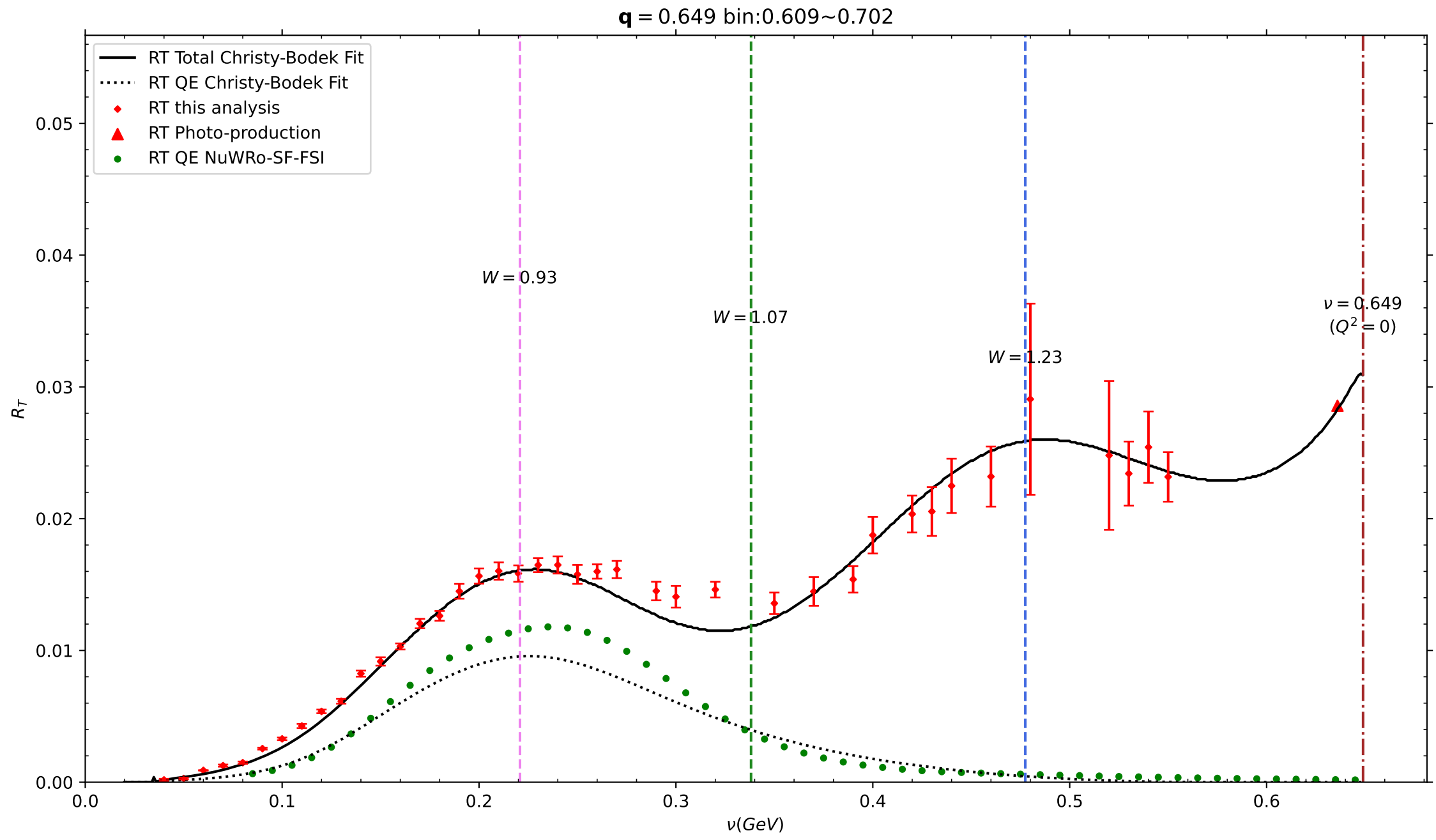

Q^3_{center}:0.649 Ex:0.513 nu:0.52 RL,RT error: 0.013,0.00564 χ^2:3.6 DoF:1 $\frac{\chi^2}{DoF}$:3.6
Hbc
epsilon
40
38
36
34
32
0.35
0.40
0.45
0.50
0.55
0.60
y=6.078*x+34.634
RL,RT:0.006,0.025
1 Barreau:1983ht
3 Sealock:1989nx

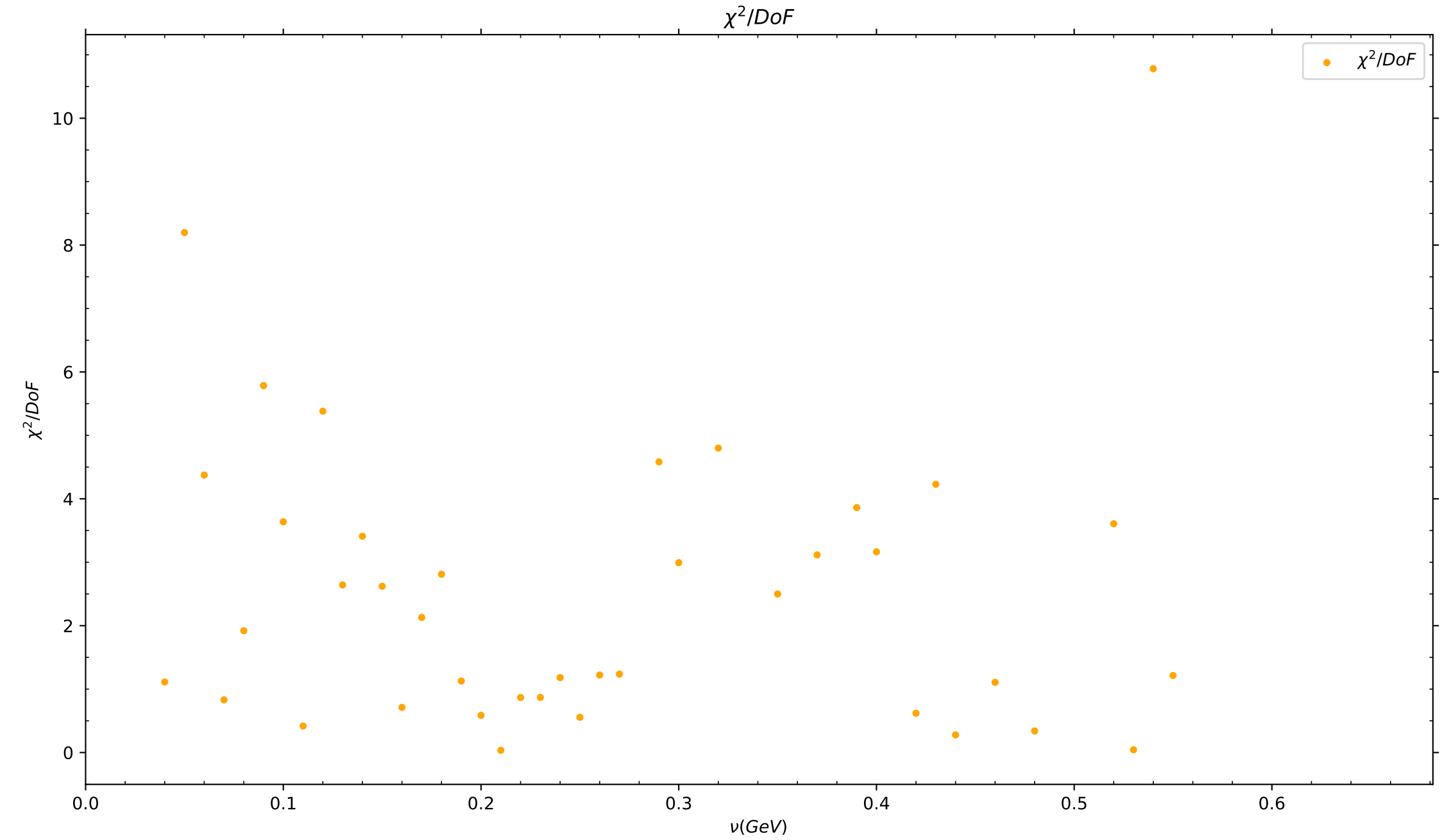

Q^3_{center}:0.649 Ex:0.524 nu:0.53 RL,RT error: 0.00436,0.00243 χ^2:0.1 DoF:2 $\frac{\chi^2}{DoF}$:0.0
Hbc
epsilon
34
36
38
40
42
44
0.3
0.4
0.5
0.6
0.7
0.8
0.9
y=10.005*x+35.159
RL,RT:0.01,0.023
1 Barreau:1983ht
4 Baran:1988tw
3 Sealock:1989nx

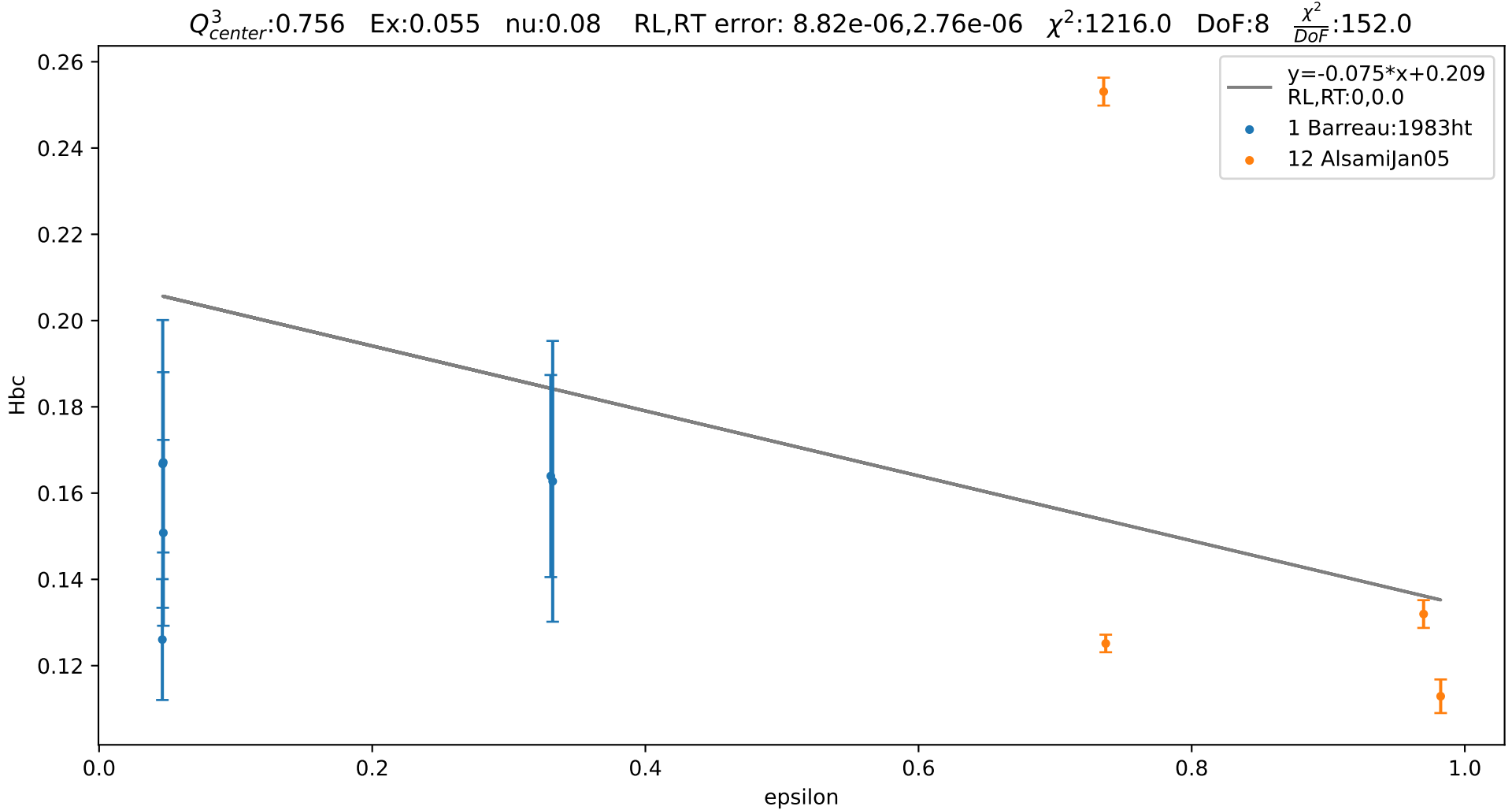

Q^3_{center}:0.649 Ex:0.534 nu:0.54 RL,RT error: 0.00499,0.00271 χ^2:21.6 DoF:2 $\frac{\chi^2}{DoF}$:10.8
Hbc
epsilon
50.0
47.5
45.0
42.5
40.0
37.5
35.0
0.3
0.4
0.5
0.6
0.7
0.8
0.9
y=6.57*x+41.316
RL,RT:0.007,0.025
1 Barreau:1983ht
4 Baran:1988tw
3 Sealock:1989nx

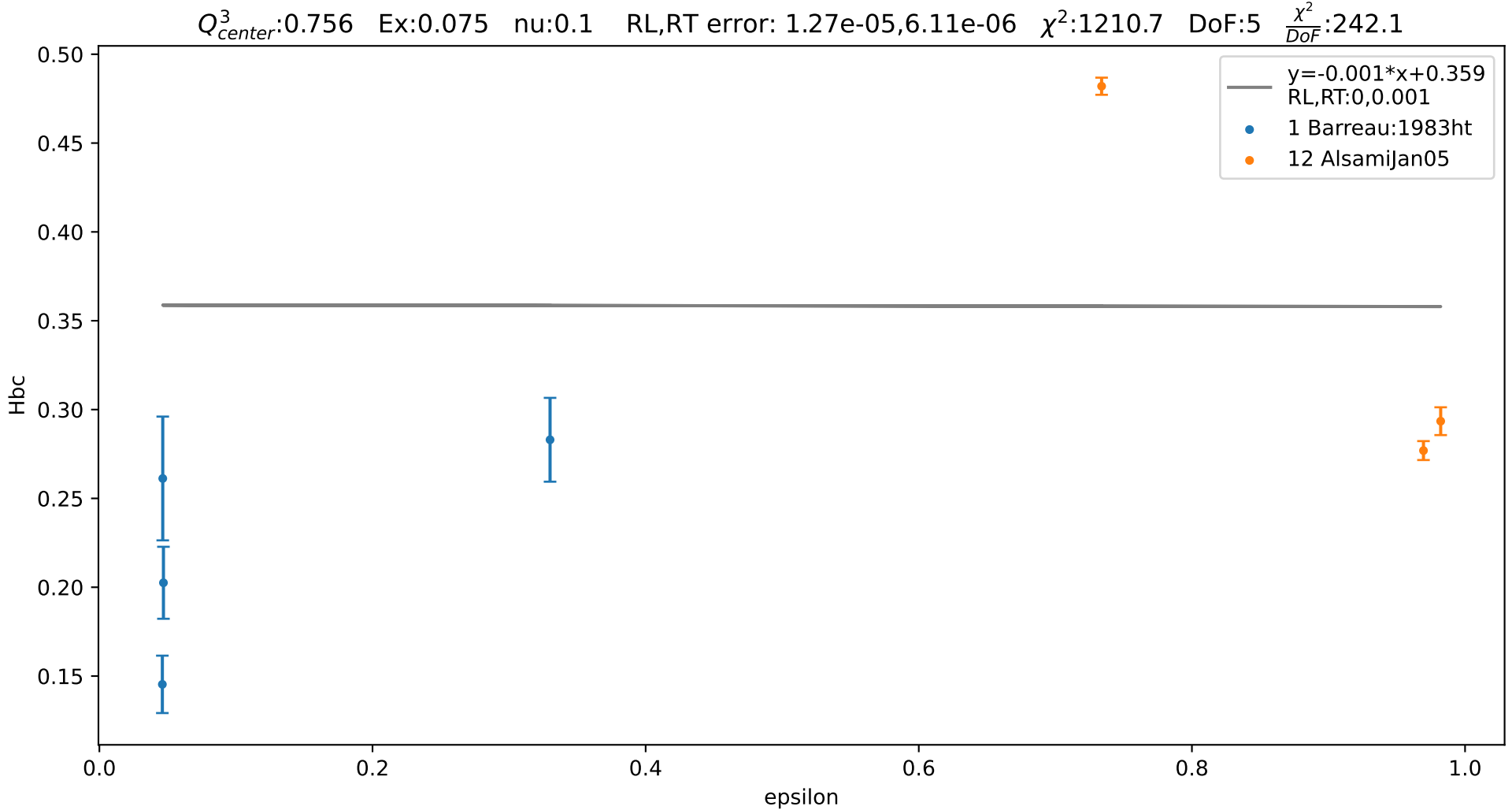

Q^3_{center}:0.649 Ex:0.545 nu:0.55 RL,RT error: 0.00404,0.00188 χ^2:3.6 DoF:3 $\frac{\chi^2}{DoF}$:1.2
Hbc
epsilon
55.0
52.5
50.0
47.5
45.0
42.5
40.0
37.5
0.3
0.4
0.5
0.6
0.7
0.8
0.9
y=12.078*x+41.111
RL,RT:0.012,0.023
4 Baran:1988tw
1 Barreau:1983ht
3 Sealock:1989nx

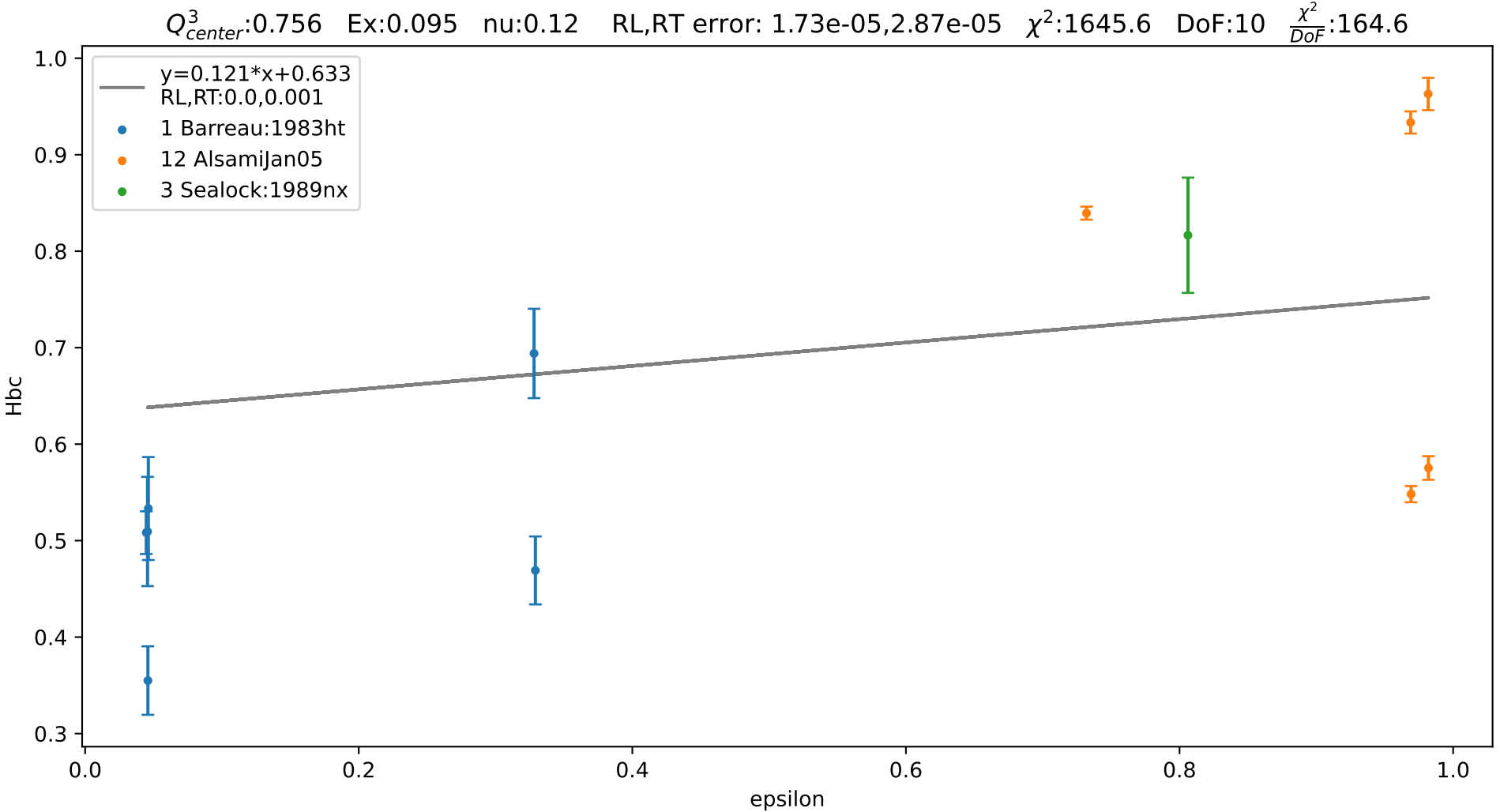

q = 0.649 bin:0.609~0.702
RL Total Christy-Bodek Fit
RL QE Christy-Bodek Fit
RL this analysis
RL QE NuWRo-SF-FSI
$W = 0.93$
$W = 1.07$
$W = 1.23$
$\nu = 0.649$
$(Q^2 = 0)$
R_L
$\nu(GeV)$

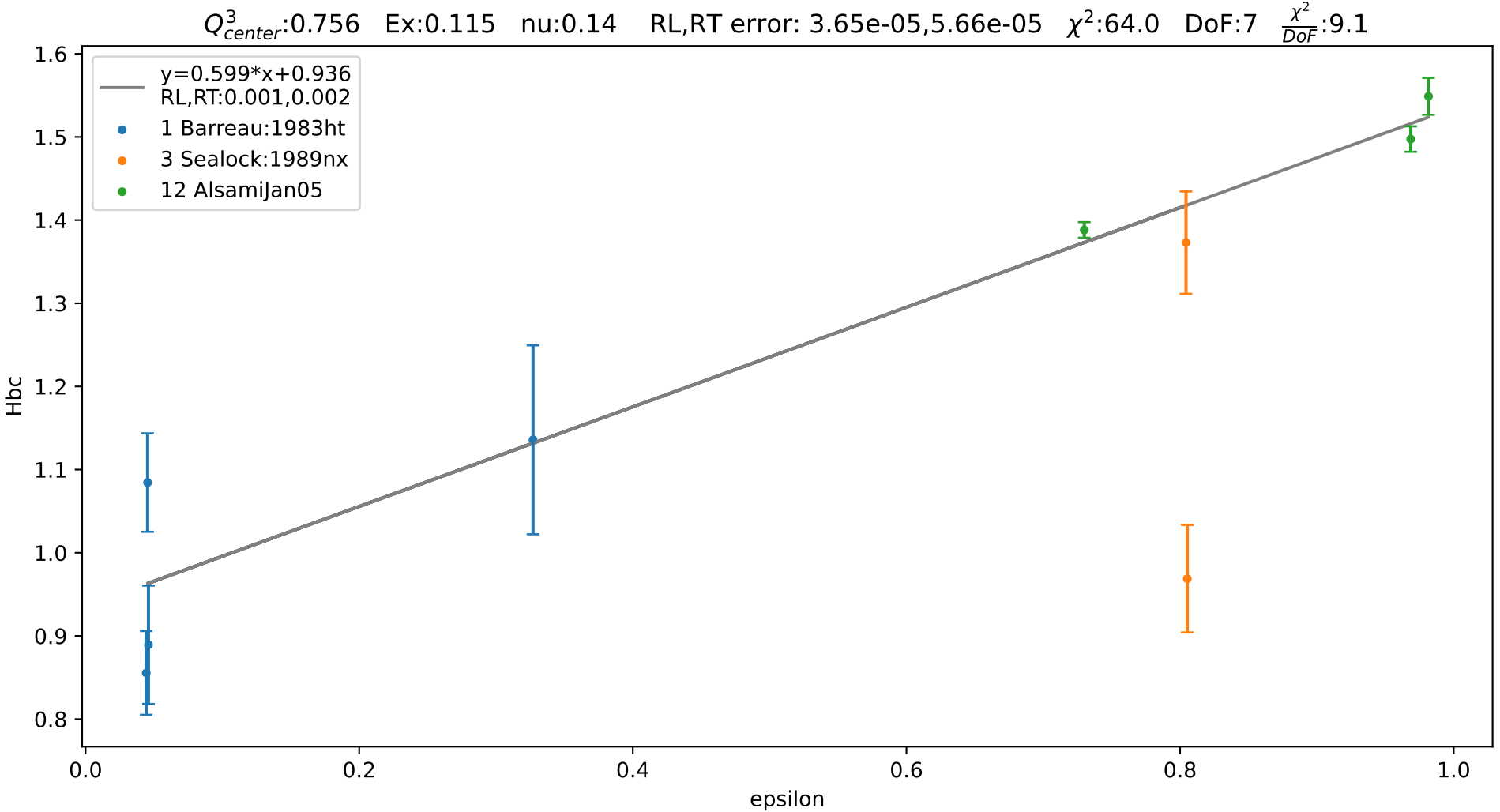

q = 0.649 bin:0.609~0.702
RT Total Christy-Bodek Fit
RT QE Christy-Bodek Fit
RT this analysis
RT Photo-production
RT QE NuWRo-SF-FSI
$W = 0.93$
$W = 1.07$
$W = 1.23$
$\nu = 0.649$
$(Q^2 = 0)$
R_T
$\nu(GeV)$

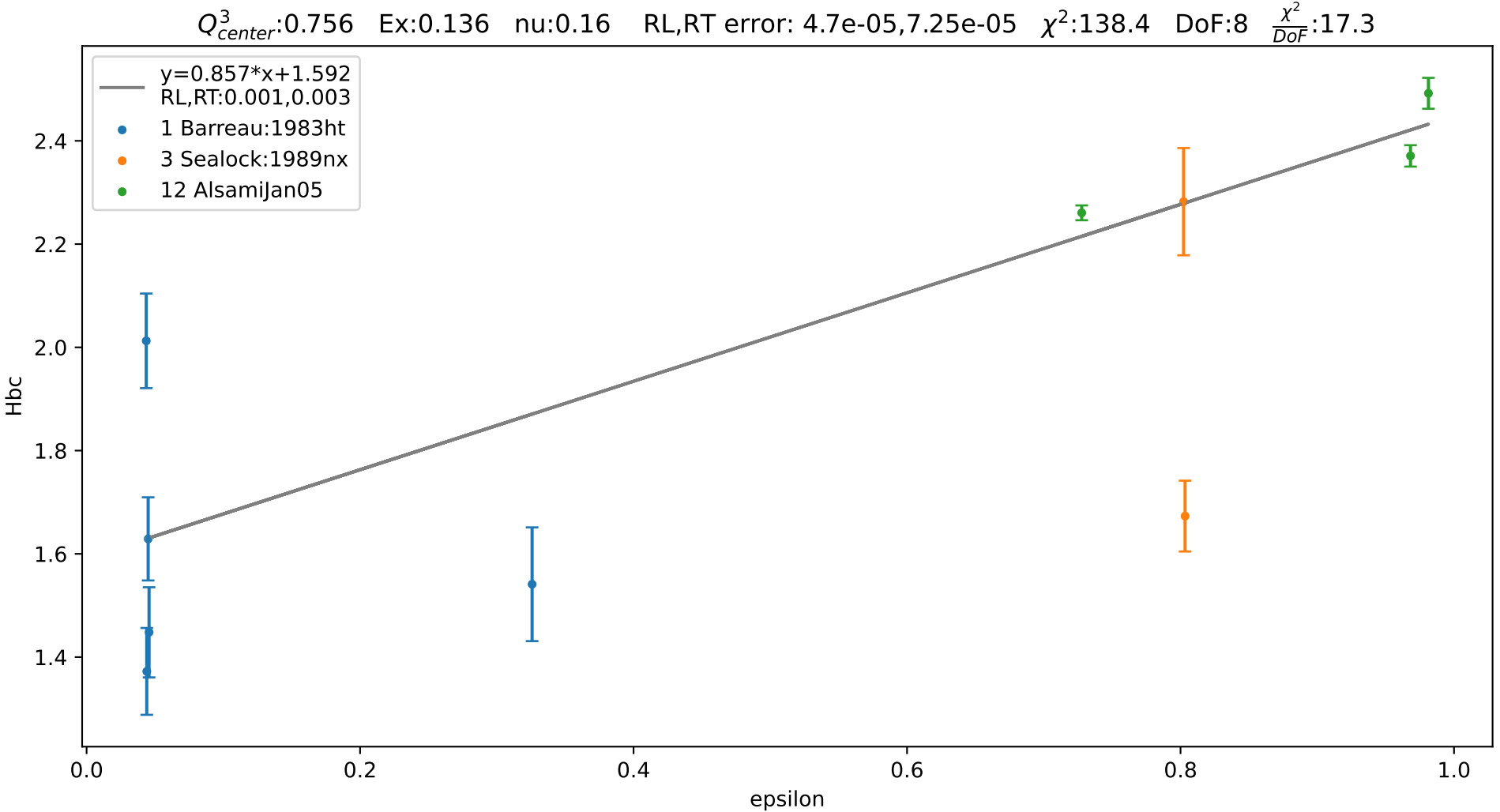

χ^2/DoF
χ^2/DoF
$\nu(GeV)$

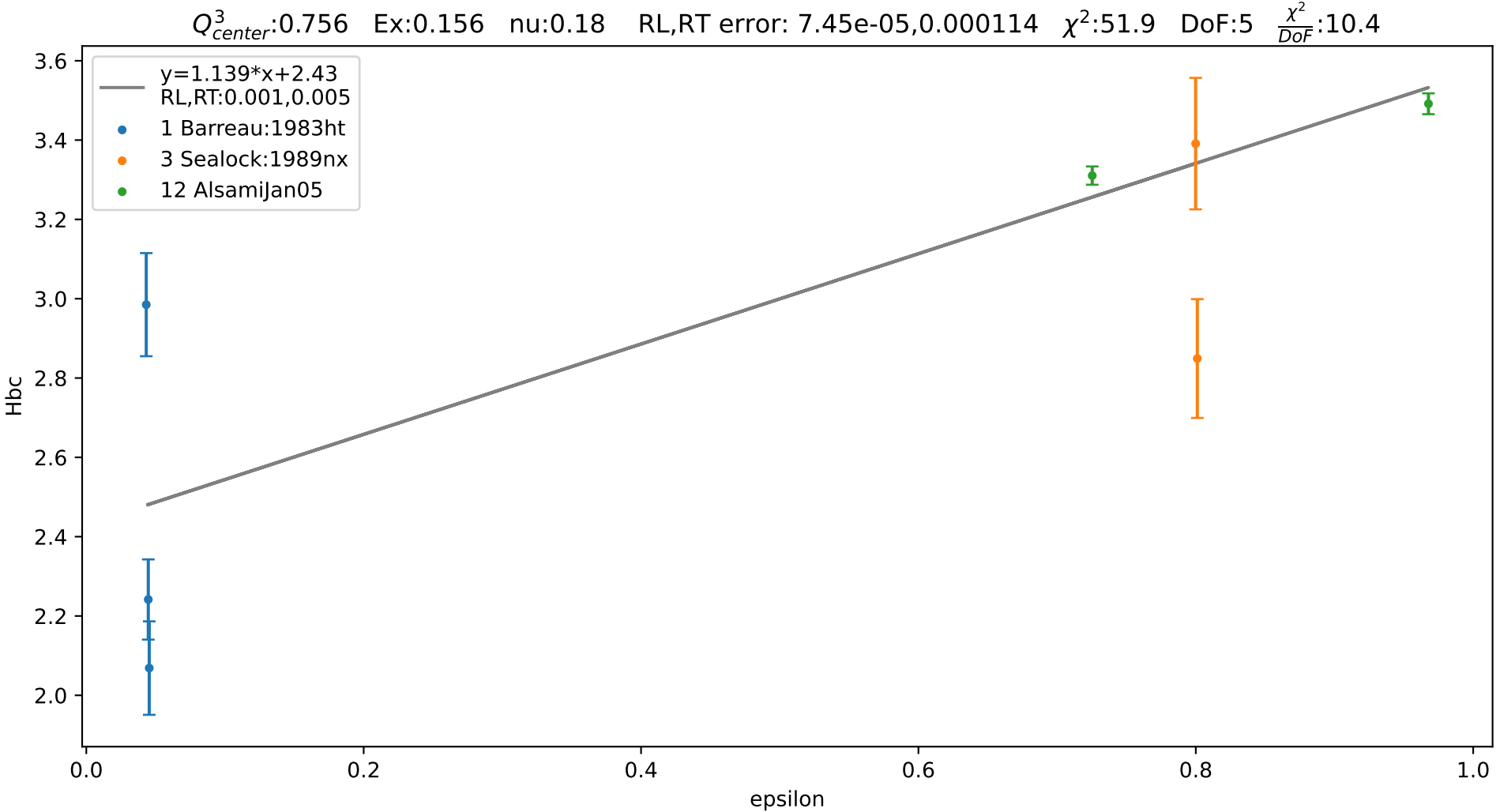

Q^3_{center}:0.756 Ex:0.055 nu:0.08 RL,RT error: 8.82e-06,2.76e-06 χ^2:1216.0 DoF:8 $\frac{\chi^2}{DoF}$:152.0
y=-0.075*x+0.209
RL,RT:0,0.0
1 Barreau:1983ht
12 AlsamiJan05
Hbc
epsilon
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.0
0.2
0.4
0.6
0.8
1.0

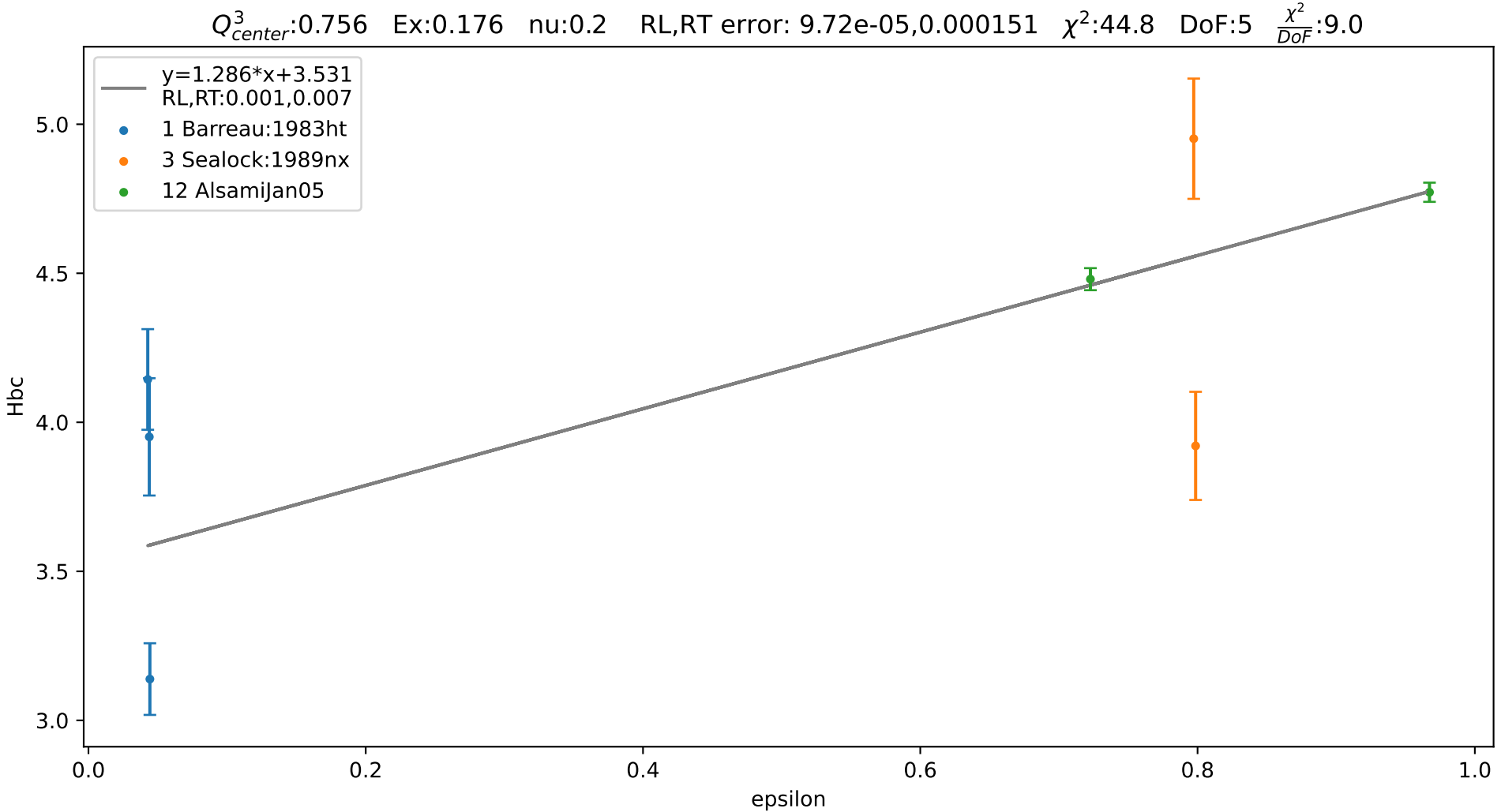

Q^3_{center}:0.756 Ex:0.075 nu:0.1 RL,RT error: 1.27e-05,6.11e-06 χ^2:1210.7 DoF:5 $\frac{\chi^2}{DoF}$:242.1
y=-0.001*x+0.359
RL,RT:0,0.001
1 Barreau:1983ht
12 AlsamiJan05
Hbc
epsilon
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.0
0.2
0.4
0.6
0.8
1.0

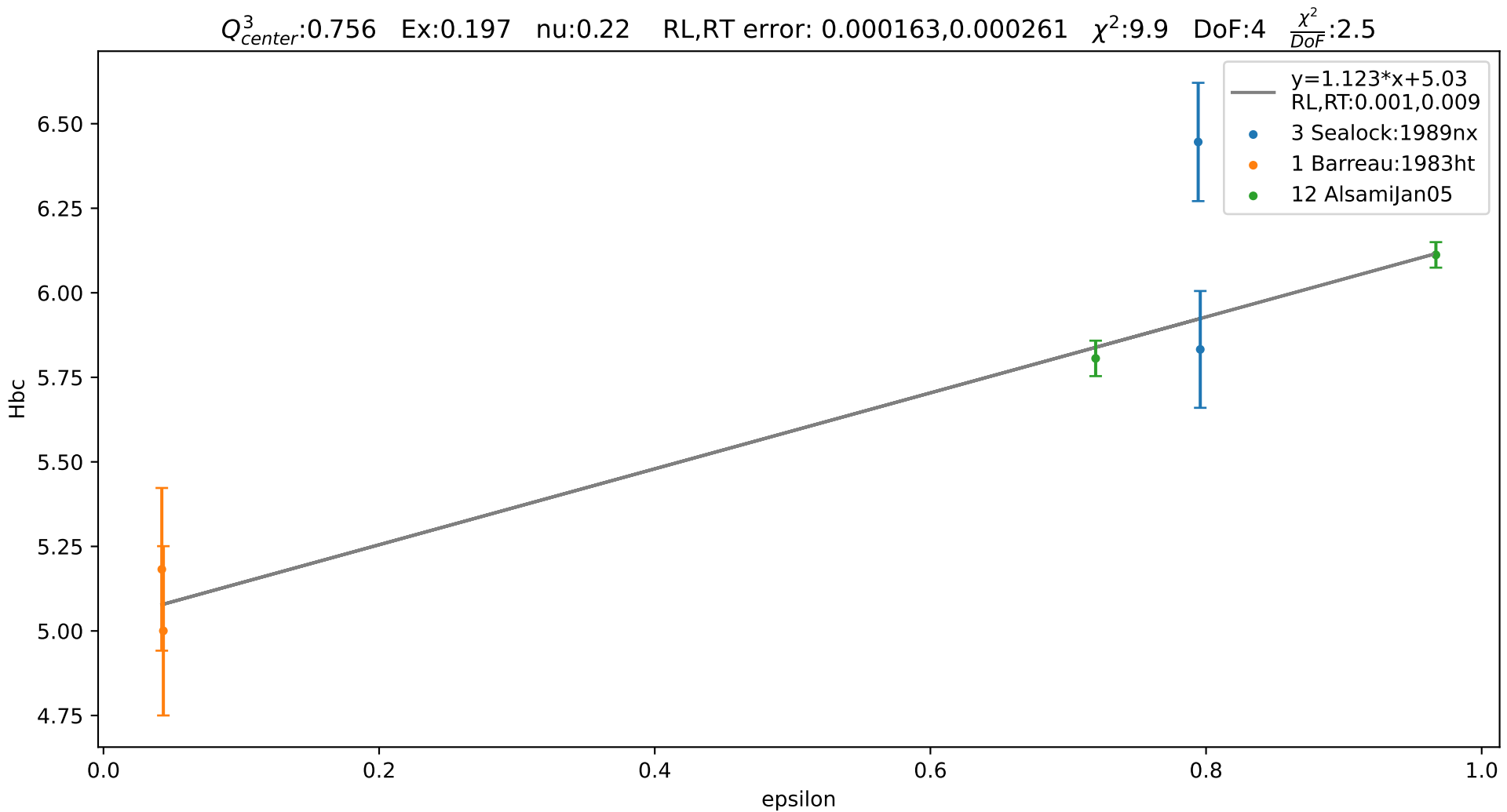

Q^3_{center}:0.756 Ex:0.095 nu:0.12 RL,RT error: 1.73e-05,2.87e-05 χ^2:1645.6 DoF:10 $\frac{\chi^2}{DoF}$:164.6
y=0.121*x+0.633
RL,RT:0.0,0.001
1 Barreau:1983ht
12 AlsamiJan05
3 Sealock:1989nx
Hbc
epsilon
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.0
0.2
0.4
0.6
0.8
1.0

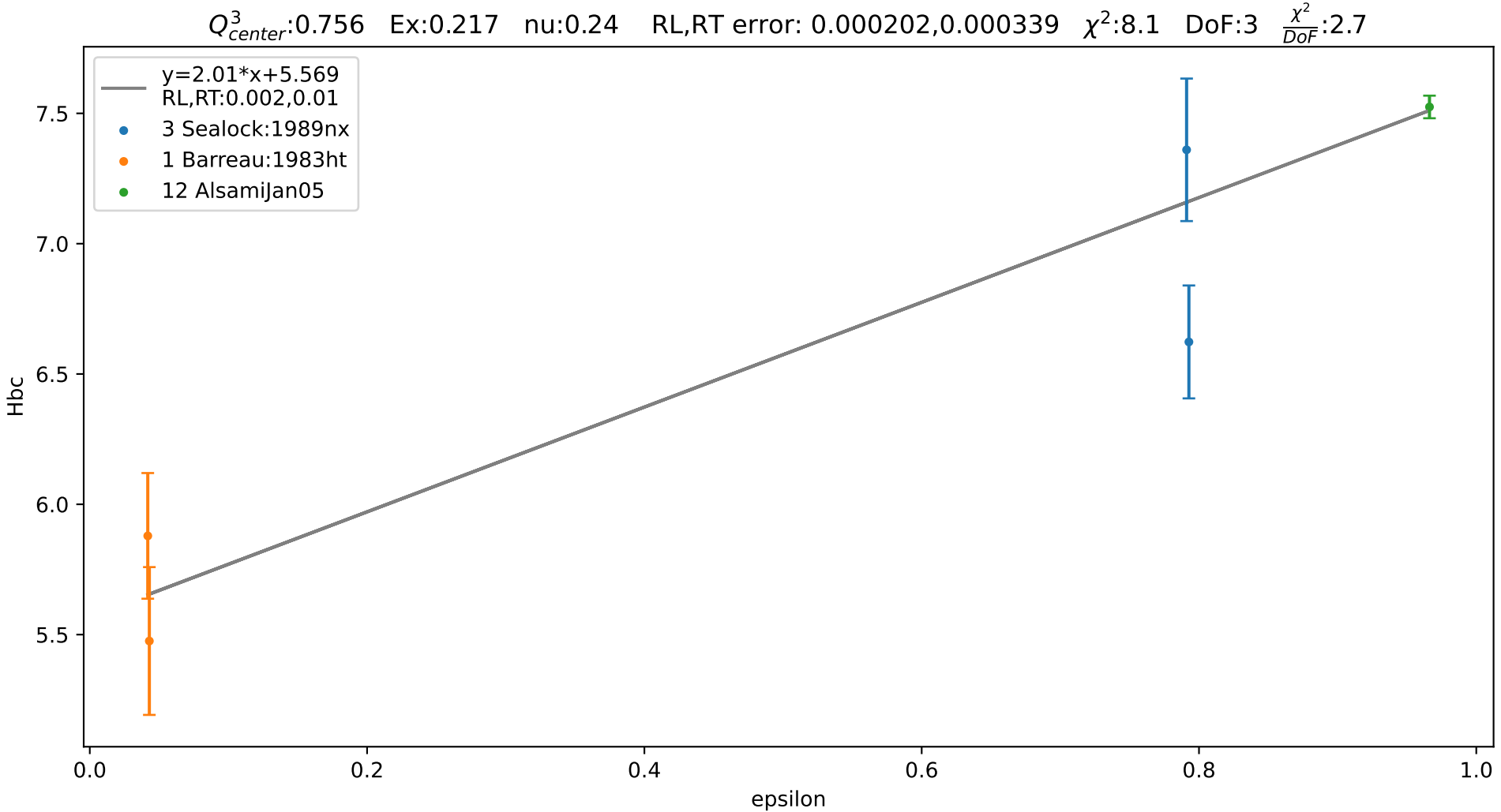

Q^3_{center}:0.756 Ex:0.115 nu:0.14 RL,RT error: 3.65e-05,5.66e-05 χ^2:64.0 DoF:7 $\frac{\chi^2}{DoF}$:9.1
y=0.599*x+0.936
RL,RT:0.001,0.002
1 Barreau:1983ht
3 Sealock:1989nx
12 AlsamiJan05
Hbc
epsilon
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.0
0.2
0.4
0.6
0.8
1.0

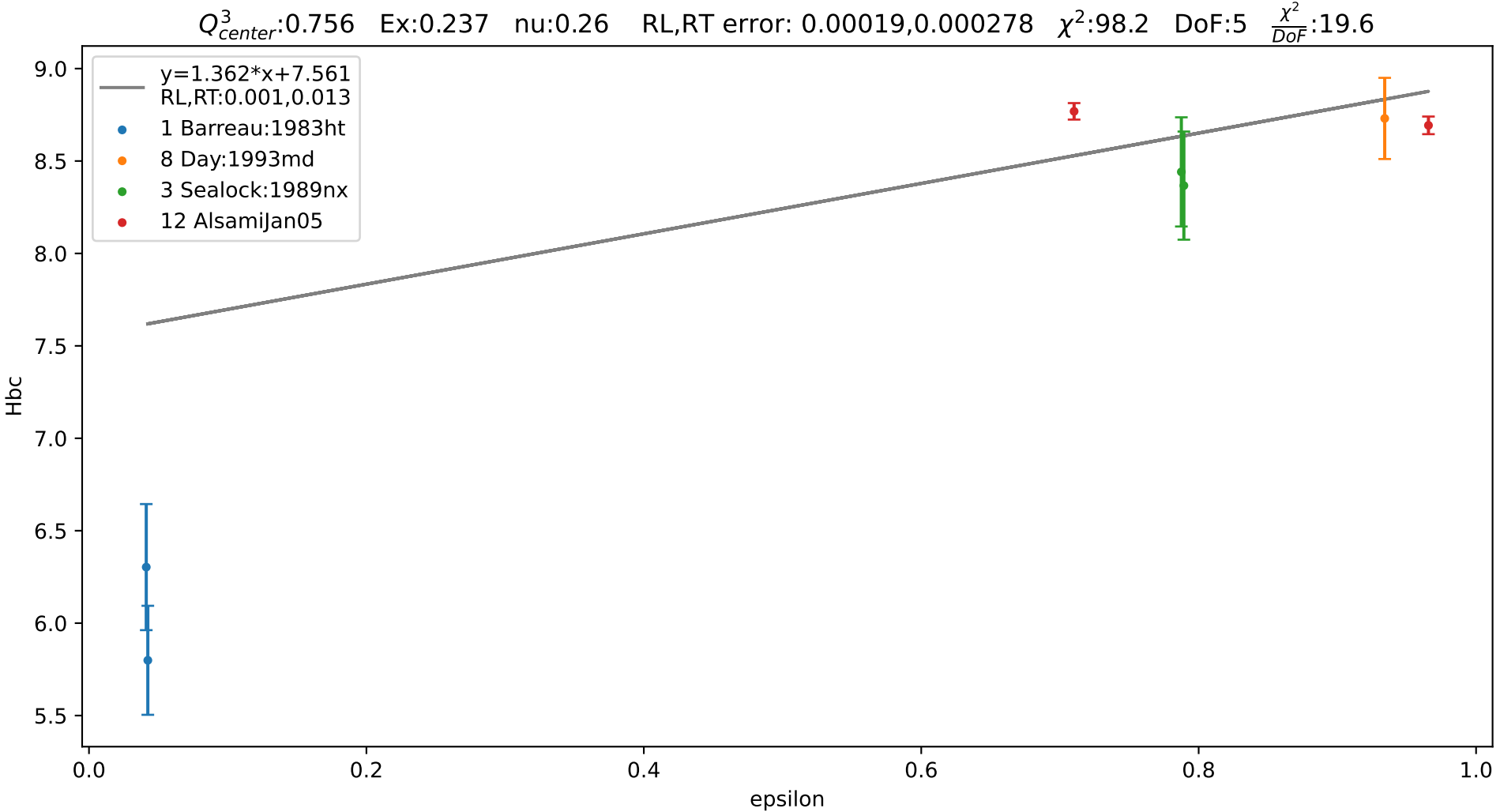

Q^3_{center}:0.756 Ex:0.136 nu:0.16 RL,RT error: 4.7e-05,7.25e-05 χ^2:138.4 DoF:8 $\frac{\chi^2}{DoF}$:17.3
y=0.857*x+1.592
RL,RT:0.001,0.003
1 Barreau:1983ht
3 Sealock:1989nx
12 AlsamiJan05
Hbc
epsilon
1.4
1.6
1.8
2.0
2.2
2.4
0.0
0.2
0.4
0.6
0.8
1.0

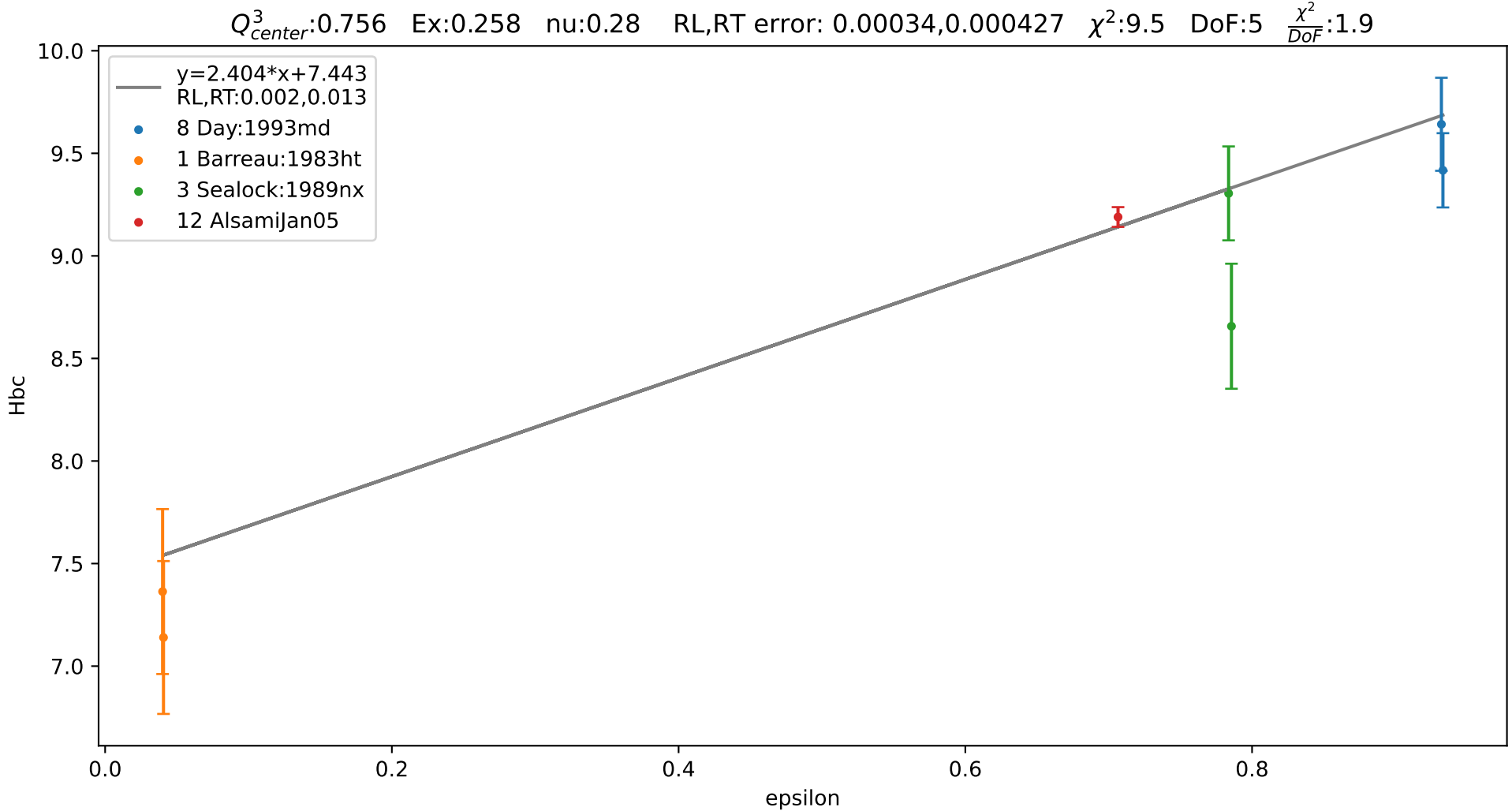

Q^3_{center}:0.756 Ex:0.156 nu:0.18 RL,RT error: 7.45e-05,0.000114 χ^2:51.9 DoF:5 $\frac{\chi^2}{DoF}$:10.4
y=1.139*x+2.43
RL,RT:0.001,0.005
1 Barreau:1983ht
3 Sealock:1989nx
12 AlsamiJan05
Hbc
epsilon
3.6
3.4
3.2
3.0
2.8
2.6
2.4
2.2
2.0
0.0
0.2
0.4
0.6
0.8
1.0

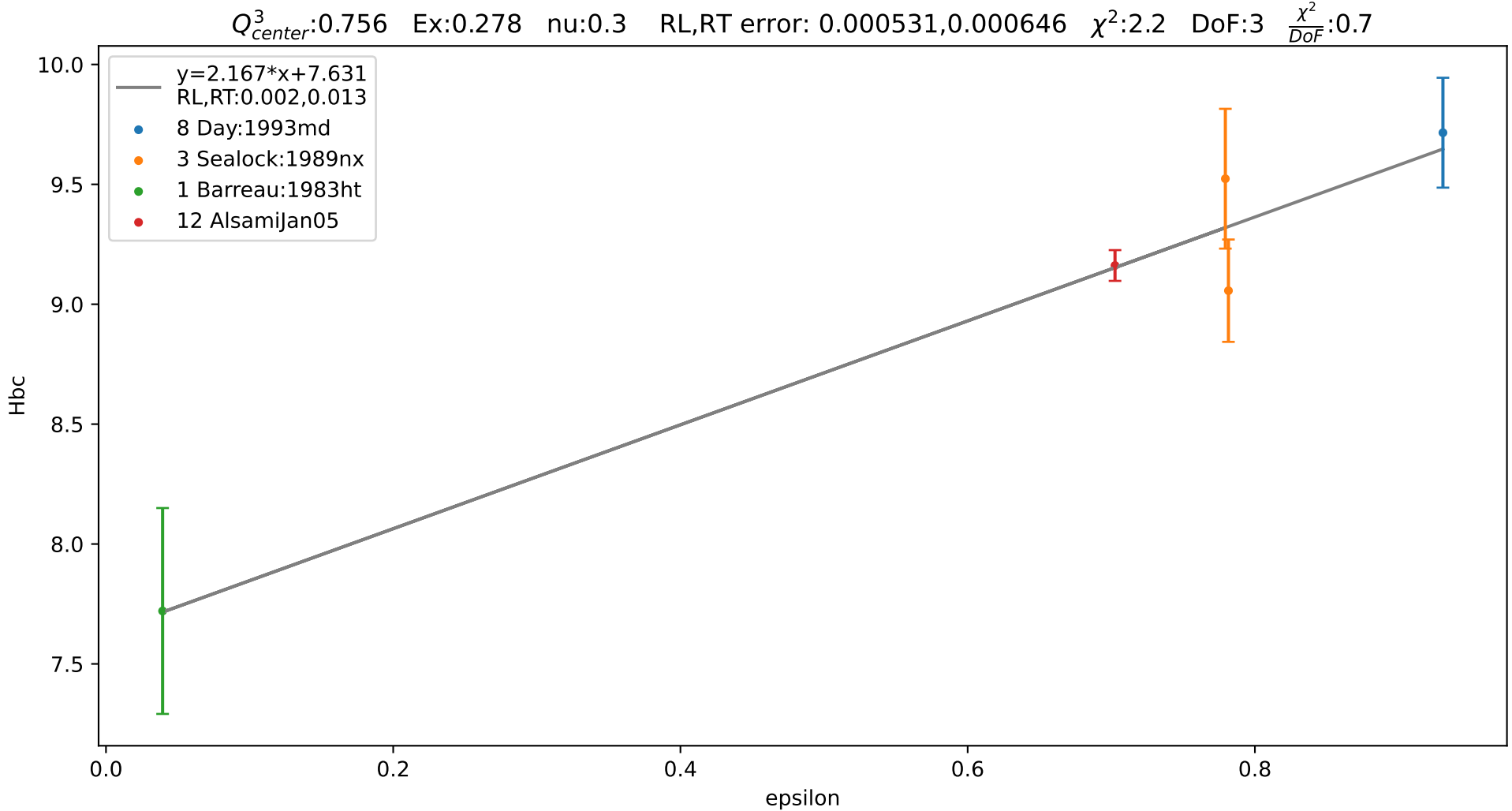

Q^3_{center}:0.756 Ex:0.176 nu:0.2 RL,RT error: 9.72e-05,0.000151 χ^2:44.8 DoF:5 $\frac{\chi^2}{DoF}$:9.0
y=1.286*x+3.531
RL,RT:0.001,0.007
1 Barreau:1983ht
3 Sealock:1989nx
12 AlsamiJan05
Hbc
epsilon
5.0
4.5
4.0
3.5
3.0
0.0
0.2
0.4
0.6
0.8
1.0

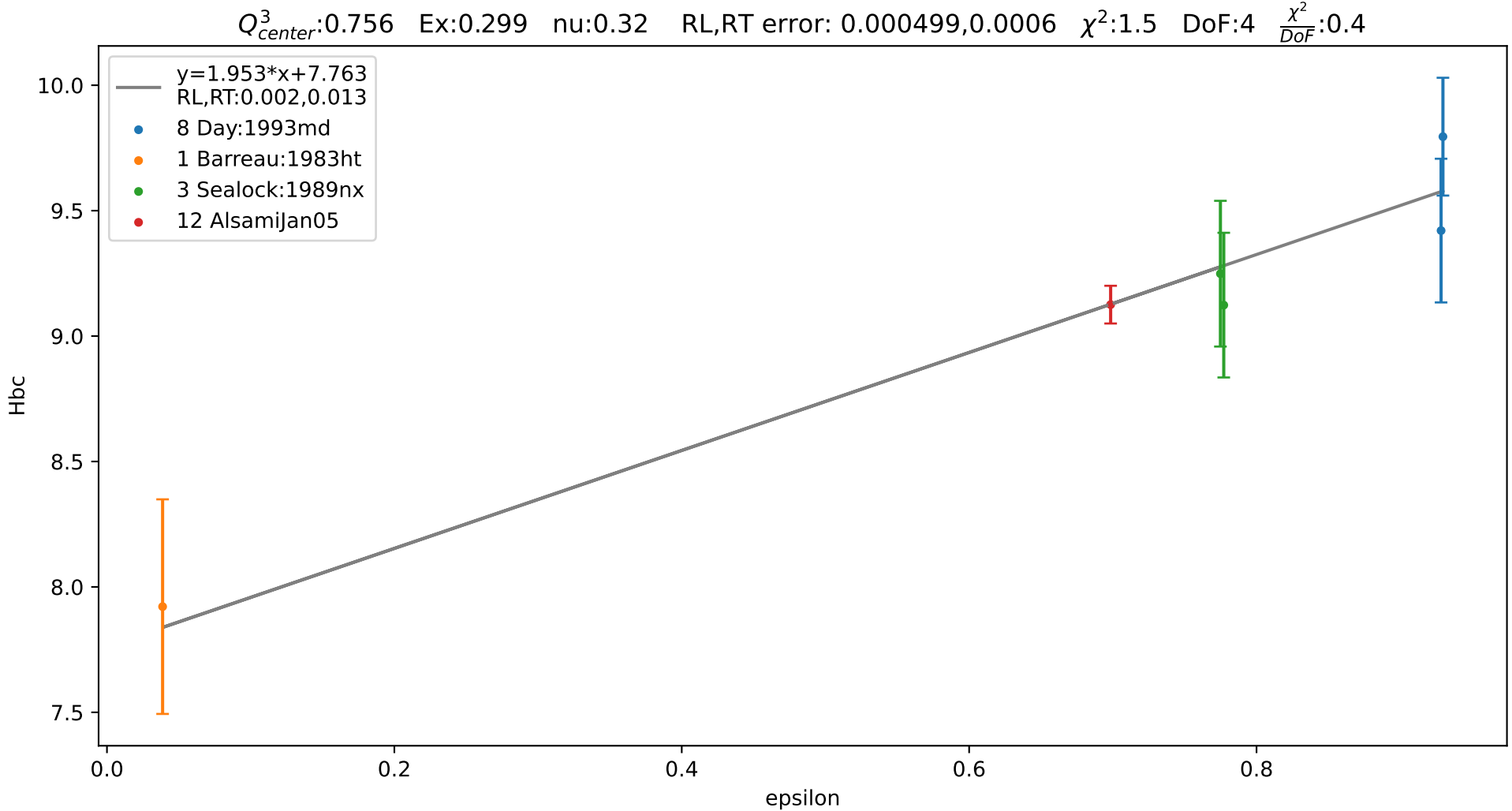

Q^3_{center}:0.756 Ex:0.197 nu:0.22 RL,RT error: 0.000163,0.000261 χ^2:9.9 DoF:4 $\frac{\chi^2}{DoF}$:2.5
y=1.123*x+5.03
RL,RT:0.001,0.009
3 Sealock:1989nx
1 Barreau:1983ht
12 AlsamiJan05
Hbc
epsilon
6.50
6.25
6.00
5.75
5.50
5.25
5.00
4.75
0.0
0.2
0.4
0.6
0.8
1.0

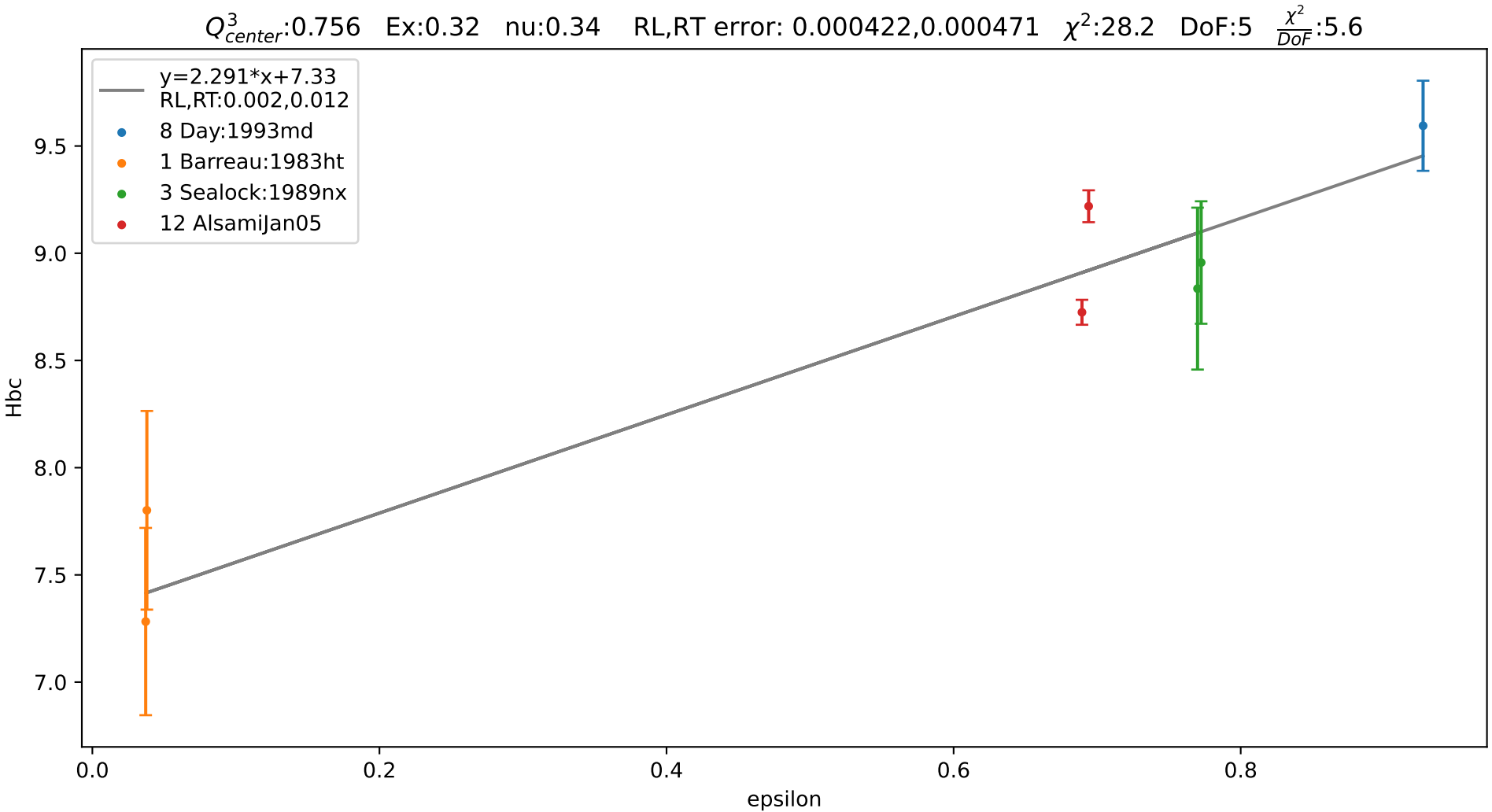

Q^3_{center}:0.756 Ex:0.217 nu:0.24 RL,RT error: 0.000202,0.000339 χ^2:8.1 DoF:3 $\frac{\chi^2}{DoF}$:2.7
y=2.01*x+5.569
RL,RT:0.002,0.01
3 Sealock:1989nx
1 Barreau:1983ht
12 AlsamiJan05
Hbc
epsilon
7.5
7.0
6.5
6.0
5.5
0.0
0.2
0.4
0.6
0.8
1.0

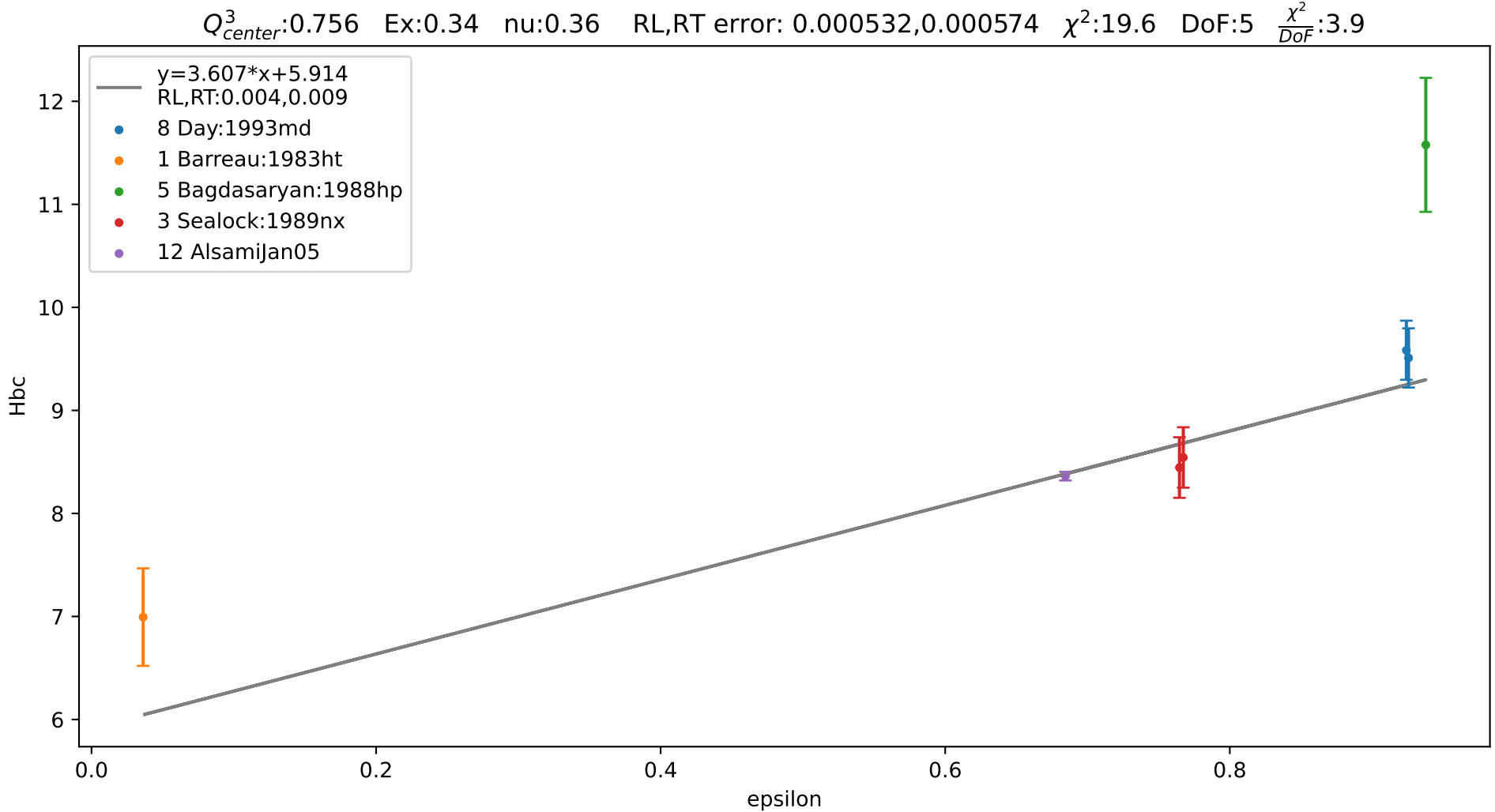

Q^3_{center}:0.756 Ex:0.237 nu:0.26 RL,RT error: 0.00019,0.000278 χ^2:98.2 DoF:5 $\frac{\chi^2}{DoF}$:19.6
y=1.362*x+7.561
RL,RT:0.001,0.013
1 Barreau:1983ht
8 Day:1993md
3 Sealock:1989nx
12 AlsamiJan05
Hbc
epsilon
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
0.0
0.2
0.4
0.6
0.8
1.0

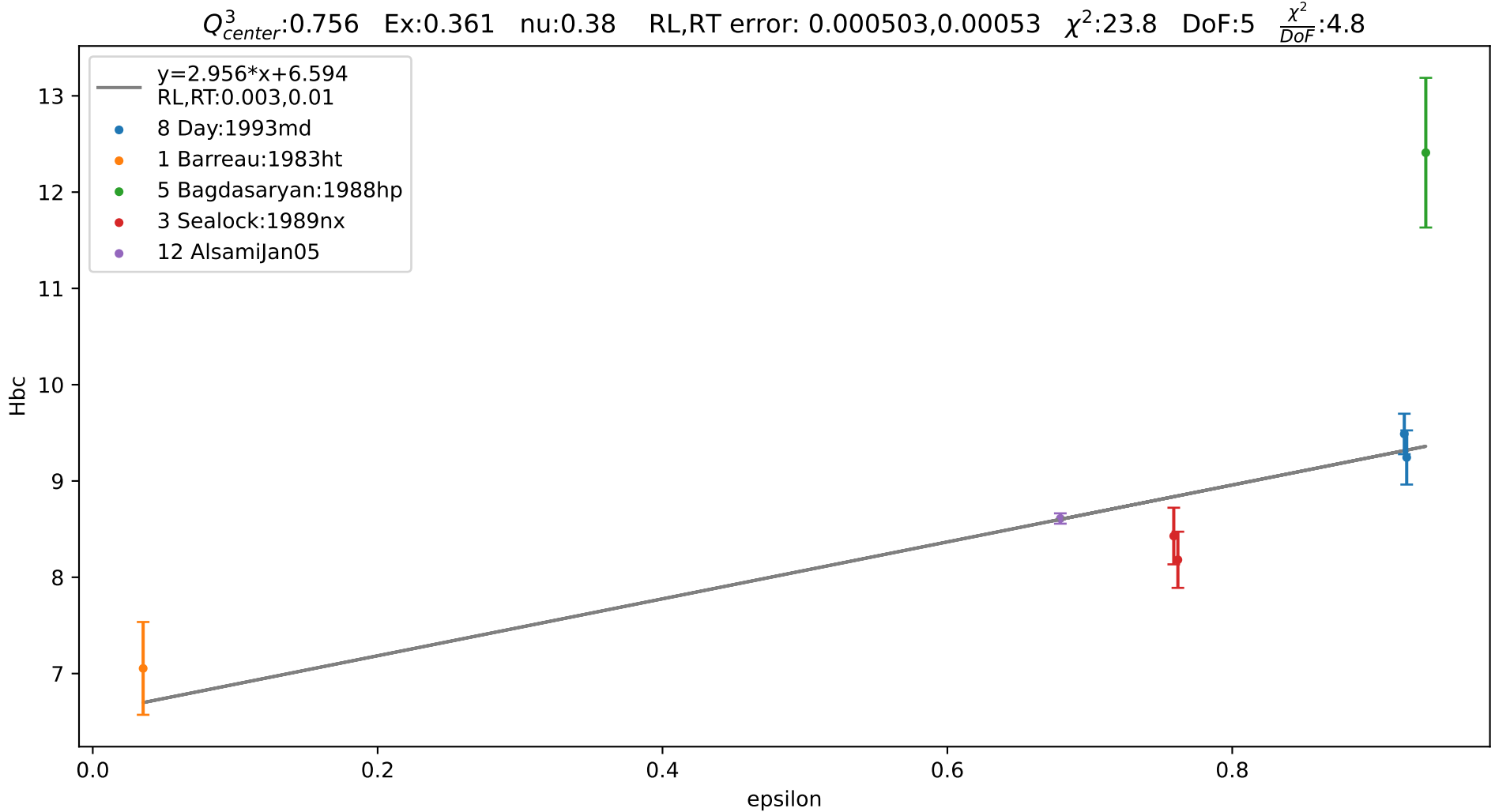

Q^3_{center}:0.756 Ex:0.258 nu:0.28 RL,RT error: 0.00034,0.000427 χ^2:9.5 DoF:5 $\frac{\chi^2}{DoF}$:1.9
y=2.404*x+7.443
RL,RT:0.002,0.013
8 Day:1993md
1 Barreau:1983ht
3 Sealock:1989nx
12 AlsamiJan05
Hbc
epsilon
10.0
9.5
9.0
8.5
8.0
7.5
7.0
0.0
0.2
0.4
0.6
0.8

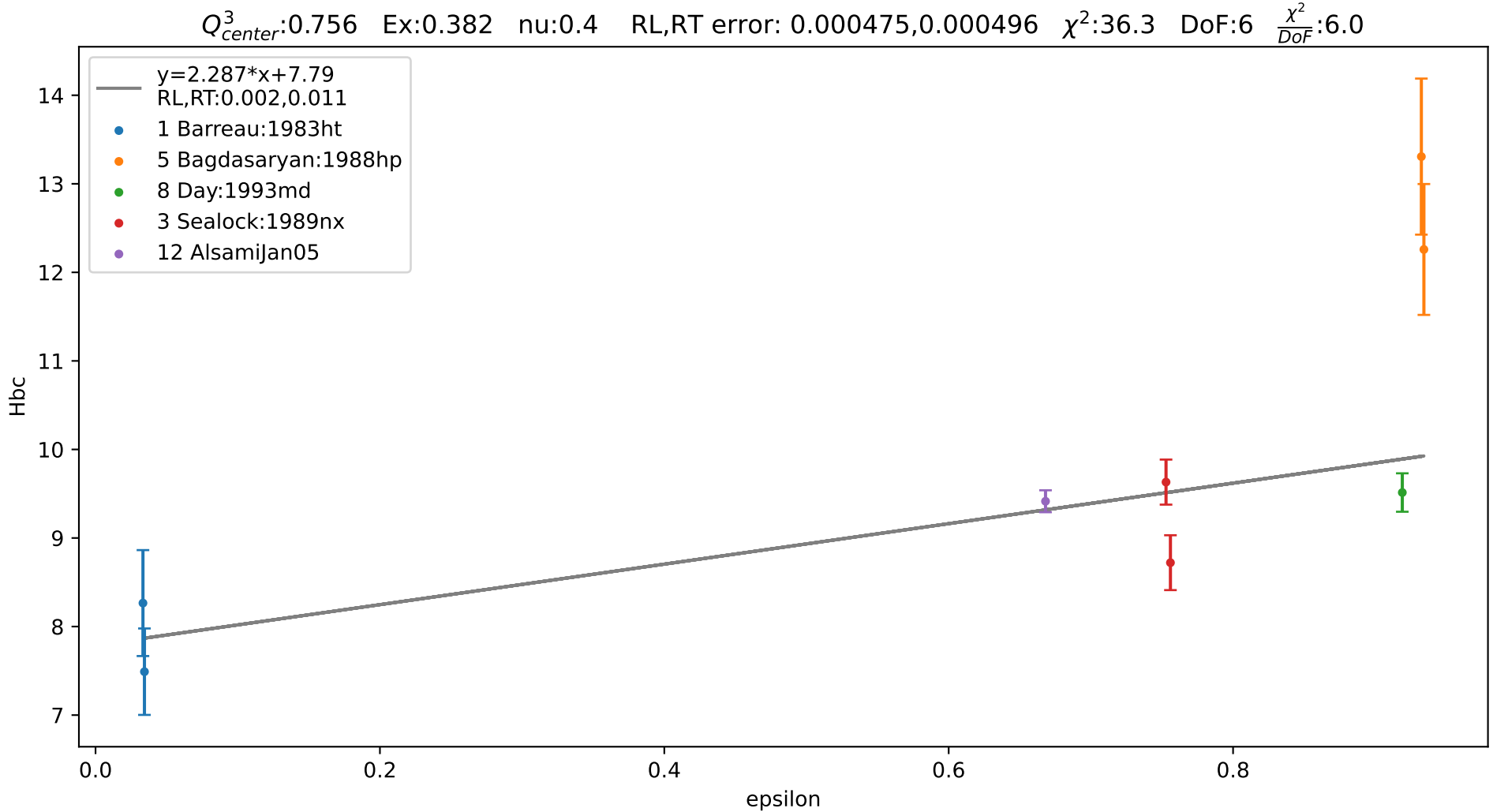

Q^3_{center}:0.756 Ex:0.278 nu:0.3 RL,RT error: 0.000531,0.000646 χ^2:2.2 DoF:3 $\frac{\chi^2}{DoF}$:0.7
y=2.167*x+7.631
RL,RT:0.002,0.013
8 Day:1993md
3 Sealock:1989nx
1 Barreau:1983ht
12 AlsamiJan05
Hbc
epsilon
10.0
9.5
9.0
8.5
8.0
7.5
0.0
0.2
0.4
0.6
0.8

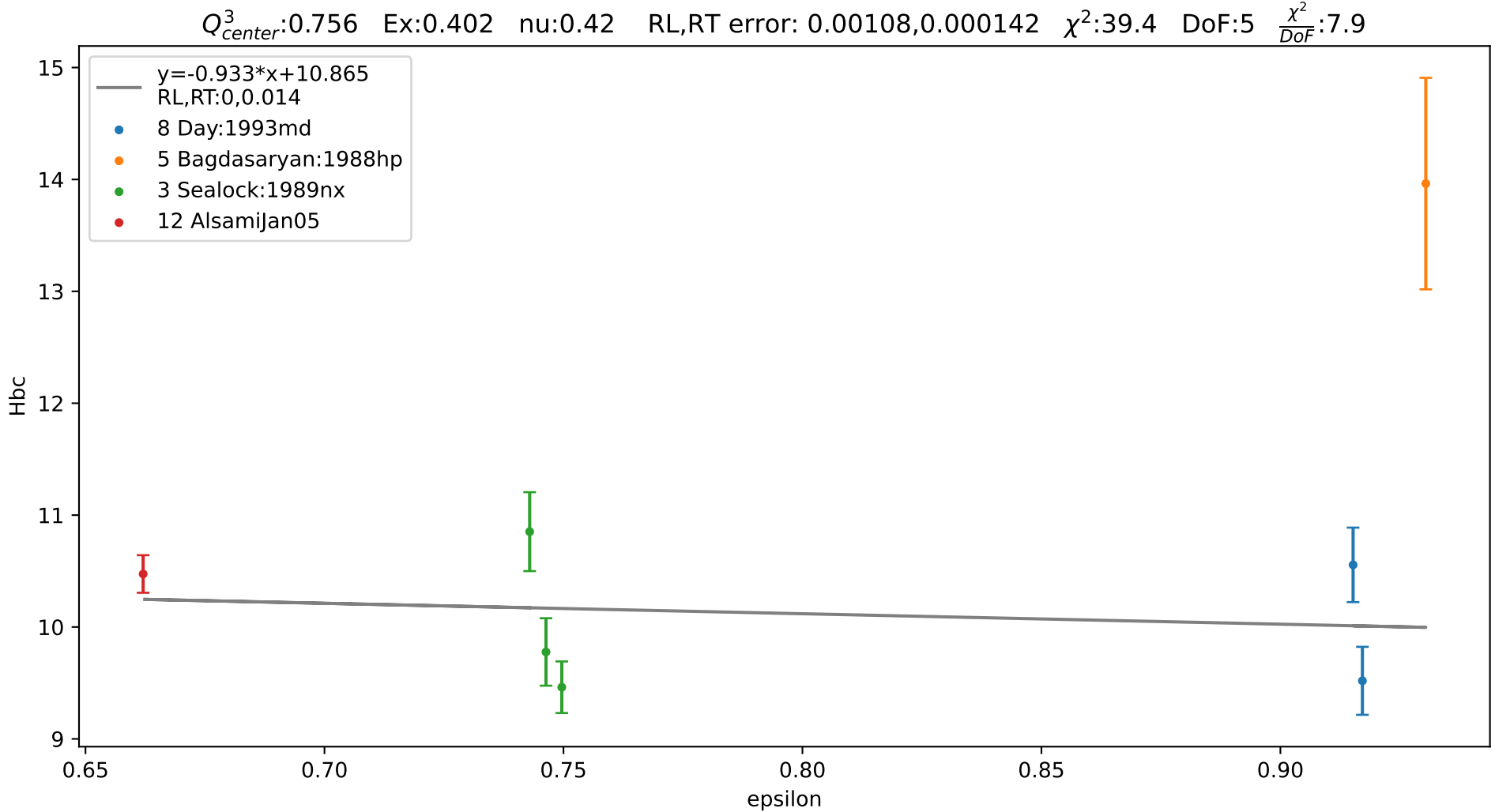

Q^3_{center}:0.756 Ex:0.299 nu:0.32 RL,RT error: 0.000499,0.0006 χ^2:1.5 DoF:4 $\frac{\chi^2}{DoF}$:0.4
y=1.953*x+7.763
RL,RT:0.002,0.013
8 Day:1993md
1 Barreau:1983ht
3 Sealock:1989nx
12 AlsamiJan05
Hbc
epsilon
10.0
9.5
9.0
8.5
8.0
7.5
0.0
0.2
0.4
0.6
0.8

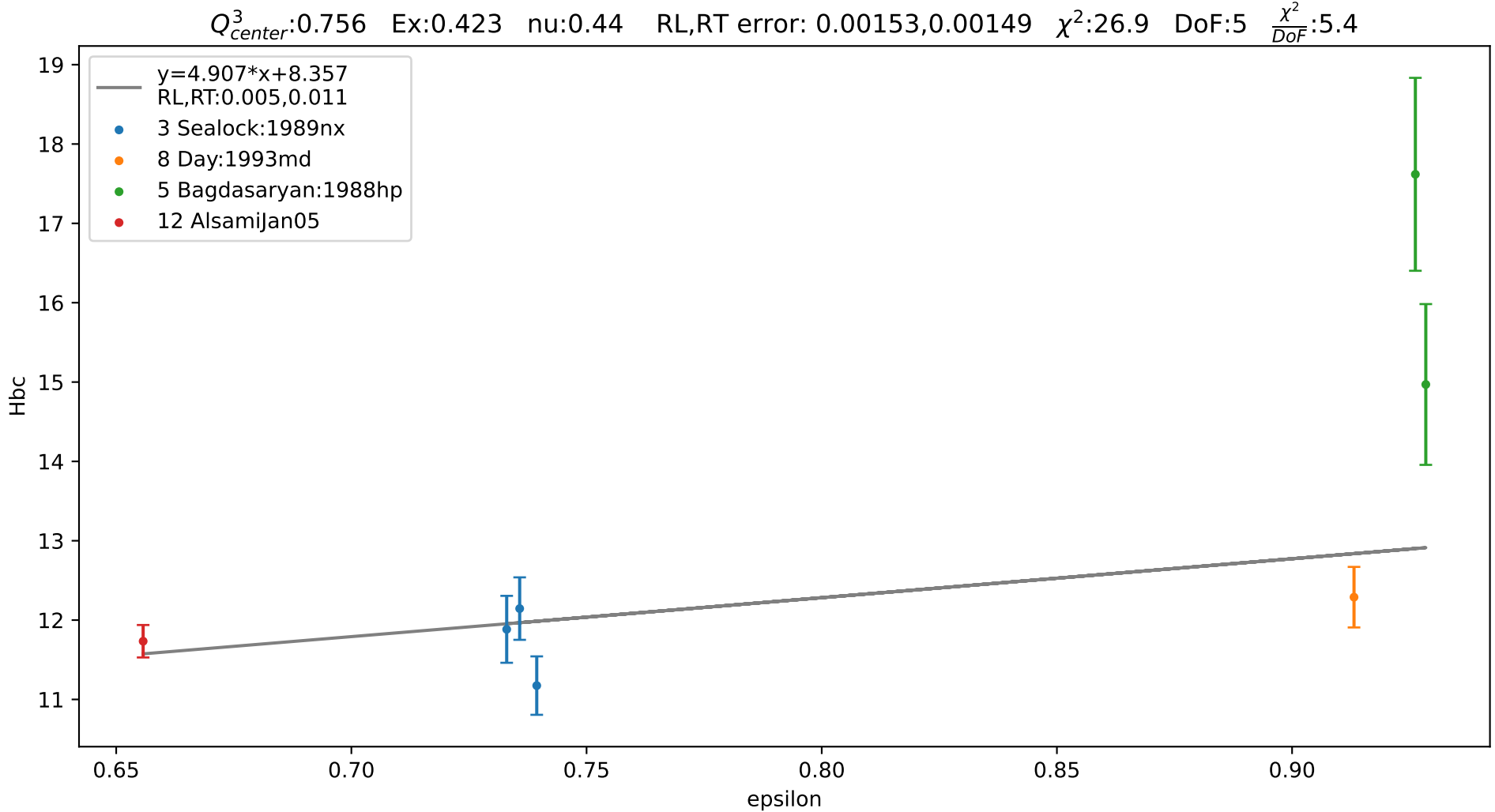

Q^3_{center}:0.756 Ex:0.32 nu:0.34 RL,RT error: 0.000422,0.000471 χ^2:28.2 DoF:5 $\frac{\chi^2}{DoF}$:5.6
y=2.291*x+7.33
RL,RT:0.002,0.012
8 Day:1993md
1 Barreau:1983ht
3 Sealock:1989nx
12 AlsamiJan05
Hbc
epsilon
9.5
9.0
8.5
8.0
7.5
7.0
0.0
0.2
0.4
0.6
0.8

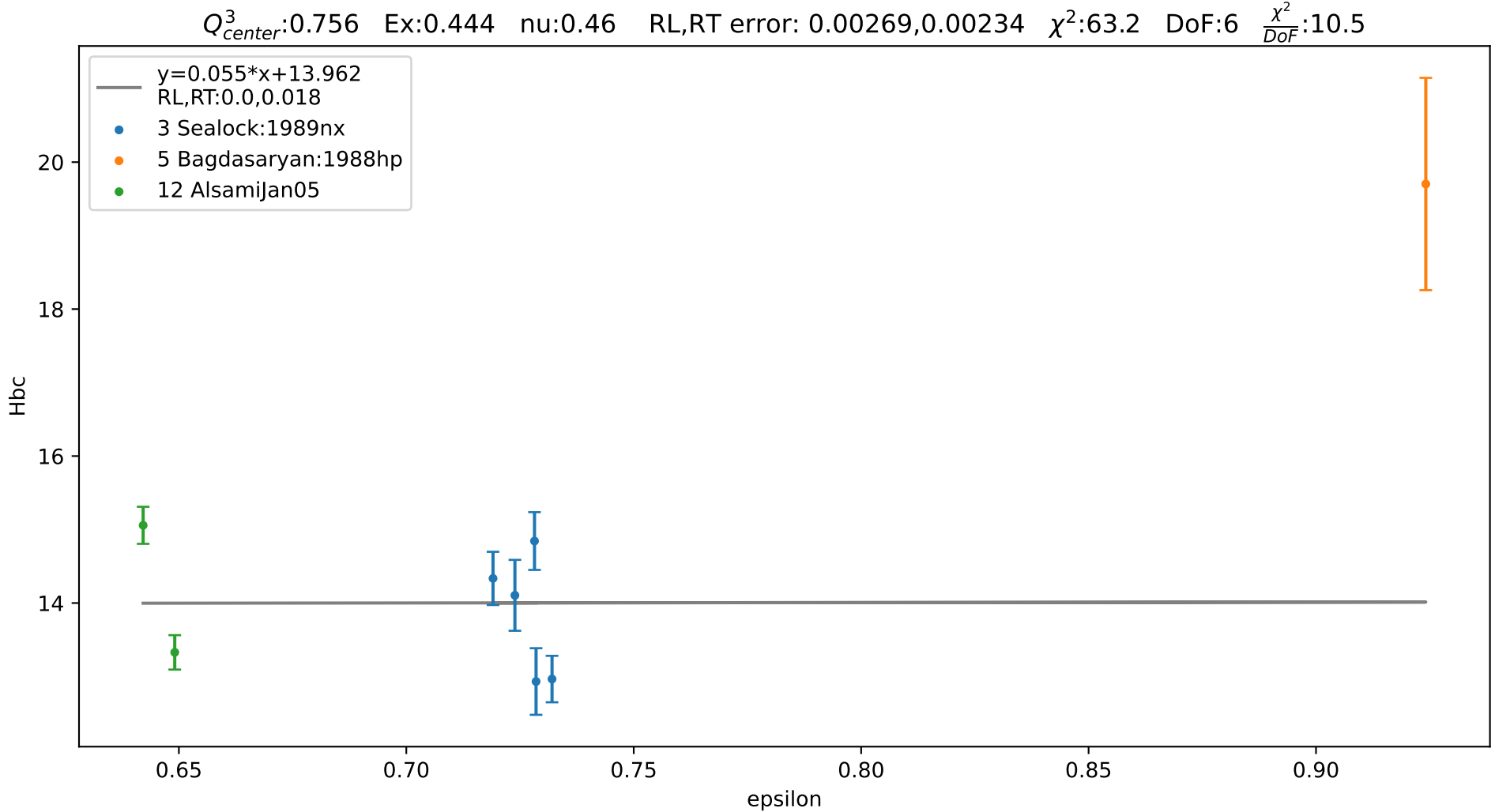

Q^3_{center}:0.756 Ex:0.34 nu:0.36 RL,RT error: 0.000532,0.000574 χ^2:19.6 DoF:5 $\frac{\chi^2}{DoF}$:3.9
y=3.607*x+5.914
RL,RT:0.004,0.009
8 Day:1993md
1 Barreau:1983ht
5 Bagdasaryan:1988hp
3 Sealock:1989nx
12 AlsamiJan05
Hbc
epsilon
12
11
10
9
8
7
6
0.0
0.2
0.4
0.6
0.8

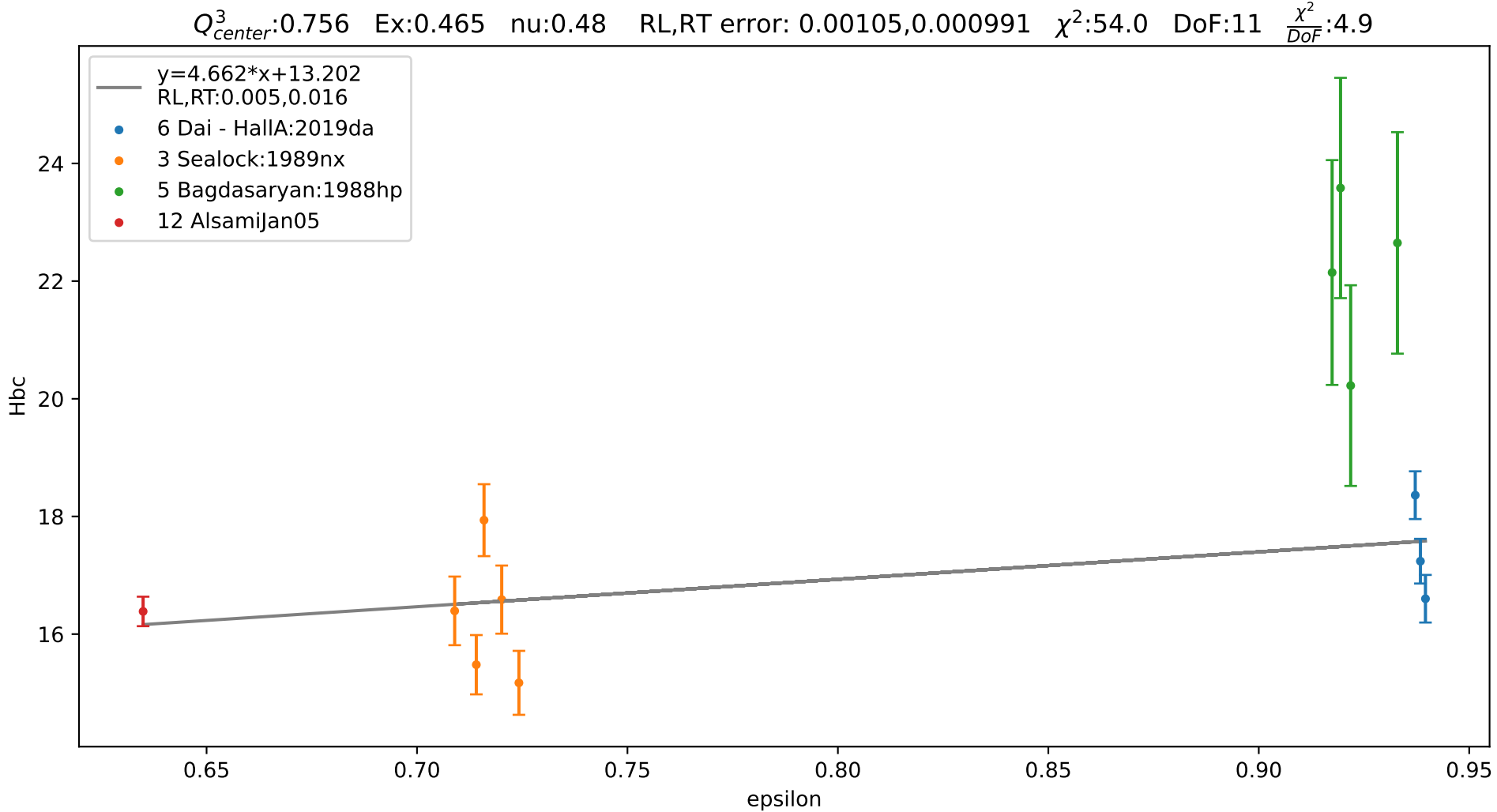

Q^3_{center}:0.756 Ex:0.361 nu:0.38 RL,RT error: 0.000503,0.00053 χ^2:23.8 DoF:5 $\frac{\chi^2}{DoF}$:4.8
y=2.956*x+6.594
RL,RT:0.003,0.01
8 Day:1993md
1 Barreau:1983ht
5 Bagdasaryan:1988hp
3 Sealock:1989nx
12 AlsamiJan05
Hbc
epsilon
13
12
11
10
9
8
7
0.0
0.2
0.4
0.6
0.8

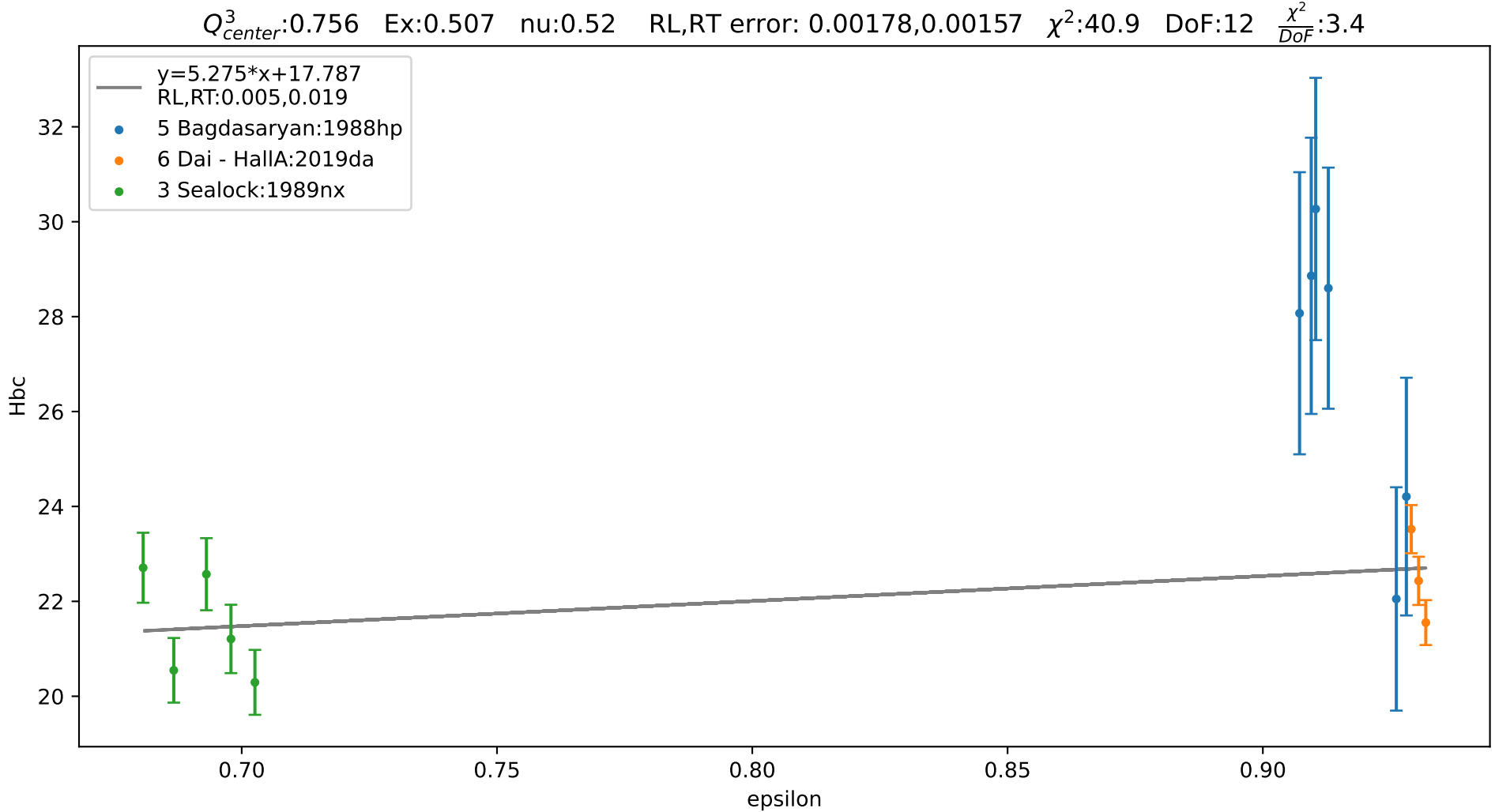

Q^3_{center}:0.756 Ex:0.382 nu:0.4 RL,RT error: 0.000475,0.000496 χ^2:36.3 DoF:6 $\frac{\chi^2}{DoF}$:6.0
y=2.287*x+7.79
RL,RT:0.002,0.011
1 Barreau:1983ht
5 Bagdasaryan:1988hp
8 Day:1993md
3 Sealock:1989nx
12 AlsamiJan05
Hbc
epsilon
14
13
12
11
10
9
8
7
0.0
0.2
0.4
0.6
0.8

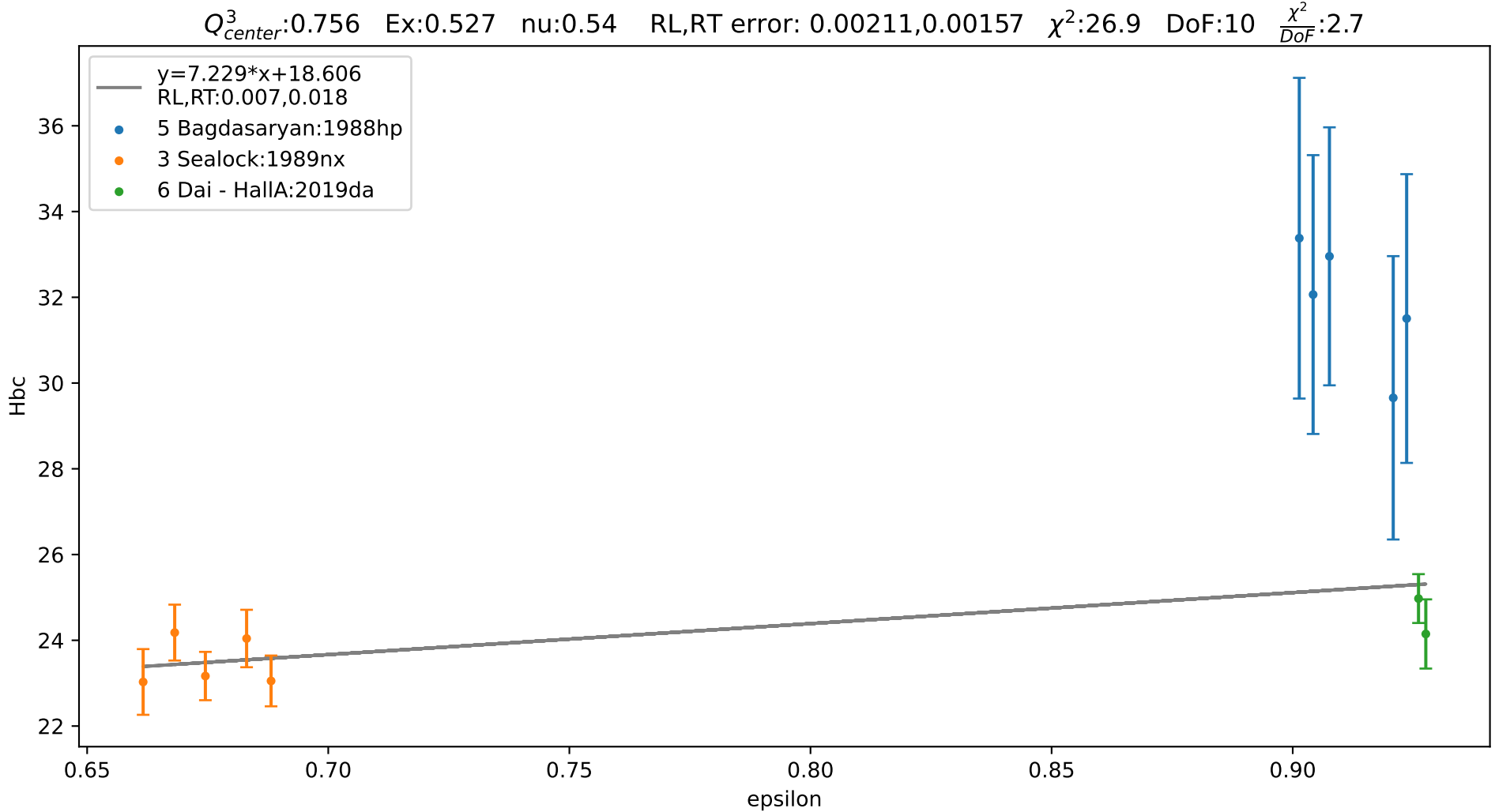

Q^3_{center}:0.756 Ex:0.402 nu:0.42 RL,RT error: 0.00108,0.000142 χ^2:39.4 DoF:5 $\frac{\chi^2}{DoF}$:7.9
y=-0.933*x+10.865
RL,RT:0,0.014
8 Day:1993md
5 Bagdasaryan:1988hp
3 Sealock:1989nx
12 AlsamiJan05
Hbc
epsilon
15
14
13
12
11
10
9
0.65
0.70
0.75
0.80
0.85
0.90

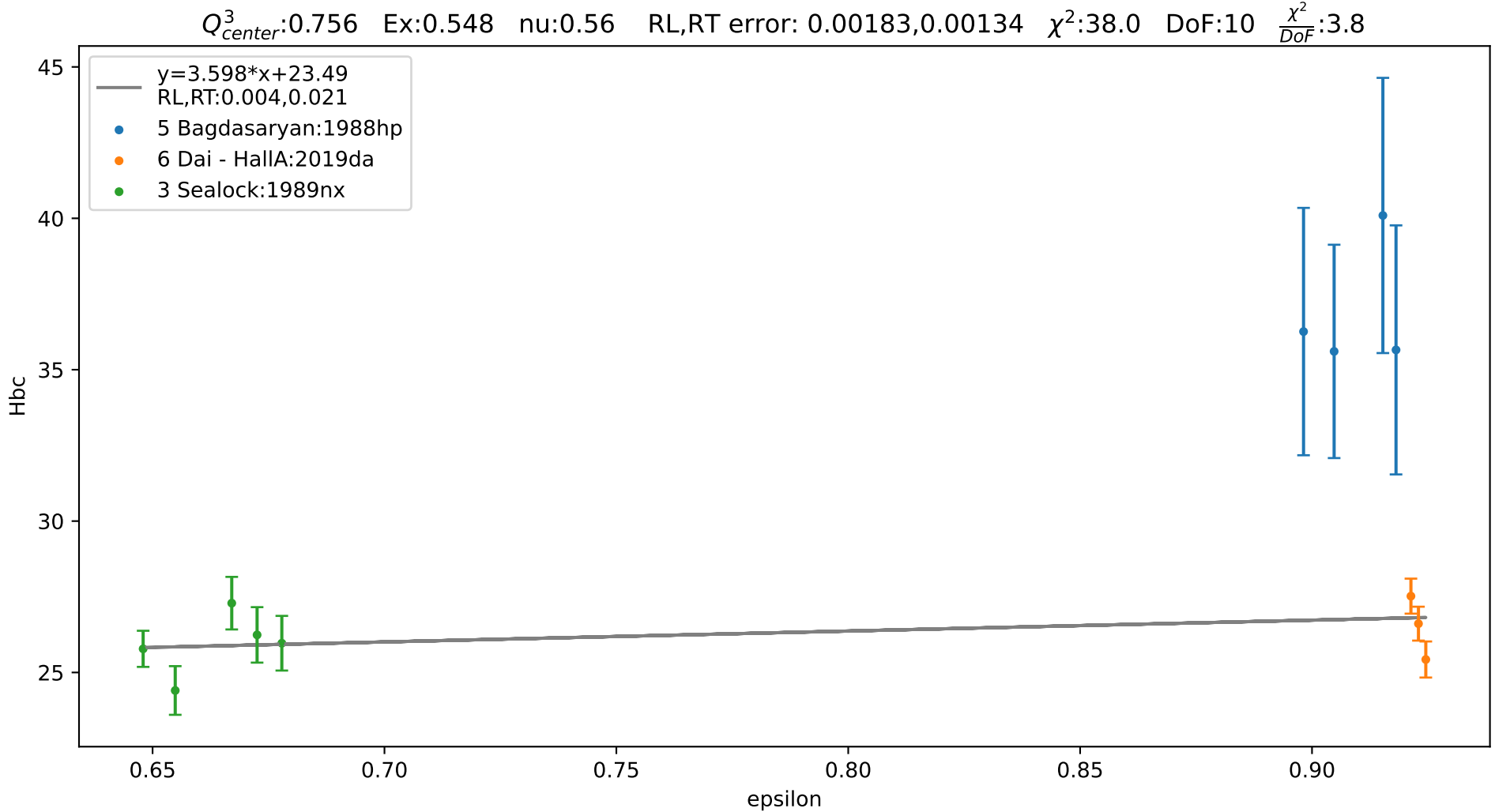

Q^3_{center}:0.756 Ex:0.423 nu:0.44 RL,RT error: 0.00153,0.00149 χ^2:26.9 DoF:5 $\frac{\chi^2}{DoF}$:5.4
y=4.907*x+8.357
RL,RT:0.005,0.011
3 Sealock:1989nx
8 Day:1993md
5 Bagdasaryan:1988hp
12 AlsamiJan05
Hbc
epsilon
19
18
17
16
15
14
13
12
11
0.65
0.70
0.75
0.80
0.85
0.90

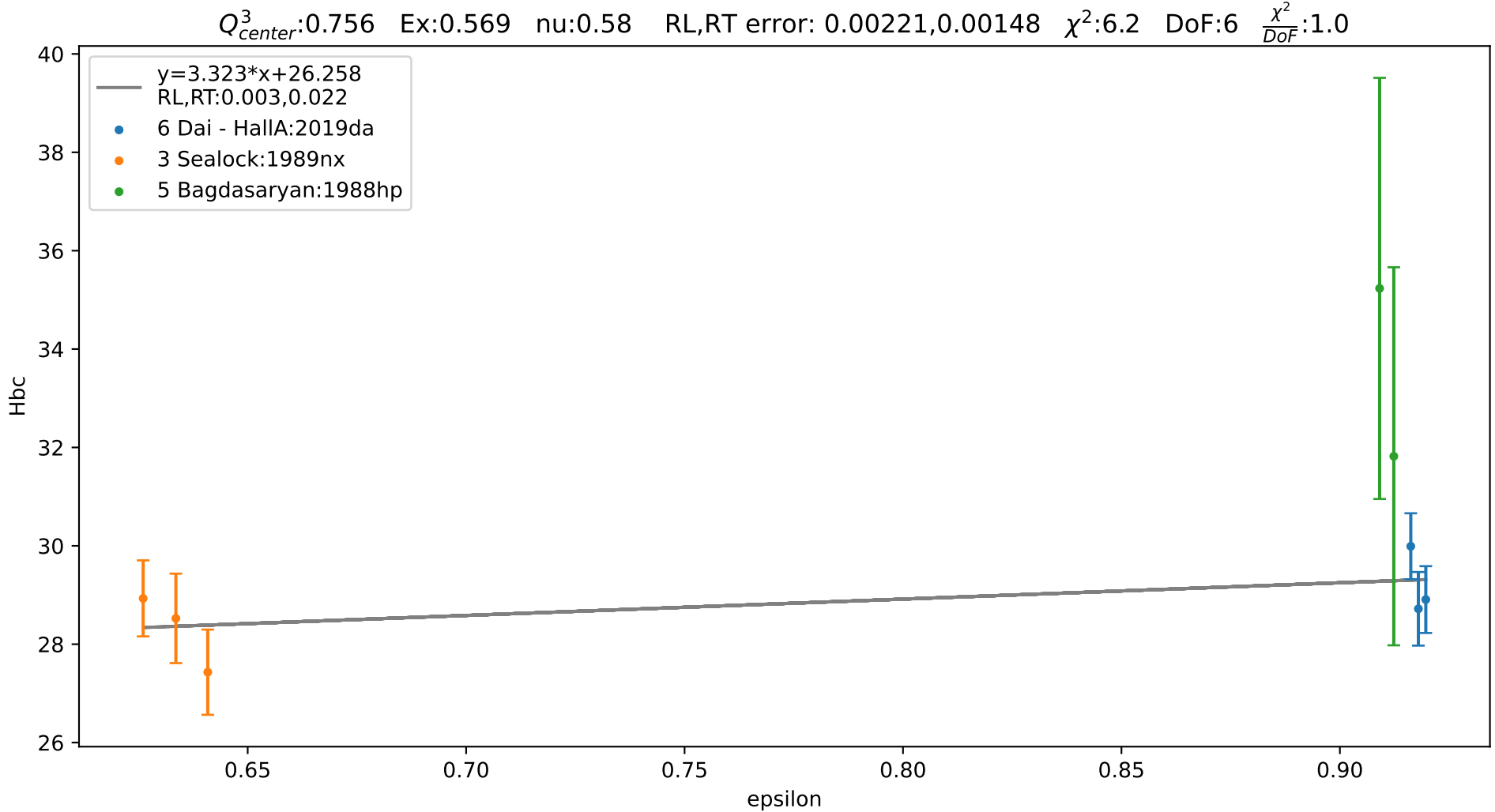

Q^3_{center}:0.756 Ex:0.444 nu:0.46 RL,RT error: 0.00269,0.00234 χ^2:63.2 DoF:6 $\frac{\chi^2}{DoF}$:10.5
y=0.055*x+13.962
RL,RT:0.0,0.018
3 Sealock:1989nx
5 Bagdasaryan:1988hp
12 AlsamiJan05
Hbc
epsilon
20
18
16
14
0.65
0.70
0.75
0.80
0.85
0.90

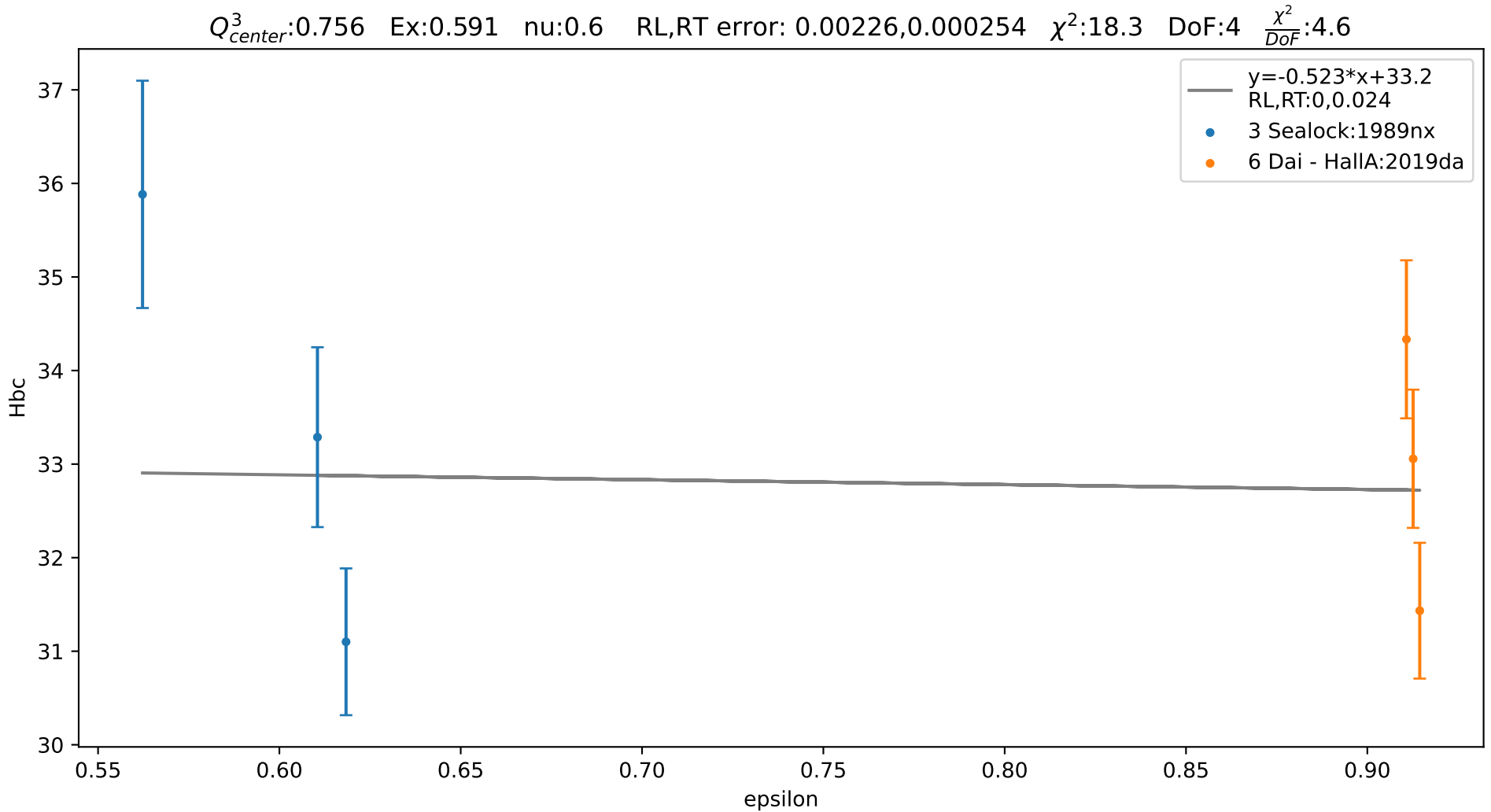

Q^3_{center}:0.756 Ex:0.465 nu:0.48 RL,RT error: 0.00105,0.000991 χ^2:54.0 DoF:11 $\frac{\chi^2}{DoF}$:4.9
y=4.662*x+13.202
RL,RT:0.005,0.016
6 Dai - HallA:2019da
3 Sealock:1989nx
5 Bagdasaryan:1988hp
12 AlsamiJan05
Hbc
epsilon
16
18
20
22
24
0.65
0.70
0.75
0.80
0.85
0.90
0.95

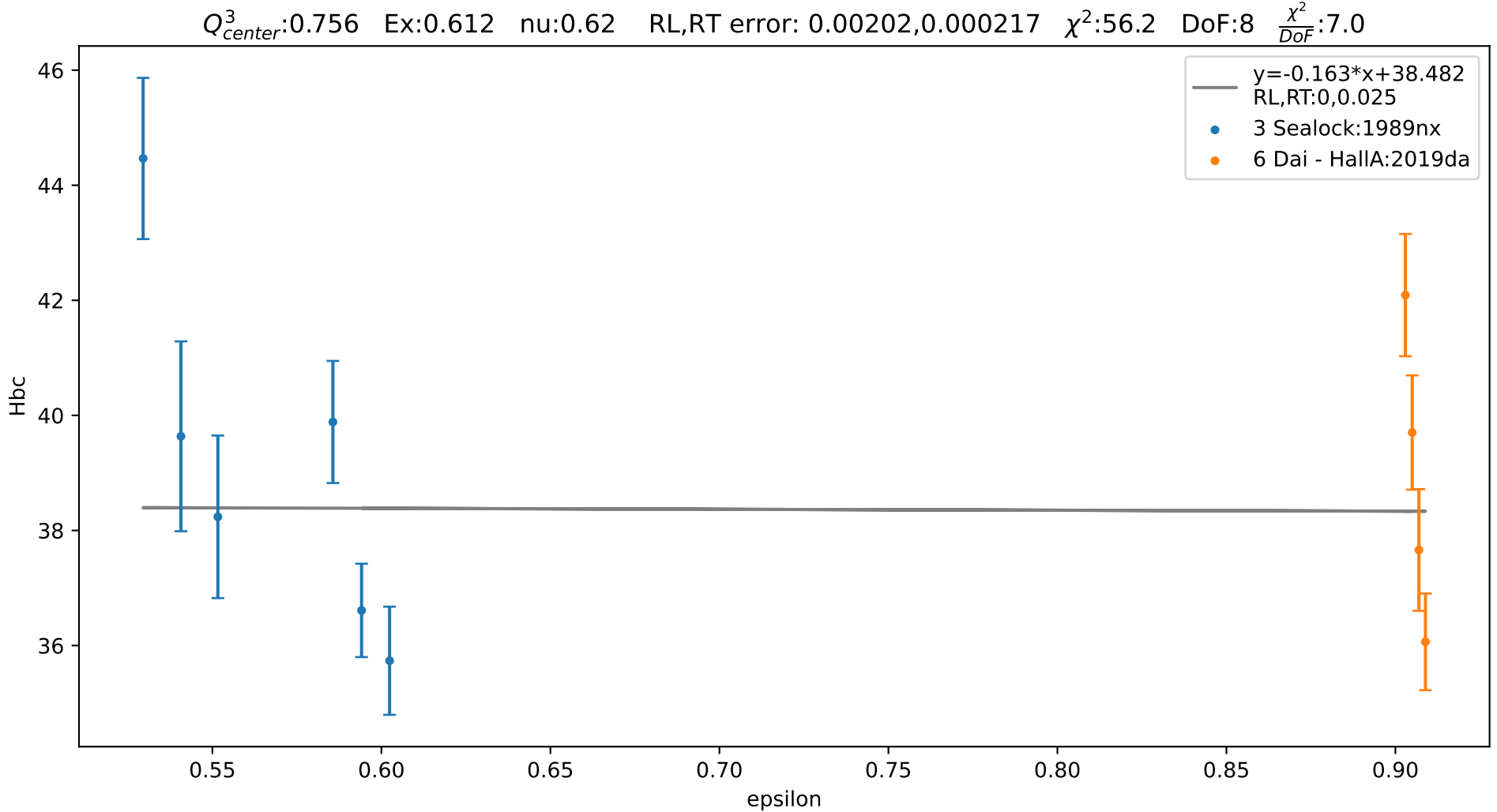

Q^3_{center}:0.756 Ex:0.507 nu:0.52 RL,RT error: 0.00178,0.00157 χ^2:40.9 DoF:12 $\frac{\chi^2}{DoF}$:3.4
y=5.275*x+17.787
RL,RT:0.005,0.019
5 Bagdasaryan:1988hp
6 Dai - HallA:2019da
3 Sealock:1989nx
Hbc
epsilon
32
30
28
26
24
22
20
0.70
0.75
0.80
0.85
0.90

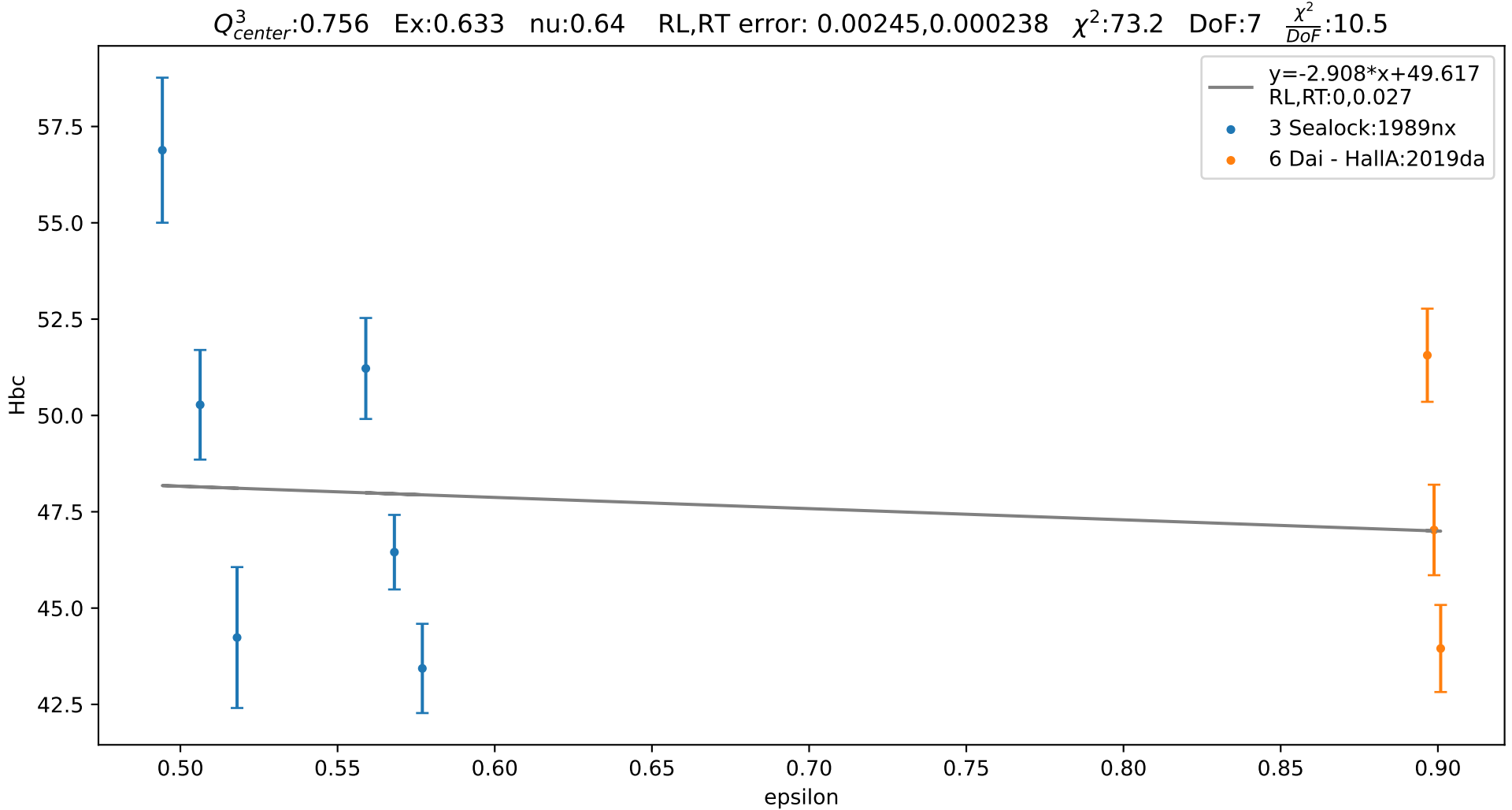

Q^3_{center}:0.756 Ex:0.527 nu:0.54 RL,RT error: 0.00211,0.00157 χ^2:26.9 DoF:10 $\frac{\chi^2}{DoF}$:2.7
y=7.229*x+18.606
RL,RT:0.007,0.018
5 Bagdasaryan:1988hp
3 Sealock:1989nx
6 Dai - HallA:2019da
Hbc
epsilon
22
24
26
28
30
32
34
36
0.65
0.70
0.75
0.80
0.85
0.90

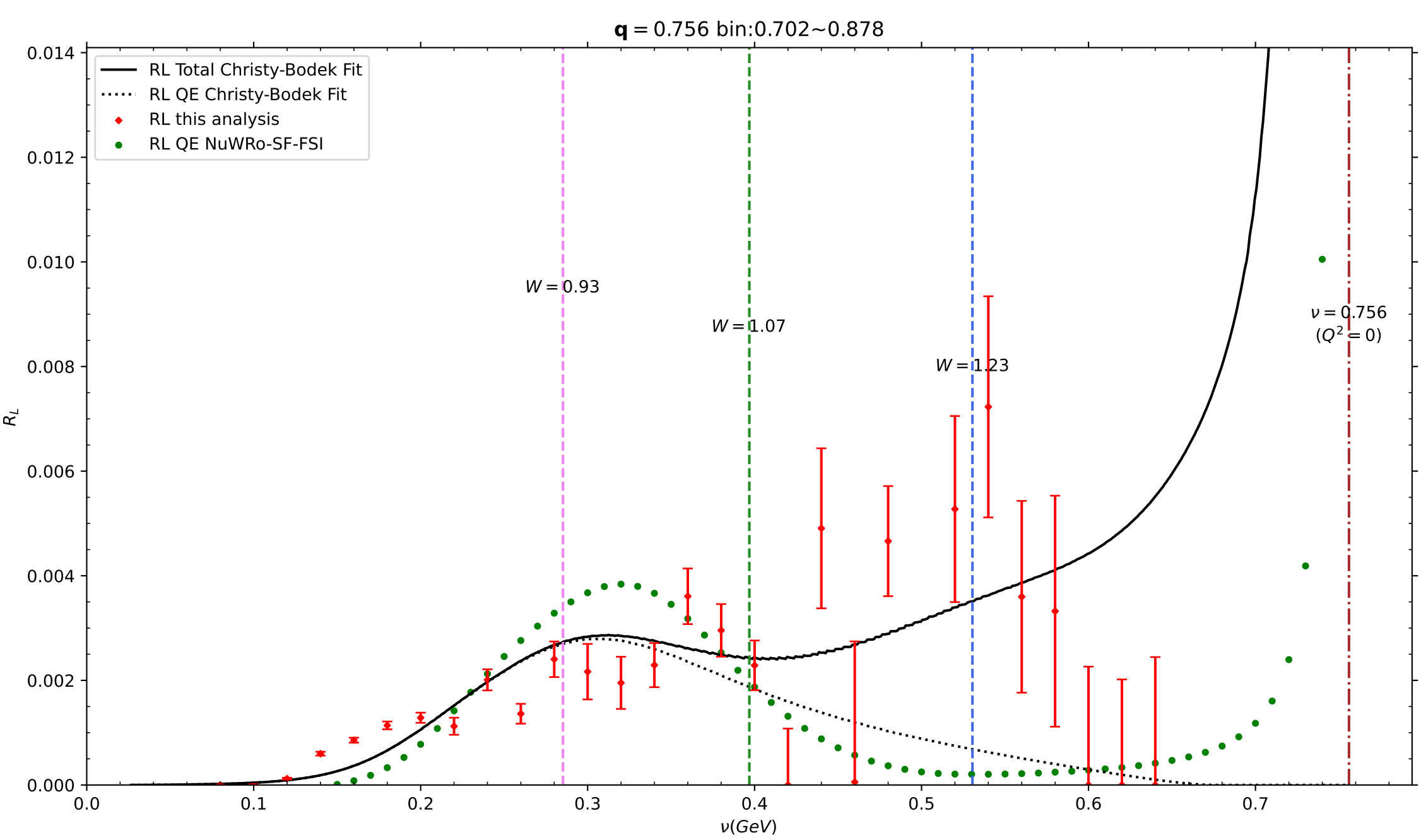

Q^3_{center}:0.756 Ex:0.548 nu:0.56 RL,RT error: 0.00183,0.00134 χ^2:38.0 DoF:10 $\frac{\chi^2}{DoF}$:3.8
y=3.598*x+23.49
RL,RT:0.004,0.021
5 Bagdasaryan:1988hp
6 Dai - HallA:2019da
3 Sealock:1989nx
Hbc
epsilon
45
40
35
30
25
0.65
0.70
0.75
0.80
0.85
0.90

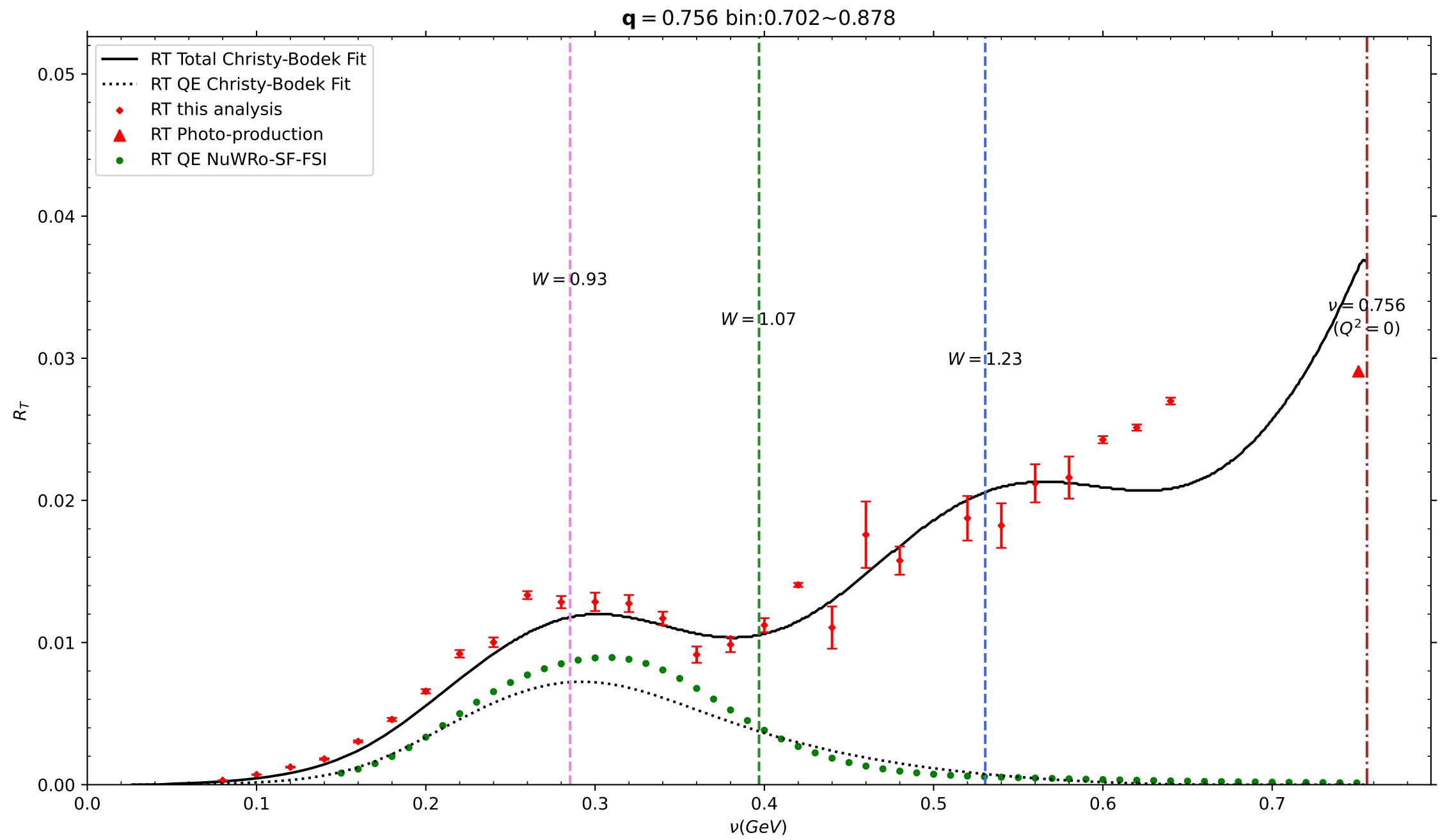

Q^3_{center}:0.756 Ex:0.569 nu:0.58 RL,RT error: 0.00221,0.00148 χ^2:6.2 DoF:6 $\frac{\chi^2}{DoF}$:1.0
y=3.323*x+26.258
RL,RT:0.003,0.022
6 Dai - HallA:2019da
3 Sealock:1989nx
5 Bagdasaryan:1988hp
Hbc
epsilon
40
38
36
34
32
30
28
26
0.65
0.70
0.75
0.80
0.85
0.90

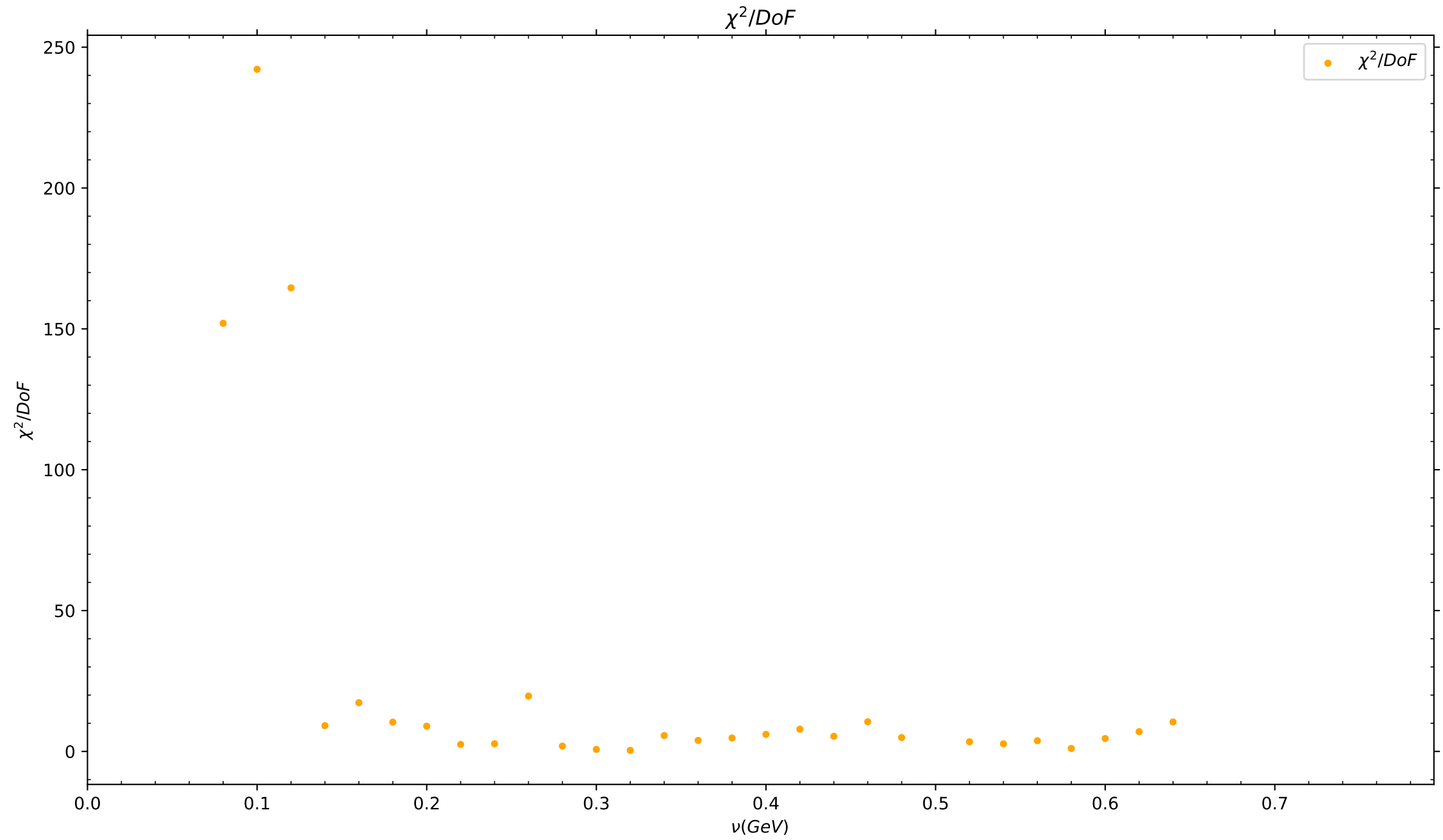

Q^3_{center}:0.756 Ex:0.591 nu:0.6 RL,RT error: 0.00226,0.000254 χ^2:18.3 DoF:4 $\frac{\chi^2}{DoF}$:4.6
y=-0.523*x+33.2
RL,RT:0,0.024
3 Sealock:1989nx
6 Dai - HallA:2019da
Hbc
epsilon
37
36
35
34
33
32
31
30
0.55
0.60
0.65
0.70
0.75
0.80
0.85
0.90

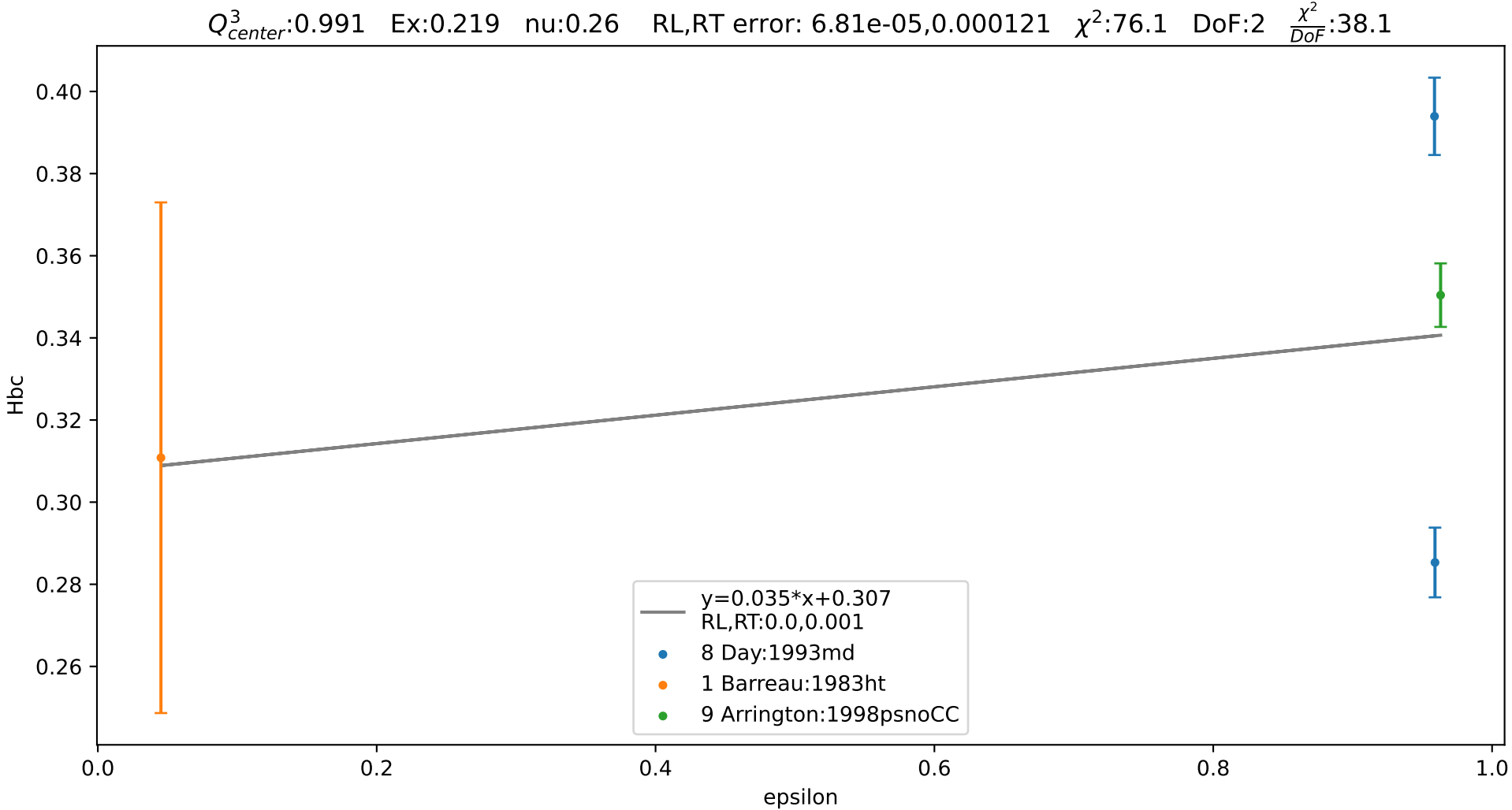

Q^3_{center}:0.756 Ex:0.612 nu:0.62 RL,RT error: 0.00202,0.000217 χ^2:56.2 DoF:8 $\frac{\chi^2}{DoF}$:7.0
y=-0.163*x+38.482
RL,RT:0,0.025
3 Sealock:1989nx
6 Dai - HallA:2019da
Hbc
epsilon
46
44
42
40
38
36
0.55
0.60
0.65
0.70
0.75
0.80
0.85
0.90

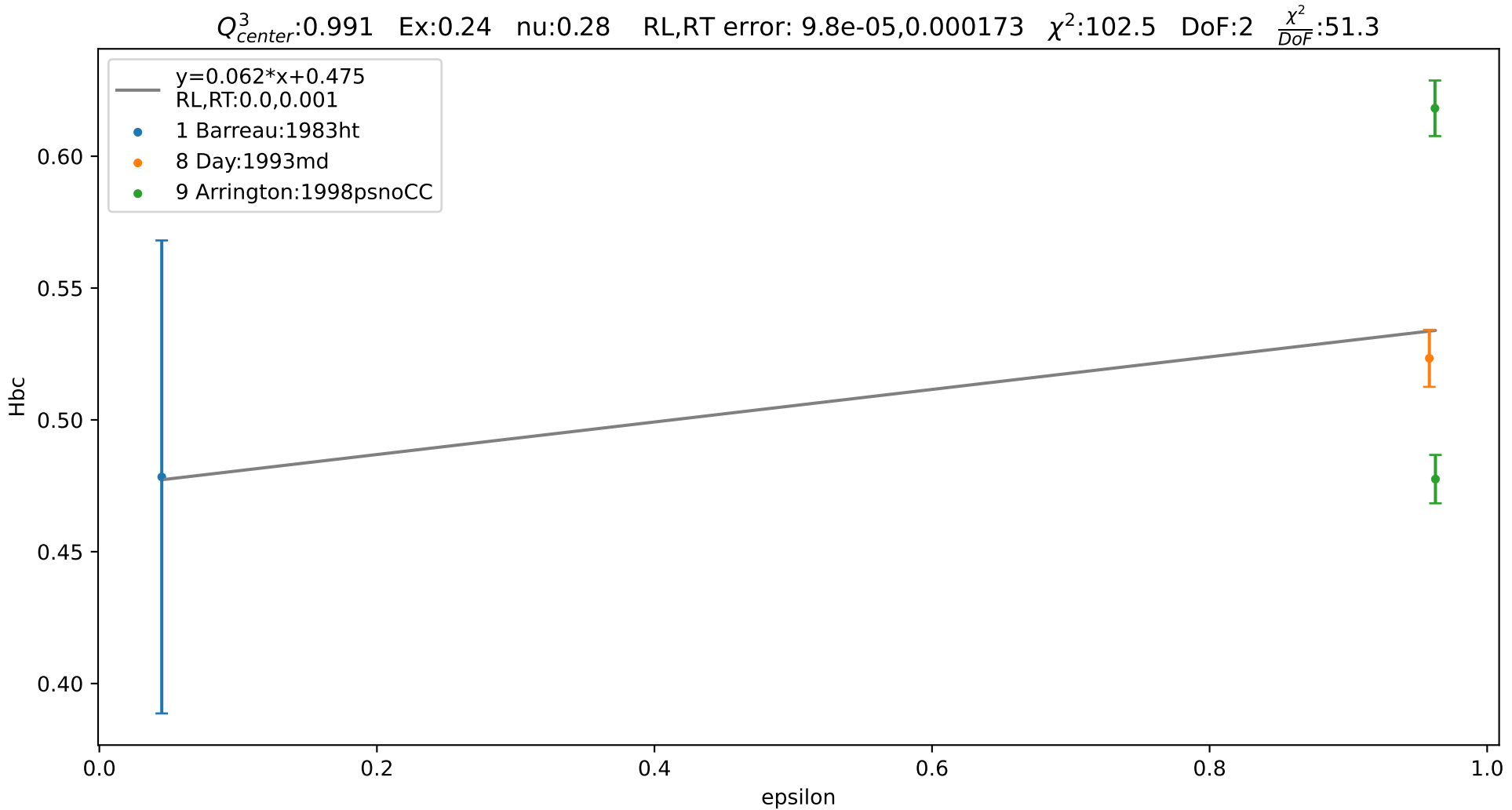

Q^3_{center}:0.756 Ex:0.633 nu:0.64 RL,RT error: 0.00245,0.000238 χ^2:73.2 DoF:7 $\frac{\chi^2}{DoF}$:10.5
y=-2.908*x+49.617
RL,RT:0,0.027
3 Sealock:1989nx
6 Dai - HallA:2019da
Hbc
epsilon
57.5
55.0
52.5
50.0
47.5
45.0
42.5
0.50
0.55
0.60
0.65
0.70
0.75
0.80
0.85
0.90

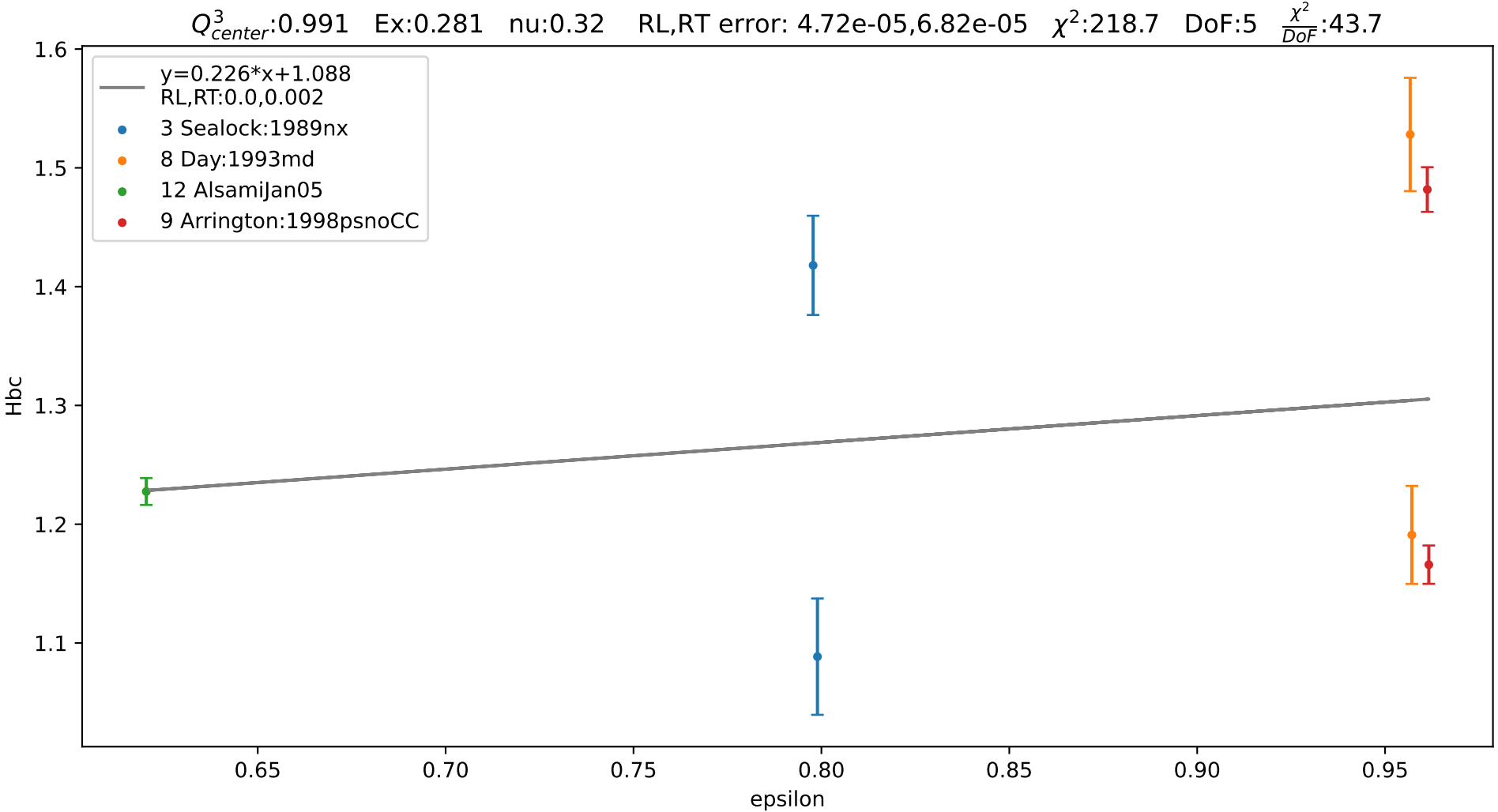

$\mathbf{q} = 0.756$ bin:0.702~0.878
RL Total Christy-Bodek Fit
RL QE Christy-Bodek Fit
RL this analysis
RL QE NuWRo-SF-FSI
$W = 0.93$
$W = 1.07$
$W = 1.23$
$\nu = 0.756$
$(Q^2 = 0)$
R_L
$\nu(GeV)$

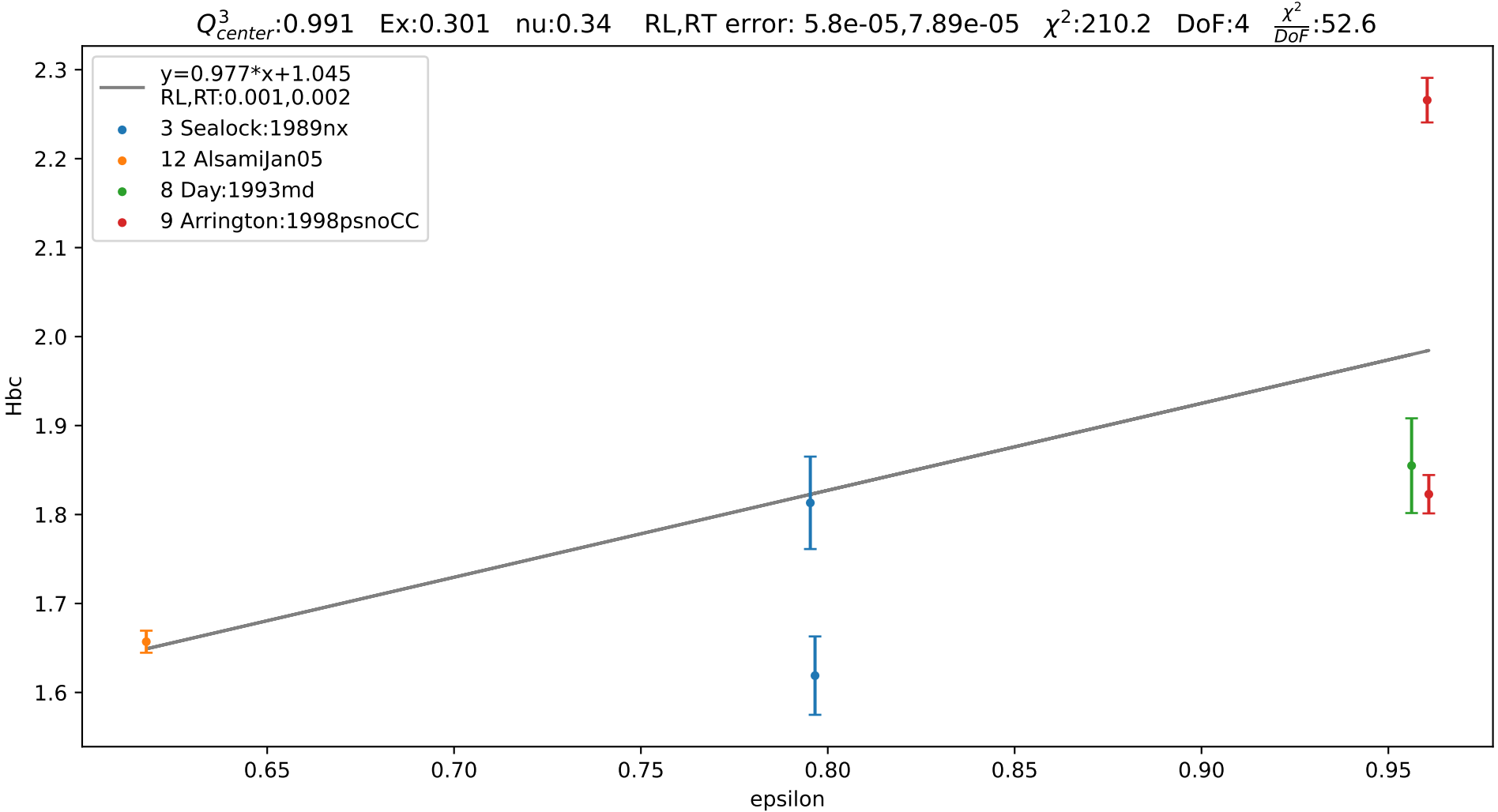

$\mathbf{q} = 0.756$ bin:0.702~0.878
RT Total Christy-Bodek Fit
RT QE Christy-Bodek Fit
RT this analysis
RT Photo-production
RT QE NuWRo-SF-FSI
$W = 0.93$
$W = 1.07$
$W = 1.23$
$\nu = 0.756$
$(Q^2 = 0)$
R_T
$\nu(GeV)$

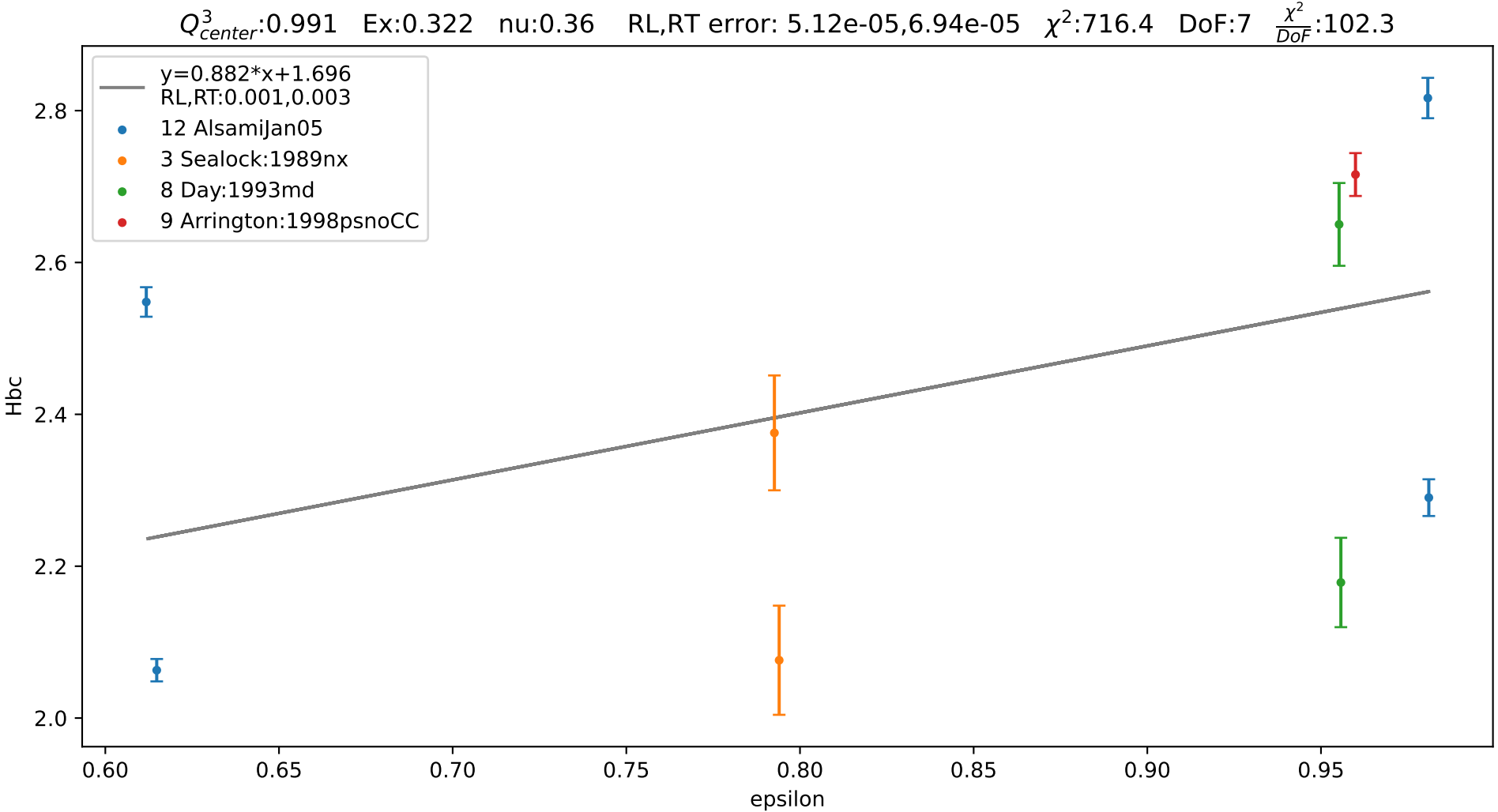

χ^2/DoF
χ^2/DoF
$\nu(GeV)$

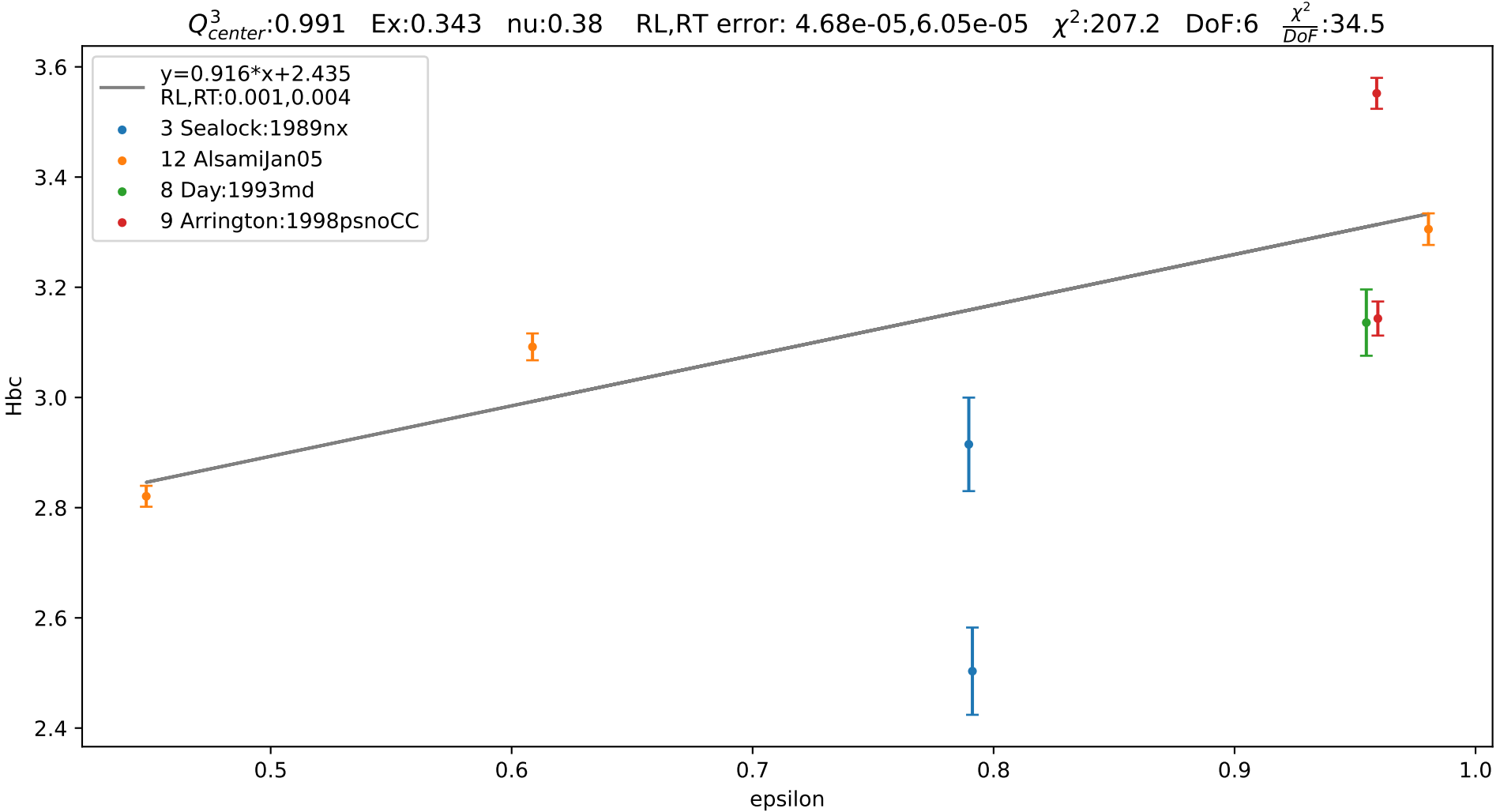

Q^3_{center}:0.991 Ex:0.219 nu:0.26 RL,RT error: 6.81e-05,0.000121 χ^2:76.1 DoF:2 $\frac{\chi^2}{DoF}$:38.1
Hbc
epsilon
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.0
0.2
0.4
0.6
0.8
1.0
y=0.035*x+0.307
RL,RT:0.0,0.001
8 Day:1993md
1 Barreau:1983ht
9 Arrington:1998psnoCC

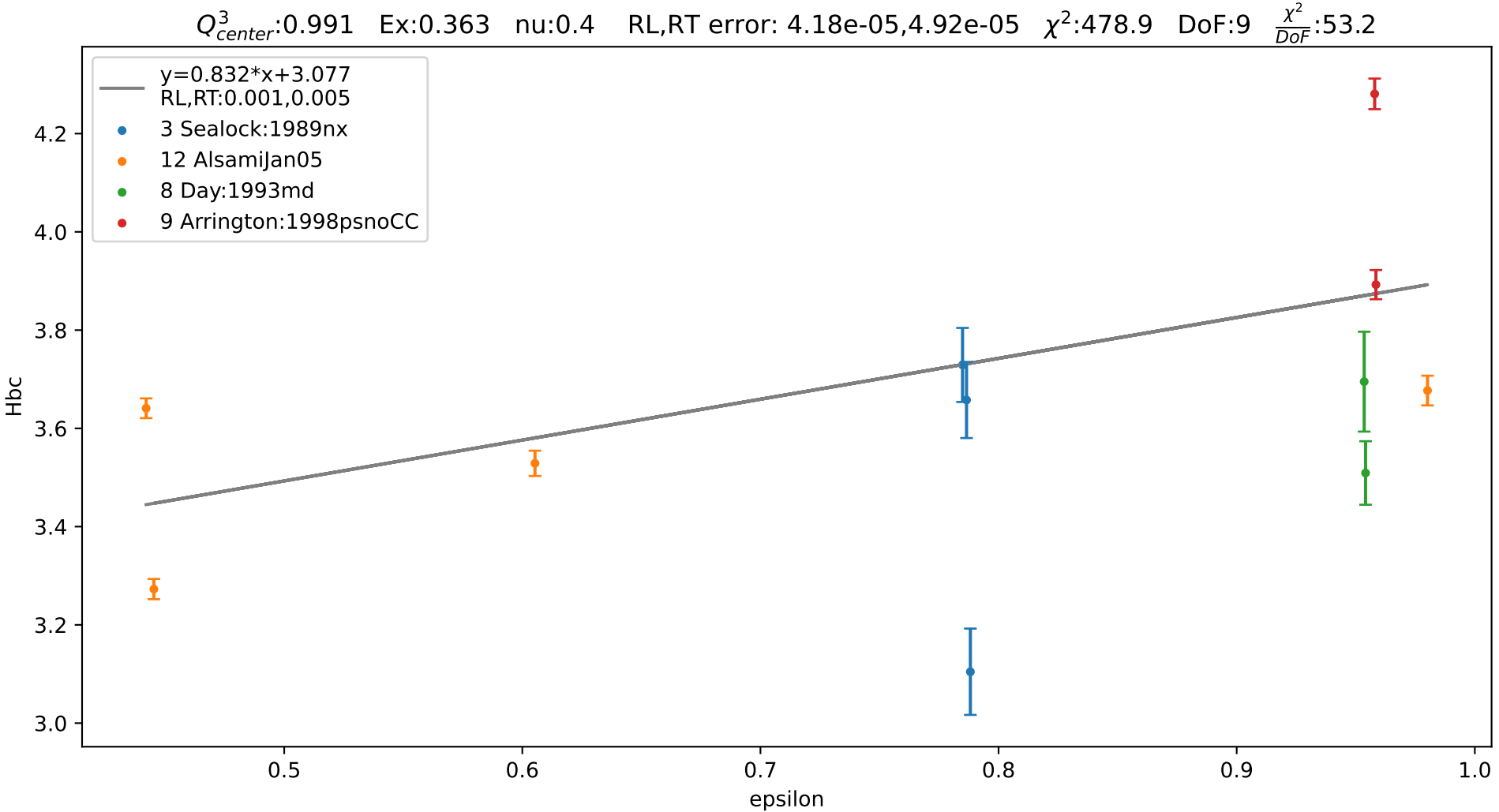

Q^3_{center}:0.991 Ex:0.24 nu:0.28 RL,RT error: 9.8e-05,0.000173 χ^2:102.5 DoF:2 $\frac{\chi^2}{DoF}$:51.3
y=0.062*x+0.475
RL,RT:0.0,0.001
1 Barreau:1983ht
8 Day:1993md
9 Arrington:1998psnoCC
Hbc
epsilon
0.40
0.45
0.50
0.55
0.60
0.0
0.2
0.4
0.6
0.8
1.0

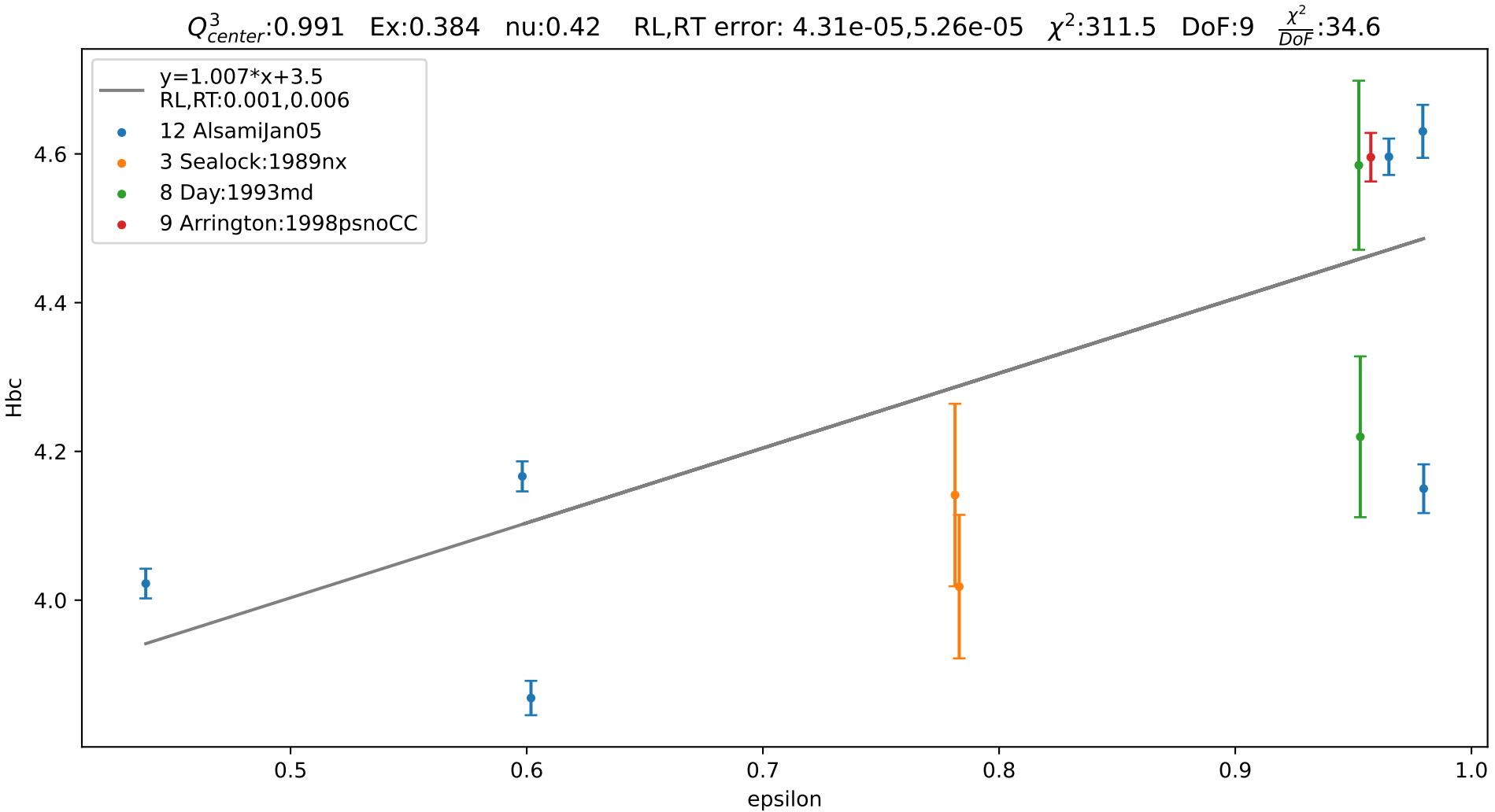

Q^3_{center}:0.991 Ex:0.281 nu:0.32 RL,RT error: 4.72e-05,6.82e-05 χ^2:218.7 DoF:5 $\frac{\chi^2}{DoF}$:43.7
y=0.226*x+1.088
RL,RT:0.0,0.002
3 Sealock:1989nx
8 Day:1993md
12 AlsamiJan05
9 Arrington:1998psnoCC
Hbc
epsilon
1.6
1.5
1.4
1.3
1.2
1.1
0.65
0.70
0.75
0.80
0.85
0.90
0.95

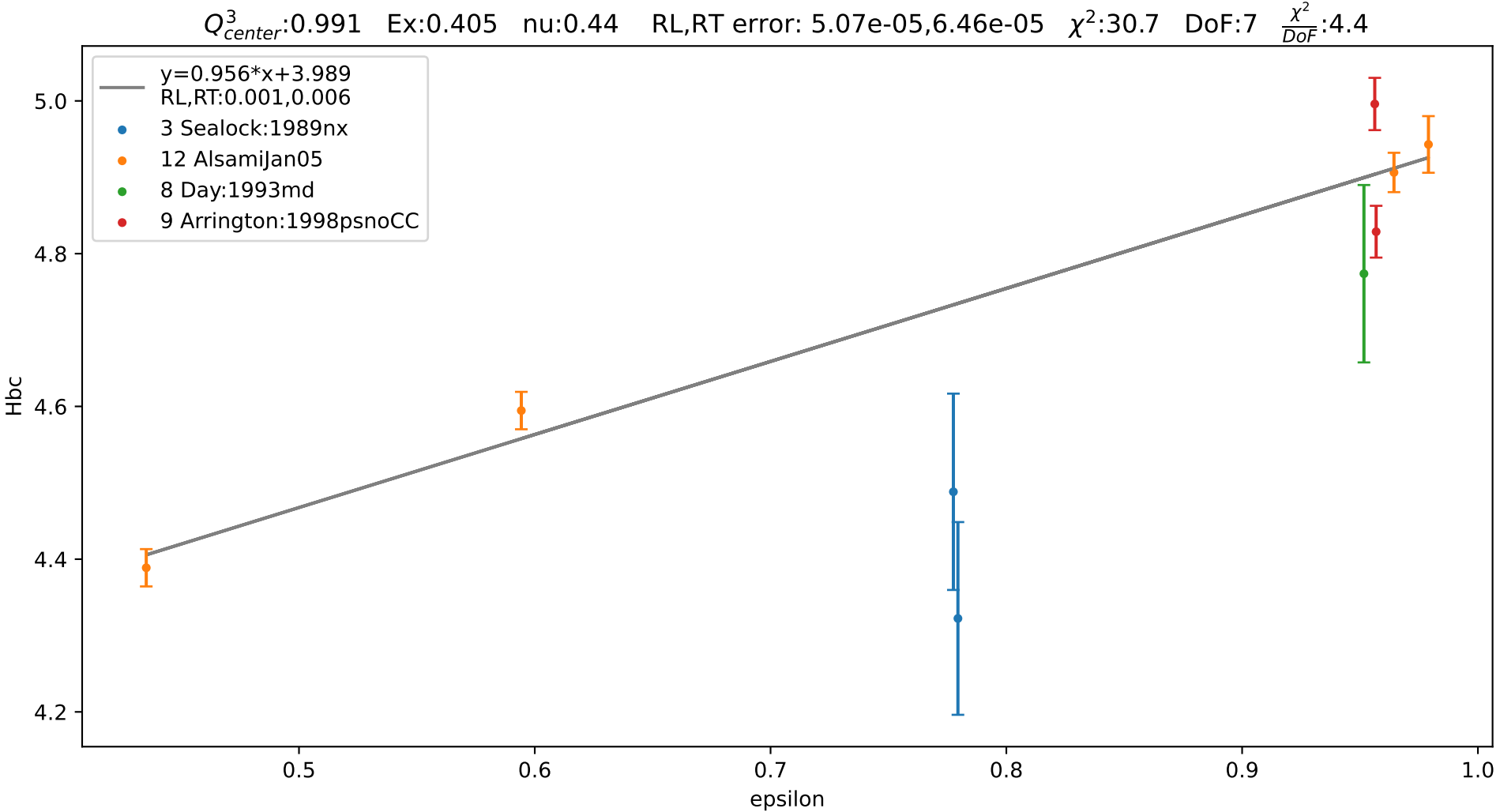

Q^3_{center}:0.991 Ex:0.301 nu:0.34 RL,RT error: 5.8e-05,7.89e-05 χ^2:210.2 DoF:4 $\frac{\chi^2}{DoF}$:52.6
y=0.977*x+1.045
RL,RT:0.001,0.002
3 Sealock:1989nx
12 AlsamiJan05
8 Day:1993md
9 Arrington:1998psnoCC
Hbc
epsilon
2.3
2.2
2.1
2.0
1.9
1.8
1.7
1.6
0.65
0.70
0.75
0.80
0.85
0.90
0.95

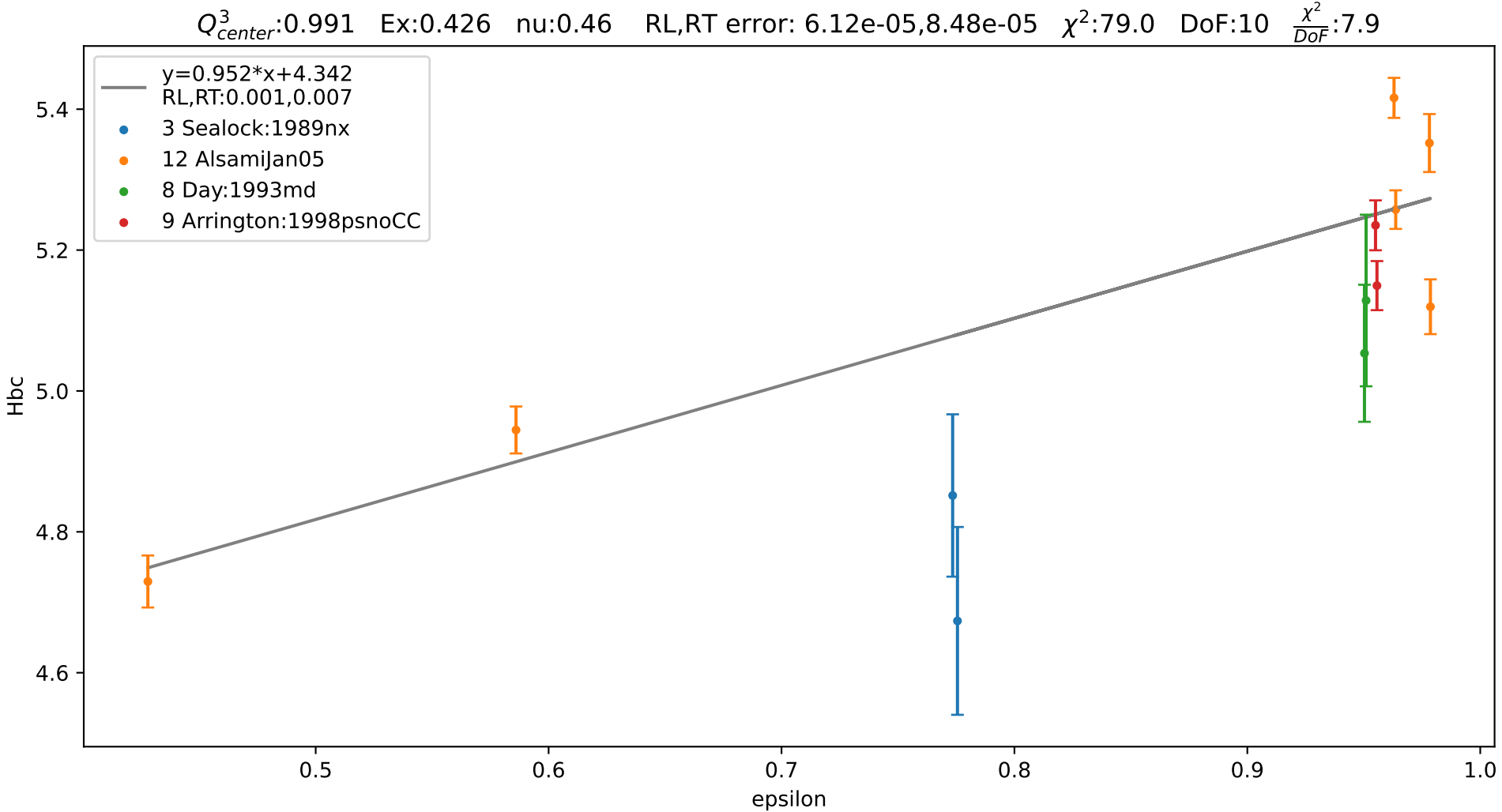

Q^3_{center}:0.991 Ex:0.322 nu:0.36 RL,RT error: 5.12e-05,6.94e-05 χ^2:716.4 DoF:7 $\frac{\chi^2}{DoF}$:102.3
y=0.882*x+1.696
RL,RT:0.001,0.003
12 AlsamiJan05
3 Sealock:1989nx
8 Day:1993md
9 Arrington:1998psnoCC
Hbc
epsilon
2.0
2.2
2.4
2.6
2.8
0.60
0.65
0.70
0.75
0.80
0.85
0.90
0.95

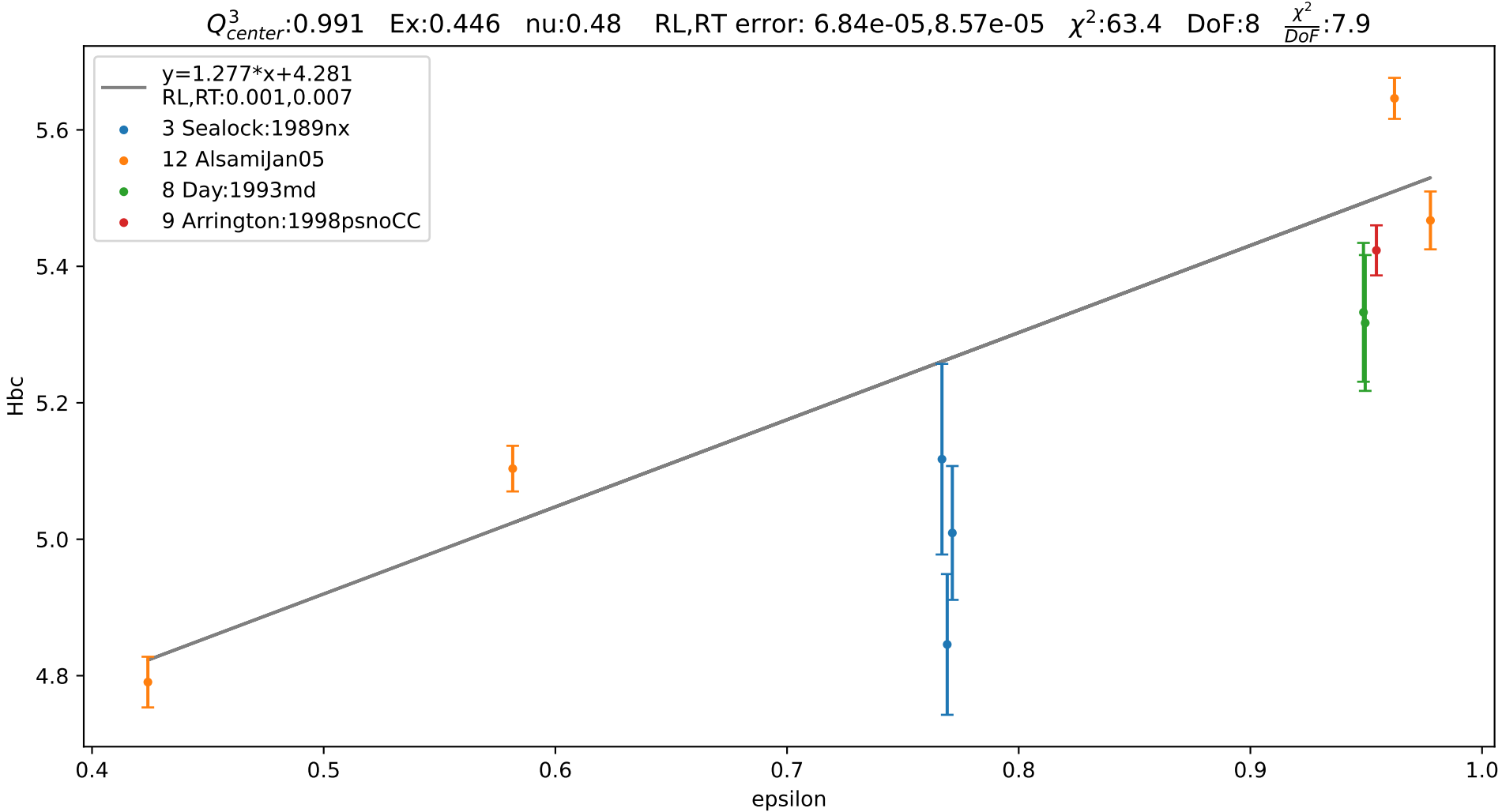

Q^3_{center}:0.991 Ex:0.343 nu:0.38 RL,RT error: 4.68e-05,6.05e-05 χ^2:207.2 DoF:6 $\frac{\chi^2}{DoF}$:34.5
y=0.916*x+2.435
RL,RT:0.001,0.004
3 Sealock:1989nx
12 AlsamiJan05
8 Day:1993md
9 Arrington:1998psnoCC
Hbc
epsilon
3.6
3.4
3.2
3.0
2.8
2.6
2.4
0.5
0.6
0.7
0.8
0.9
1.0

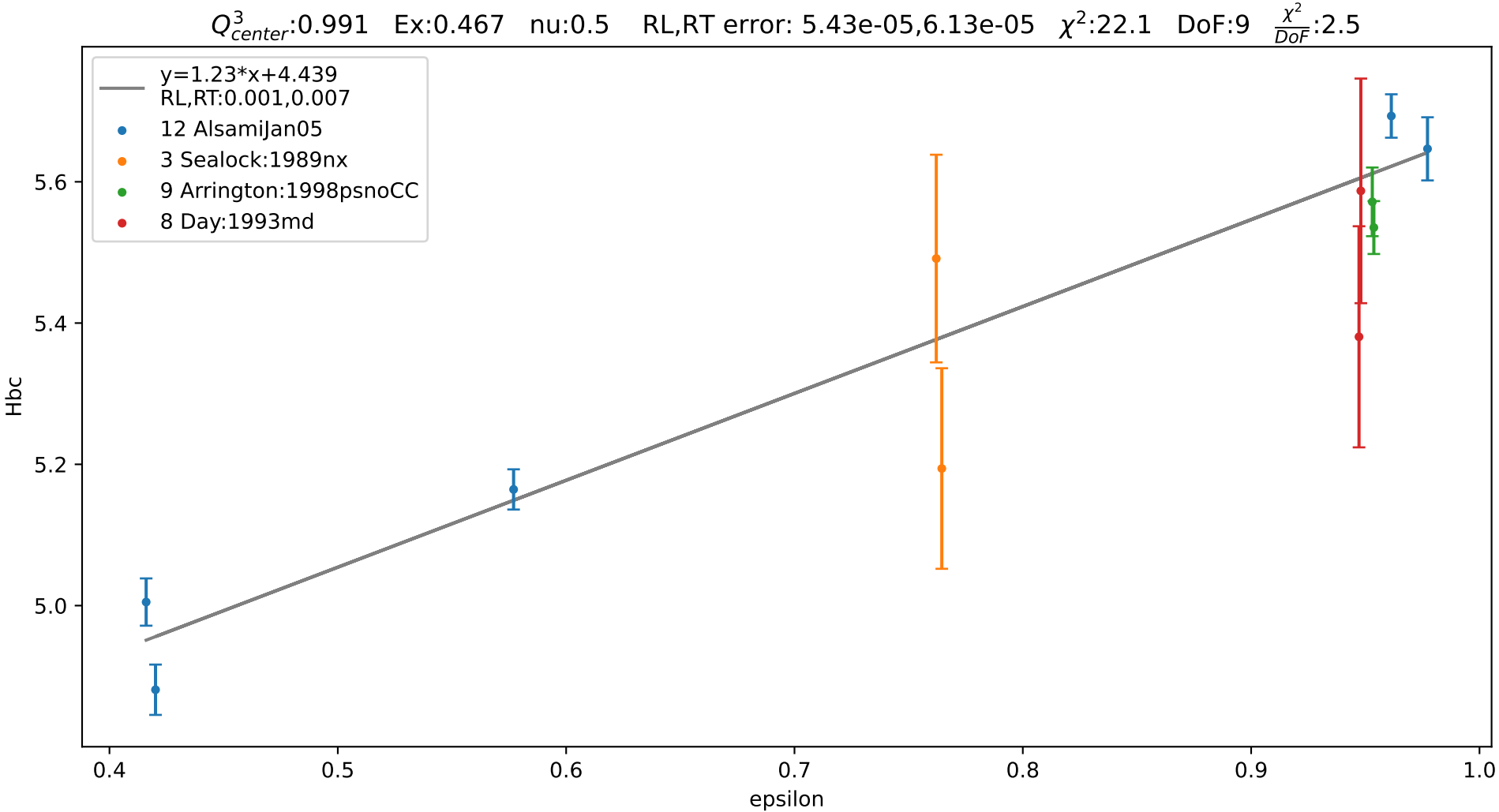

Q^3_{center}:0.991 Ex:0.363 nu:0.4 RL,RT error: 4.18e-05,4.92e-05 χ^2:478.9 DoF:9 $\frac{\chi^2}{DoF}$:53.2
y=0.832*x+3.077
RL,RT:0.001,0.005
3 Sealock:1989nx
12 AlsamiJan05
8 Day:1993md
9 Arrington:1998psnoCC
Hbc
epsilon
4.2
4.0
3.8
3.6
3.4
3.2
3.0
0.5
0.6
0.7
0.8
0.9
1.0

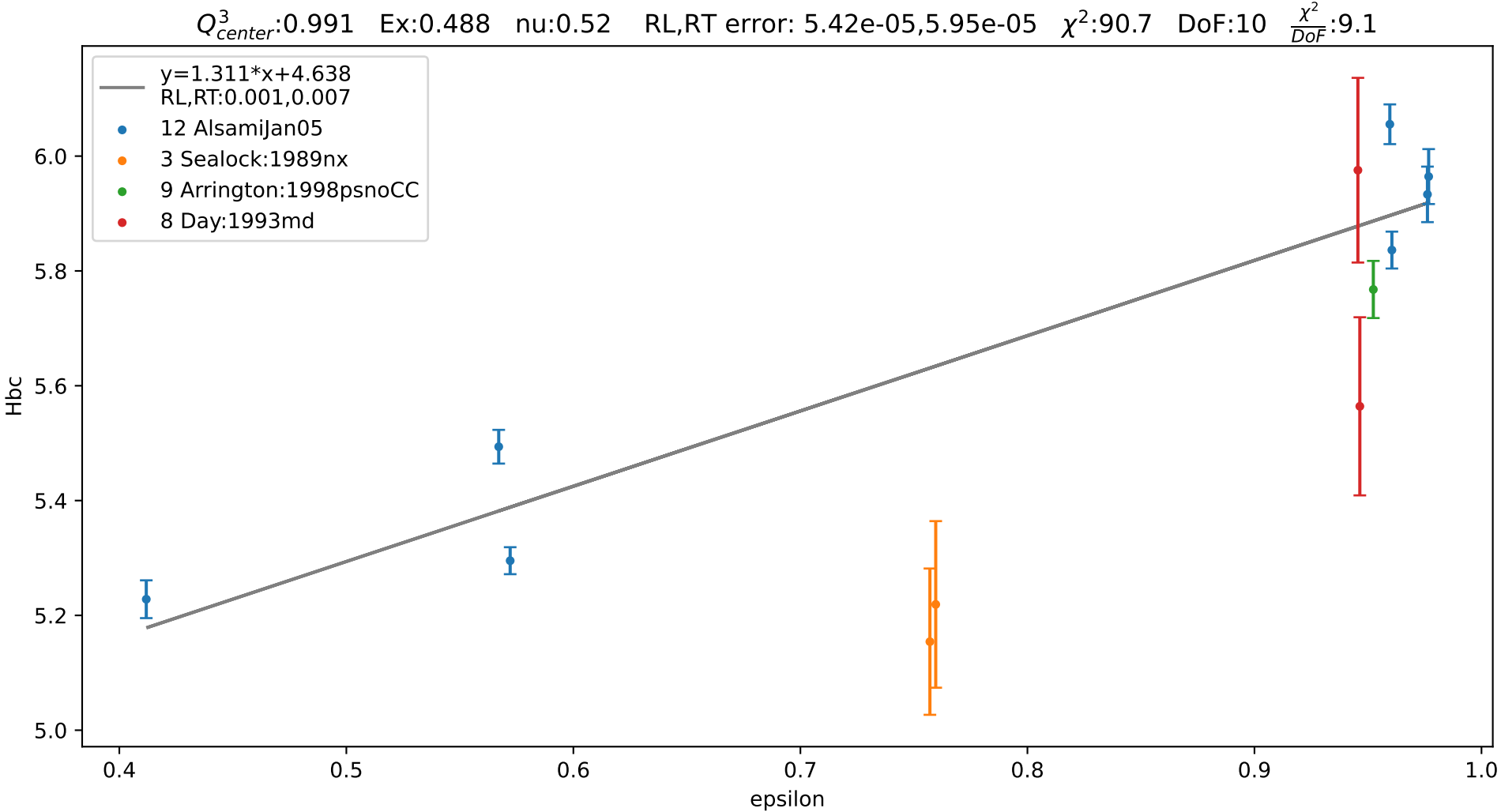

Q^3_{center}:0.991 Ex:0.384 nu:0.42 RL,RT error: 4.31e-05,5.26e-05 χ^2:311.5 DoF:9 $\frac{\chi^2}{DoF}$:34.6
y=1.007*x+3.5
RL,RT:0.001,0.006
12 AlsamiJan05
3 Sealock:1989nx
8 Day:1993md
9 Arrington:1998psnoCC
Hbc
epsilon
4.0
4.2
4.4
4.6
0.5
0.6
0.7
0.8
0.9
1.0

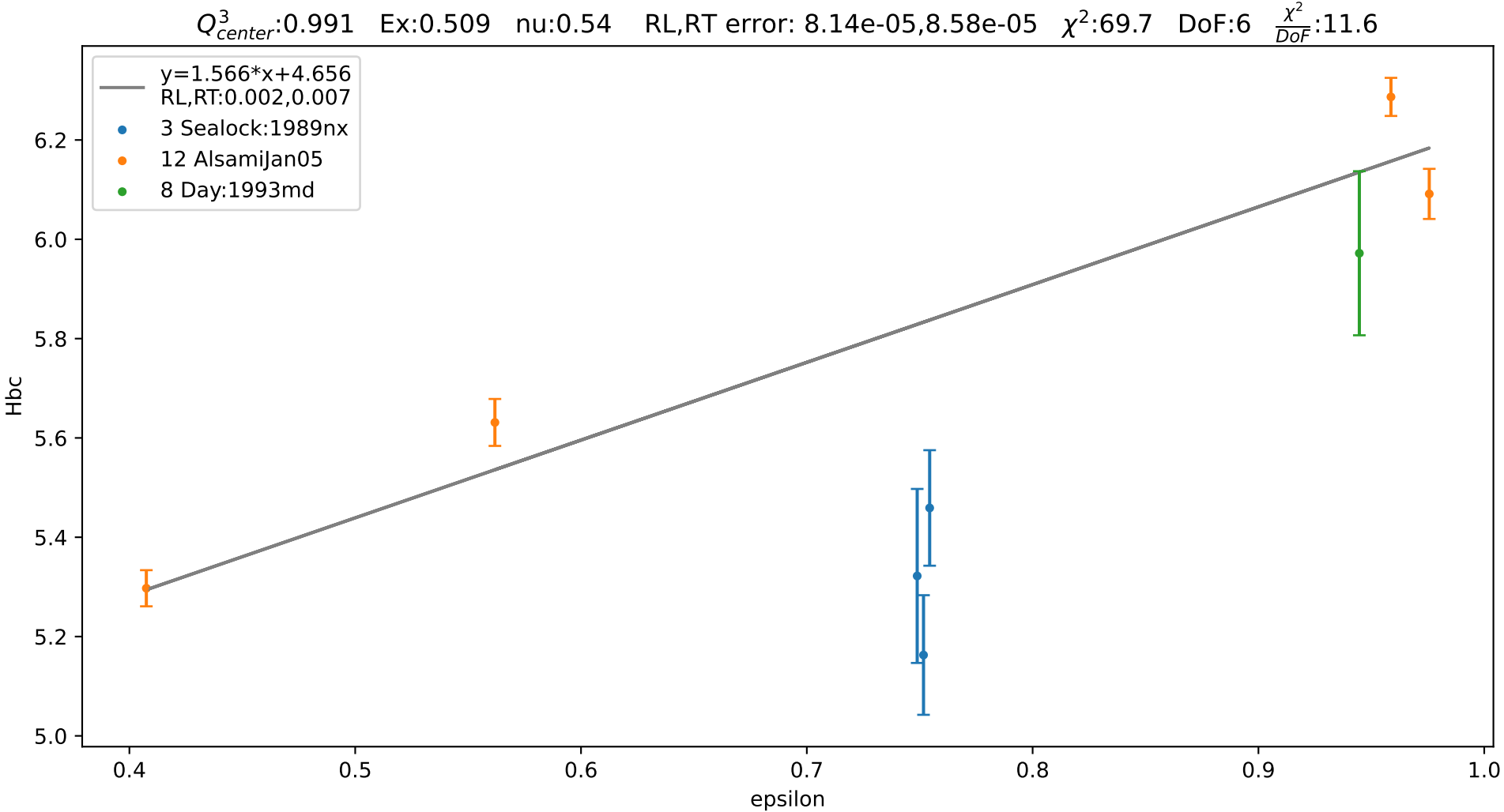

Q^3_{center}:0.991 Ex:0.405 nu:0.44 RL,RT error: 5.07e-05,6.46e-05 χ^2:30.7 DoF:7 $\frac{\chi^2}{DoF}$:4.4
y=0.956*x+3.989
RL,RT:0.001,0.006
3 Sealock:1989nx
12 AlsamiJan05
8 Day:1993md
9 Arrington:1998psnoCC
Hbc
epsilon
5.0
4.8
4.6
4.4
4.2
0.5
0.6
0.7
0.8
0.9
1.0

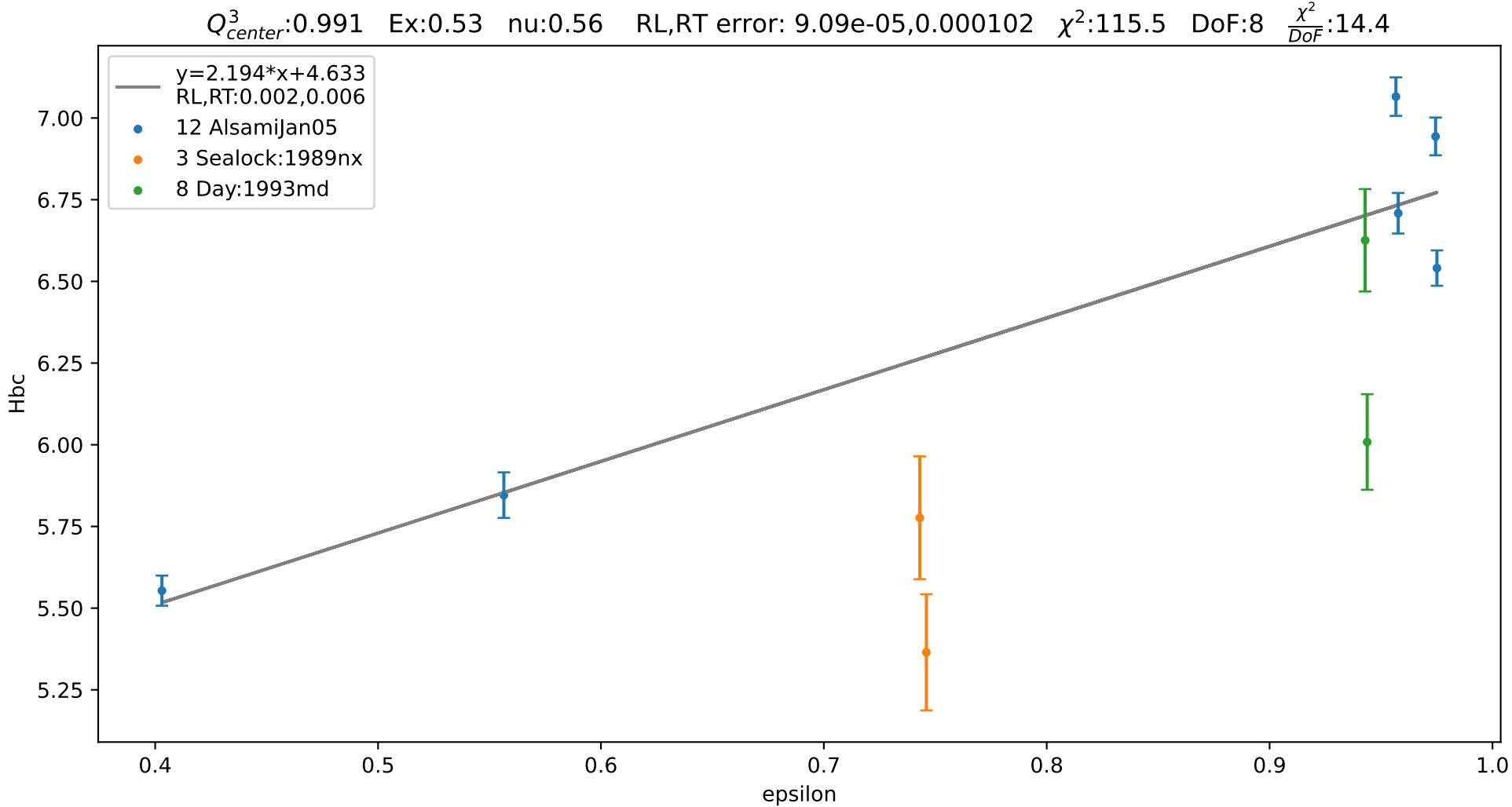

Q^3_{center}:0.991 Ex:0.426 nu:0.46 RL,RT error: 6.12e-05,8.48e-05 χ^2:79.0 DoF:10 $\frac{\chi^2}{DoF}$:7.9
y=0.952*x+4.342
RL,RT:0.001,0.007
3 Sealock:1989nx
12 AlsamiJan05
8 Day:1993md
9 Arrington:1998psnoCC
Hbc
epsilon
5.4
5.2
5.0
4.8
4.6
0.5
0.6
0.7
0.8
0.9
1.0

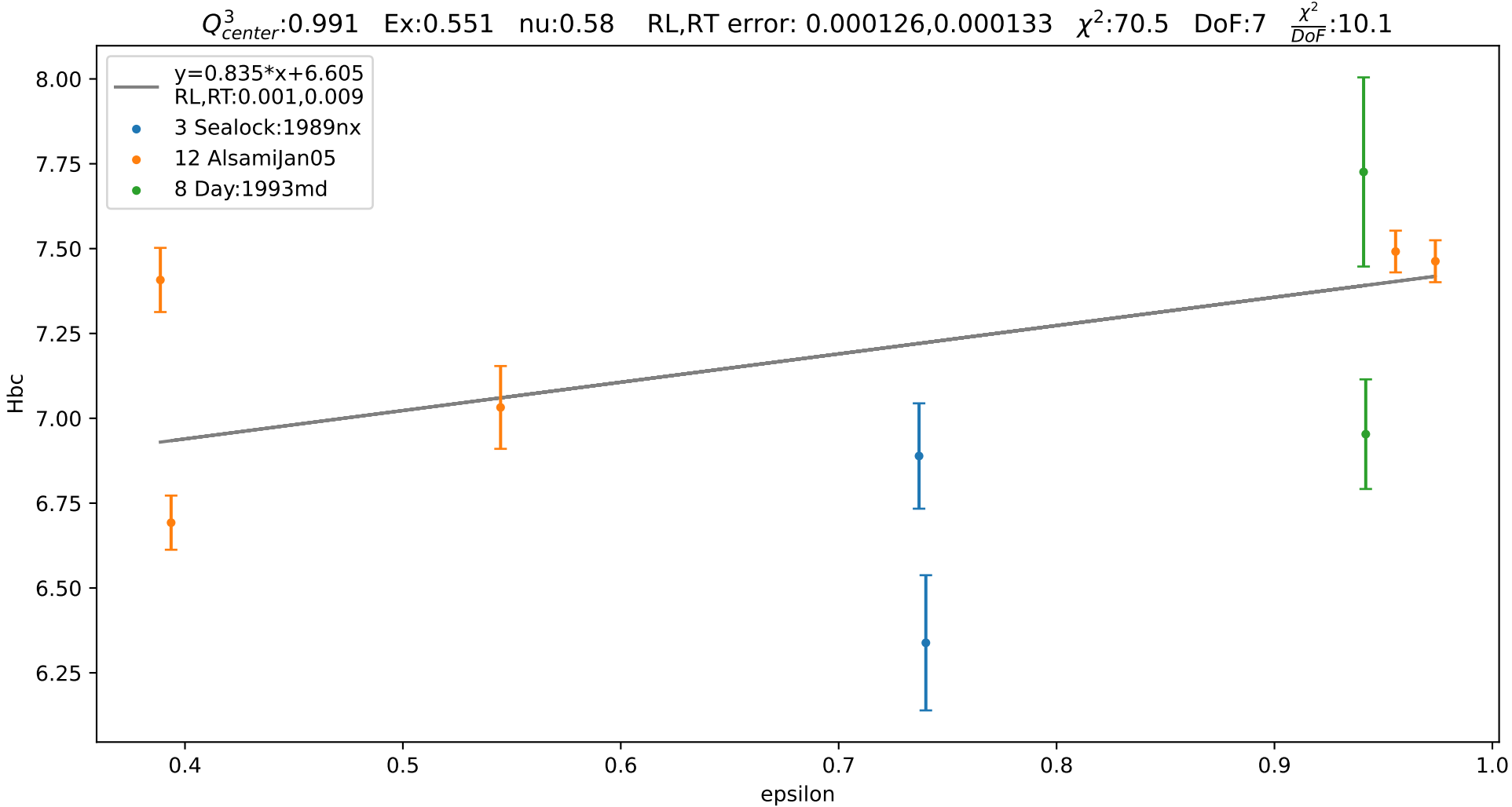

Q^3_{center}:0.991 Ex:0.446 nu:0.48 RL,RT error: 6.84e-05,8.57e-05 χ^2:63.4 DoF:8 $\frac{\chi^2}{DoF}$:7.9
y=1.277*x+4.281
RL,RT:0.001,0.007
3 Sealock:1989nx
12 AlsamiJan05
8 Day:1993md
9 Arrington:1998psnoCC
Hbc
epsilon
5.6
5.4
5.2
5.0
4.8
0.4
0.5
0.6
0.7
0.8
0.9
1.0

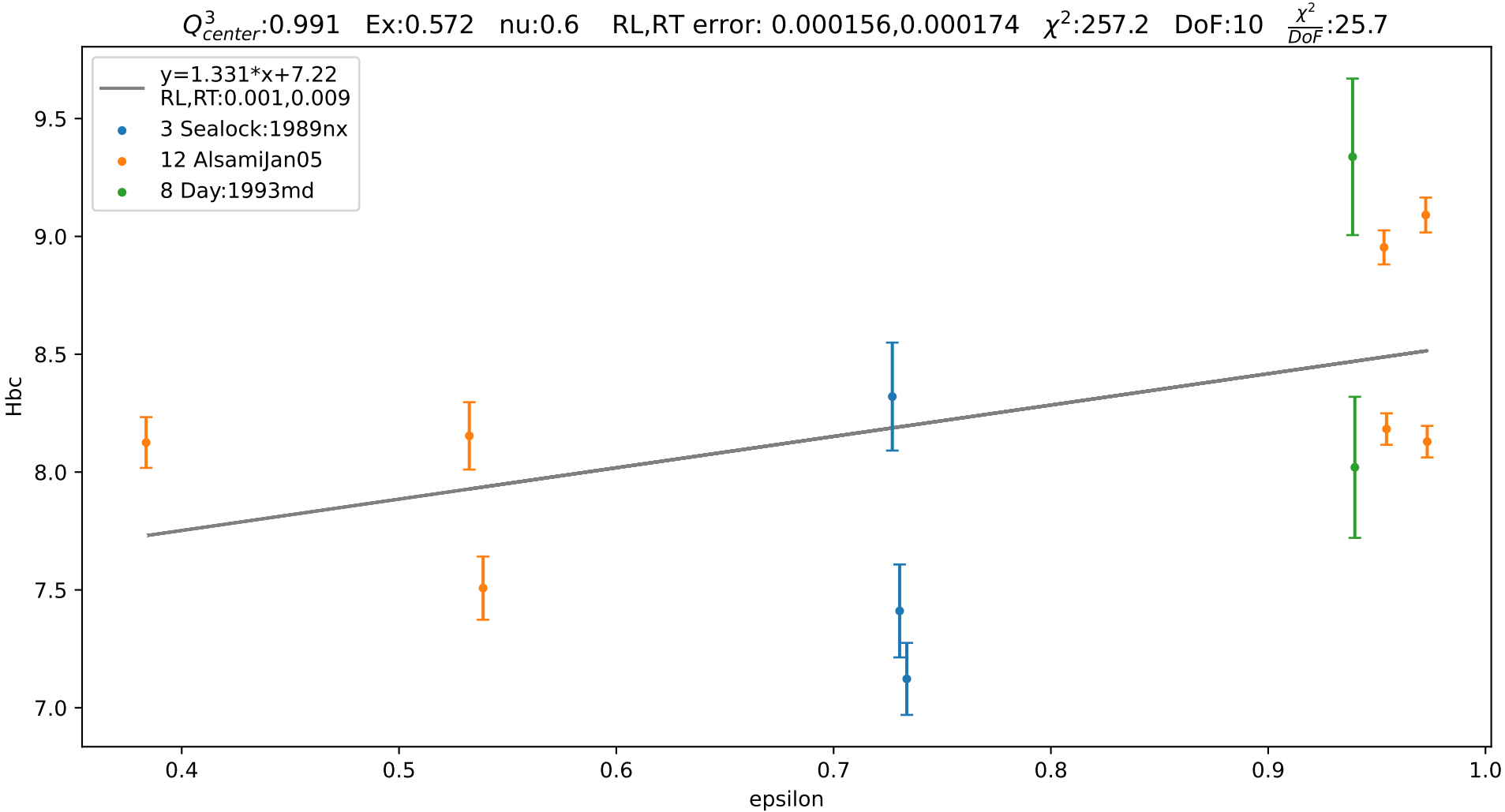

Q^3_{center}:0.991 Ex:0.467 nu:0.5 RL,RT error: 5.43e-05,6.13e-05 χ^2:22.1 DoF:9 $\frac{\chi^2}{DoF}$:2.5
y=1.23*x+4.439
RL,RT:0.001,0.007
12 AlsamiJan05
3 Sealock:1989nx
9 Arrington:1998psnoCC
8 Day:1993md
Hbc
epsilon
5.0
5.2
5.4
5.6
0.4
0.5
0.6
0.7
0.8
0.9
1.0

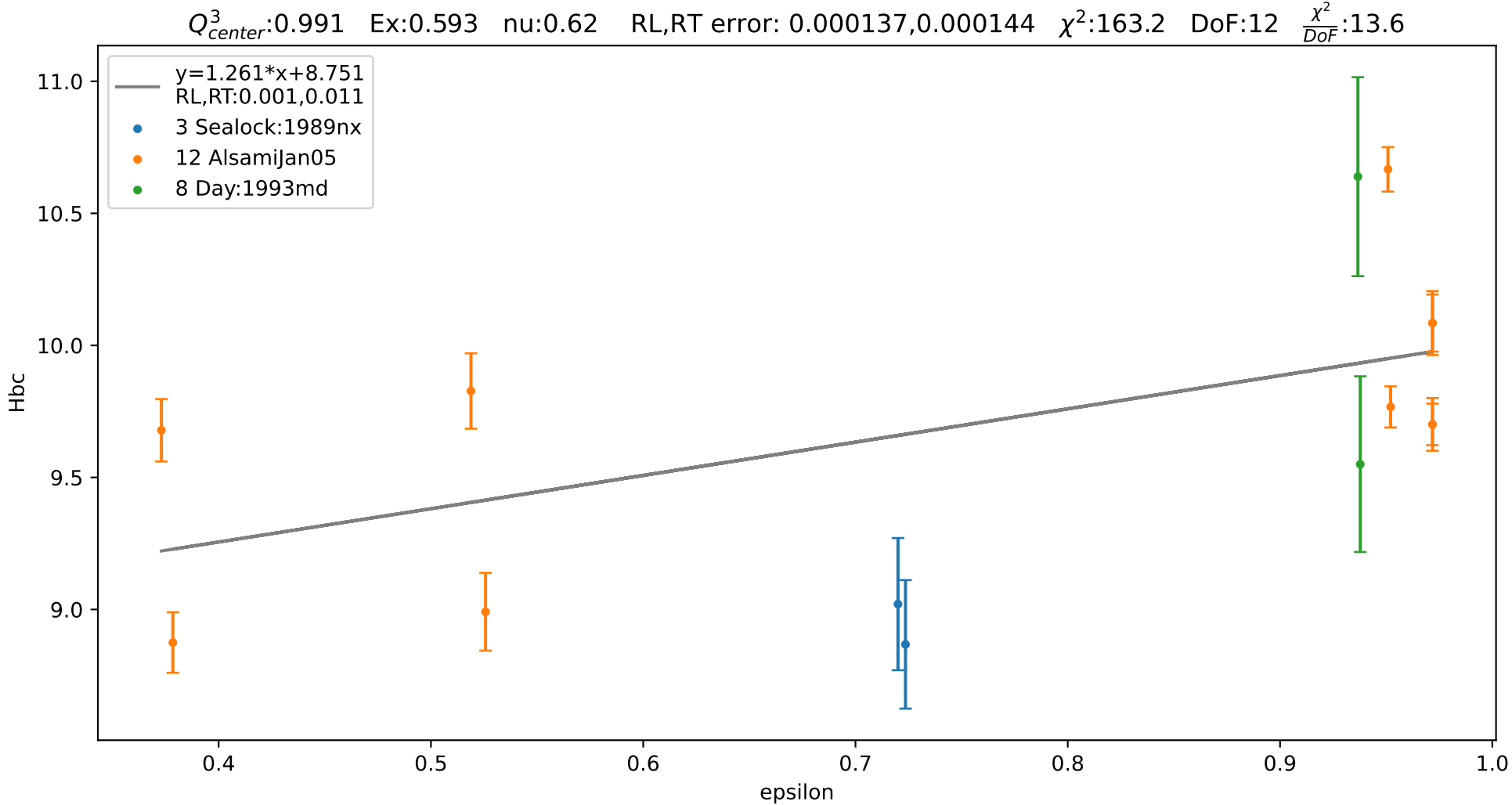

Q^3_{center}:0.991 Ex:0.488 nu:0.52 RL,RT error: 5.42e-05,5.95e-05 χ^2:90.7 DoF:10 $\frac{\chi^2}{DoF}$:9.1
y=1.311*x+4.638
RL,RT:0.001,0.007
12 AlsamiJan05
3 Sealock:1989nx
9 Arrington:1998psnoCC
8 Day:1993md
Hbc
epsilon
6.0
5.8
5.6
5.4
5.2
5.0
0.4
0.5
0.6
0.7
0.8
0.9
1.0

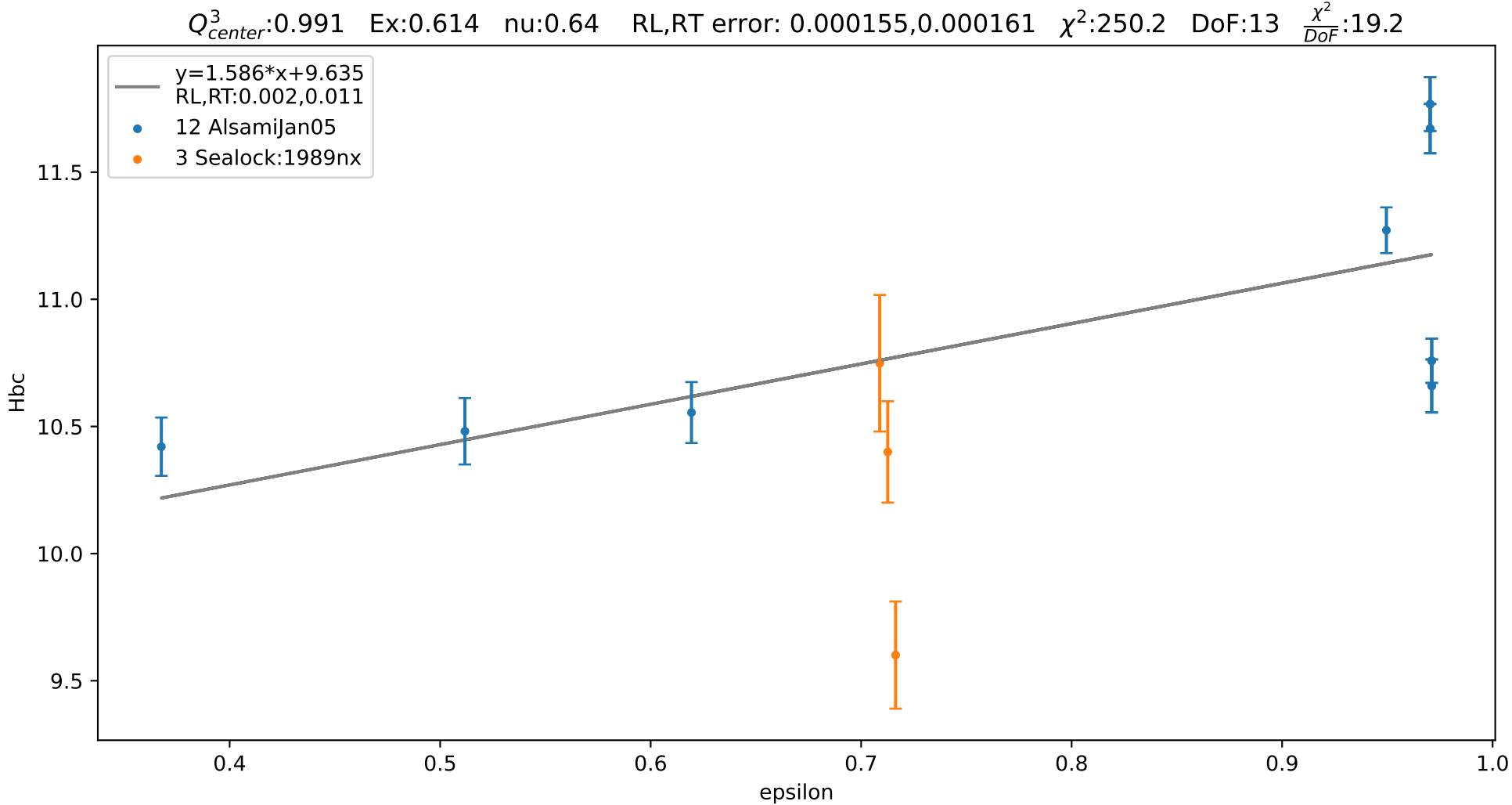

Q^3_{center}:0.991 Ex:0.509 nu:0.54 RL,RT error: 8.14e-05,8.58e-05 χ^2:69.7 DoF:6 $\frac{\chi^2}{DoF}$:11.6
y=1.566*x+4.656
RL,RT:0.002,0.007
3 Sealock:1989nx
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
6.2
6.0
5.8
5.6
5.4
5.2
5.0
0.4
0.5
0.6
0.7
0.8
0.9
1.0

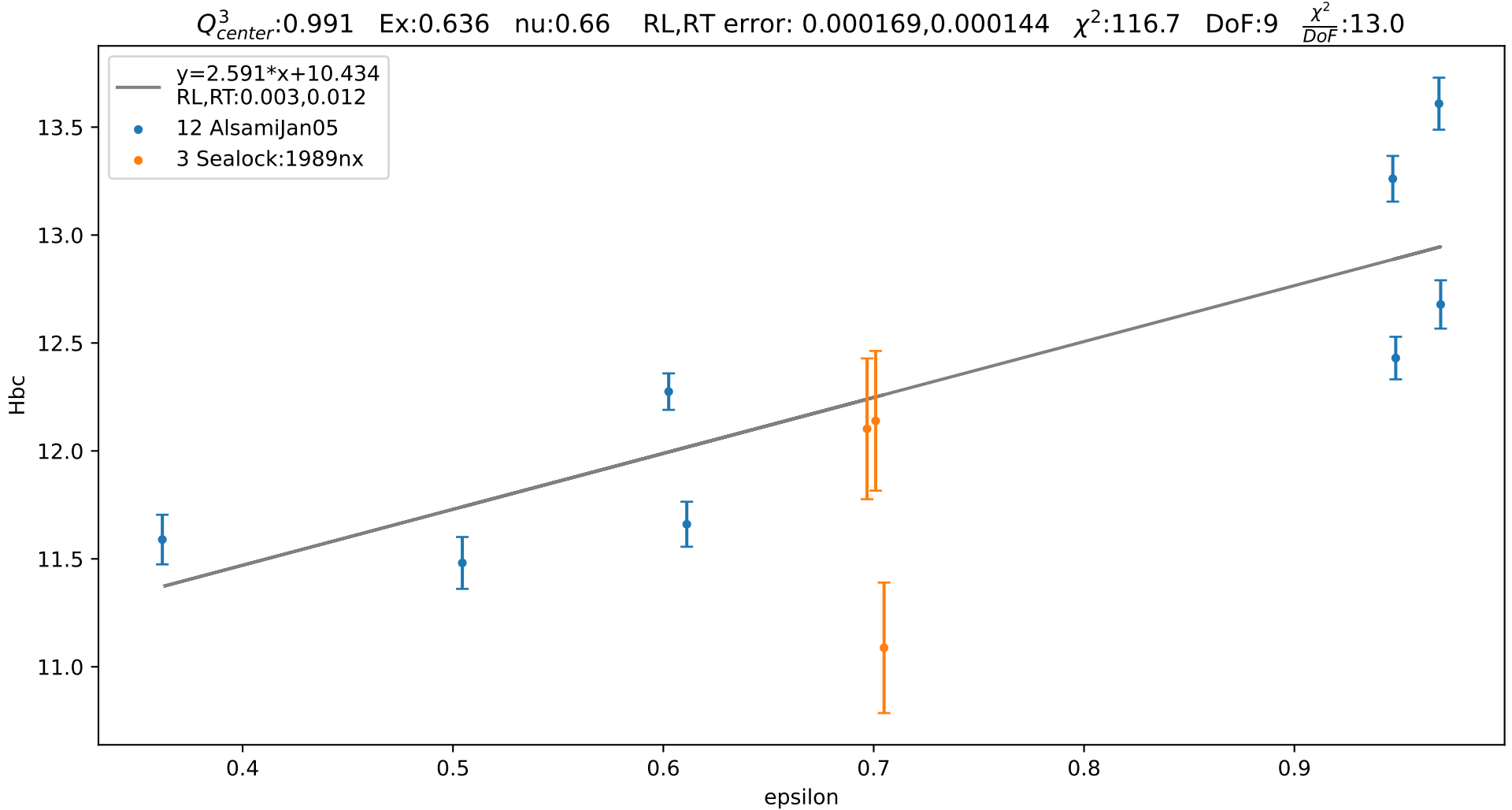

Q^3_{center}:0.991 Ex:0.53 nu:0.56 RL,RT error: 9.09e-05,0.000102 χ^2:115.5 DoF:8 $\frac{\chi^2}{DoF}$:14.4
y=2.194*x+4.633
RL,RT:0.002,0.006
12 AlsamiJan05
3 Sealock:1989nx
8 Day:1993md
Hbc
epsilon
7.00
6.75
6.50
6.25
6.00
5.75
5.50
5.25
0.4
0.5
0.6
0.7
0.8
0.9
1.0

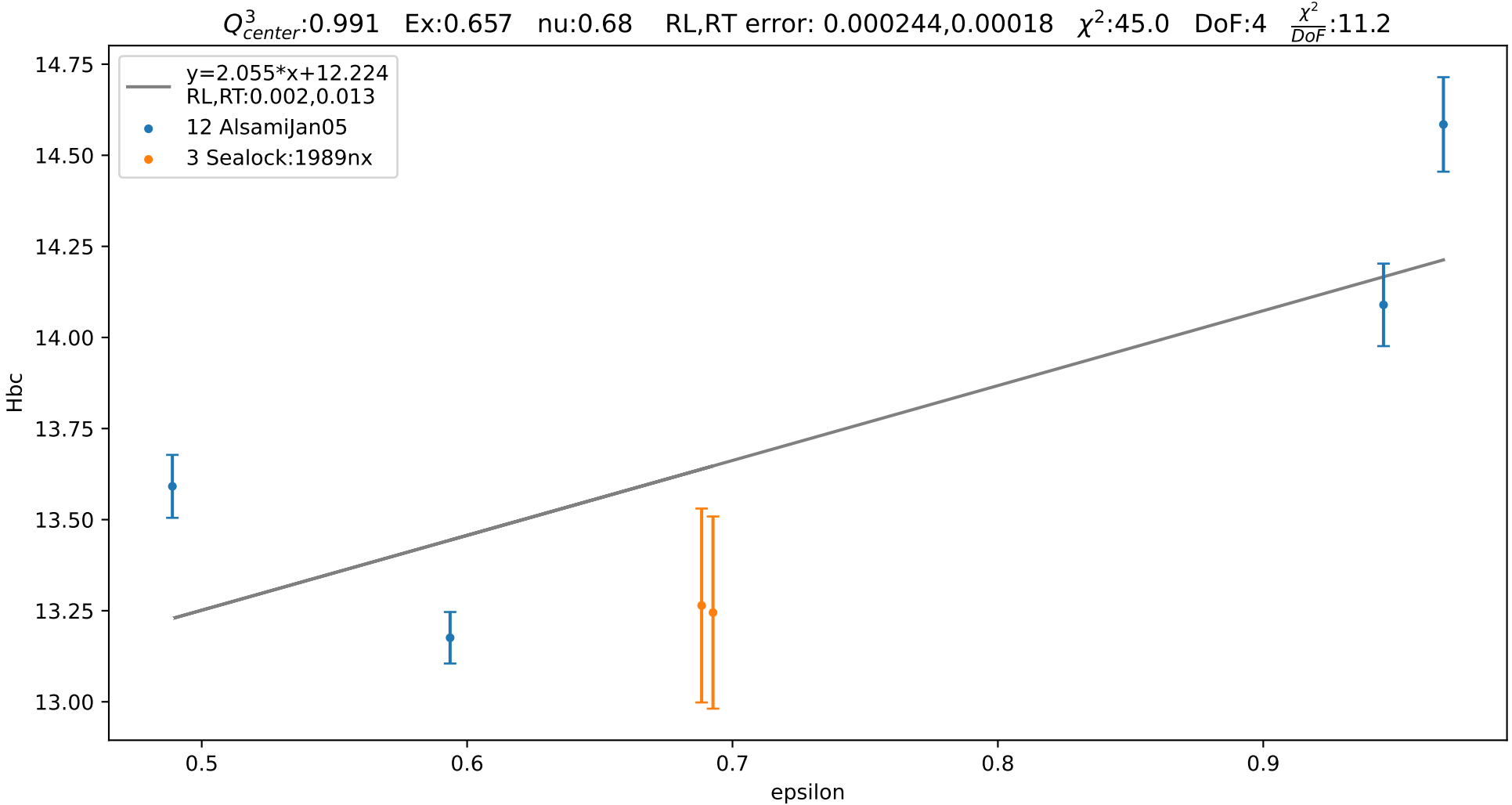

Q^3_{center}:0.991 Ex:0.551 nu:0.58 RL,RT error: 0.000126,0.000133 χ^2:70.5 DoF:7 $\frac{\chi^2}{DoF}$:10.1
y=0.835*x+6.605
RL,RT:0.001,0.009
3 Sealock:1989nx
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
8.00
7.75
7.50
7.25
7.00
6.75
6.50
6.25
0.4
0.5
0.6
0.7
0.8
0.9
1.0

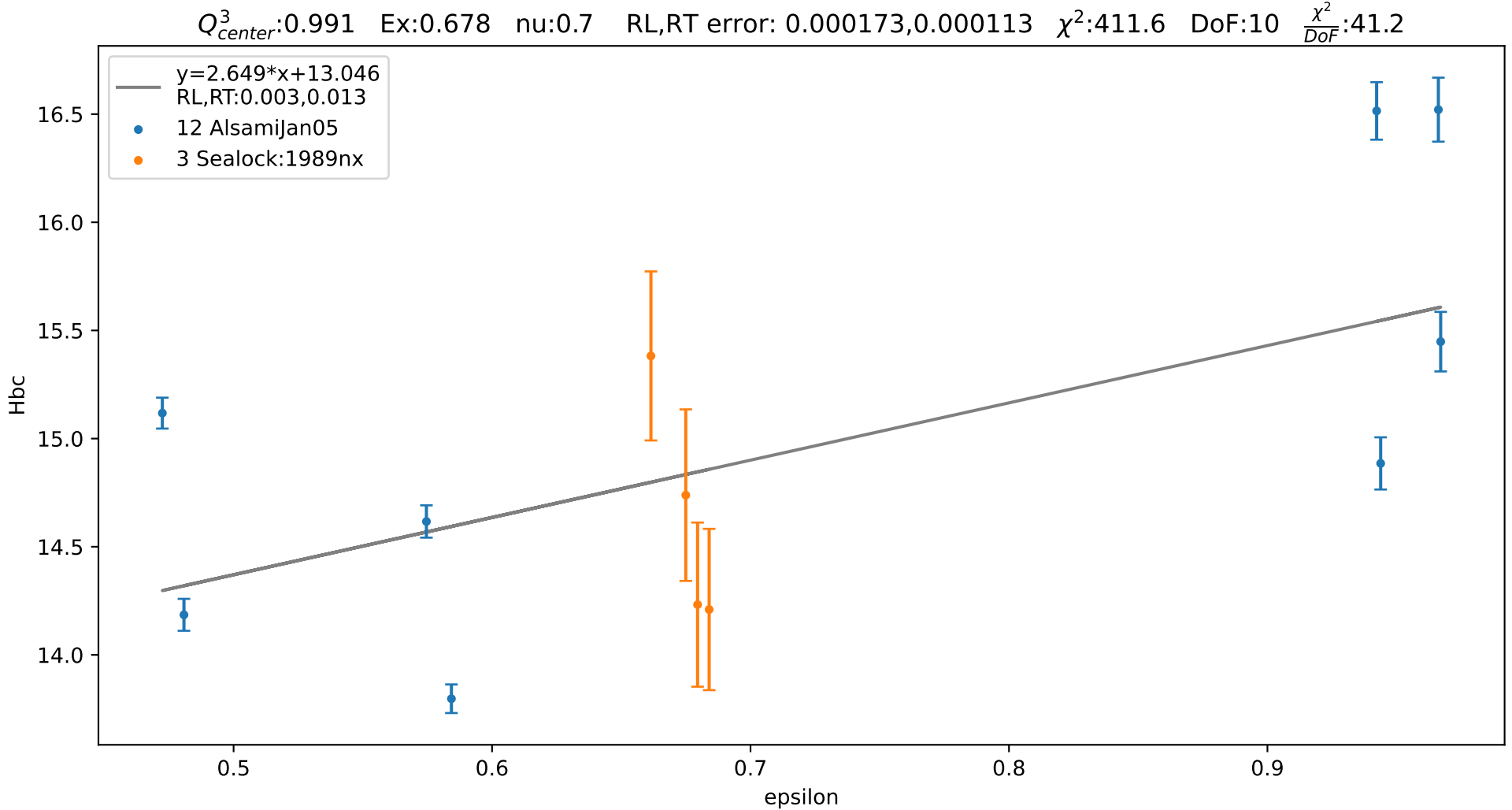

Q^3_{center}:0.991 Ex:0.572 nu:0.6 RL,RT error: 0.000156,0.000174 χ^2:257.2 DoF:10 $\frac{\chi^2}{DoF}$:25.7
y=1.331*x+7.22
RL,RT:0.001,0.009
3 Sealock:1989nx
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
9.5
9.0
8.5
8.0
7.5
7.0
0.4
0.5
0.6
0.7
0.8
0.9
1.0

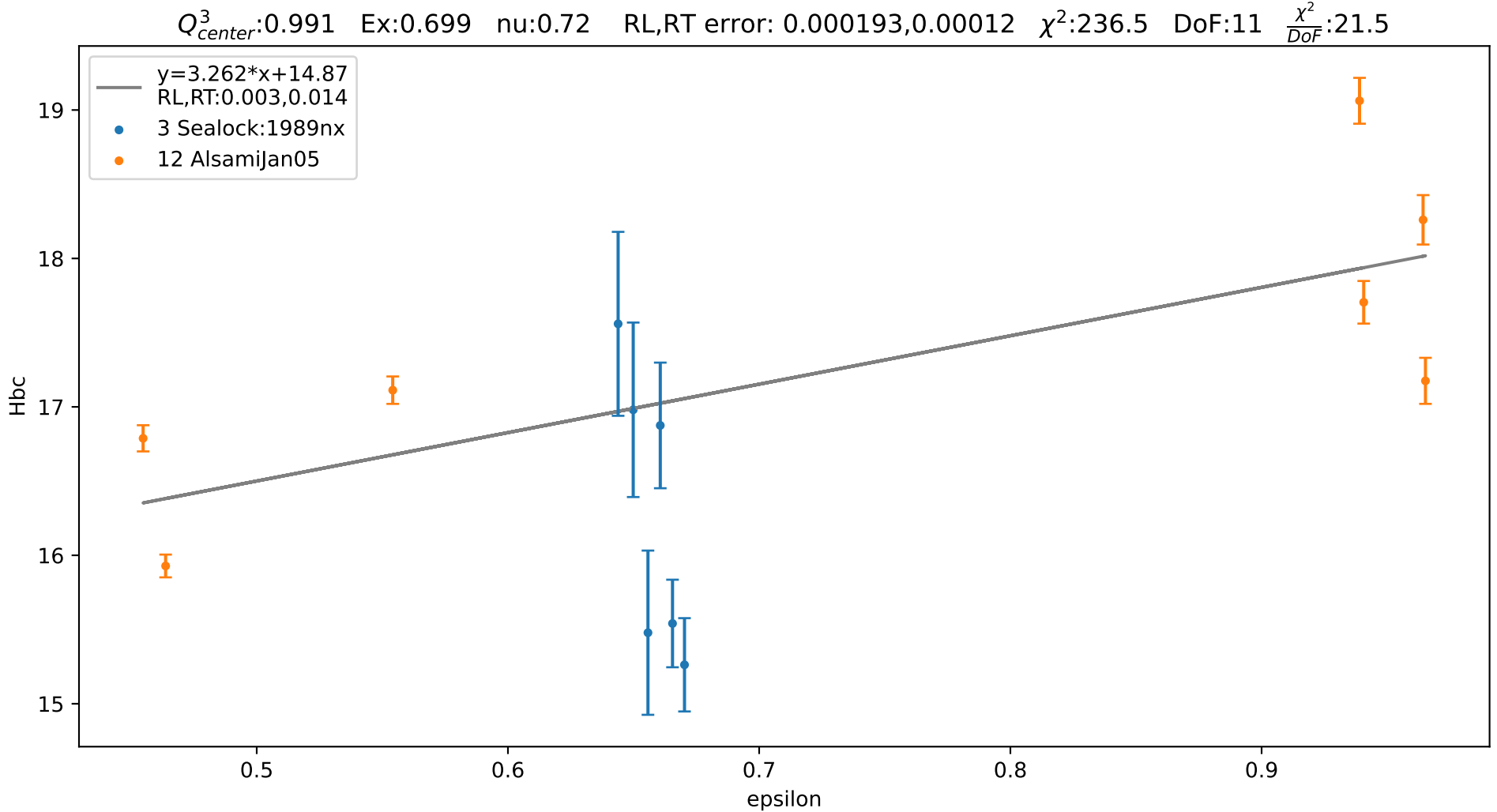

Q^3_{center}:0.991 Ex:0.593 nu:0.62 RL,RT error: 0.000137,0.000144 χ^2:163.2 DoF:12 $\frac{\chi^2}{DoF}$:13.6
y=1.261*x+8.751
RL,RT:0.001,0.011
3 Sealock:1989nx
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
11.0
10.5
10.0
9.5
9.0
0.4
0.5
0.6
0.7
0.8
0.9
1.0

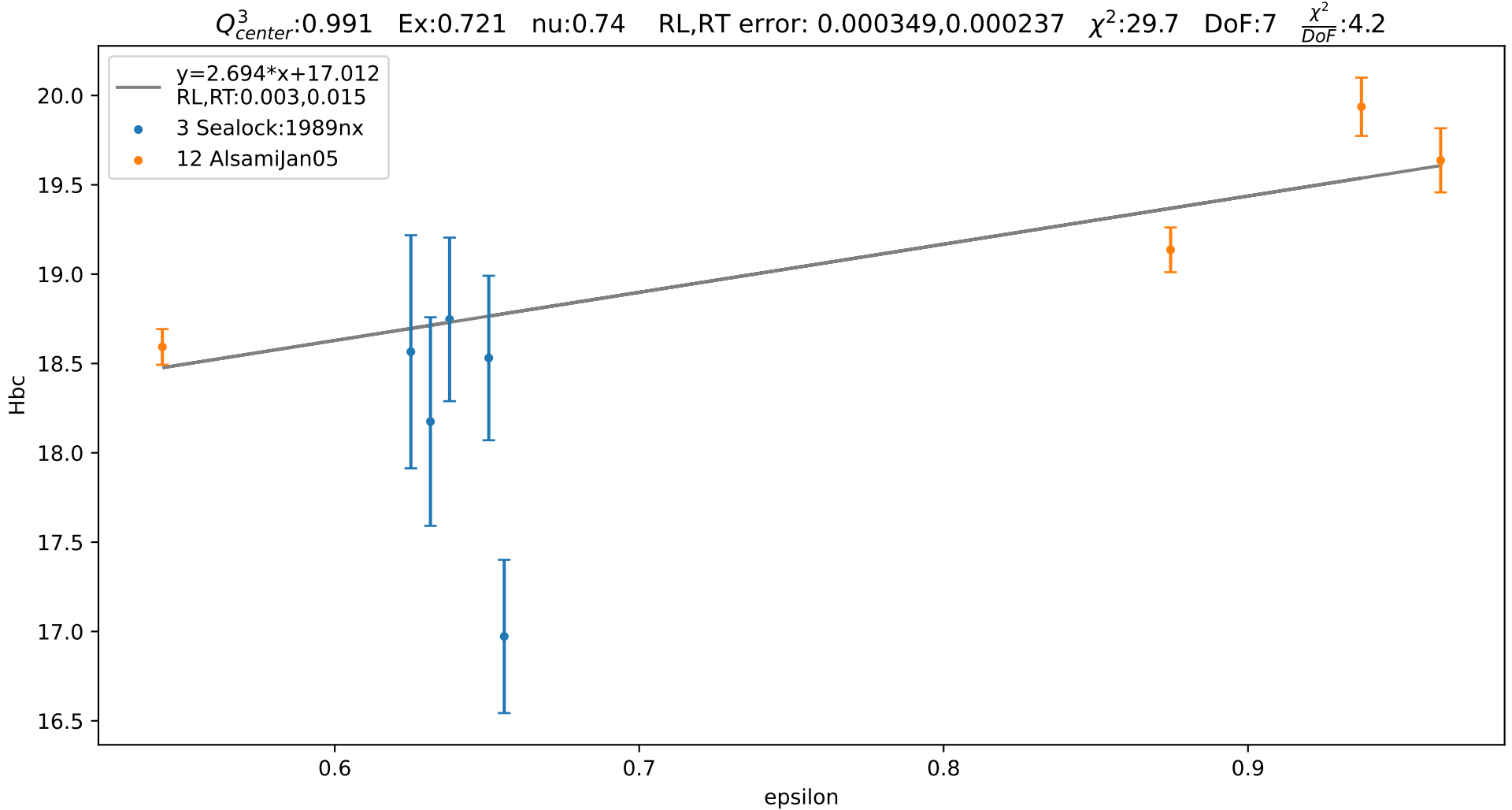

Q^3_{center}:0.991 Ex:0.614 nu:0.64 RL,RT error: 0.000155,0.000161 χ^2:250.2 DoF:13 $\frac{\chi^2}{DoF}$:19.2
y=1.586*x+9.635
RL,RT:0.002,0.011
12 AlsamiJan05
3 Sealock:1989nx
Hbc
epsilon
11.5
11.0
10.5
10.0
9.5
0.4
0.5
0.6
0.7
0.8
0.9
1.0

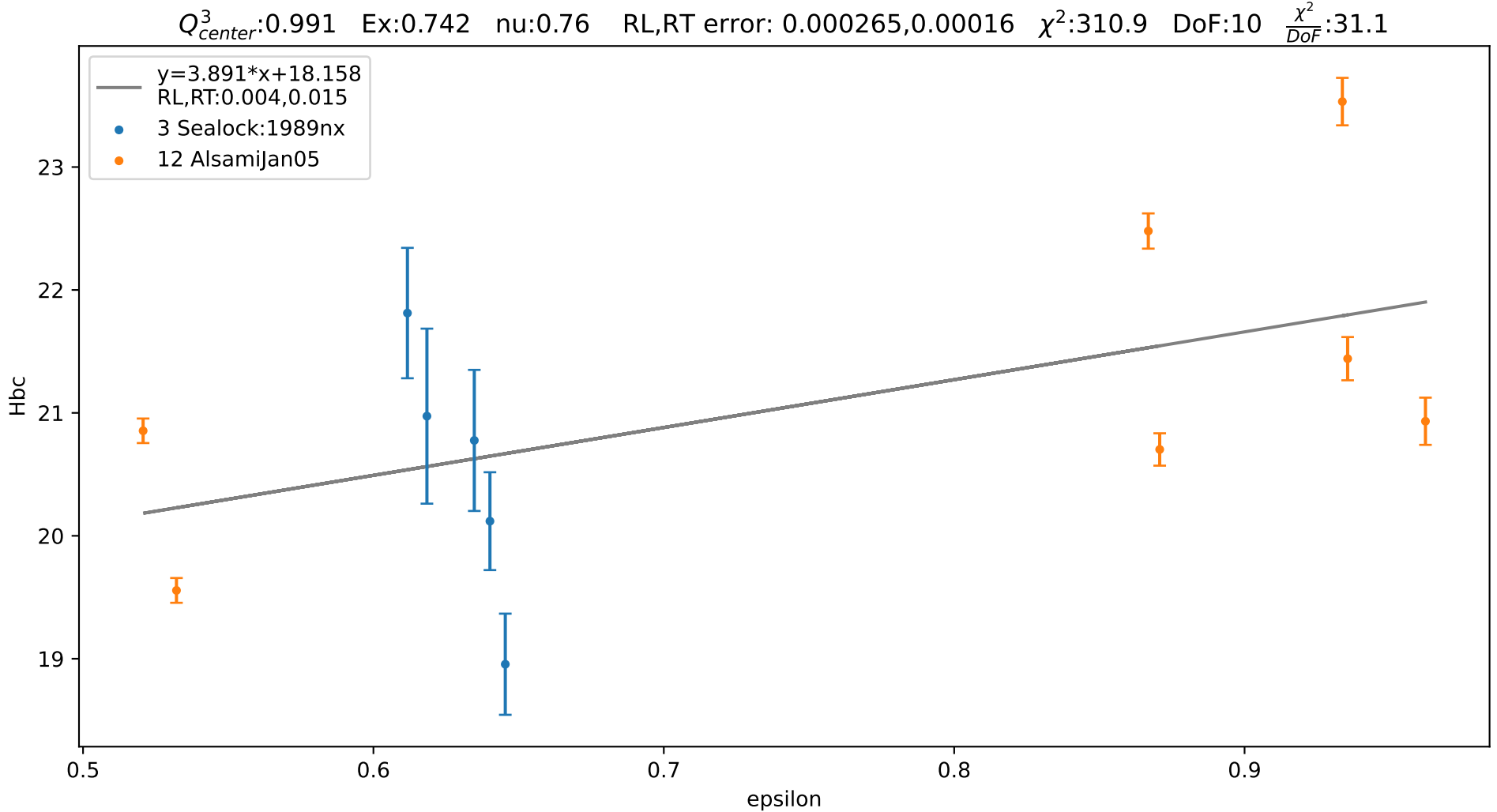

Q^3_{center}:0.991 Ex:0.636 nu:0.66 RL,RT error: 0.000169,0.000144 χ^2:116.7 DoF:9 $\frac{\chi^2}{DoF}$:13.0
y=2.591*x+10.434
RL,RT:0.003,0.012
12 AlsamiJan05
3 Sealock:1989nx
Hbc
epsilon
13.5
13.0
12.5
12.0
11.5
11.0
0.4
0.5
0.6
0.7
0.8
0.9

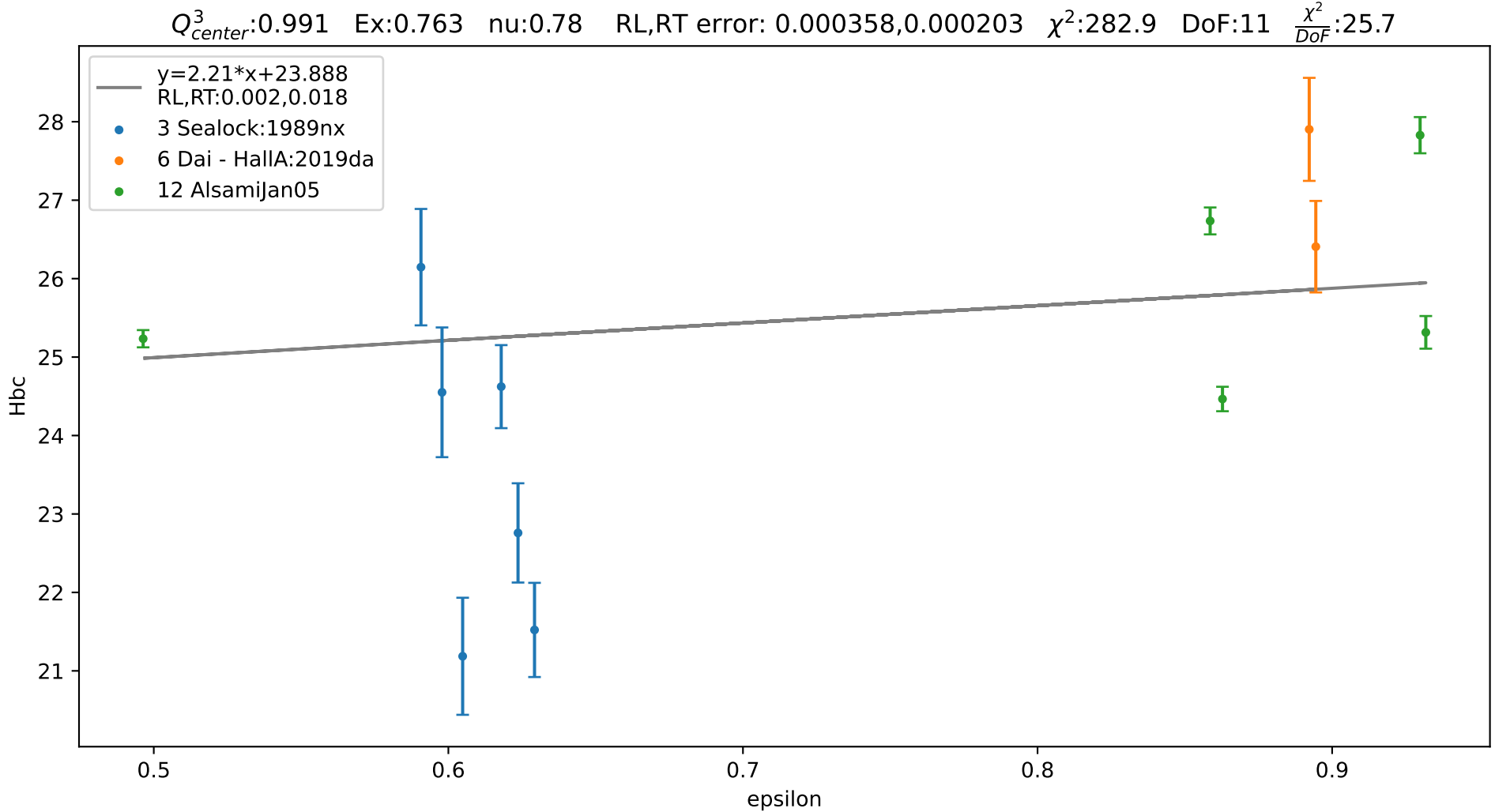

Q^3_{center}:0.991 Ex:0.657 nu:0.68 RL,RT error: 0.000244,0.00018 χ^2:45.0 DoF:4 $\frac{\chi^2}{DoF}$:11.2
y=2.055*x+12.224
RL,RT:0.002,0.013
12 AlsamiJan05
3 Sealock:1989nx
Hbc
epsilon
14.75
14.50
14.25
14.00
13.75
13.50
13.25
13.00
0.5
0.6
0.7
0.8
0.9

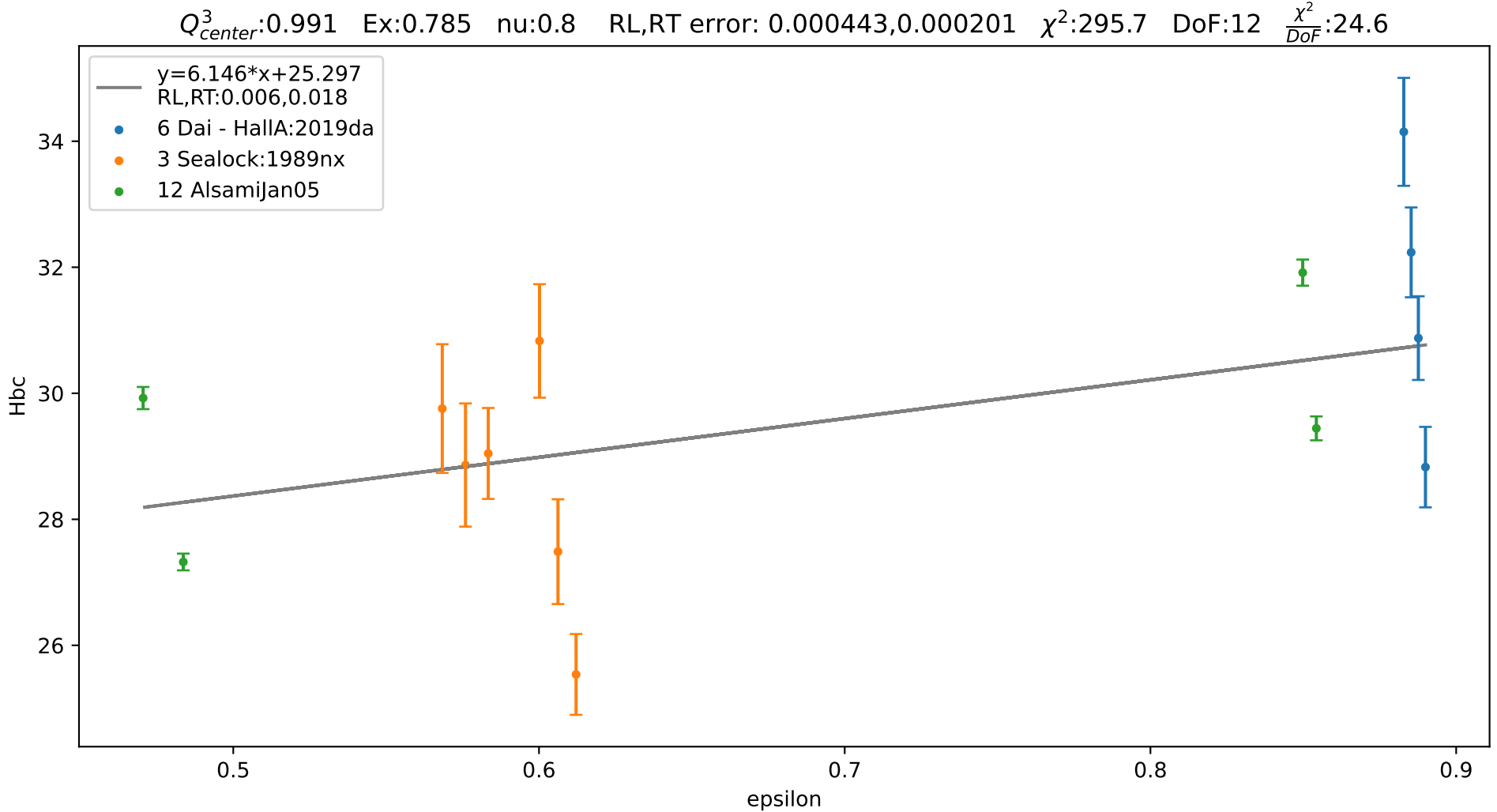

Q^3_{center}:0.991 Ex:0.678 nu:0.7 RL,RT error: 0.000173,0.000113 χ^2:411.6 DoF:10 $\frac{\chi^2}{DoF}$:41.2
y=2.649*x+13.046
RL,RT:0.003,0.013
12 AlsamiJan05
3 Sealock:1989nx
Hbc
epsilon
16.5
16.0
15.5
15.0
14.5
14.0
0.5
0.6
0.7
0.8
0.9

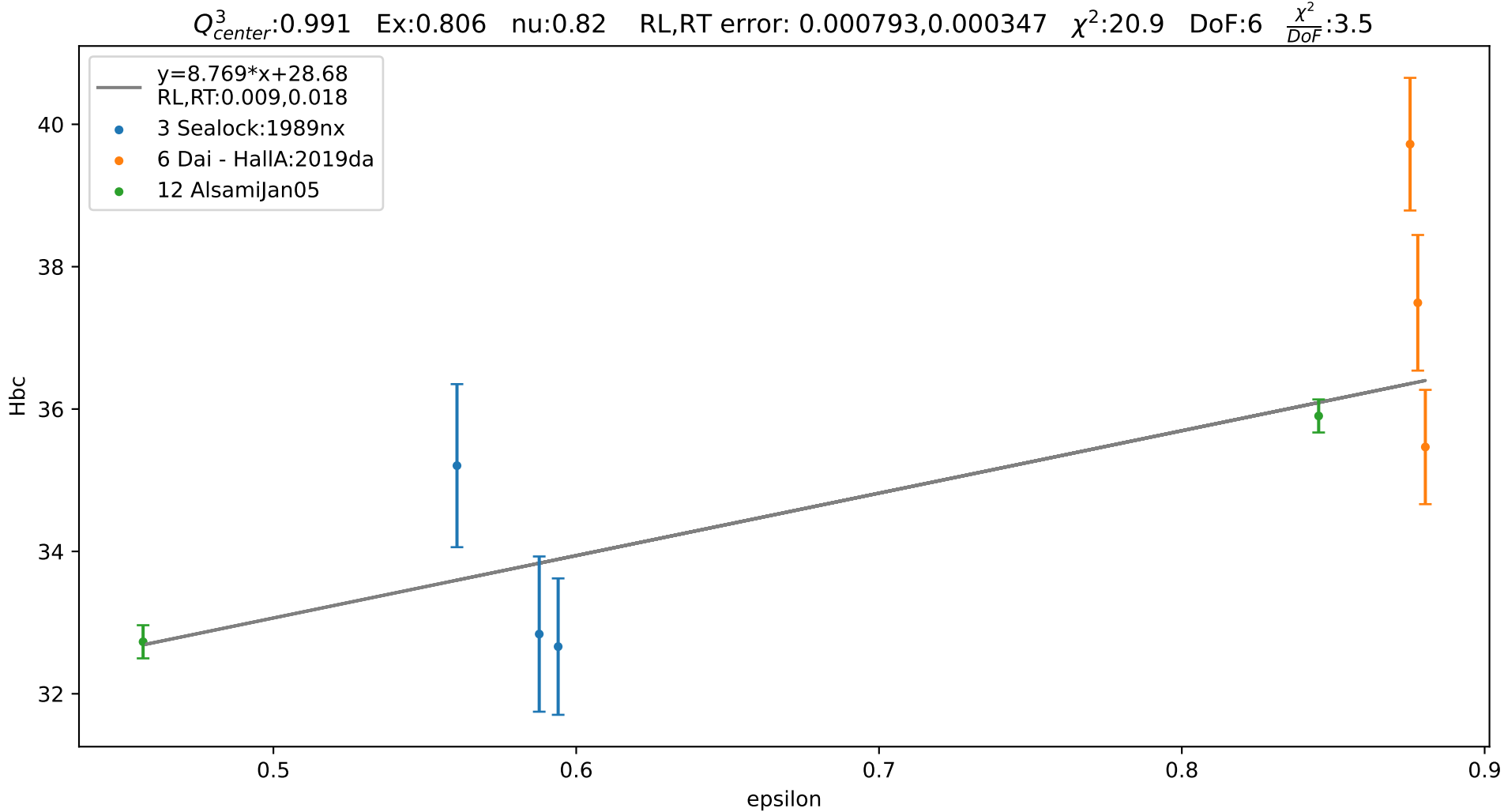

Q^3_{center}:0.991 Ex:0.699 nu:0.72 RL,RT error: 0.000193,0.00012 χ^2:236.5 DoF:11 $\frac{\chi^2}{DoF}$:21.5
y=3.262*x+14.87
RL,RT:0.003,0.014
3 Sealock:1989nx
12 AlsamiJan05
Hbc
epsilon
19
18
17
16
15
0.5
0.6
0.7
0.8
0.9

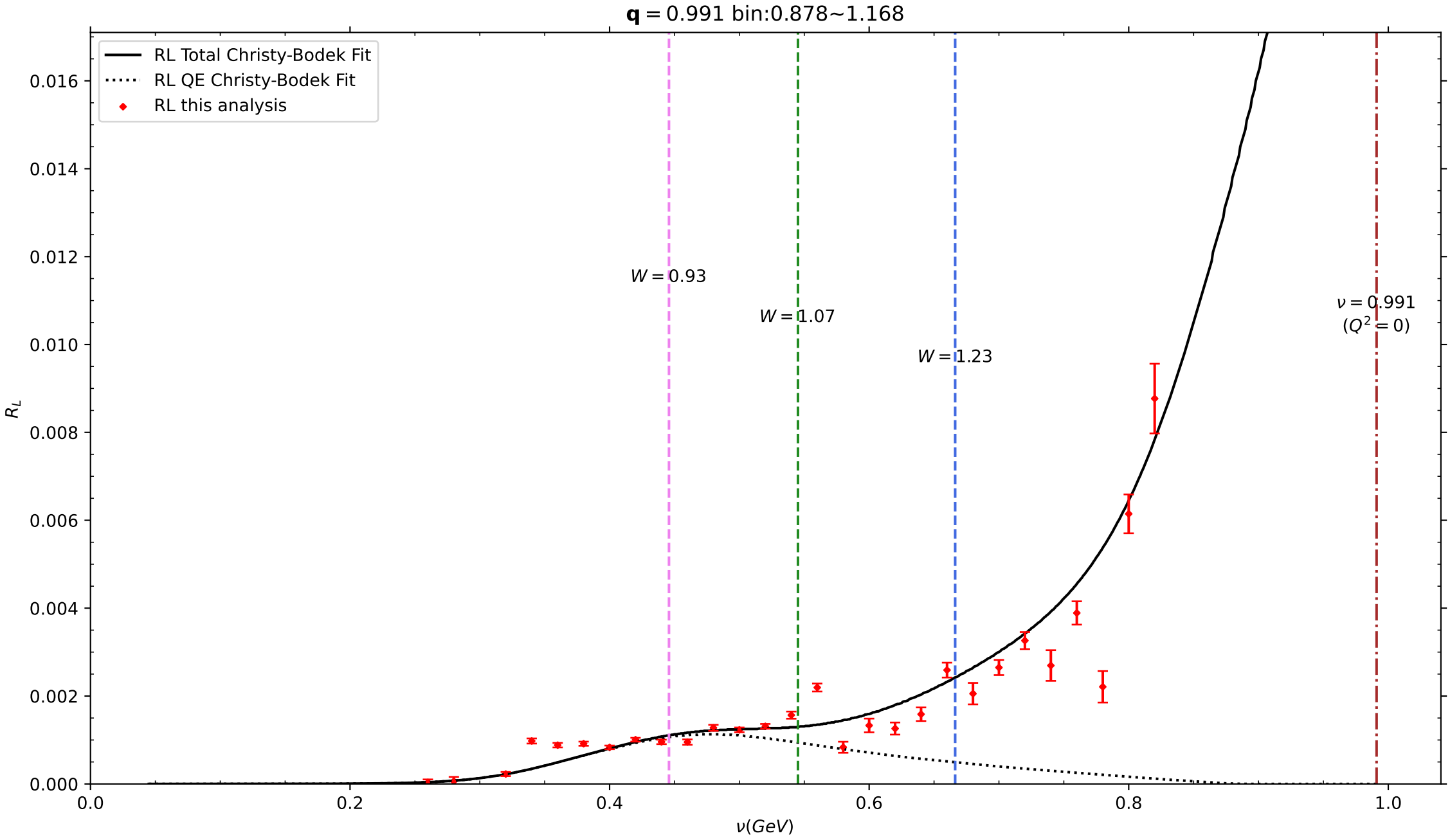

Q^3_{center}:0.991 Ex:0.721 nu:0.74 RL,RT error: 0.000349,0.000237 χ^2:29.7 DoF:7 $\frac{\chi^2}{DoF}$:4.2
y=2.694*x+17.012
RL,RT:0.003,0.015
3 Sealock:1989nx
12 AlsamiJan05
Hbc
epsilon
20.0
19.5
19.0
18.5
18.0
17.5
17.0
16.5
0.6
0.7
0.8
0.9

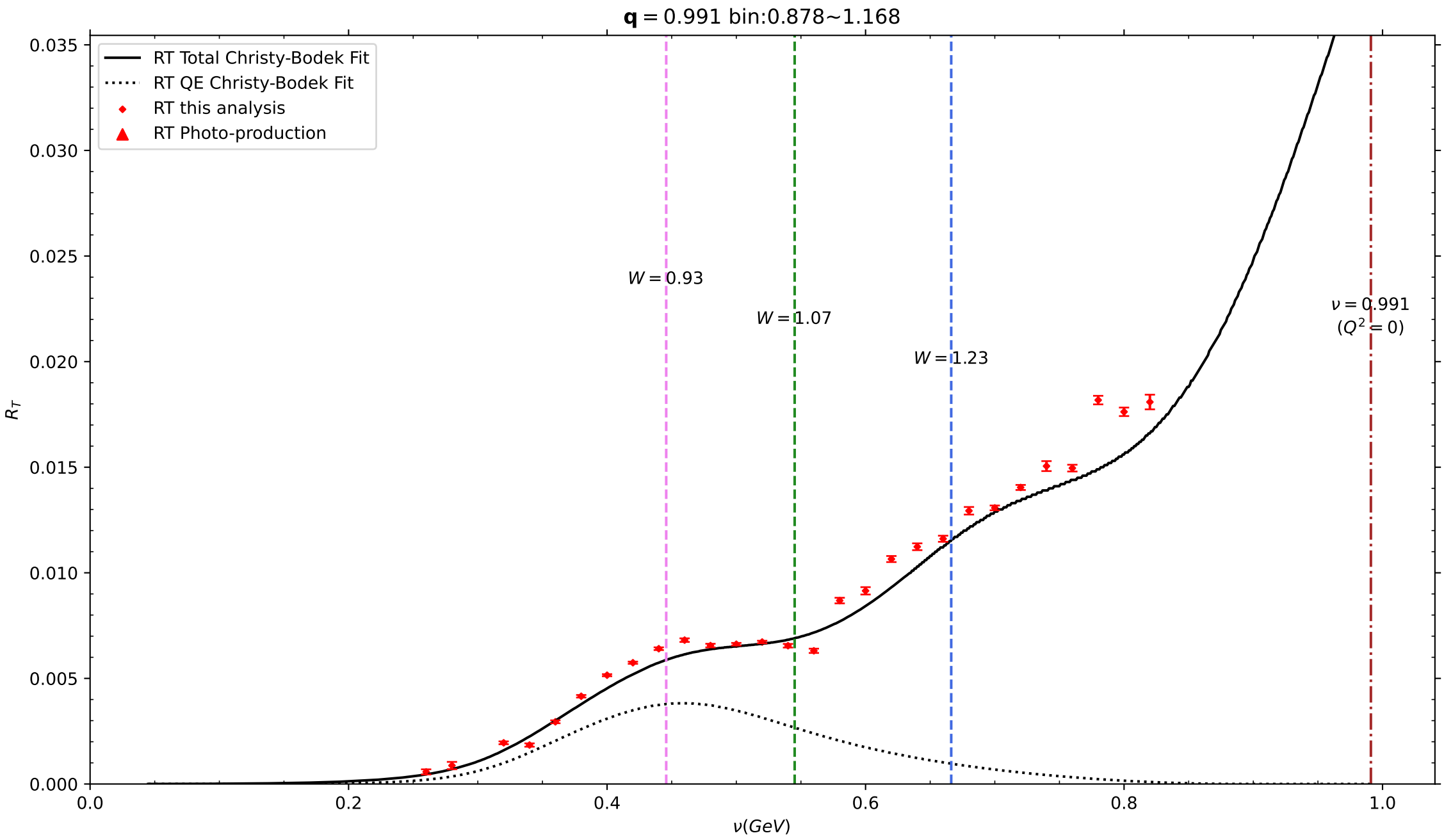

Q^3_{center}:0.991 Ex:0.742 nu:0.76 RL,RT error: 0.000265,0.00016 χ^2:310.9 DoF:10 $\frac{\chi^2}{DoF}$:31.1
y=3.891*x+18.158
RL,RT:0.004,0.015
3 Sealock:1989nx
12 AlsamiJan05
Hbc
epsilon
23
22
21
20
19
0.5
0.6
0.7
0.8
0.9

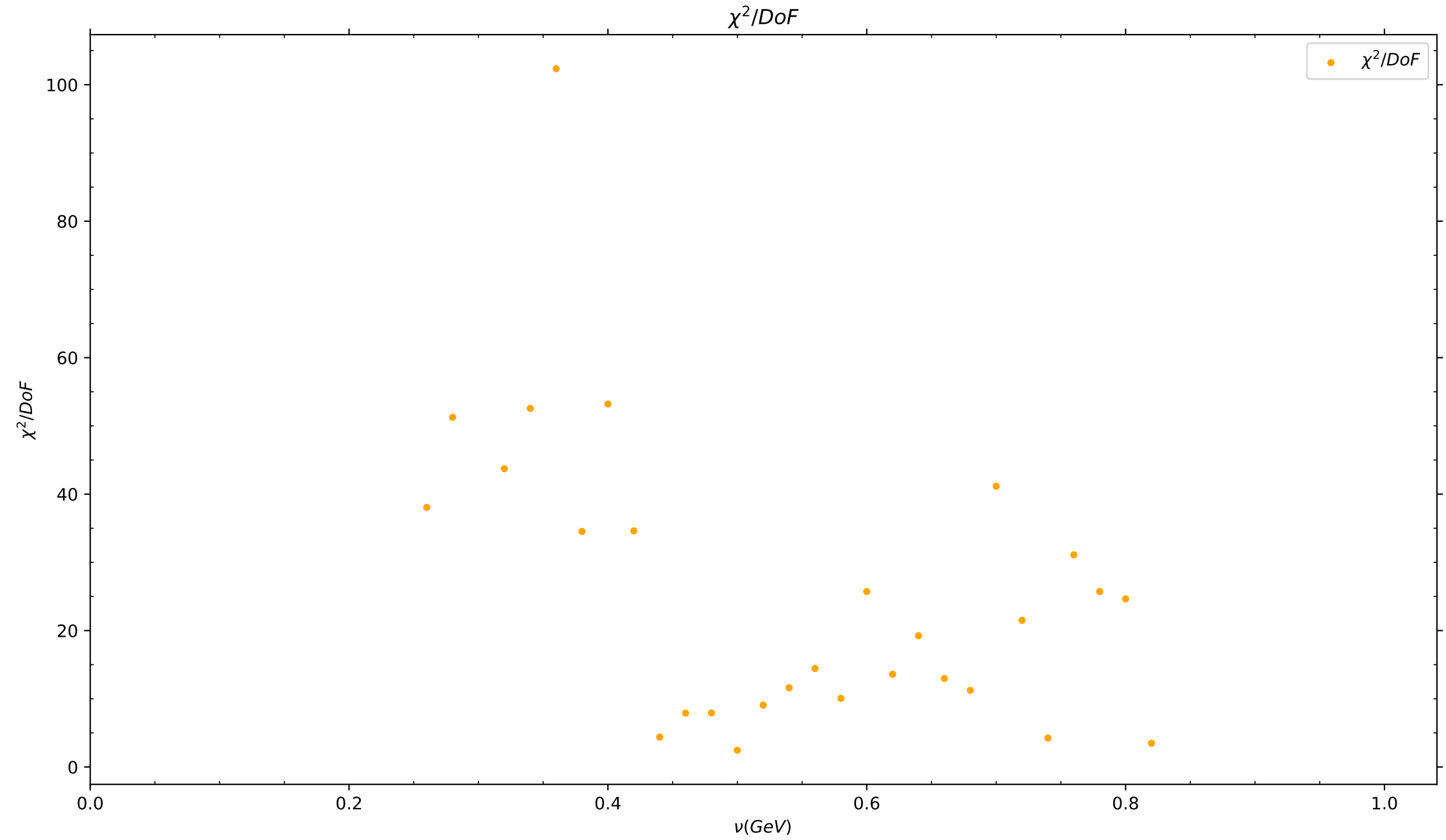

Q^3_{center}:0.991 Ex:0.763 nu:0.78 RL,RT error: 0.000358,0.000203 χ^2:282.9 DoF:11 $\frac{\chi^2}{DoF}$:25.7
y=2.21*x+23.888
RL,RT:0.002,0.018
3 Sealock:1989nx
6 Dai - HallA:2019da
12 AlsamiJan05
Hbc
epsilon
28
27
26
25
24
23
22
21
0.5
0.6
0.7
0.8
0.9

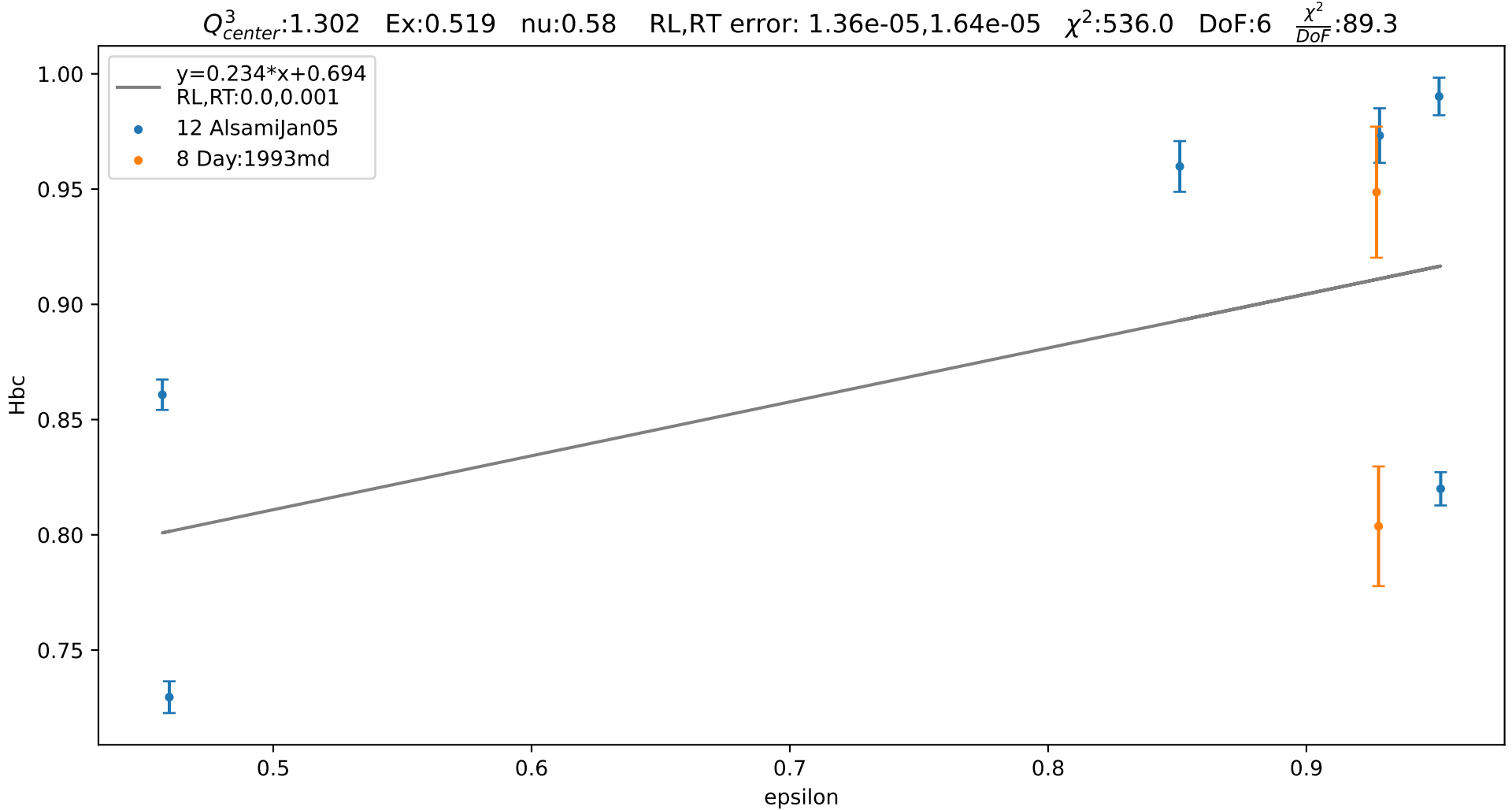

Q^3_{center}:0.991 Ex:0.785 nu:0.8 RL,RT error: 0.000443,0.000201 χ^2:295.7 DoF:12 $\frac{\chi^2}{DoF}$:24.6
y=6.146*x+25.297
RL,RT:0.006,0.018
6 Dai - HallA:2019da
3 Sealock:1989nx
12 AlsamiJan05
Hbc
epsilon
34
32
30
28
26
0.5
0.6
0.7
0.8
0.9

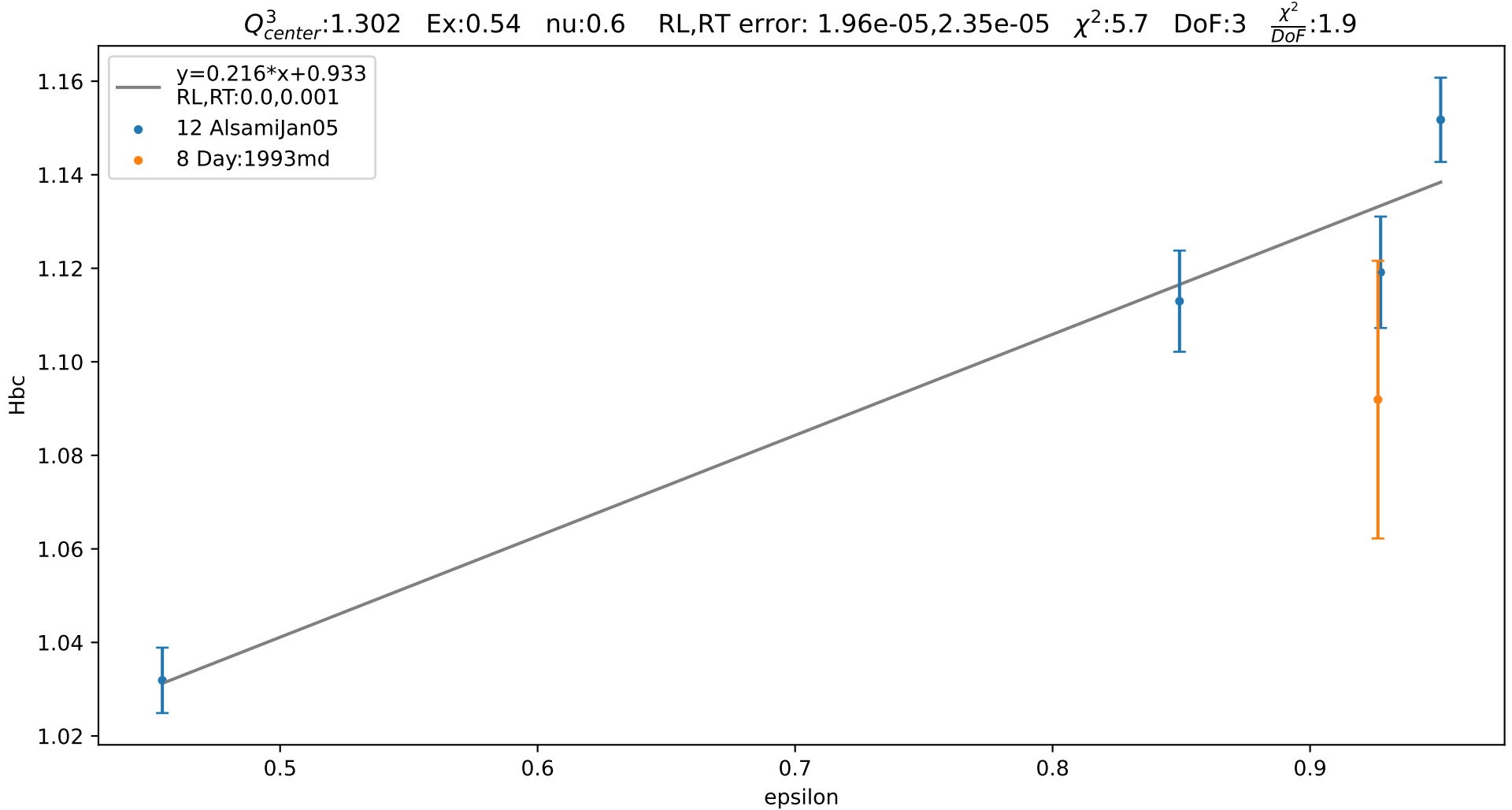

Q^3_{center}:0.991 Ex:0.806 nu:0.82 RL,RT error: 0.000793,0.000347 χ^2:20.9 DoF:6 $\frac{\chi^2}{DoF}$:3.5
y=8.769*x+28.68
RL,RT:0.009,0.018
3 Sealock:1989nx
6 Dai - HallA:2019da
12 AlsamiJan05
Hbc
epsilon
32
34
36
38
40
0.5
0.6
0.7
0.8
0.9

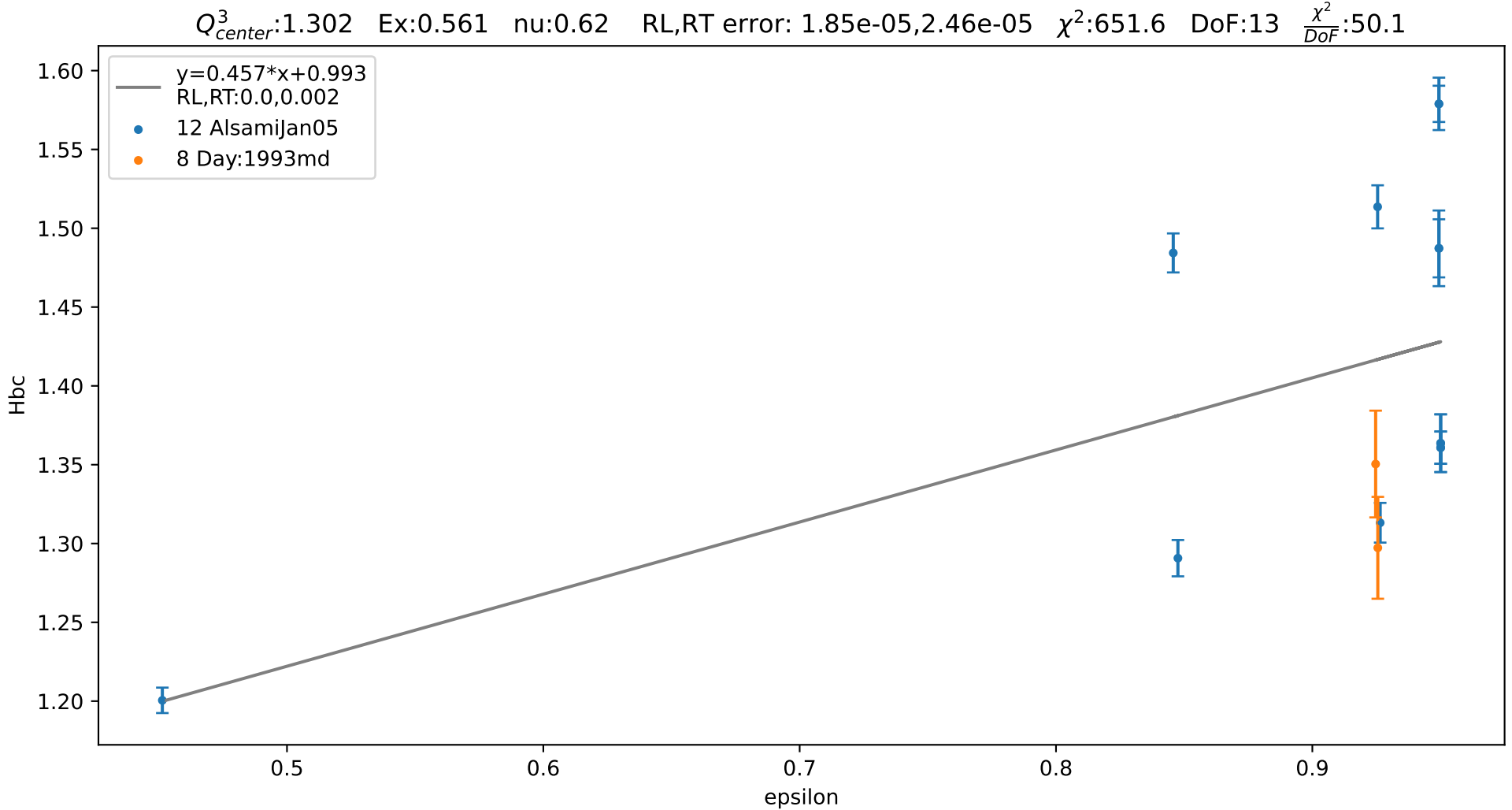

$\mathbf{q} = 0.991$ bin:0.878~1.168
RL Total Christy-Bodek Fit
RL QE Christy-Bodek Fit
RL this analysis
$W = 0.93$
$W = 1.07$
$W = 1.23$
$\nu = 0.991$
$(Q^2 = 0)$
R_L
$\nu(GeV)$

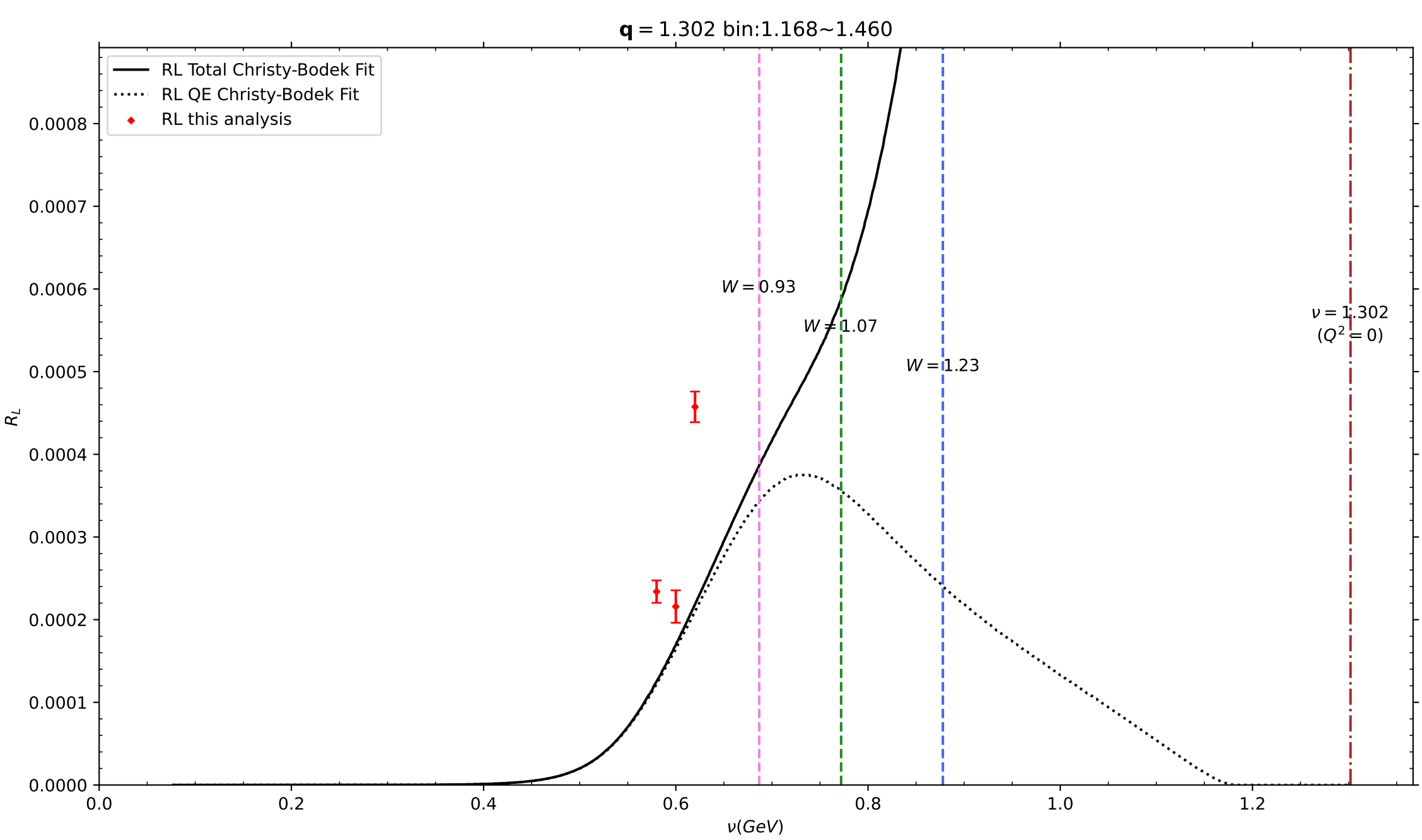

$\mathbf{q} = 0.991$ bin:0.878~1.168
RT Total Christy-Bodek Fit
RT QE Christy-Bodek Fit
RT this analysis
RT Photo-production
$W = 0.93$
$W = 1.07$
$W = 1.23$
$\nu = 0.991$
$(Q^2 = 0)$
R_T
$\nu(GeV)$

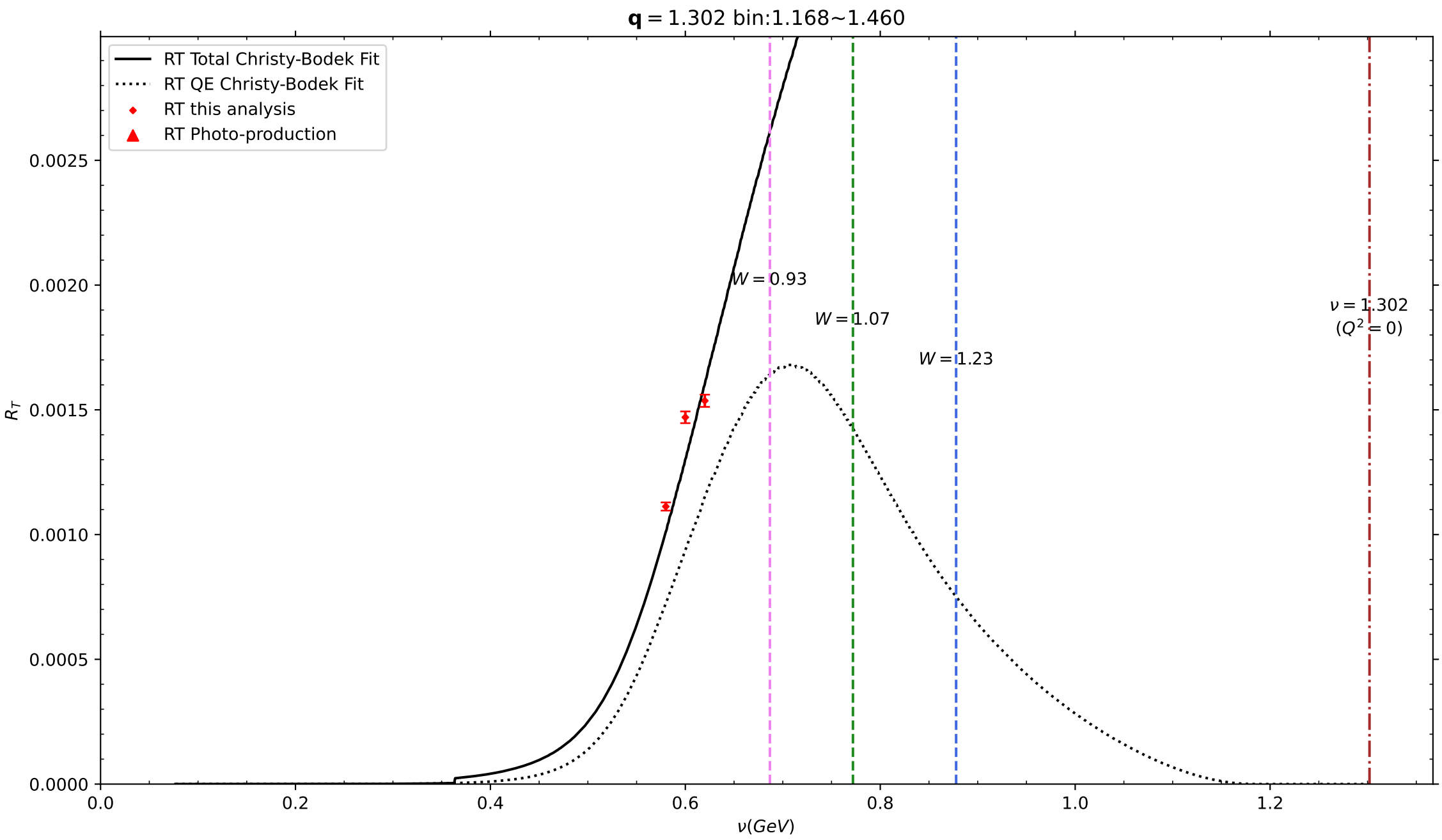

χ^2/DoF
χ^2/DoF
$\nu(GeV)$

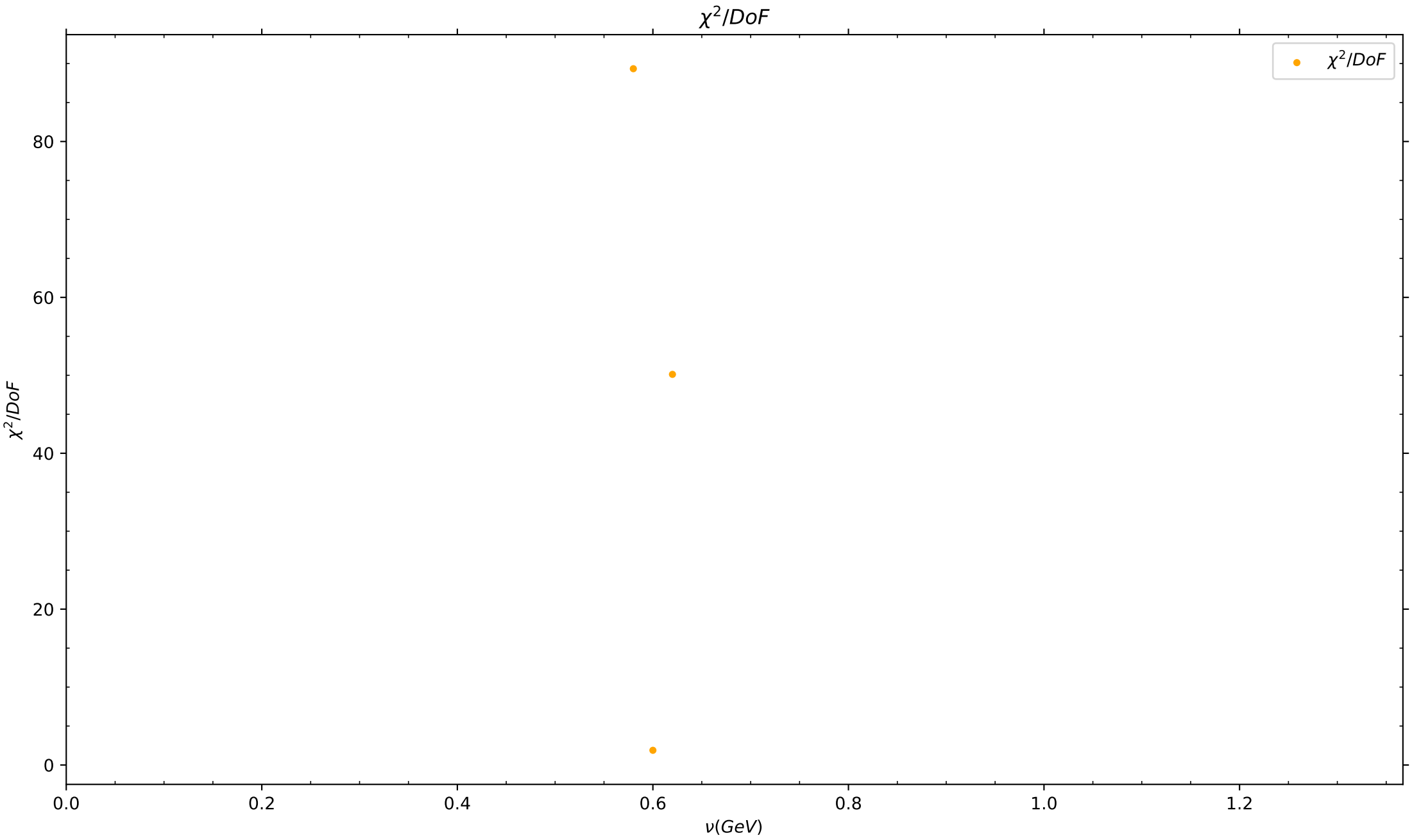

Q^3_{center}:1.302 Ex:0.519 nu:0.58 RL,RT error: 1.36e-05,1.64e-05 χ^2:536.0 DoF:6 $\frac{\chi^2}{DoF}$:89.3
y=0.234*x+0.694
RL,RT:0.0,0.001
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
1.00
0.95
0.90
0.85
0.80
0.75
0.5
0.6
0.7
0.8
0.9

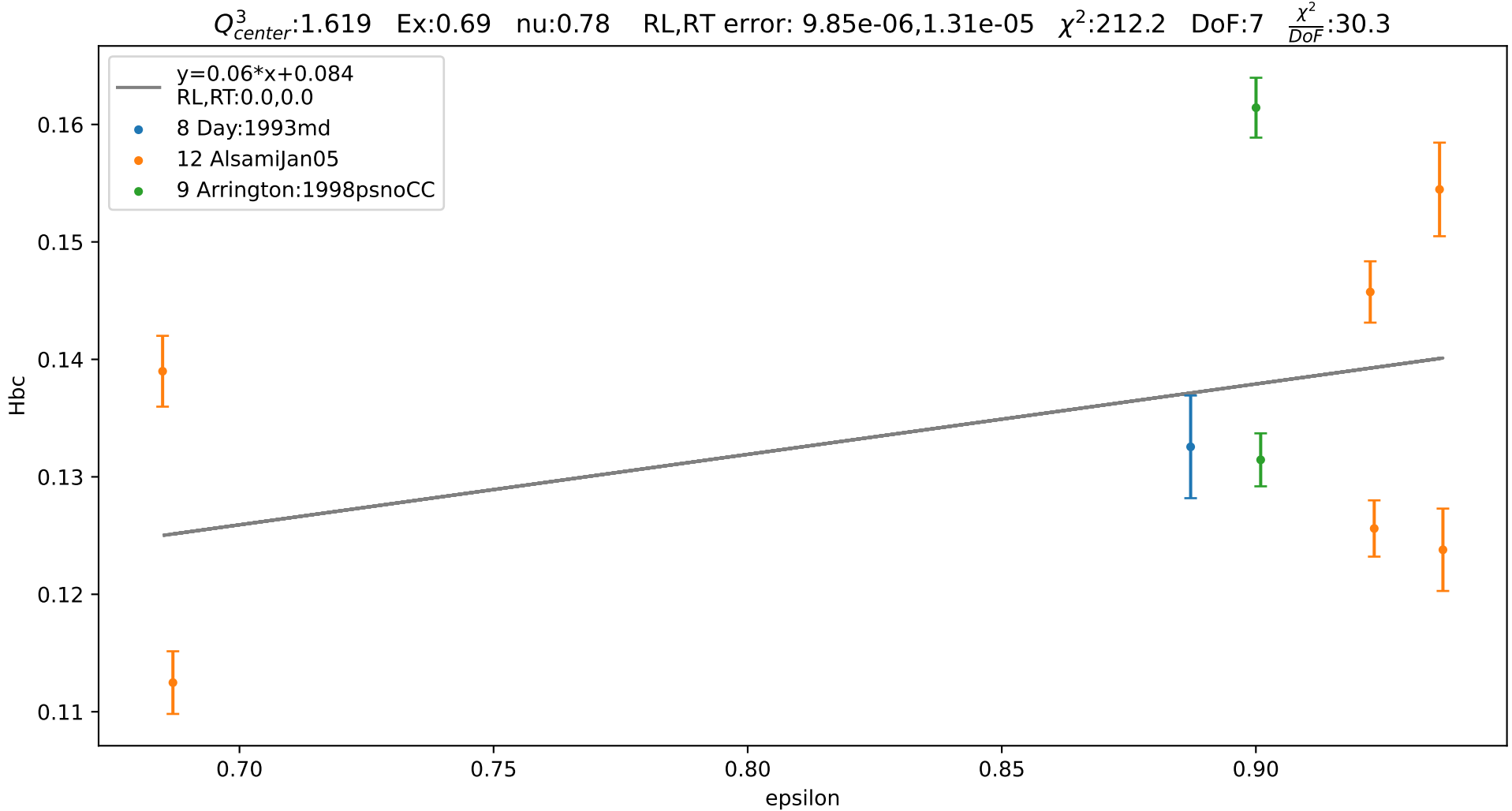

Q^3_{center}:1.302 Ex:0.54 nu:0.6 RL,RT error: 1.96e-05,2.35e-05 χ^2:5.7 DoF:3 $\frac{\chi^2}{DoF}$:1.9
y=0.216*x+0.933
RL,RT:0.0,0.001
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
1.16
1.14
1.12
1.10
1.08
1.06
1.04
1.02
0.5
0.6
0.7
0.8
0.9

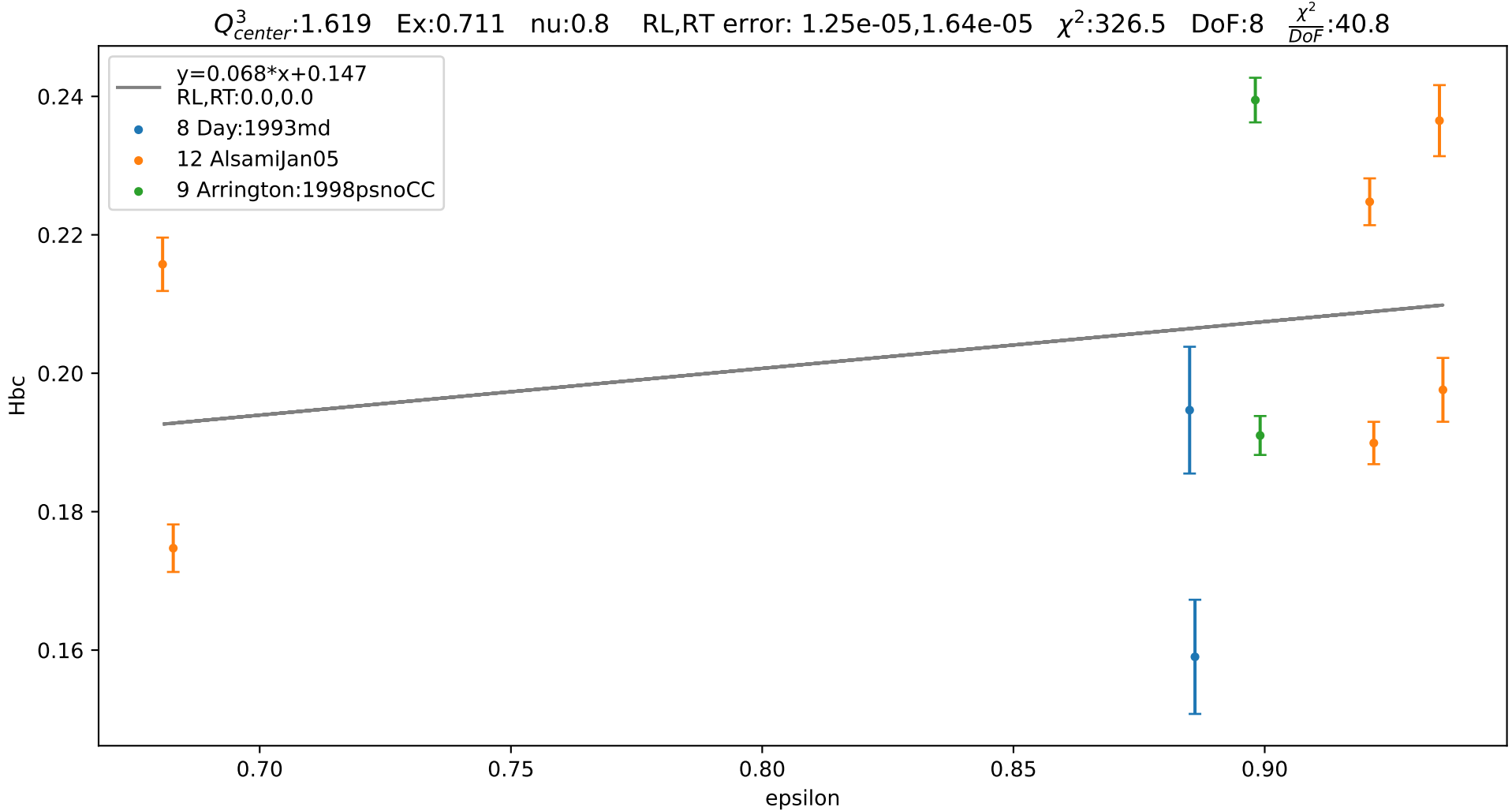

Q^3_{center}:1.302 Ex:0.561 nu:0.62 RL,RT error: 1.85e-05,2.46e-05 χ^2:651.6 DoF:13 $\frac{\chi^2}{DoF}$:50.1
y=0.457*x+0.993
RL,RT:0.0,0.002
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
0.5
0.6
0.7
0.8
0.9

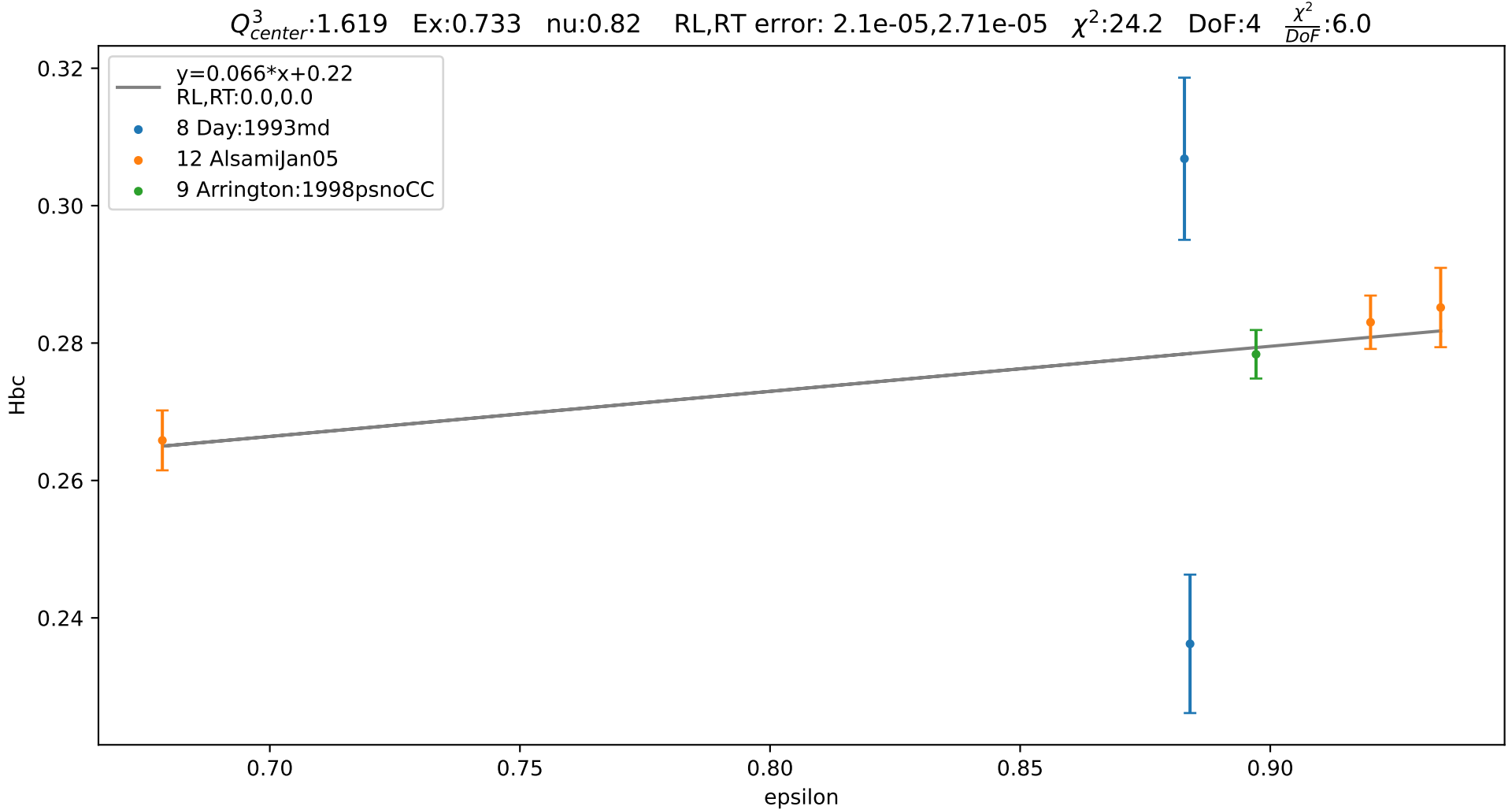

q = 1.302 bin:1.168~1.460
RL Total Christy-Bodek Fit
RL QE Christy-Bodek Fit
RL this analysis
W = 0.93
W = 1.07
W = 1.23
ν = 1.302
(Q² = 0)
R_L
ν(GeV)

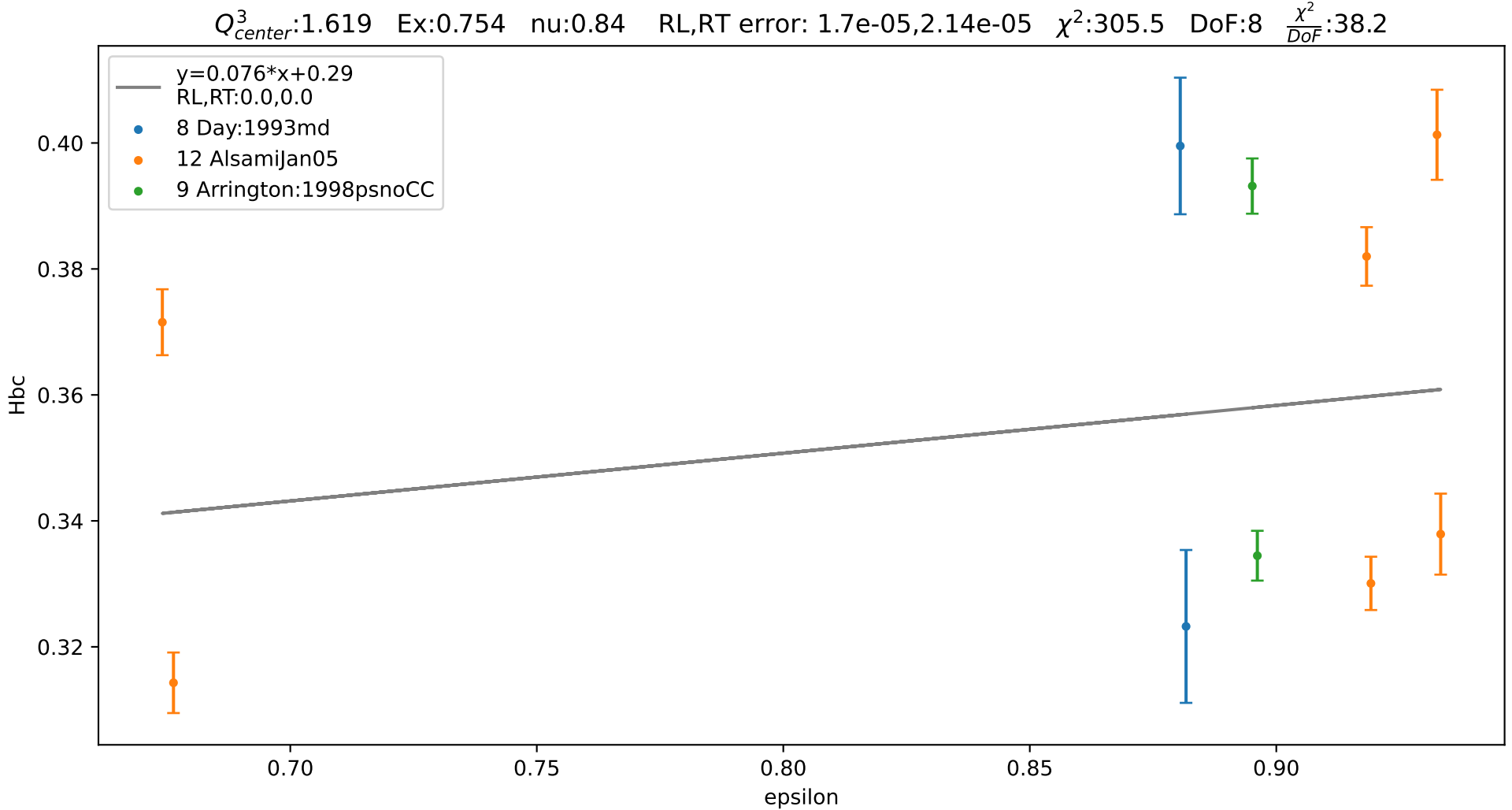

q = 1.302 bin:1.168~1.460
RT Total Christy-Bodek Fit
RT QE Christy-Bodek Fit
RT this analysis
RT Photo-production
W = 0.93
W = 1.07
W = 1.23
ν = 1.302
(Q² = 0)
R_T
ν(GeV)

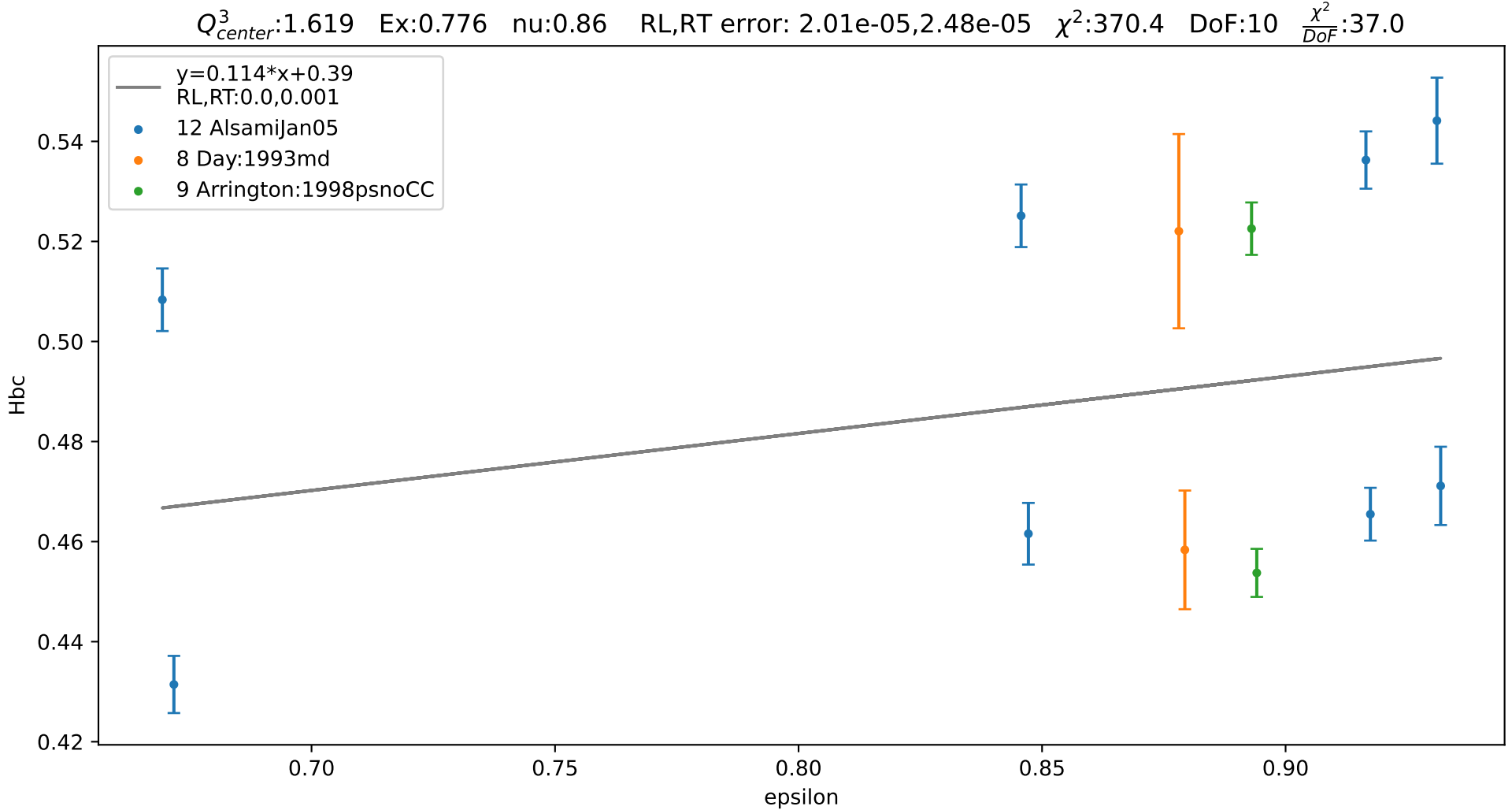

χ²/DoF
χ²/DoF
χ²/DoF
ν(GeV)

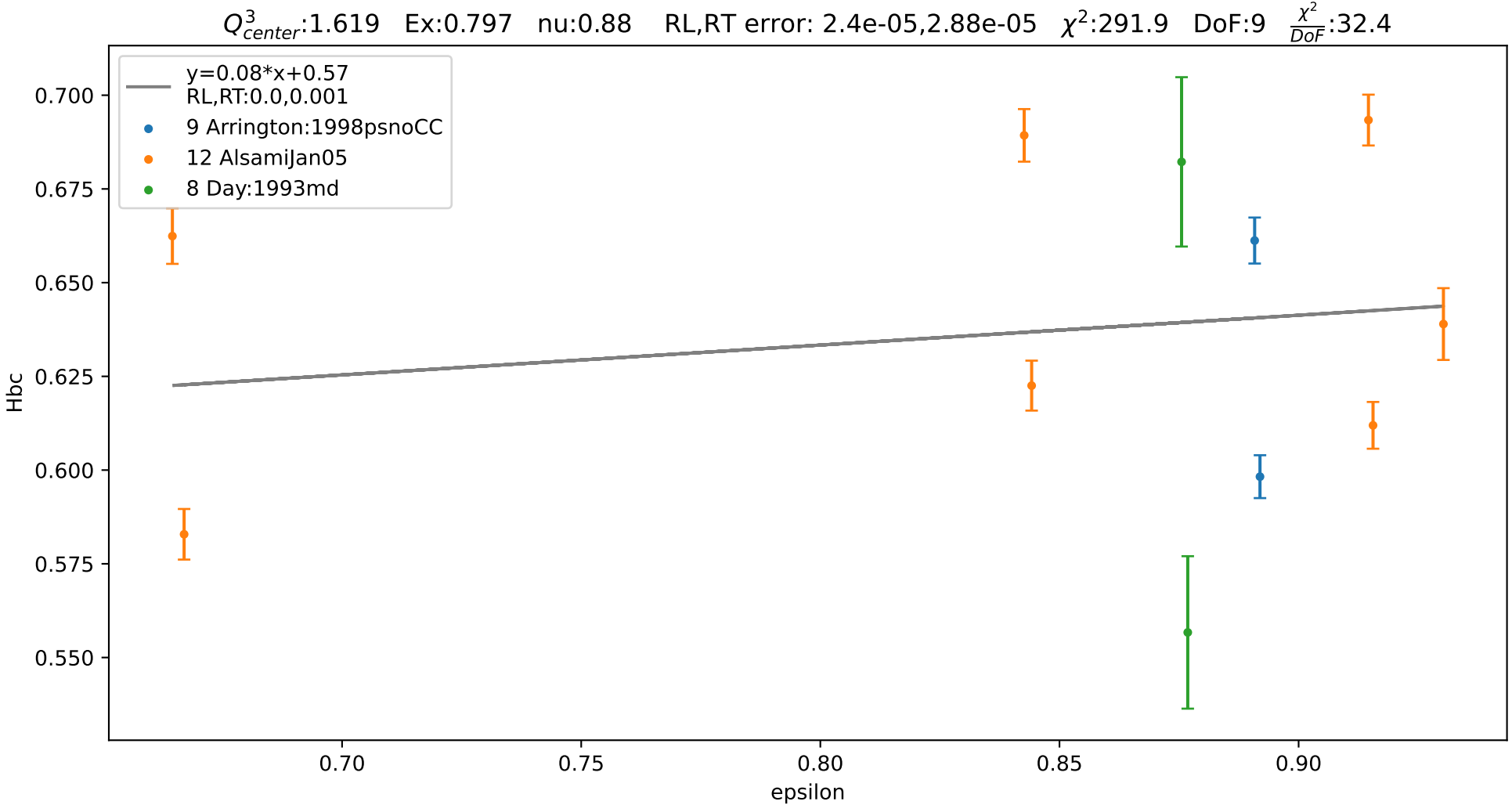

Q^3_{center}:1.619 Ex:0.69 nu:0.78 RL,RT error: 9.85e-06,1.31e-05 χ^2:212.2 DoF:7 $\frac{\chi^2}{DoF}$:30.3
y=0.06*x+0.084
RL,RT:0.0,0.0
8 Day:1993md
12 AlsamiJan05
9 Arrington:1998psnoCC
Hbc
epsilon
0.11
0.12
0.13
0.14
0.15
0.16
0.70
0.75
0.80
0.85
0.90

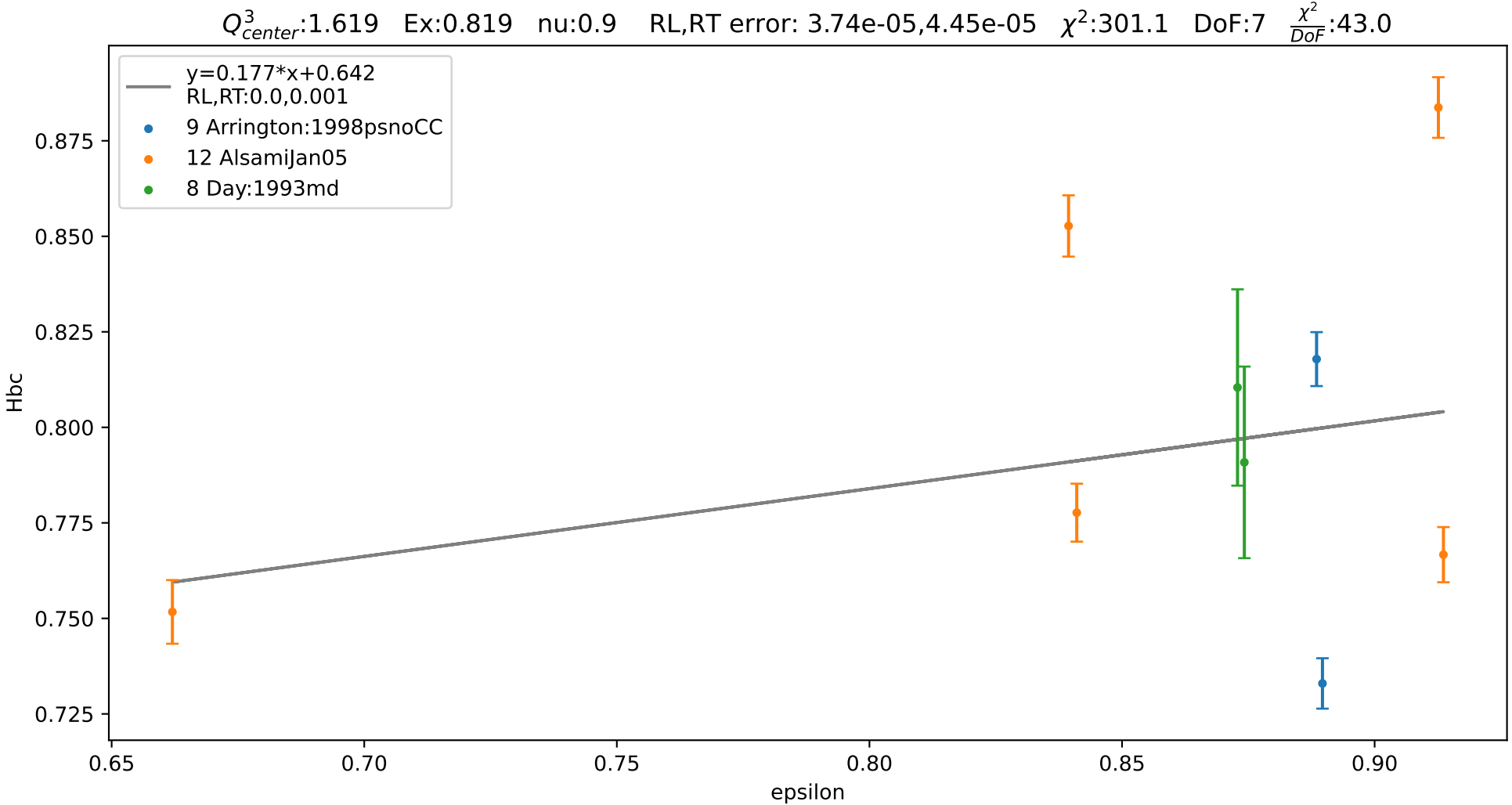

Q^3_{center}:1.619 Ex:0.711 nu:0.8 RL,RT error: 1.25e-05,1.64e-05 χ^2:326.5 DoF:8 $\frac{\chi^2}{DoF}$:40.8
y=0.068*x+0.147
RL,RT:0.0,0.0
8 Day:1993md
12 AlsamiJan05
9 Arrington:1998psnoCC
Hbc
epsilon
0.24
0.22
0.20
0.18
0.16
0.70
0.75
0.80
0.85
0.90

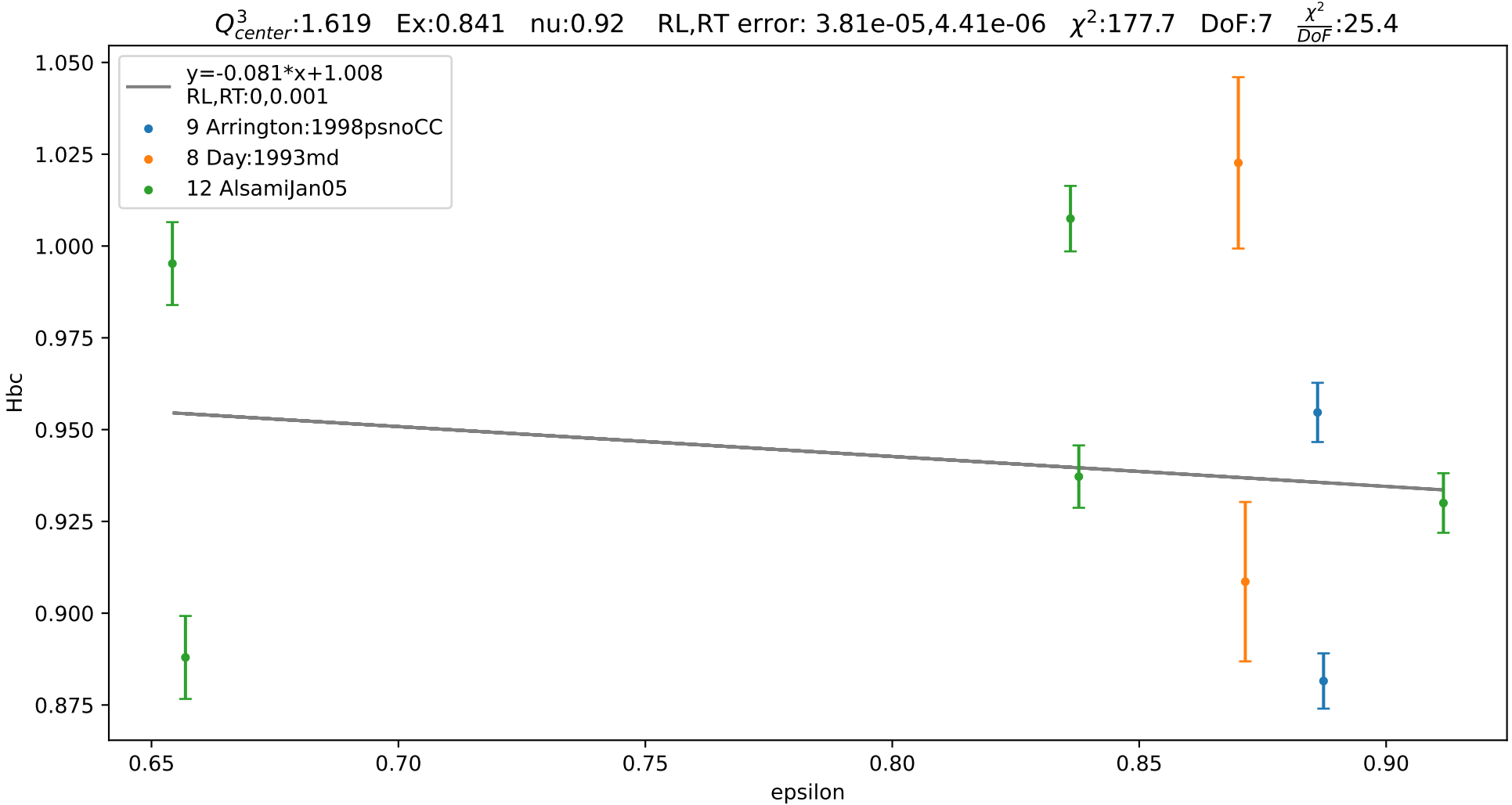

Q^3_{center}:1.619 Ex:0.733 nu:0.82 RL,RT error: 2.1e-05,2.71e-05 χ^2:24.2 DoF:4 $\frac{\chi^2}{DoF}$:6.0
y=0.066*x+0.22
RL,RT:0.0,0.0
8 Day:1993md
12 AlsamiJan05
9 Arrington:1998psnoCC
Hbc
epsilon
0.32
0.30
0.28
0.26
0.24
0.70
0.75
0.80
0.85
0.90

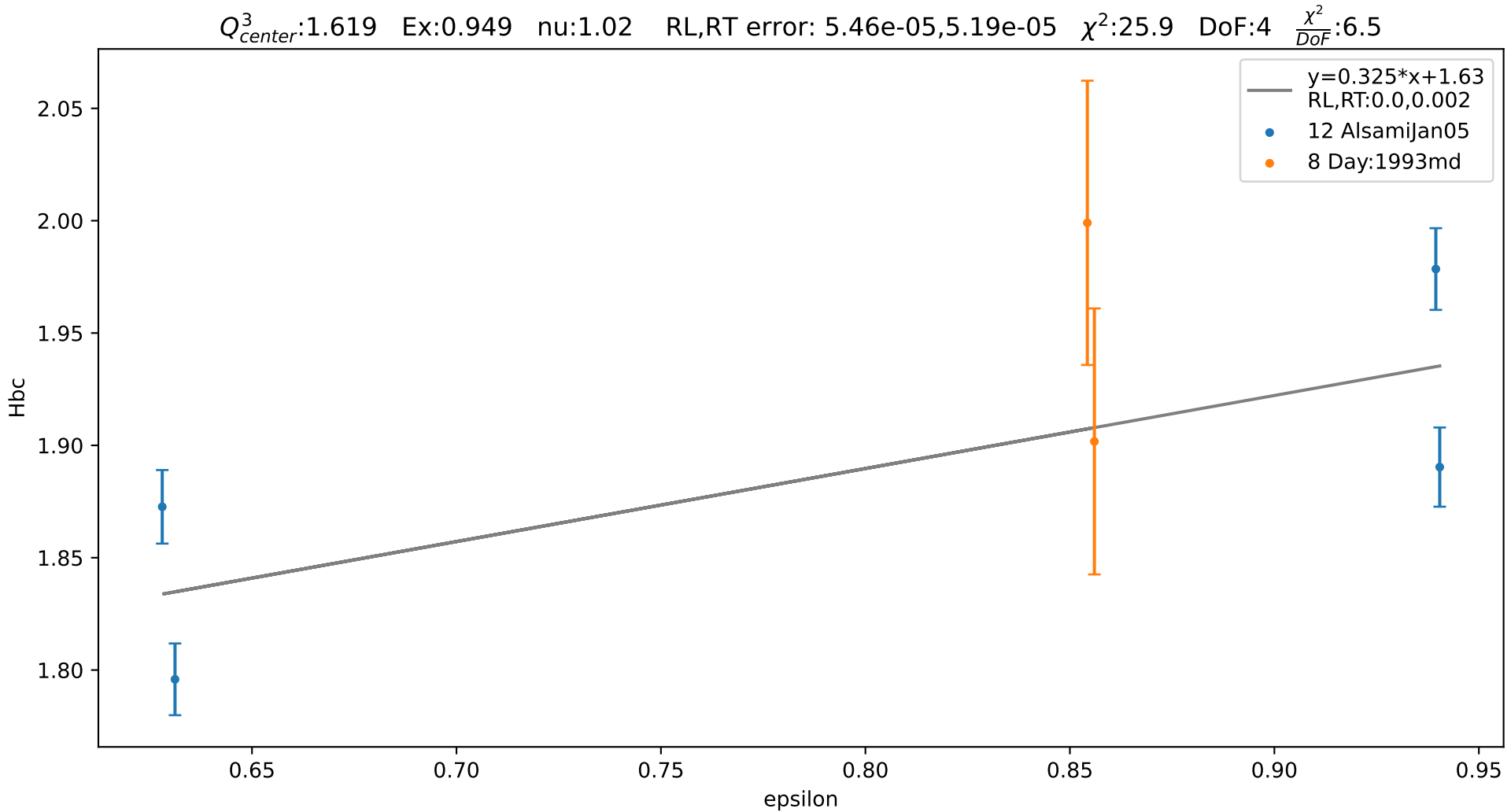

Q^3_{center}:1.619 Ex:0.754 nu:0.84 RL,RT error: 1.7e-05,2.14e-05 χ^2:305.5 DoF:8 $\frac{\chi^2}{DoF}$:38.2
y=0.076*x+0.29
RL,RT:0.0,0.0
8 Day:1993md
12 AlsamiJan05
9 Arrington:1998psnoCC
Hbc
0.40
0.38
0.36
0.34
0.32
0.70
0.75
0.80
0.85
0.90
epsilon

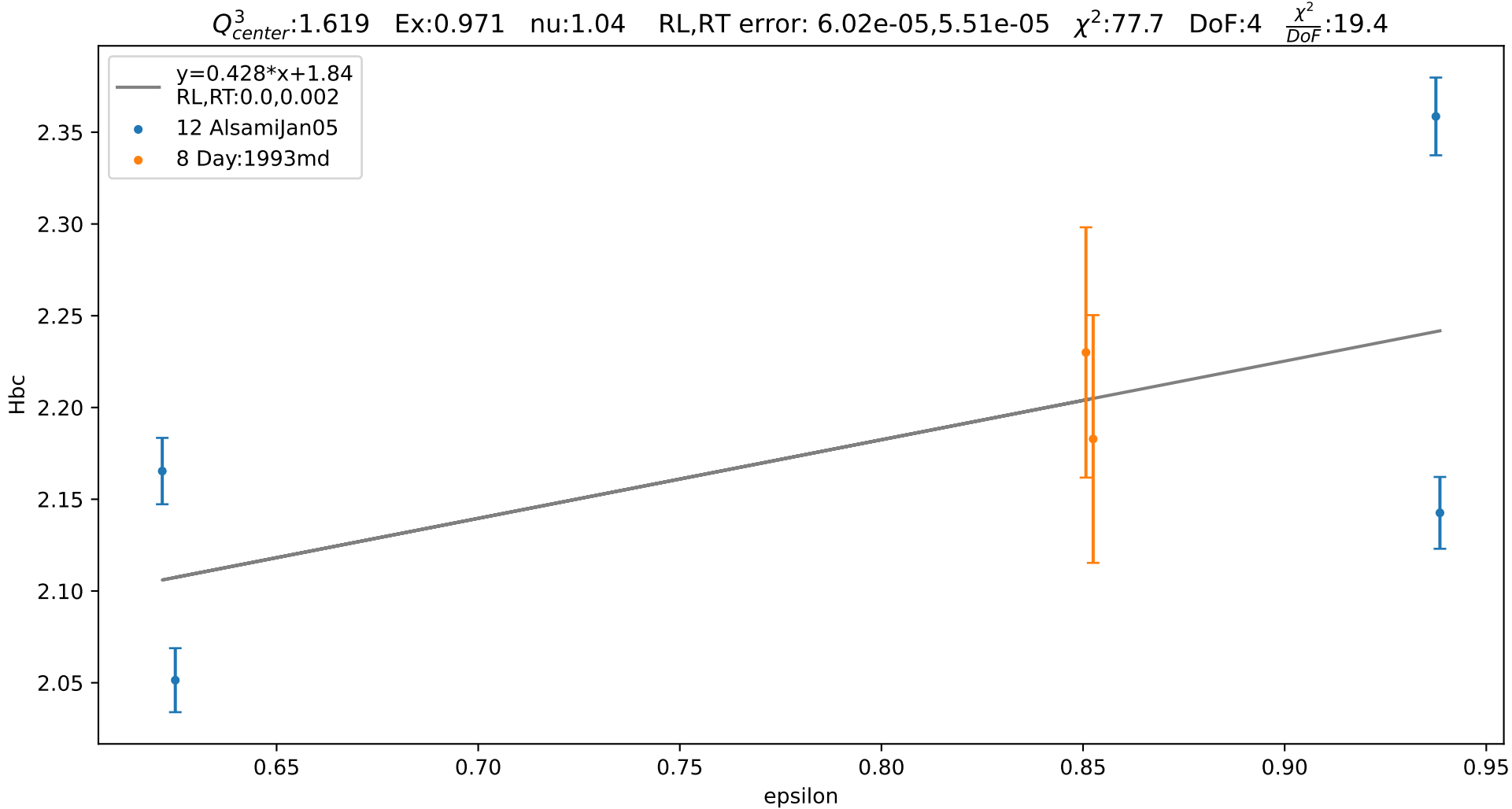

Q^3_{center}:1.619 Ex:0.776 nu:0.86 RL,RT error: 2.01e-05,2.48e-05 χ^2:370.4 DoF:10 $\frac{\chi^2}{DoF}$:37.0
y=0.114*x+0.39
RL,RT:0.0,0.001
12 AlsamiJan05
8 Day:1993md
9 Arrington:1998psnoCC
Hbc
epsilon
0.42
0.44
0.46
0.48
0.50
0.52
0.54
0.70
0.75
0.80
0.85
0.90

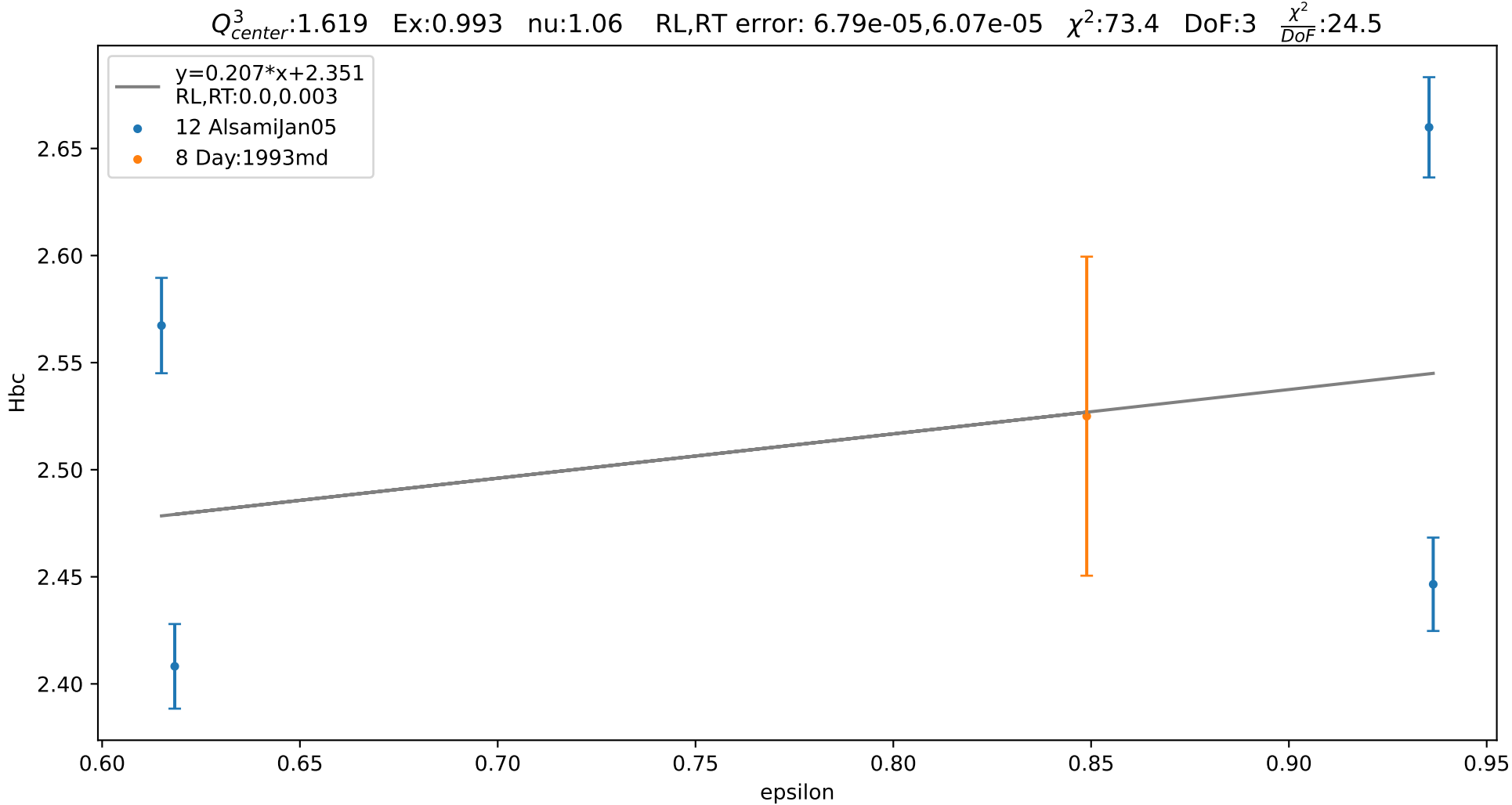

Q^3_{center}:1.619 Ex:0.797 nu:0.88 RL,RT error: 2.4e-05,2.88e-05 χ^2:291.9 DoF:9 $\frac{\chi^2}{DoF}$:32.4
y=0.08*x+0.57
RL,RT:0.0,0.001
9 Arrington:1998psnoCC
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
0.700
0.675
0.650
0.625
0.600
0.575
0.550
0.70
0.75
0.80
0.85
0.90

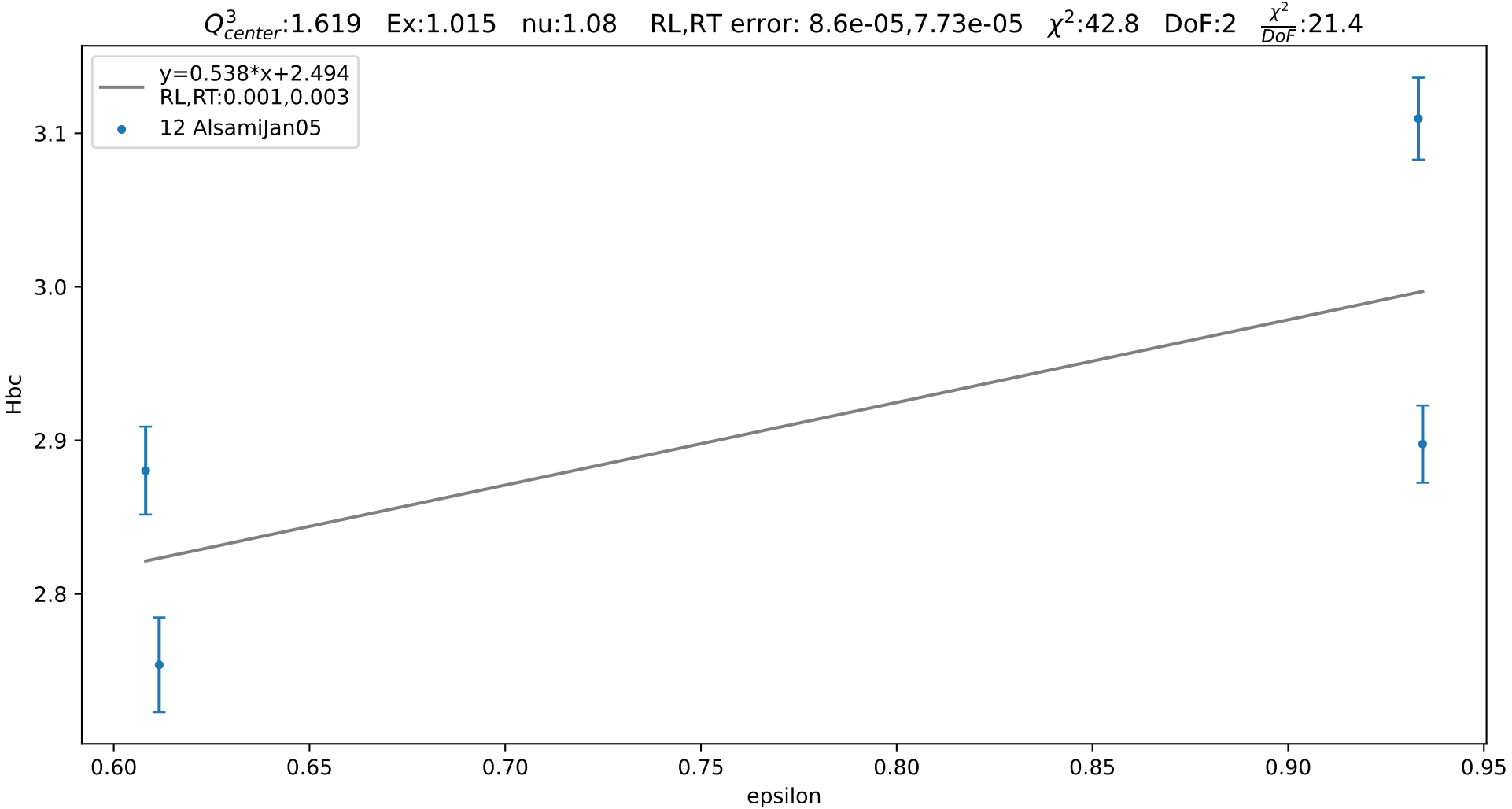

Q^3_{center}:1.619 Ex:0.819 nu:0.9 RL,RT error: 3.74e-05,4.45e-05 χ^2:301.1 DoF:7 $\frac{\chi^2}{DoF}$:43.0
y=0.177*x+0.642
RL,RT:0.0,0.001
9 Arrington:1998psnoCC
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
0.875
0.850
0.825
0.800
0.775
0.750
0.725
0.65
0.70
0.75
0.80
0.85
0.90

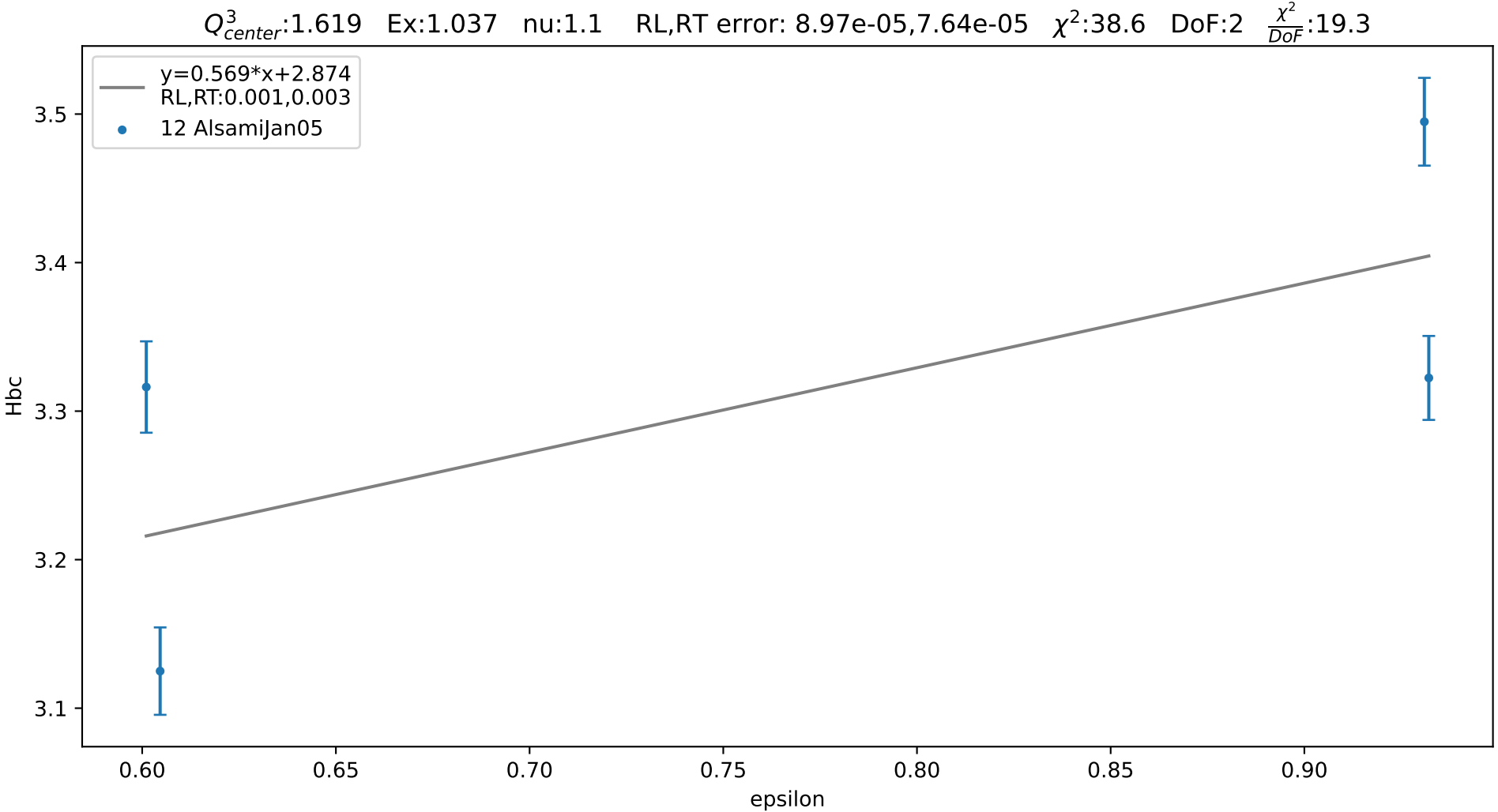

Q^3_{center}:1.619 Ex:0.841 nu:0.92 RL,RT error: 3.81e-05,4.41e-06 χ^2:177.7 DoF:7 $\frac{\chi^2}{DoF}$:25.4
y=-0.081*x+1.008
RL,RT:0,0.001
9 Arrington:1998psnoCC
8 Day:1993md
12 AlsamiJan05
Hbc
epsilon
1.050
1.025
1.000
0.975
0.950
0.925
0.900
0.875
0.65
0.70
0.75
0.80
0.85
0.90

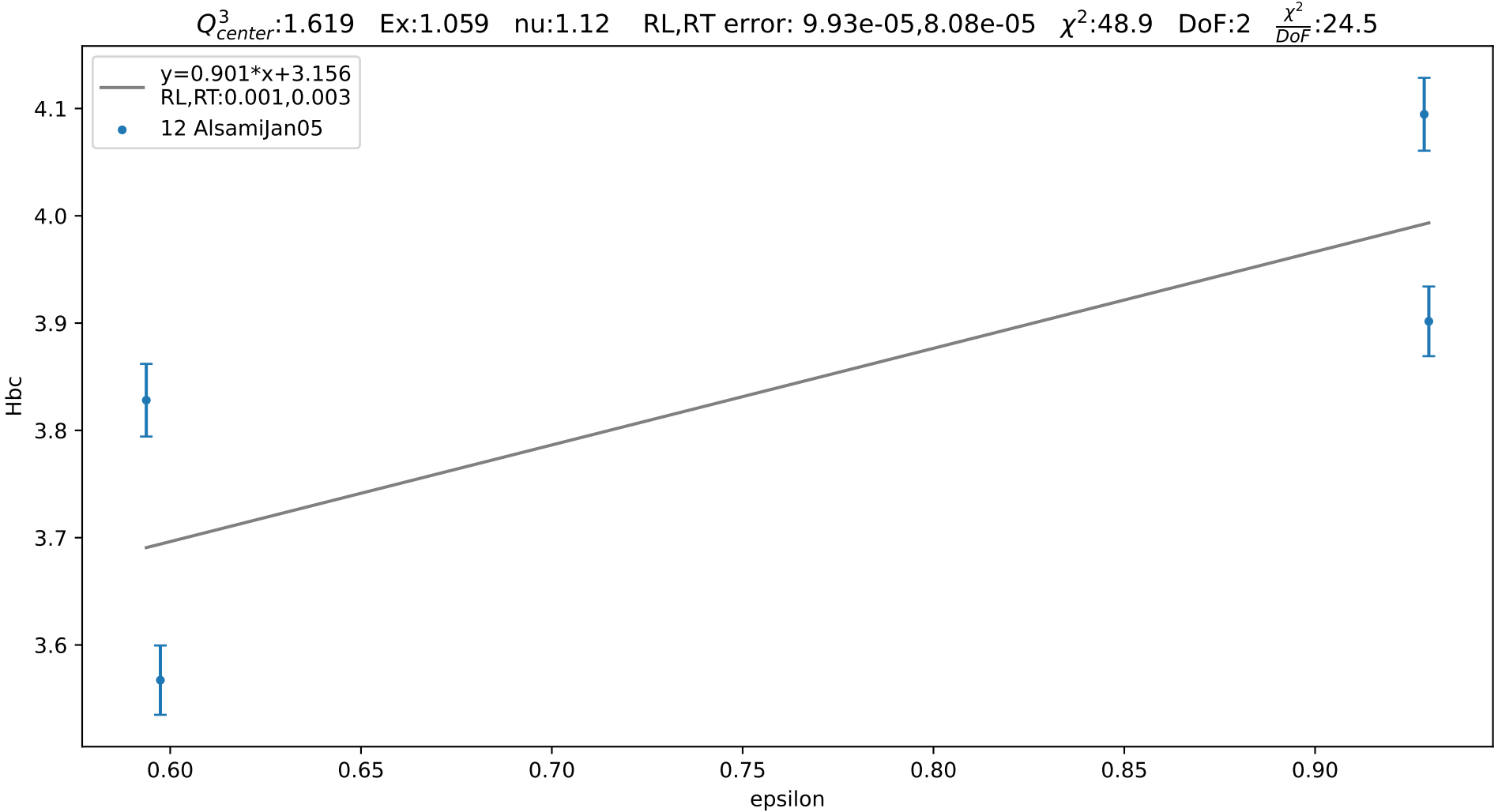

Q^3_{center}:1.619 Ex:0.949 nu:1.02 RL,RT error: 5.46e-05,5.19e-05 χ^2:25.9 DoF:4 $\frac{\chi^2}{DoF}$:6.5
y=0.325*x+1.63
RL,RT:0.0,0.002
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
2.05
2.00
1.95
1.90
1.85
1.80
0.65
0.70
0.75
0.80
0.85
0.90
0.95

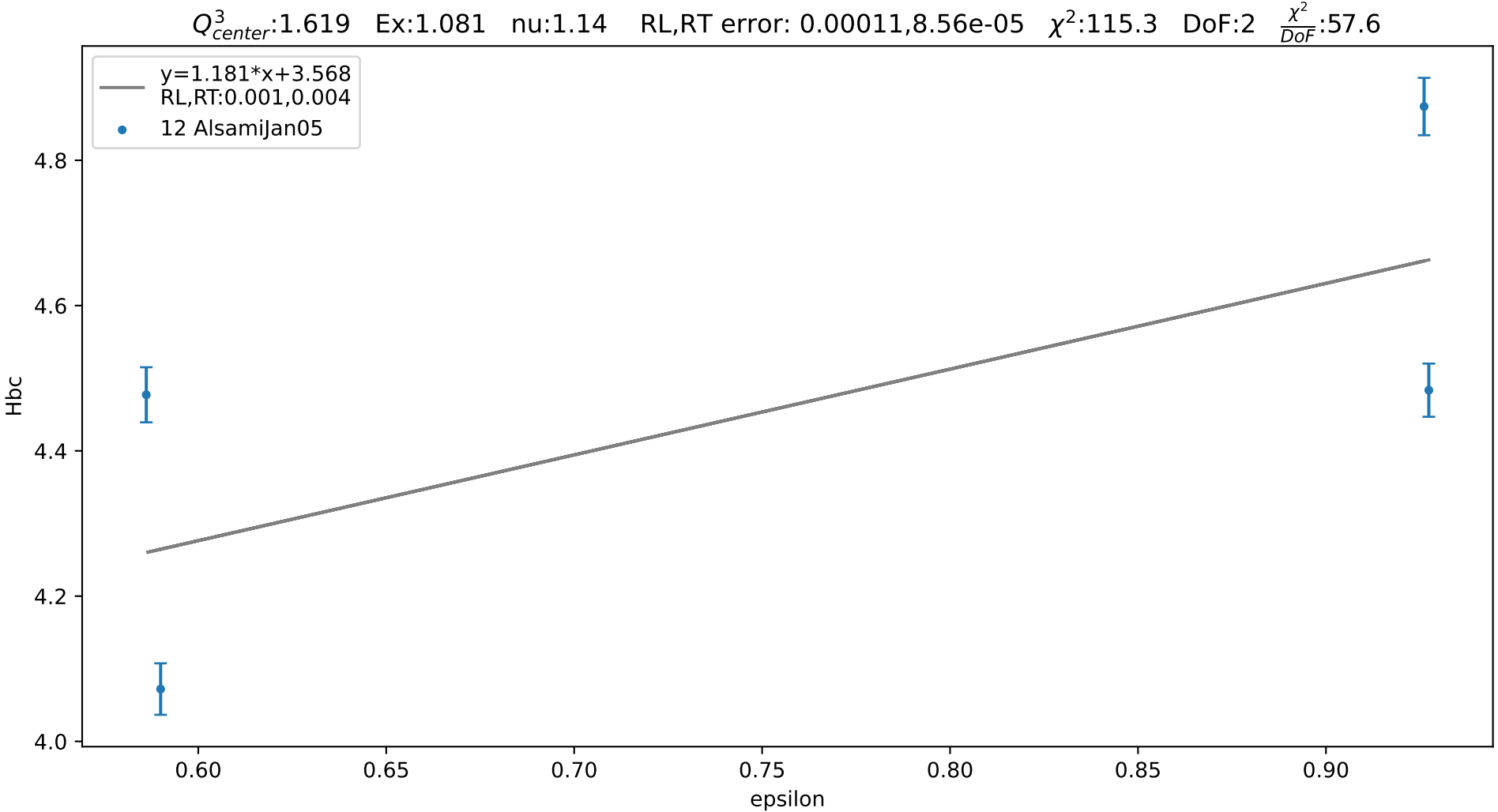

Q^3_{center}:1.619 Ex:0.971 nu:1.04 RL,RT error: 6.02e-05,5.51e-05 χ^2:77.7 DoF:4 $\frac{\chi^2}{DoF}$:19.4
y=0.428*x+1.84
RL,RT:0.0,0.002
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
2.35
2.30
2.25
2.20
2.15
2.10
2.05
0.65
0.70
0.75
0.80
0.85
0.90
0.95

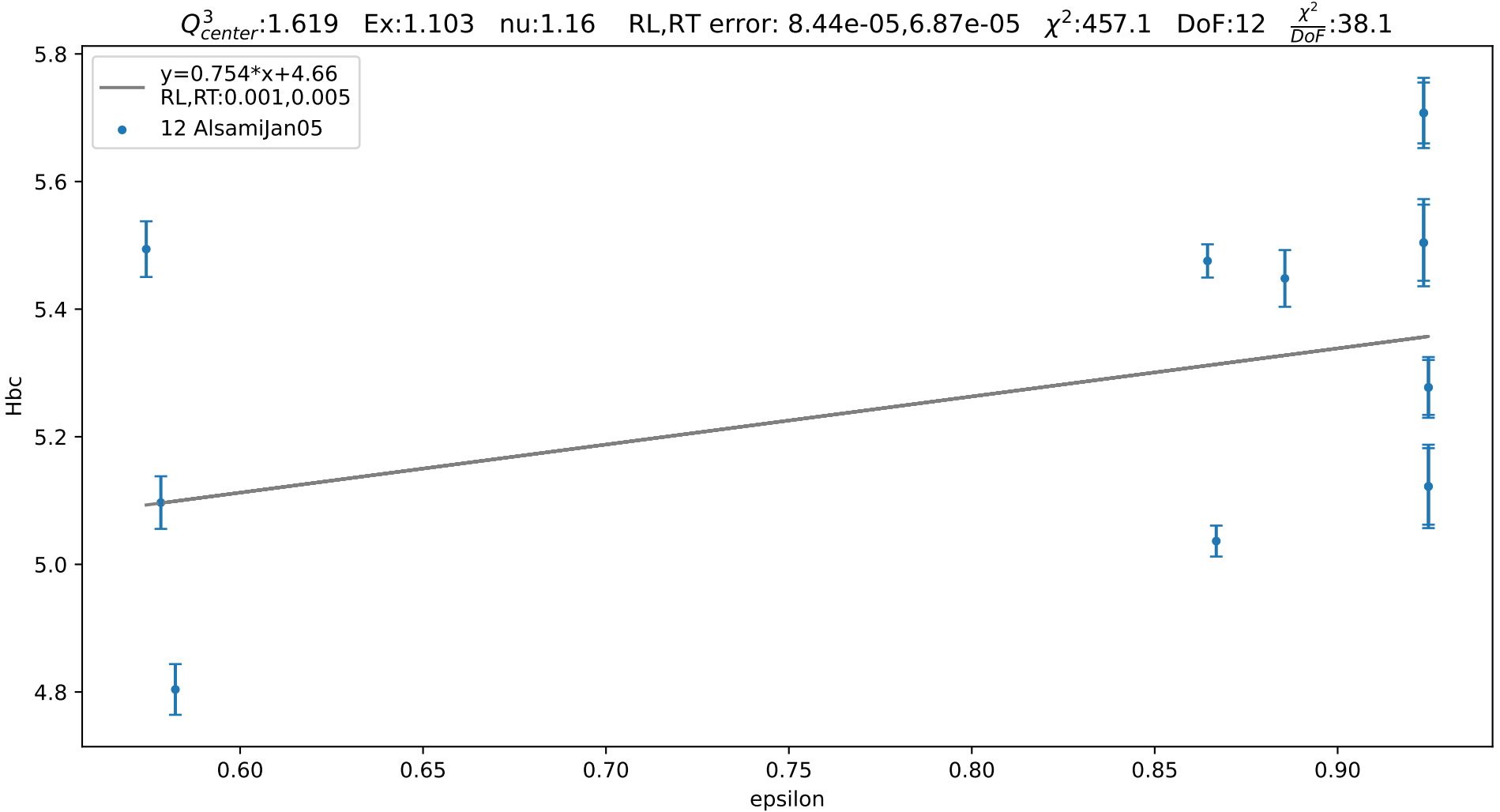

Q^3_{center}:1.619 Ex:0.993 nu:1.06 RL,RT error: 6.79e-05,6.07e-05 χ^2:73.4 DoF:3 $\frac{\chi^2}{DoF}$:24.5
y=0.207*x+2.351
RL,RT:0.0,0.003
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
2.65
2.60
2.55
2.50
2.45
2.40
0.60
0.65
0.70
0.75
0.80
0.85
0.90
0.95

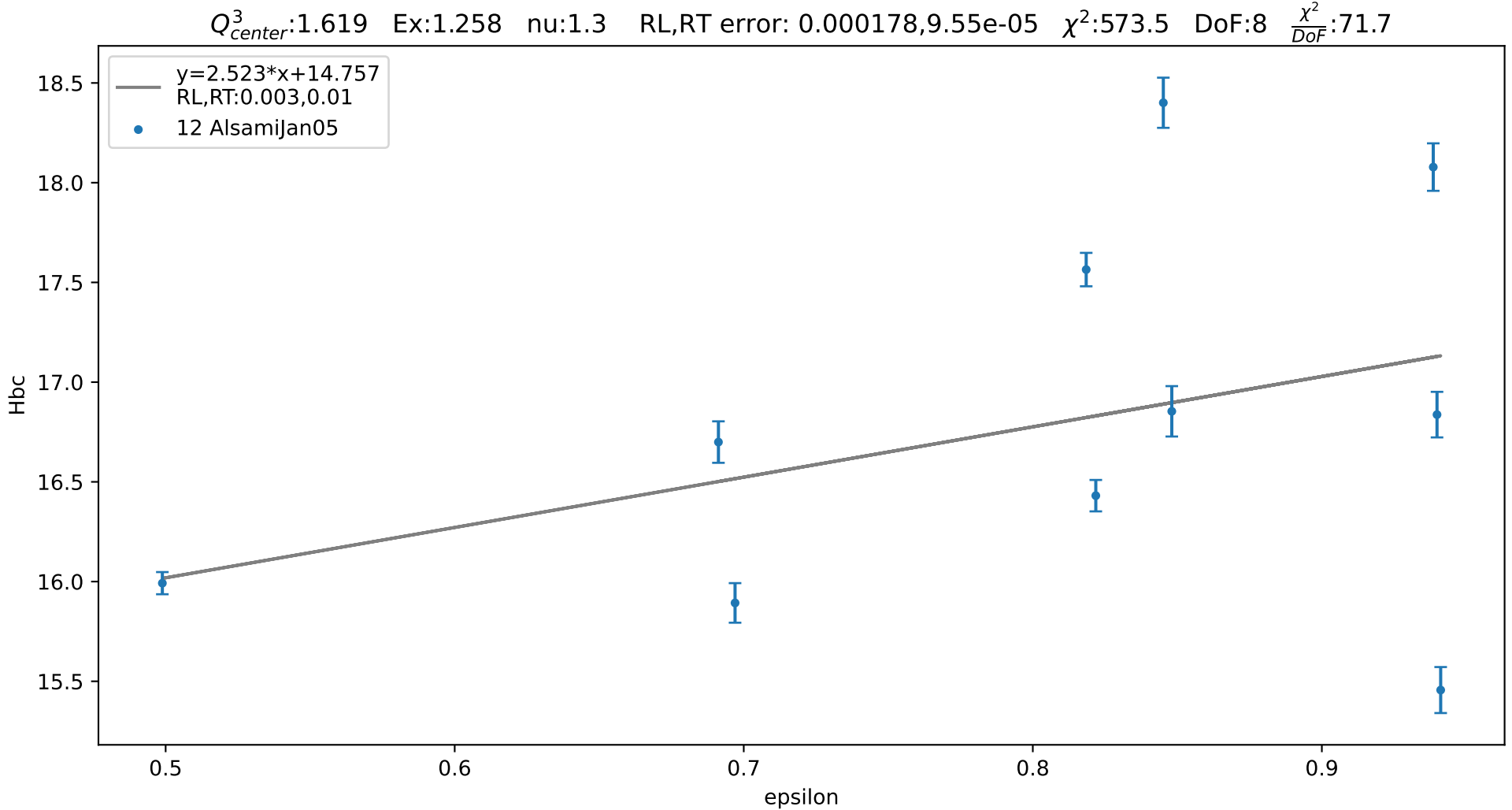

Q^3_{center}:1.619 Ex:1.015 nu:1.08 RL,RT error: 8.6e-05,7.73e-05 χ^2:42.8 DoF:2 $\frac{\chi^2}{DoF}$:21.4
y=0.538*x+2.494
RL,RT:0.001,0.003
12 AlsamiJan05
Hbc
epsilon
3.1
3.0
2.9
2.8
0.60
0.65
0.70
0.75
0.80
0.85
0.90
0.95

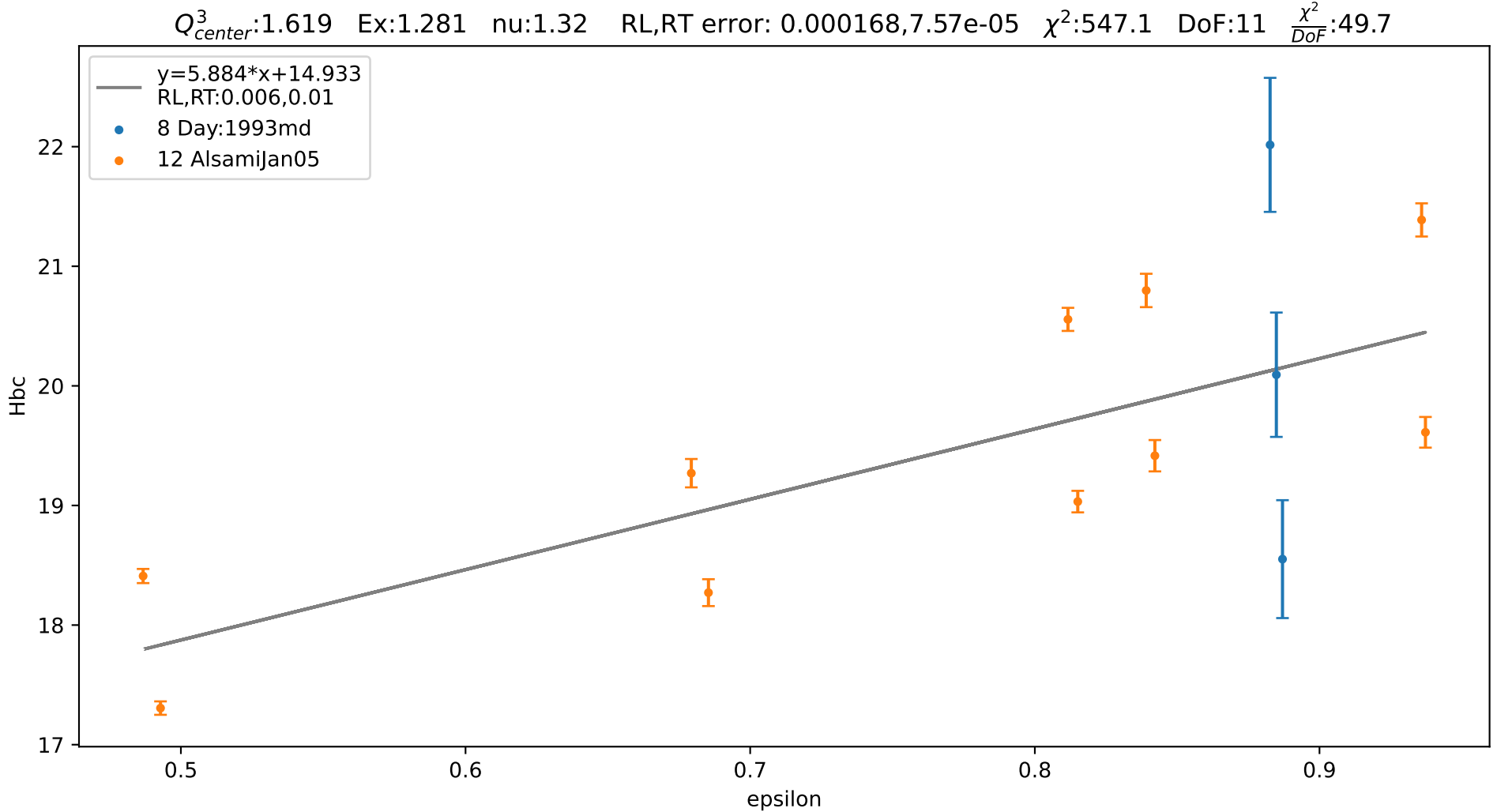

Q^3_{center}:1.619 Ex:1.037 nu:1.1 RL,RT error: 8.97e-05,7.64e-05 χ^2:38.6 DoF:2 $\frac{\chi^2}{DoF}$:19.3
y=0.569*x+2.874
RL,RT:0.001,0.003
12 AlsamiJan05
Hbc
epsilon
3.5
3.4
3.3
3.2
3.1
0.60
0.65
0.70
0.75
0.80
0.85
0.90

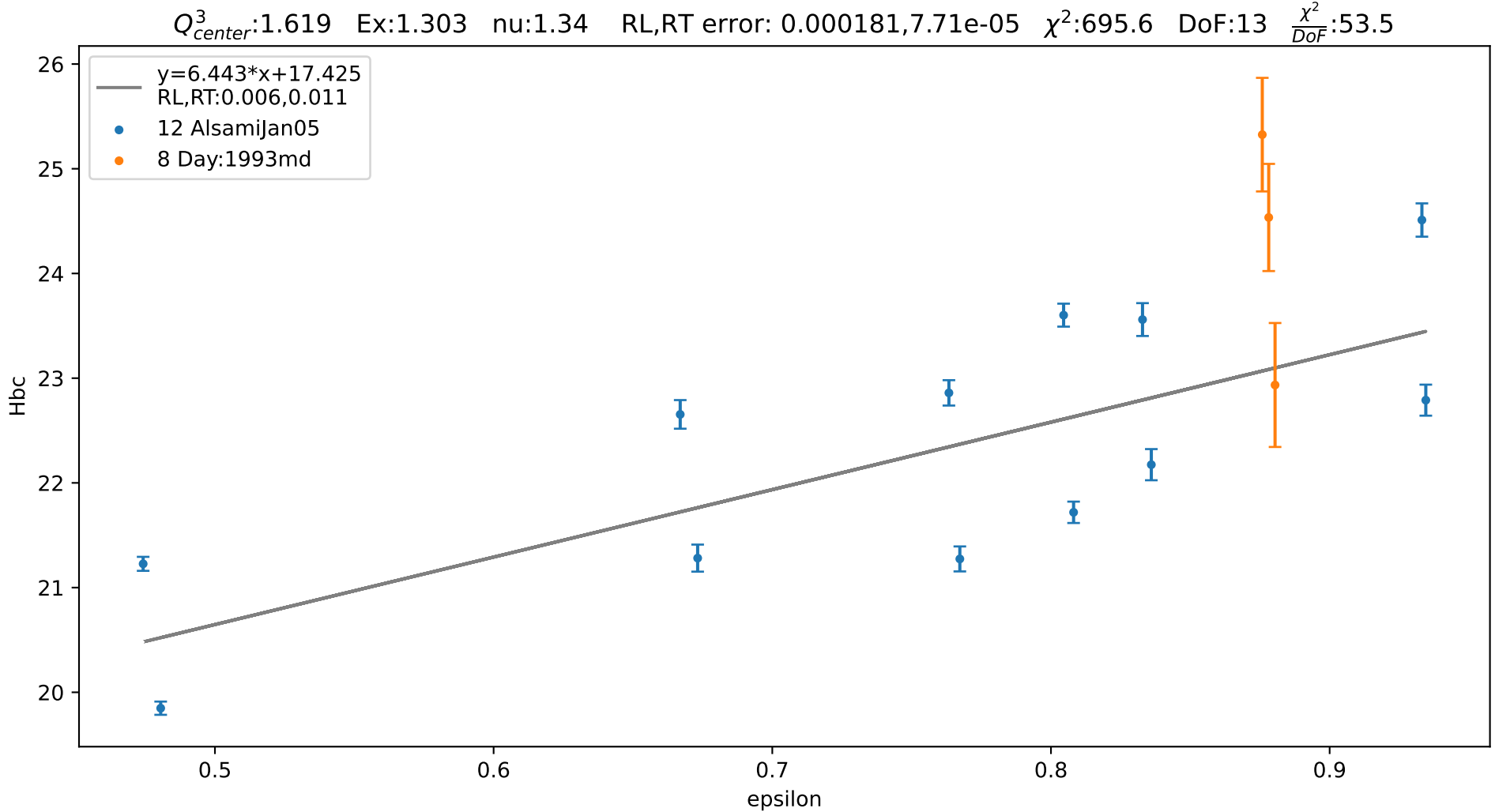

Q^3_{center}:1.619 Ex:1.059 nu:1.12 RL,RT error: 9.93e-05,8.08e-05 χ^2:48.9 DoF:2 $\frac{\chi^2}{DoF}$:24.5
y=0.901*x+3.156
RL,RT:0.001,0.003
12 AlsamiJan05
Hbc
epsilon
4.1
4.0
3.9
3.8
3.7
3.6
0.60
0.65
0.70
0.75
0.80
0.85
0.90

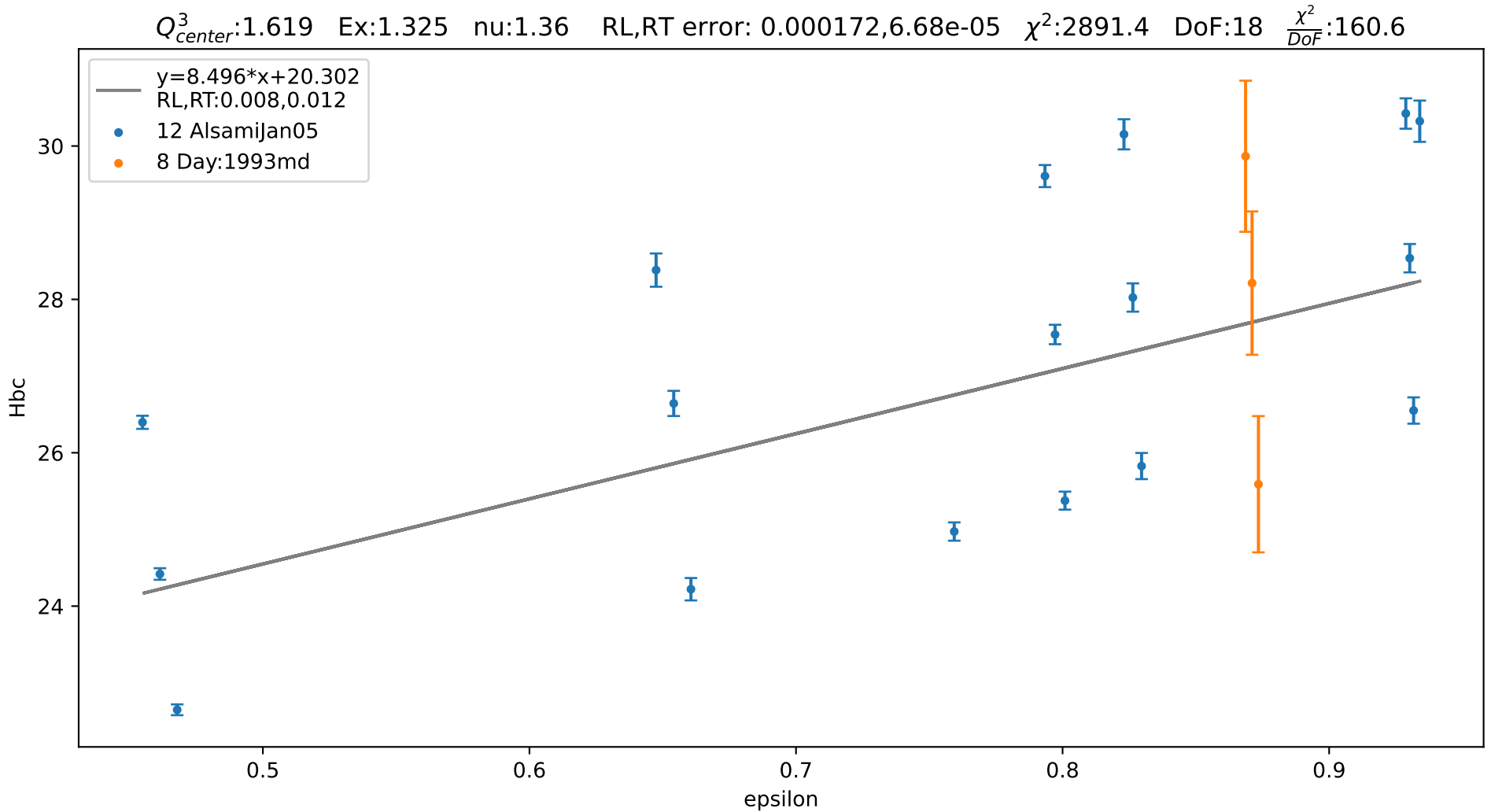

Q^3_{center}:1.619 Ex:1.081 nu:1.14 RL,RT error: 0.00011,8.56e-05 χ^2:115.3 DoF:2 $\frac{\chi^2}{DoF}$:57.6
y=1.181*x+3.568
RL,RT:0.001,0.004
12 AlsamiJan05
Hbc
epsilon
4.0
4.2
4.4
4.6
4.8
0.60
0.65
0.70
0.75
0.80
0.85
0.90

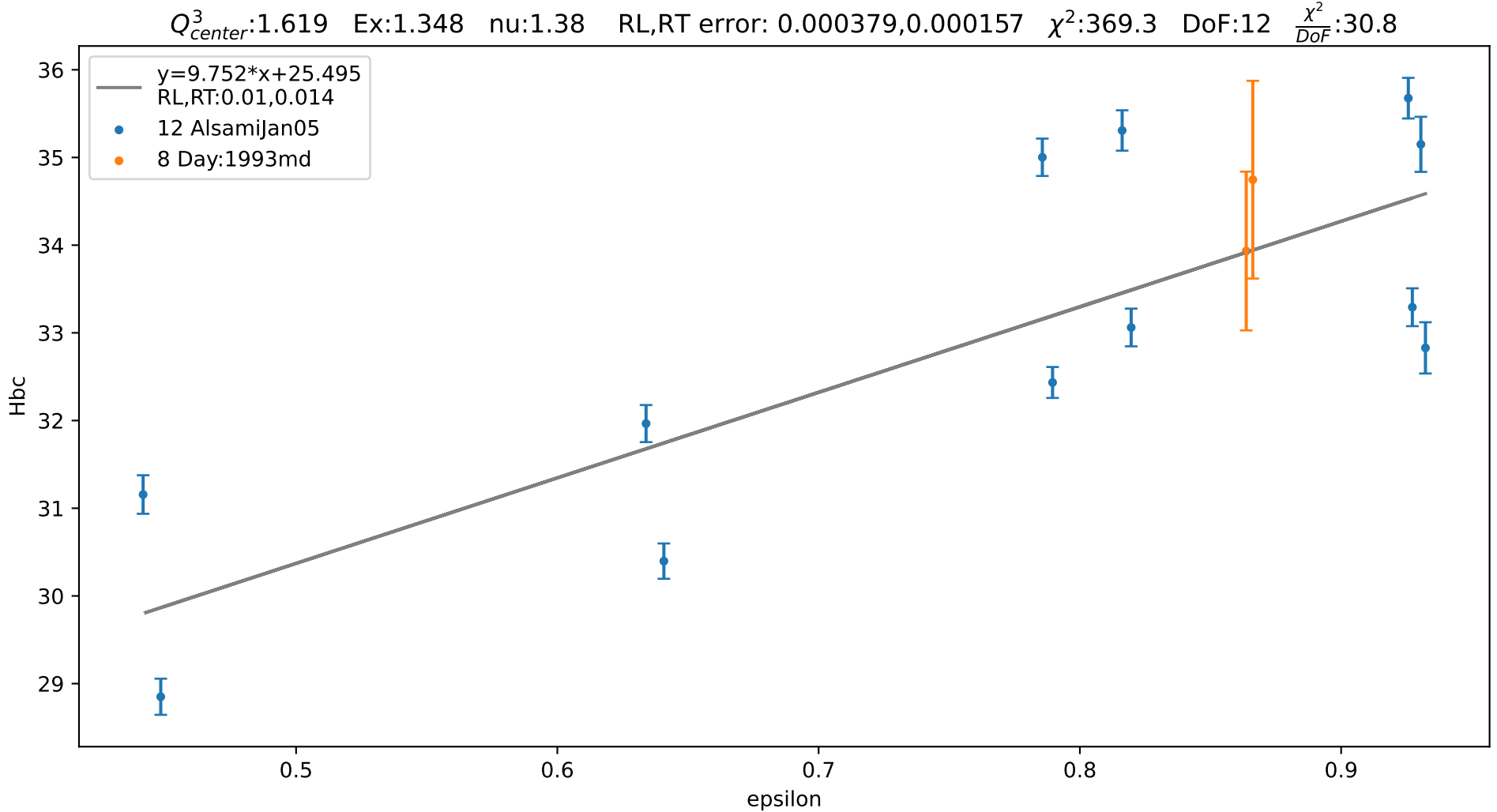

Q^3_{center}:1.619 Ex:1.103 nu:1.16 RL,RT error: 8.44e-05,6.87e-05 χ^2:457.1 DoF:12 $\frac{\chi^2}{DoF}$:38.1
y=0.754*x+4.66
RL,RT:0.001,0.005
12 AlsamiJan05
Hbc
epsilon
5.8
5.6
5.4
5.2
5.0
4.8
0.60
0.65
0.70
0.75
0.80
0.85
0.90

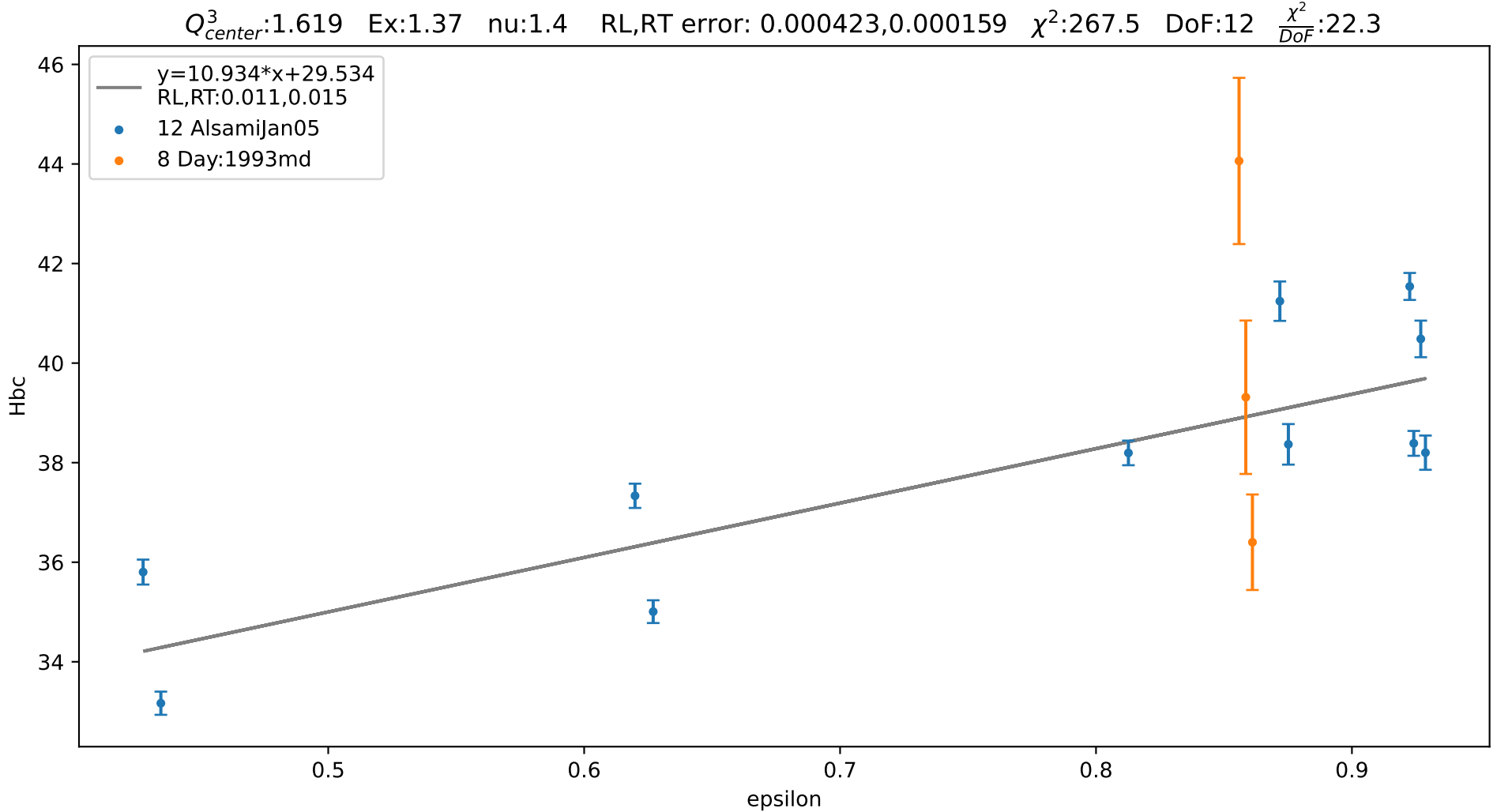

Q^3_{center}:1.619 Ex:1.258 nu:1.3 RL,RT error: 0.000178,9.55e-05 χ^2:573.5 DoF:8 $\frac{\chi^2}{DoF}$:71.7
y=2.523*x+14.757
RL,RT:0.003,0.01
12 AlsamiJan05
Hbc
epsilon
18.5
18.0
17.5
17.0
16.5
16.0
15.5
0.5
0.6
0.7
0.8
0.9

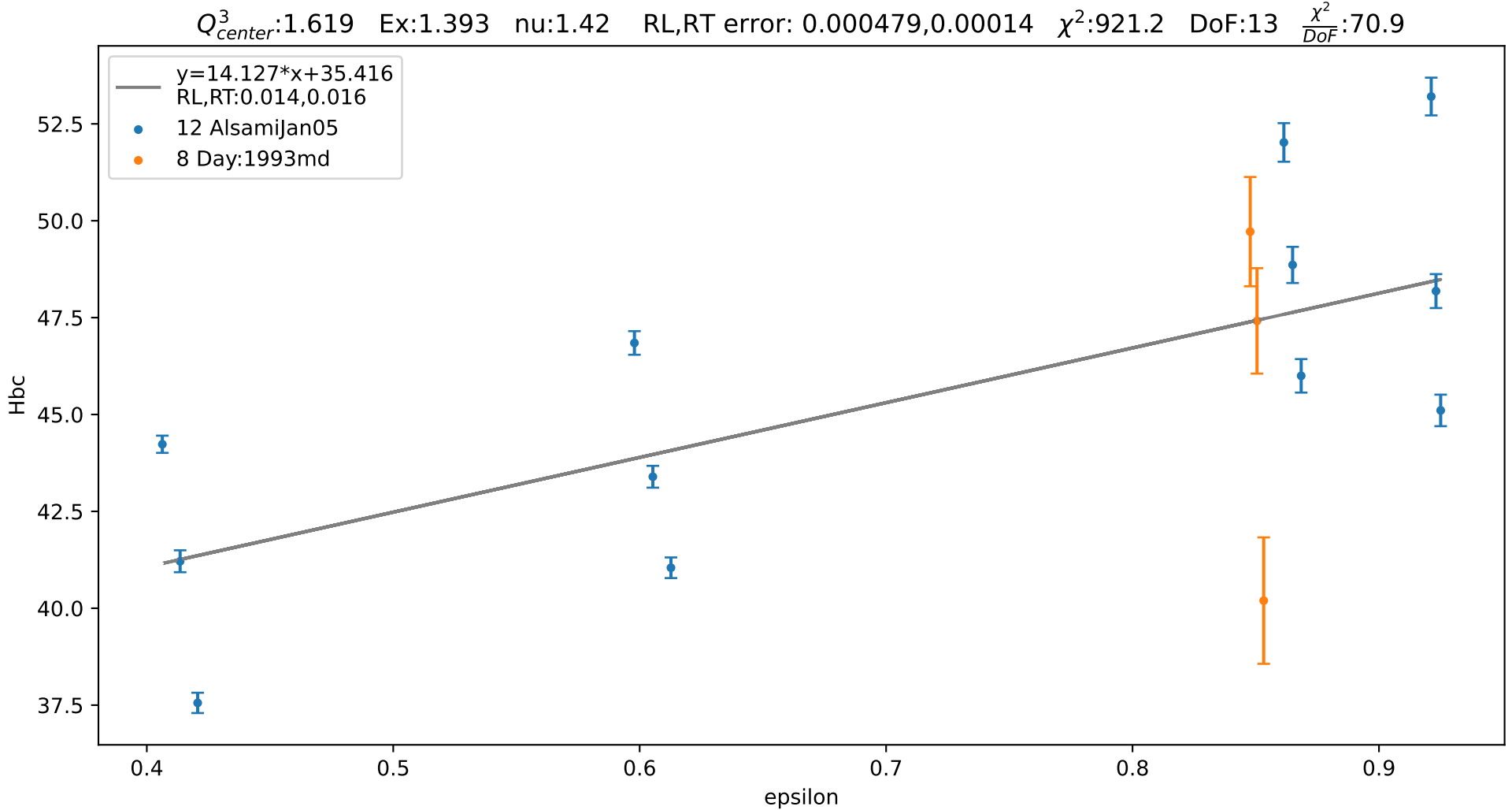

Q^3_{center}:1.619 Ex:1.281 nu:1.32 RL,RT error: 0.000168,7.57e-05 χ^2:547.1 DoF:11 $\frac{\chi^2}{DoF}$:49.7
y=5.884*x+14.933
RL,RT:0.006,0.01
8 Day:1993md
12 AlsamiJan05
Hbc
epsilon
17
18
19
20
21
22
0.5
0.6
0.7
0.8
0.9

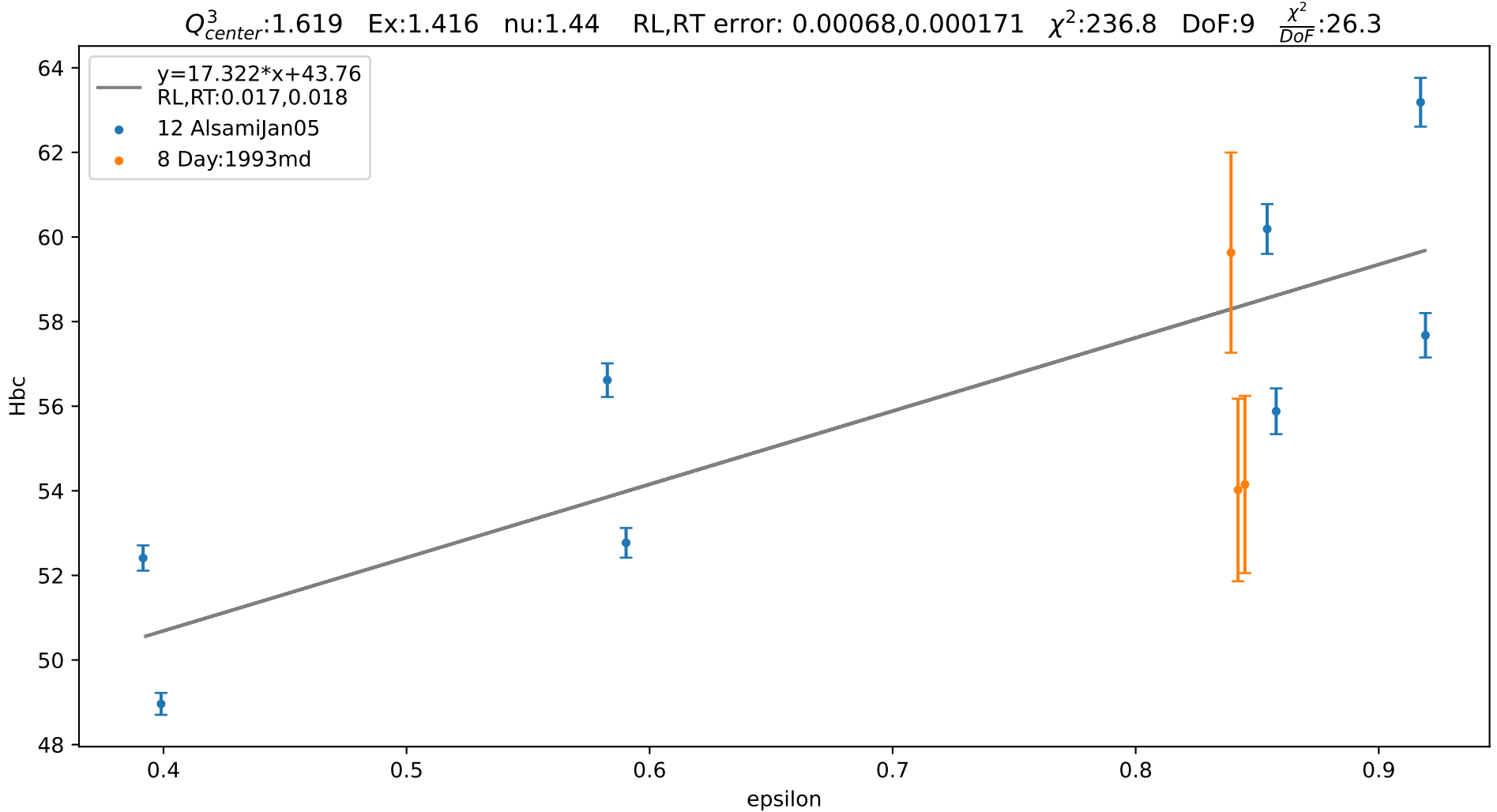

Q^3_{center}:1.619 Ex:1.303 nu:1.34 RL,RT error: 0.000181,7.71e-05 χ^2:695.6 DoF:13 $\frac{\chi^2}{DoF}$:53.5
y=6.443*x+17.425
RL,RT:0.006,0.011
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
26
25
24
23
22
21
20
0.5
0.6
0.7
0.8
0.9

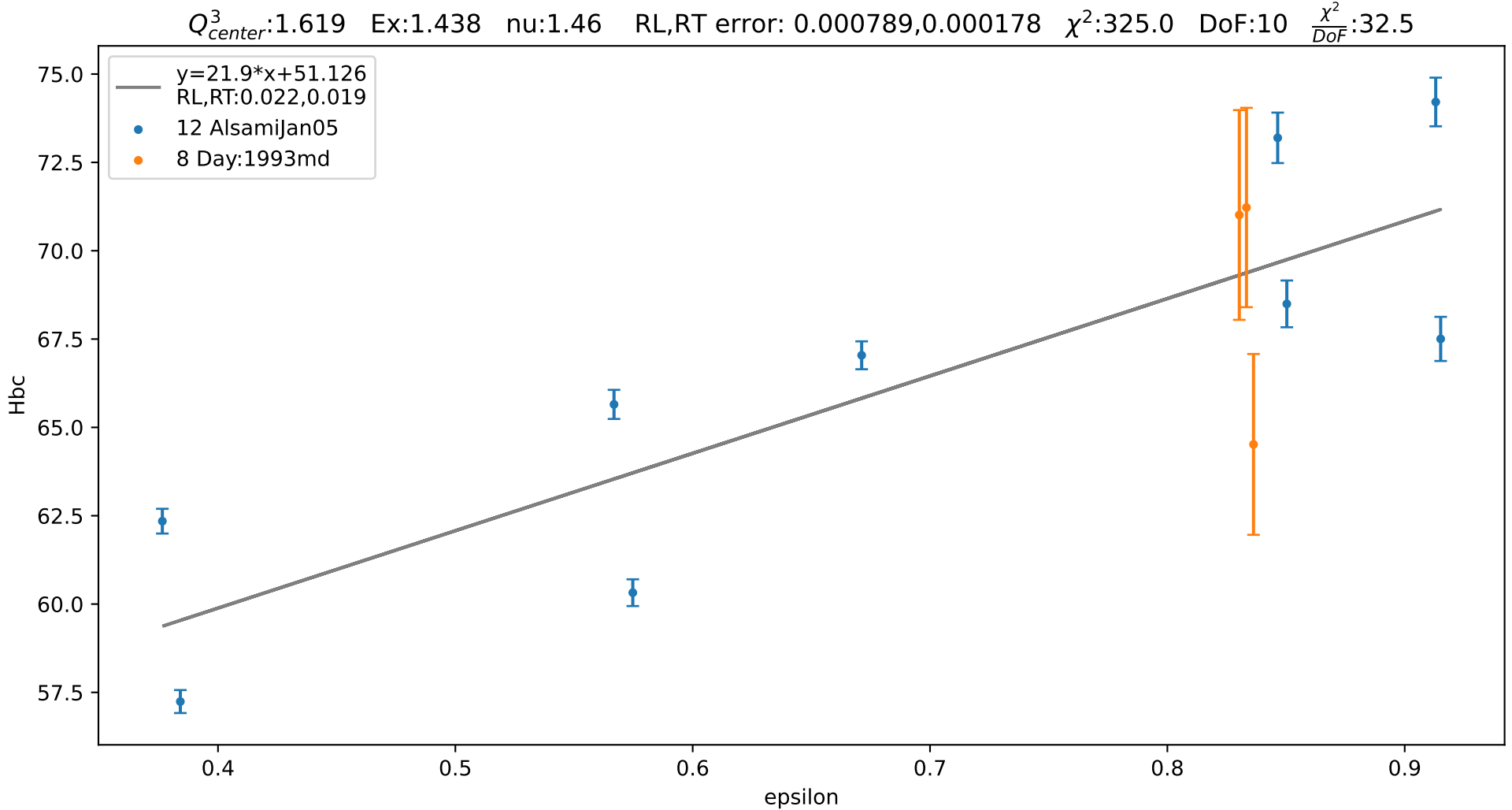

Q^3_{center}:1.619 Ex:1.325 nu:1.36 RL,RT error: 0.000172,6.68e-05 χ^2:2891.4 DoF:18 $\frac{\chi^2}{DoF}$:160.6
y=8.496*x+20.302
RL,RT:0.008,0.012
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
30
28
26
24
0.5
0.6
0.7
0.8
0.9

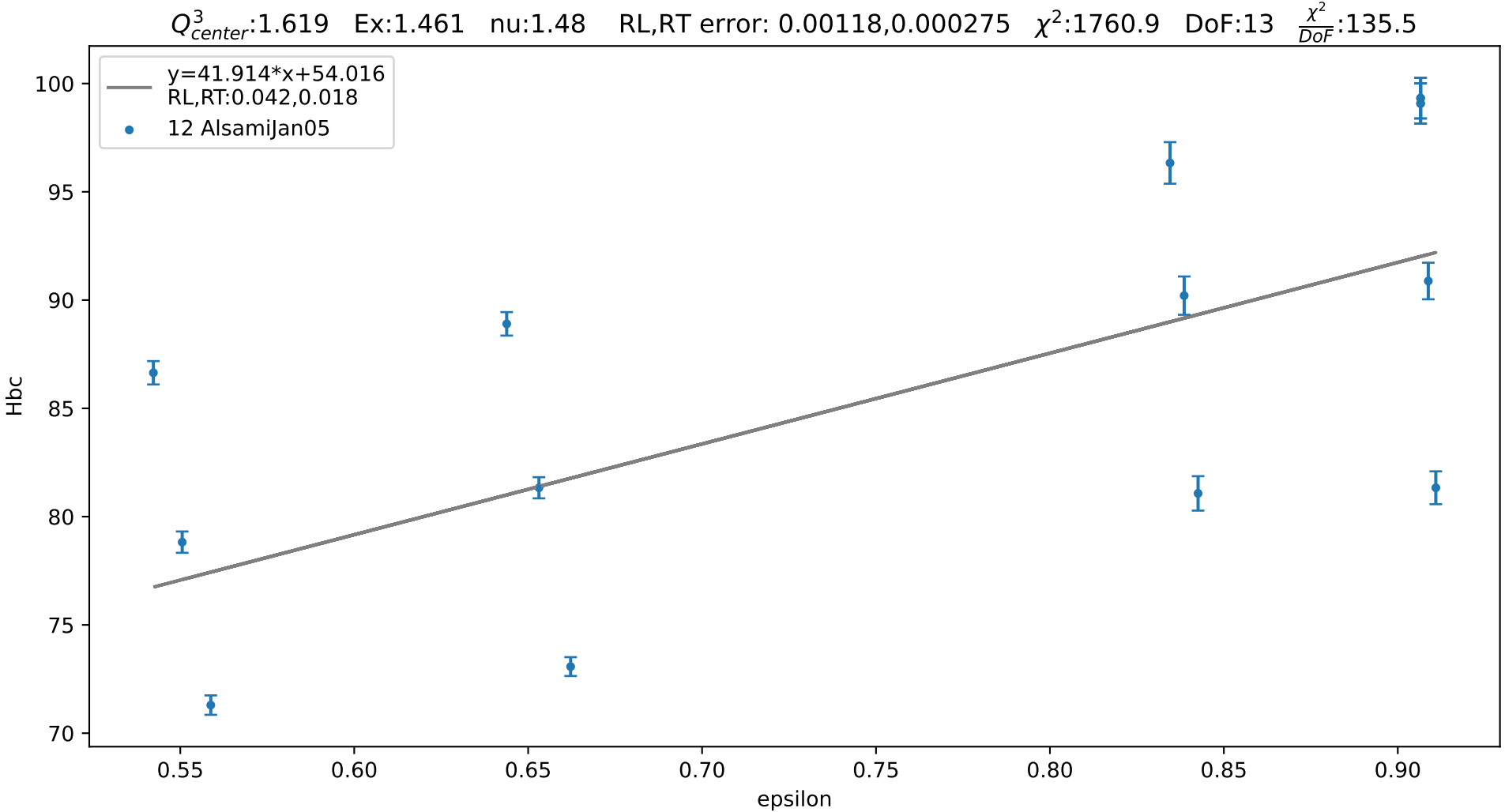

Q^3_{center}:1.619 Ex:1.348 nu:1.38 RL,RT error: 0.000379,0.000157 χ^2:369.3 DoF:12 $\frac{\chi^2}{DoF}$:30.8
y=9.752*x+25.495
RL,RT:0.01,0.014
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
36
35
34
33
32
31
30
29
0.5
0.6
0.7
0.8
0.9

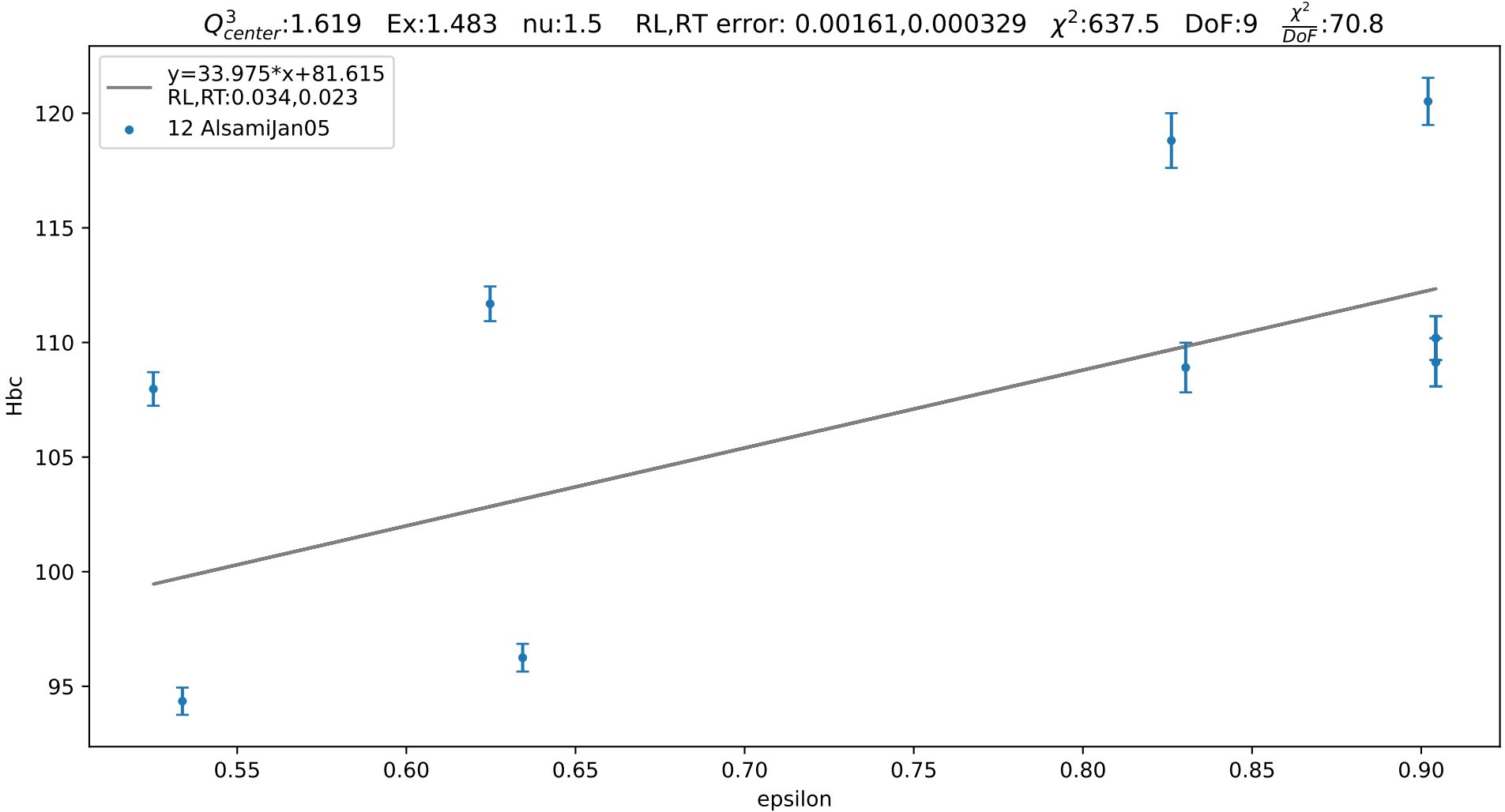

Q^3_{center}:1.619 Ex:1.37 nu:1.4 RL,RT error: 0.000423,0.000159 χ^2:267.5 DoF:12 $\frac{\chi^2}{DoF}$:22.3
y=10.934*x+29.534
RL,RT:0.011,0.015
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
46
44
42
40
38
36
34
0.5
0.6
0.7
0.8
0.9

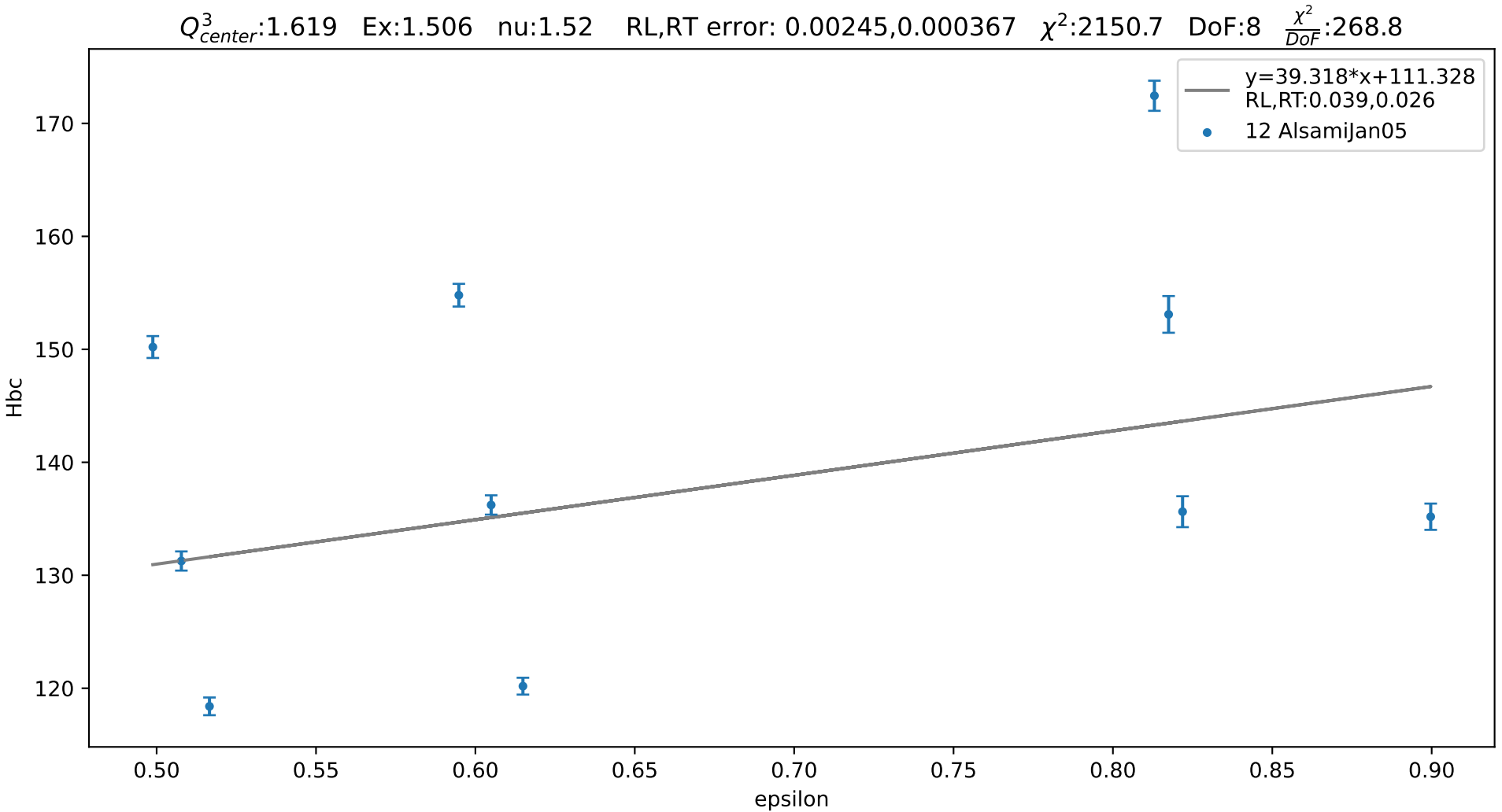

Q^3_{center}:1.619 Ex:1.393 nu:1.42 RL,RT error: 0.000479,0.00014 χ^2:921.2 DoF:13 $\frac{\chi^2}{DoF}$:70.9
y=14.127*x+35.416
RL,RT:0.014,0.016
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
52.5
50.0
47.5
45.0
42.5
40.0
37.5
0.4
0.5
0.6
0.7
0.8
0.9

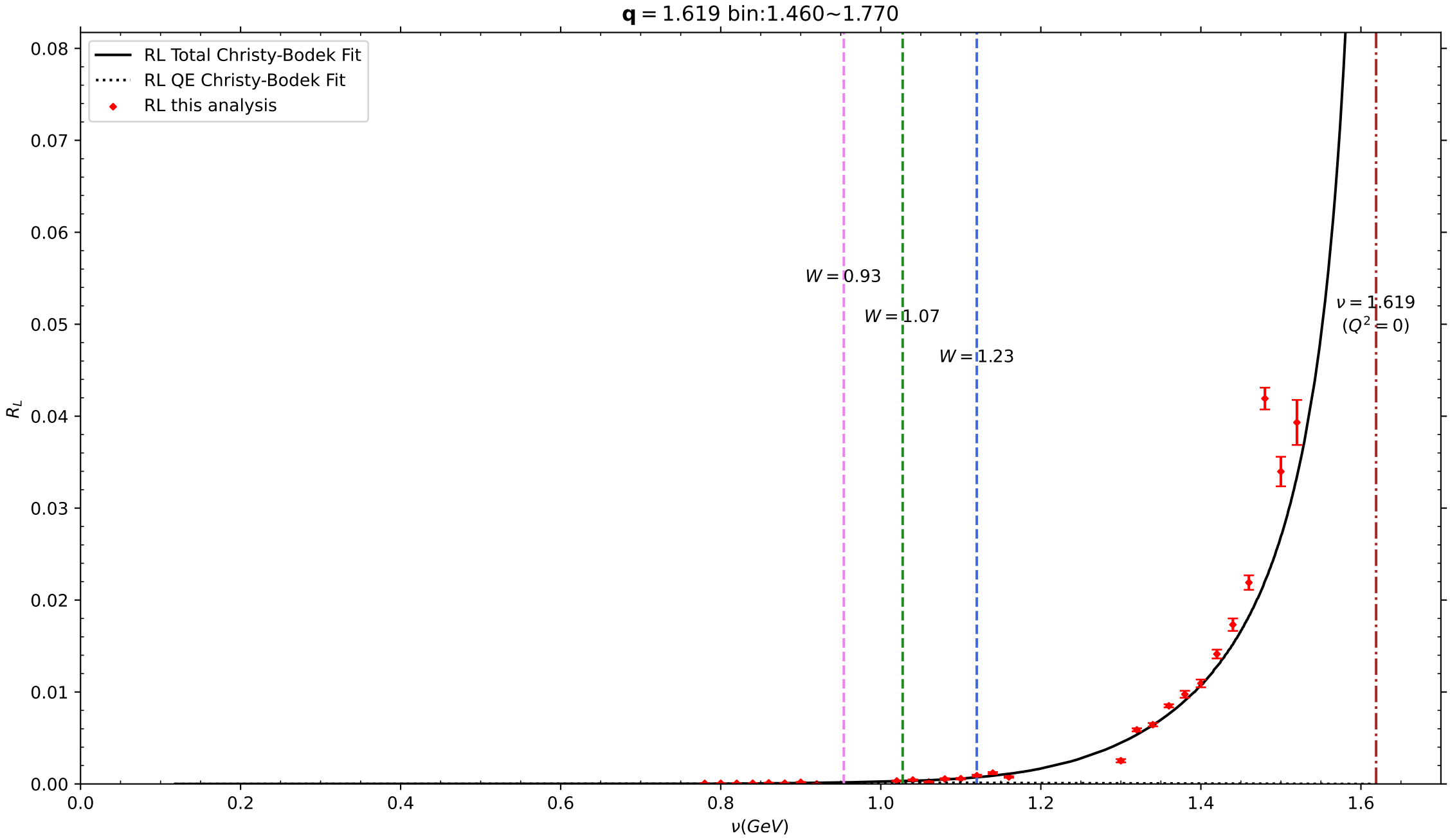

Q^3_{center}:1.619 Ex:1.416 nu:1.44 RL,RT error: 0.00068,0.000171 χ^2:236.8 DoF:9 $\frac{\chi^2}{DoF}$:26.3
y=17.322*x+43.76
RL,RT:0.017,0.018
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
64
62
60
58
56
54
52
50
48
0.4
0.5
0.6
0.7
0.8
0.9

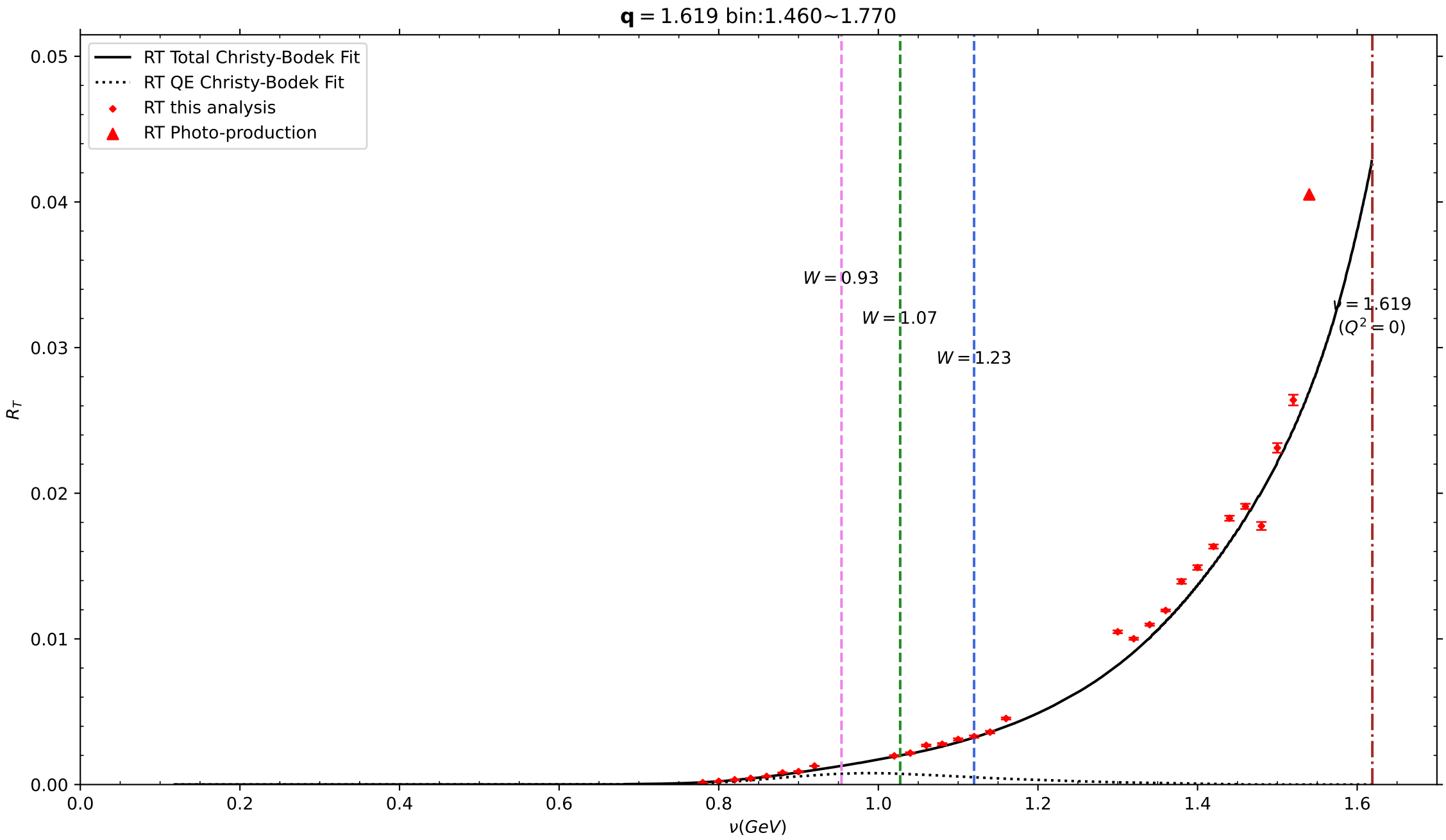

Q^3_{center}:1.619 Ex:1.438 nu:1.46 RL,RT error: 0.000789,0.000178 χ^2:325.0 DoF:10 $\frac{\chi^2}{DoF}$:32.5
y=21.9*x+51.126
RL,RT:0.022,0.019
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
75.0
72.5
70.0
67.5
65.0
62.5
60.0
57.5
0.4
0.5
0.6
0.7
0.8
0.9

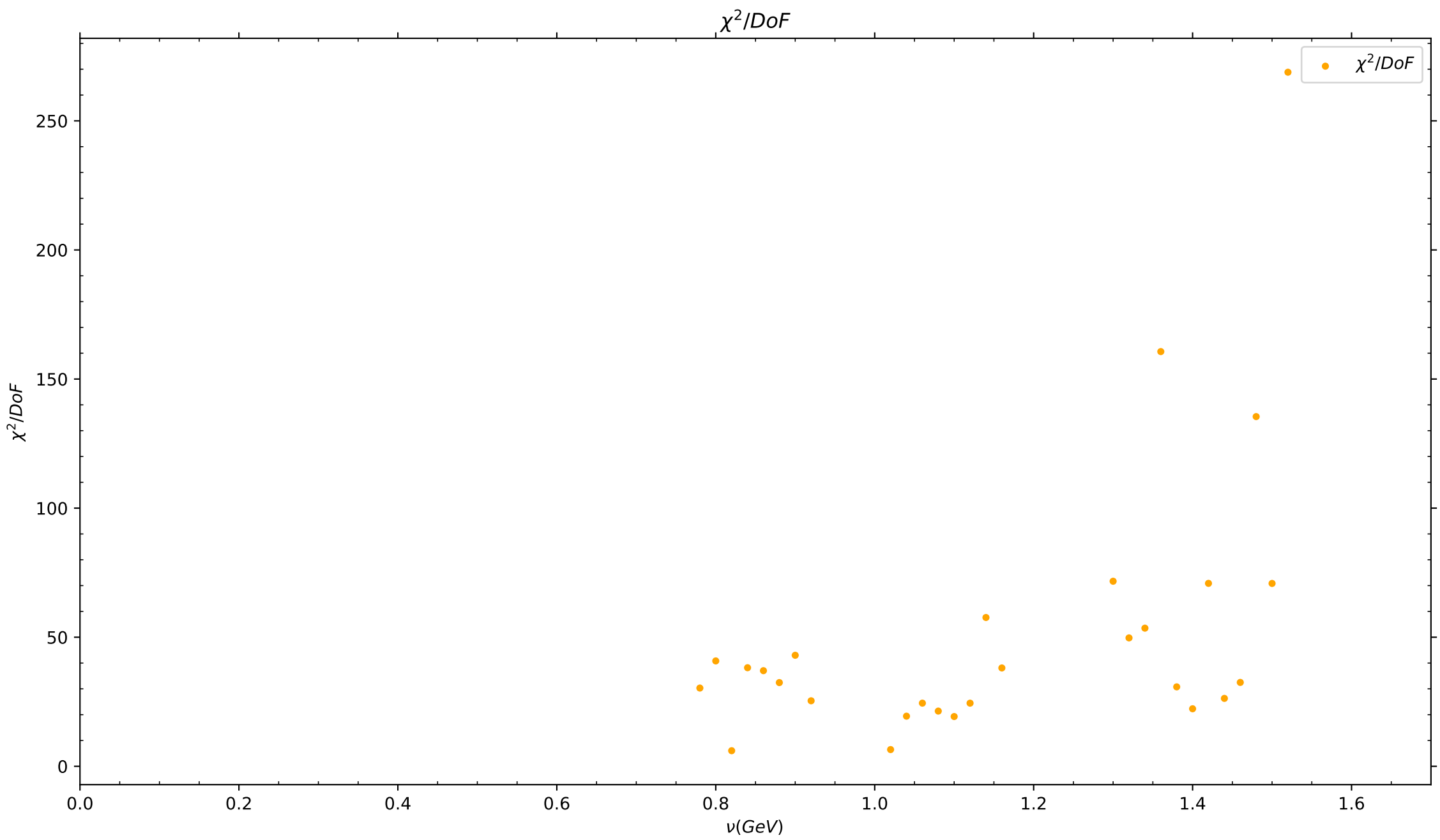

Q^3_{center}:1.619 Ex:1.461 nu:1.48 RL,RT error: 0.00118,0.000275 χ^2:1760.9 DoF:13 $\frac{\chi^2}{DoF}$:135.5
y=41.914*x+54.016
RL,RT:0.042,0.018
12 AlsamiJan05
Hbc
epsilon
100
95
90
85
80
75
70
0.55
0.60
0.65
0.70
0.75
0.80
0.85
0.90

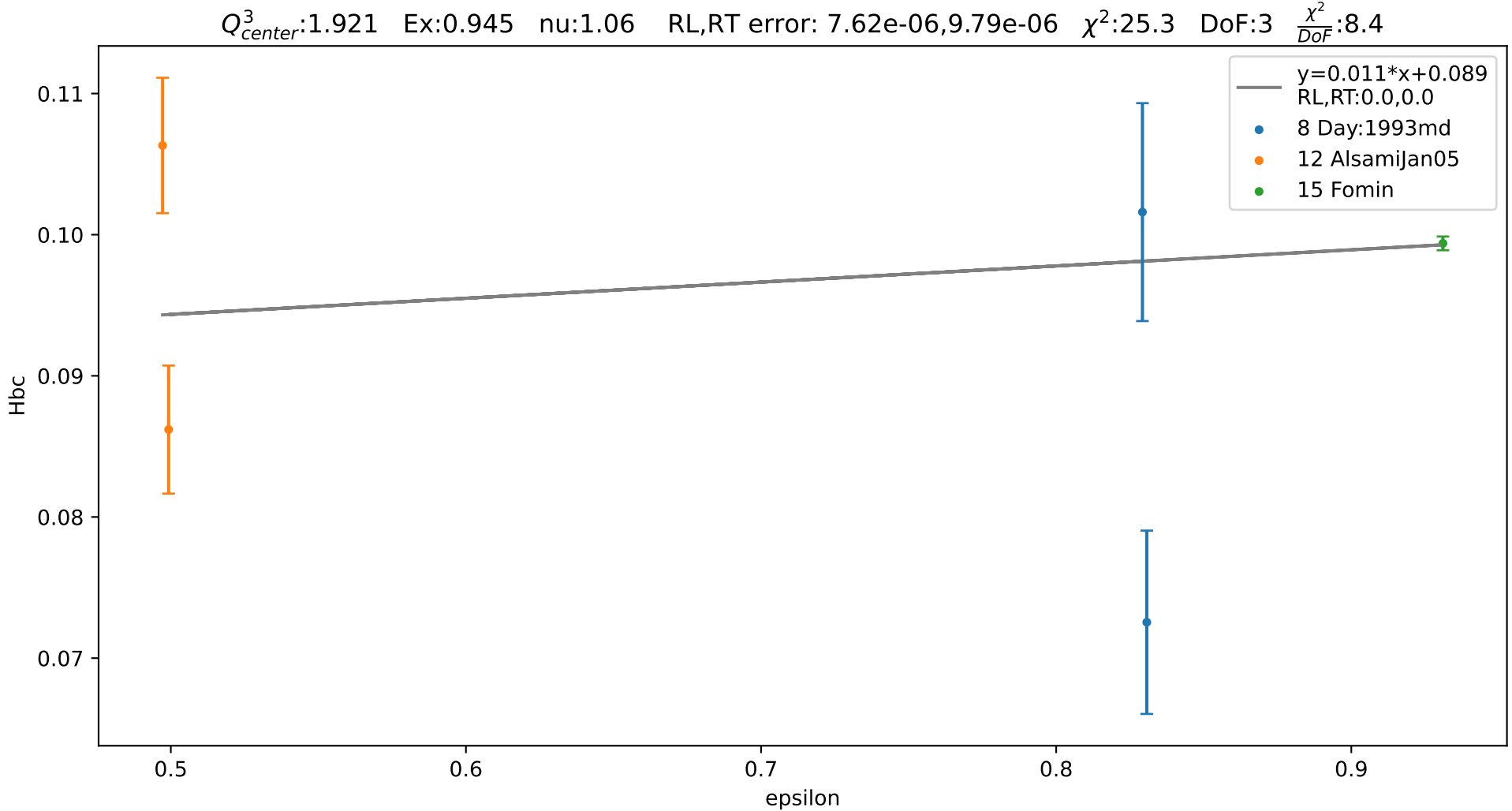

Q^3_{center}:1.619 Ex:1.483 nu:1.5 RL,RT error: 0.00161,0.000329 χ^2:637.5 DoF:9 $\frac{\chi^2}{DoF}$:70.8
y=33.975*x+81.615
RL,RT:0.034,0.023
12 AlsamiJan05
Hbc
epsilon
120
115
110
105
100
95
0.55
0.60
0.65
0.70
0.75
0.80
0.85
0.90

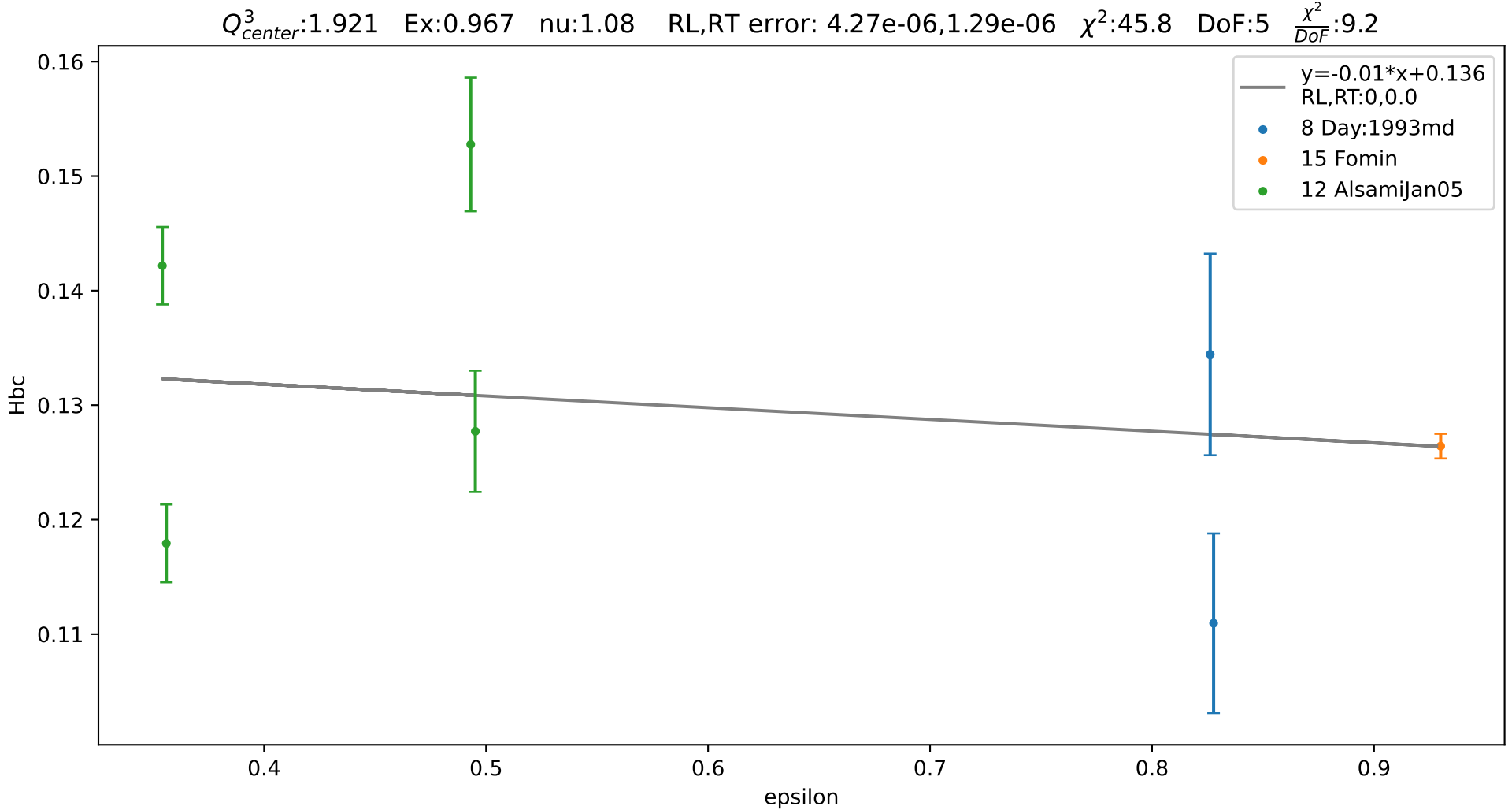

Q^3_{center}:1.619 Ex:1.506 nu:1.52 RL,RT error: 0.00245,0.000367 χ^2:2150.7 DoF:8 $\frac{\chi^2}{DoF}$:268.8
y=39.318*x+111.328
RL,RT:0.039,0.026
12 AlsamiJan05
Hbc
epsilon
120
130
140
150
160
170
0.50
0.55
0.60
0.65
0.70
0.75
0.80
0.85
0.90

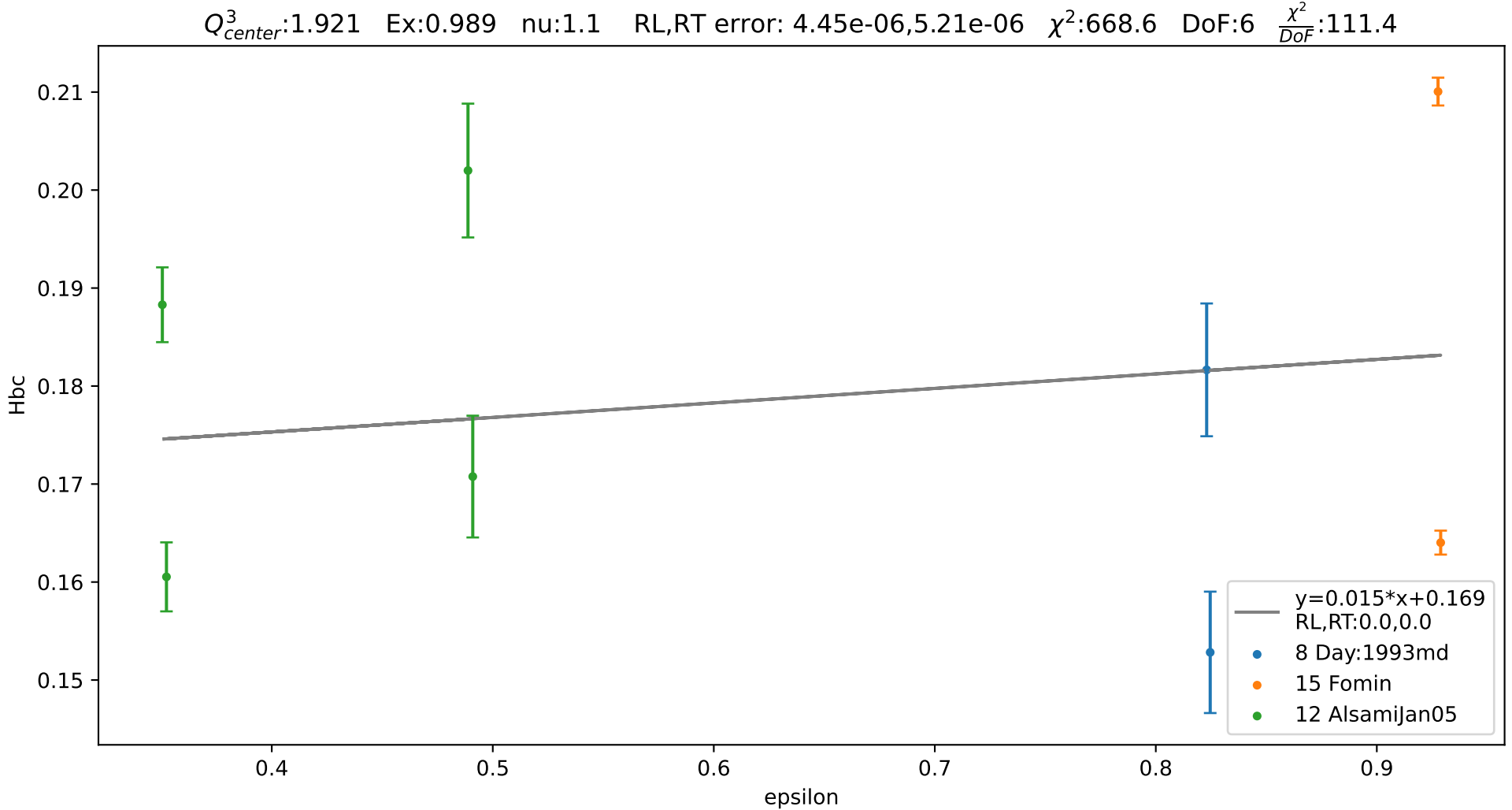

q = 1.619 bin:1.460~1.770
RL Total Christy-Bodek Fit
RL QE Christy-Bodek Fit
RL this analysis
W = 0.93
W = 1.07
W = 1.23
ν = 1.619
(Q² = 0)
R_L
ν(GeV)

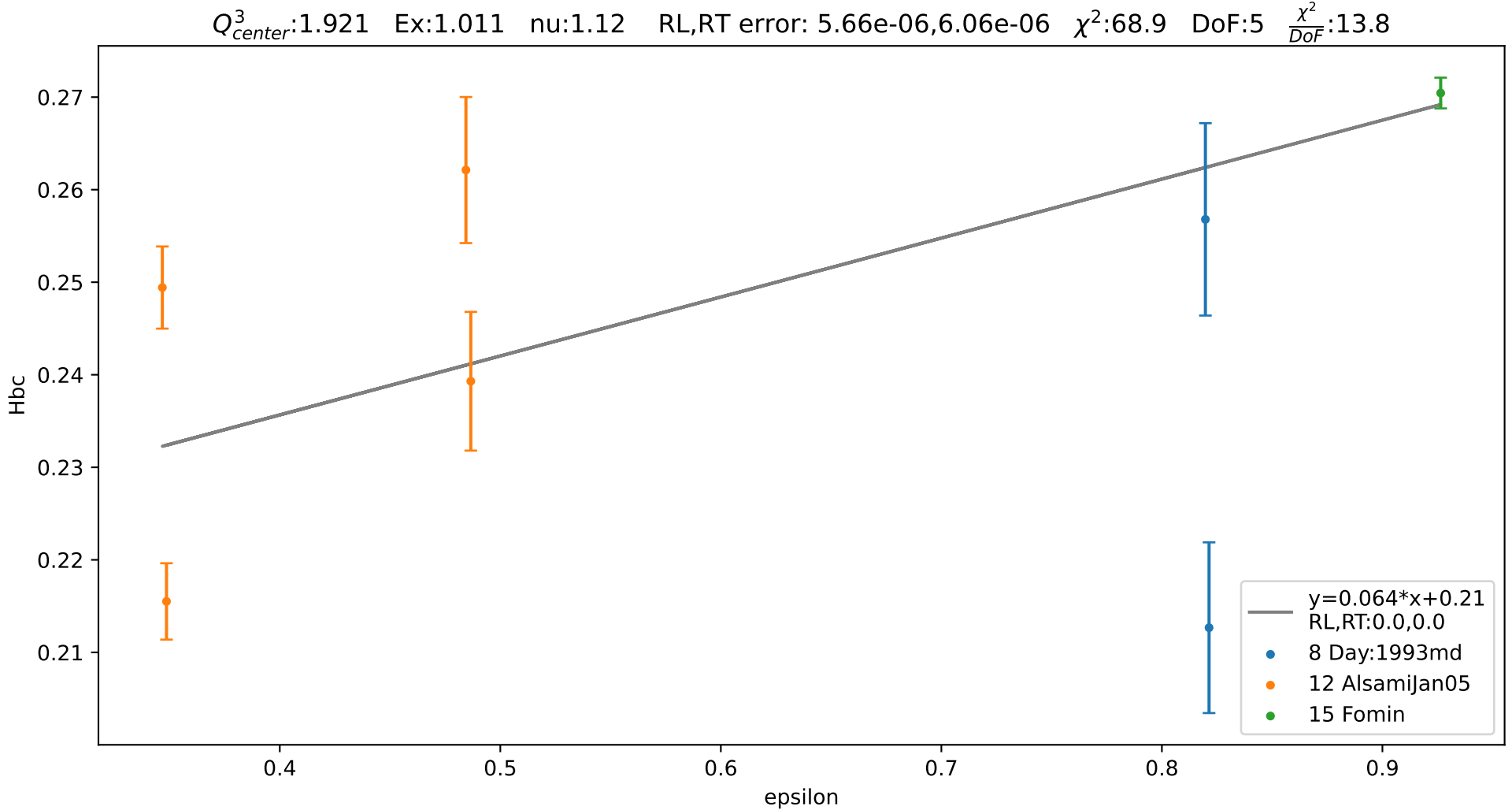

q = 1.619 bin:1.460~1.770
RT Total Christy-Bodek Fit
RT QE Christy-Bodek Fit
RT this analysis
RT Photo-production
W = 0.93
W = 1.07
W = 1.23
ν = 1.619
(Q² = 0)
R_T
ν(GeV)

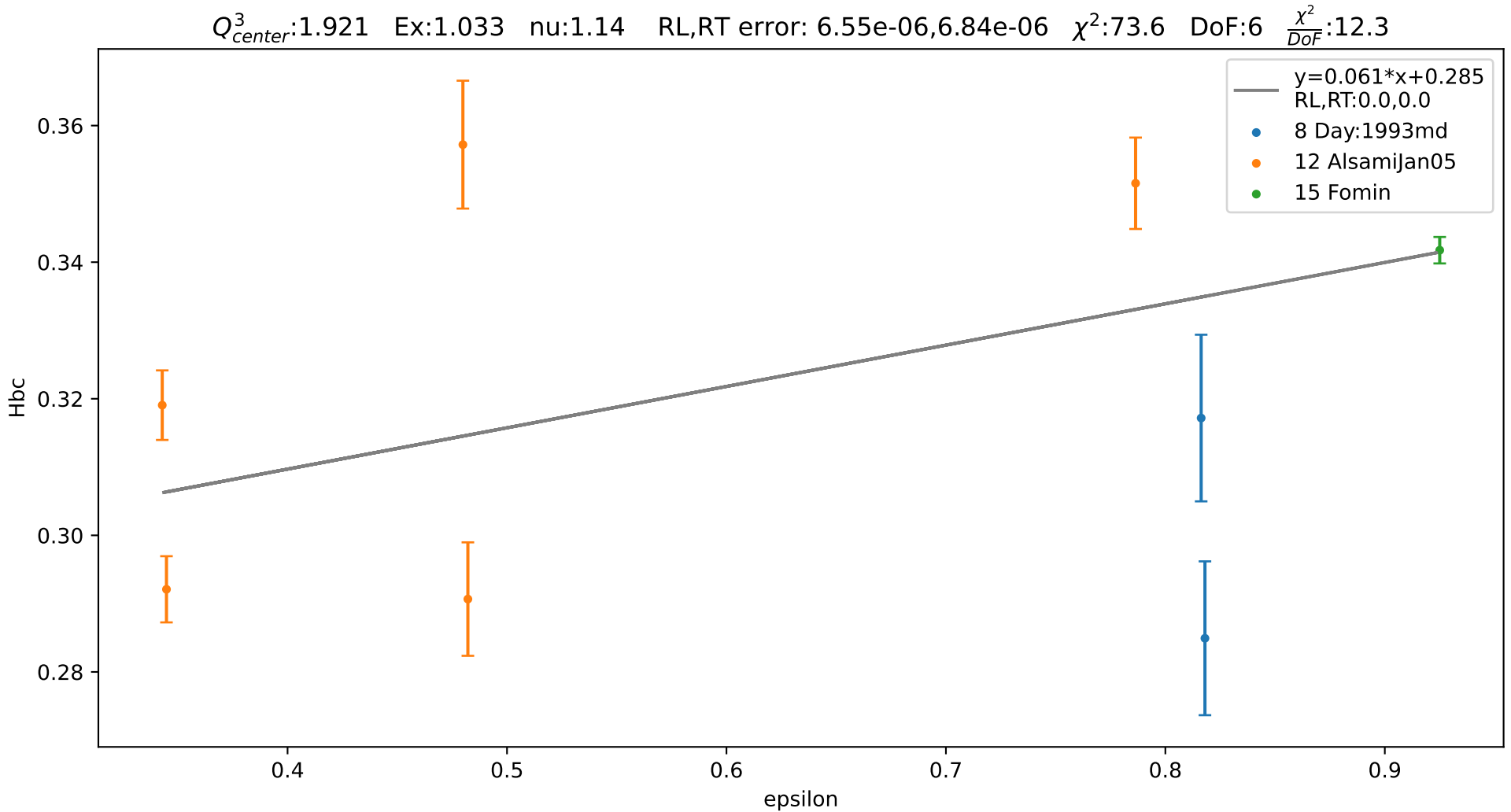

χ²/DoF
χ²/DoF
χ²/DoF
ν(GeV)

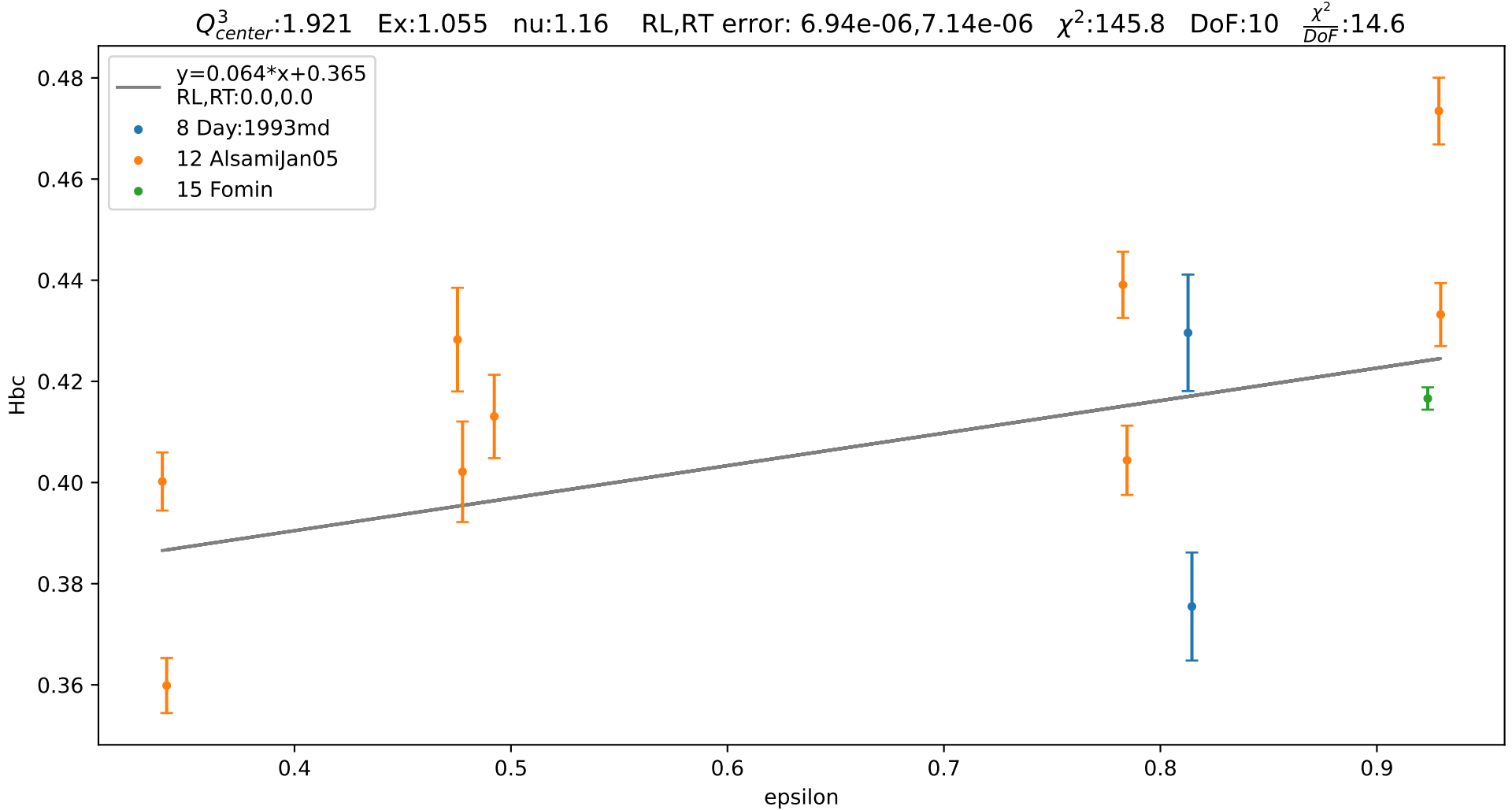

Q^3_{center}:1.921 Ex:0.945 nu:1.06 RL,RT error: 7.62e-06,9.79e-06 χ^2:25.3 DoF:3 $\frac{\chi^2}{DoF}$:8.4
y=0.011*x+0.089
RL,RT:0.0,0.0
8 Day:1993md
12 AlsamiJan05
15 Fomin
Hbc
epsilon
0.11
0.10
0.09
0.08
0.07
0.5
0.6
0.7
0.8
0.9

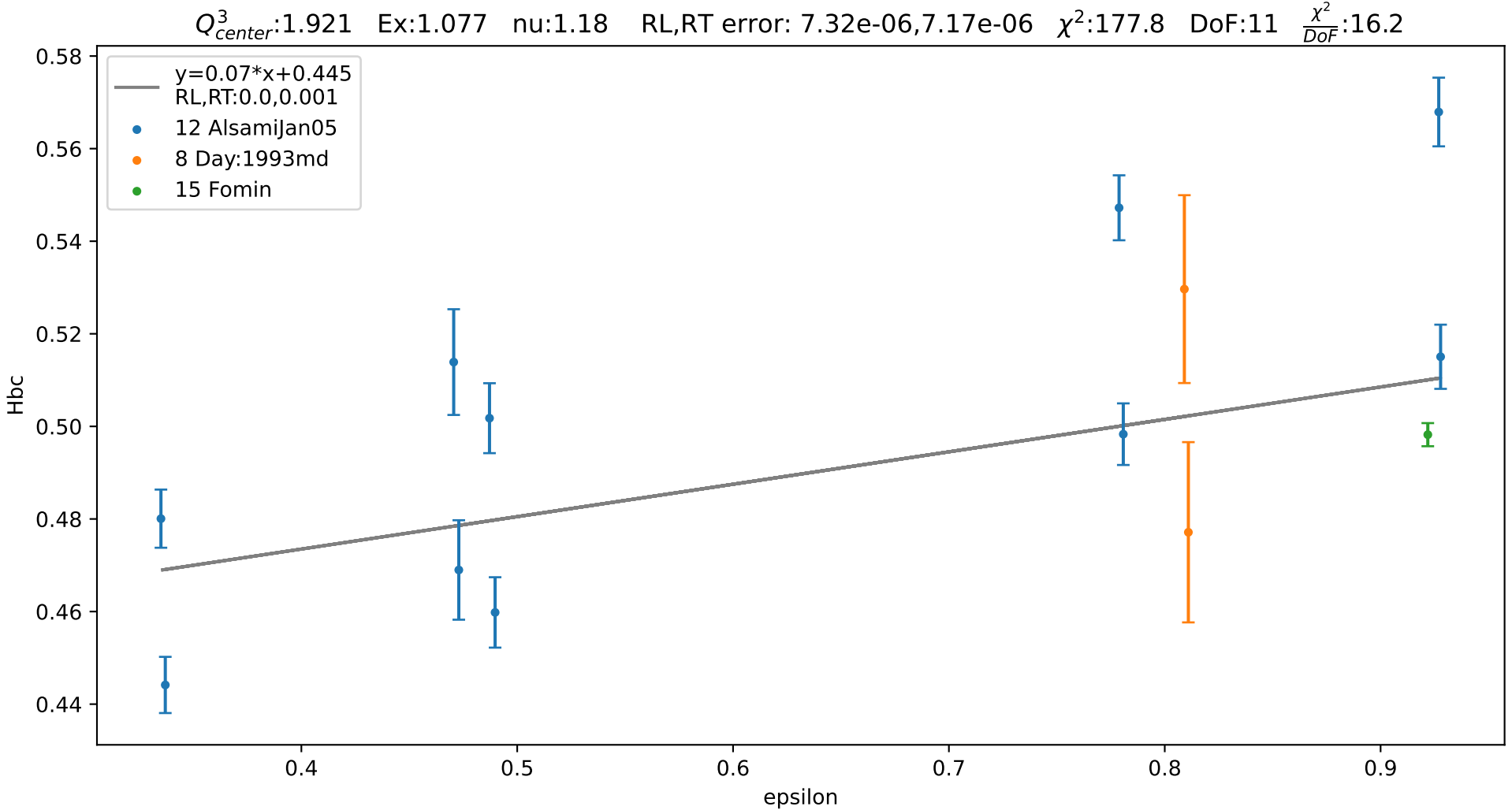

Q^3_{center}:1.921 Ex:0.967 nu:1.08 RL,RT error: 4.27e-06,1.29e-06 χ^2:45.8 DoF:5 $\frac{\chi^2}{DoF}$:9.2
y=-0.01*x+0.136
RL,RT:0,0.0
8 Day:1993md
15 Fomin
12 AlsamiJan05
Hbc
epsilon
0.16
0.15
0.14
0.13
0.12
0.11
0.4
0.5
0.6
0.7
0.8
0.9

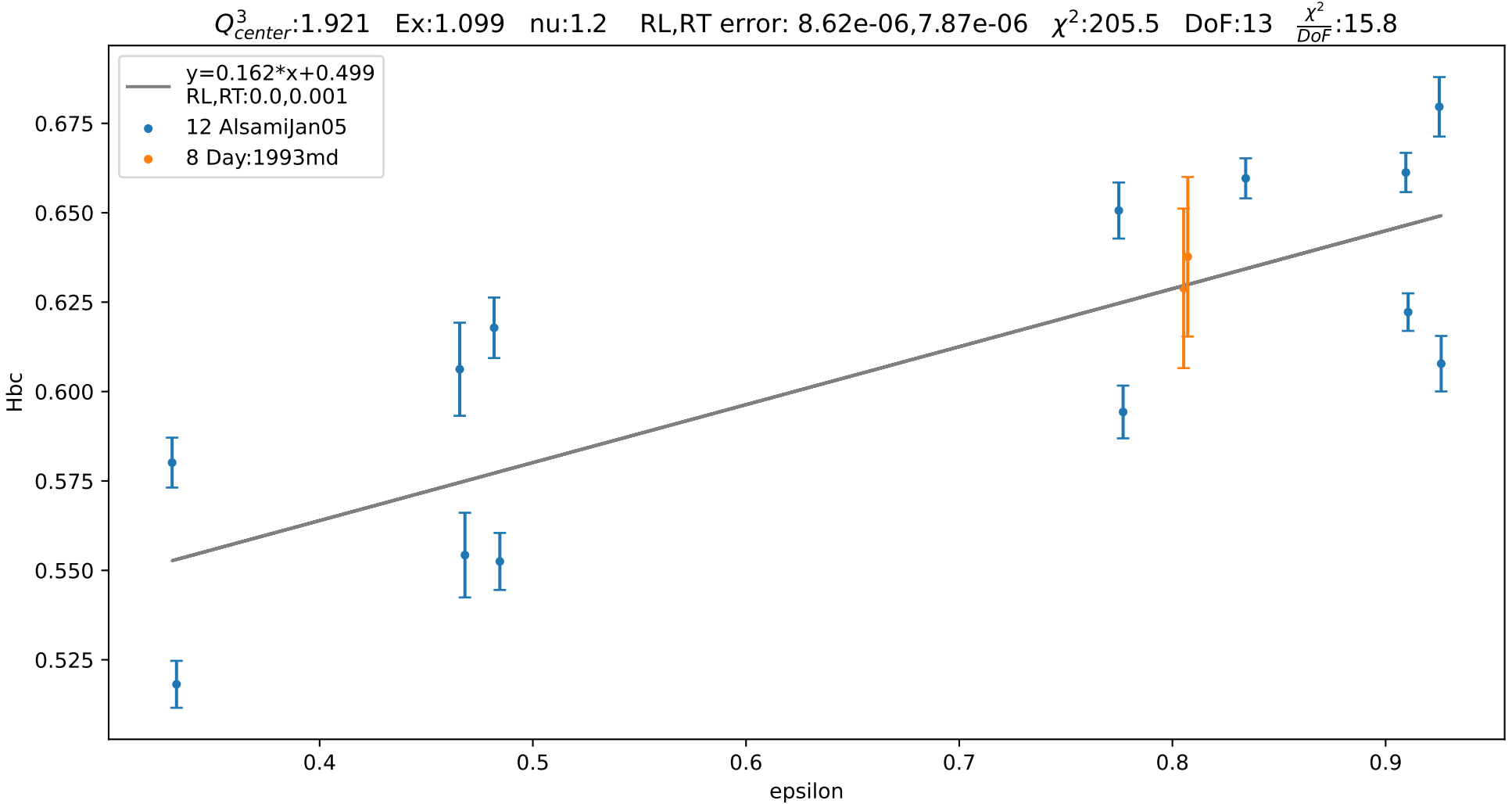

Q^3_{center}:1.921 Ex:0.989 nu:1.1 RL,RT error: 4.45e-06,5.21e-06 χ^2:668.6 DoF:6 $\frac{\chi^2}{DoF}$:111.4
Hbc
epsilon
0.15
0.16
0.17
0.18
0.19
0.20
0.21
0.4
0.5
0.6
0.7
0.8
0.9
y=0.015*x+0.169
RL,RT:0.0,0.0
8 Day:1993md
15 Fomin
12 AlsamiJan05

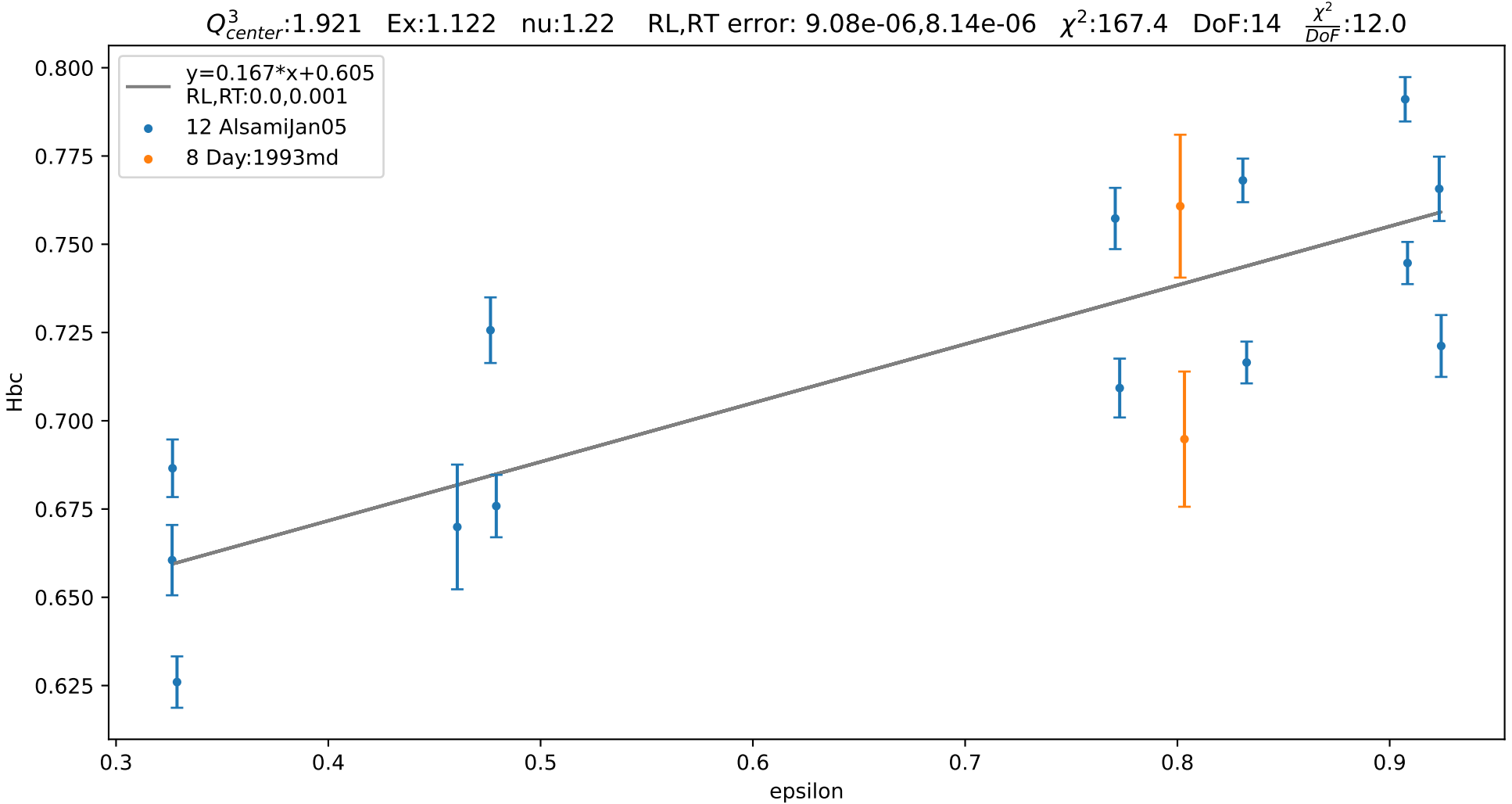

Q^3_{center}:1.921 Ex:1.011 nu:1.12 RL,RT error: 5.66e-06,6.06e-06 χ^2:68.9 DoF:5 $\frac{\chi^2}{DoF}$:13.8
Hbc
epsilon
0.27
0.26
0.25
0.24
0.23
0.22
0.21
0.4
0.5
0.6
0.7
0.8
0.9
y=0.064*x+0.21
RL,RT:0.0,0.0
8 Day:1993md
12 AlsamiJan05
15 Fomin

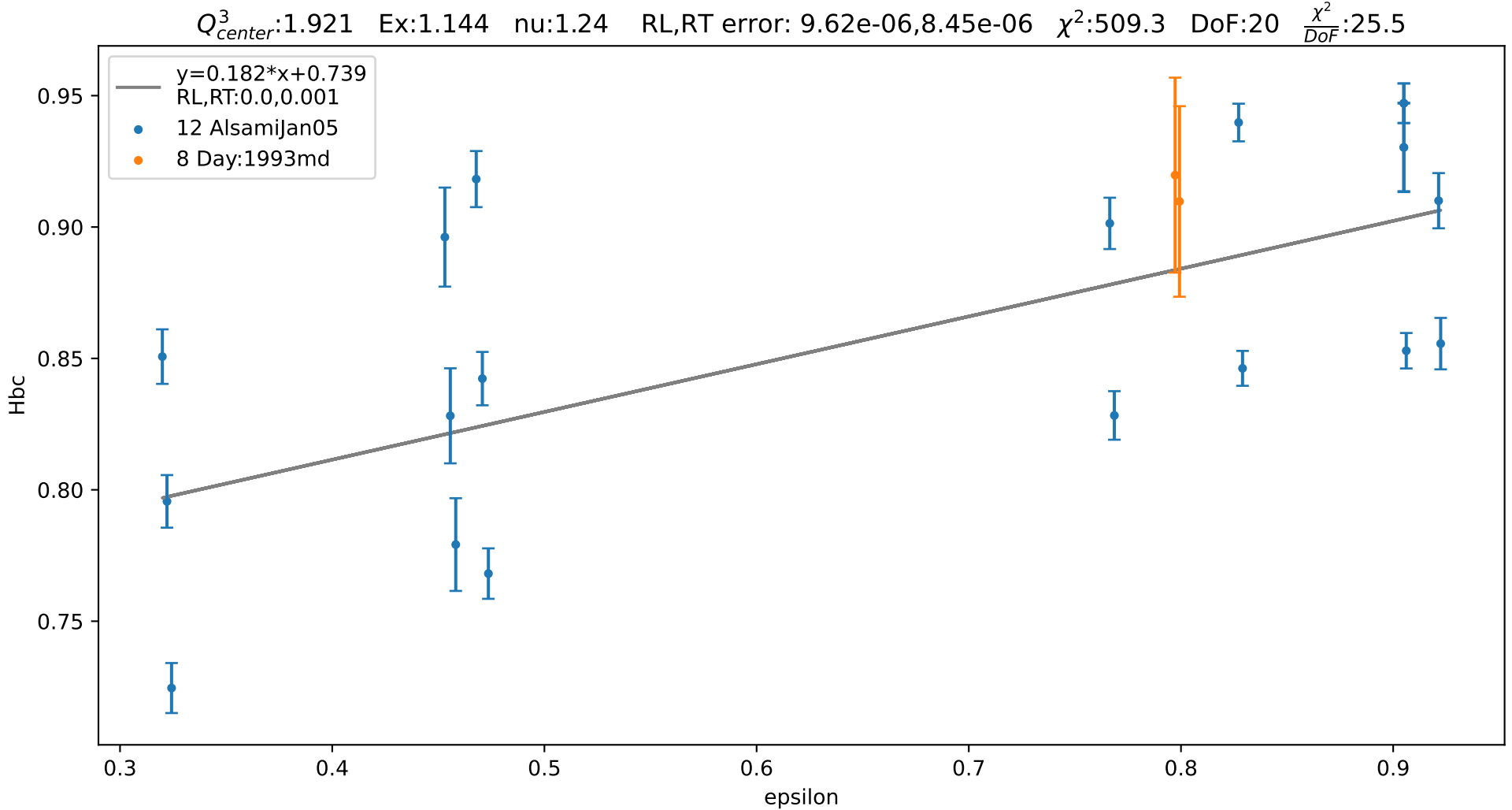

Q^3_{center}:1.921 Ex:1.033 nu:1.14 RL,RT error: 6.55e-06,6.84e-06 χ^2:73.6 DoF:6 $\frac{\chi^2}{DoF}$:12.3
y=0.061*x+0.285
RL,RT:0.0,0.0
8 Day:1993md
12 AlsamiJan05
15 Fomin
Hbc
epsilon
0.36
0.34
0.32
0.30
0.28
0.4
0.5
0.6
0.7
0.8
0.9

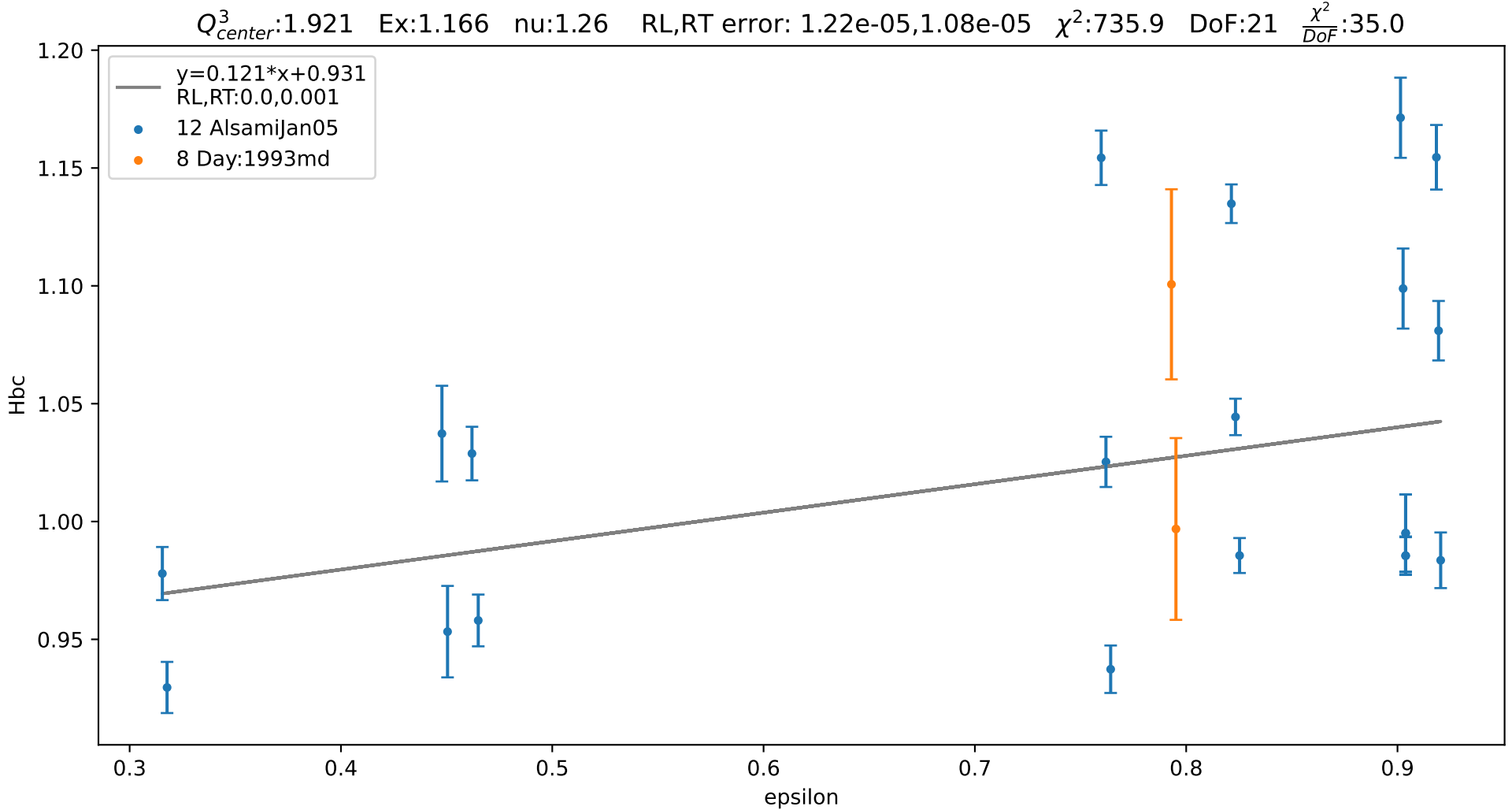

Q^3_{center}:1.921 Ex:1.055 nu:1.16 RL,RT error: 6.94e-06,7.14e-06 χ^2:145.8 DoF:10 $\frac{\chi^2}{DoF}$:14.6
y=0.064*x+0.365
RL,RT:0.0,0.0
8 Day:1993md
12 AlsamiJan05
15 Fomin
Hbc
epsilon
0.48
0.46
0.44
0.42
0.40
0.38
0.36
0.4
0.5
0.6
0.7
0.8
0.9

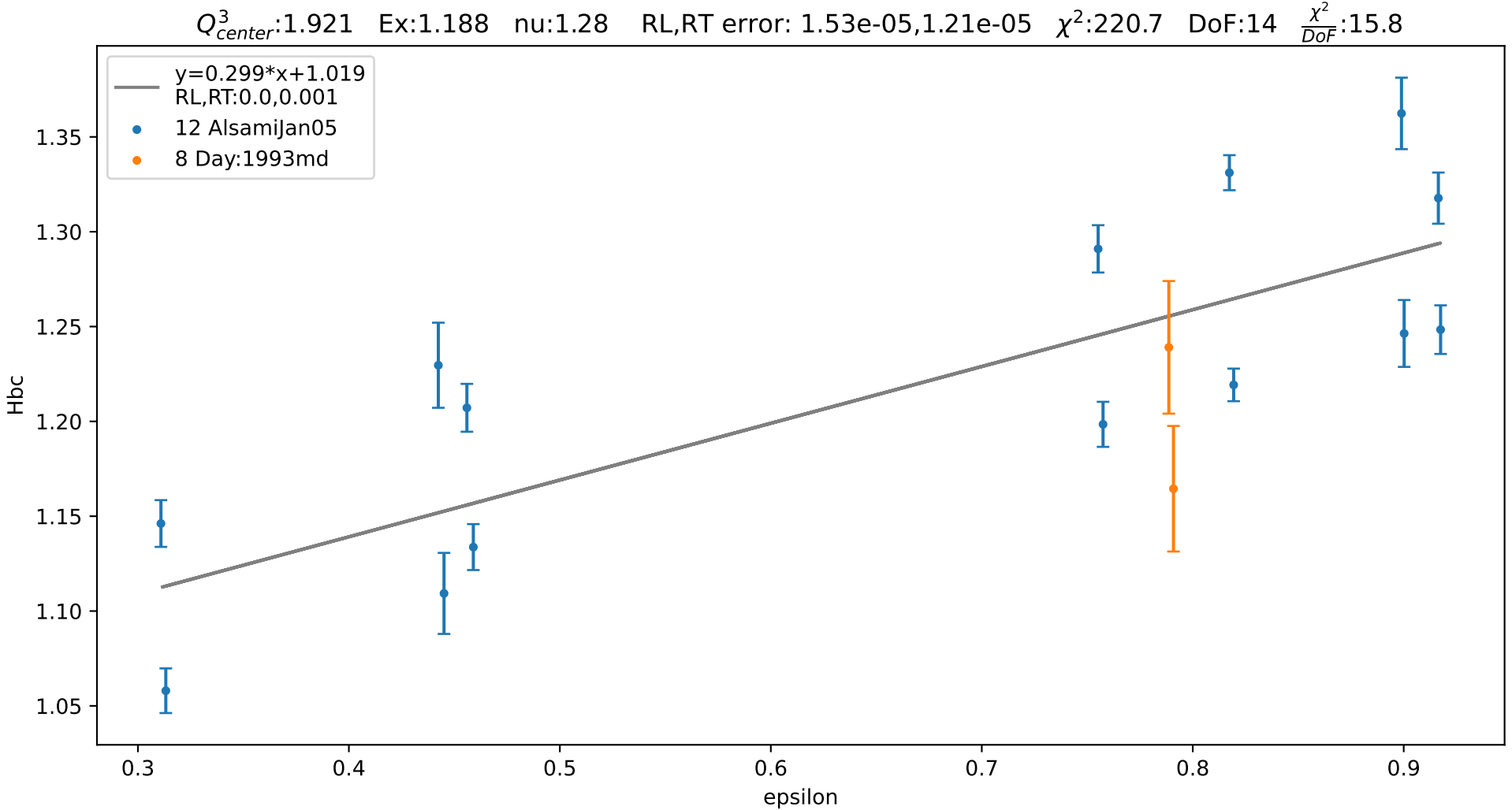

Q^3_{center}:1.921 Ex:1.077 nu:1.18 RL,RT error: 7.32e-06,7.17e-06 χ^2:177.8 DoF:11 $\frac{\chi^2}{DoF}$:16.2
y=0.07*x+0.445
RL,RT:0.0,0.001
12 AlsamiJan05
8 Day:1993md
15 Fomin
Hbc
epsilon
0.58
0.56
0.54
0.52
0.50
0.48
0.46
0.44
0.4
0.5
0.6
0.7
0.8
0.9

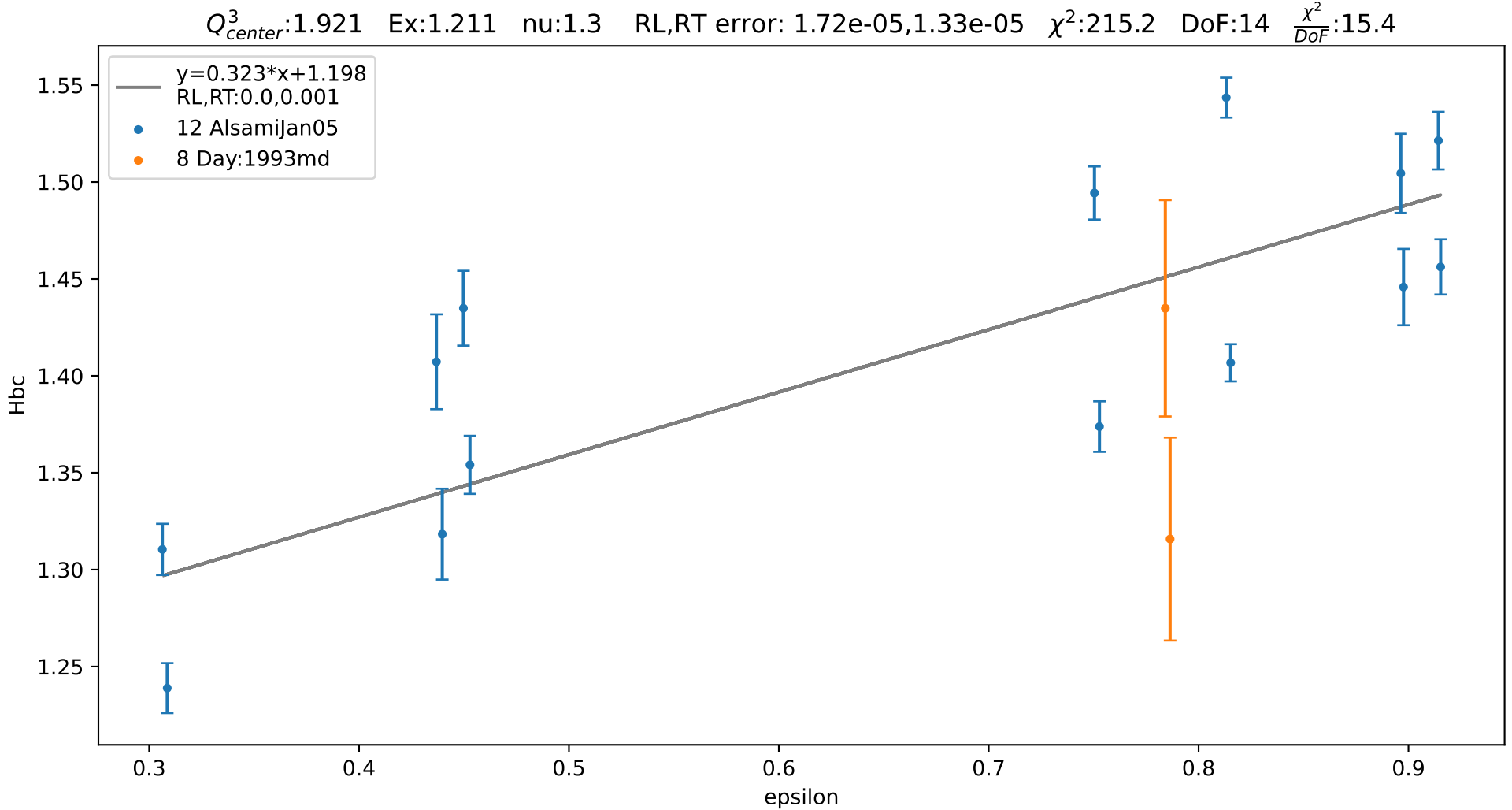

Q^3_{center}:1.921 Ex:1.099 nu:1.2 RL,RT error: 8.62e-06,7.87e-06 χ^2:205.5 DoF:13 $\frac{\chi^2}{DoF}$:15.8
y=0.162*x+0.499
RL,RT:0.0,0.001
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
0.675
0.650
0.625
0.600
0.575
0.550
0.525
0.4
0.5
0.6
0.7
0.8
0.9

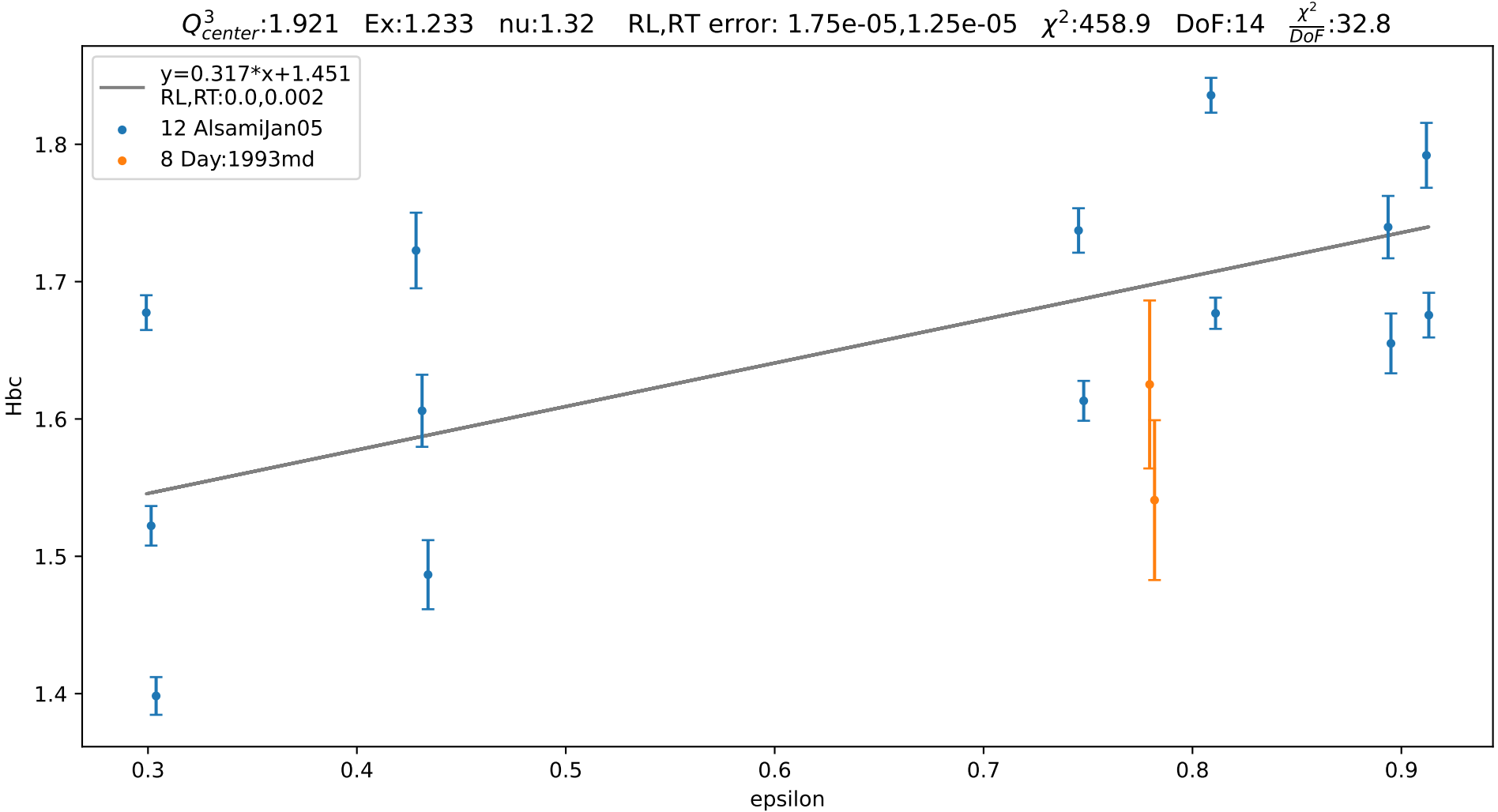

Q^3_{center}:1.921 Ex:1.122 nu:1.22 RL,RT error: 9.08e-06,8.14e-06 χ^2:167.4 DoF:14 $\frac{\chi^2}{DoF}$:12.0
y=0.167*x+0.605
RL,RT:0.0,0.001
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
0.800
0.775
0.750
0.725
0.700
0.675
0.650
0.625
0.3
0.4
0.5
0.6
0.7
0.8
0.9

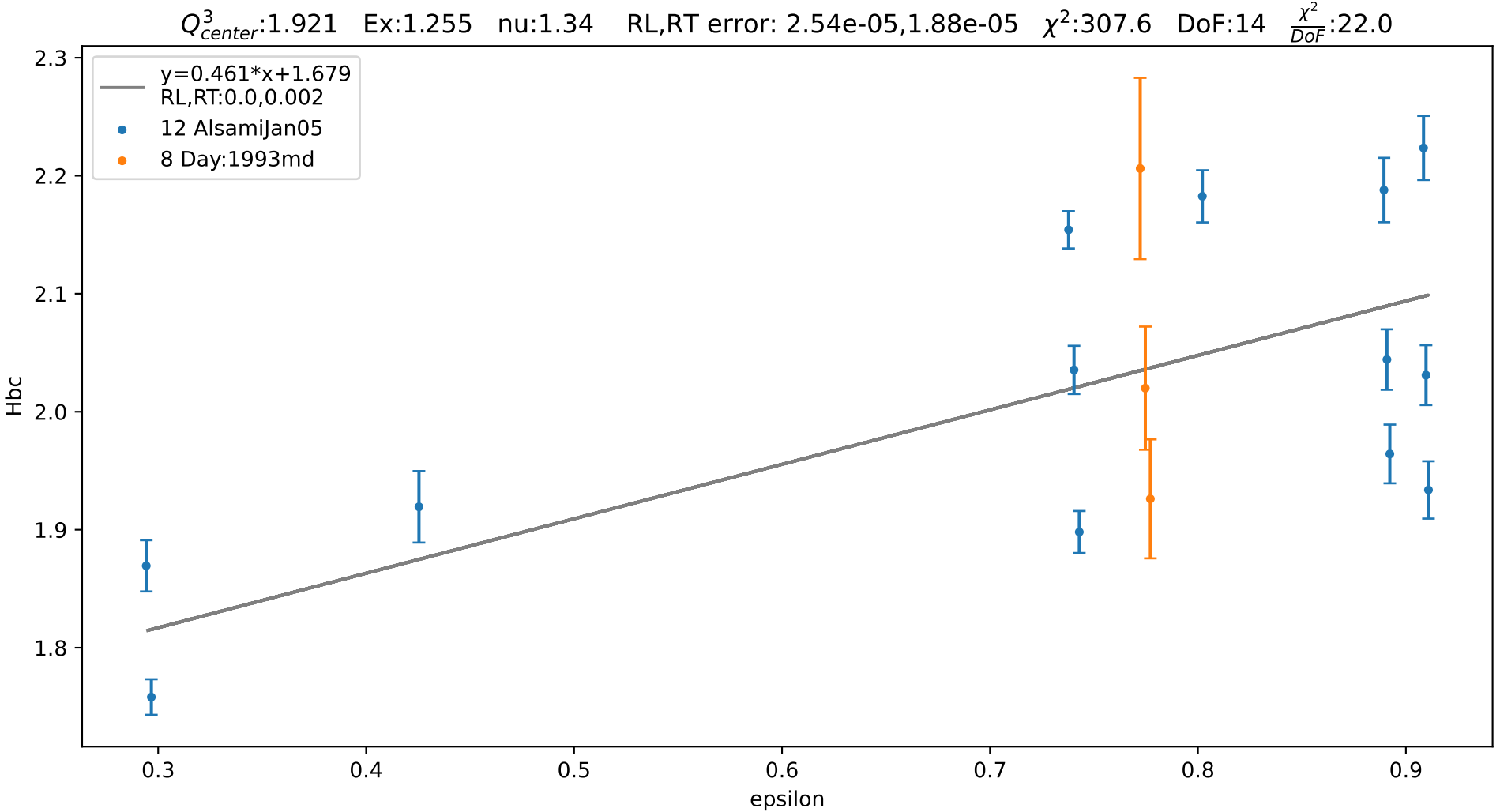

Q^3_{center}:1.921 Ex:1.144 nu:1.24 RL,RT error: 9.62e-06,8.45e-06 χ^2:509.3 DoF:20 $\frac{\chi^2}{DoF}$:25.5
y=0.182*x+0.739
RL,RT:0.0,0.001
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
0.95
0.90
0.85
0.80
0.75
0.3
0.4
0.5
0.6
0.7
0.8
0.9

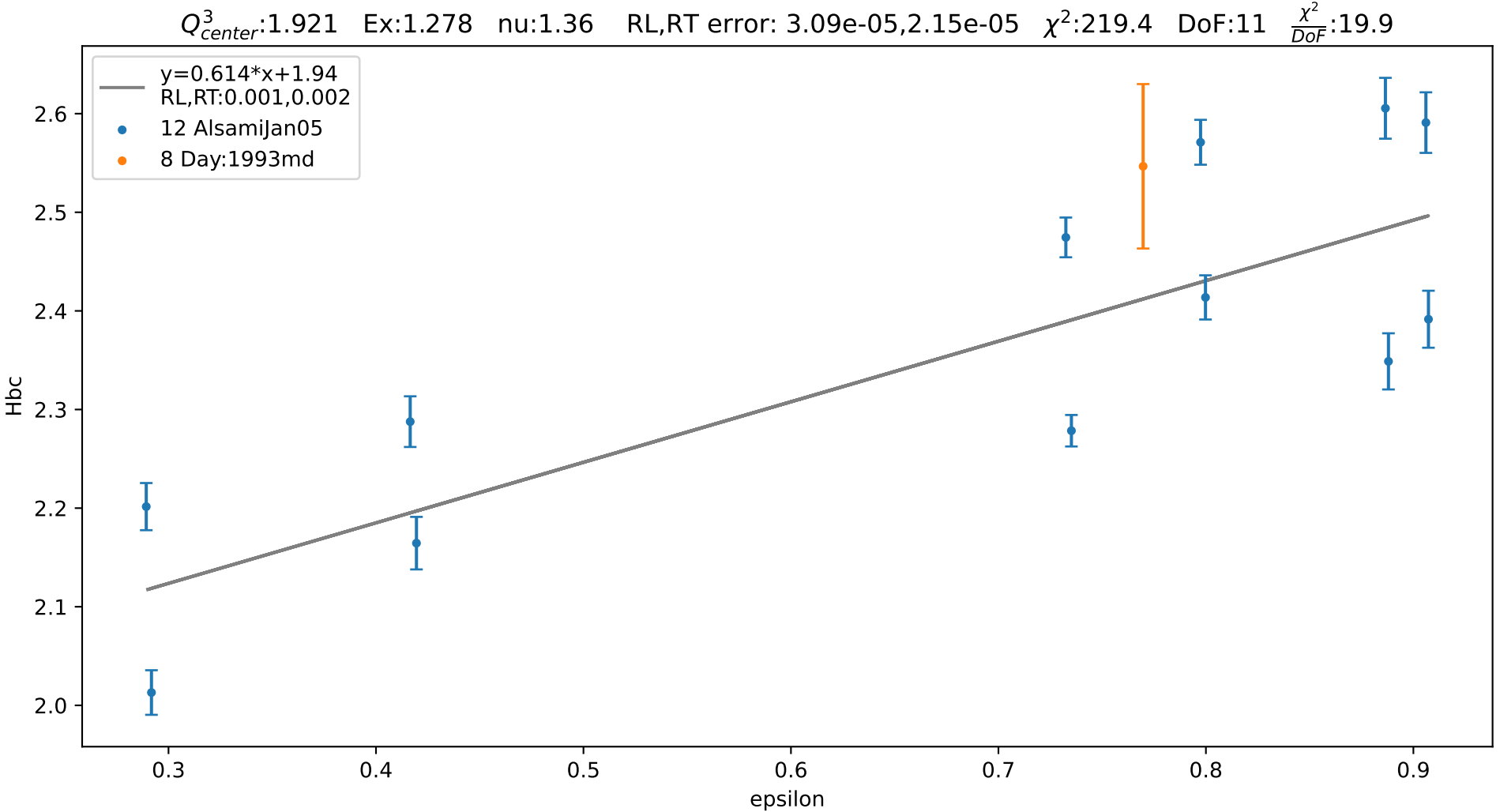

Q^3_{center}:1.921 Ex:1.166 nu:1.26 RL,RT error: 1.22e-05,1.08e-05 χ^2:735.9 DoF:21 $\frac{\chi^2}{DoF}$:35.0
y=0.121*x+0.931
RL,RT:0.0,0.001
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
1.20
1.15
1.10
1.05
1.00
0.95
0.3
0.4
0.5
0.6
0.7
0.8
0.9

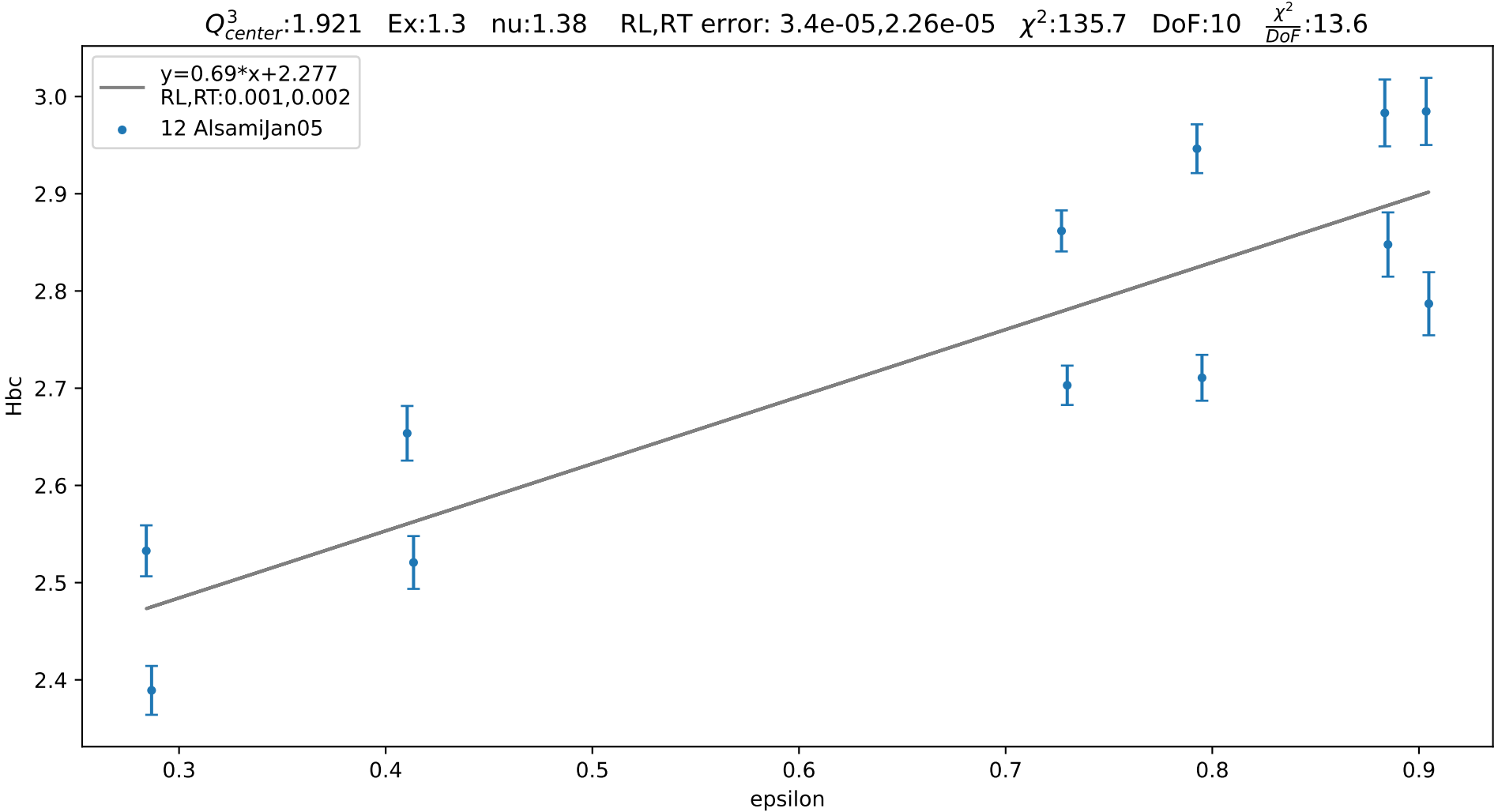

Q^3_{center}:1.921 Ex:1.188 nu:1.28 RL,RT error: 1.53e-05,1.21e-05 χ^2:220.7 DoF:14 $\frac{\chi^2}{DoF}$:15.8
y=0.299*x+1.019
RL,RT:0.0,0.001
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
1.05
1.10
1.15
1.20
1.25
1.30
1.35
0.3
0.4
0.5
0.6
0.7
0.8
0.9

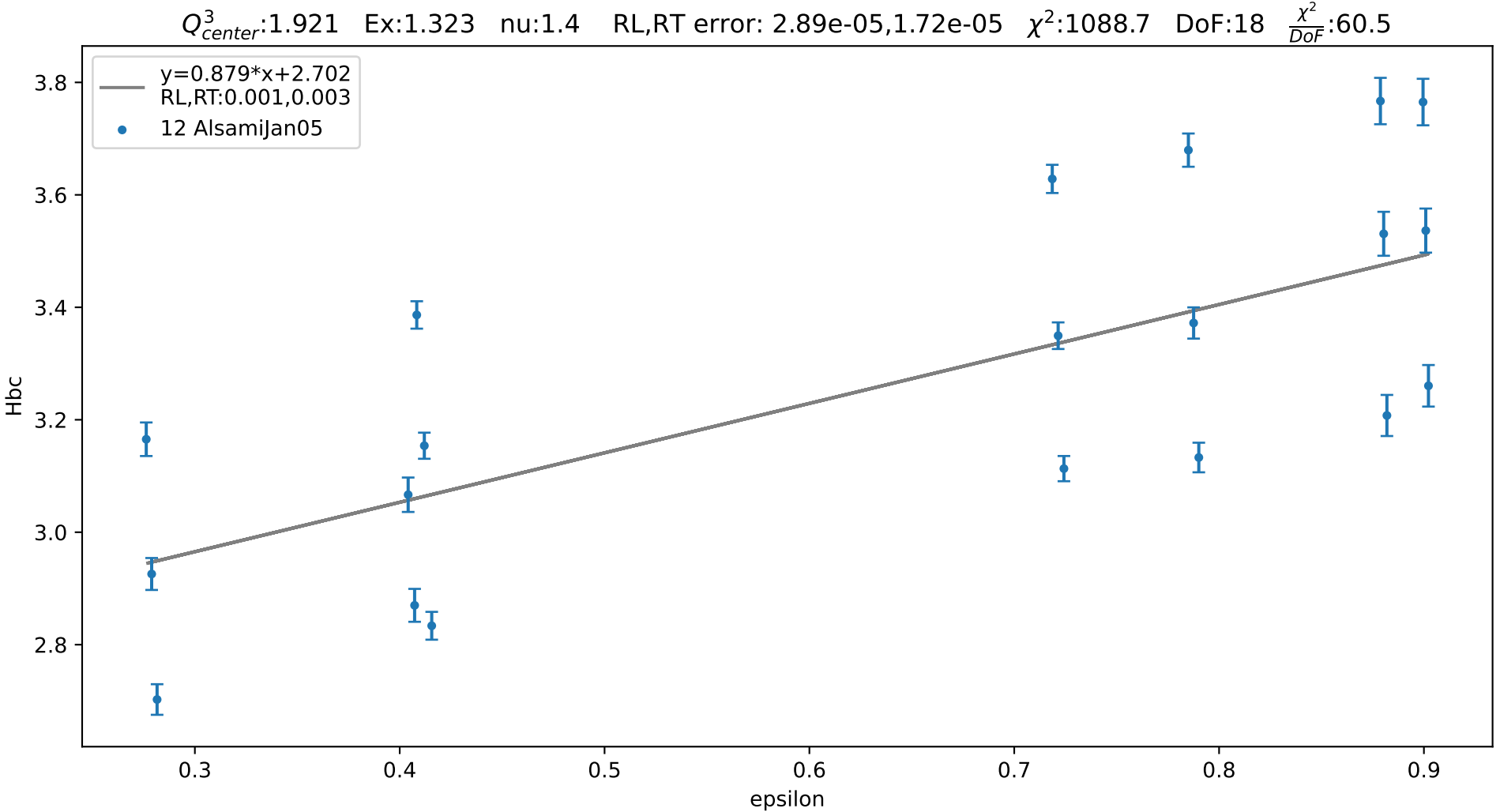

Q^3_{center}:1.921 Ex:1.211 nu:1.3 RL,RT error: 1.72e-05,1.33e-05 χ^2:215.2 DoF:14 $\frac{\chi^2}{DoF}$:15.4
y=0.323*x+1.198
RL,RT:0.0,0.001
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
1.55
1.50
1.45
1.40
1.35
1.30
1.25
0.3
0.4
0.5
0.6
0.7
0.8
0.9

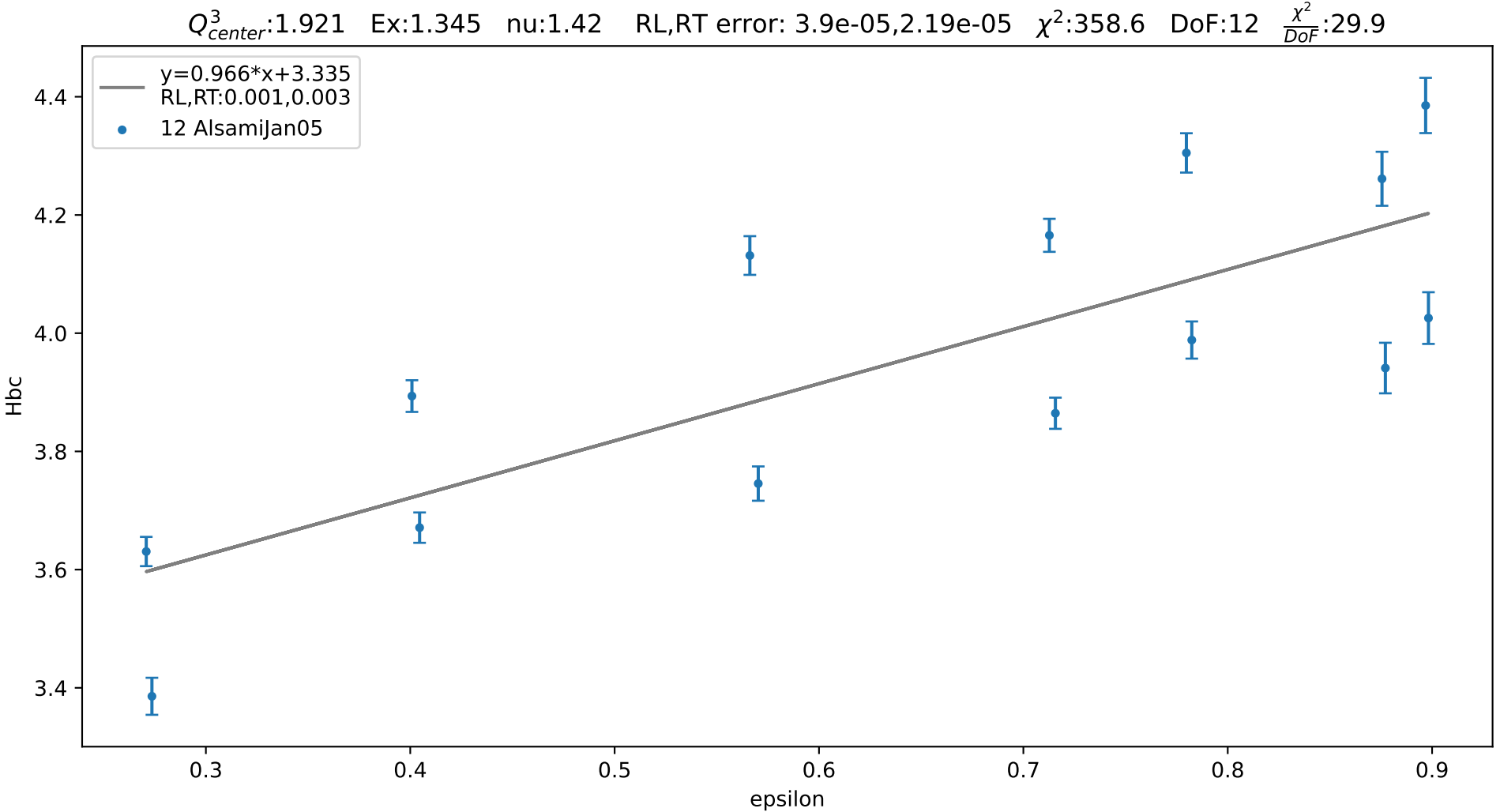

Q^3_{center}:1.921 Ex:1.233 nu:1.32 RL,RT error: 1.75e-05,1.25e-05 χ^2:458.9 DoF:14 $\frac{\chi^2}{DoF}$:32.8
y=0.317*x+1.451
RL,RT:0.0,0.002
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
1.8
1.7
1.6
1.5
1.4
0.3
0.4
0.5
0.6
0.7
0.8
0.9

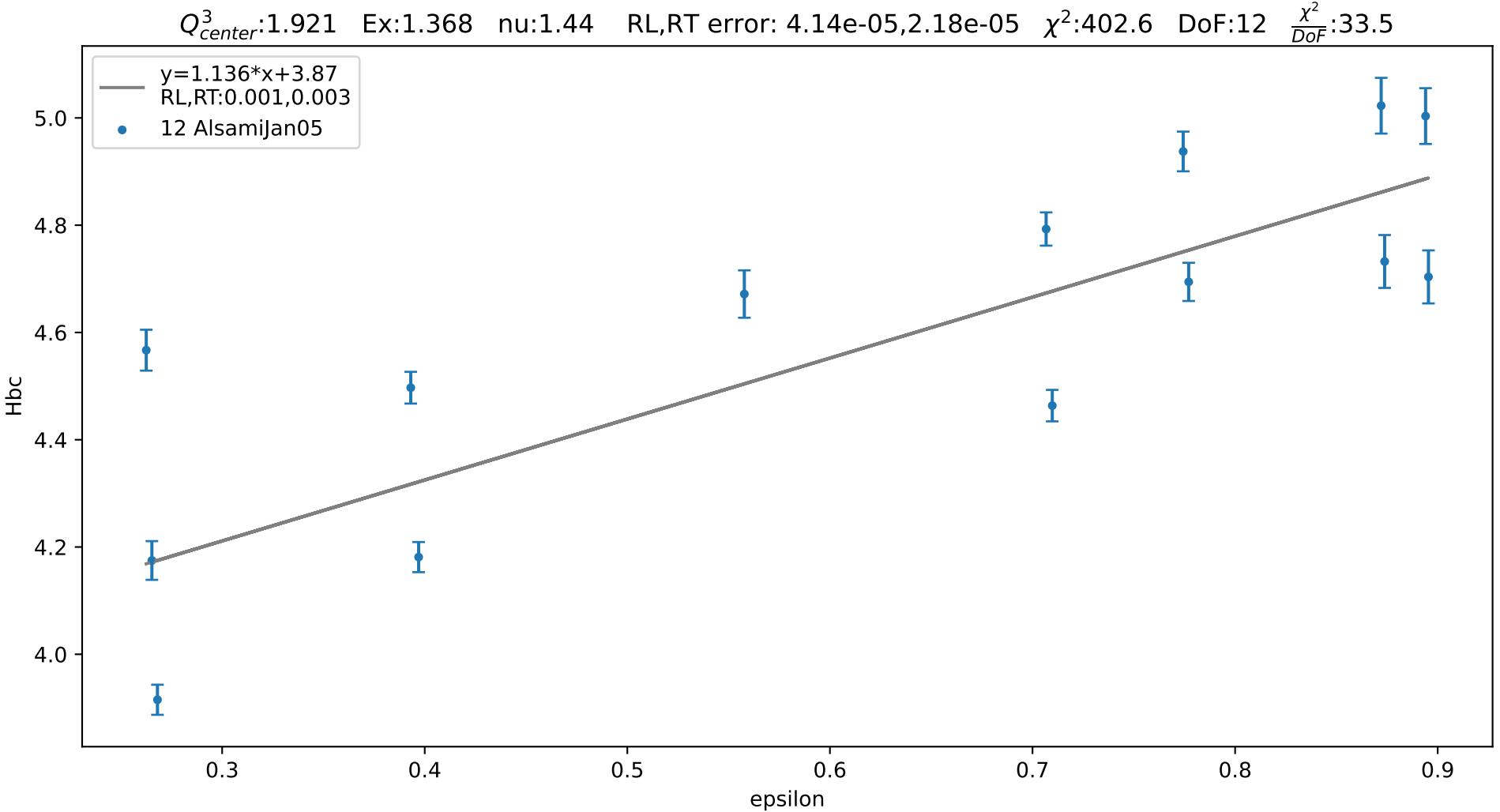

Q^3_{center}:1.921 Ex:1.255 nu:1.34 RL,RT error: 2.54e-05,1.88e-05 χ^2:307.6 DoF:14 $\frac{\chi^2}{DoF}$:22.0
y=0.461*x+1.679
RL,RT:0.0,0.002
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
2.3
2.2
2.1
2.0
1.9
1.8
0.3
0.4
0.5
0.6
0.7
0.8
0.9

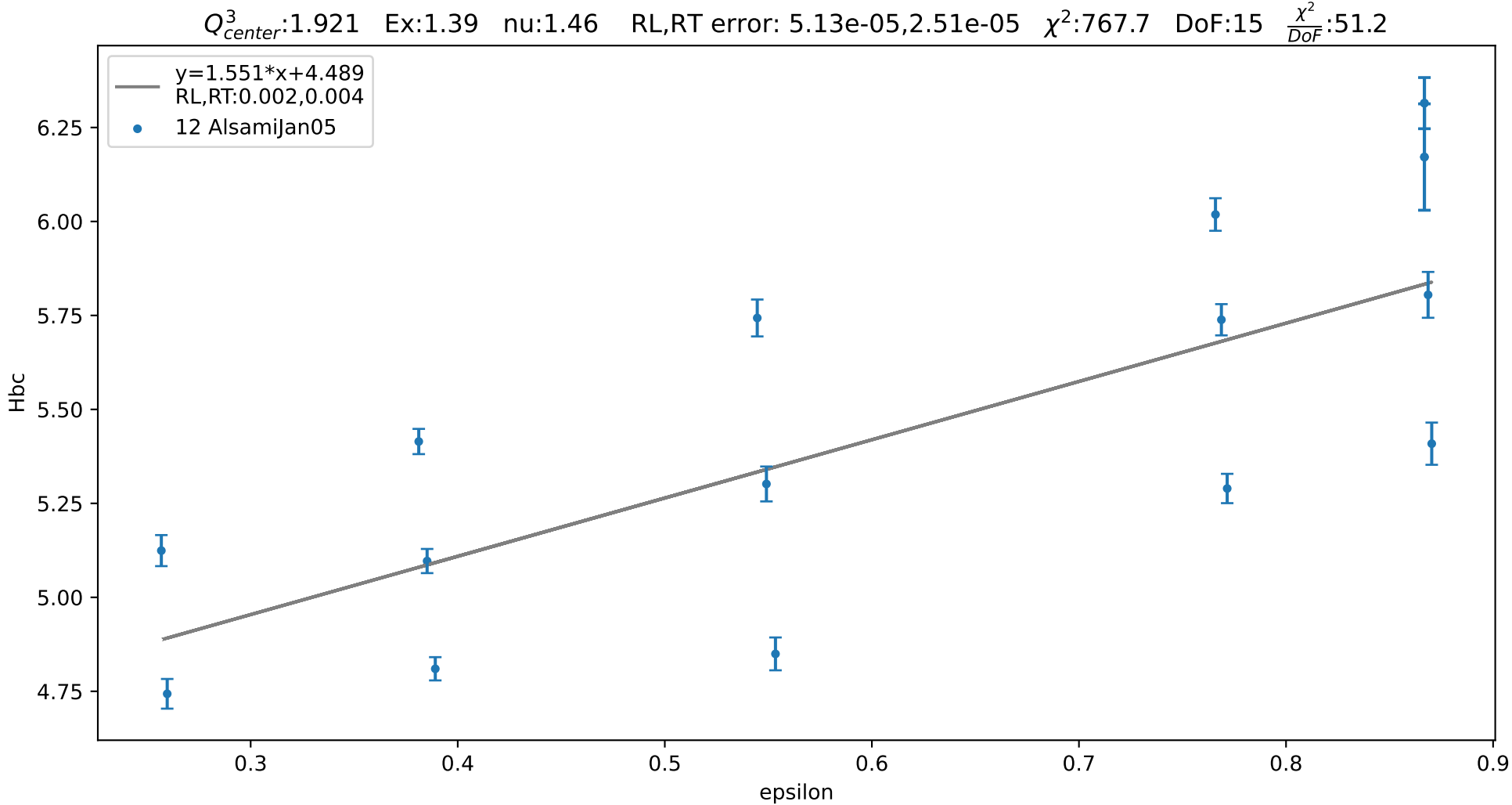

Q^3_{center}:1.921 Ex:1.278 nu:1.36 RL,RT error: 3.09e-05,2.15e-05 χ^2:219.4 DoF:11 $\frac{\chi^2}{DoF}$:19.9
y=0.614*x+1.94
RL,RT:0.001,0.002
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
2.0
2.1
2.2
2.3
2.4
2.5
2.6
0.3
0.4
0.5
0.6
0.7
0.8
0.9

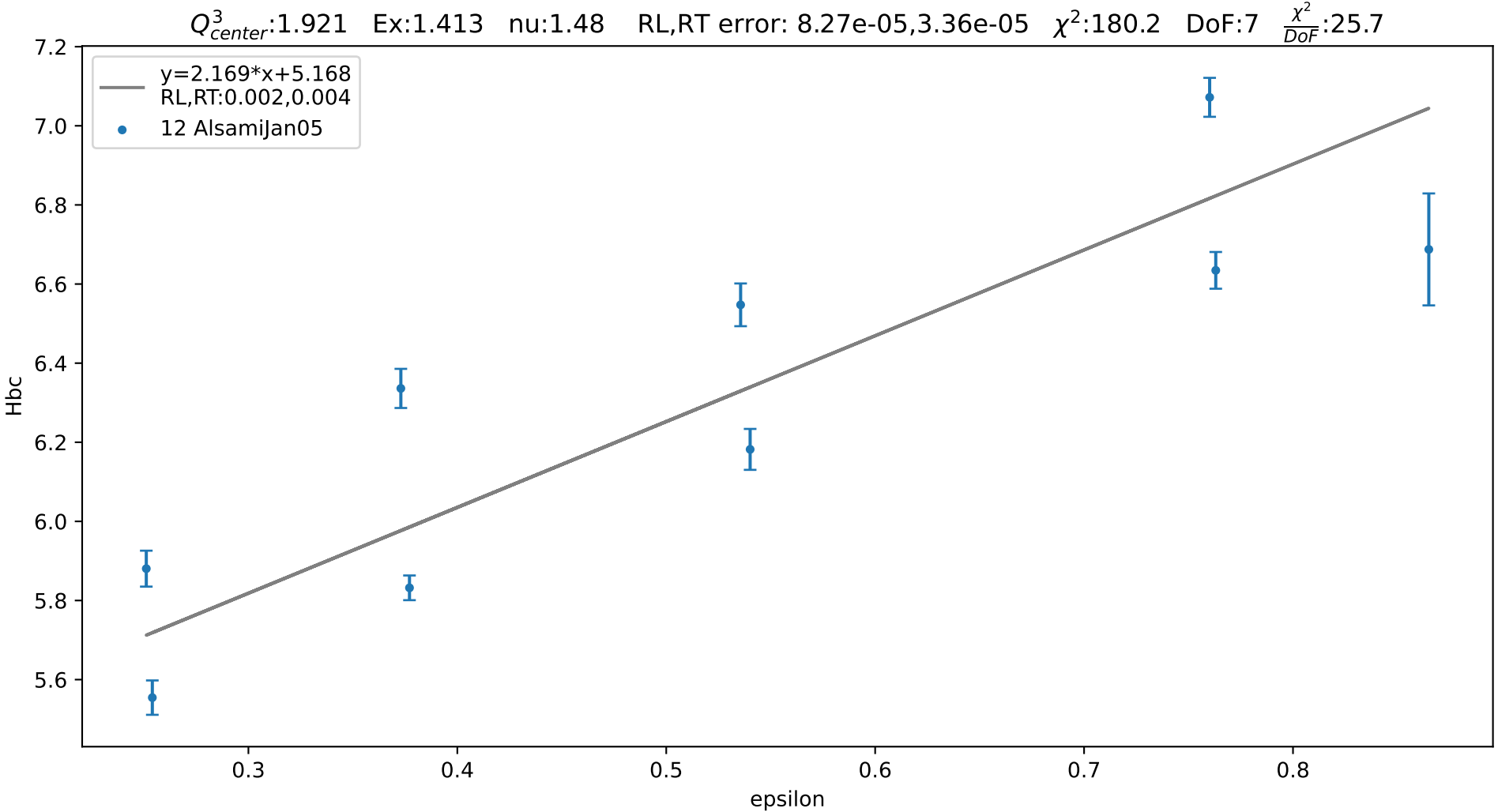

Q^3_{center}:1.921 Ex:1.3 nu:1.38 RL,RT error: 3.4e-05,2.26e-05 χ^2:135.7 DoF:10 $\frac{\chi^2}{DoF}$:13.6
y=0.69*x+2.277
RL,RT:0.001,0.002
12 AlsamiJan05
Hbc
epsilon
3.0
2.9
2.8
2.7
2.6
2.5
2.4
0.3
0.4
0.5
0.6
0.7
0.8
0.9

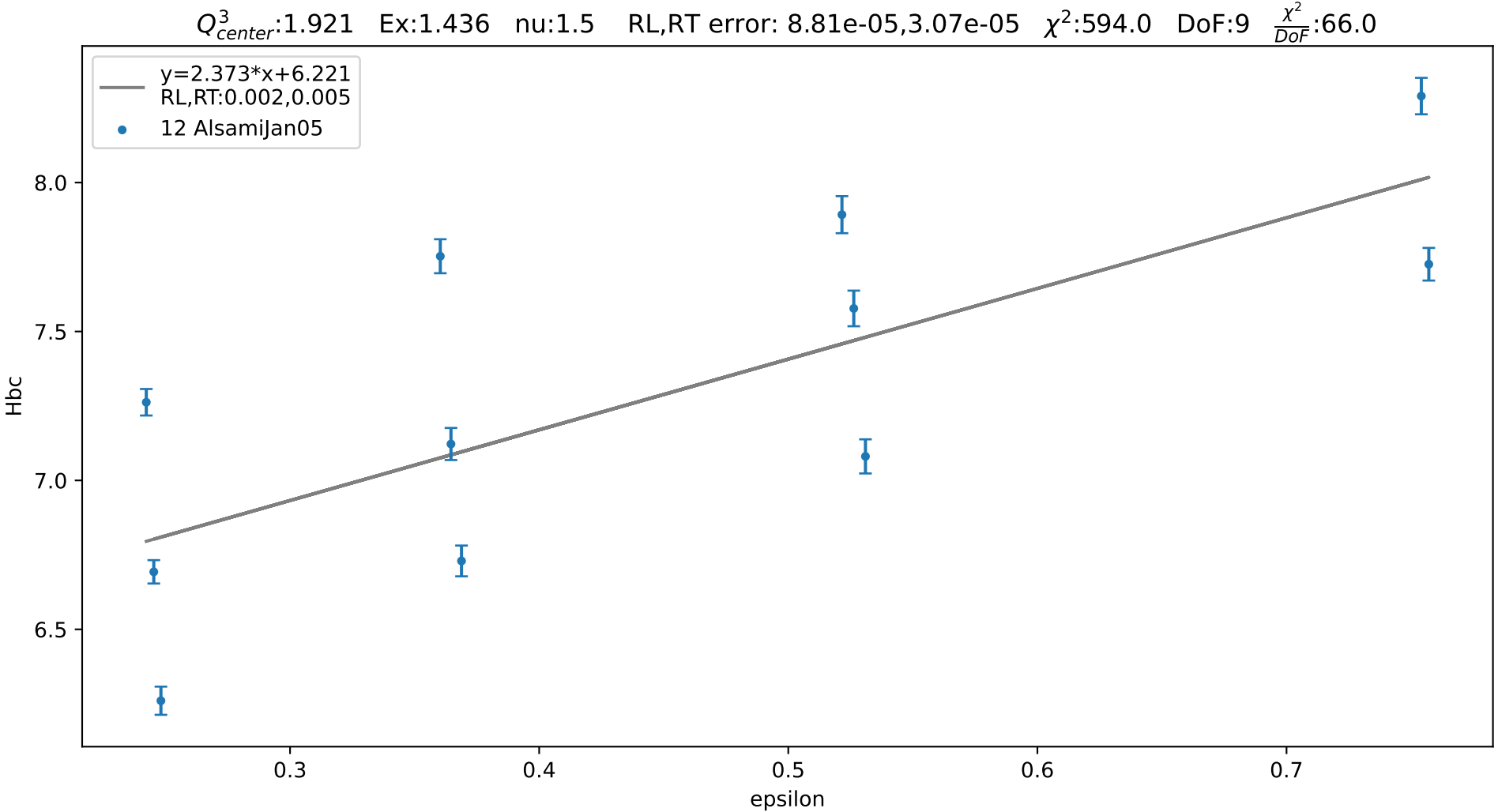

Q^3_{center}:1.921 Ex:1.323 nu:1.4 RL,RT error: 2.89e-05,1.72e-05 χ^2:1088.7 DoF:18 $\frac{\chi^2}{DoF}$:60.5
y=0.879*x+2.702
RL,RT:0.001,0.003
12 AlsamiJan05
Hbc
epsilon
3.8
3.6
3.4
3.2
3.0
2.8
0.3
0.4
0.5
0.6
0.7
0.8
0.9

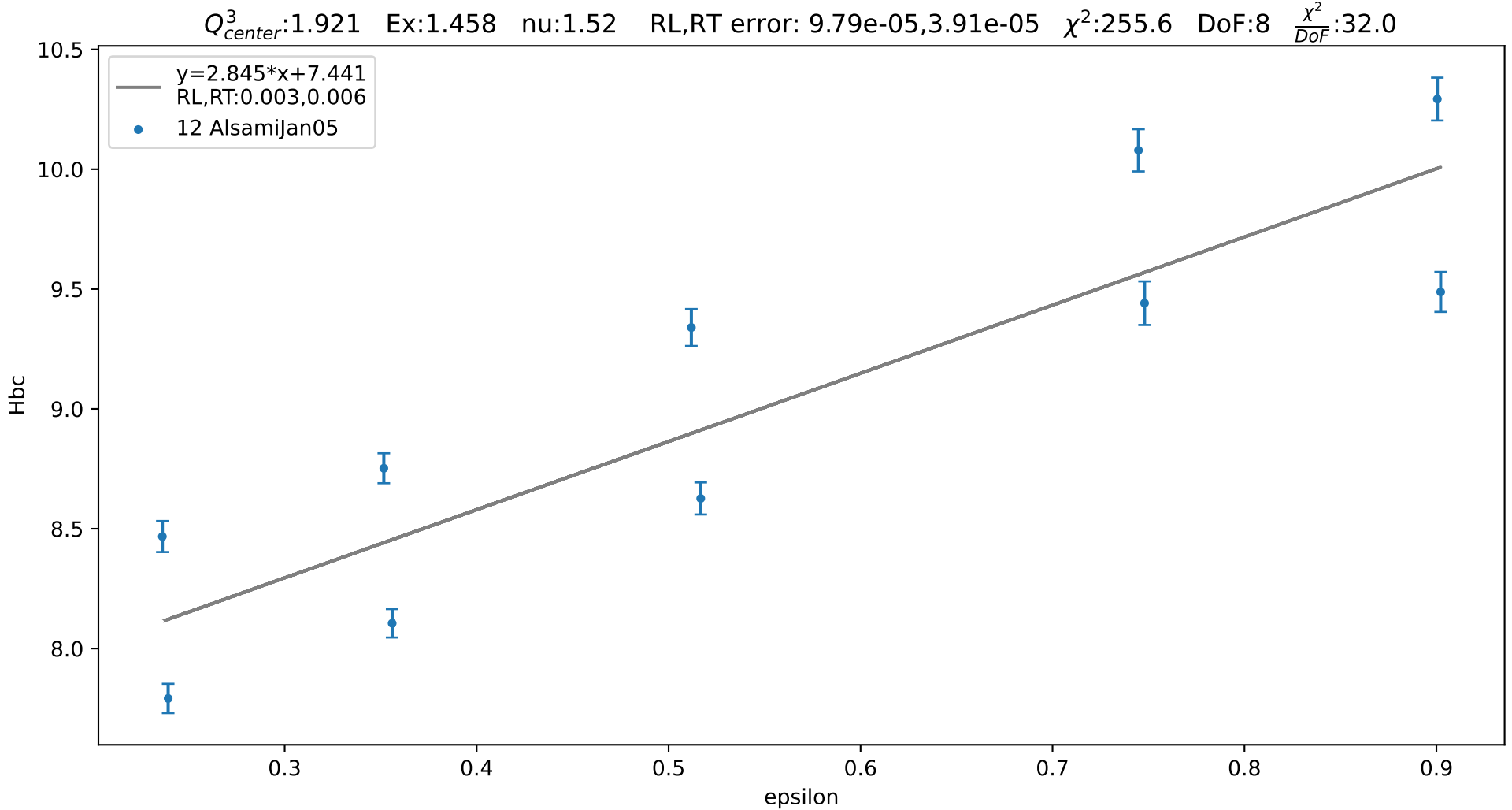

Q^3_{center}:1.921 Ex:1.345 nu:1.42 RL,RT error: 3.9e-05,2.19e-05 χ^2:358.6 DoF:12 $\frac{\chi^2}{DoF}$:29.9
y=0.966*x+3.335
RL,RT:0.001,0.003
12 AlsamiJan05
Hbc
epsilon
4.4
4.2
4.0
3.8
3.6
3.4
0.3
0.4
0.5
0.6
0.7
0.8
0.9

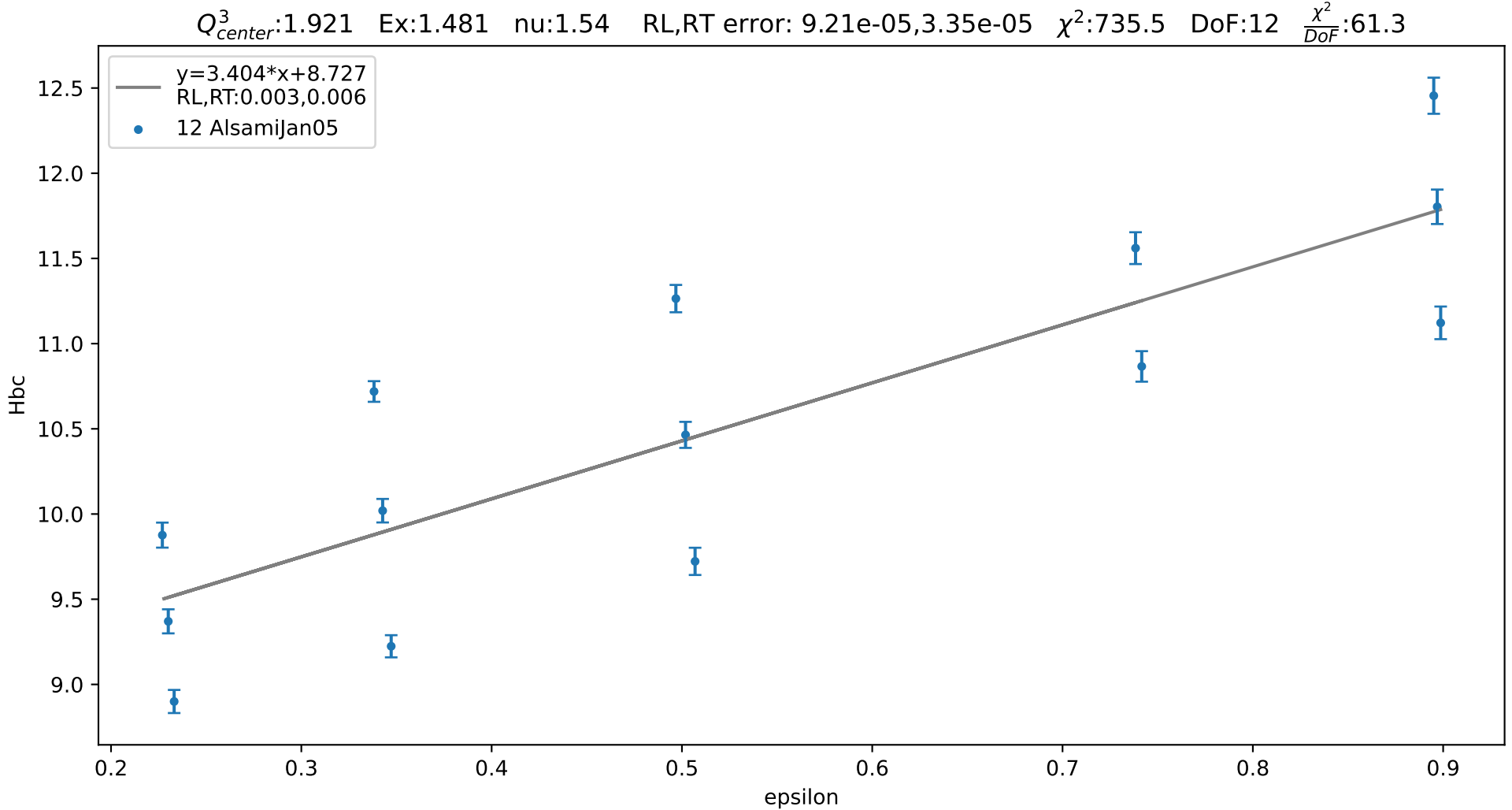

Q^3_{center}:1.921 Ex:1.368 nu:1.44 RL,RT error: 4.14e-05,2.18e-05 χ^2:402.6 DoF:12 $\frac{\chi^2}{DoF}$:33.5
y=1.136*x+3.87
RL,RT:0.001,0.003
12 AlsamiJan05
Hbc
epsilon
5.0
4.8
4.6
4.4
4.2
4.0
0.3
0.4
0.5
0.6
0.7
0.8
0.9

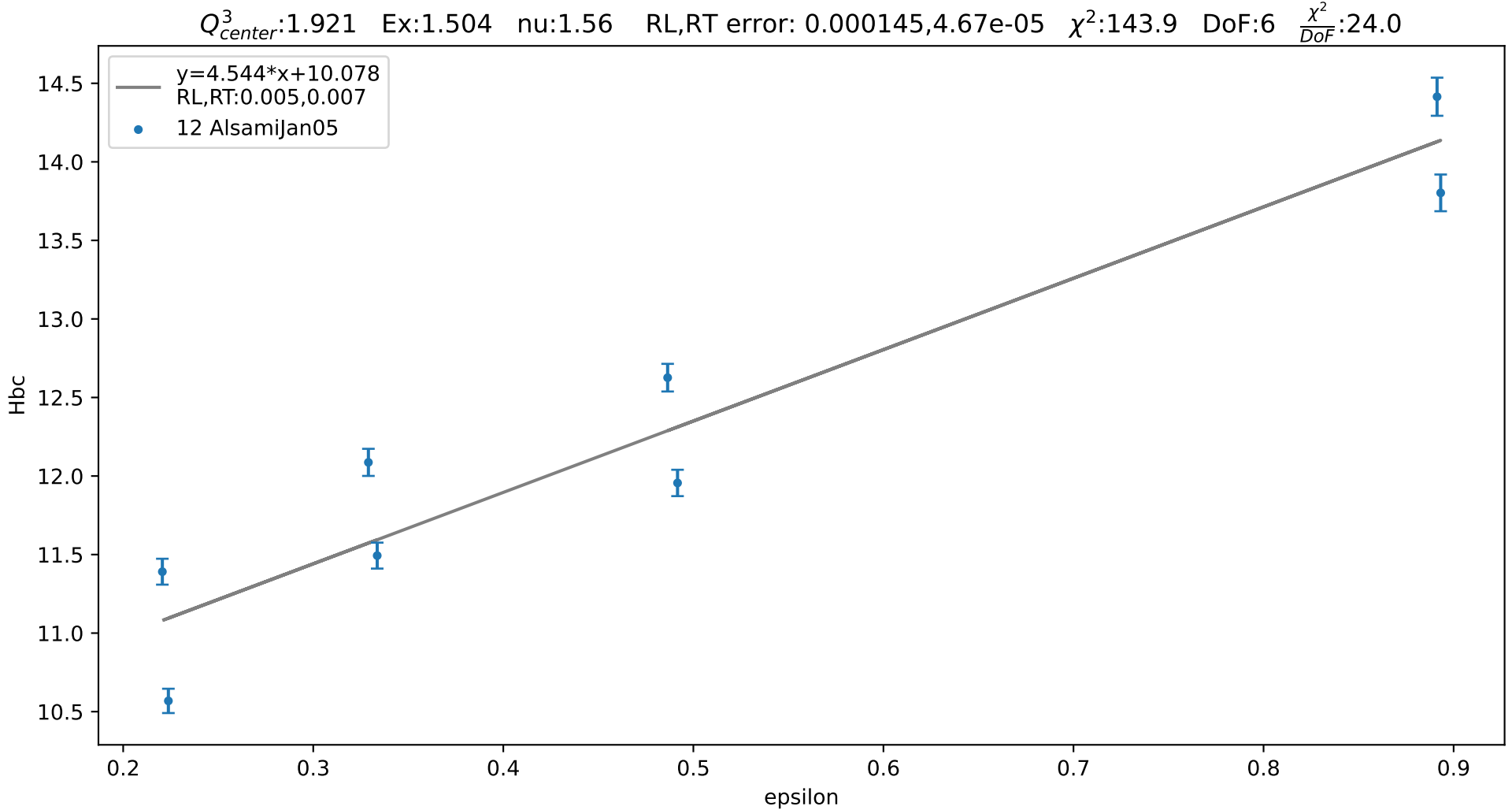

Q^3_{center}:1.921 Ex:1.39 nu:1.46 RL,RT error: 5.13e-05,2.51e-05 χ^2:767.7 DoF:15 $\frac{\chi^2}{DoF}$:51.2
y=1.551*x+4.489
RL,RT:0.002,0.004
12 AlsamiJan05
Hbc
epsilon
6.25
6.00
5.75
5.50
5.25
5.00
4.75
0.3
0.4
0.5
0.6
0.7
0.8
0.9

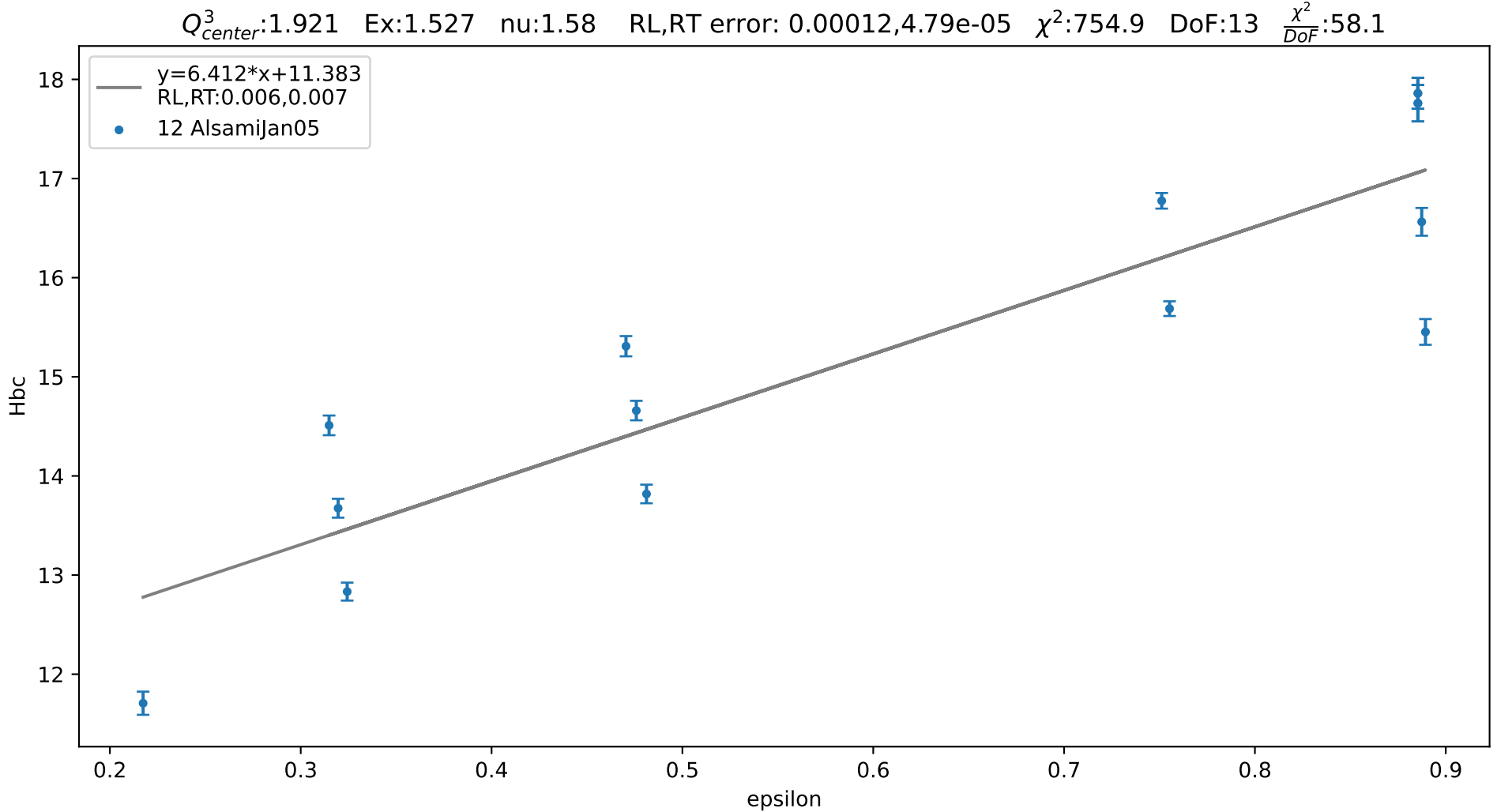

Q^3_{center}:1.921 Ex:1.413 nu:1.48 RL,RT error: 8.27e-05,3.36e-05 χ^2:180.2 DoF:7 $\frac{\chi^2}{DoF}$:25.7
y=2.169*x+5.168
RL,RT:0.002,0.004
12 AlsamiJan05
Hbc
epsilon
7.2
7.0
6.8
6.6
6.4
6.2
6.0
5.8
5.6
0.3
0.4
0.5
0.6
0.7
0.8

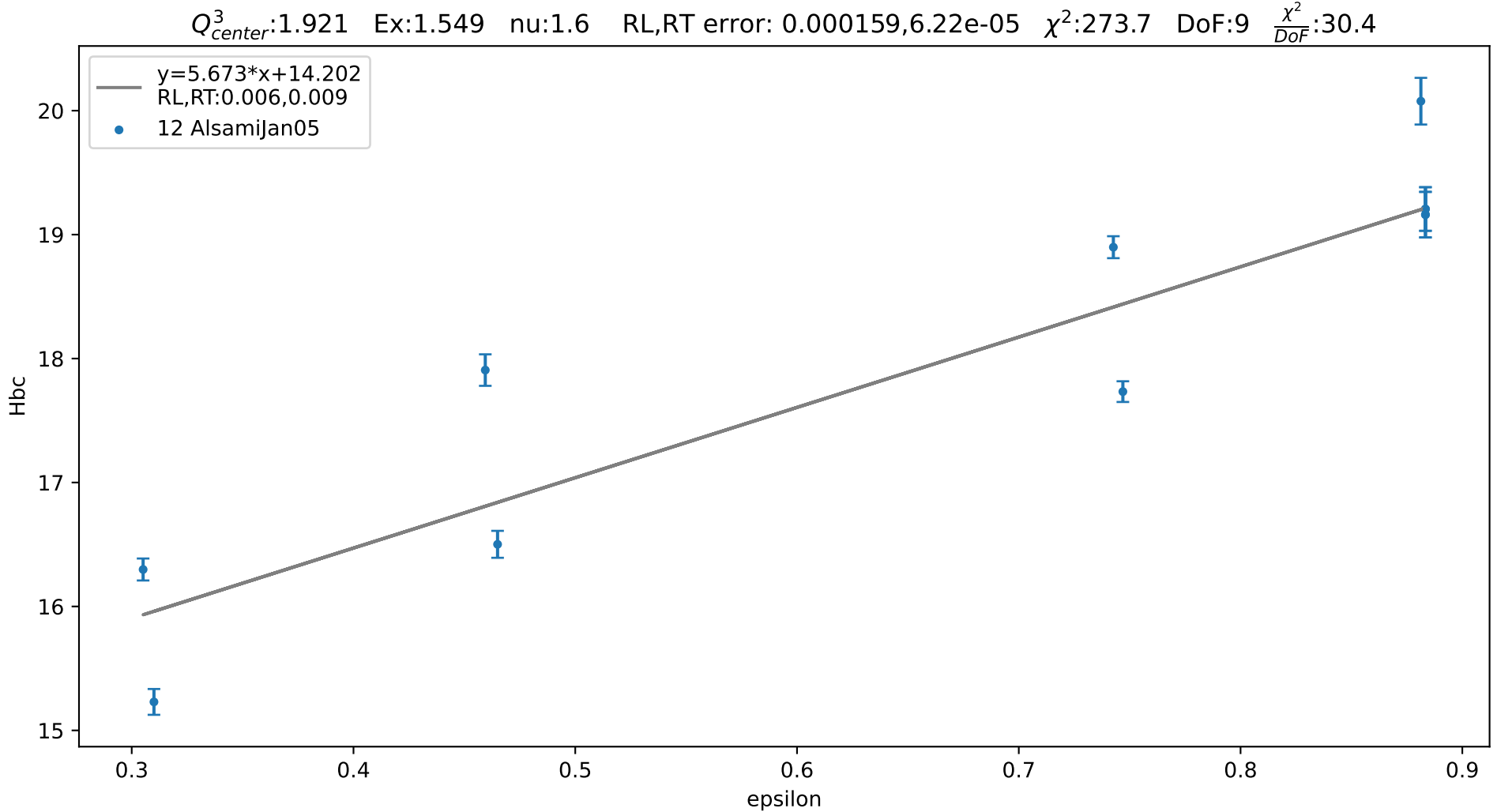

Q^3_{center}:1.921 Ex:1.436 nu:1.5 RL,RT error: 8.81e-05,3.07e-05 χ^2:594.0 DoF:9 $\frac{\chi^2}{DoF}$:66.0
y=2.373*x+6.221
RL,RT:0.002,0.005
12 AlsamiJan05
Hbc
epsilon
8.0
7.5
7.0
6.5
0.3
0.4
0.5
0.6
0.7

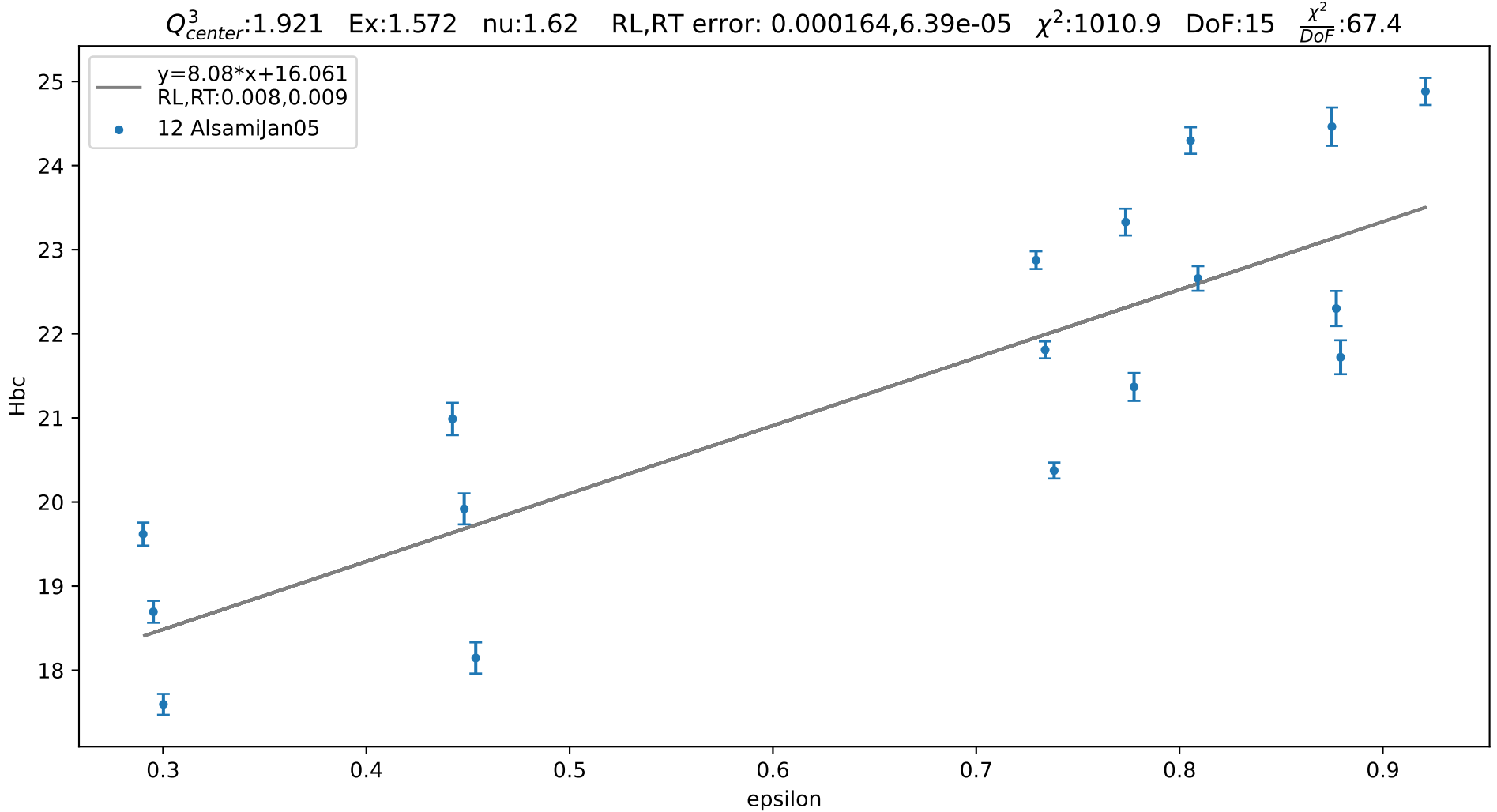

Q^3_{center}:1.921 Ex:1.458 nu:1.52 RL,RT error: 9.79e-05,3.91e-05 χ^2:255.6 DoF:8 $\frac{\chi^2}{DoF}$:32.0
y=2.845*x+7.441
RL,RT:0.003,0.006
12 AlsamiJan05
Hbc
epsilon
10.5
10.0
9.5
9.0
8.5
8.0
0.3
0.4
0.5
0.6
0.7
0.8
0.9

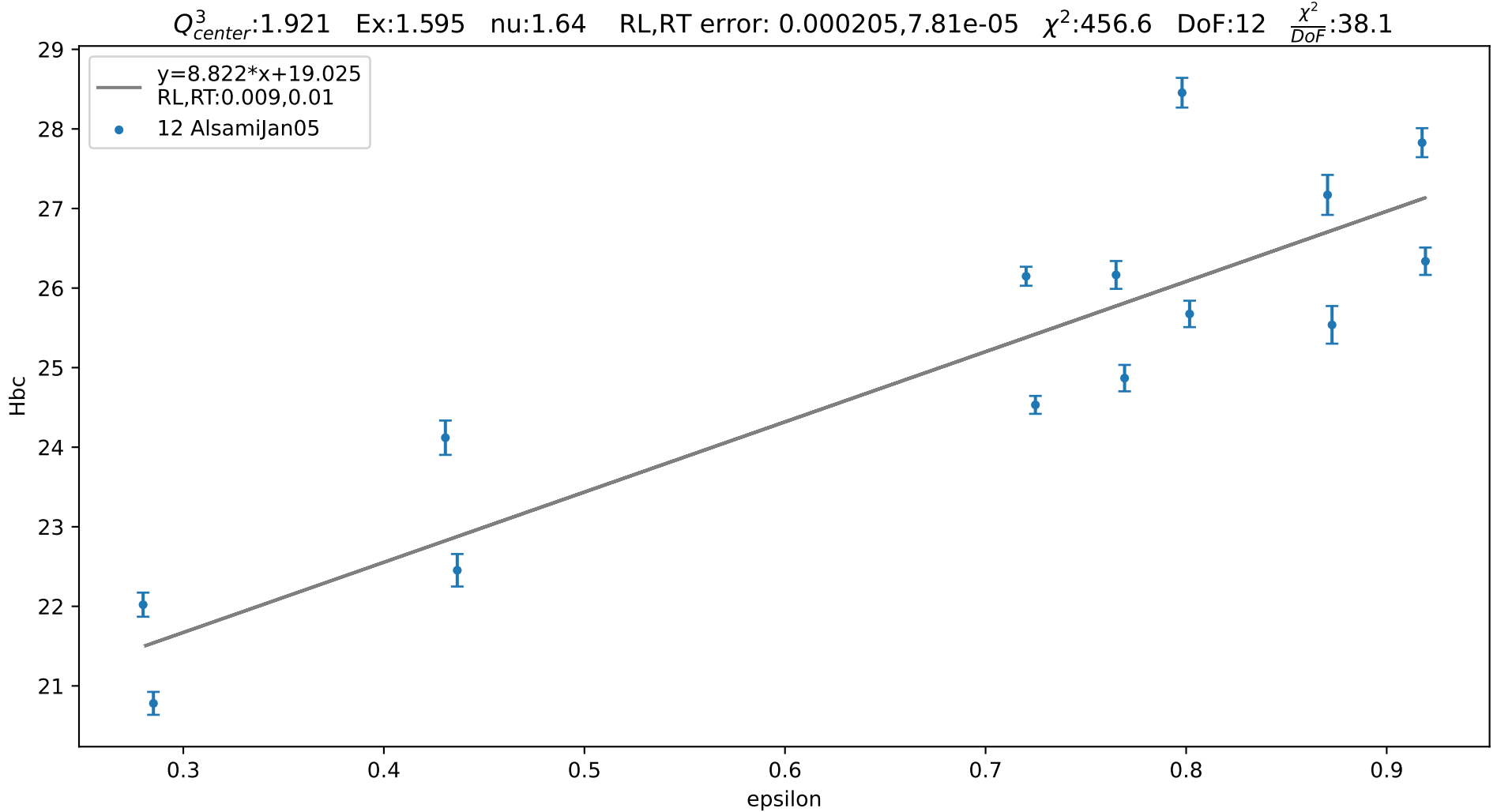

Q^3_{center}:1.921 Ex:1.481 nu:1.54 RL,RT error: 9.21e-05,3.35e-05 χ^2:735.5 DoF:12 $\frac{\chi^2}{DoF}$:61.3
y=3.404*x+8.727
RL,RT:0.003,0.006
12 AlsamiJan05
Hbc
epsilon
12.5
12.0
11.5
11.0
10.5
10.0
9.5
9.0
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9

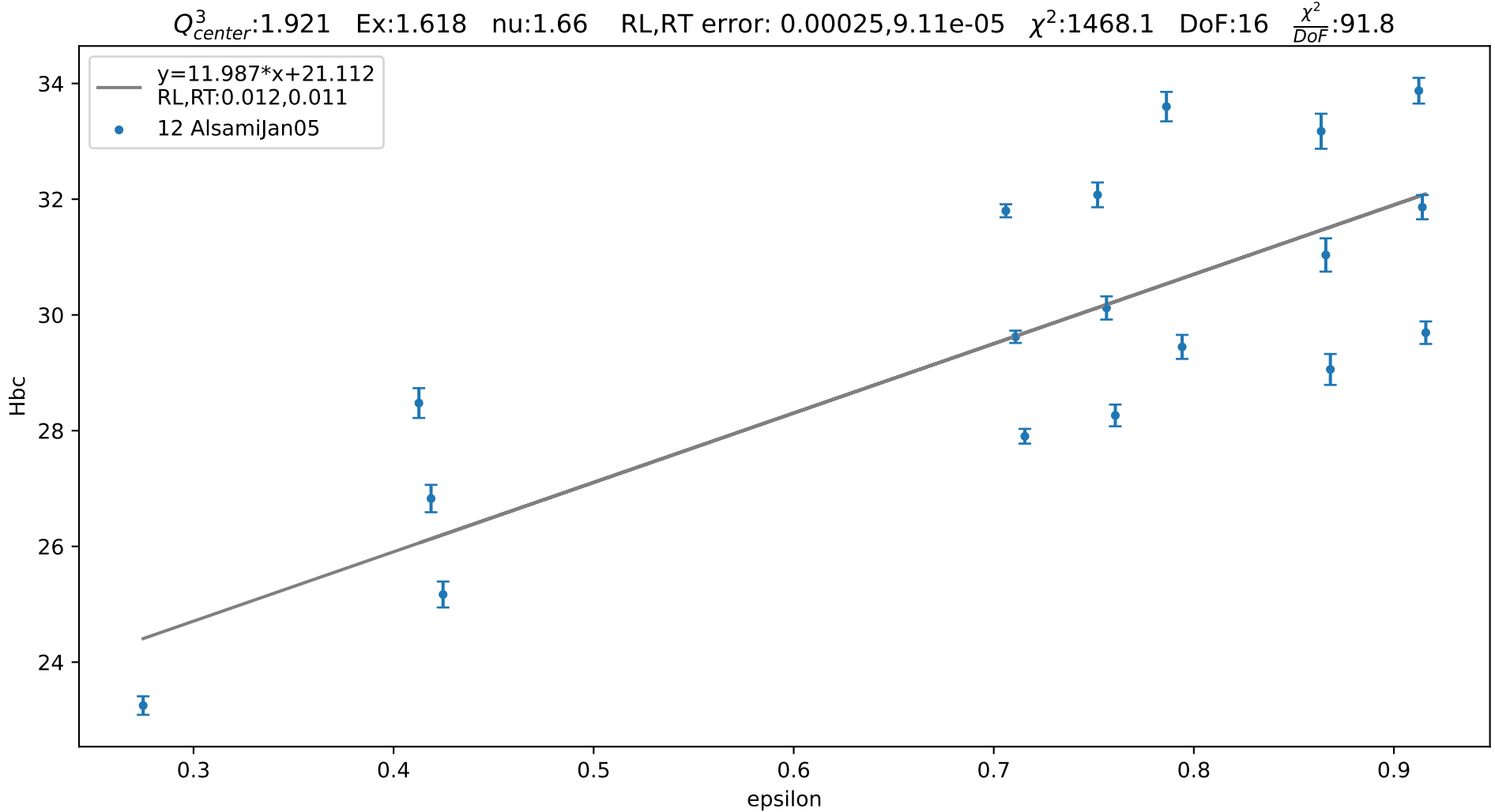

Q^3_{center}:1.921 Ex:1.504 nu:1.56 RL,RT error: 0.000145,4.67e-05 χ^2:143.9 DoF:6 $\frac{\chi^2}{DoF}$:24.0
y=4.544*x+10.078
RL,RT:0.005,0.007
12 AlsamiJan05
Hbc
epsilon
14.5
14.0
13.5
13.0
12.5
12.0
11.5
11.0
10.5
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9

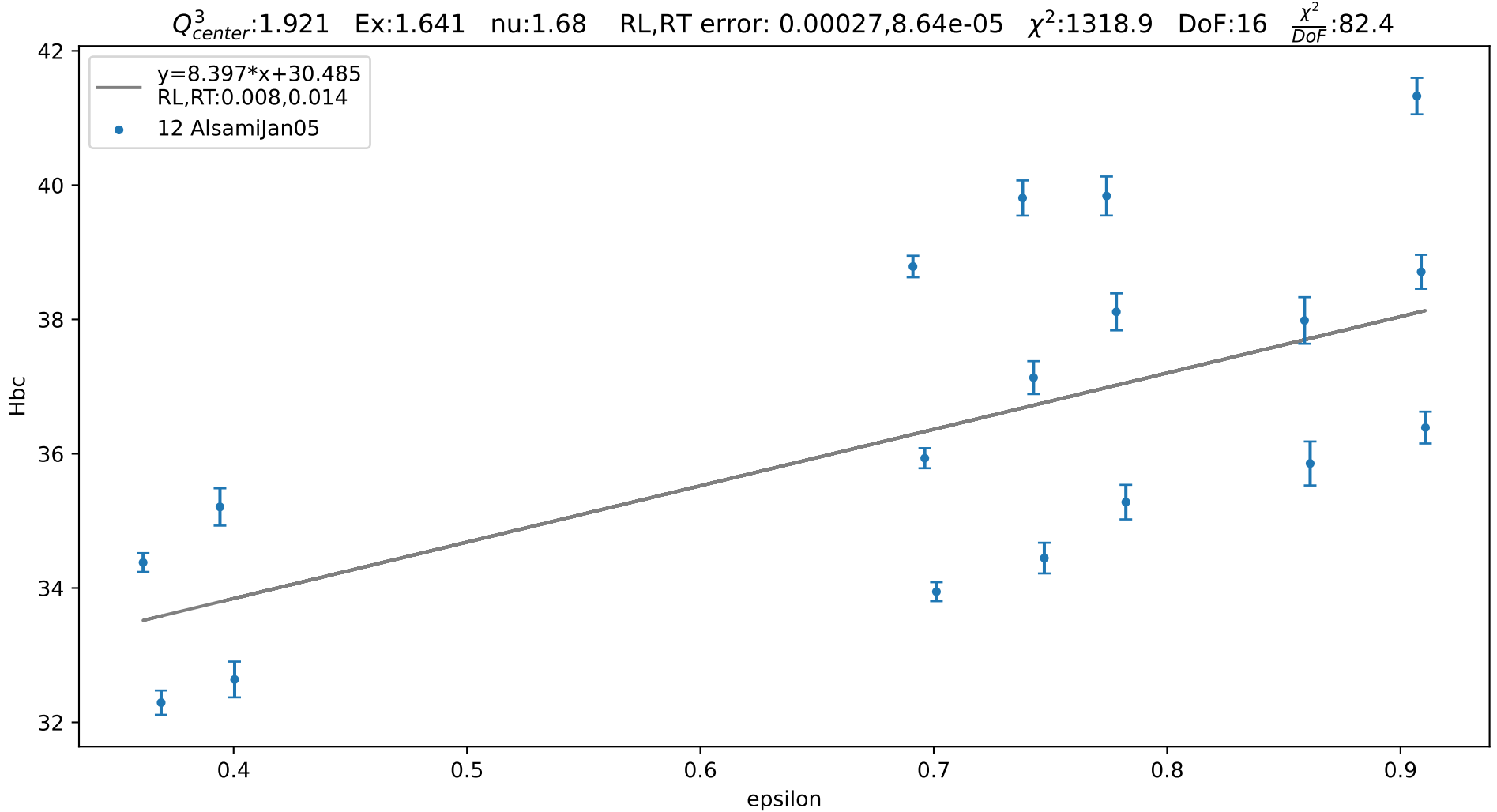

Q^3_{center}:1.921 Ex:1.527 nu:1.58 RL,RT error: 0.00012,4.79e-05 χ^2:754.9 DoF:13 $\frac{\chi^2}{DoF}$:58.1
y=6.412*x+11.383
RL,RT:0.006,0.007
12 AlsamiJan05
Hbc
epsilon
18
17
16
15
14
13
12
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9

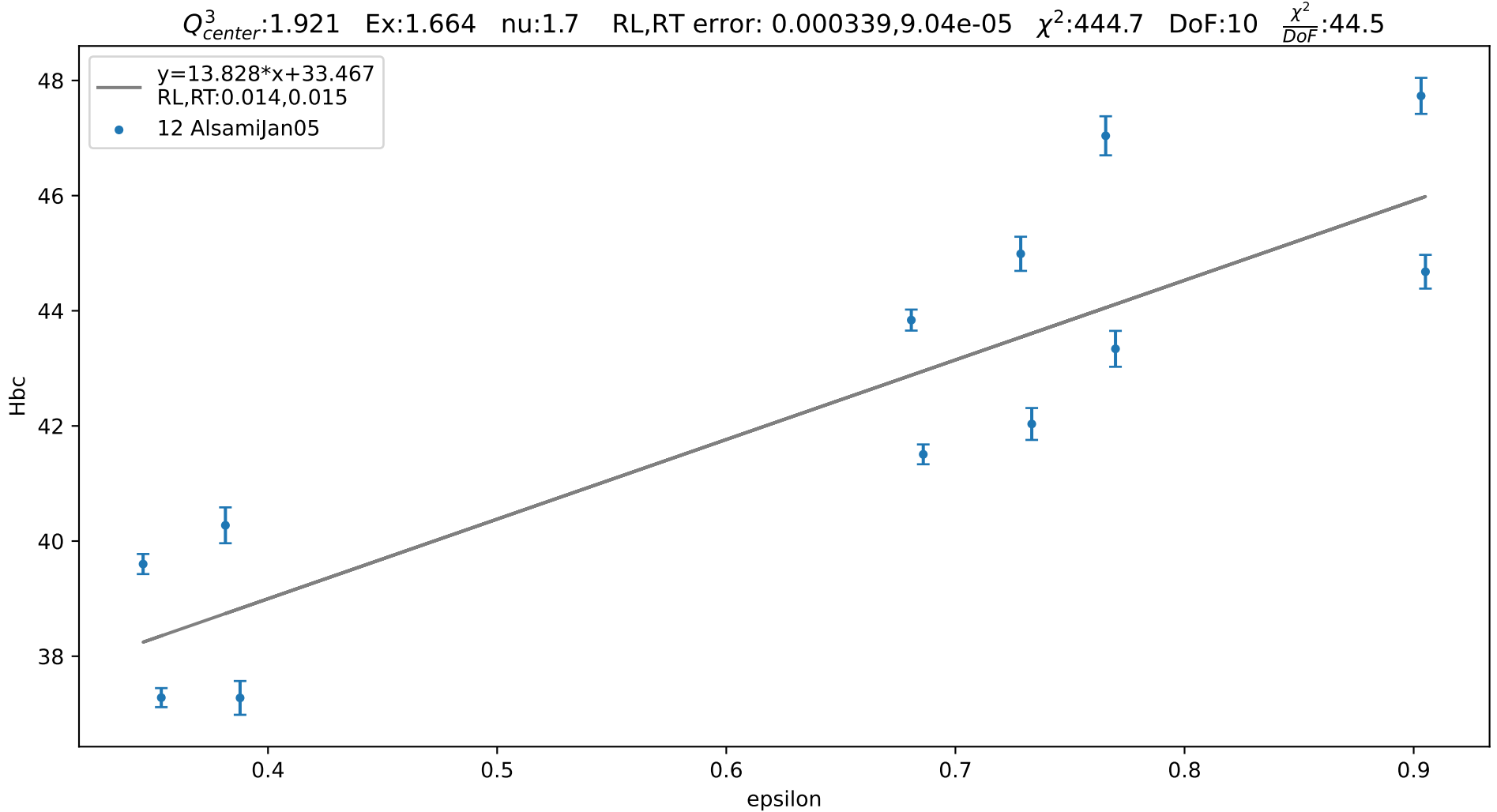

Q^3_{center}:1.921 Ex:1.549 nu:1.6 RL,RT error: 0.000159,6.22e-05 χ^2:273.7 DoF:9 $\frac{\chi^2}{DoF}$:30.4
y=5.673*x+14.202
RL,RT:0.006,0.009
12 AlsamiJan05
Hbc
epsilon
15
16
17
18
19
20
0.3
0.4
0.5
0.6
0.7
0.8
0.9

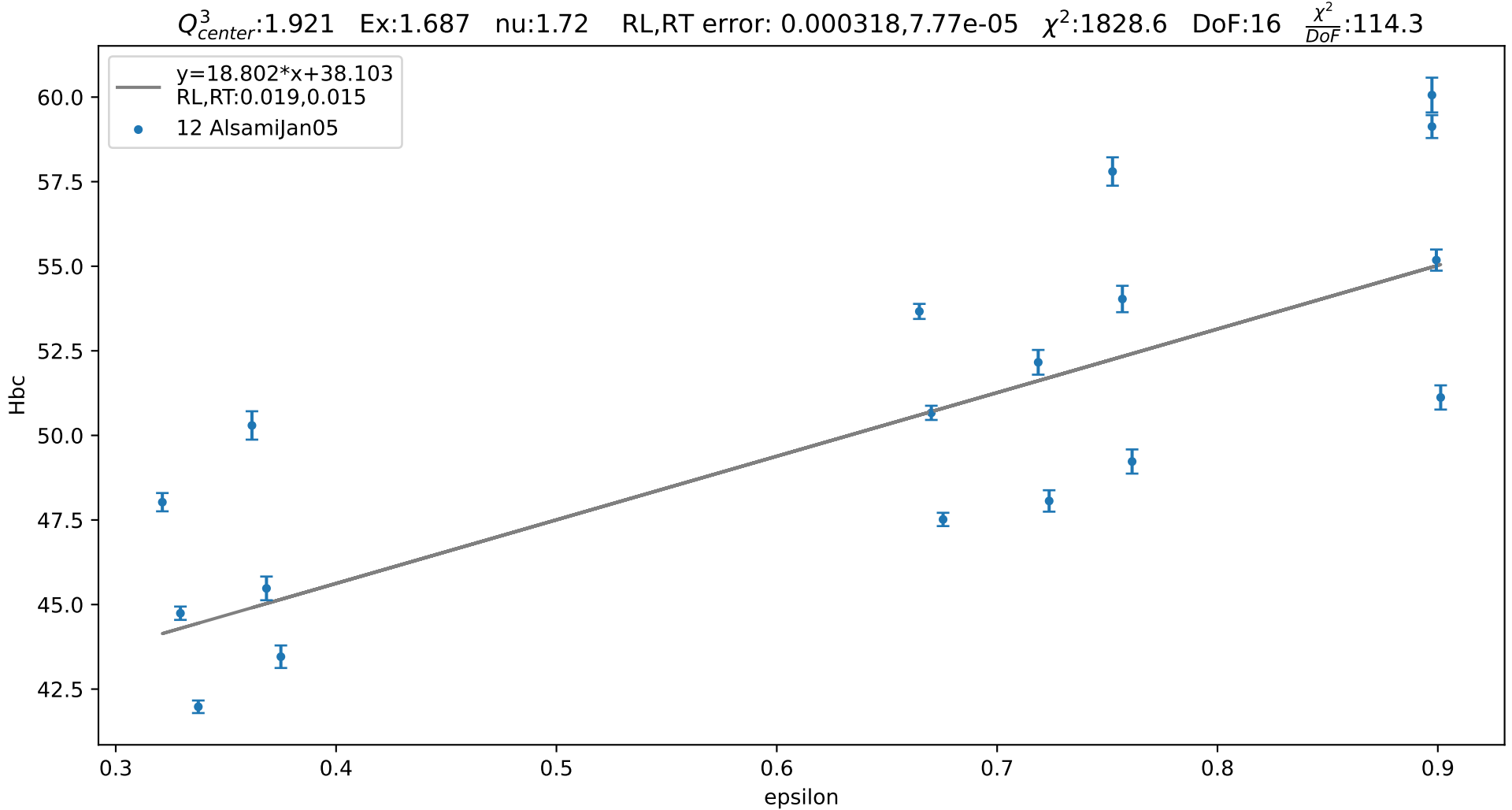

Q^3_{center}:1.921 Ex:1.572 nu:1.62 RL,RT error: 0.000164,6.39e-05 χ^2:1010.9 DoF:15 $\frac{\chi^2}{DoF}$:67.4
y=8.08*x+16.061
RL,RT:0.008,0.009
12 AlsamiJan05
Hbc
epsilon
25
24
23
22
21
20
19
18
0.3
0.4
0.5
0.6
0.7
0.8
0.9

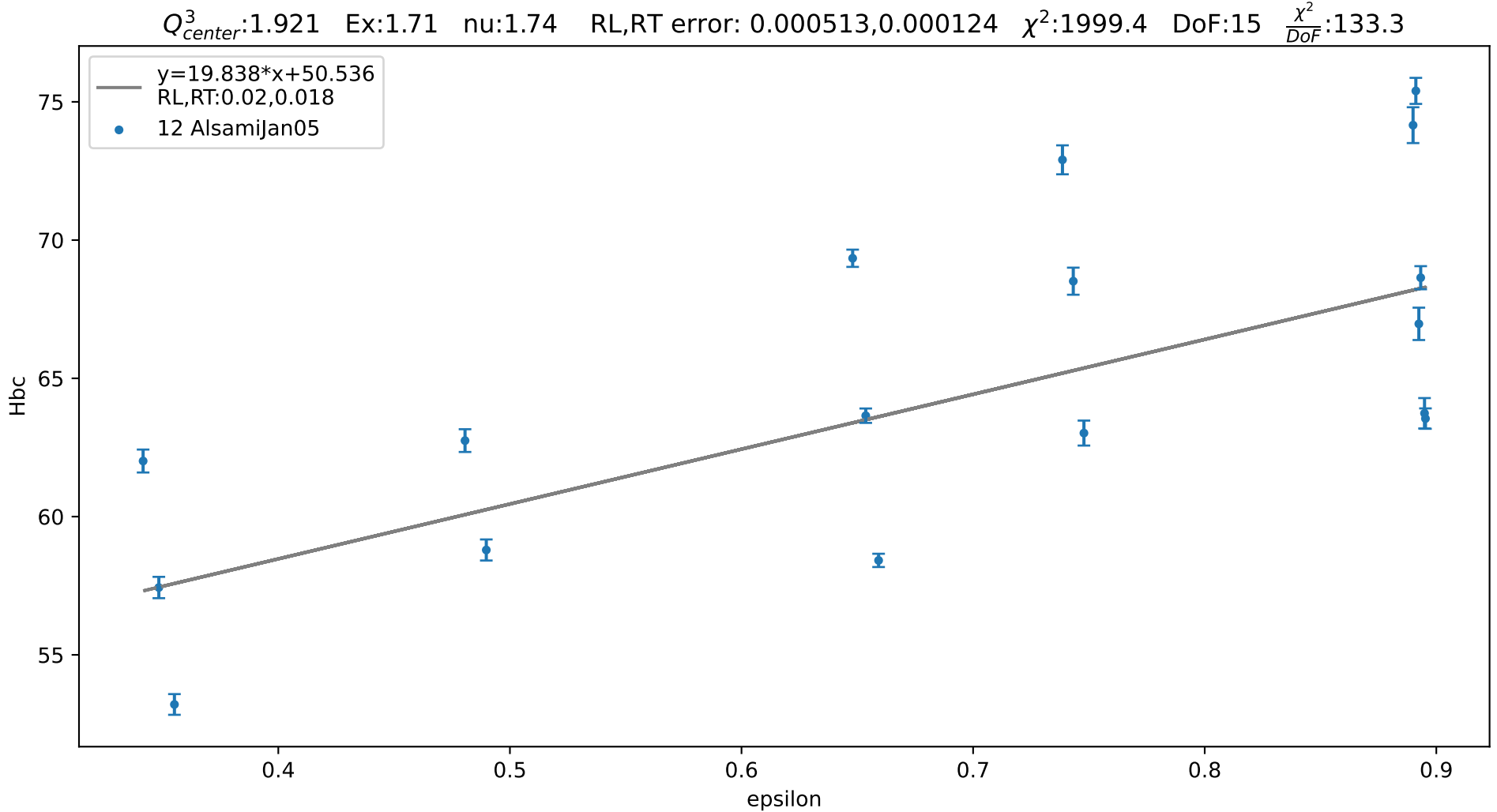

Q^3_{center}:1.921 Ex:1.595 nu:1.64 RL,RT error: 0.000205,7.81e-05 χ^2:456.6 DoF:12 $\frac{\chi^2}{DoF}$:38.1
y=8.822*x+19.025
RL,RT:0.009,0.01
12 AlsamiJan05
Hbc
epsilon
29
28
27
26
25
24
23
22
21
0.3
0.4
0.5
0.6
0.7
0.8
0.9

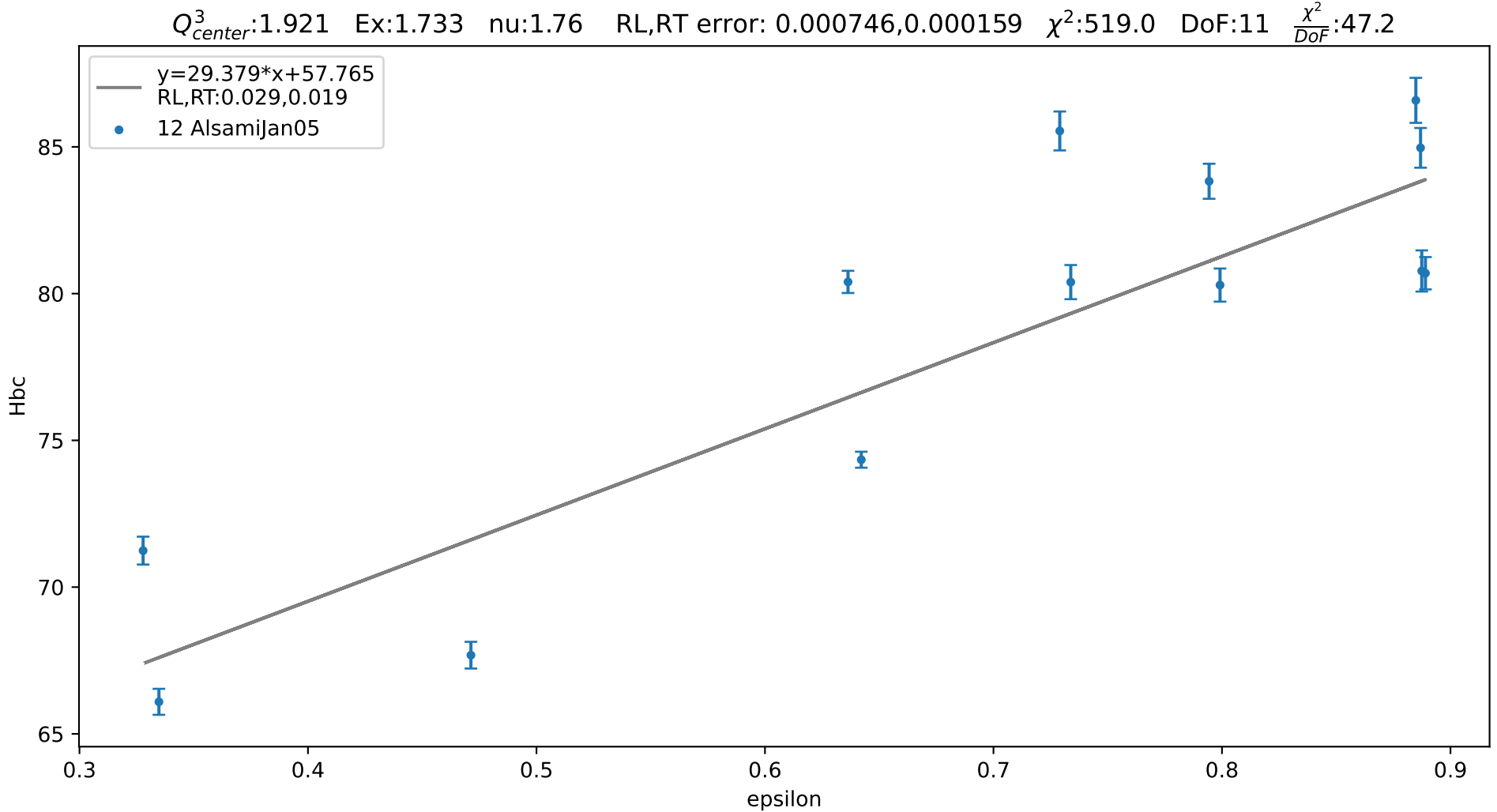

Q^3_{center}:1.921 Ex:1.618 nu:1.66 RL,RT error: 0.00025,9.11e-05 χ^2:1468.1 DoF:16 $\frac{\chi^2}{DoF}$:91.8
y=11.987*x+21.112
RL,RT:0.012,0.011
12 AlsamiJan05
Hbc
epsilon
34
32
30
28
26
24
0.3
0.4
0.5
0.6
0.7
0.8
0.9

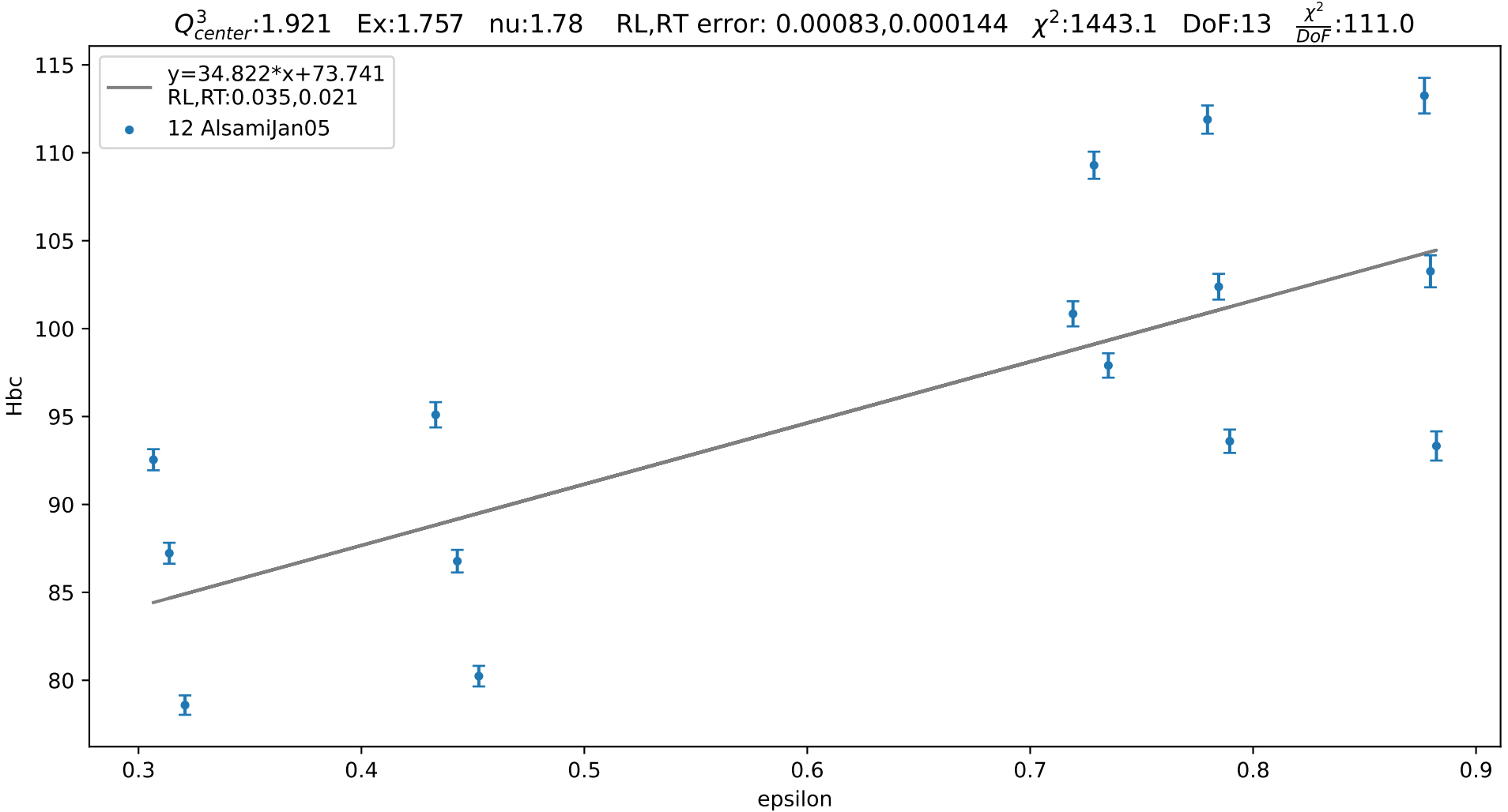

Q^3_{center}:1.921 Ex:1.641 nu:1.68 RL,RT error: 0.00027,8.64e-05 χ^2:1318.9 DoF:16 $\frac{\chi^2}{DoF}$:82.4
y=8.397*x+30.485
RL,RT:0.008,0.014
12 AlsamiJan05
Hbc
epsilon
42
40
38
36
34
32
0.4
0.5
0.6
0.7
0.8
0.9

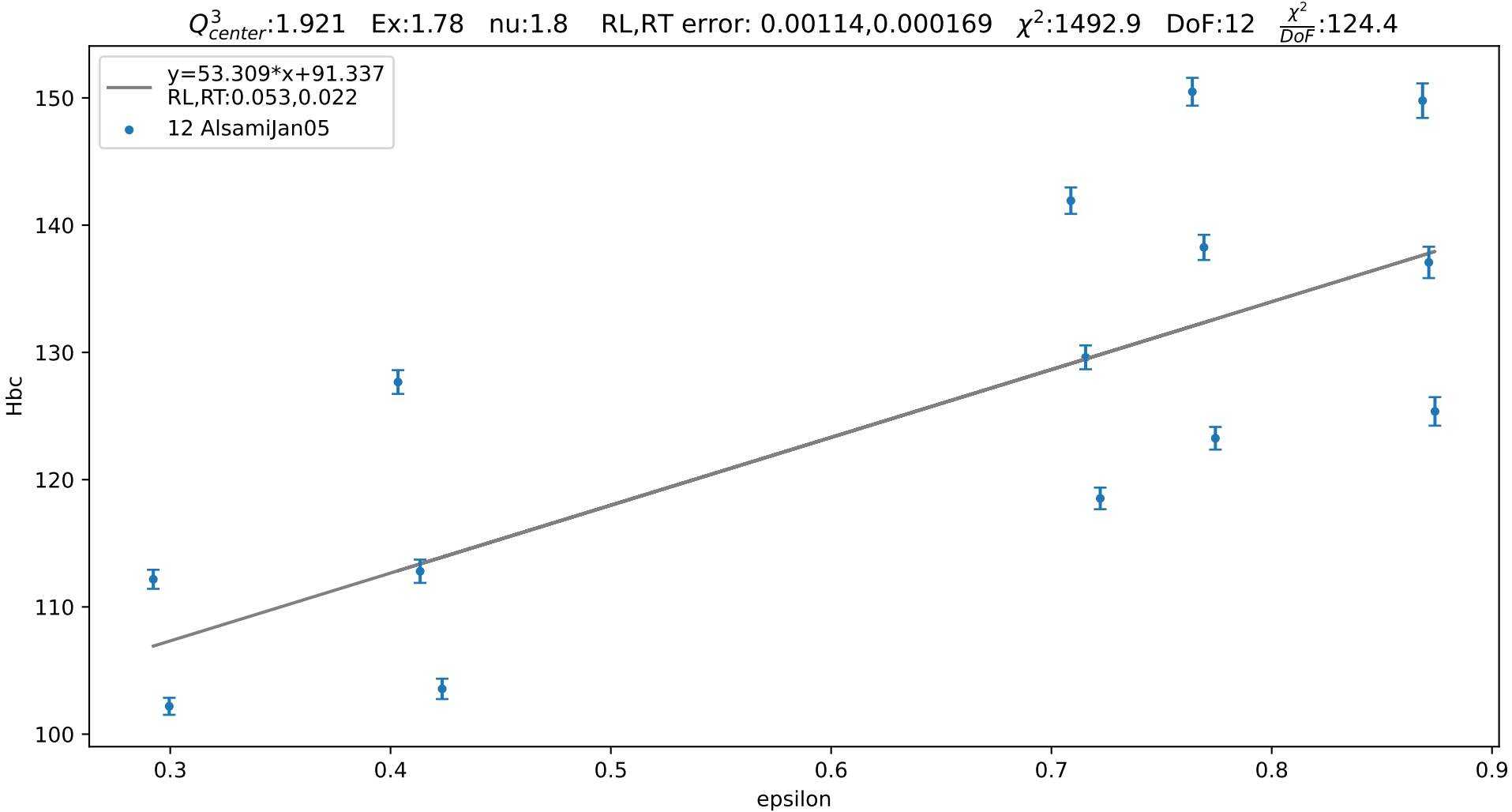

Q^3_{center}:1.921 Ex:1.664 nu:1.7 RL,RT error: 0.000339,9.04e-05 χ^2:444.7 DoF:10 $\frac{\chi^2}{DoF}$:44.5
y=13.828*x+33.467
RL,RT:0.014,0.015
12 AlsamiJan05
Hbc
epsilon
48
46
44
42
40
38
0.4
0.5
0.6
0.7
0.8
0.9

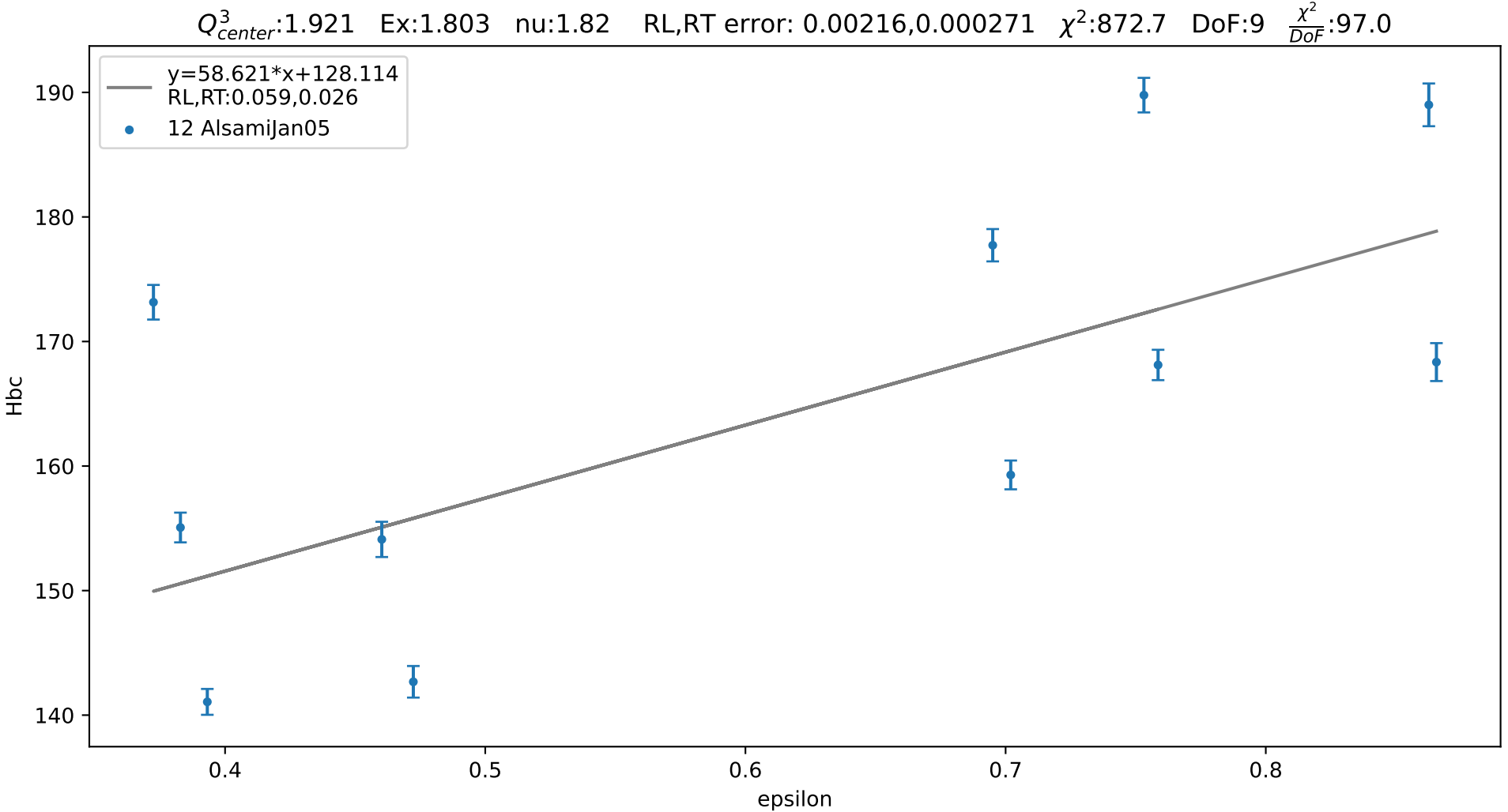

Q^3_{center}:1.921 Ex:1.687 nu:1.72 RL,RT error: 0.000318,7.77e-05 χ^2:1828.6 DoF:16 $\frac{\chi^2}{DoF}$:114.3
y=18.802*x+38.103
RL,RT:0.019,0.015
12 AlsamiJan05
Hbc
epsilon
60.0
57.5
55.0
52.5
50.0
47.5
45.0
42.5
0.3
0.4
0.5
0.6
0.7
0.8
0.9

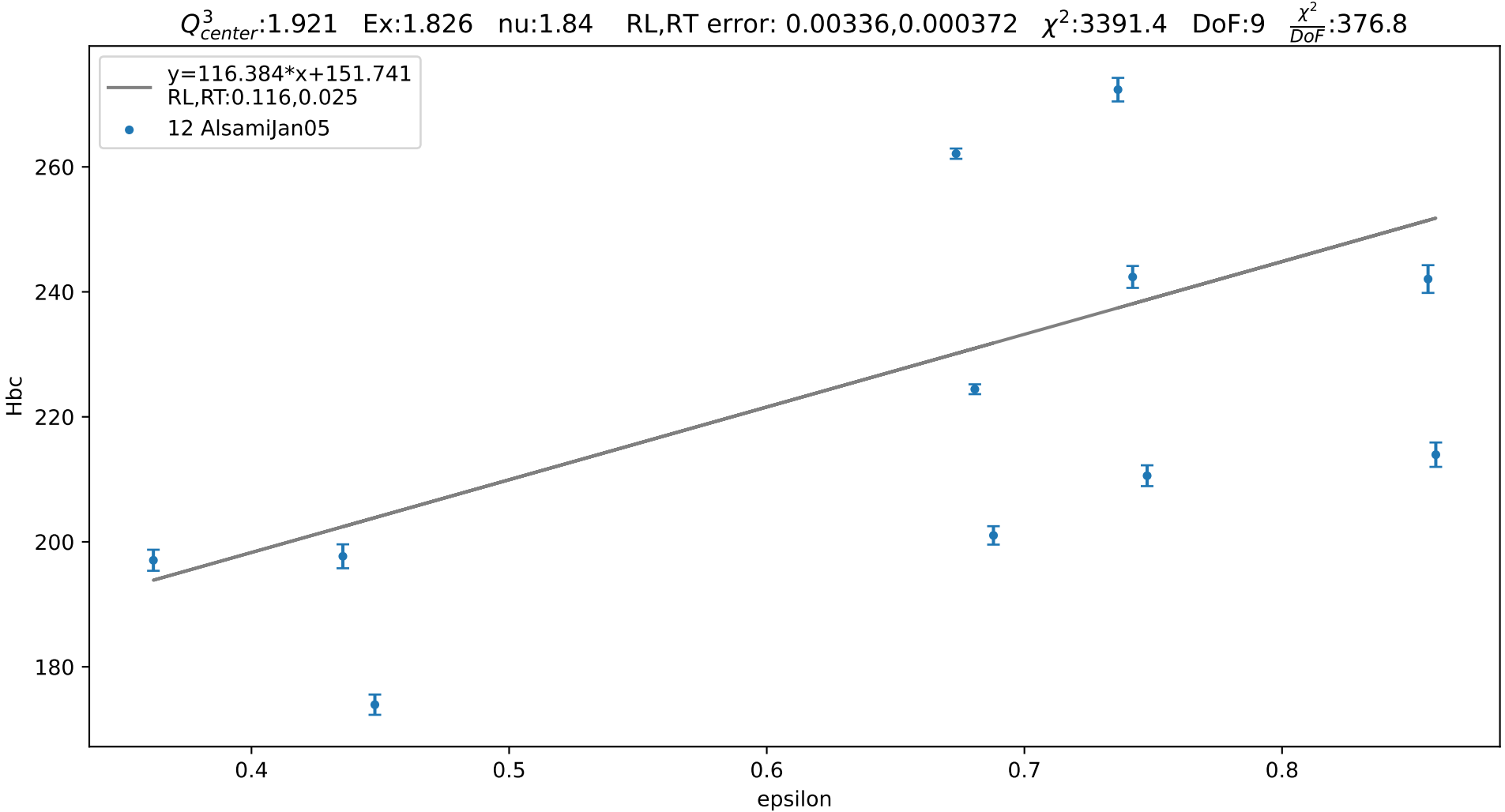

Q^3_{center}:1.921 Ex:1.71 nu:1.74 RL,RT error: 0.000513,0.000124 χ^2:1999.4 DoF:15 $\frac{\chi^2}{DoF}$:133.3
y=19.838*x+50.536
RL,RT:0.02,0.018
12 AlsamiJan05
Hbc
epsilon
75
70
65
60
55
0.4
0.5
0.6
0.7
0.8
0.9

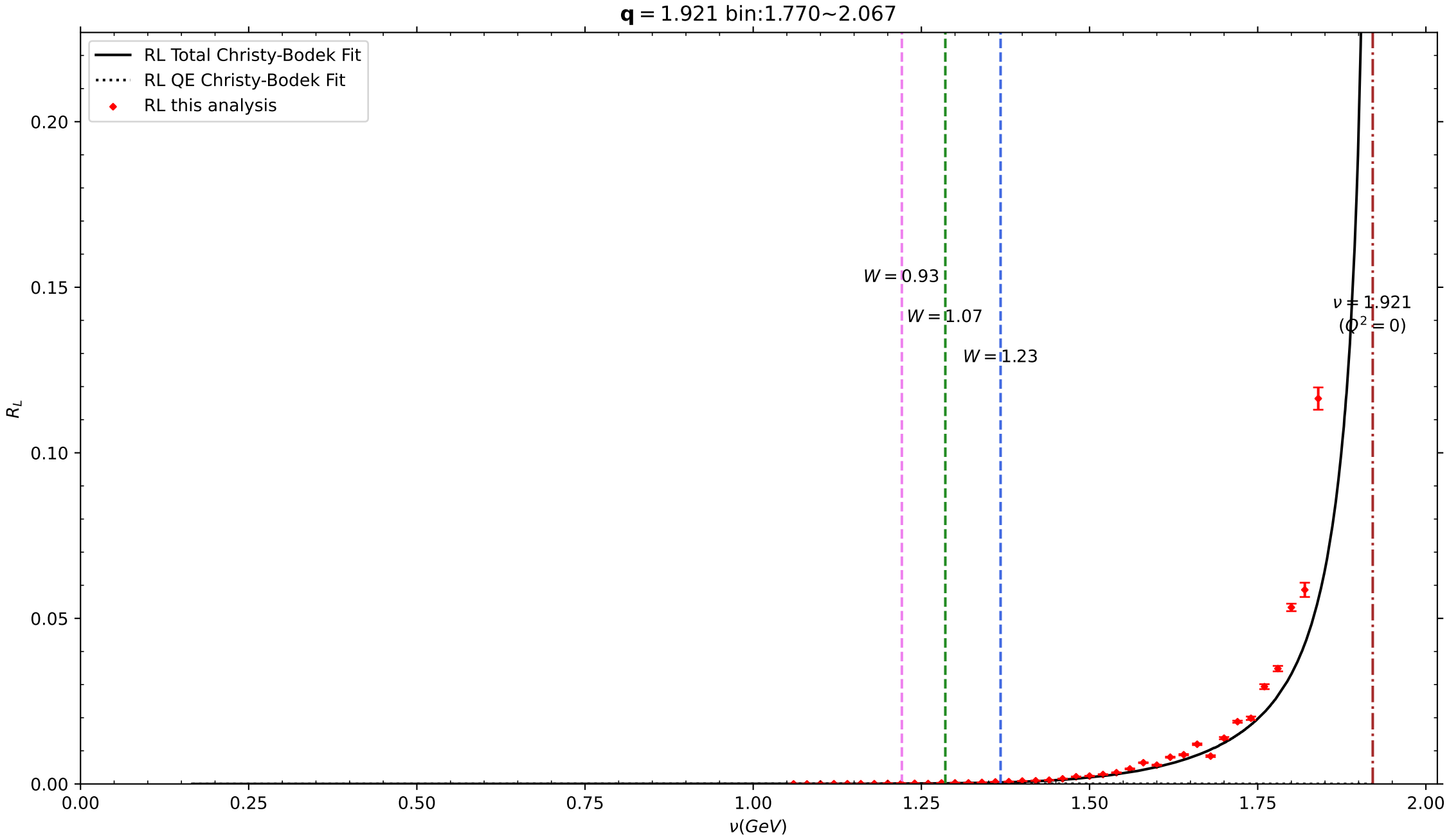

Q^3_{center}:1.921 Ex:1.733 nu:1.76 RL,RT error: 0.000746,0.000159 χ^2:519.0 DoF:11 $\frac{\chi^2}{DoF}$:47.2
y=29.379*x+57.765
RL,RT:0.029,0.019
12 AlsamiJan05
Hbc
epsilon
65
70
75
80
85
0.3
0.4
0.5
0.6
0.7
0.8
0.9

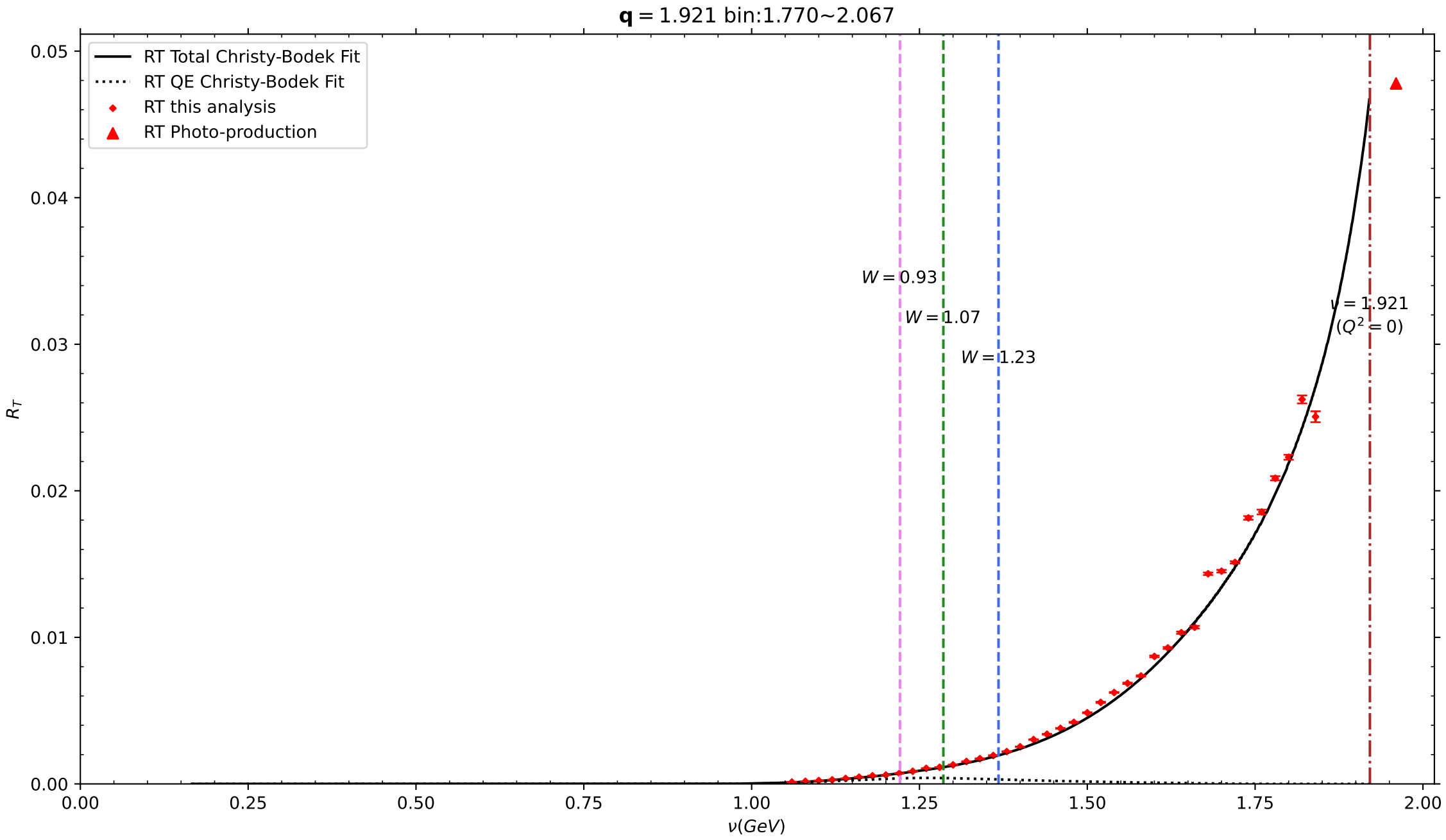

Q^3_{center}:1.921 Ex:1.757 nu:1.78 RL,RT error: 0.00083,0.000144 χ^2:1443.1 DoF:13 $\frac{\chi^2}{DoF}$:111.0
y=34.822*x+73.741
RL,RT:0.035,0.021
12 AlsamiJan05
Hbc
epsilon
115
110
105
100
95
90
85
80
0.3
0.4
0.5
0.6
0.7
0.8
0.9

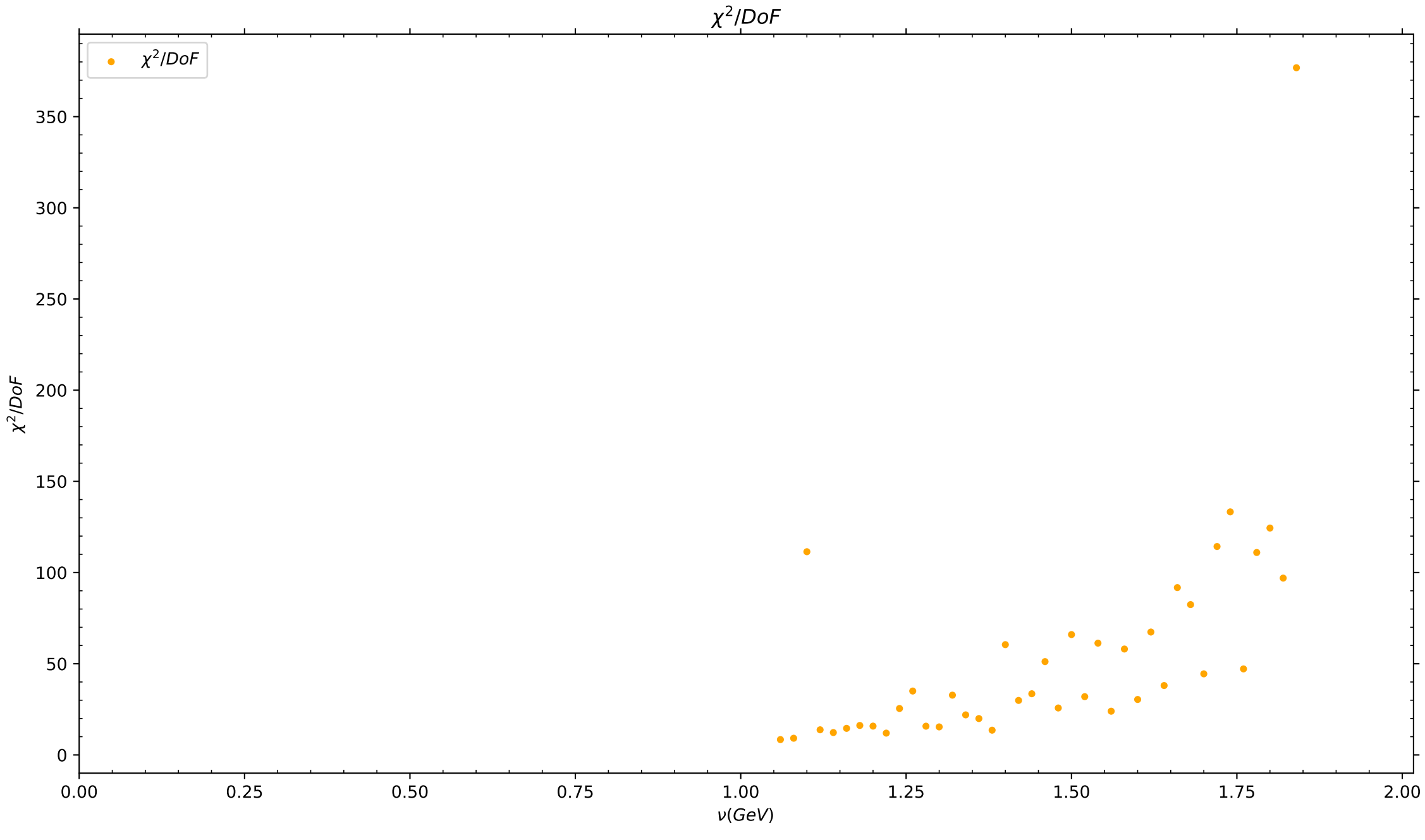

Q^3_{center}:1.921 Ex:1.78 nu:1.8 RL,RT error: 0.00114,0.000169 χ^2:1492.9 DoF:12 $\frac{\chi^2}{DoF}$:124.4
y=53.309*x+91.337
RL,RT:0.053,0.022
12 AlsamiJan05
Hbc
epsilon
100
110
120
130
140
150
0.3
0.4
0.5
0.6
0.7
0.8
0.9

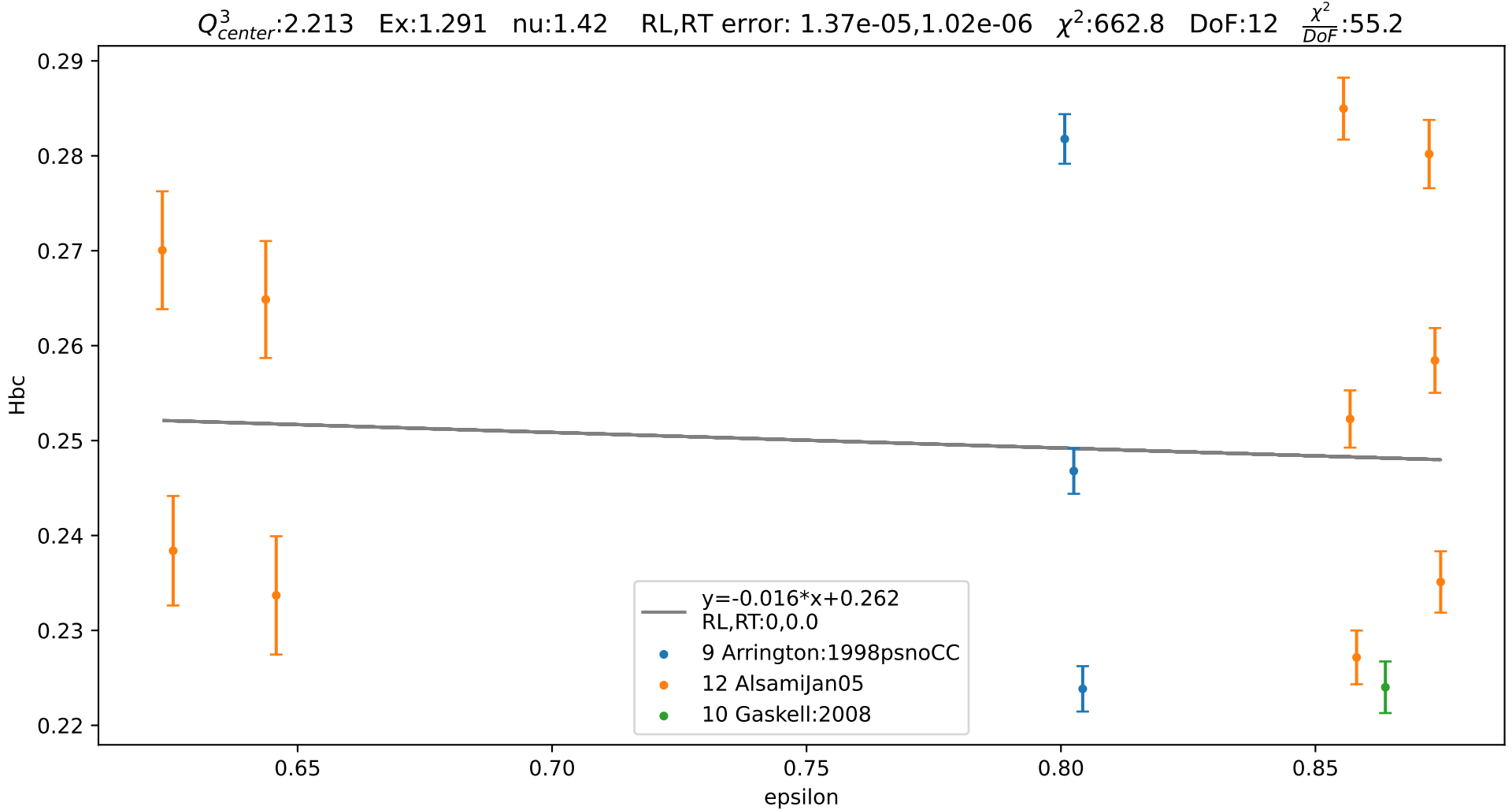

Q^3_{center}:1.921 Ex:1.803 nu:1.82 RL,RT error: 0.00216,0.000271 χ^2:872.7 DoF:9 $\frac{\chi^2}{DoF}$:97.0
y=58.621*x+128.114
RL,RT:0.059,0.026
12 AlsamiJan05
Hbc
epsilon
190
180
170
160
150
140
0.4
0.5
0.6
0.7
0.8

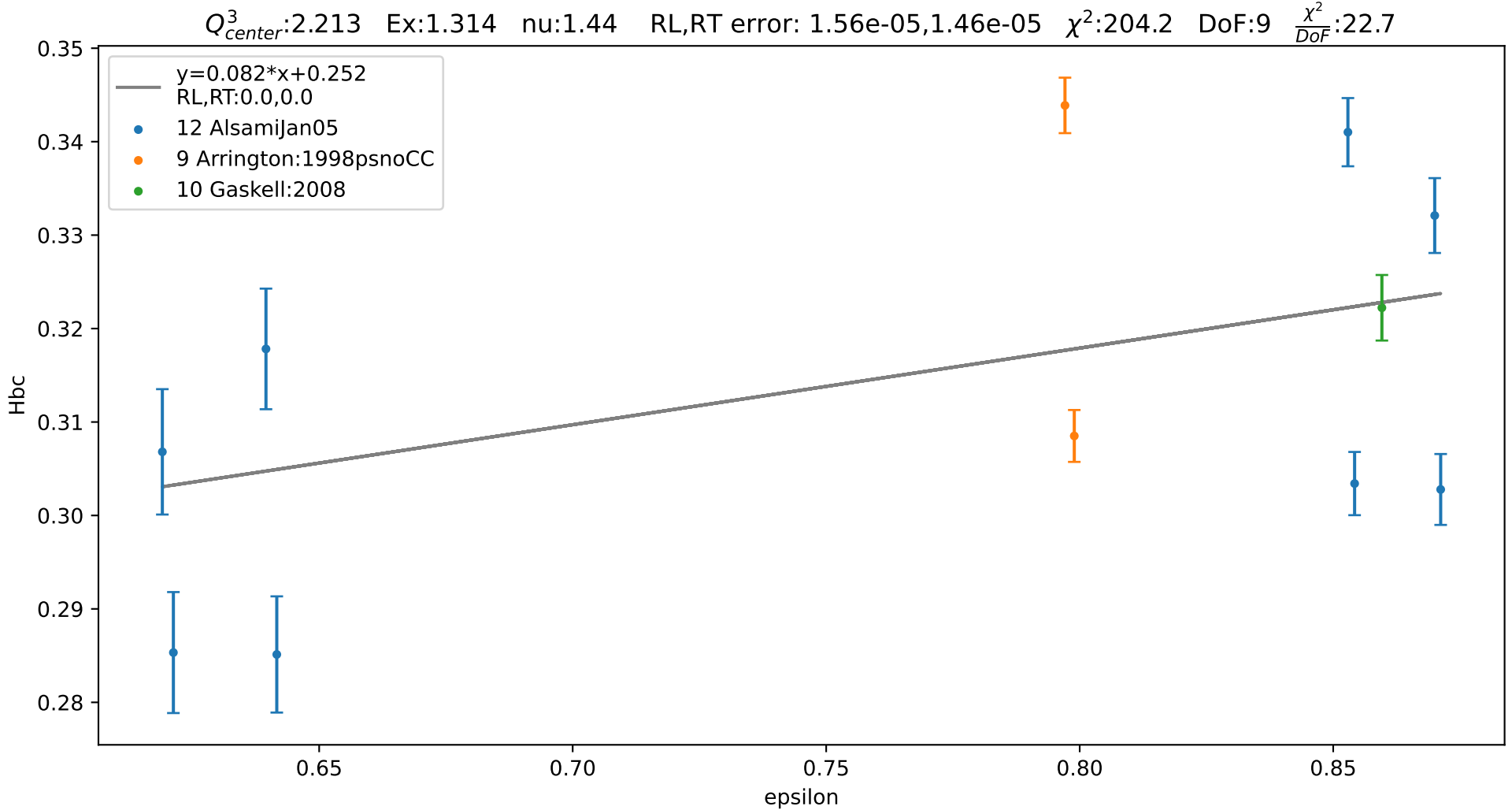

Q^3_{center}:1.921 Ex:1.826 nu:1.84 RL,RT error: 0.00336,0.000372 χ^2:3391.4 DoF:9 $\frac{\chi^2}{DoF}$:376.8
y=116.384*x+151.741
RL,RT:0.116,0.025
12 AlsamiJan05
Hbc
epsilon
180
200
220
240
260
0.4
0.5
0.6
0.7
0.8

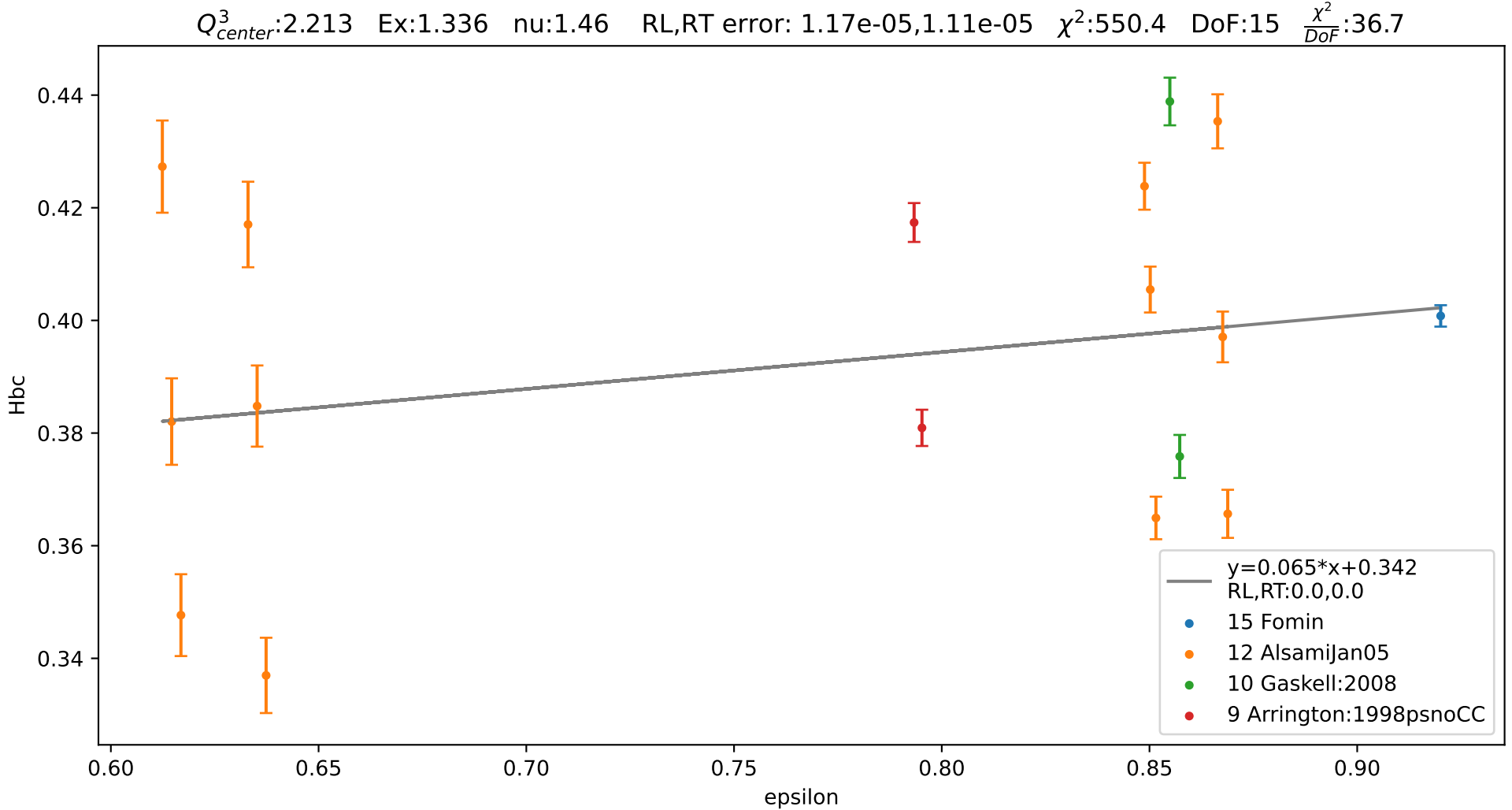

q = 1.921 bin:1.770~2.067
RL Total Christy-Bodek Fit
RL QE Christy-Bodek Fit
RL this analysis
W = 0.93
W = 1.07
W = 1.23
ν = 1.921
(Q² = 0)
R_L
ν(GeV)

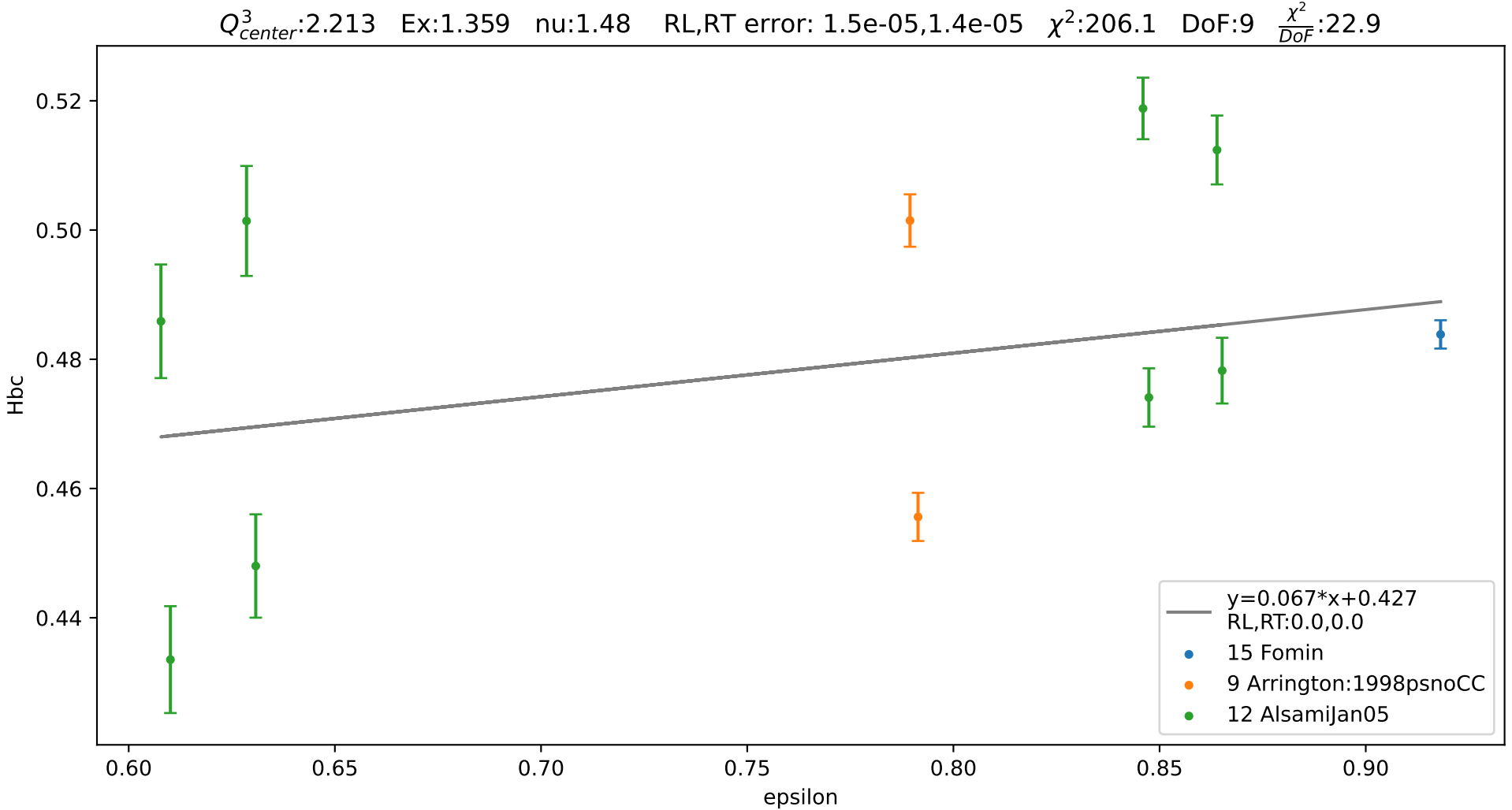

q = 1.921 bin:1.770~2.067
RT Total Christy-Bodek Fit
RT QE Christy-Bodek Fit
RT this analysis
RT Photo-production
W = 0.93
W = 1.07
W = 1.23
ν = 1.921
(Q² = 0)
R_T
ν(GeV)

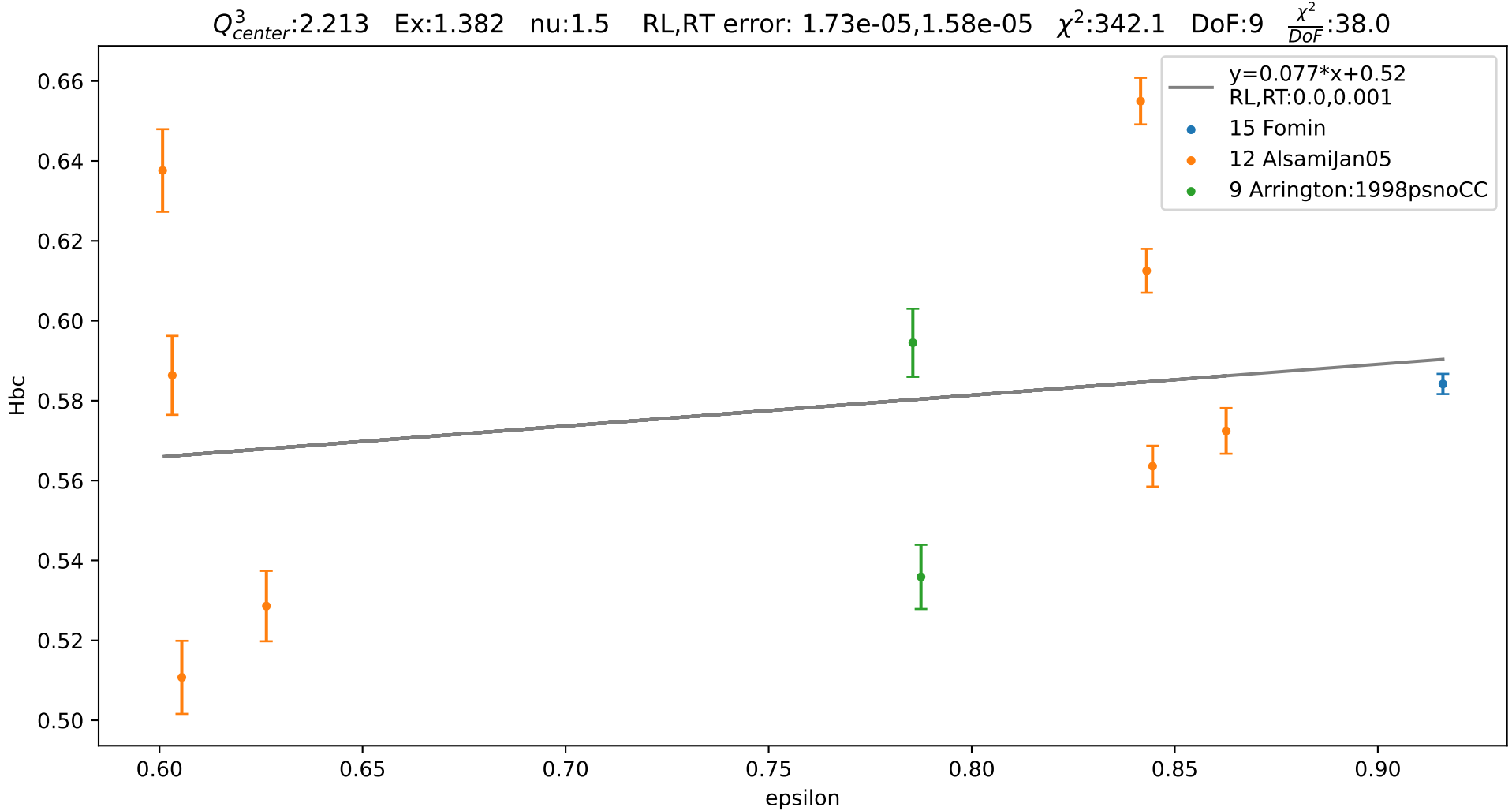

χ²/DoF
χ²/DoF
χ²/DoF
ν(GeV)

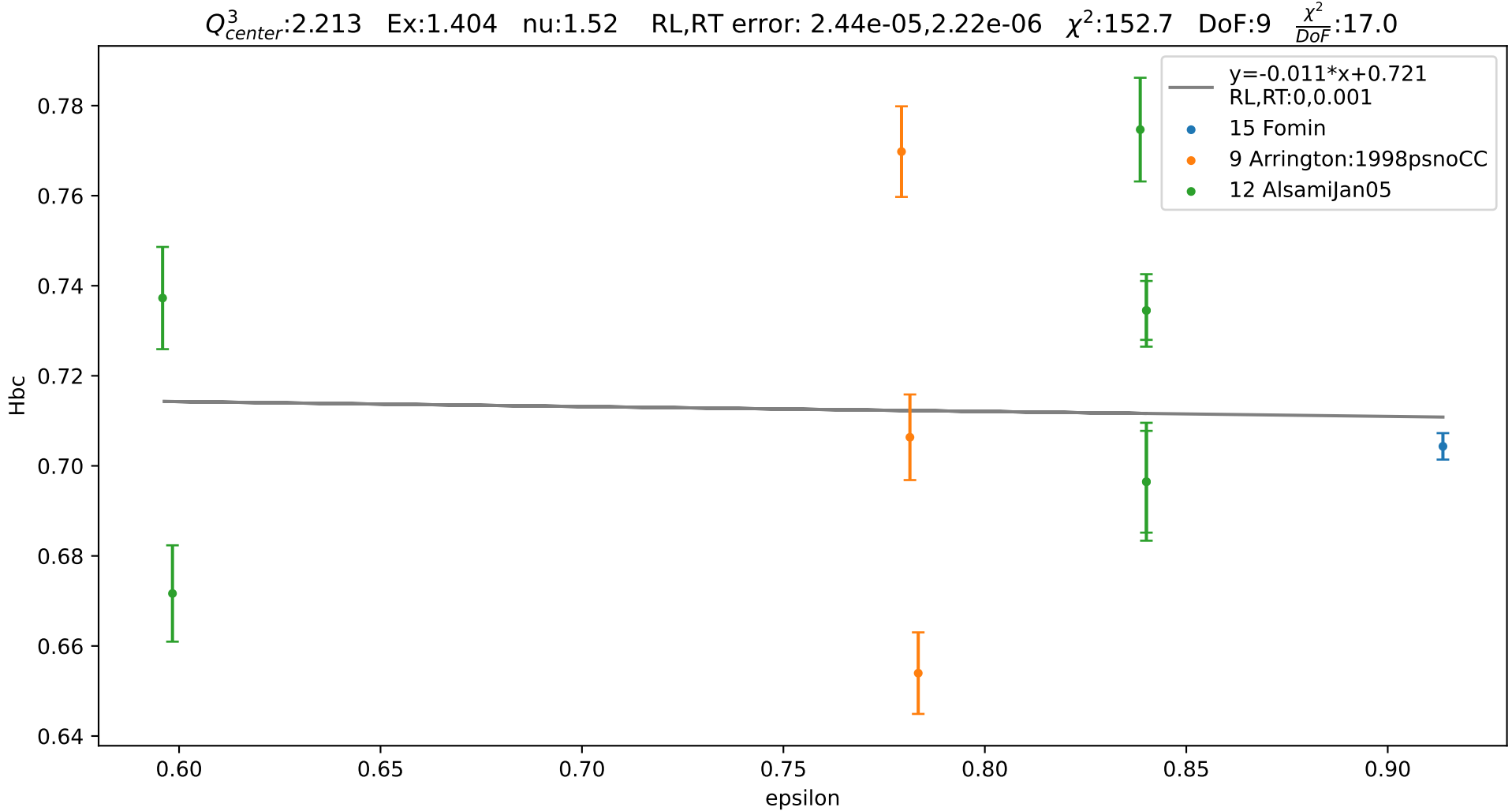

Q^3_{center}:2.213 Ex:1.291 nu:1.42 RL,RT error: 1.37e-05,1.02e-06 χ^2:662.8 DoF:12 $\frac{\chi^2}{DoF}$:55.2
Hbc
epsilon
0.29
0.28
0.27
0.26
0.25
0.24
0.23
0.22
0.65
0.70
0.75
0.80
0.85
y=-0.016*x+0.262
RL,RT:0,0.0
9 Arrington:1998psnoCC
12 AlsamiJan05
10 Gaskell:2008

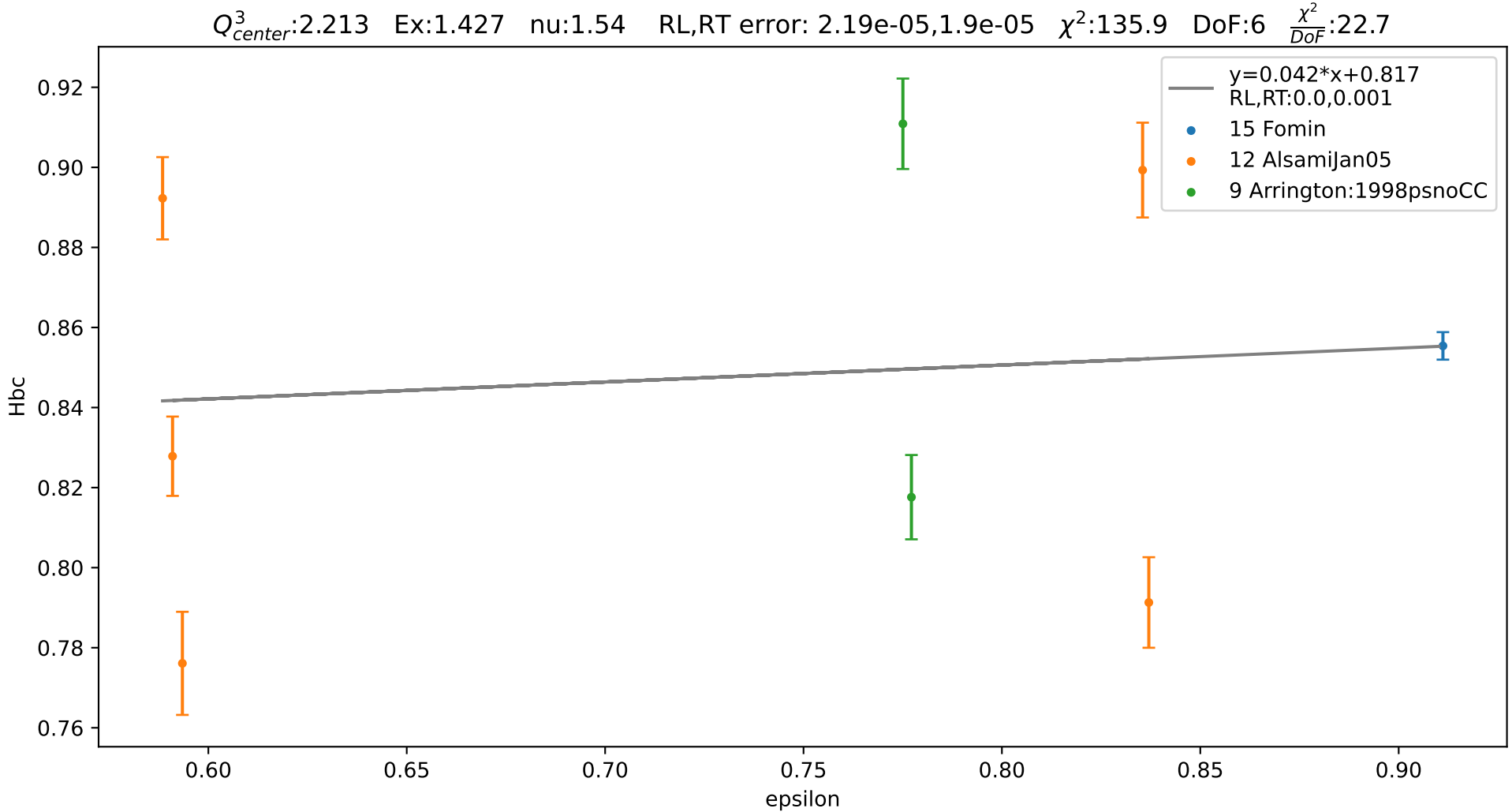

Q^3_{center}:2.213 Ex:1.314 nu:1.44 RL,RT error: 1.56e-05,1.46e-05 χ^2:204.2 DoF:9 $\frac{\chi^2}{DoF}$:22.7
y=0.082*x+0.252
RL,RT:0.0,0.0
12 AlsamiJan05
9 Arrington:1998psnoCC
10 Gaskell:2008
Hbc
epsilon
0.35
0.34
0.33
0.32
0.31
0.30
0.29
0.28
0.65
0.70
0.75
0.80
0.85

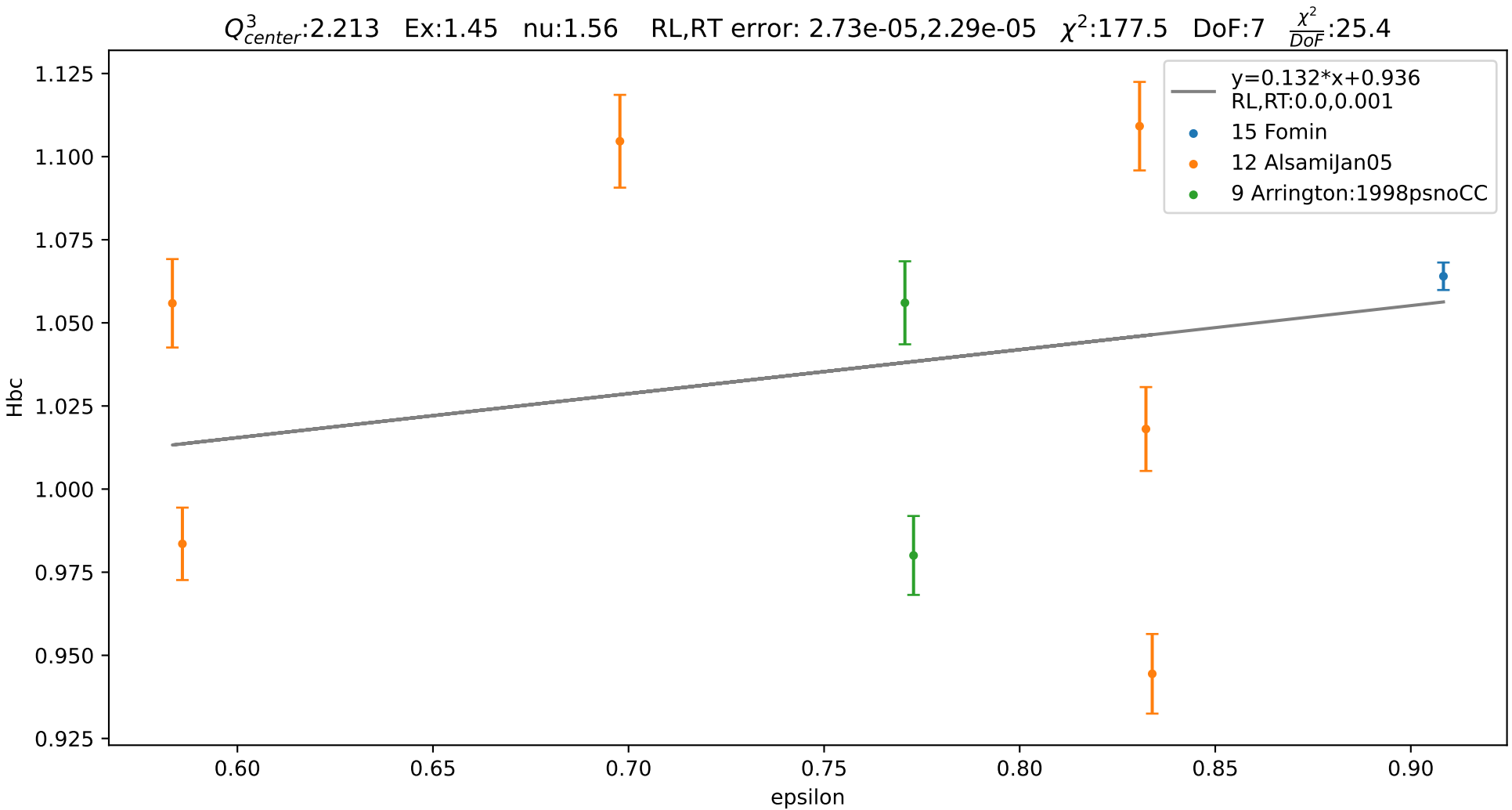

Q^3_{center}:2.213 Ex:1.336 nu:1.46 RL,RT error: 1.17e-05,1.11e-05 χ^2:550.4 DoF:15 $\frac{\chi^2}{DoF}$:36.7
Hbc
epsilon
0.44
0.42
0.40
0.38
0.36
0.34
0.60
0.65
0.70
0.75
0.80
0.85
0.90
y=0.065*x+0.342
RL,RT:0.0,0.0
15 Fomin
12 AlsamiJan05
10 Gaskell:2008
9 Arrington:1998psnoCC

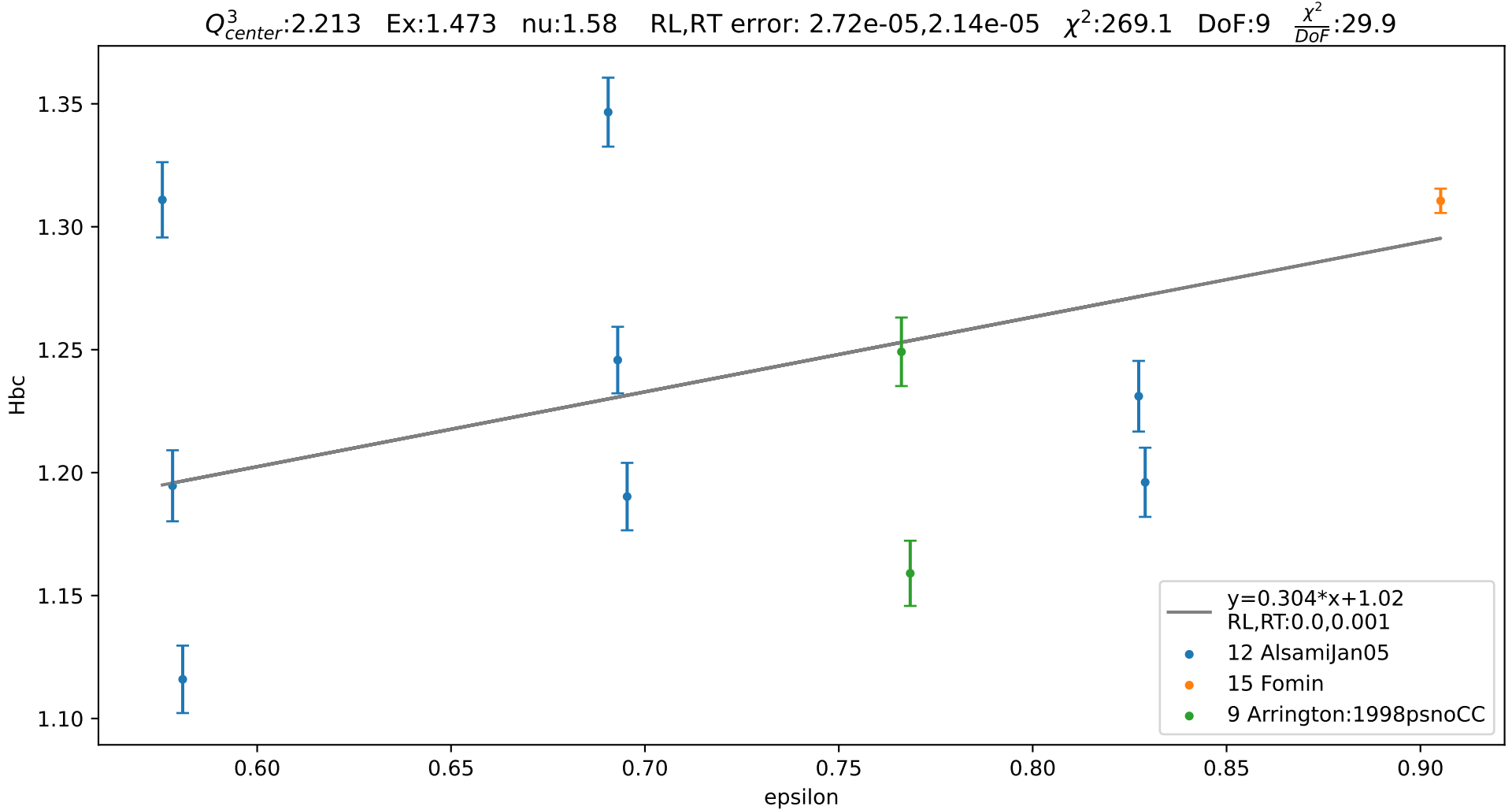

Q^3_{center}:2.213 Ex:1.359 nu:1.48 RL,RT error: 1.5e-05,1.4e-05 χ^2:206.1 DoF:9 $\frac{\chi^2}{DoF}$:22.9
Hbc
epsilon
0.52
0.50
0.48
0.46
0.44
0.60
0.65
0.70
0.75
0.80
0.85
0.90
y=0.067*x+0.427
RL,RT:0.0,0.0
15 Fomin
9 Arrington:1998psnoCC
12 AlsamiJan05

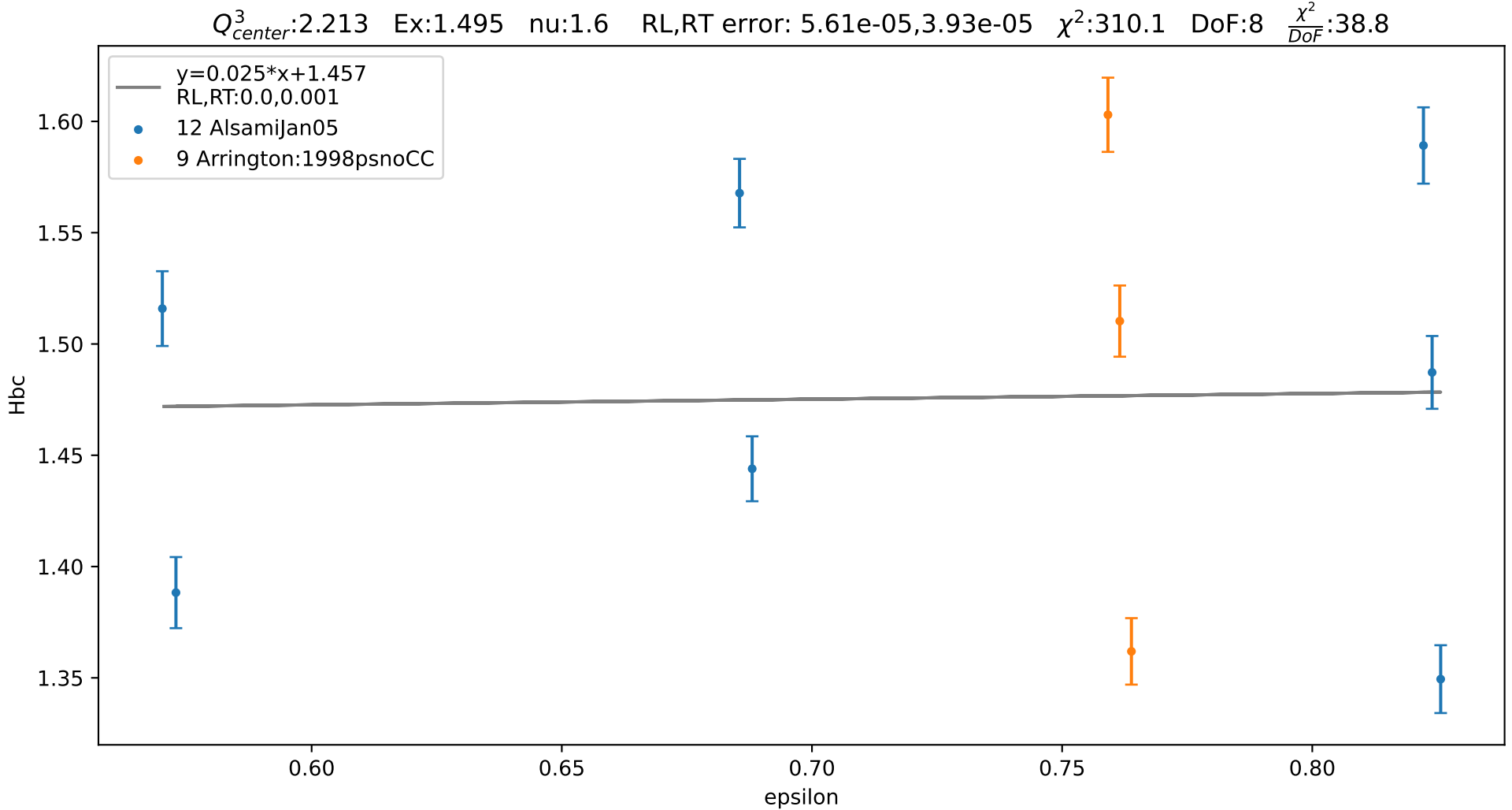

Q^3_{center}:2.213 Ex:1.382 nu:1.5 RL,RT error: 1.73e-05,1.58e-05 χ^2:342.1 DoF:9 $\frac{\chi^2}{DoF}$:38.0
y=0.077*x+0.52
RL,RT:0.0,0.001
15 Fomin
12 AlsamiJan05
9 Arrington:1998psnoCC
Hbc
epsilon
0.66
0.64
0.62
0.60
0.58
0.56
0.54
0.52
0.50
0.60
0.65
0.70
0.75
0.80
0.85
0.90

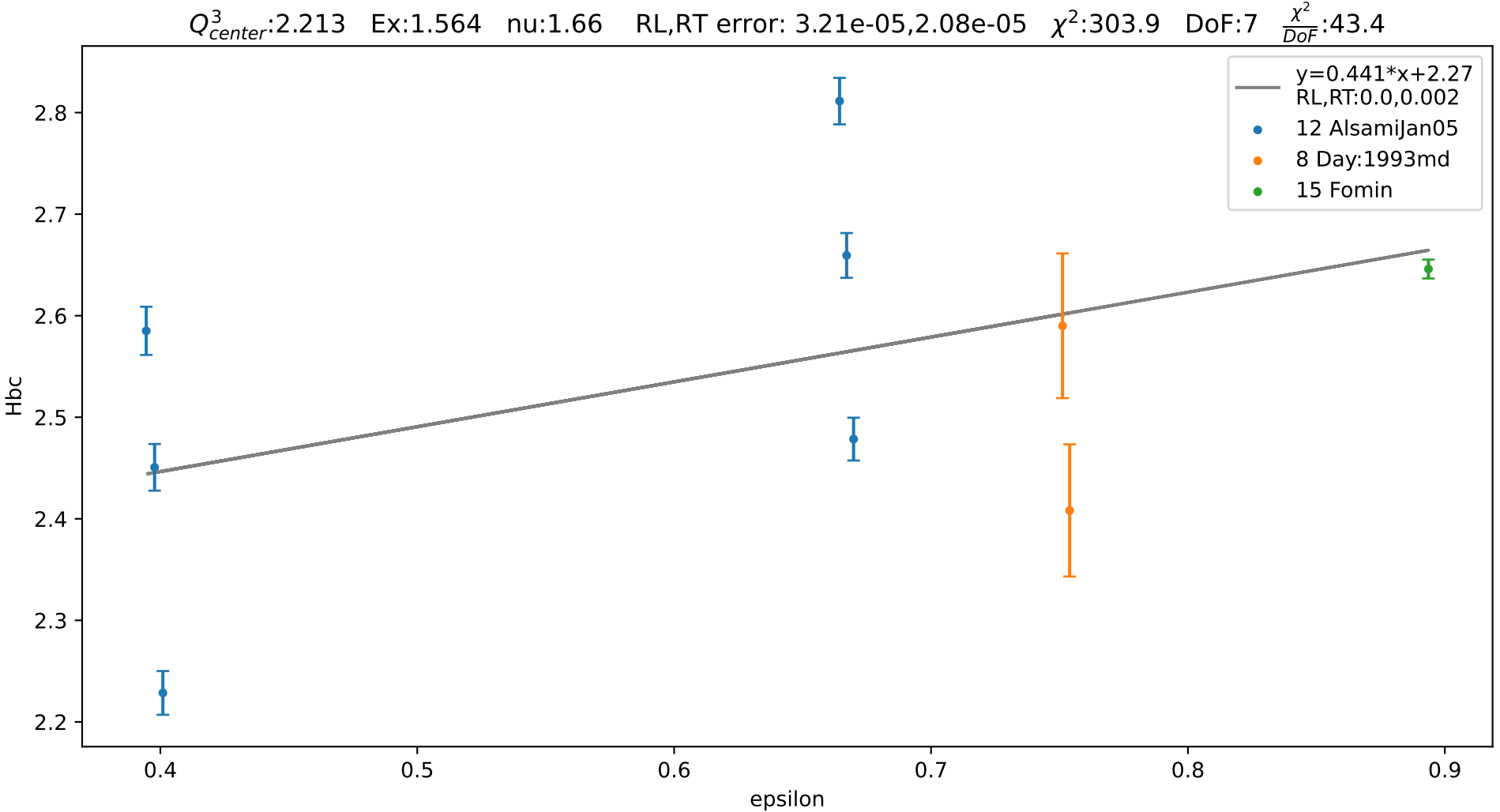

Q^3_{center}:2.213 Ex:1.404 nu:1.52 RL,RT error: 2.44e-05,2.22e-06 χ^2:152.7 DoF:9 $\frac{\chi^2}{DoF}$:17.0
y=-0.011*x+0.721
RL,RT:0,0.001
15 Fomin
9 Arrington:1998psnoCC
12 AlsamiJan05
Hbc
epsilon
0.78
0.76
0.74
0.72
0.70
0.68
0.66
0.64
0.60
0.65
0.70
0.75
0.80
0.85
0.90

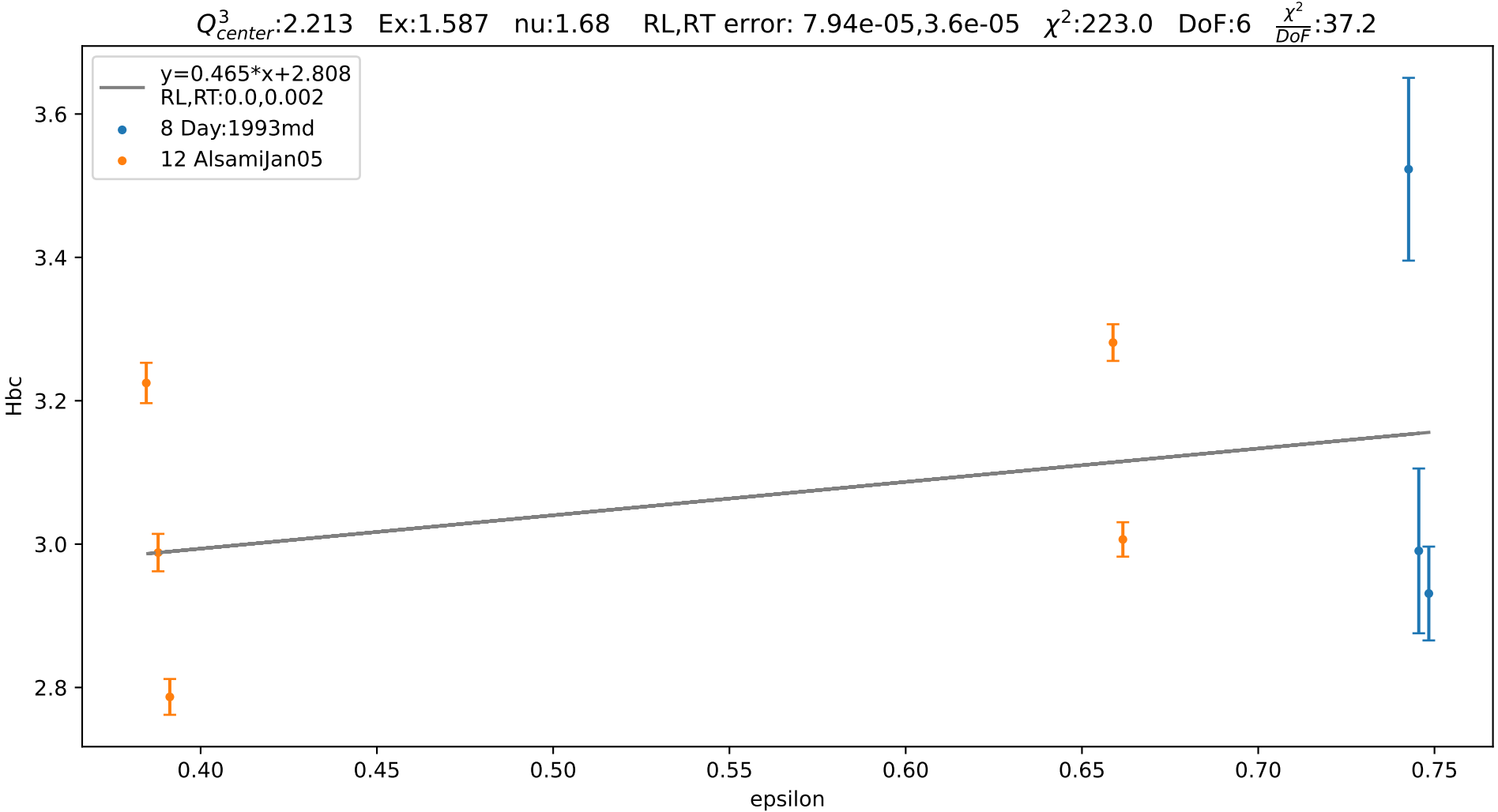

Q^3_{center}:2.213 Ex:1.427 nu:1.54 RL,RT error: 2.19e-05,1.9e-05 χ^2:135.9 DoF:6 $\frac{\chi^2}{DoF}$:22.7
y=0.042*x+0.817
RL,RT:0.0,0.001
15 Fomin
12 AlsamiJan05
9 Arrington:1998psnoCC
Hbc
epsilon
0.92
0.90
0.88
0.86
0.84
0.82
0.80
0.78
0.76
0.60
0.65
0.70
0.75
0.80
0.85
0.90

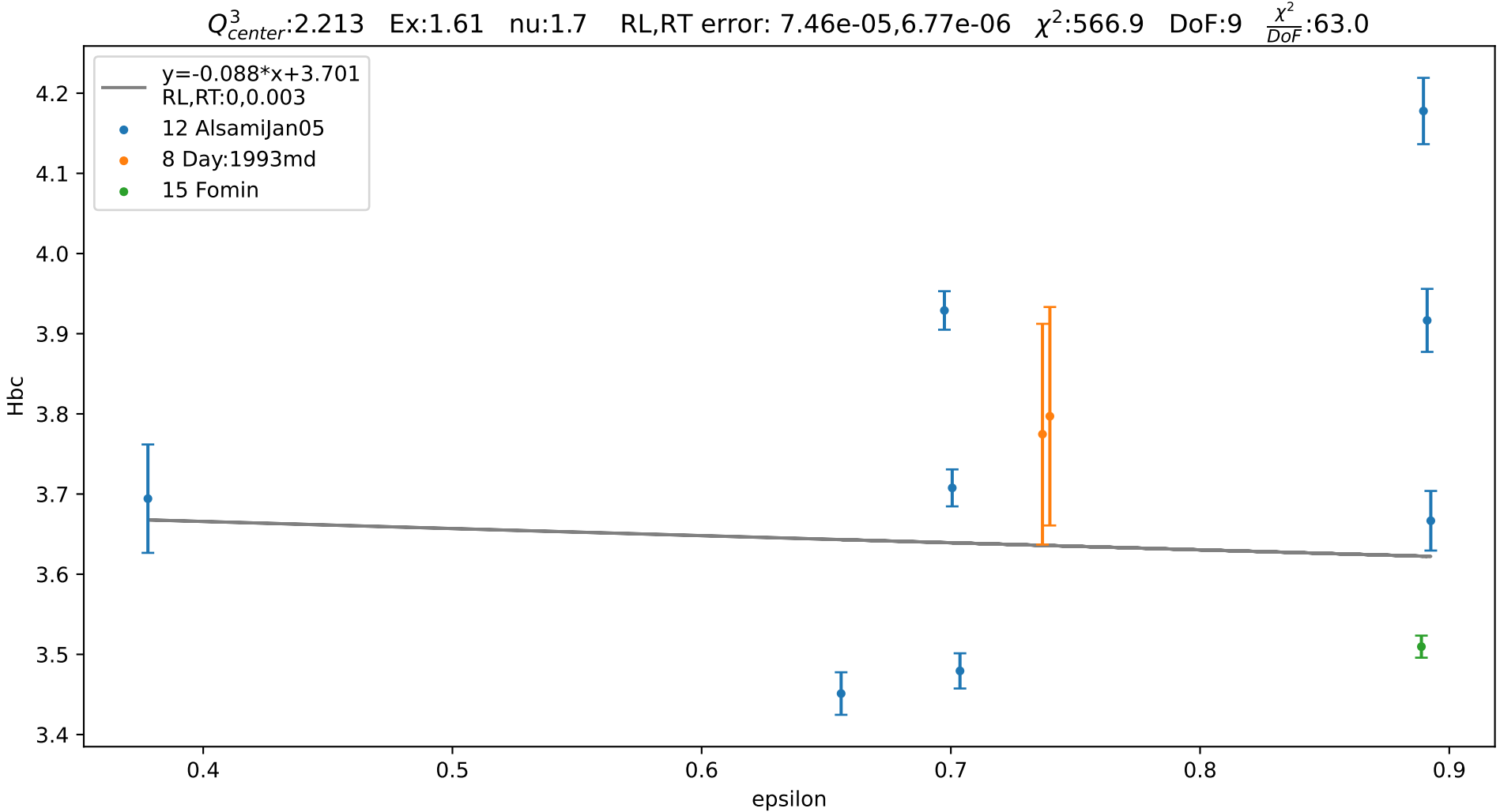

Q^3_{center}:2.213 Ex:1.45 nu:1.56 RL,RT error: 2.73e-05,2.29e-05 χ^2:177.5 DoF:7 $\frac{\chi^2}{DoF}$:25.4
y=0.132*x+0.936
RL,RT:0.0,0.001
15 Fomin
12 AlsamiJan05
9 Arrington:1998psnoCC
Hbc
epsilon
1.125
1.100
1.075
1.050
1.025
1.000
0.975
0.950
0.925
0.60
0.65
0.70
0.75
0.80
0.85
0.90

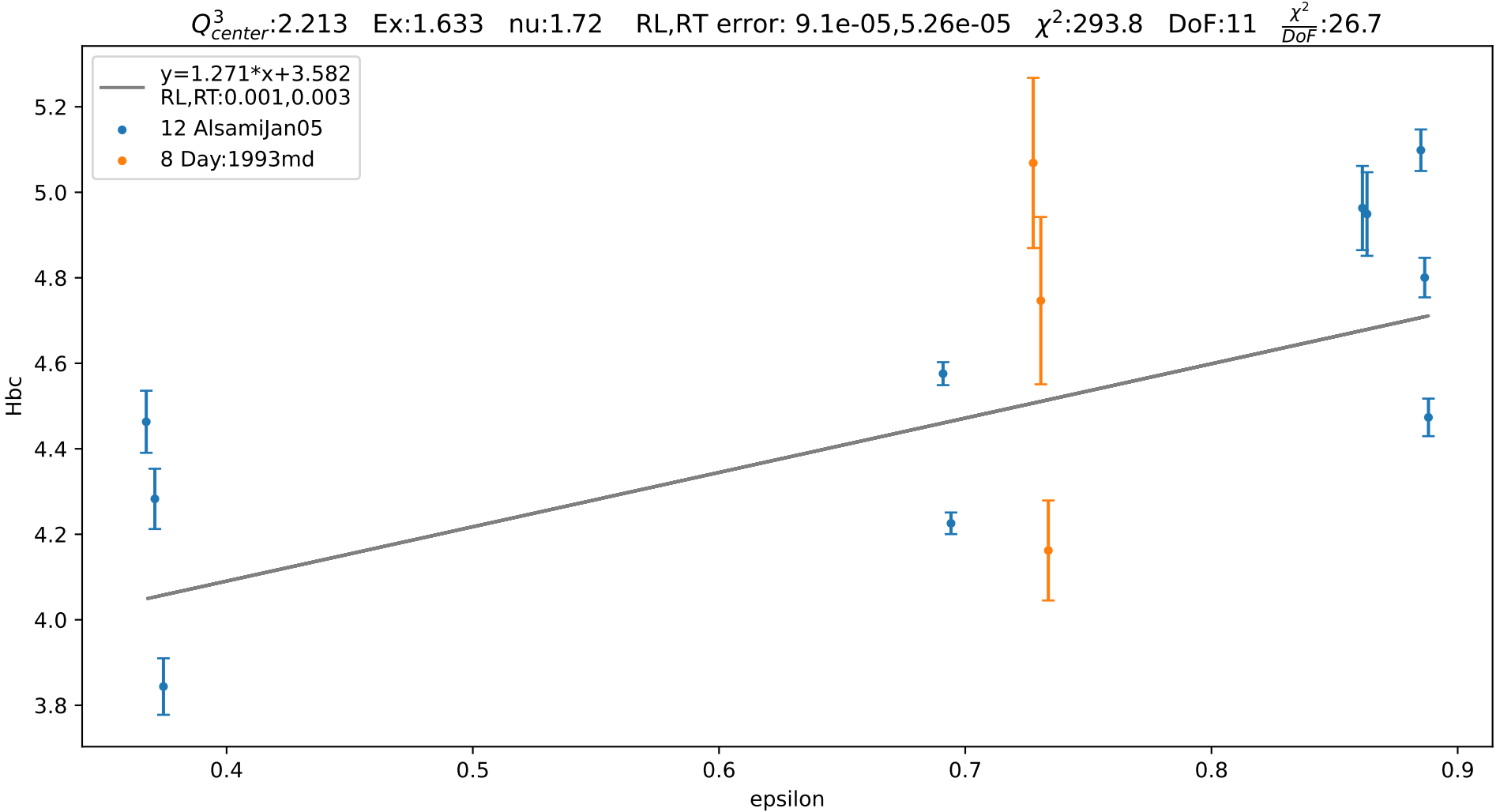

Q^3_{center}:2.213 Ex:1.473 nu:1.58 RL,RT error: 2.72e-05,2.14e-05 χ^2:269.1 DoF:9 $\frac{\chi^2}{DoF}$:29.9
Hbc
epsilon
1.35
1.30
1.25
1.20
1.15
1.10
0.60
0.65
0.70
0.75
0.80
0.85
0.90
y=0.304*x+1.02
RL,RT:0.0,0.001
12 AlsamiJan05
15 Fomin
9 Arrington:1998psnoCC

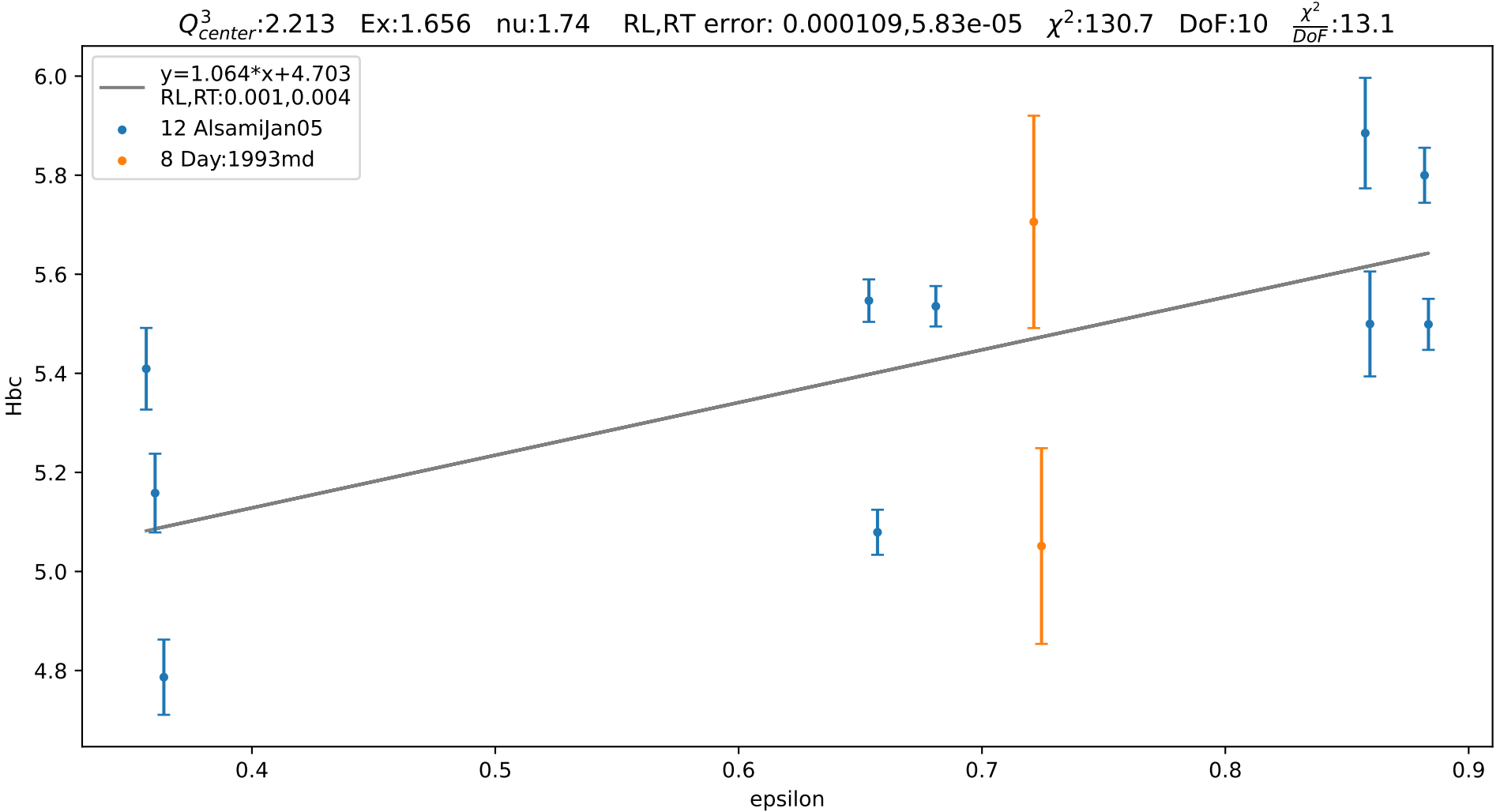

Q^3_{center}:2.213 Ex:1.495 nu:1.6 RL,RT error: 5.61e-05,3.93e-05 χ^2:310.1 DoF:8 $\frac{\chi^2}{DoF}$:38.8
y=0.025*x+1.457
RL,RT:0.0,0.001
12 AlsamiJan05
9 Arrington:1998psnoCC
Hbc
epsilon
1.60
1.55
1.50
1.45
1.40
1.35
0.60
0.65
0.70
0.75
0.80

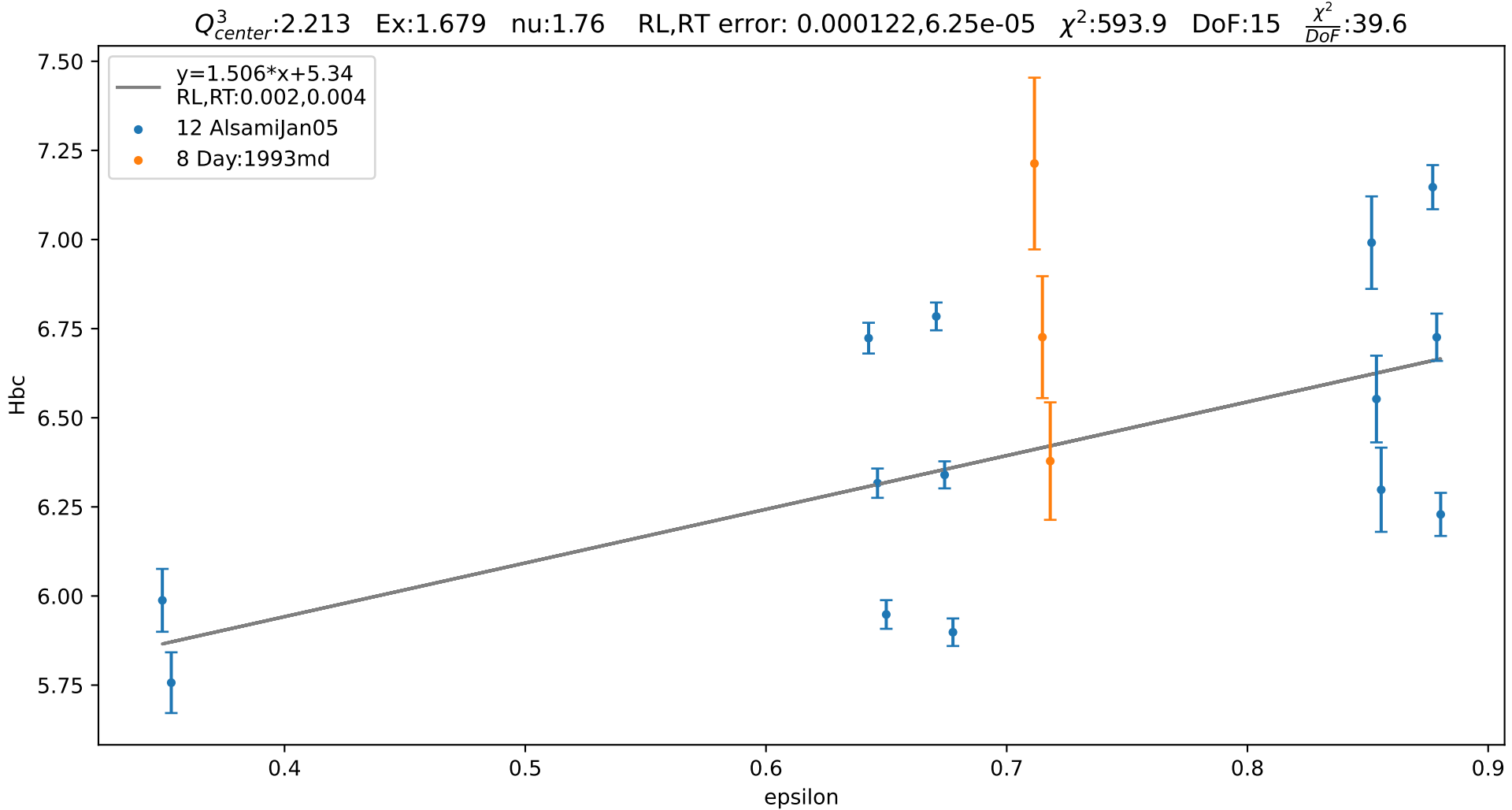

Q^3_{center}:2.213 Ex:1.564 nu:1.66 RL,RT error: 3.21e-05,2.08e-05 χ^2:303.9 DoF:7 $\frac{\chi^2}{DoF}$:43.4
y=0.441*x+2.27
RL,RT:0.0,0.002
12 AlsamiJan05
8 Day:1993md
15 Fomin
Hbc
epsilon
2.8
2.7
2.6
2.5
2.4
2.3
2.2
0.4
0.5
0.6
0.7
0.8
0.9

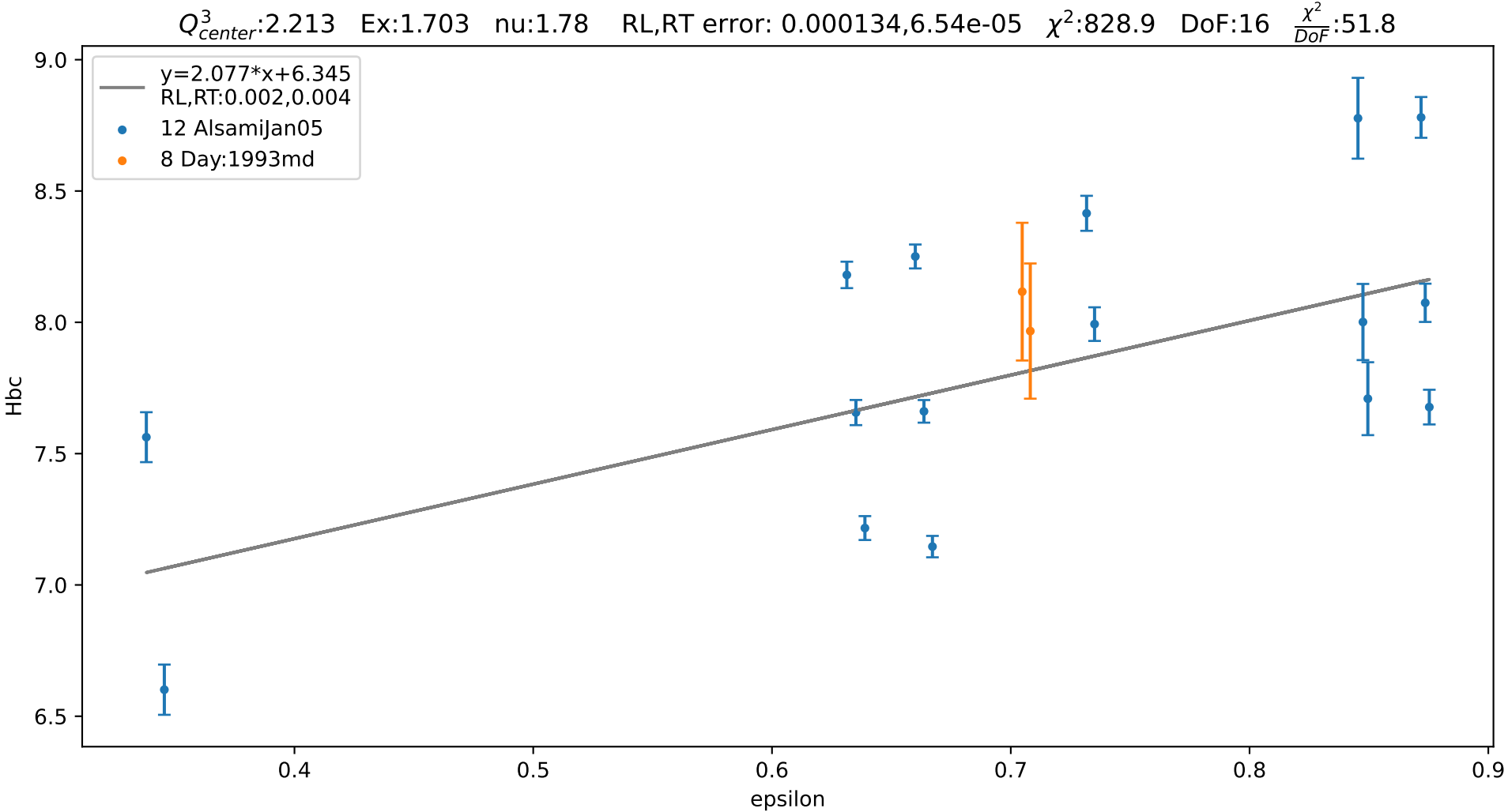

Q^3_{center}:2.213 Ex:1.587 nu:1.68 RL,RT error: 7.94e-05,3.6e-05 χ^2:223.0 DoF:6 $\frac{\chi^2}{DoF}$:37.2
y=0.465*x+2.808
RL,RT:0.0,0.002
8 Day:1993md
12 AlsamiJan05
Hbc
epsilon
3.6
3.4
3.2
3.0
2.8
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75

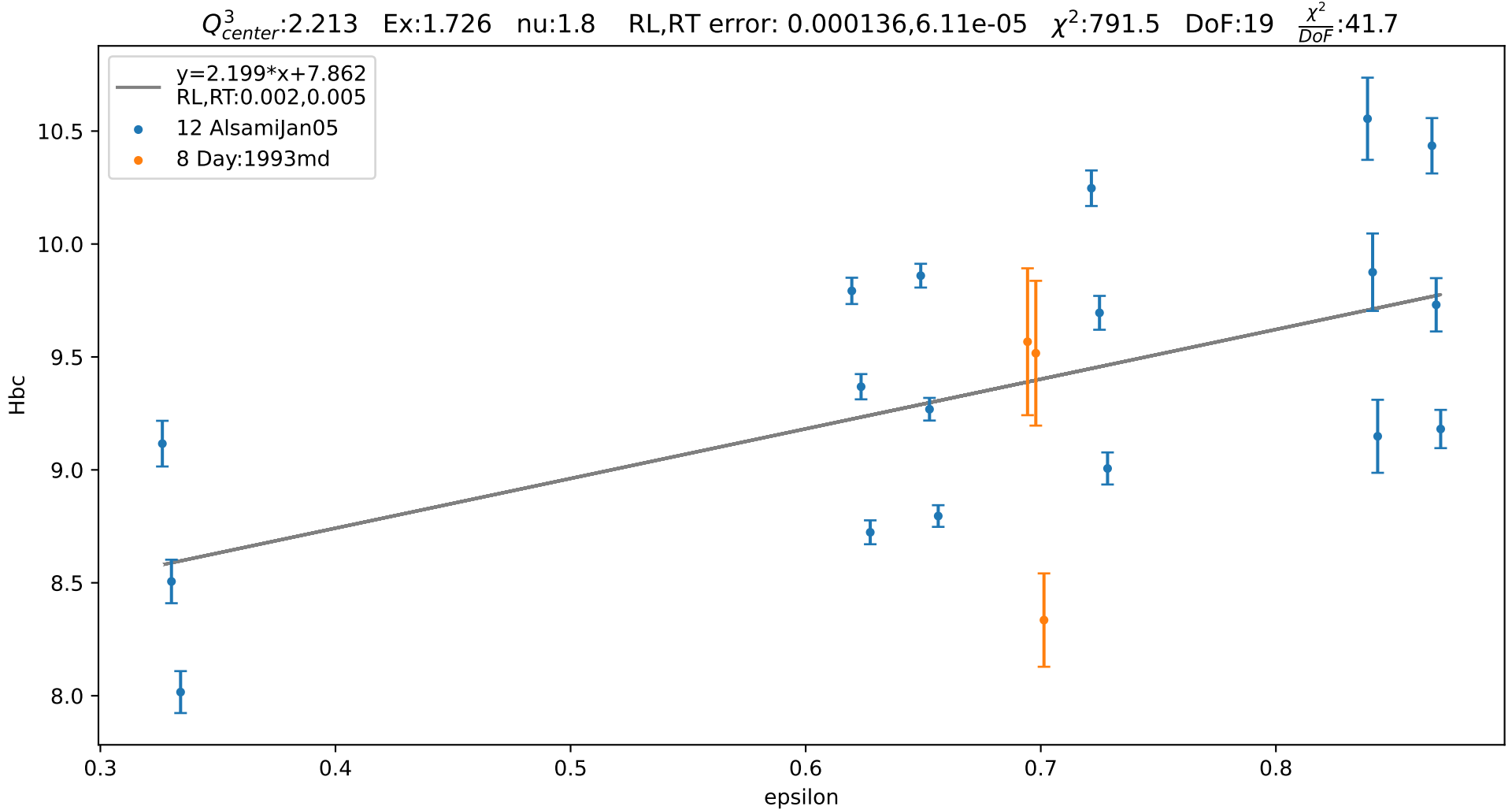

Q^3_{center}:2.213 Ex:1.61 nu:1.7 RL,RT error: 7.46e-05,6.77e-06 χ^2:566.9 DoF:9 $\frac{\chi^2}{DoF}$:63.0
y=-0.088*x+3.701
RL,RT:0,0.003
12 AlsamiJan05
8 Day:1993md
15 Fomin
Hbc
epsilon
4.2
4.1
4.0
3.9
3.8
3.7
3.6
3.5
3.4
0.4
0.5
0.6
0.7
0.8
0.9

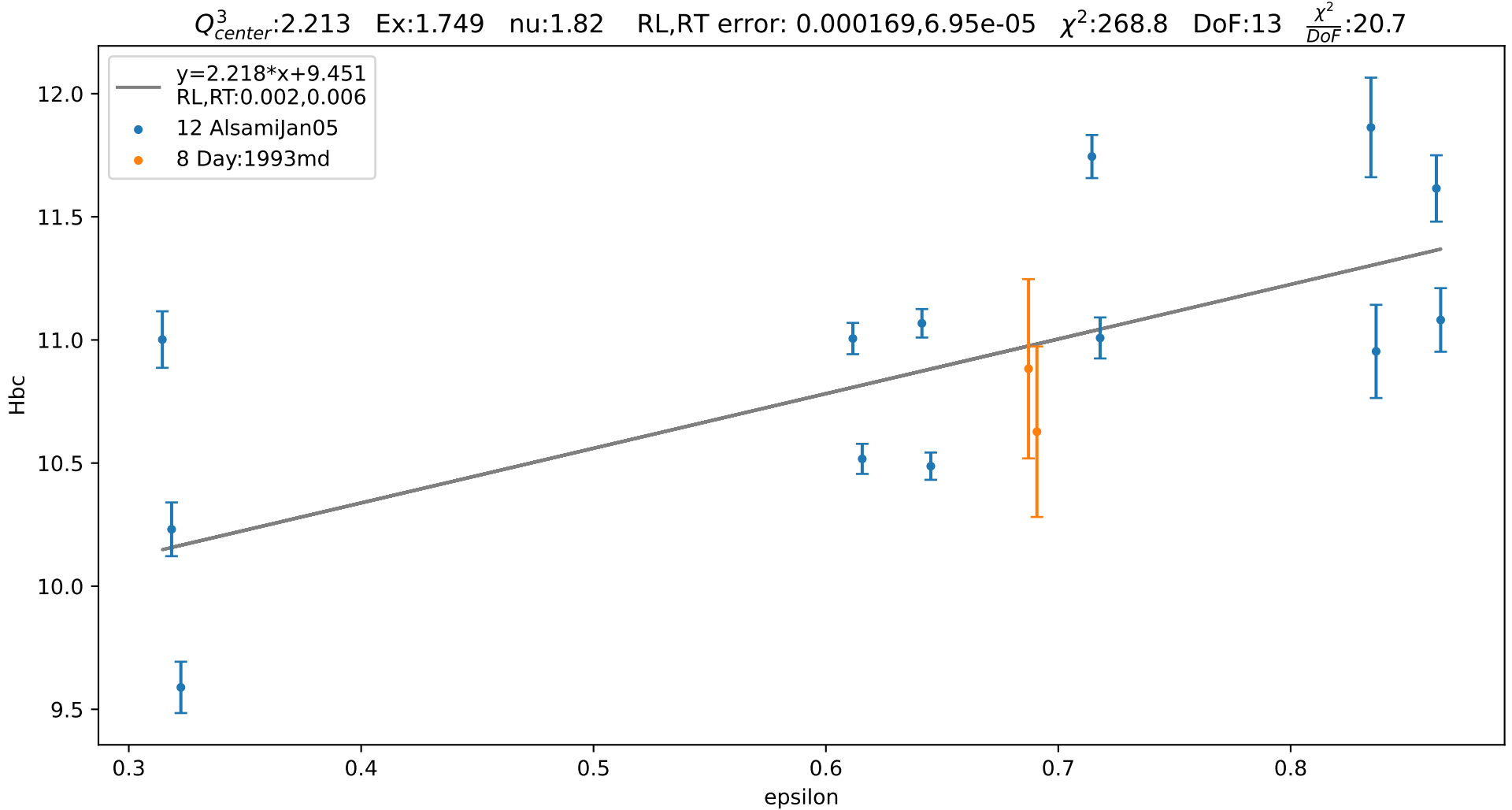

Q^3_{center}:2.213 Ex:1.633 nu:1.72 RL,RT error: 9.1e-05,5.26e-05 χ^2:293.8 DoF:11 $\frac{\chi^2}{DoF}$:26.7
y=1.271*x+3.582
RL,RT:0.001,0.003
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
5.2
5.0
4.8
4.6
4.4
4.2
4.0
3.8
0.4
0.5
0.6
0.7
0.8
0.9

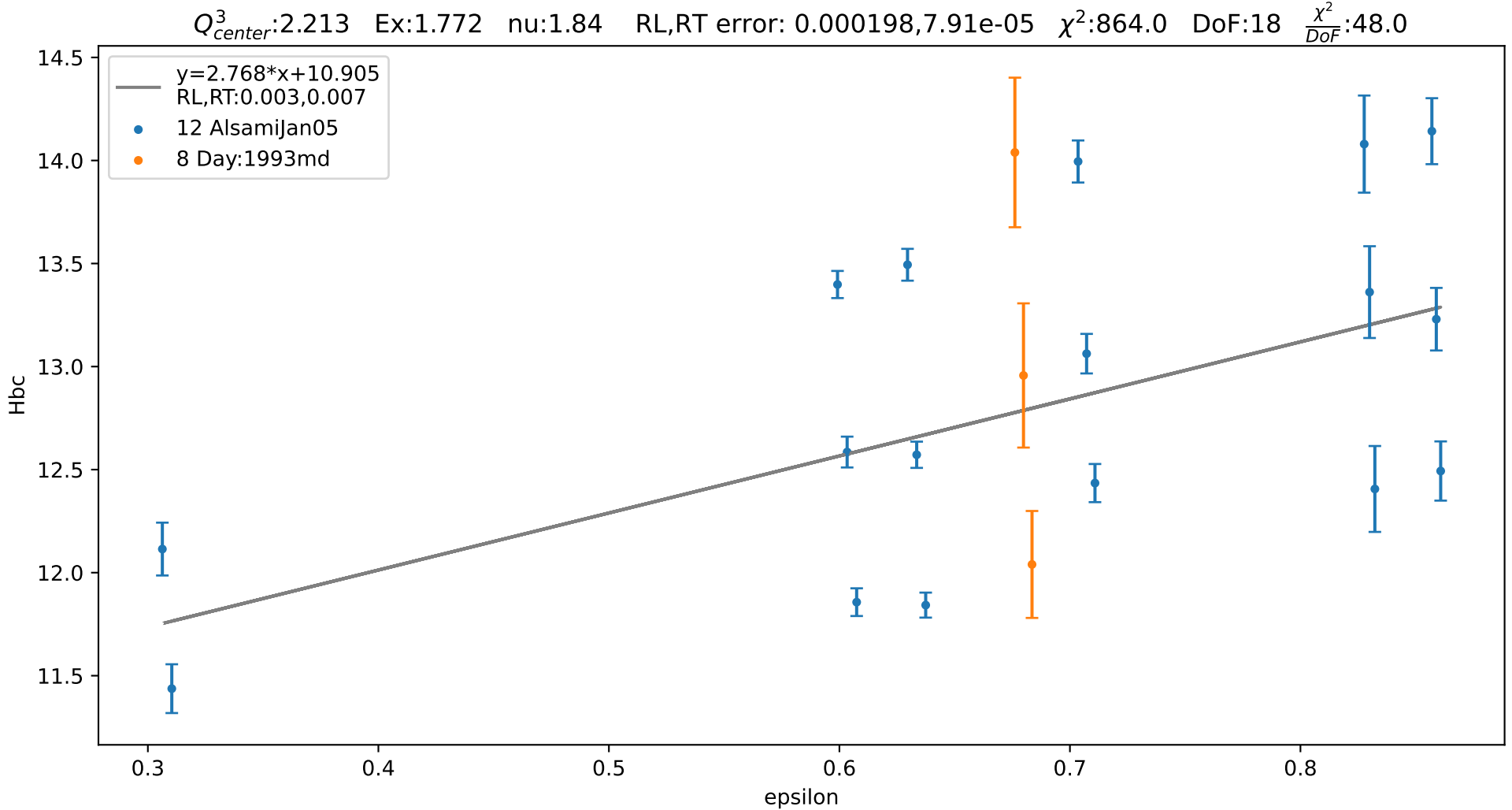

Q^3_{center}:2.213 Ex:1.656 nu:1.74 RL,RT error: 0.000109,5.83e-05 χ^2:130.7 DoF:10 $\frac{\chi^2}{DoF}$:13.1
y=1.064*x+4.703
RL,RT:0.001,0.004
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
6.0
5.8
5.6
5.4
5.2
5.0
4.8
0.4
0.5
0.6
0.7
0.8
0.9

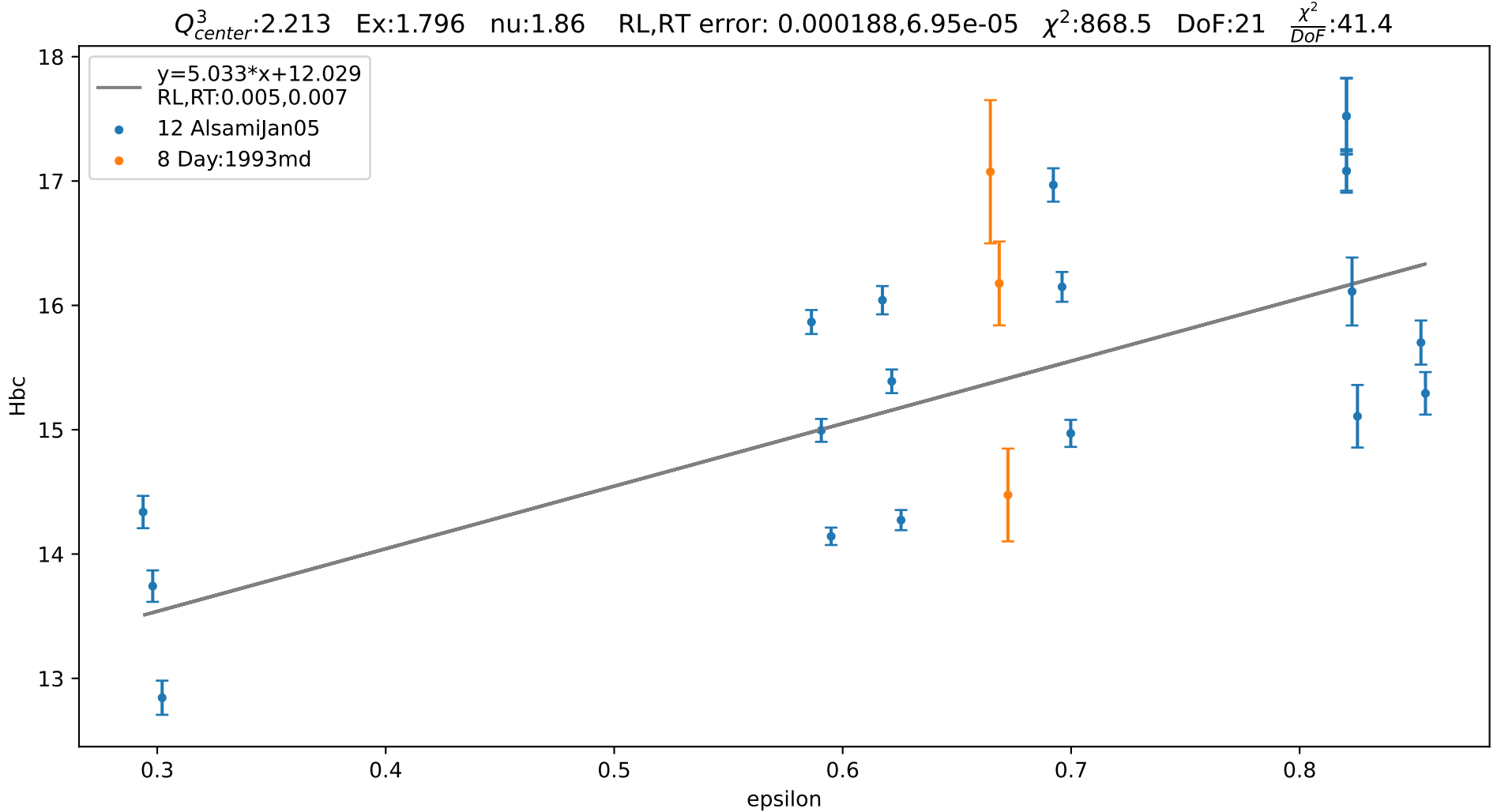

Q^3_{center}:2.213 Ex:1.679 nu:1.76 RL,RT error: 0.000122,6.25e-05 χ^2:593.9 DoF:15 $\frac{\chi^2}{DoF}$:39.6
y=1.506*x+5.34
RL,RT:0.002,0.004
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
7.50
7.25
7.00
6.75
6.50
6.25
6.00
5.75
0.4
0.5
0.6
0.7
0.8
0.9

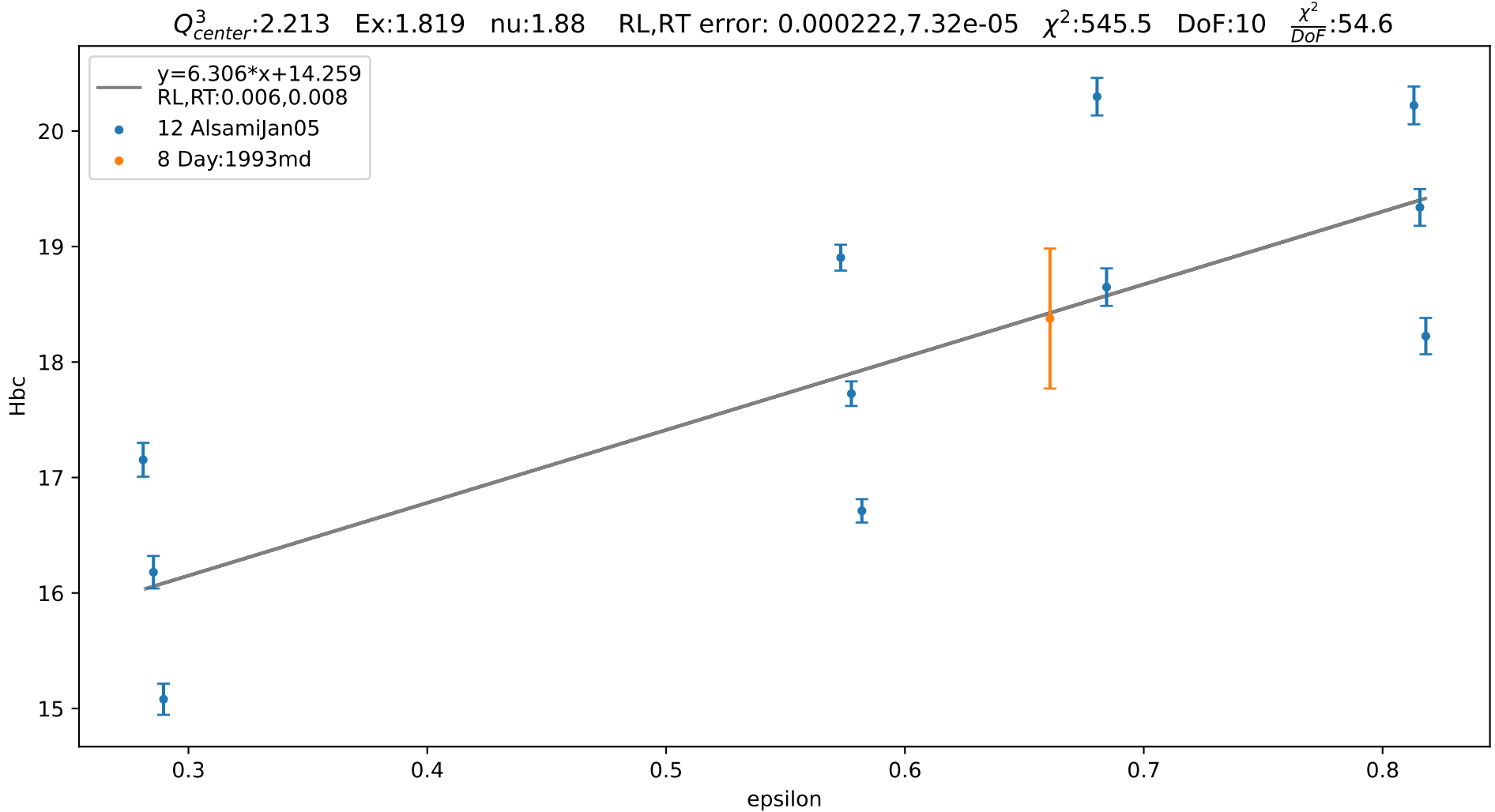

Q^3_{center}:2.213 Ex:1.703 nu:1.78 RL,RT error: 0.000134,6.54e-05 χ^2:828.9 DoF:16 $\frac{\chi^2}{DoF}$:51.8
y=2.077*x+6.345
RL,RT:0.002,0.004
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
9.0
8.5
8.0
7.5
7.0
6.5
0.4
0.5
0.6
0.7
0.8
0.9

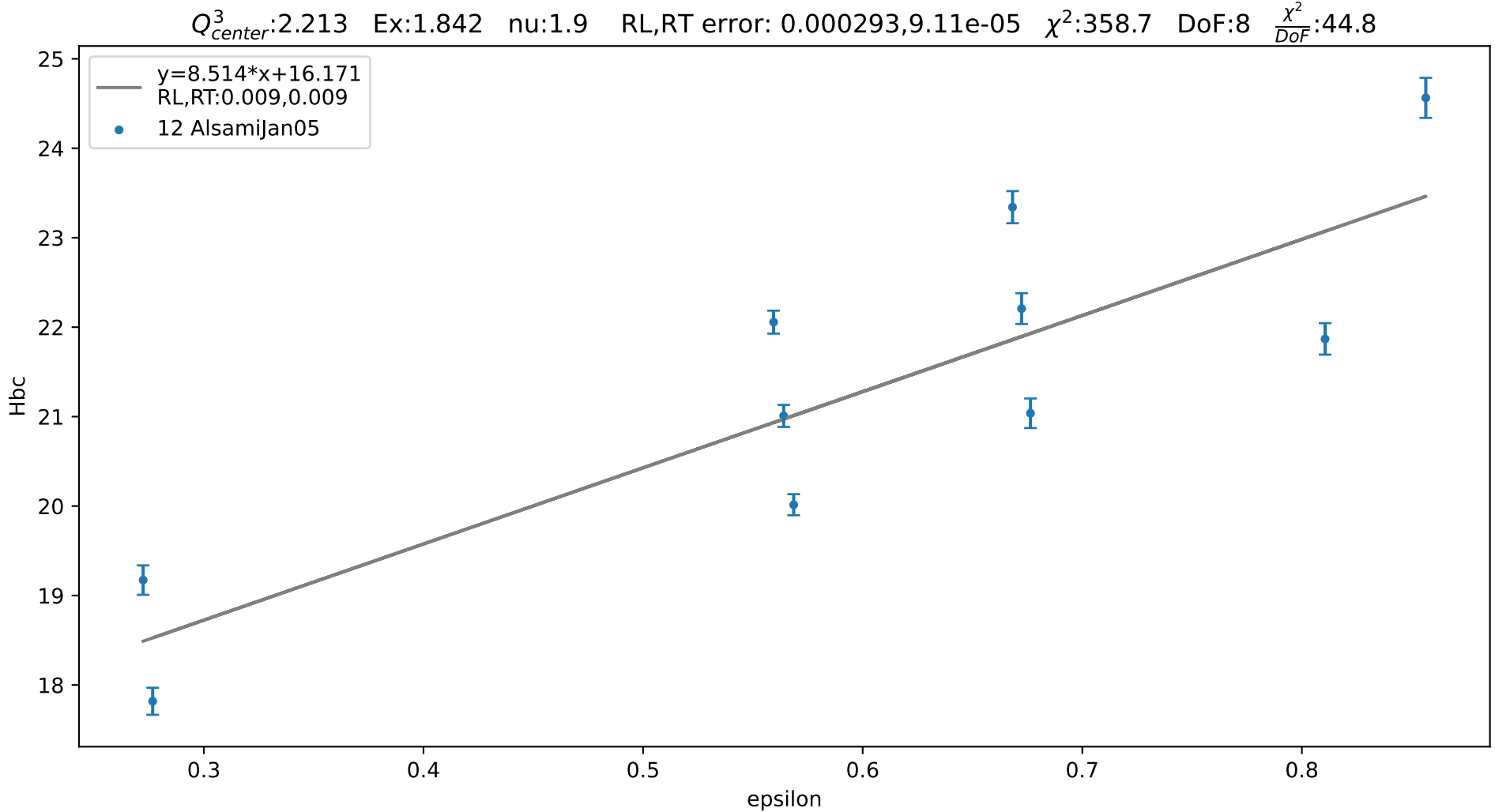

Q^3_{center}:2.213 Ex:1.726 nu:1.8 RL,RT error: 0.000136,6.11e-05 χ^2:791.5 DoF:19 $\frac{\chi^2}{DoF}$:41.7
y=2.199*x+7.862
RL,RT:0.002,0.005
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
10.5
10.0
9.5
9.0
8.5
8.0
0.3
0.4
0.5
0.6
0.7
0.8

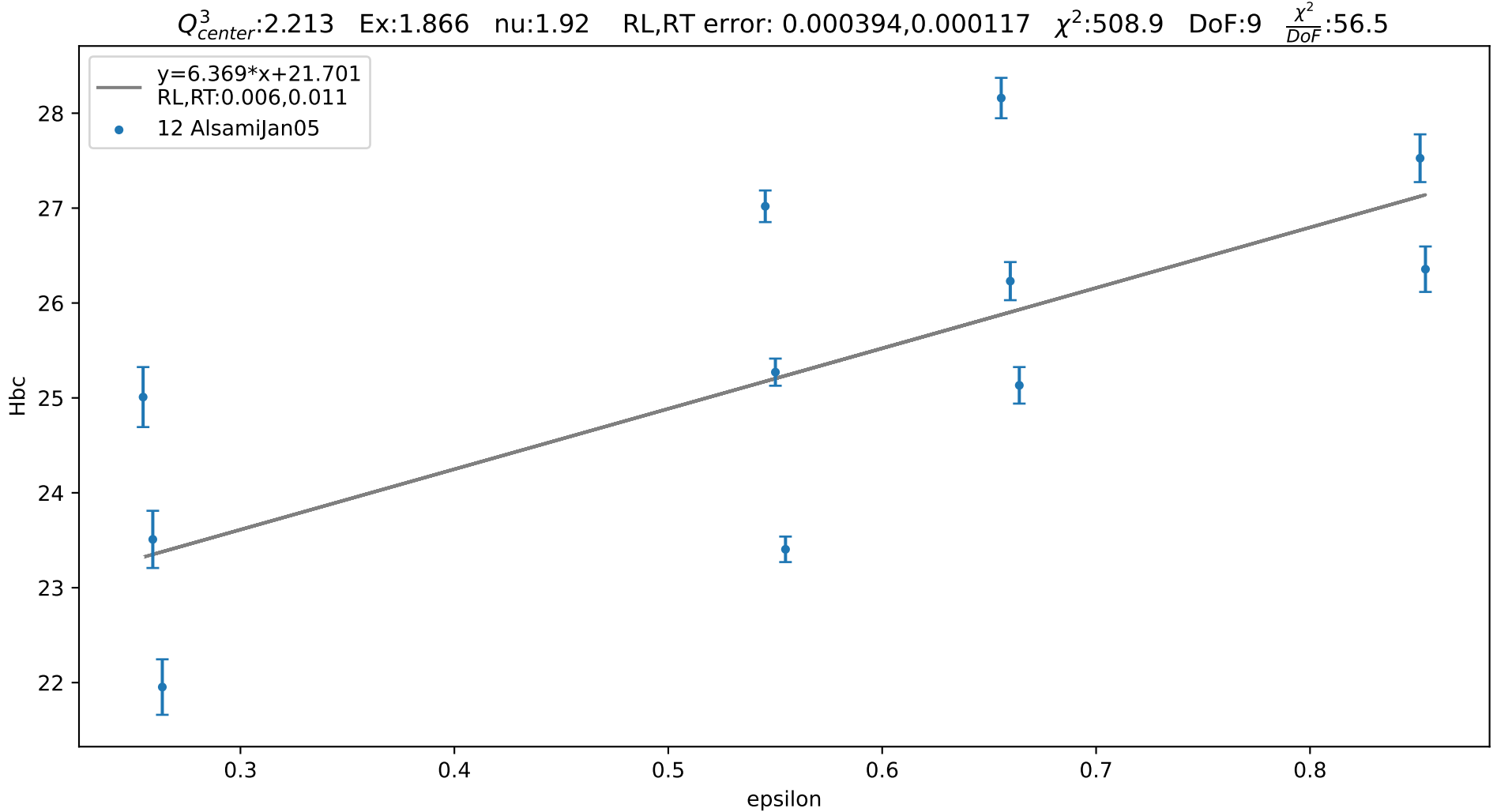

Q^3_{center}:2.213 Ex:1.749 nu:1.82 RL,RT error: 0.000169,6.95e-05 χ^2:268.8 DoF:13 $\frac{\chi^2}{DoF}$:20.7
y=2.218*x+9.451
RL,RT:0.002,0.006
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
12.0
11.5
11.0
10.5
10.0
9.5
0.3
0.4
0.5
0.6
0.7
0.8

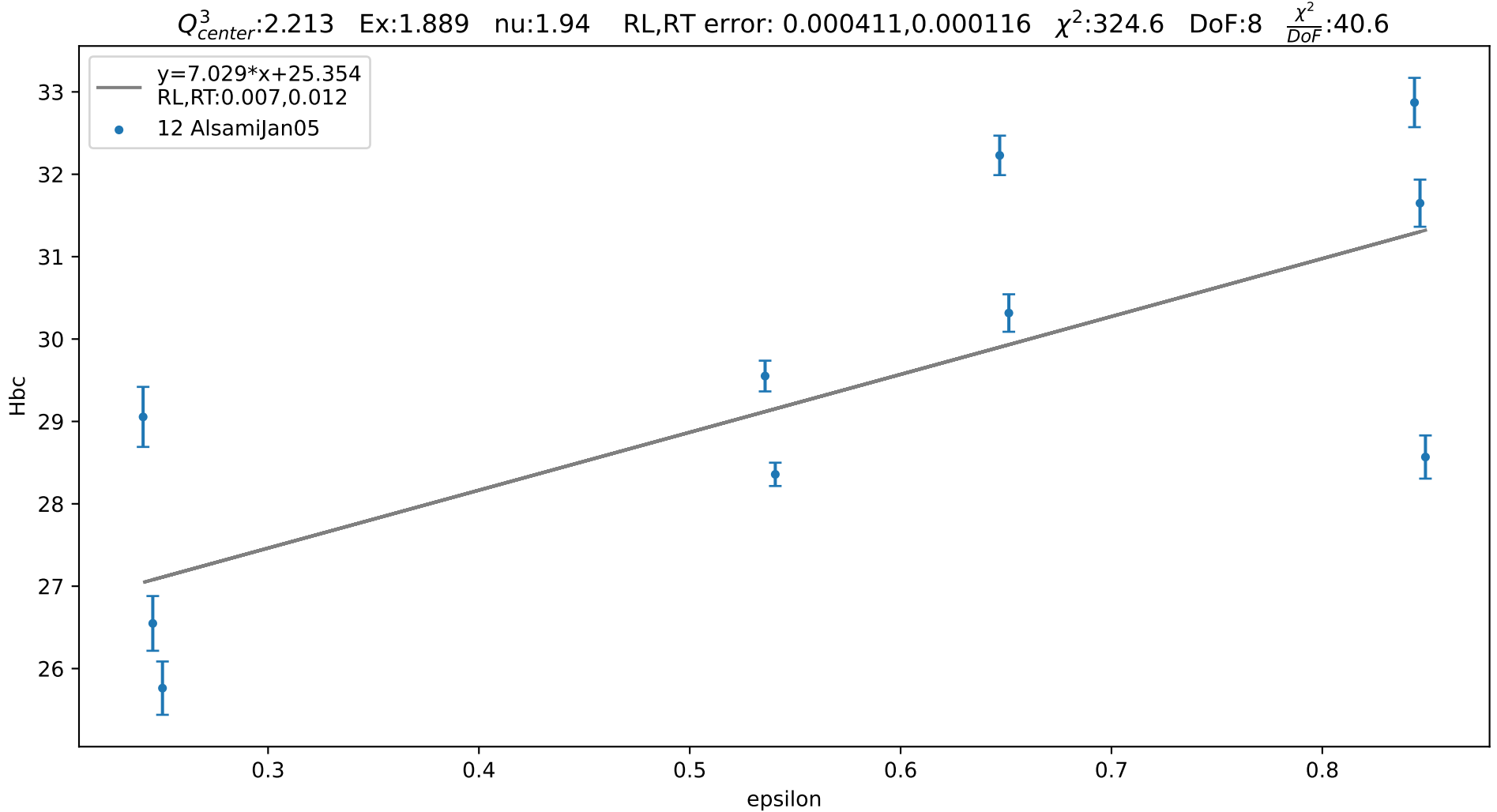

Q^3_{center}:2.213 Ex:1.772 nu:1.84 RL,RT error: 0.000198,7.91e-05 χ^2:864.0 DoF:18 $\frac{\chi^2}{DoF}$:48.0
y=2.768*x+10.905
RL,RT:0.003,0.007
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
14.5
14.0
13.5
13.0
12.5
12.0
11.5
0.3
0.4
0.5
0.6
0.7
0.8

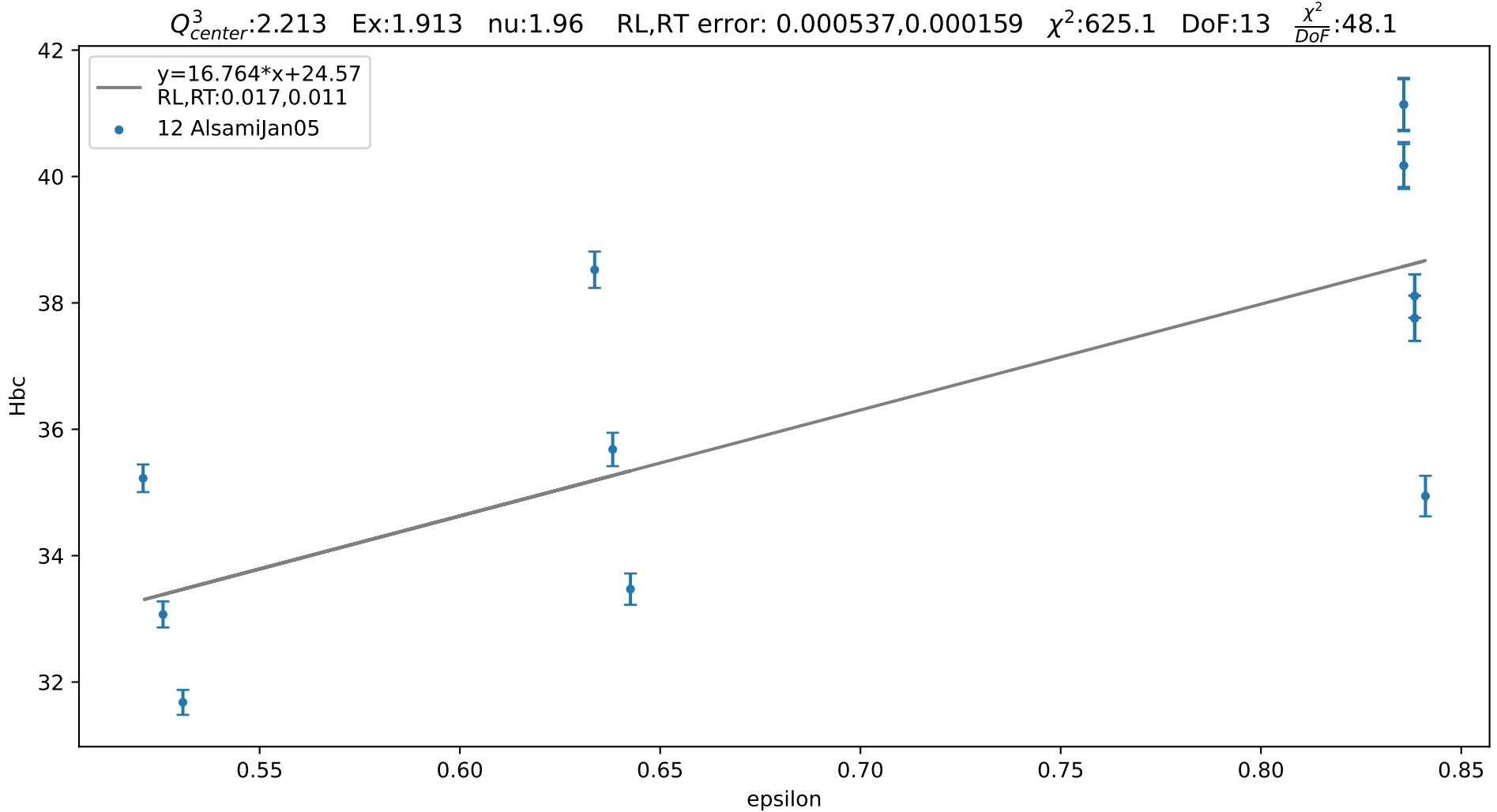

Q^3_{center}:2.213 Ex:1.796 nu:1.86 RL,RT error: 0.000188,6.95e-05 χ^2:868.5 DoF:21 $\frac{\chi^2}{DoF}$:41.4
y=5.033*x+12.029
RL,RT:0.005,0.007
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
18
17
16
15
14
13
0.3
0.4
0.5
0.6
0.7
0.8

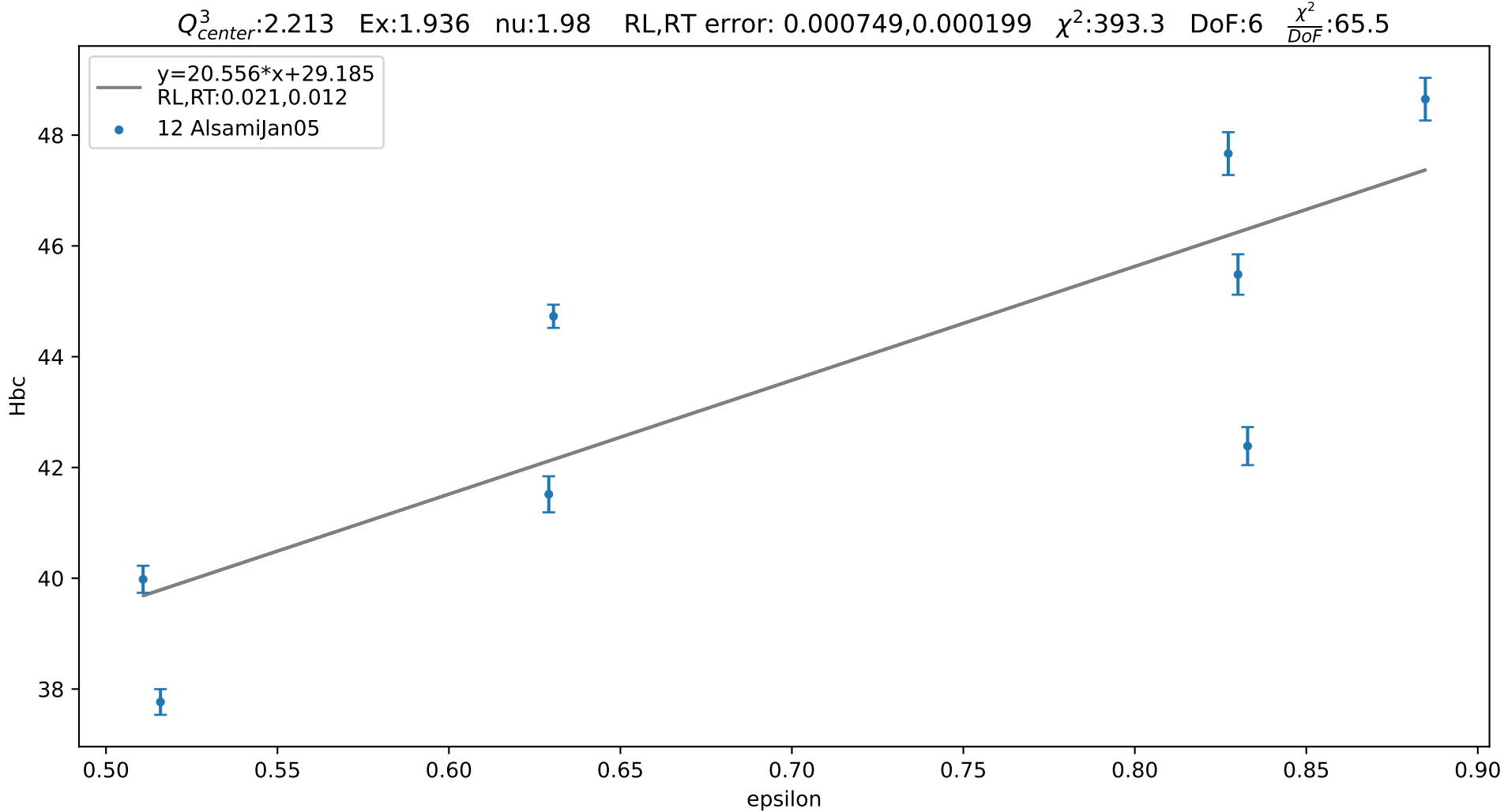

Q^3_{center}:2.213 Ex:1.819 nu:1.88 RL,RT error: 0.000222,7.32e-05 χ^2:545.5 DoF:10 $\frac{\chi^2}{DoF}$:54.6
y=6.306*x+14.259
RL,RT:0.006,0.008
12 AlsamiJan05
8 Day:1993md
Hbc
epsilon
15
16
17
18
19
20
0.3
0.4
0.5
0.6
0.7
0.8

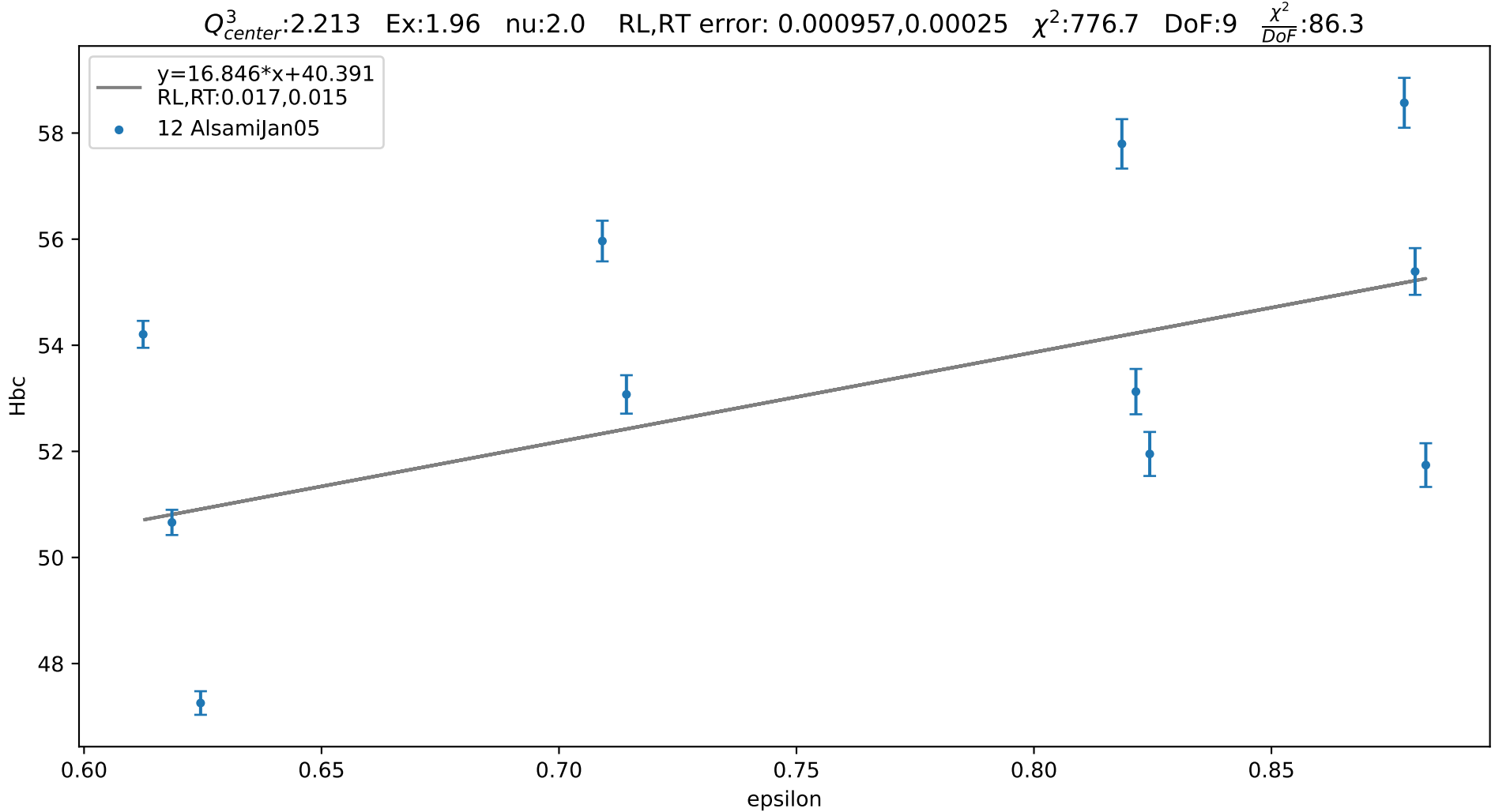

Q^3_{center}:2.213 Ex:1.842 nu:1.9 RL,RT error: 0.000293,9.11e-05 χ^2:358.7 DoF:8 $\frac{\chi^2}{DoF}$:44.8
y=8.514*x+16.171
RL,RT:0.009,0.009
12 AlsamiJan05
Hbc
epsilon
25
24
23
22
21
20
19
18
0.3
0.4
0.5
0.6
0.7
0.8

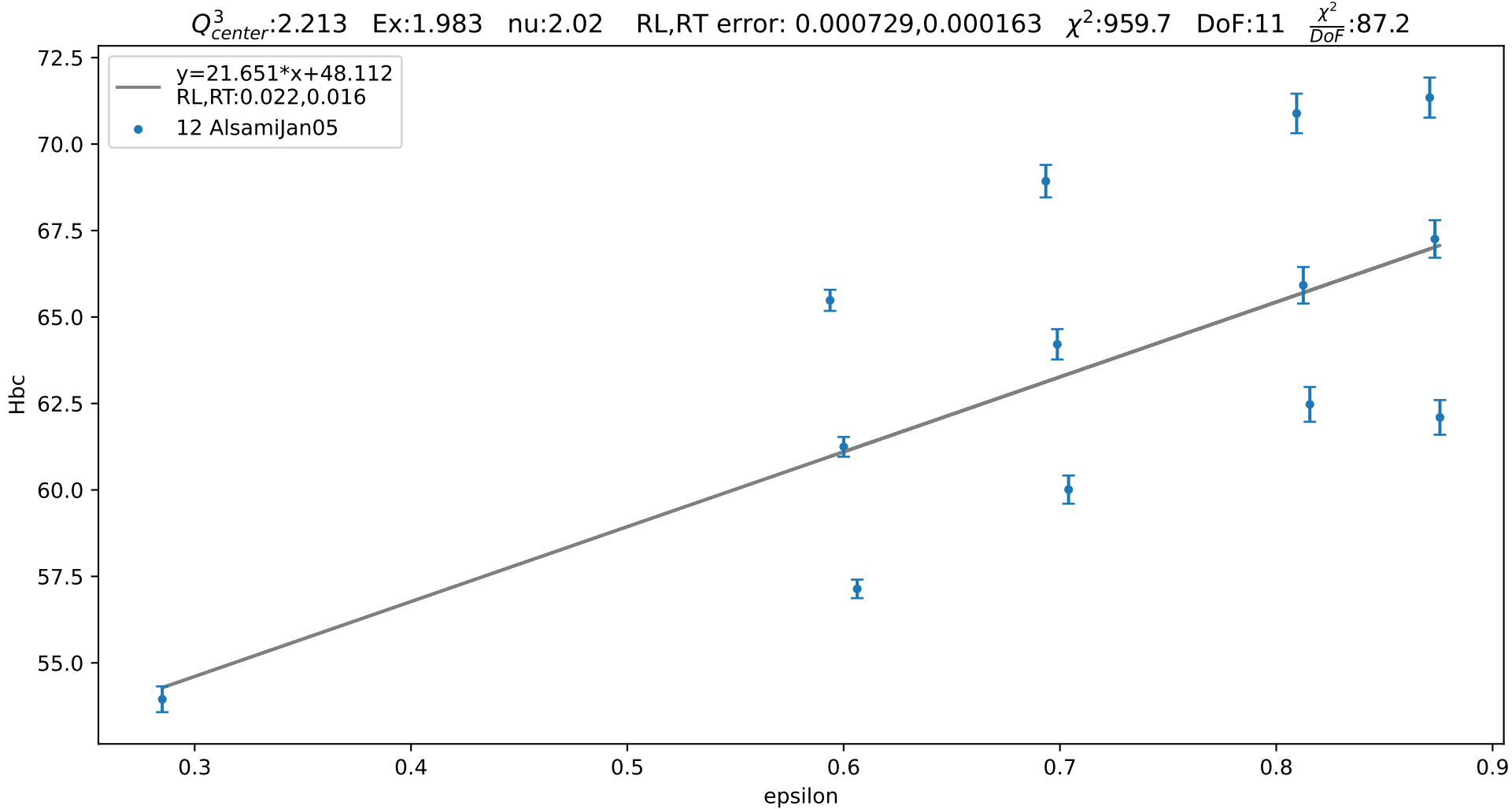

Q^3_{center}:2.213 Ex:1.866 nu:1.92 RL,RT error: 0.000394,0.000117 χ^2:508.9 DoF:9 $\frac{\chi^2}{DoF}$:56.5
y=6.369*x+21.701
RL,RT:0.006,0.011
12 AlsamiJan05
Hbc
epsilon
22
23
24
25
26
27
28
0.3
0.4
0.5
0.6
0.7
0.8

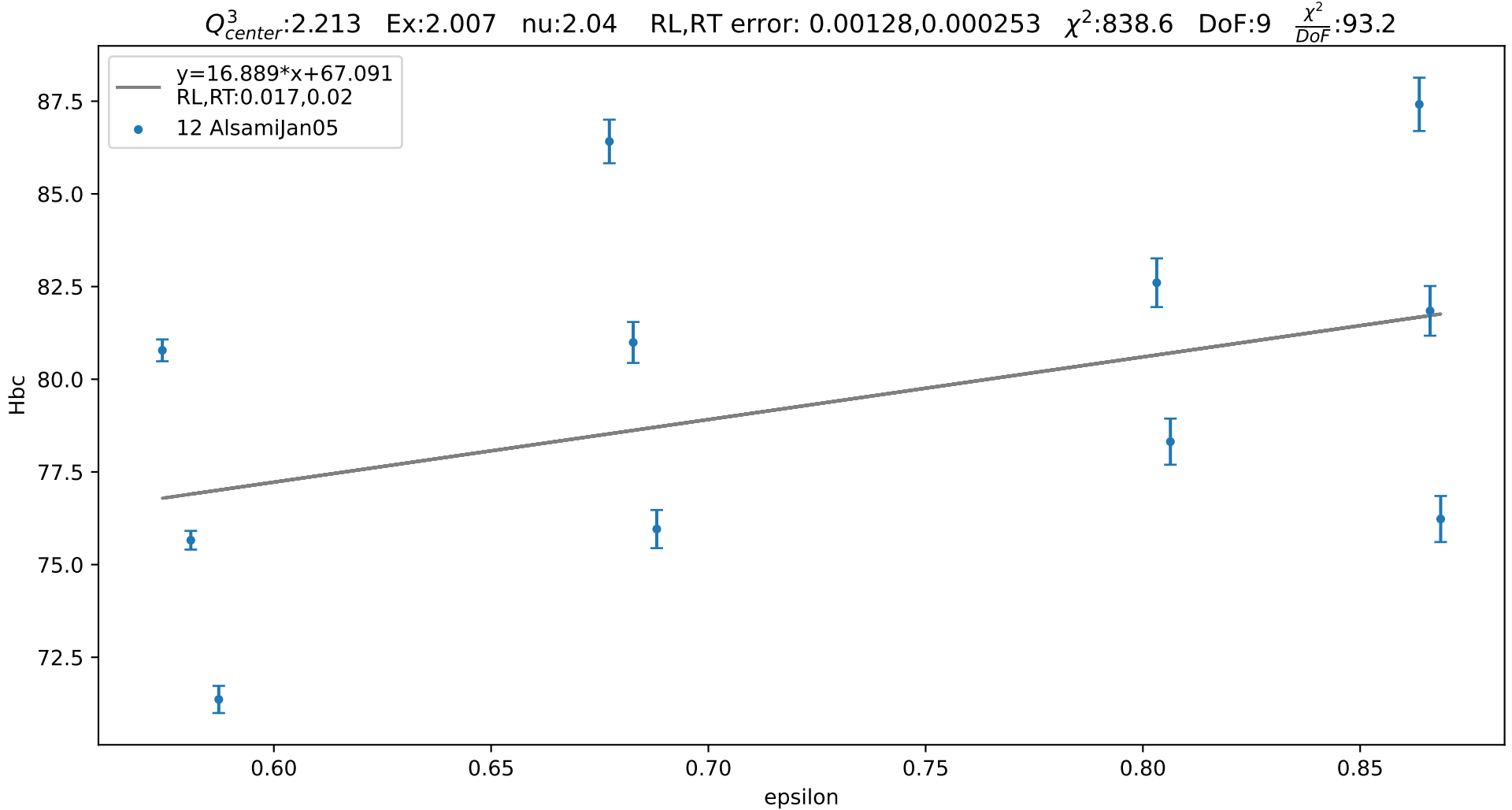

Q^3_{center}:2.213 Ex:1.889 nu:1.94 RL,RT error: 0.000411,0.000116 χ^2:324.6 DoF:8 $\frac{\chi^2}{DoF}$:40.6
y=7.029*x+25.354
RL,RT:0.007,0.012
12 AlsamiJan05
Hbc
epsilon
33
32
31
30
29
28
27
26
0.3
0.4
0.5
0.6
0.7
0.8

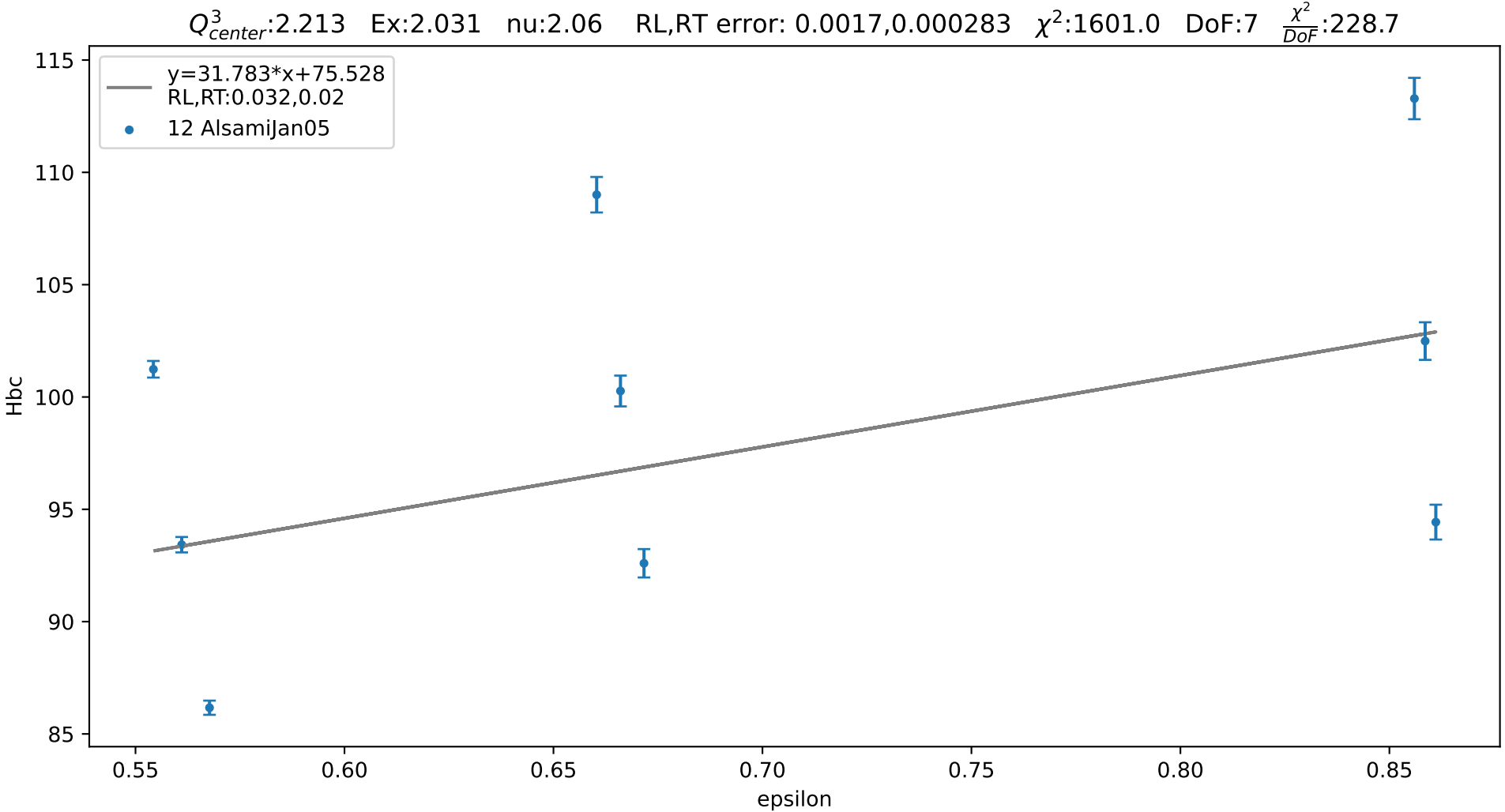

Q^3_{center}:2.213 Ex:1.913 nu:1.96 RL,RT error: 0.000537,0.000159 χ^2:625.1 DoF:13 $\frac{\chi^2}{DoF}$:48.1
y=16.764*x+24.57
RL,RT:0.017,0.011
12 AlsamiJan05
Hbc
epsilon
42
40
38
36
34
32
0.55
0.60
0.65
0.70
0.75
0.80
0.85

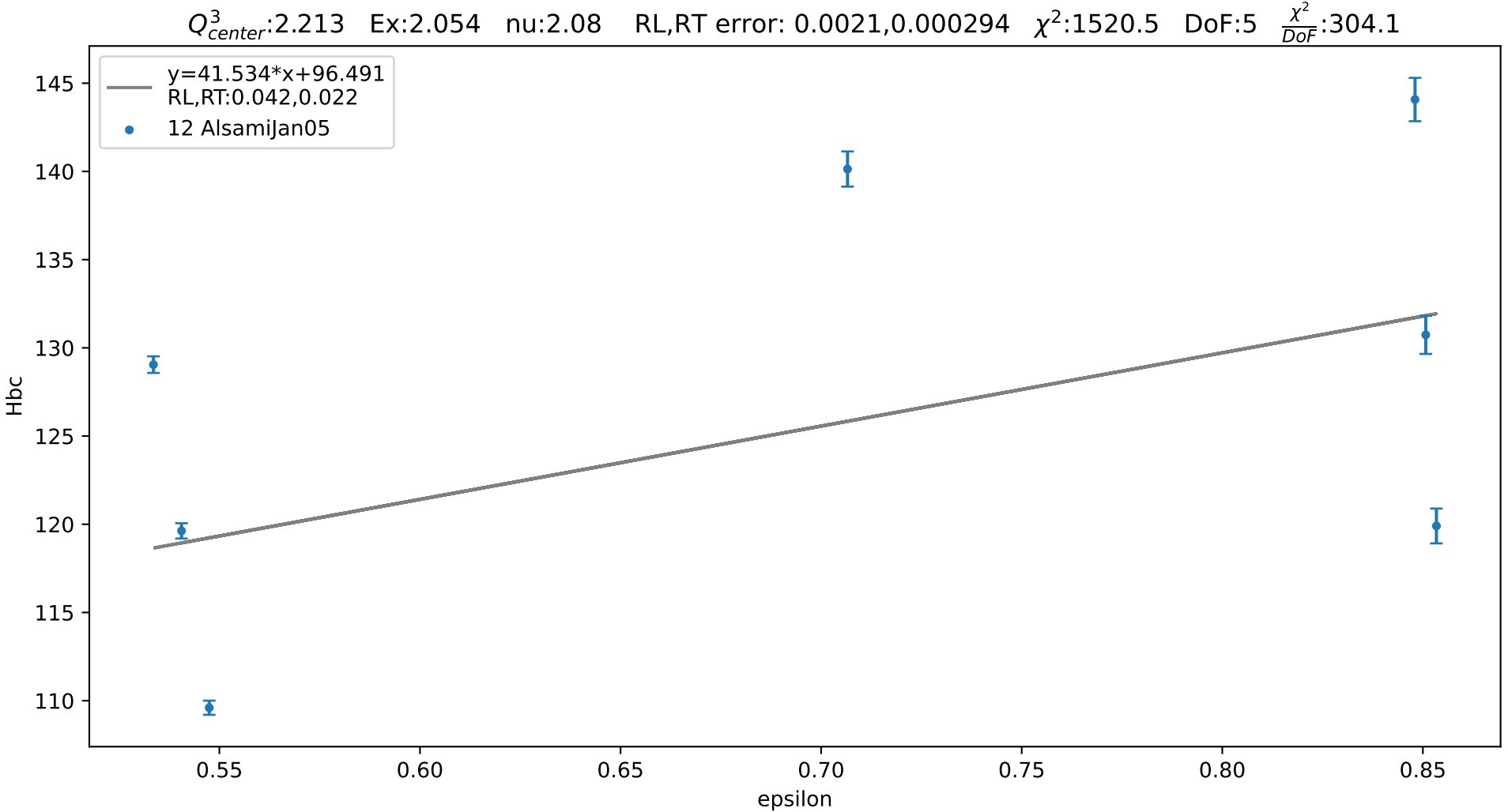

Q^3_{center}:2.213 Ex:1.936 nu:1.98 RL,RT error: 0.000749,0.000199 χ^2:393.3 DoF:6 $\frac{\chi^2}{DoF}$:65.5
y=20.556*x+29.185
RL,RT:0.021,0.012
12 AlsamiJan05
Hbc
epsilon
38
40
42
44
46
48
0.50
0.55
0.60
0.65
0.70
0.75
0.80
0.85
0.90

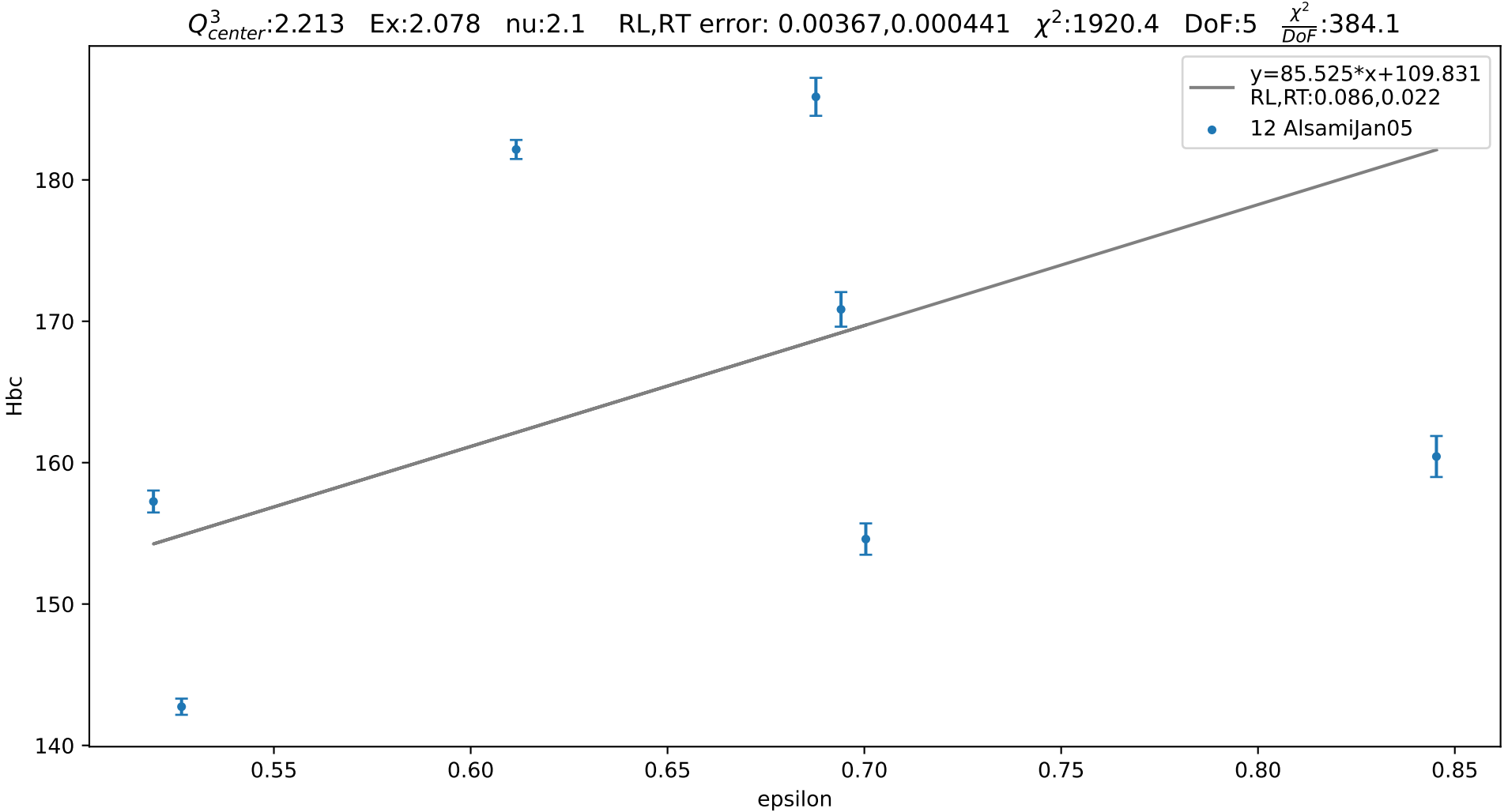

Q^3_{center}:2.213 Ex:1.96 nu:2.0 RL,RT error: 0.000957,0.00025 χ^2:776.7 DoF:9 $\frac{\chi^2}{DoF}$:86.3
y=16.846*x+40.391
RL,RT:0.017,0.015
12 AlsamiJan05
Hbc
epsilon
58
56
54
52
50
48
0.60
0.65
0.70
0.75
0.80
0.85

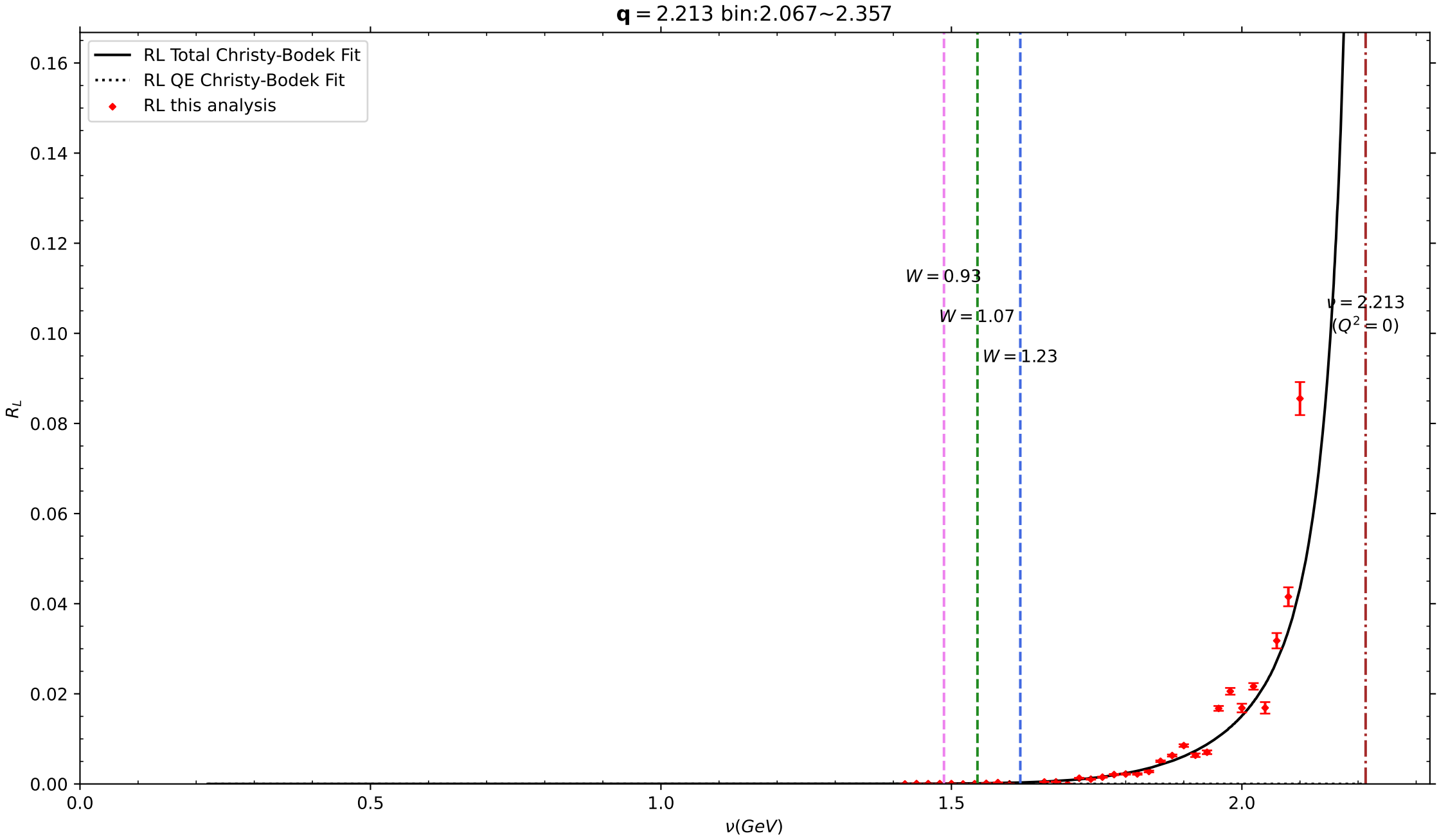

Q^3_{center}:2.213 Ex:1.983 nu:2.02 RL,RT error: 0.000729,0.000163 χ^2:959.7 DoF:11 $\frac{\chi^2}{DoF}$:87.2
y=21.651*x+48.112
RL,RT:0.022,0.016
12 AlsamiJan05
Hbc
epsilon
72.5
70.0
67.5
65.0
62.5
60.0
57.5
55.0
0.3
0.4
0.5
0.6
0.7
0.8
0.9

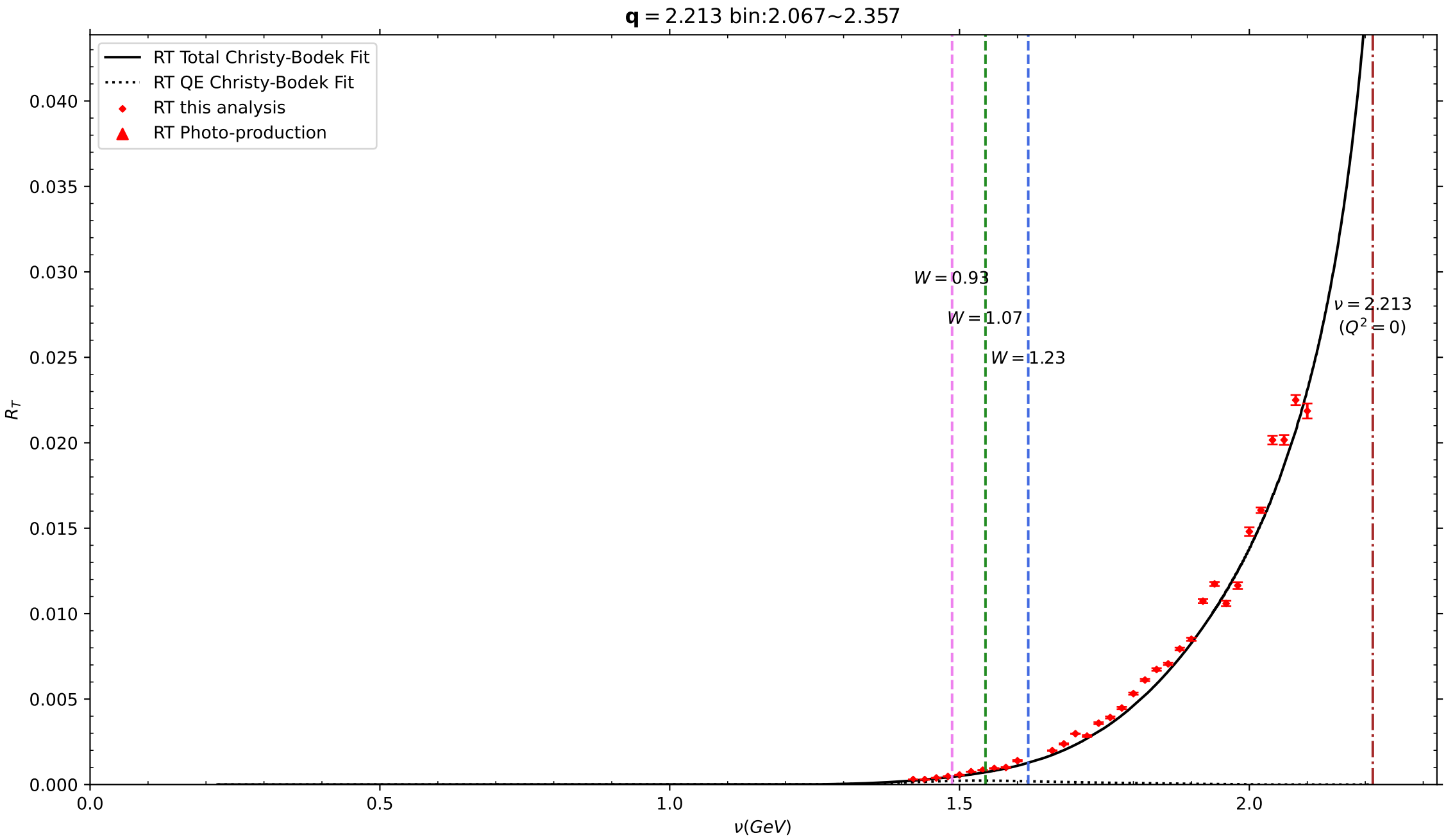

Q^3_{center}:2.213 Ex:2.007 nu:2.04 RL,RT error: 0.00128,0.000253 χ^2:838.6 DoF:9 $\frac{\chi^2}{DoF}$:93.2
y=16.889*x+67.091
RL,RT:0.017,0.02
12 AlsamiJan05
Hbc
epsilon
87.5
85.0
82.5
80.0
77.5
75.0
72.5
0.60
0.65
0.70
0.75
0.80
0.85

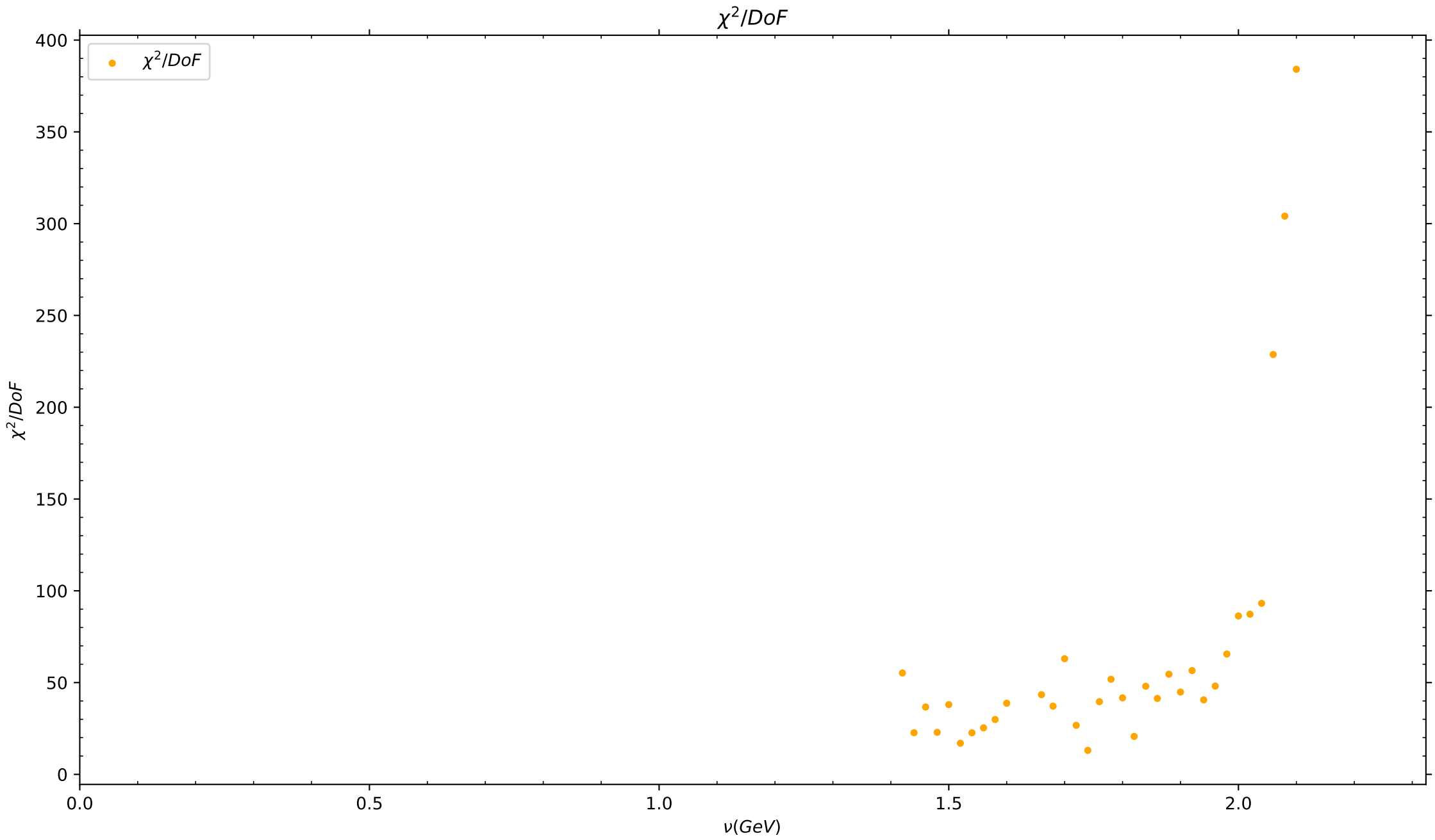

Q^3_{center}:2.213 Ex:2.031 nu:2.06 RL,RT error: 0.0017,0.000283 χ^2:1601.0 DoF:7 $\frac{\chi^2}{DoF}$:228.7
y=31.783*x+75.528
RL,RT:0.032,0.02
12 AlsamiJan05
Hbc
epsilon
115
110
105
100
95
90
85
0.55
0.60
0.65
0.70
0.75
0.80
0.85

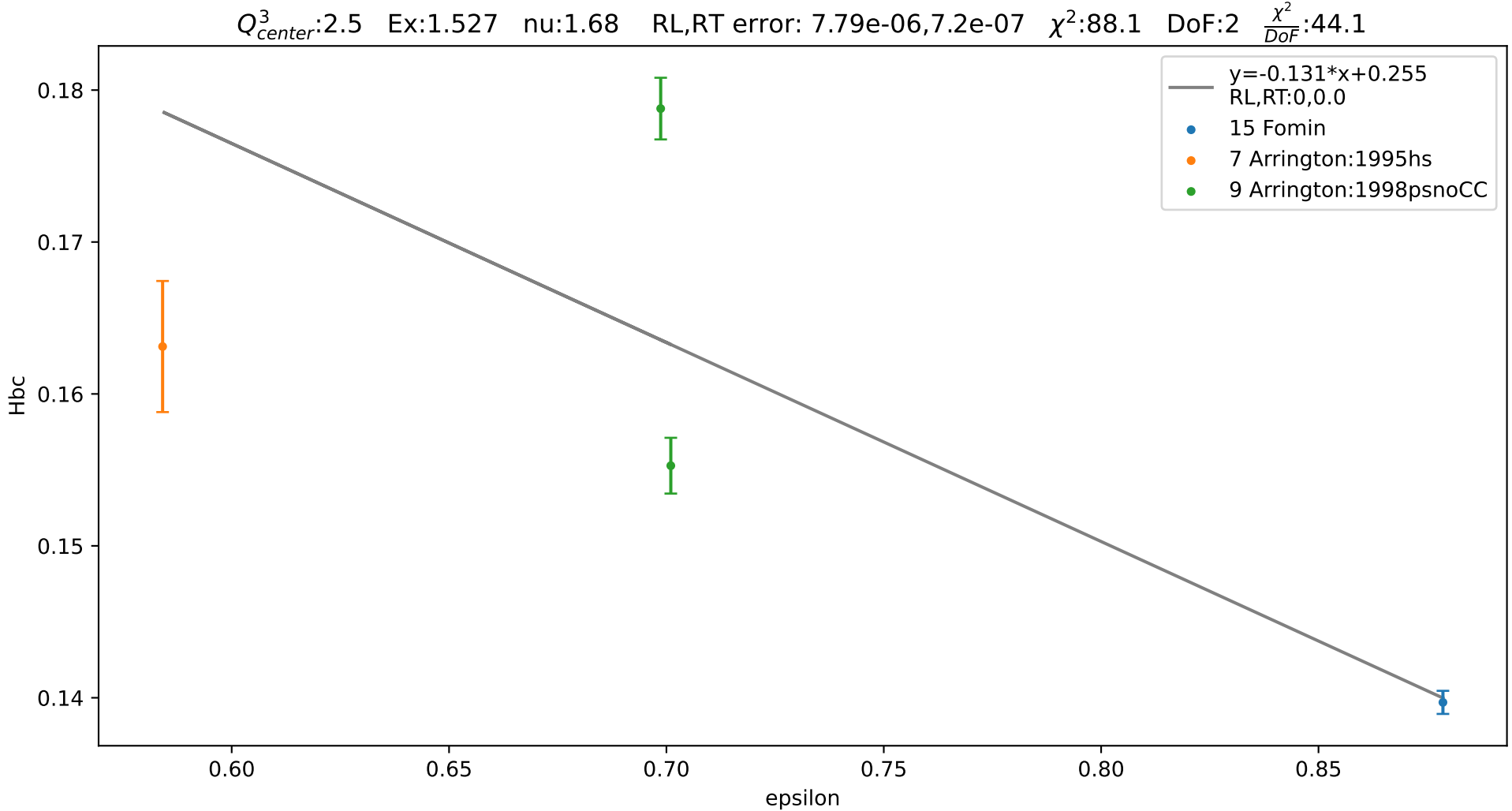

Q^3_{center}:2.213 Ex:2.054 nu:2.08 RL,RT error: 0.0021,0.000294 χ^2:1520.5 DoF:5 $\frac{\chi^2}{DoF}$:304.1
y=41.534*x+96.491
RL,RT:0.042,0.022
12 AlsamiJan05
Hbc
epsilon
145
140
135
130
125
120
115
110
0.55
0.60
0.65
0.70
0.75
0.80
0.85

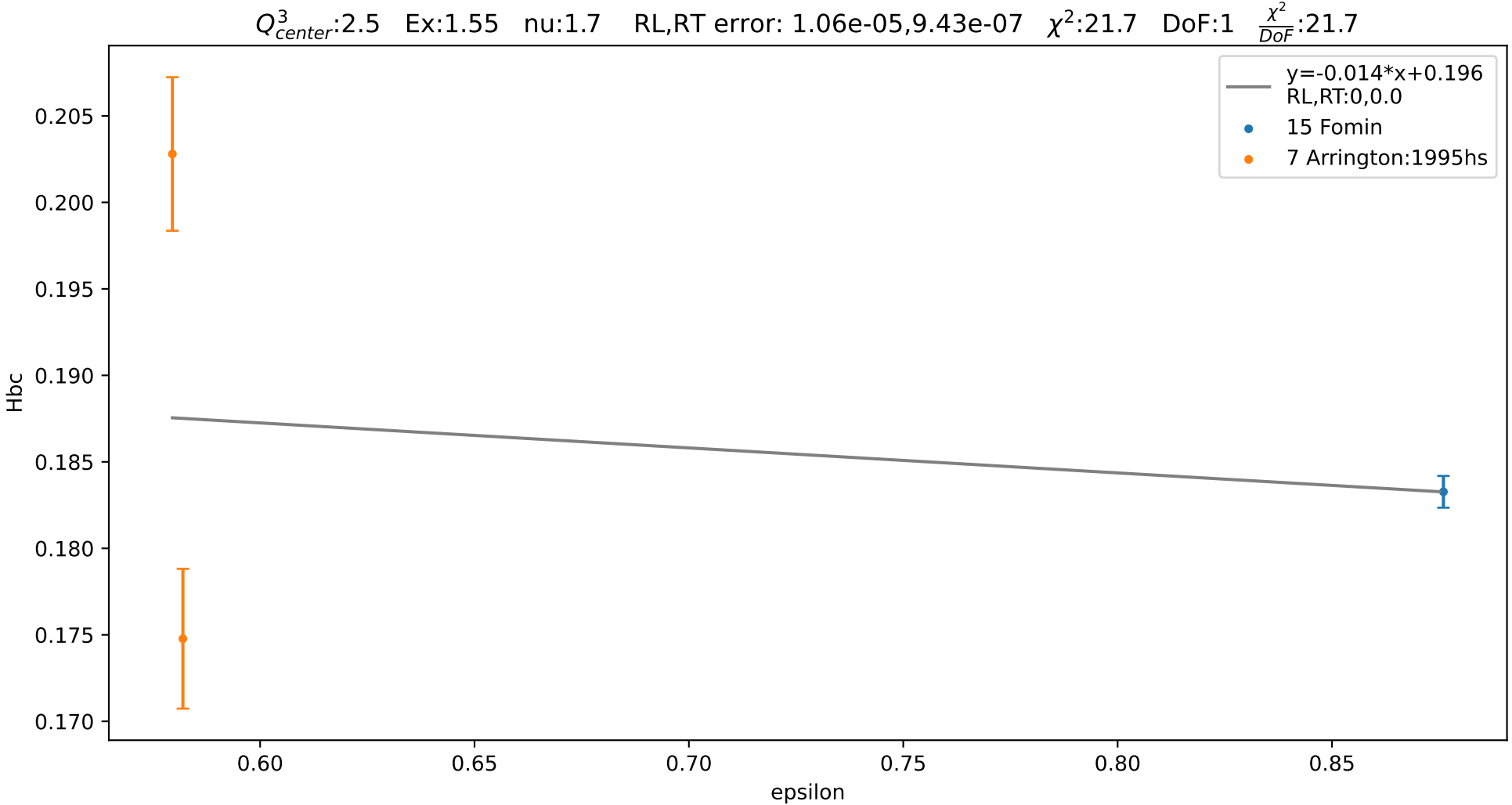

Q^3_{center}:2.213 Ex:2.078 nu:2.1 RL,RT error: 0.00367,0.000441 χ^2:1920.4 DoF:5 $\frac{\chi^2}{DoF}$:384.1
y=85.525*x+109.831
RL,RT:0.086,0.022
12 AlsamiJan05
Hbc
epsilon
140
150
160
170
180
0.55
0.60
0.65
0.70
0.75
0.80
0.85

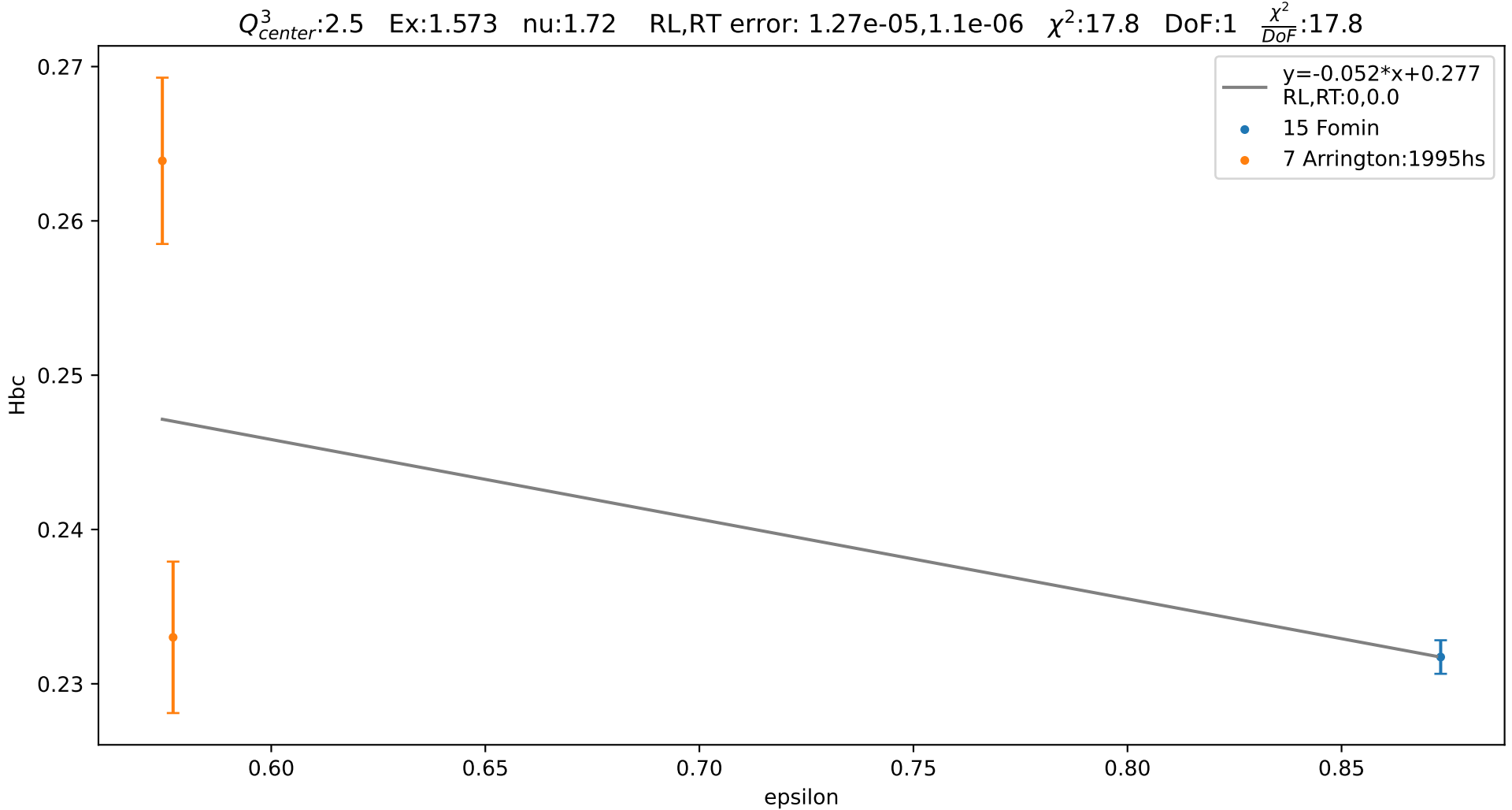

q = 2.213 bin:2.067~2.357
RL Total Christy-Bodek Fit
RL QE Christy-Bodek Fit
RL this analysis
W = 0.93
W = 1.07
W = 1.23
ν = 2.213
(Q² = 0)
R_L
ν(GeV)

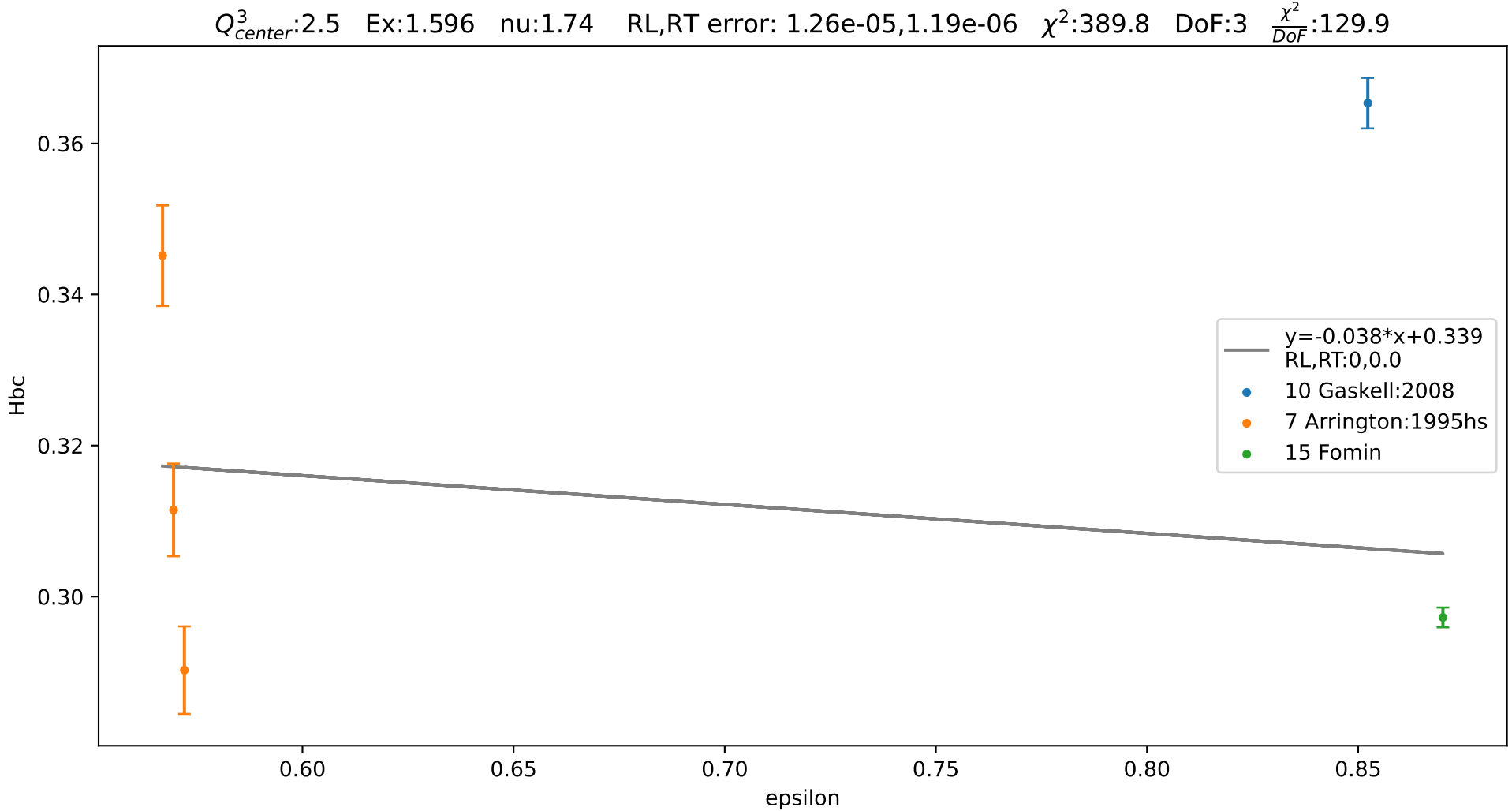

q = 2.213 bin:2.067~2.357
RT Total Christy-Bodek Fit
RT QE Christy-Bodek Fit
RT this analysis
RT Photo-production
W = 0.93
W = 1.07
W = 1.23
ν = 2.213
(Q² = 0)
R_T
ν(GeV)

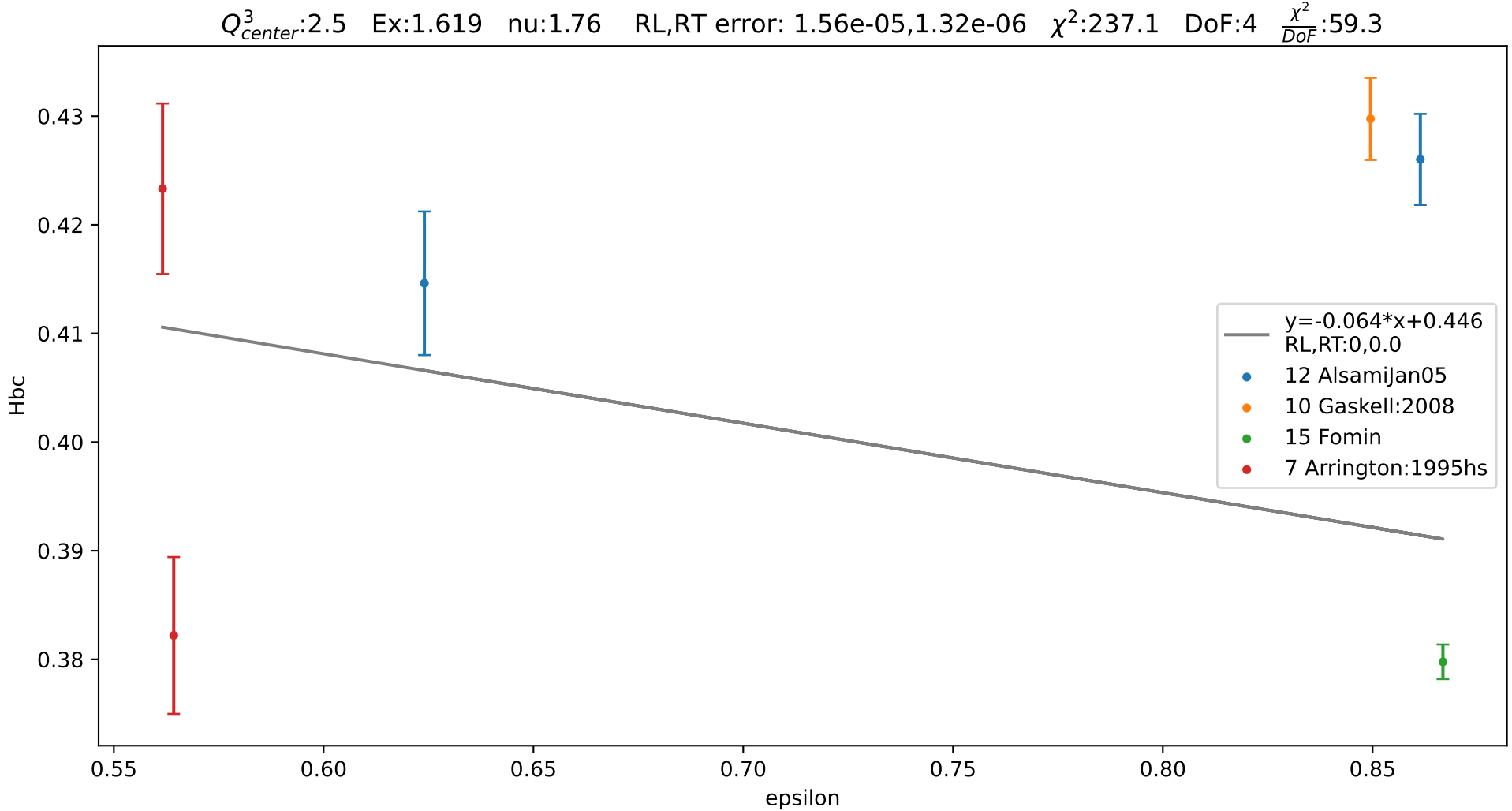

χ²/DoF
χ²/DoF
ν(GeV)

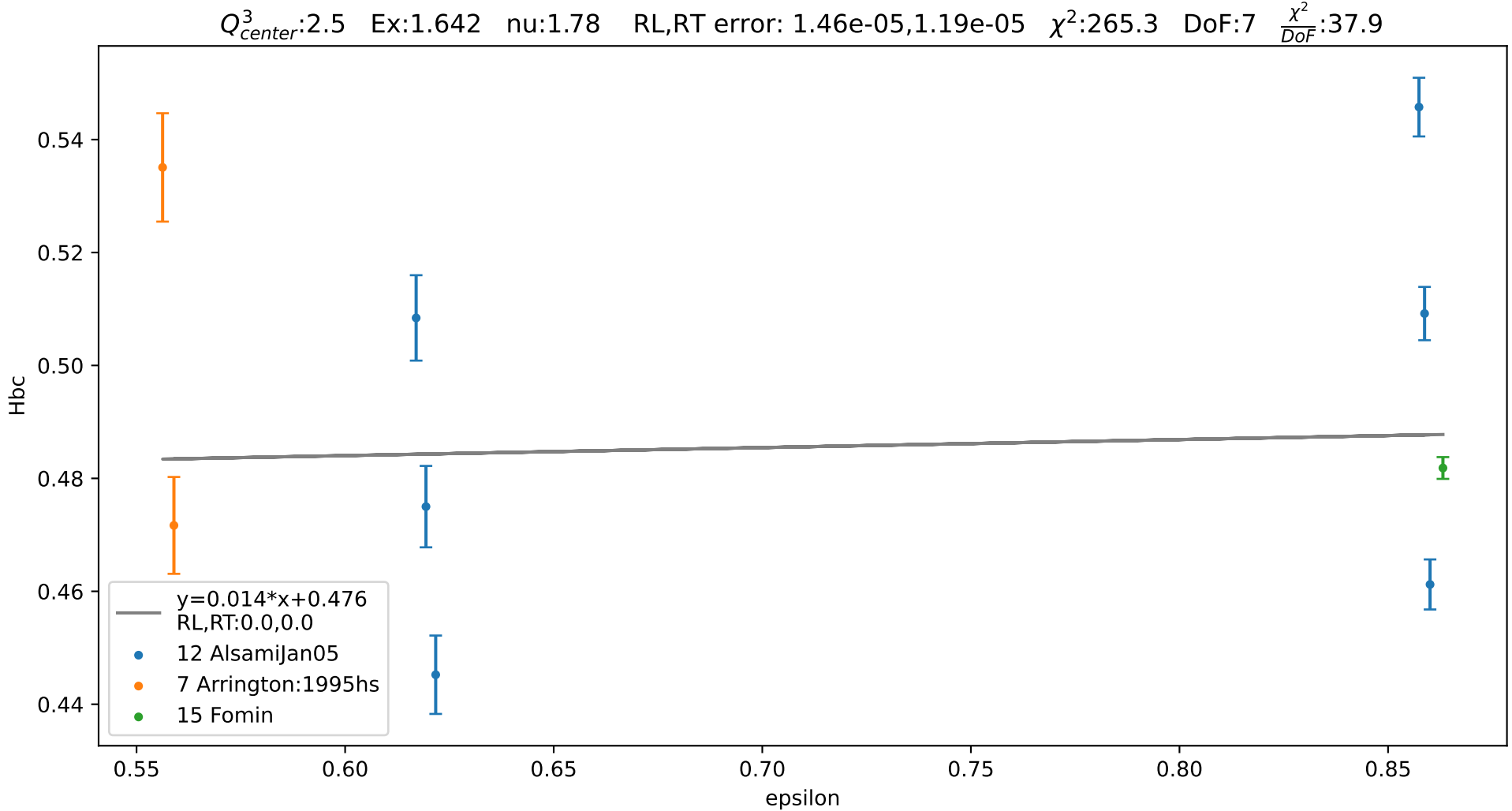

Q^3_{center}:2.5 Ex:1.527 nu:1.68 RL,RT error: 7.79e-06,7.2e-07 χ^2:88.1 DoF:2 $\frac{\chi^2}{DoF}$:44.1
y=-0.131*x+0.255
RL,RT:0,0.0
15 Fomin
7 Arrington:1995hs
9 Arrington:1998psnoCC
Hbc
epsilon
0.18
0.17
0.16
0.15
0.14
0.60
0.65
0.70
0.75
0.80
0.85

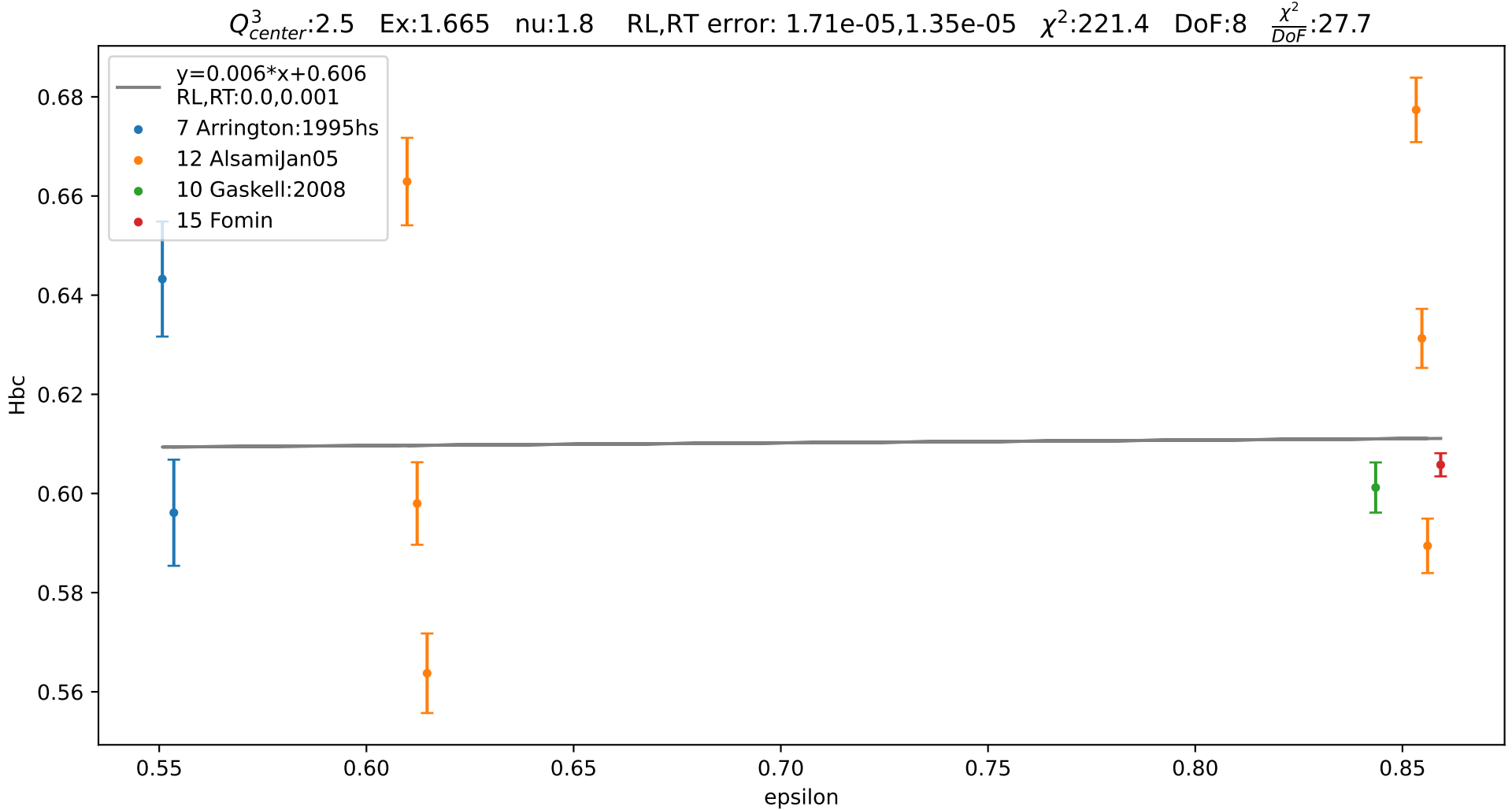

Q^3_{center}:2.5 Ex:1.55 nu:1.7 RL,RT error: 1.06e-05,9.43e-07 χ^2:21.7 DoF:1 $\frac{\chi^2}{DoF}$:21.7
y=-0.014*x+0.196
RL,RT:0,0.0
15 Fomin
7 Arrington:1995hs
Hbc
epsilon
0.205
0.200
0.195
0.190
0.185
0.180
0.175
0.170
0.60
0.65
0.70
0.75
0.80
0.85

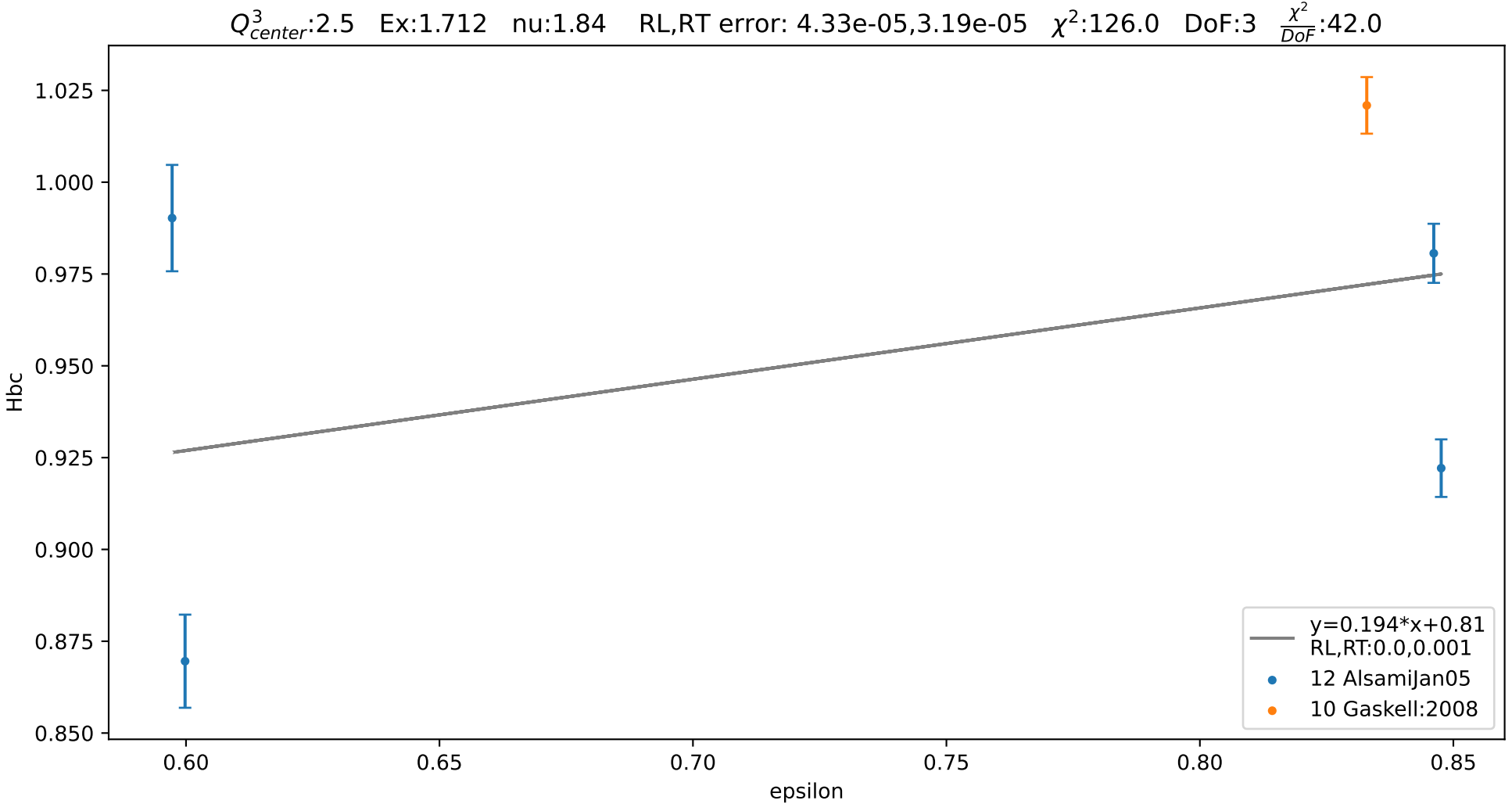

Q^3_{center}:2.5 Ex:1.573 nu:1.72 RL,RT error: 1.27e-05,1.1e-06 χ^2:17.8 DoF:1 $\frac{\chi^2}{DoF}$:17.8
y=-0.052*x+0.277
RL,RT:0,0.0
15 Fomin
7 Arrington:1995hs
Hbc
epsilon
0.27
0.26
0.25
0.24
0.23
0.60
0.65
0.70
0.75
0.80
0.85

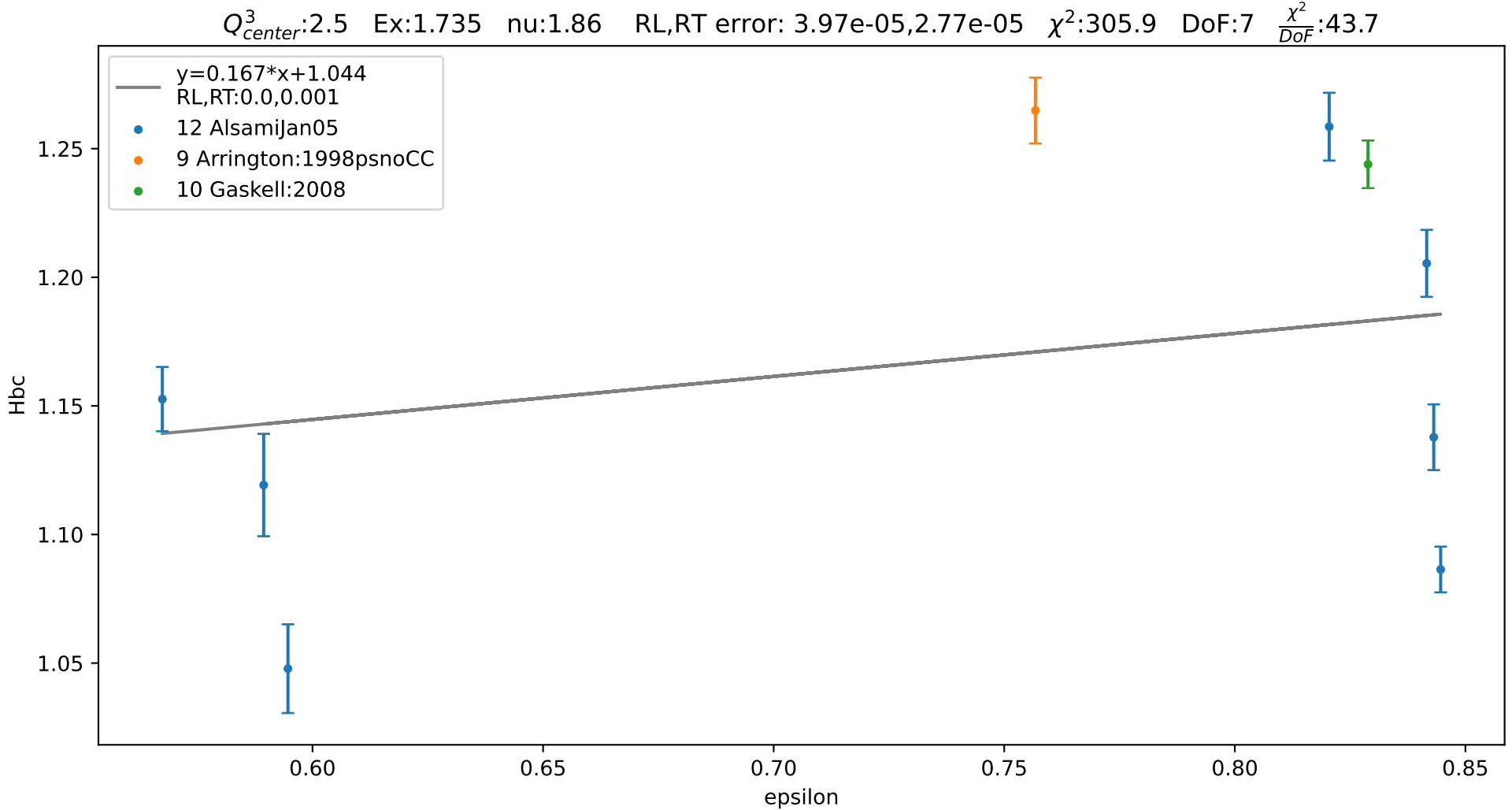

Q^3_{center}:2.5 Ex:1.596 nu:1.74 RL,RT error: 1.26e-05,1.19e-06 χ^2:389.8 DoF:3 $\frac{\chi^2}{DoF}$:129.9
0.36
0.34
0.32
0.30
Hbc
0.60
0.65
0.70
0.75
0.80
0.85
epsilon
y=-0.038*x+0.339
RL,RT:0,0.0
10 Gaskell:2008
7 Arrington:1995hs
15 Fomin

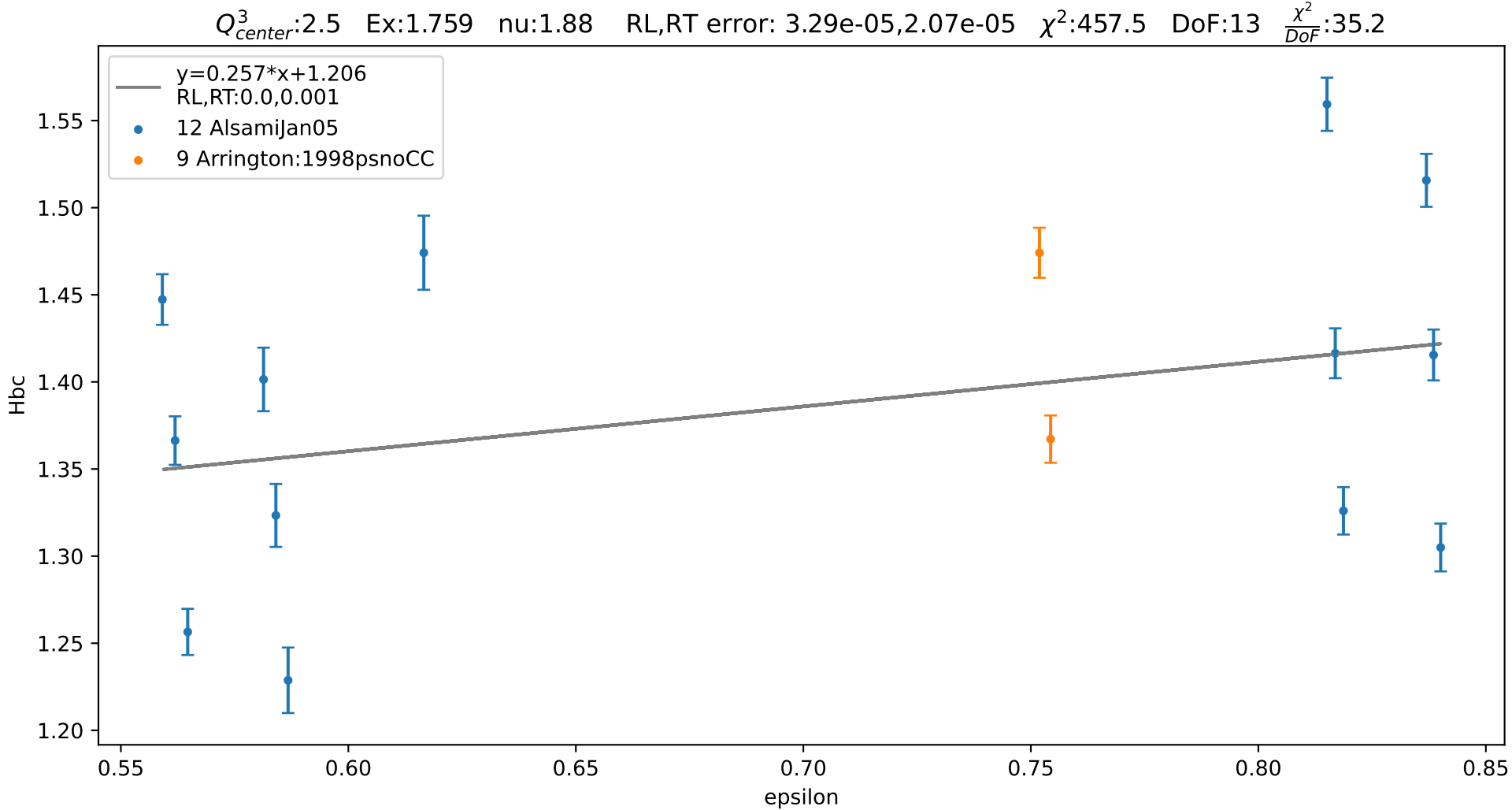

Q^3_{center}:2.5 Ex:1.619 nu:1.76 RL,RT error: 1.56e-05,1.32e-06 χ^2:237.1 DoF:4 $\frac{\chi^2}{DoF}$:59.3
Hbc
epsilon
0.43
0.42
0.41
0.40
0.39
0.38
0.55
0.60
0.65
0.70
0.75
0.80
0.85
y=-0.064*x+0.446
RL,RT:0,0.0
12 AlsamiJan05
10 Gaskell:2008
15 Fomin
7 Arrington:1995hs

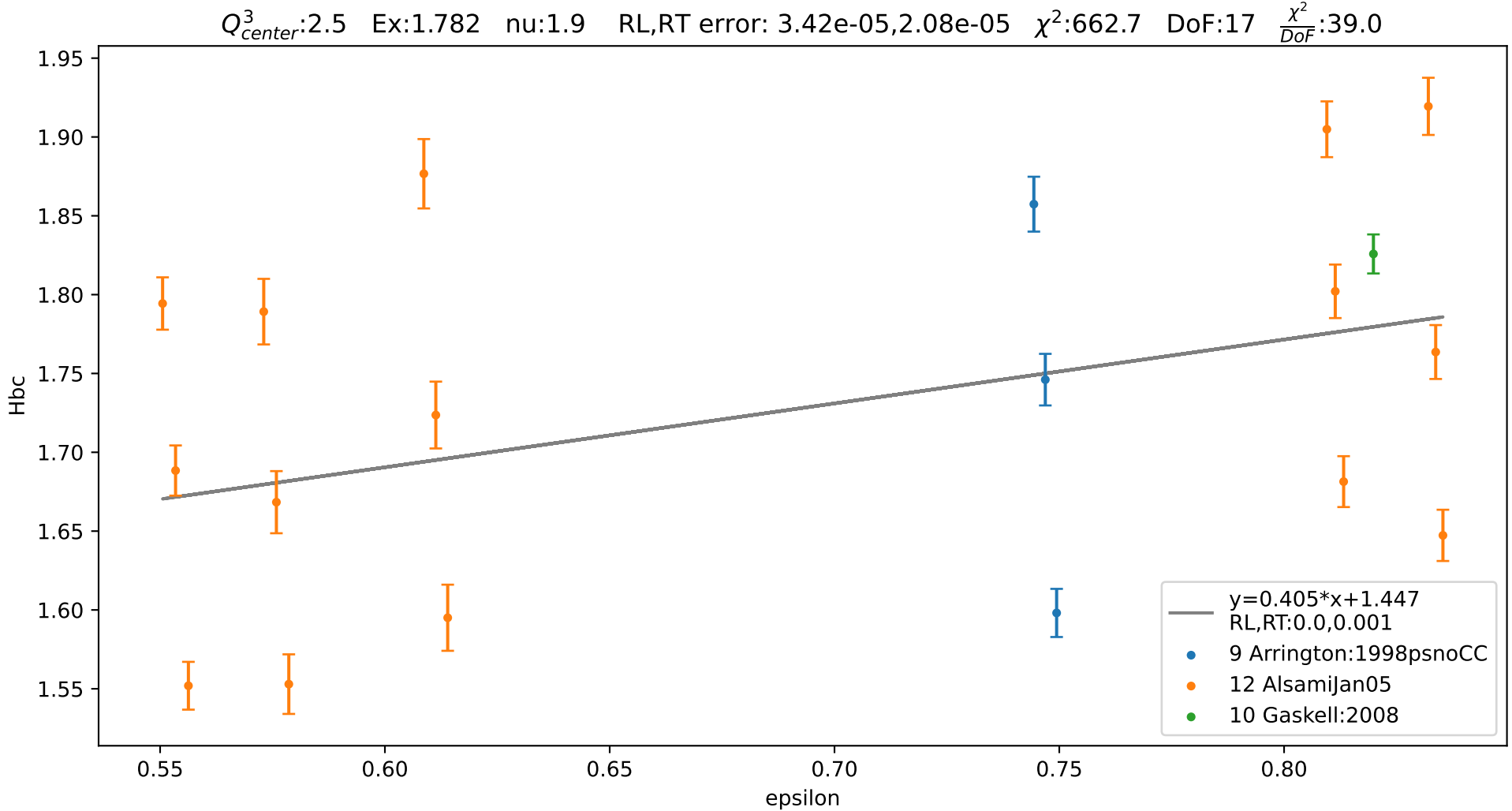

Q^3_{center}:2.5 Ex:1.642 nu:1.78 RL,RT error: 1.46e-05,1.19e-05 χ^2:265.3 DoF:7 $\frac{\chi^2}{DoF}$:37.9
Hbc
epsilon
0.54
0.52
0.50
0.48
0.46
0.44
0.55
0.60
0.65
0.70
0.75
0.80
0.85
y=0.014*x+0.476
RL,RT:0.0,0.0
12 AlsamiJan05
7 Arrington:1995hs
15 Fomin

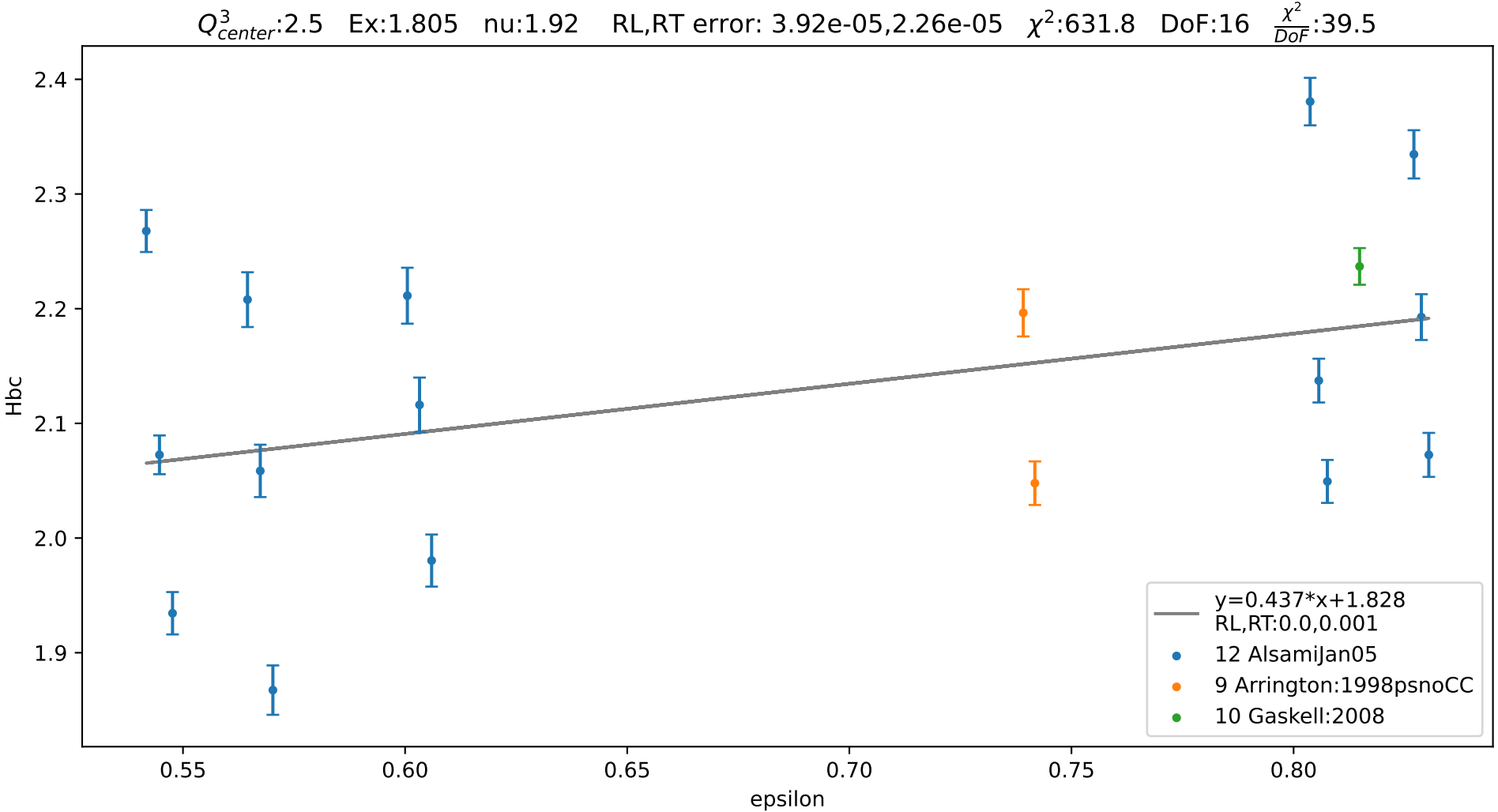

Q^3_{center}:2.5 Ex:1.665 nu:1.8 RL,RT error: 1.71e-05,1.35e-05 χ^2:221.4 DoF:8 $\frac{\chi^2}{DoF}$:27.7
y=0.006*x+0.606
RL,RT:0.0,0.001
7 Arrington:1995hs
12 AlsamiJan05
10 Gaskell:2008
15 Fomin
Hbc
epsilon
0.68
0.66
0.64
0.62
0.60
0.58
0.56
0.55
0.60
0.65
0.70
0.75
0.80
0.85

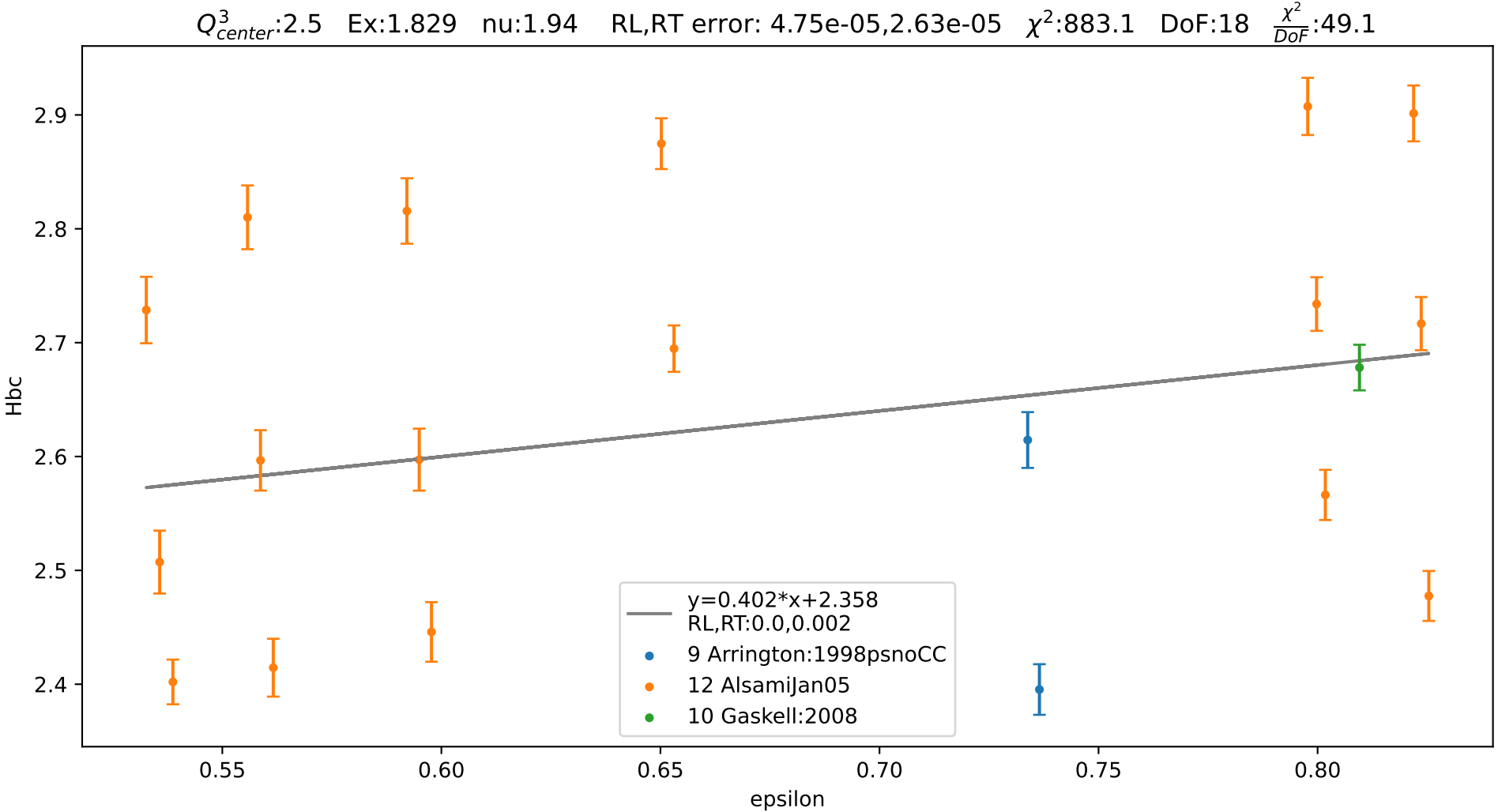

Q^3_{center}:2.5 Ex:1.712 nu:1.84 RL,RT error: 4.33e-05,3.19e-05 χ^2:126.0 DoF:3 $\frac{\chi^2}{DoF}$:42.0
Hbc
epsilon
1.025
1.000
0.975
0.950
0.925
0.900
0.875
0.850
0.60
0.65
0.70
0.75
0.80
0.85
y=0.194*x+0.81
RL,RT:0.0,0.001
12 AlsamiJan05
10 Gaskell:2008

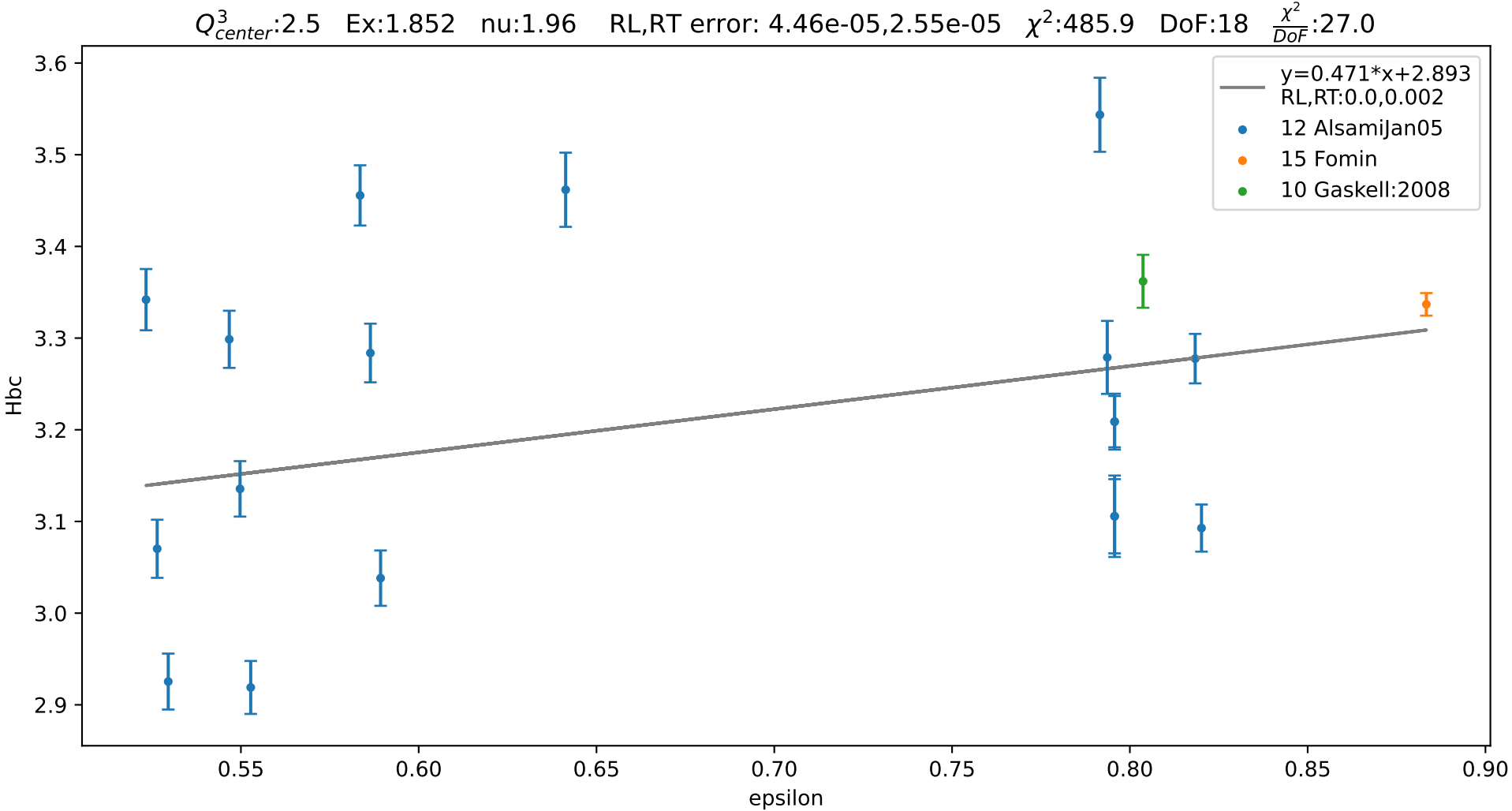

Q^3_{center}:2.5 Ex:1.735 nu:1.86 RL,RT error: 3.97e-05,2.77e-05 χ^2:305.9 DoF:7 $\frac{\chi^2}{DoF}$:43.7
y=0.167*x+1.044
RL,RT:0.0,0.001
12 AlsamiJan05
9 Arrington:1998psnoCC
10 Gaskell:2008
Hbc
epsilon
1.25
1.20
1.15
1.10
1.05
0.60
0.65
0.70
0.75
0.80
0.85

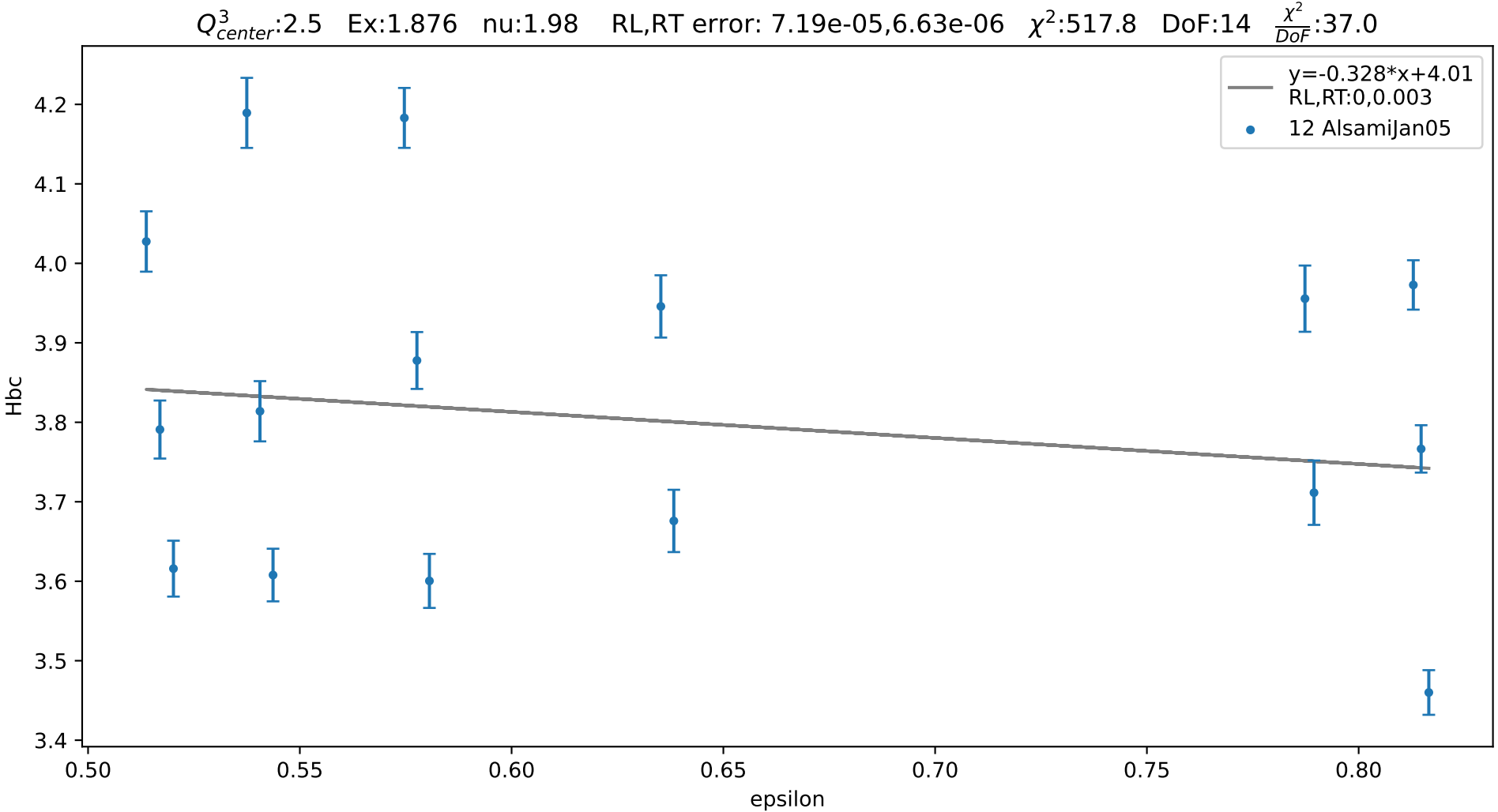

Q^3_{center}:2.5 Ex:1.759 nu:1.88 RL,RT error: 3.29e-05,2.07e-05 χ^2:457.5 DoF:13 $\frac{\chi^2}{DoF}$:35.2
y=0.257*x+1.206
RL,RT:0.0,0.001
12 AlsamiJan05
9 Arrington:1998psnoCC
Hbc
epsilon
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
0.55
0.60
0.65
0.70
0.75
0.80
0.85

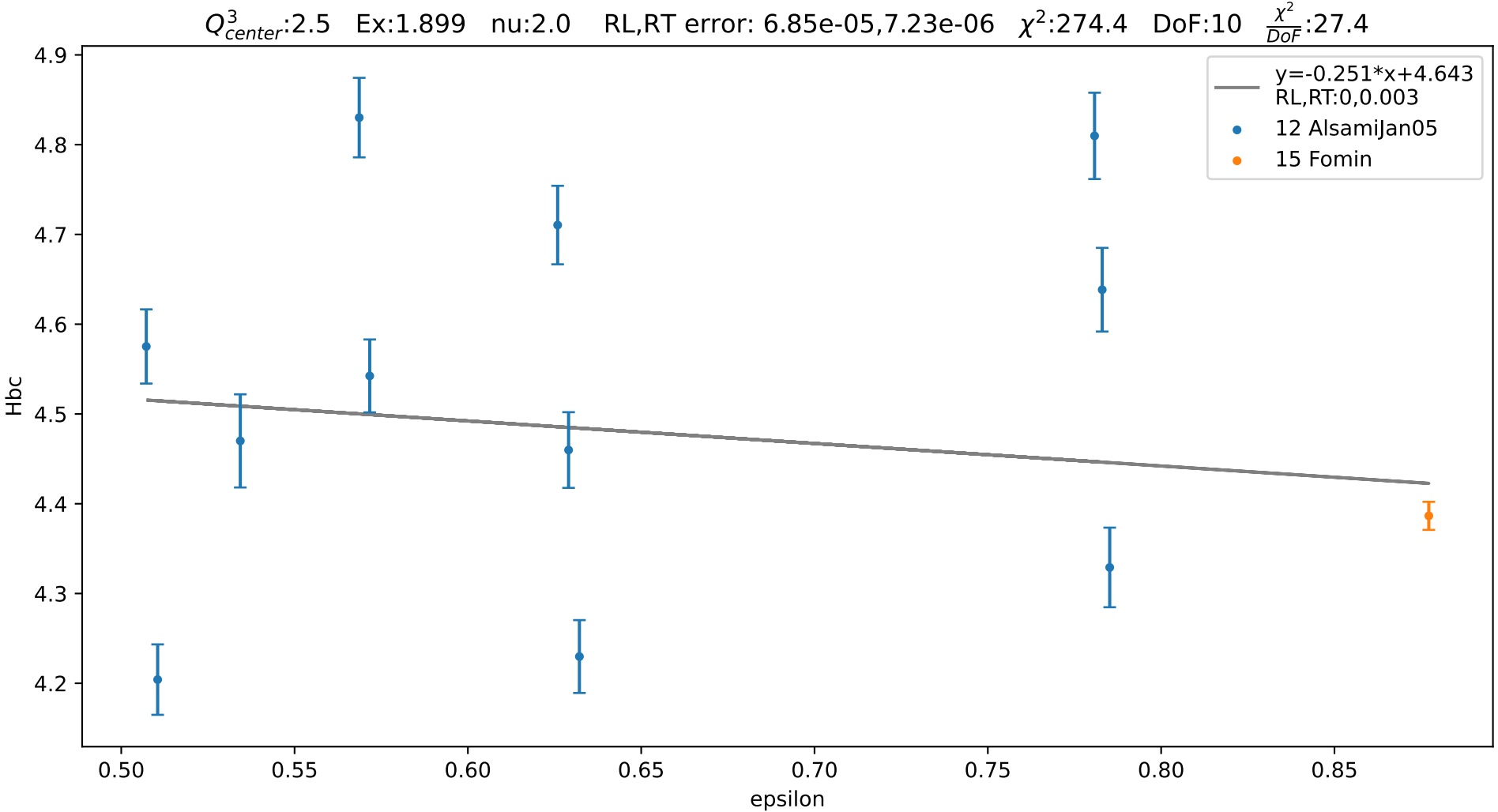

Q^3_{center}:2.5 Ex:1.782 nu:1.9 RL,RT error: 3.42e-05,2.08e-05 χ^2:662.7 DoF:17 $\frac{\chi^2}{DoF}$:39.0
Hbc
epsilon
1.95
1.90
1.85
1.80
1.75
1.70
1.65
1.60
1.55
0.55
0.60
0.65
0.70
0.75
0.80
y=0.405*x+1.447
RL,RT:0.0,0.001
9 Arrington:1998psnoCC
12 AlsamiJan05
10 Gaskell:2008

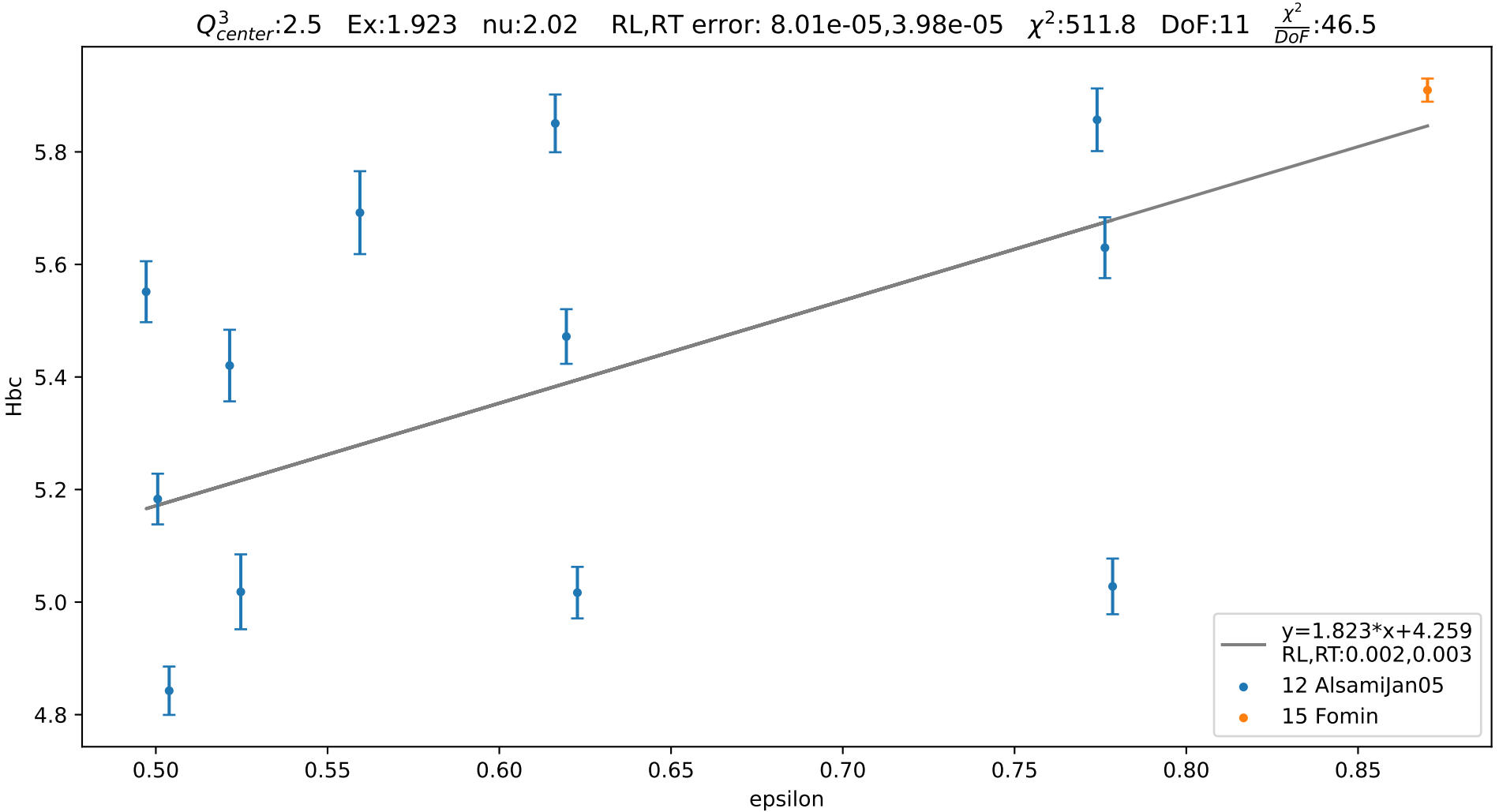

Q^3_{center}:2.5 Ex:1.805 nu:1.92 RL,RT error: 3.92e-05,2.26e-05 χ^2:631.8 DoF:16 $\frac{\chi^2}{DoF}$:39.5
Hbc
epsilon
2.4
2.3
2.2
2.1
2.0
1.9
0.55
0.60
0.65
0.70
0.75
0.80
y=0.437*x+1.828
RL,RT:0.0,0.001
12 AlsamiJan05
9 Arrington:1998psnoCC
10 Gaskell:2008

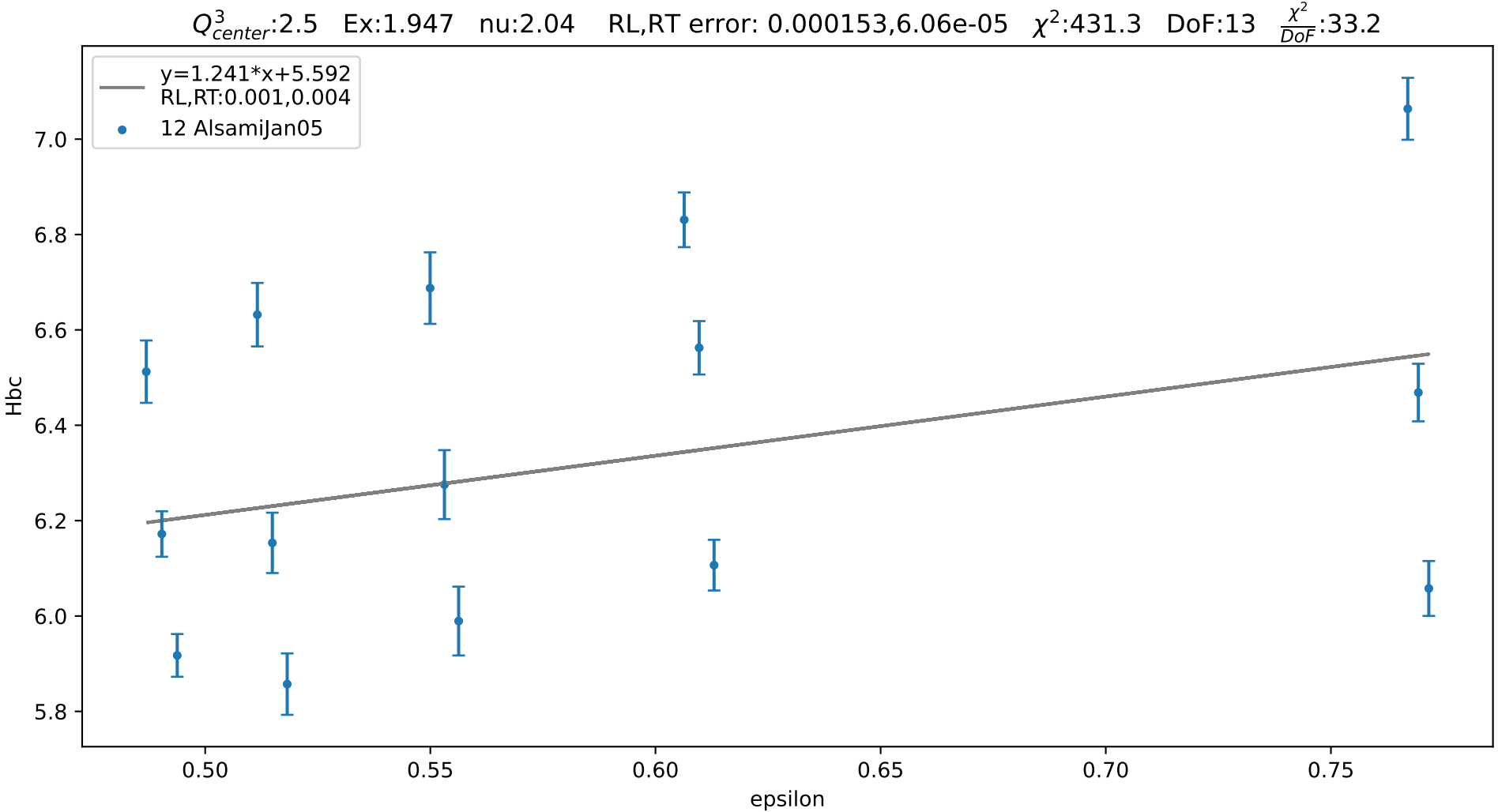

Q^3_{center}:2.5 Ex:1.829 nu:1.94 RL,RT error: 4.75e-05,2.63e-05 χ^2:883.1 DoF:18 $\frac{\chi^2}{DoF}$:49.1
Hbc
epsilon
2.9
2.8
2.7
2.6
2.5
2.4
0.55
0.60
0.65
0.70
0.75
0.80
y=0.402*x+2.358
RL,RT:0.0,0.002
9 Arrington:1998psnoCC
12 AlsamiJan05
10 Gaskell:2008

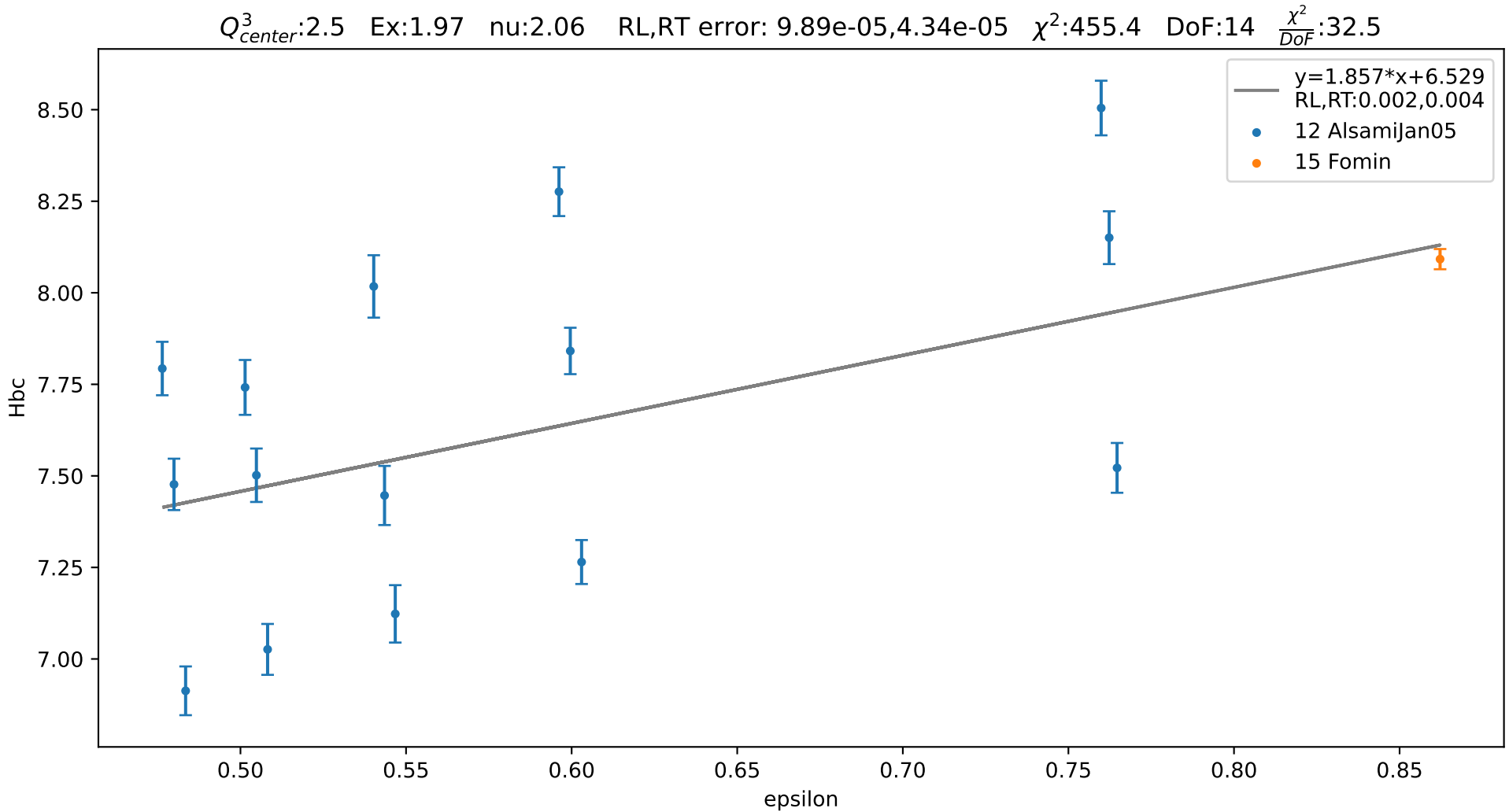

Q^3_{center}:2.5 Ex:1.852 nu:1.96 RL,RT error: 4.46e-05,2.55e-05 χ^2:485.9 DoF:18 $\frac{\chi^2}{DoF}$:27.0
y=0.471*x+2.893
RL,RT:0.0,0.002
12 AlsamiJan05
15 Fomin
10 Gaskell:2008
Hbc
epsilon
3.6
3.5
3.4
3.3
3.2
3.1
3.0
2.9
0.55
0.60
0.65
0.70
0.75
0.80
0.85
0.90

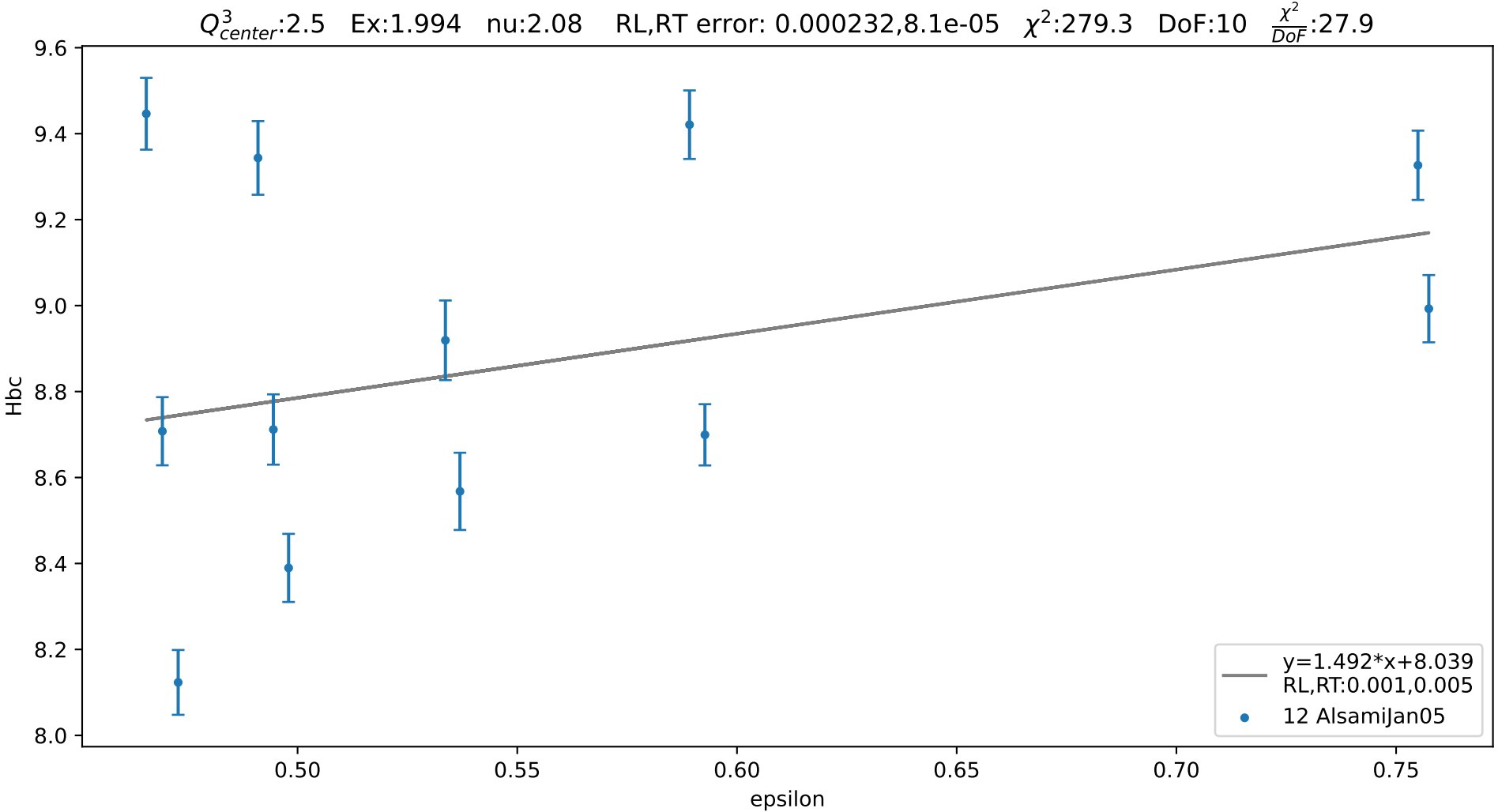

Q^3_{center}:2.5 Ex:1.876 nu:1.98 RL,RT error: 7.19e-05,6.63e-06 χ^2:517.8 DoF:14 $\frac{\chi^2}{DoF}$:37.0
y=-0.328*x+4.01
RL,RT:0,0.003
12 AlsamiJan05
Hbc
epsilon
4.2
4.1
4.0
3.9
3.8
3.7
3.6
3.5
3.4
0.50
0.55
0.60
0.65
0.70
0.75
0.80

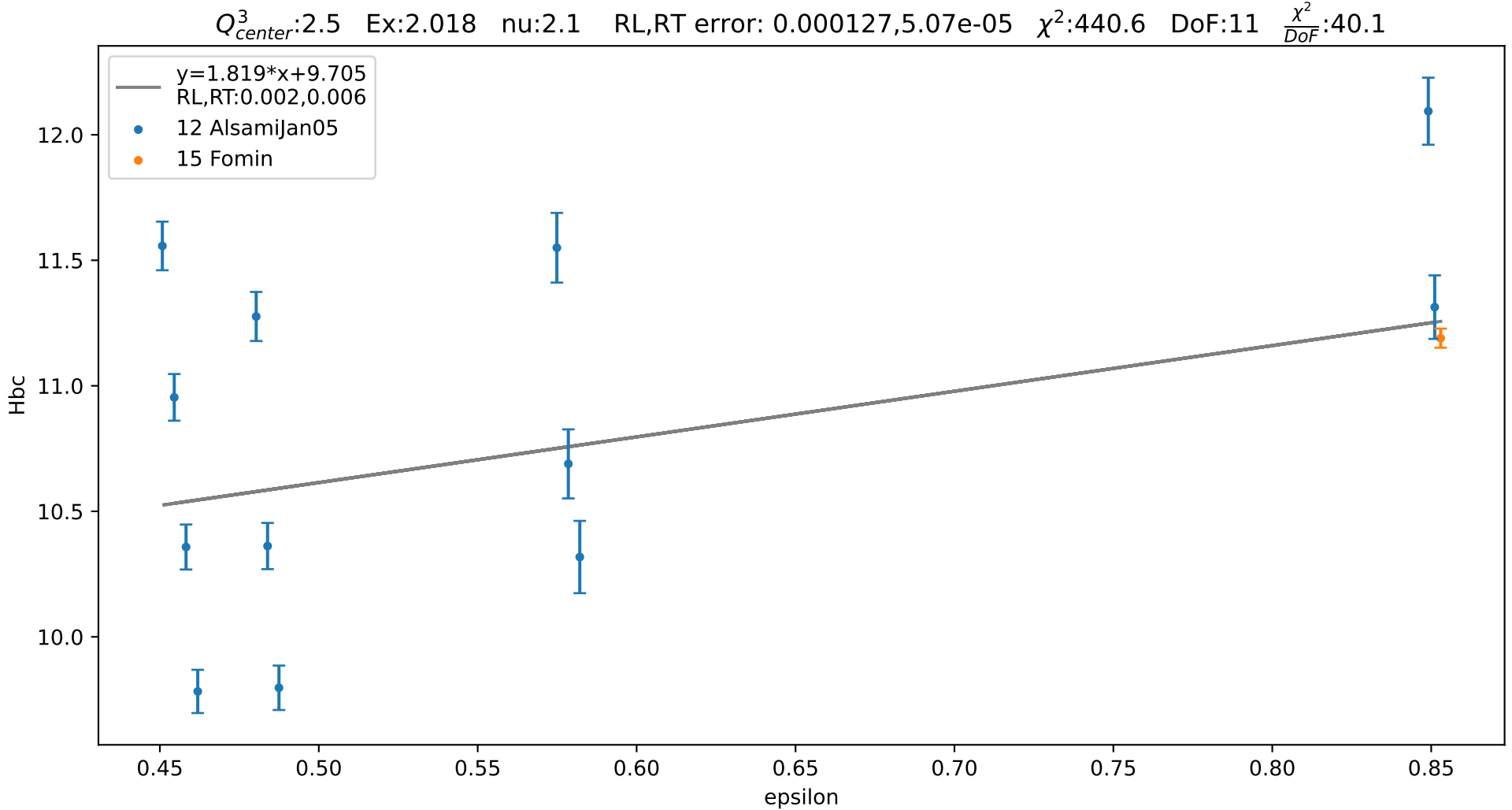

Q^3_{center}:2.5 Ex:1.899 nu:2.0 RL,RT error: 6.85e-05,7.23e-06 χ^2:274.4 DoF:10 $\frac{\chi^2}{DoF}$:27.4
y=-0.251*x+4.643
RL,RT:0,0.003
12 AlsamiJan05
15 Fomin
Hbc
epsilon
4.9
4.8
4.7
4.6
4.5
4.4
4.3
4.2
0.50
0.55
0.60
0.65
0.70
0.75
0.80
0.85

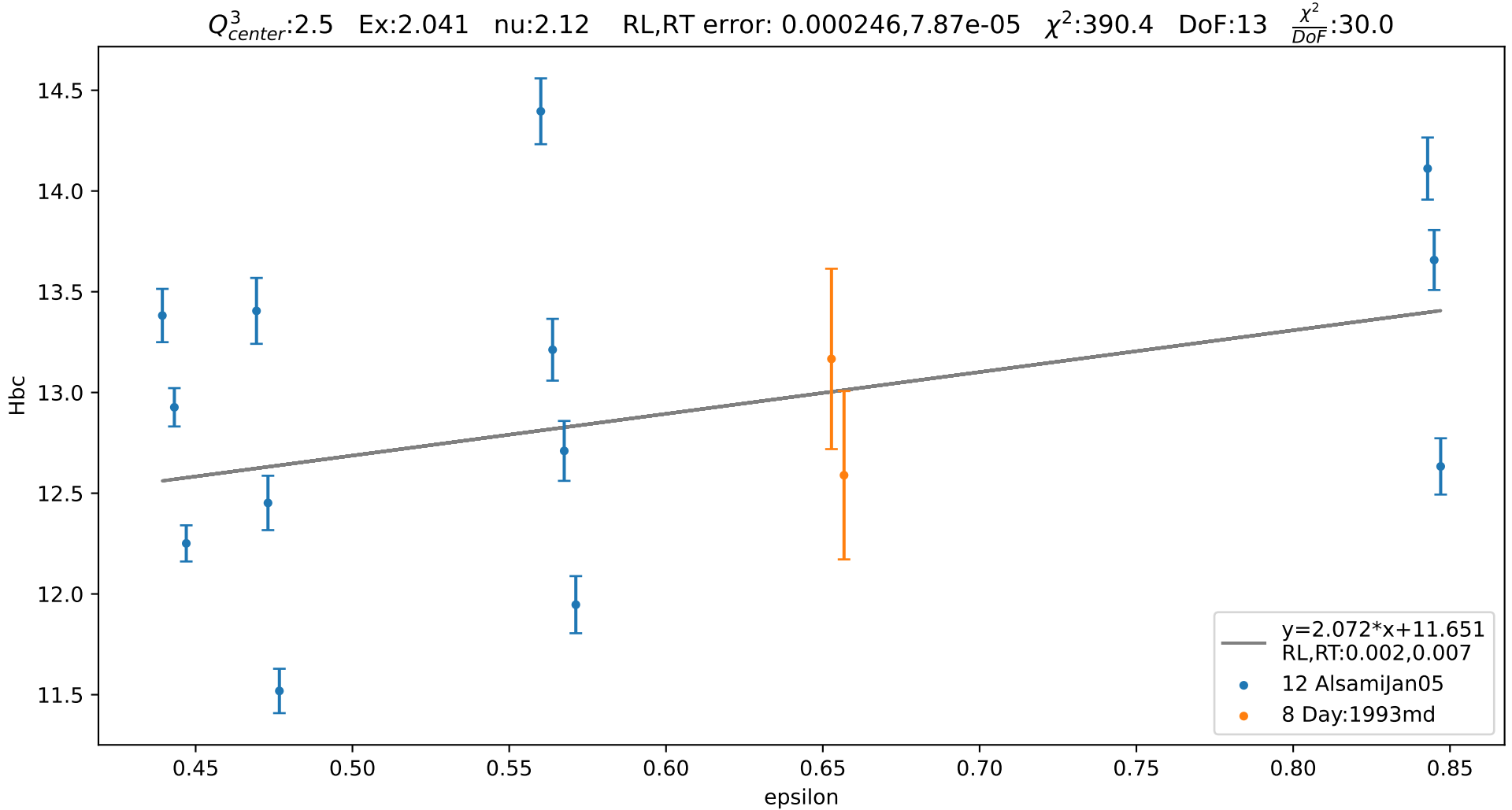

Q^3_{center}:2.5 Ex:1.923 nu:2.02 RL,RT error: 8.01e-05,3.98e-05 χ^2:511.8 DoF:11 $\frac{\chi^2}{DoF}$:46.5
Hbc
epsilon
5.8
5.6
5.4
5.2
5.0
4.8
0.50
0.55
0.60
0.65
0.70
0.75
0.80
0.85
y=1.823*x+4.259
RL,RT:0.002,0.003
12 AlsamiJan05
15 Fomin

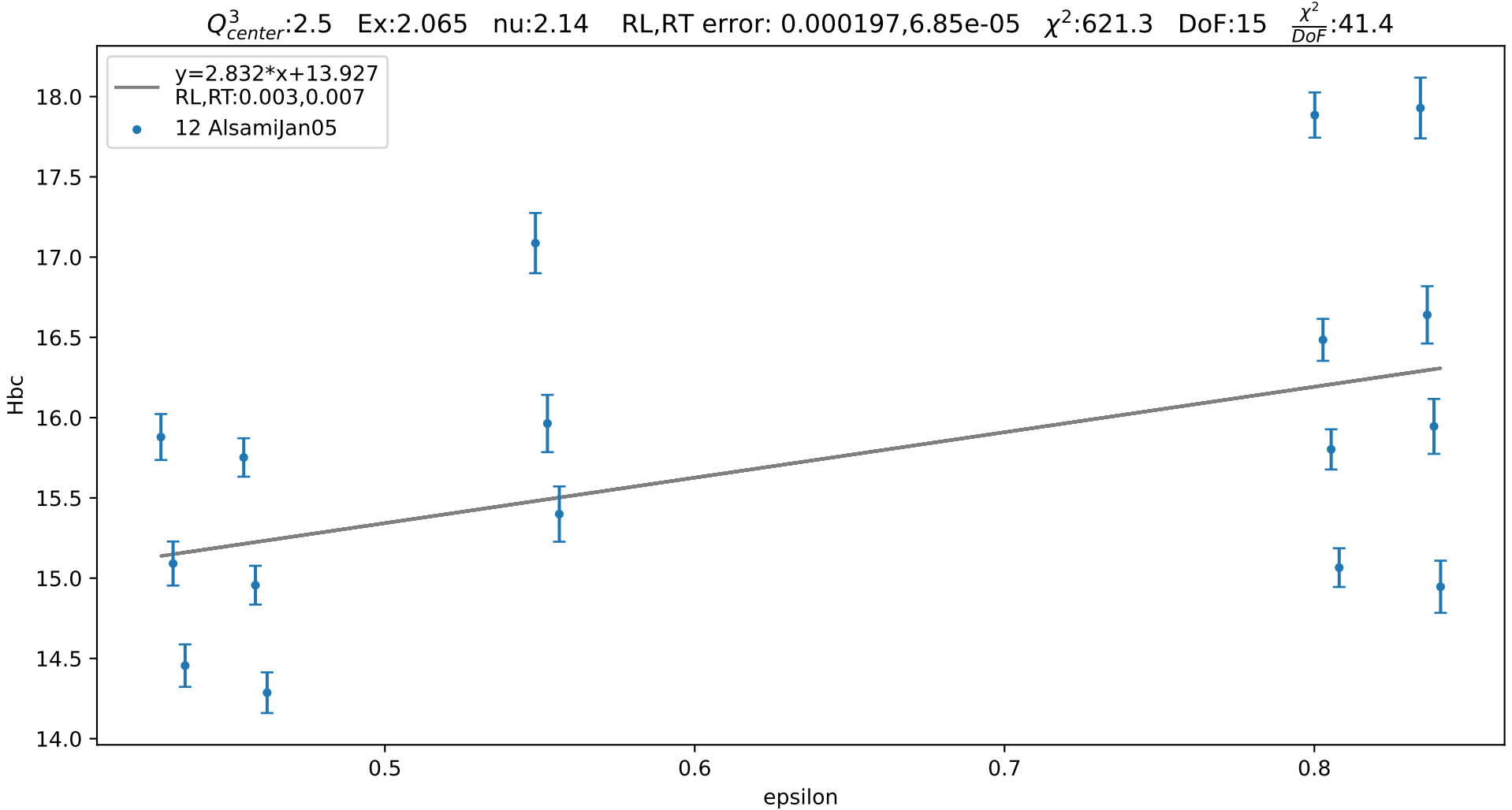

Q^3_{center}:2.5 Ex:1.947 nu:2.04 RL,RT error: 0.000153,6.06e-05 χ^2:431.3 DoF:13 $\frac{\chi^2}{DoF}$:33.2
y=1.241*x+5.592
RL,RT:0.001,0.004
12 AlsamiJan05
Hbc
epsilon
7.0
6.8
6.6
6.4
6.2
6.0
5.8
0.50
0.55
0.60
0.65
0.70
0.75

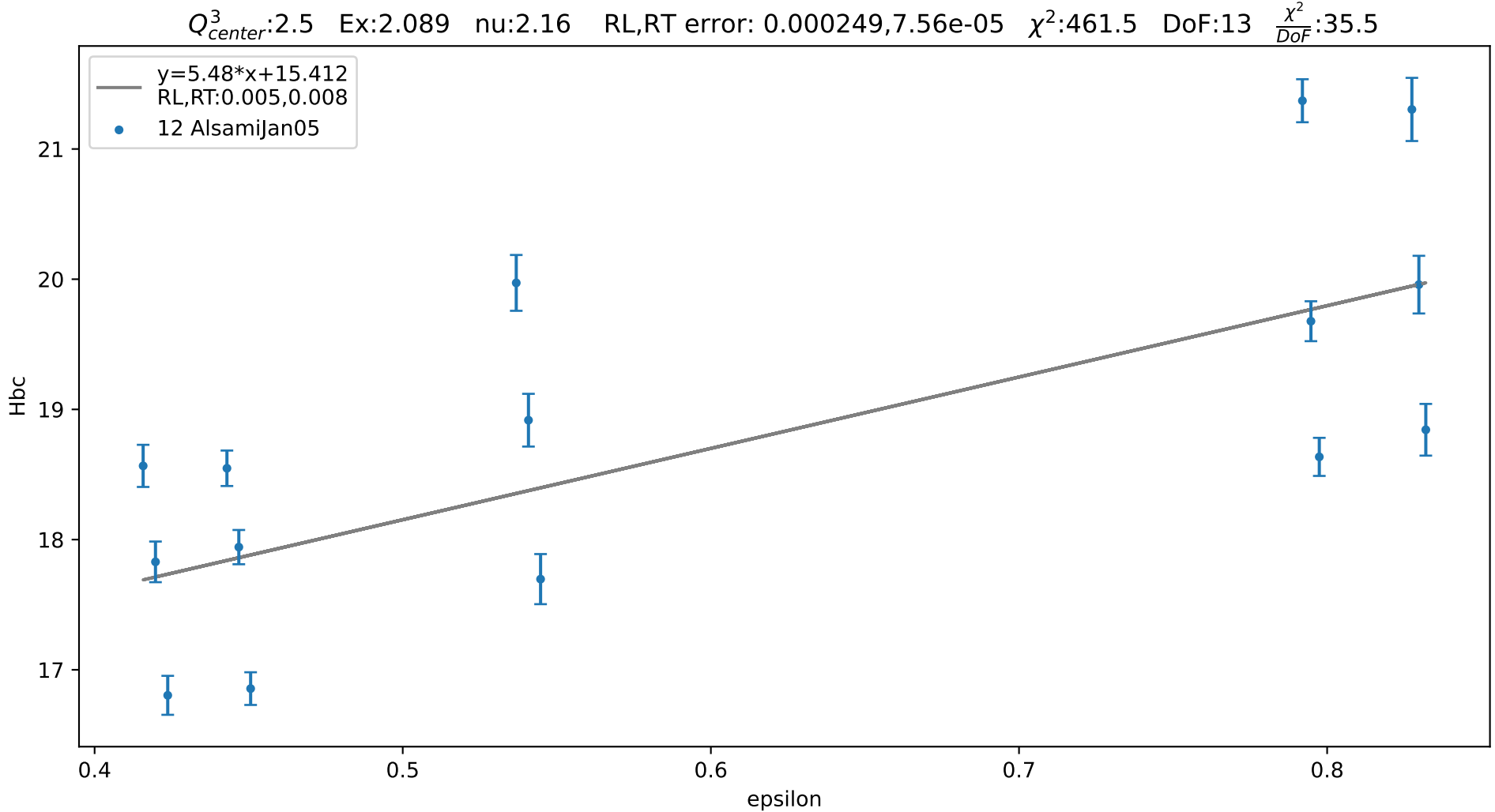

Q^3_{center}:2.5 Ex:1.97 nu:2.06 RL,RT error: 9.89e-05,4.34e-05 χ^2:455.4 DoF:14 $\frac{\chi^2}{DoF}$:32.5
y=1.857*x+6.529
RL,RT:0.002,0.004
12 AlsamiJan05
15 Fomin
Hbc
epsilon
8.50
8.25
8.00
7.75
7.50
7.25
7.00
0.50
0.55
0.60
0.65
0.70
0.75
0.80
0.85

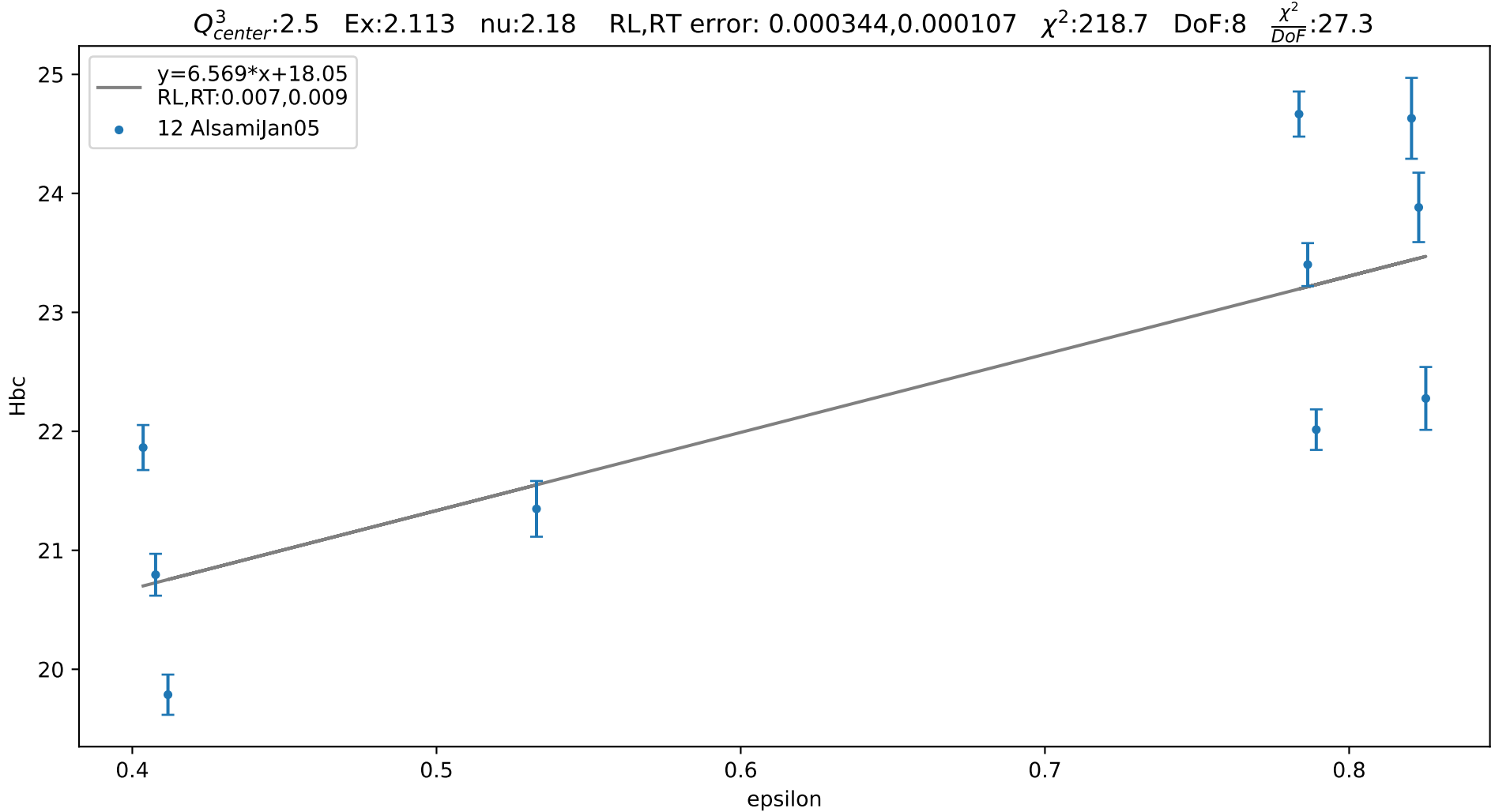

Q^3_{center}:2.5 Ex:1.994 nu:2.08 RL,RT error: 0.000232,8.1e-05 χ^2:279.3 DoF:10 $\frac{\chi^2}{DoF}$:27.9
Hbc
epsilon
9.6
9.4
9.2
9.0
8.8
8.6
8.4
8.2
8.0
0.50
0.55
0.60
0.65
0.70
0.75
y=1.492*x+8.039
RL,RT:0.001,0.005
12 AlsamiJan05

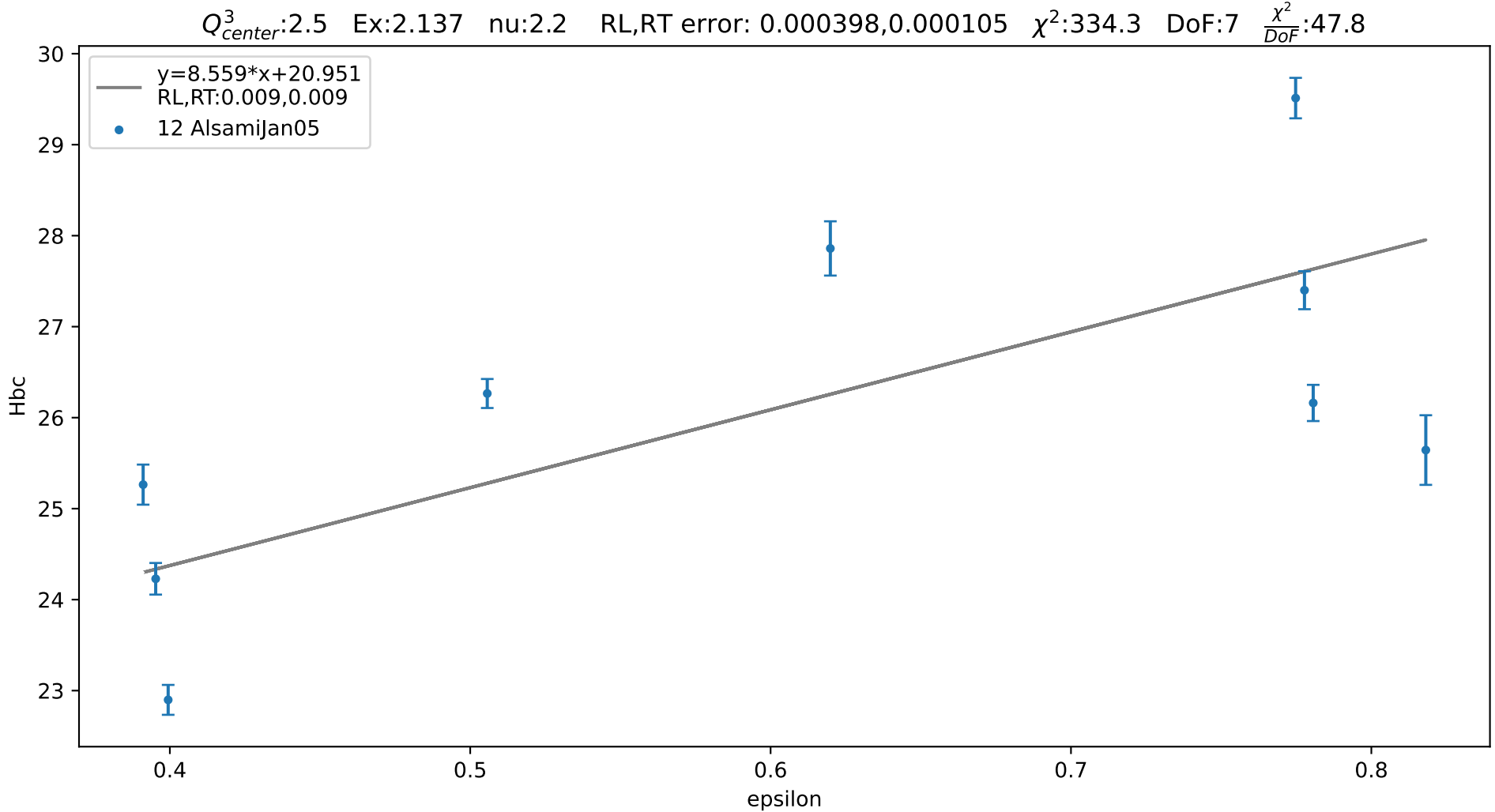

Q^3_{center}:2.5 Ex:2.018 nu:2.1 RL,RT error: 0.000127,5.07e-05 χ^2:440.6 DoF:11 $\frac{\chi^2}{DoF}$:40.1
y=1.819*x+9.705
RL,RT:0.002,0.006
12 AlsamiJan05
15 Fomin
Hbc
epsilon
12.0
11.5
11.0
10.5
10.0
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80
0.85

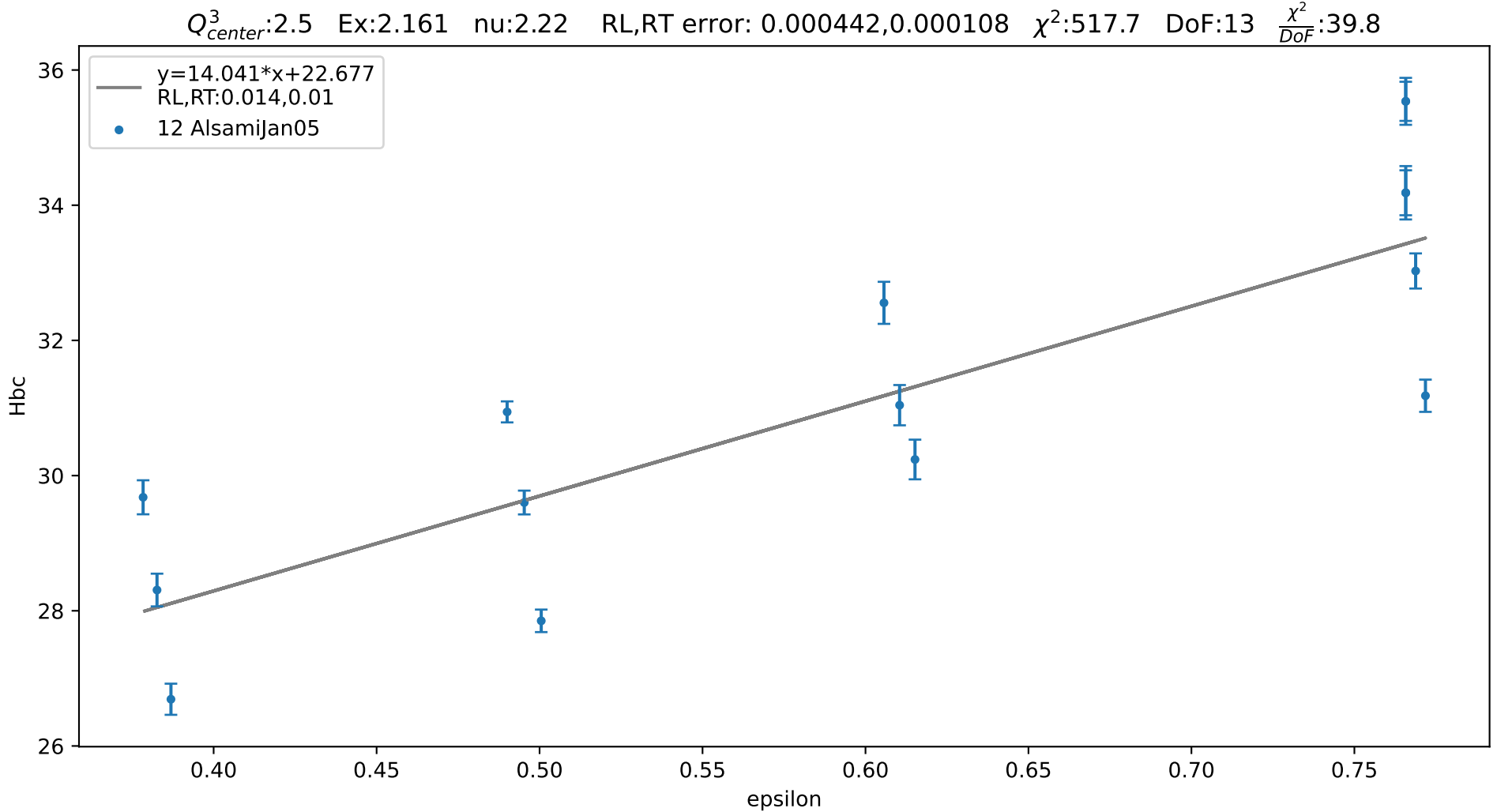

Q^3_{center}:2.5 Ex:2.041 nu:2.12 RL,RT error: 0.000246,7.87e-05 χ^2:390.4 DoF:13 $\frac{\chi^2}{DoF}$:30.0
Hbc
epsilon
14.5
14.0
13.5
13.0
12.5
12.0
11.5
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80
0.85
y=2.072*x+11.651
RL,RT:0.002,0.007
12 AlsamiJan05
8 Day:1993md

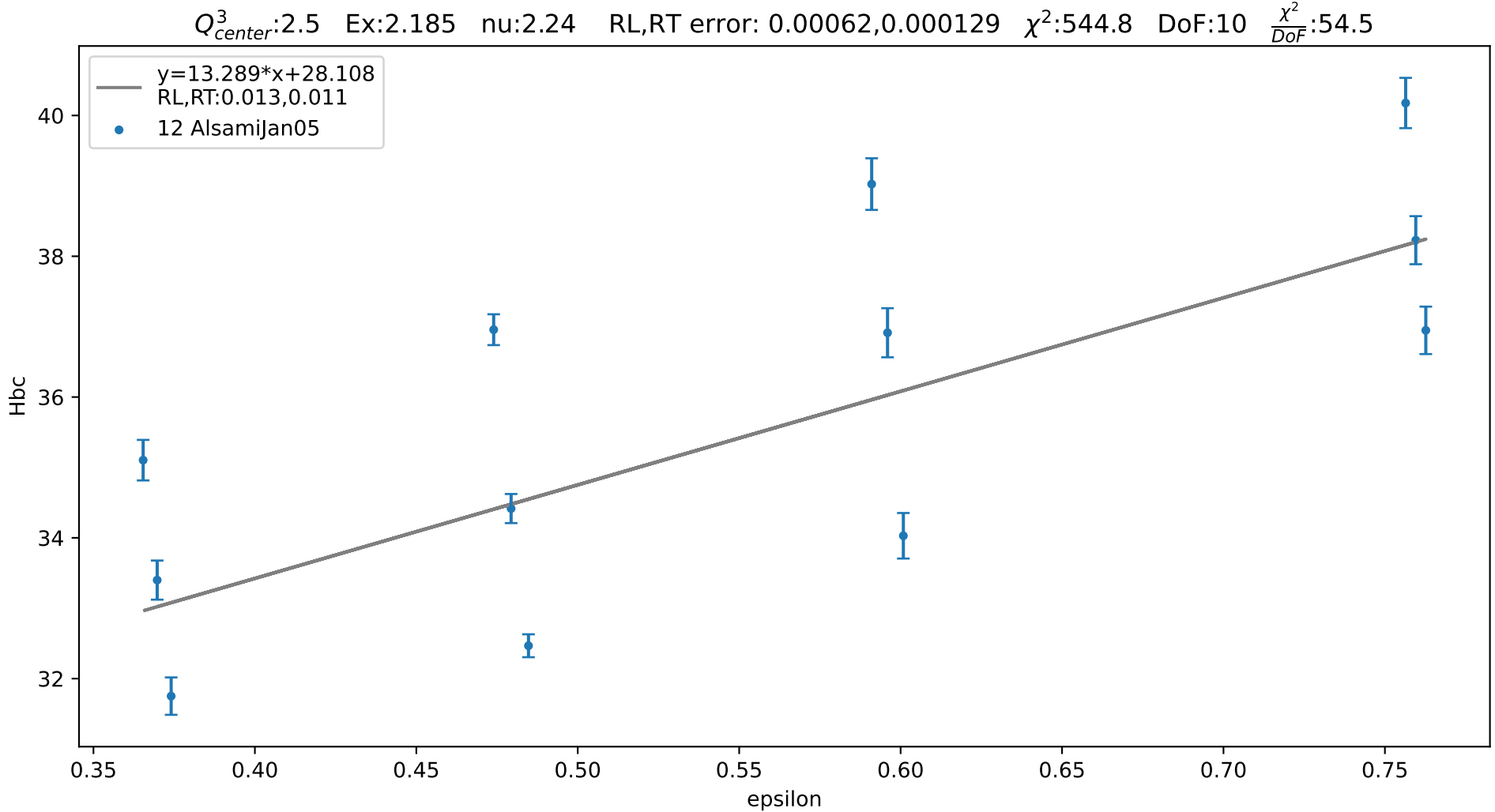

Q^3_{center}:2.5 Ex:2.065 nu:2.14 RL,RT error: 0.000197,6.85e-05 χ^2:621.3 DoF:15 $\frac{\chi^2}{DoF}$:41.4
y=2.832*x+13.927
RL,RT:0.003,0.007
12 AlsamiJan05
Hbc
epsilon
18.0
17.5
17.0
16.5
16.0
15.5
15.0
14.5
14.0
0.5
0.6
0.7
0.8

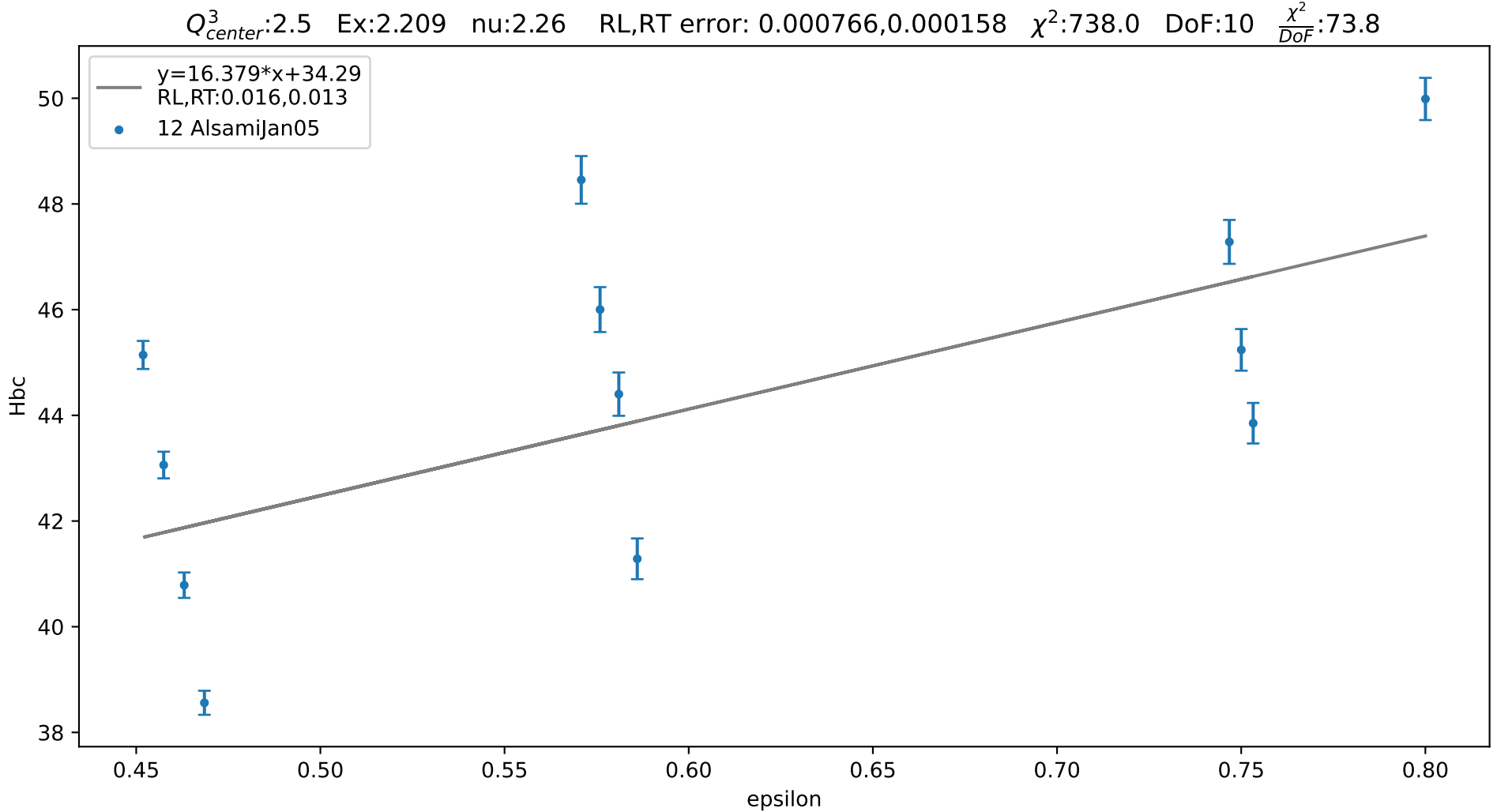

Q^3_{center}:2.5 Ex:2.089 nu:2.16 RL,RT error: 0.000249,7.56e-05 χ^2:461.5 DoF:13 $\frac{\chi^2}{DoF}$:35.5
y=5.48*x+15.412
RL,RT:0.005,0.008
12 AlsamiJan05
Hbc
epsilon
17
18
19
20
21
0.4
0.5
0.6
0.7
0.8

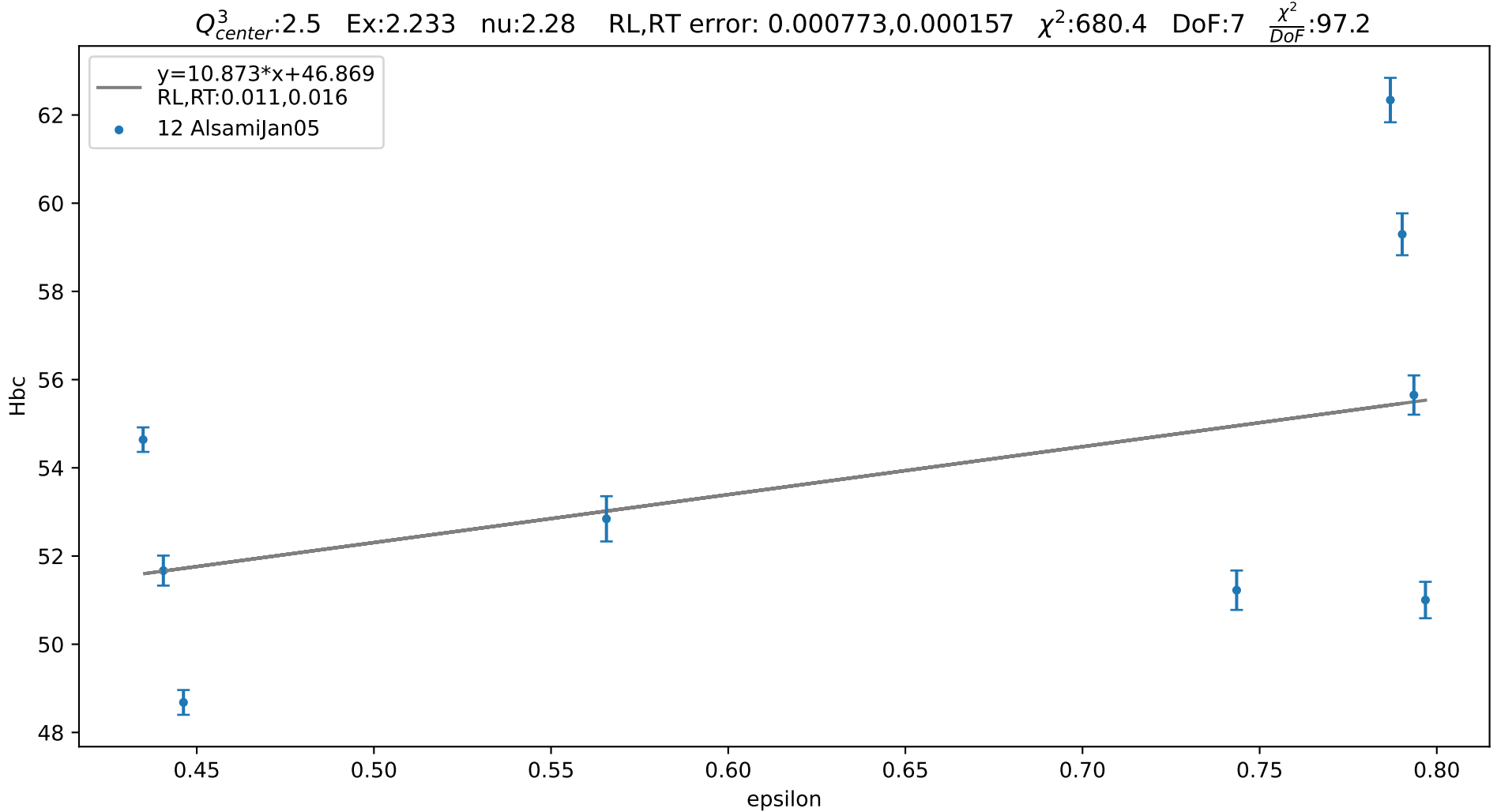

Q^3_{center}:2.5 Ex:2.113 nu:2.18 RL,RT error: 0.000344,0.000107 χ^2:218.7 DoF:8 $\frac{\chi^2}{DoF}$:27.3
y=6.569*x+18.05
RL,RT:0.007,0.009
12 AlsamiJan05
Hbc
epsilon
25
24
23
22
21
20
0.4
0.5
0.6
0.7
0.8

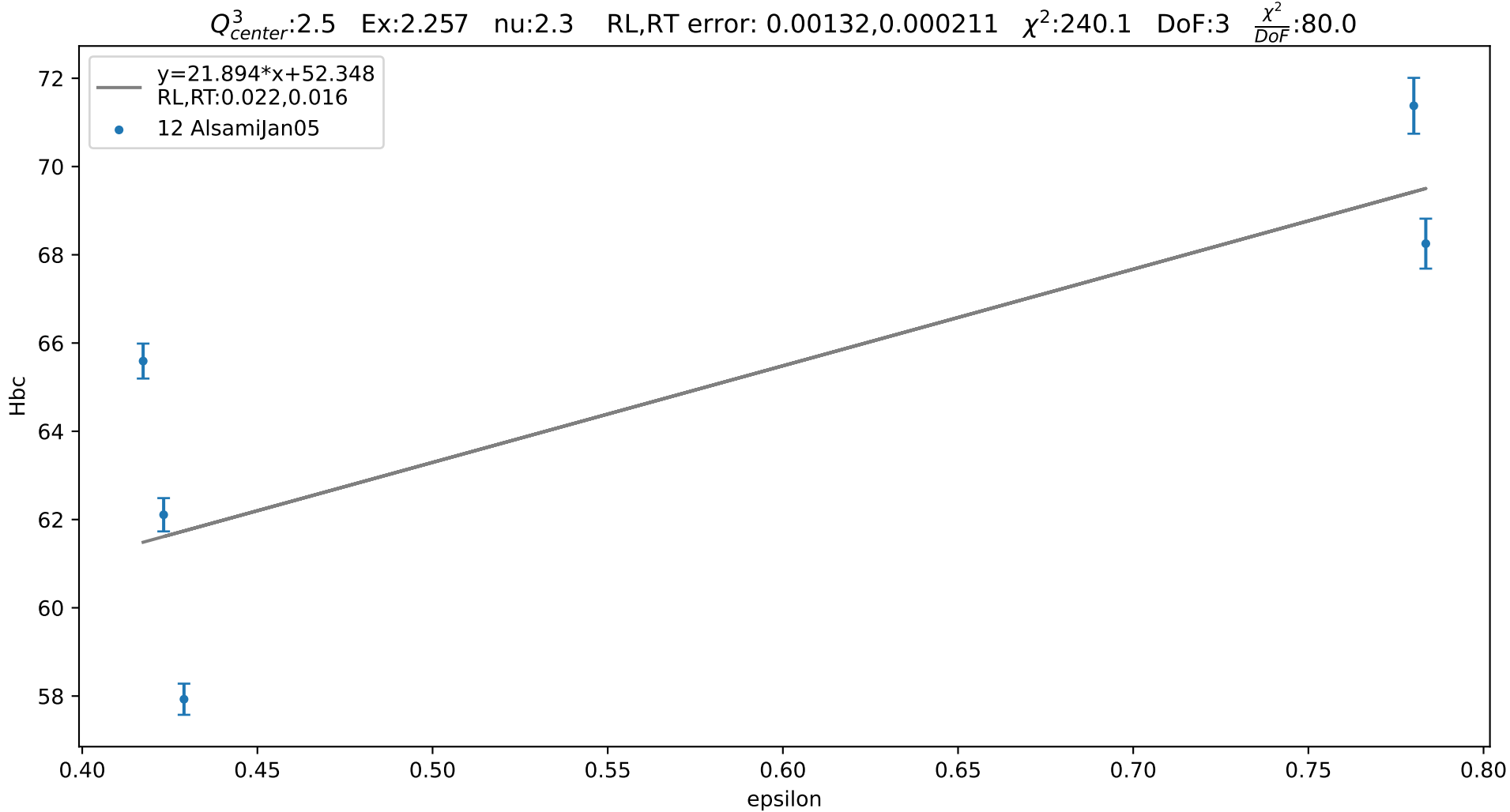

Q^3_{center}:2.5 Ex:2.137 nu:2.2 RL,RT error: 0.000398,0.000105 χ^2:334.3 DoF:7 $\frac{\chi^2}{DoF}$:47.8
y=8.559*x+20.951
RL,RT:0.009,0.009
12 AlsamiJan05
Hbc
epsilon
30
29
28
27
26
25
24
23
0.4
0.5
0.6
0.7
0.8

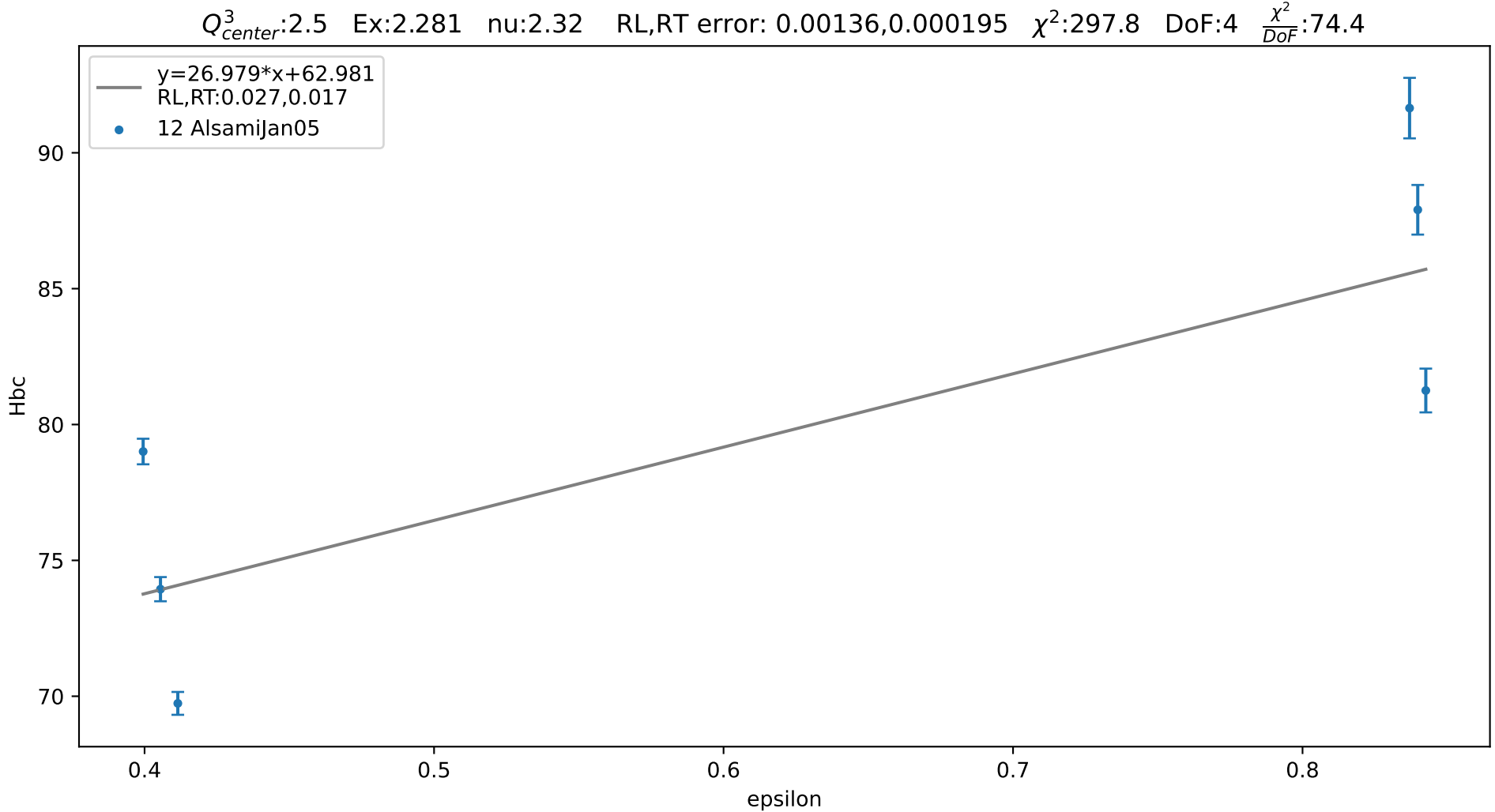

Q^3_{center}:2.5 Ex:2.161 nu:2.22 RL,RT error: 0.000442,0.000108 χ^2:517.7 DoF:13 $\frac{\chi^2}{DoF}$:39.8
y=14.041*x+22.677
RL,RT:0.014,0.01
12 AlsamiJan05
Hbc
epsilon
36
34
32
30
28
26
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75

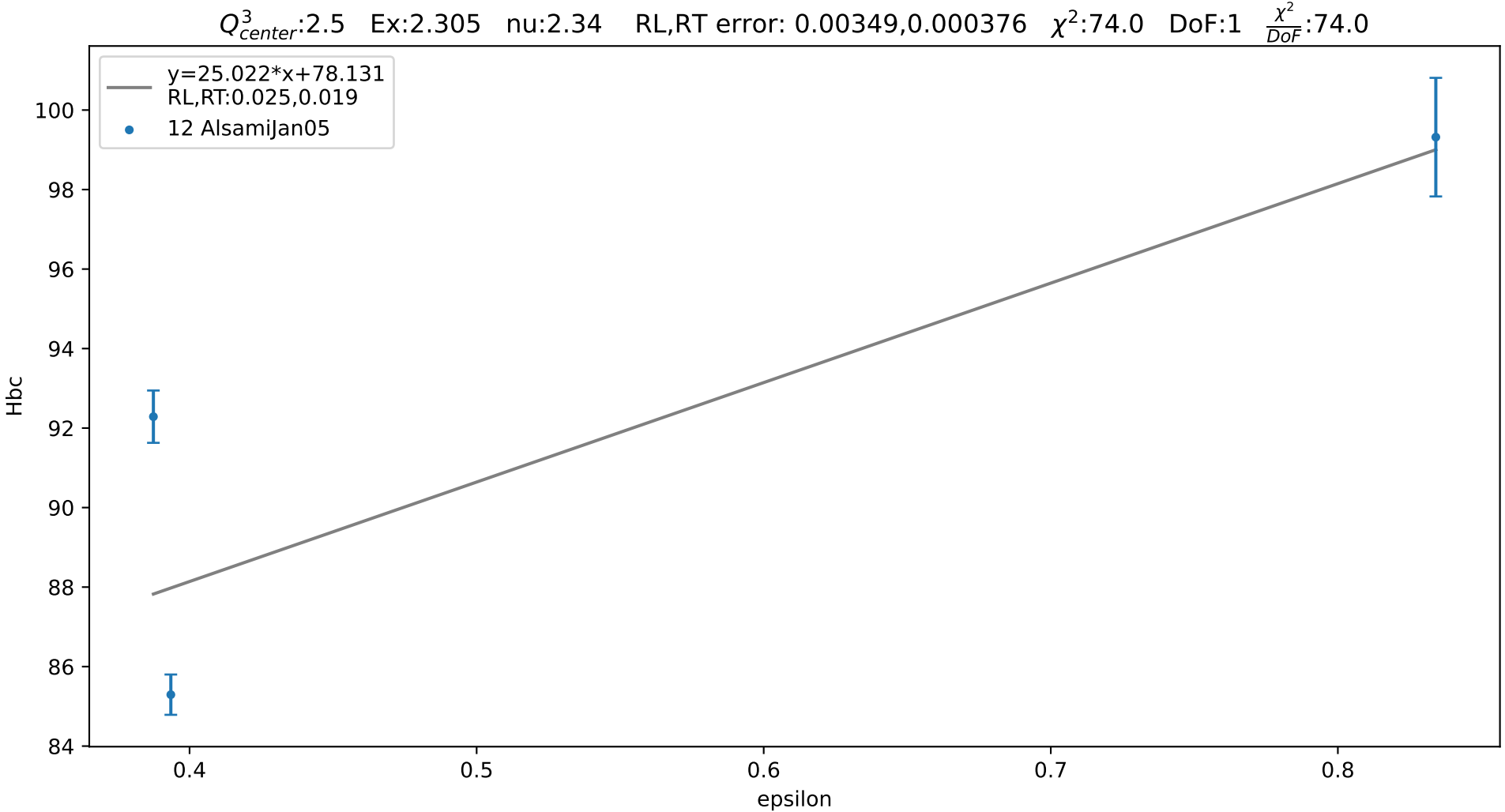

Q^3_{center}:2.5 Ex:2.185 nu:2.24 RL,RT error: 0.00062,0.000129 χ^2:544.8 DoF:10 $\frac{\chi^2}{DoF}$:54.5
y=13.289*x+28.108
RL,RT:0.013,0.011
12 AlsamiJan05
Hbc
epsilon
32
34
36
38
40
0.35
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75

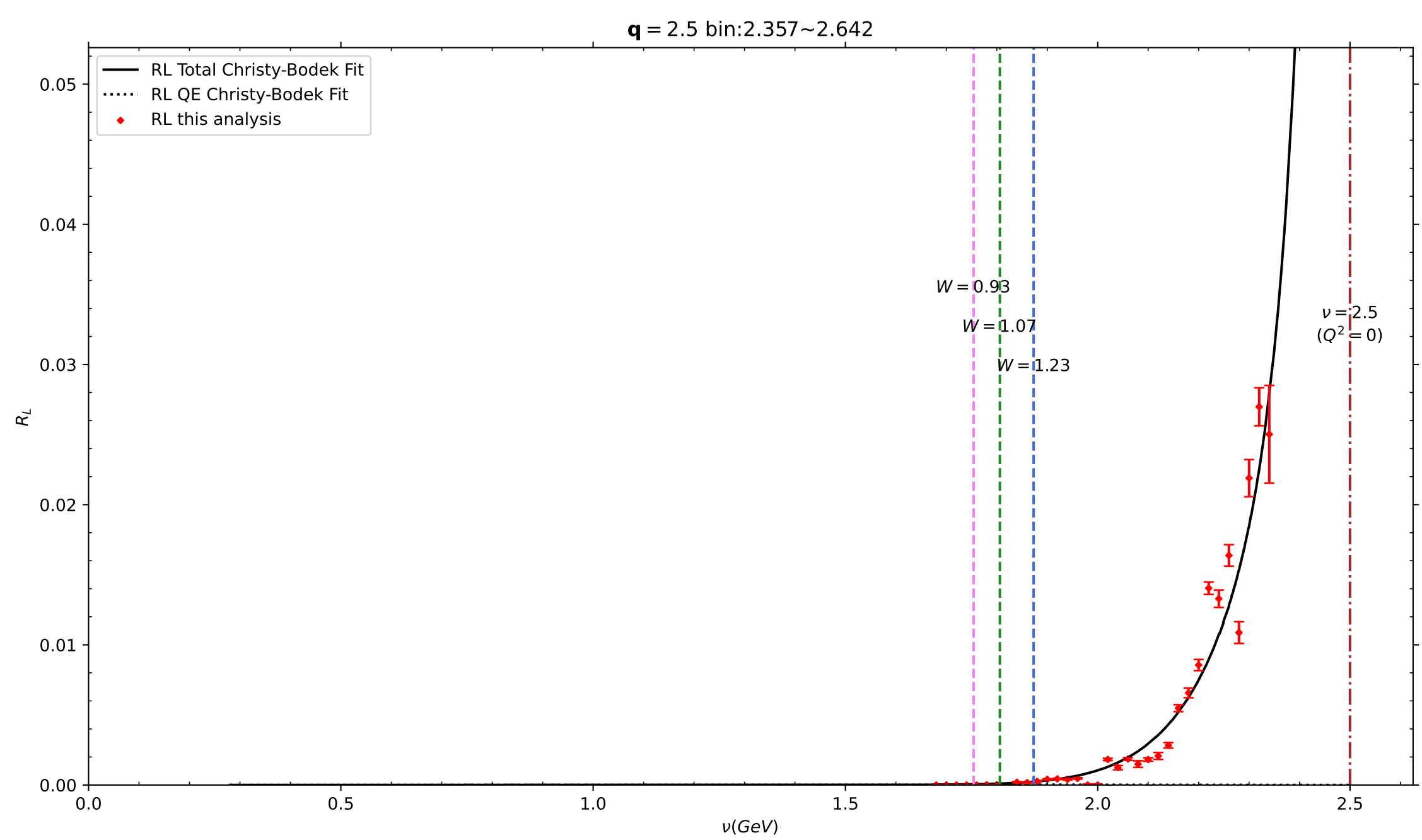

Q^3_{center}:2.5 Ex:2.209 nu:2.26 RL,RT error: 0.000766,0.000158 χ^2:738.0 DoF:10 $\frac{\chi^2}{DoF}$:73.8
y=16.379*x+34.29
RL,RT:0.016,0.013
12 AlsamiJan05
Hbc
epsilon
50
48
46
44
42
40
38
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80

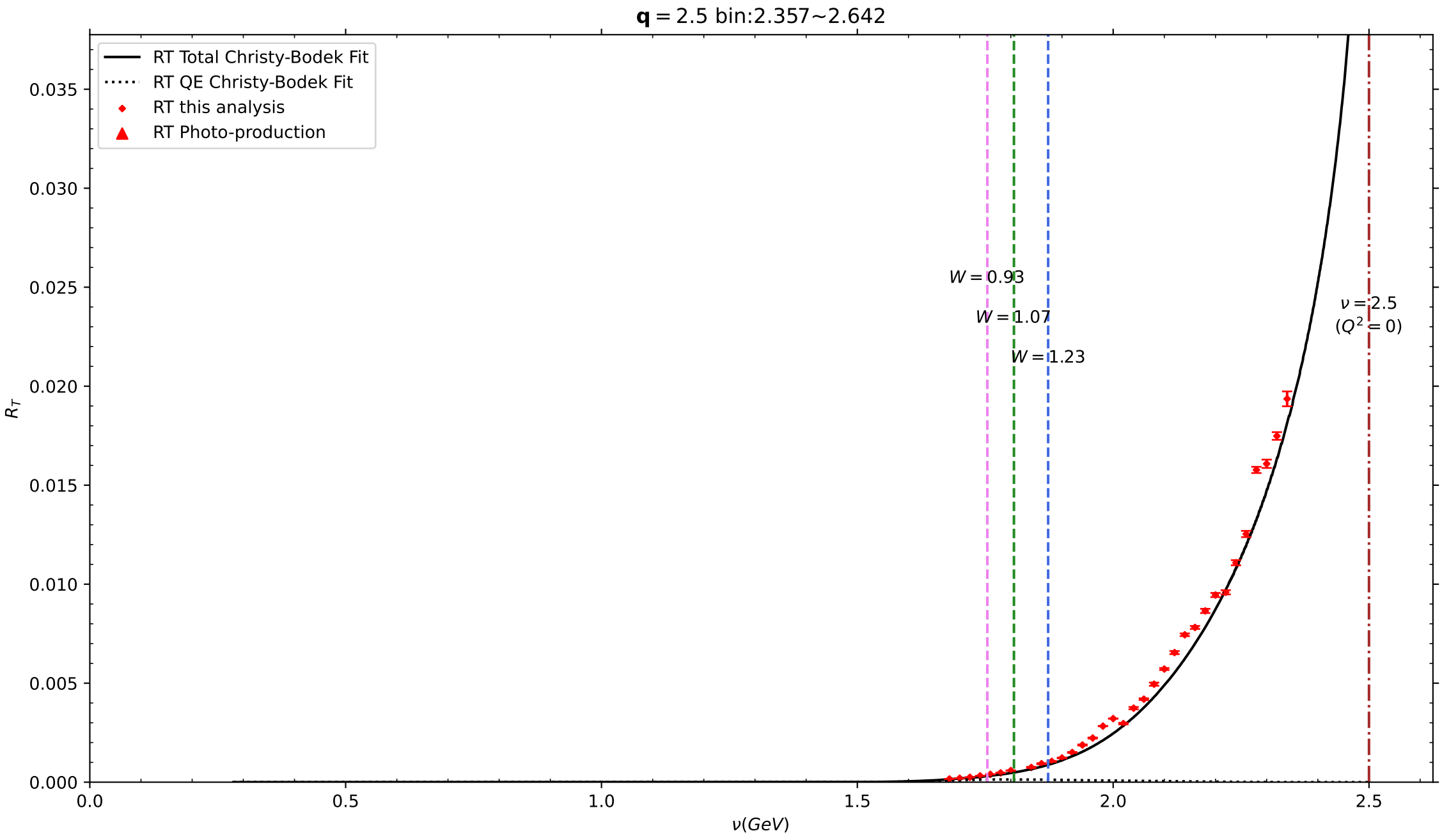

Q^3_{center}:2.5 Ex:2.233 nu:2.28 RL,RT error: 0.000773,0.000157 χ^2:680.4 DoF:7 $\frac{\chi^2}{DoF}$:97.2
y=10.873*x+46.869
RL,RT:0.011,0.016
12 AlsamiJan05
Hbc
epsilon
48
50
52
54
56
58
60
62
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80

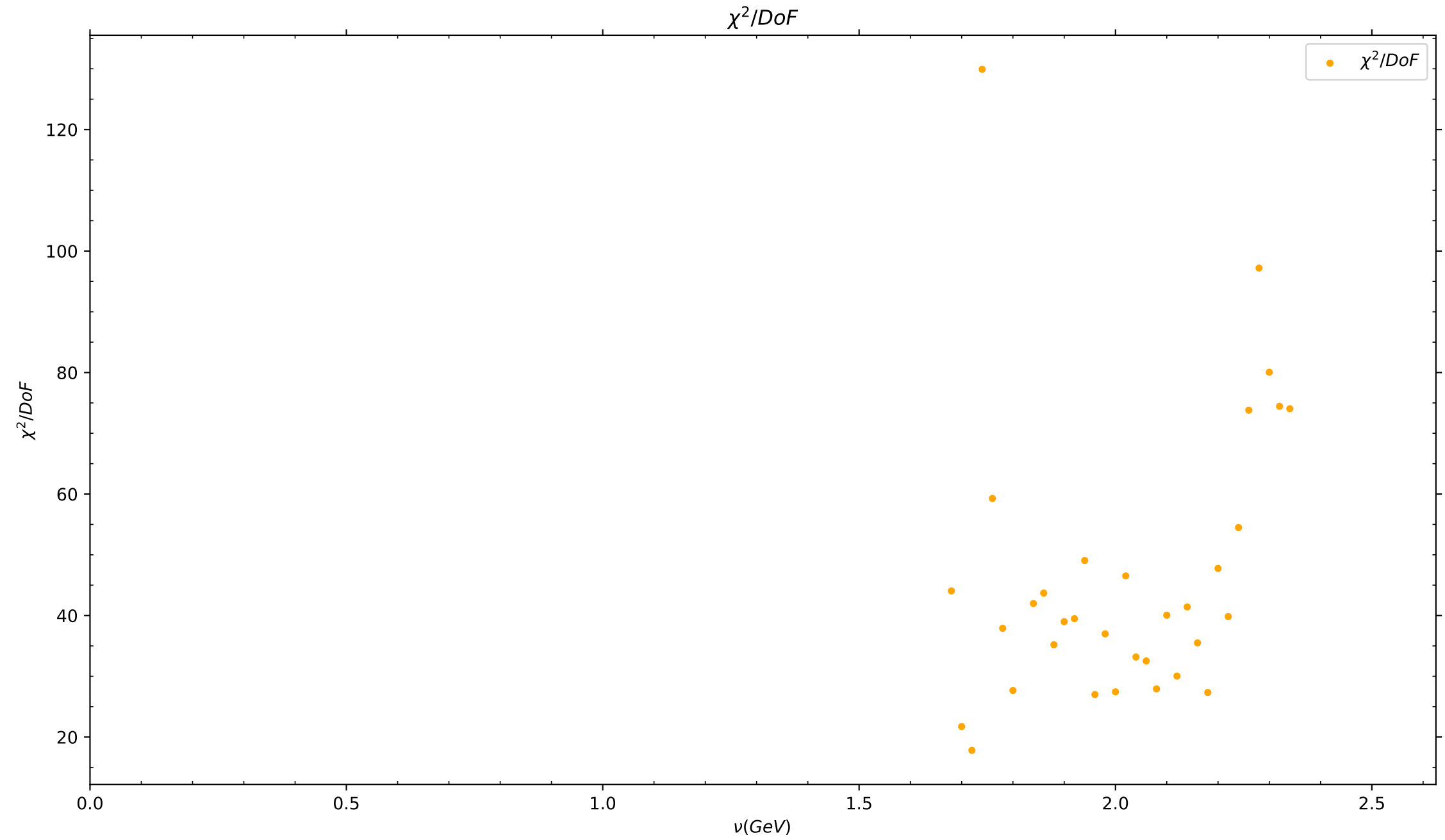

Q^3_{center}:2.5 Ex:2.257 nu:2.3 RL,RT error: 0.00132,0.000211 χ^2:240.1 DoF:3 $\frac{\chi^2}{DoF}$:80.0
y=21.894*x+52.348
RL,RT:0.022,0.016
12 AlsamiJan05
Hbc
epsilon
72
70
68
66
64
62
60
58
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80

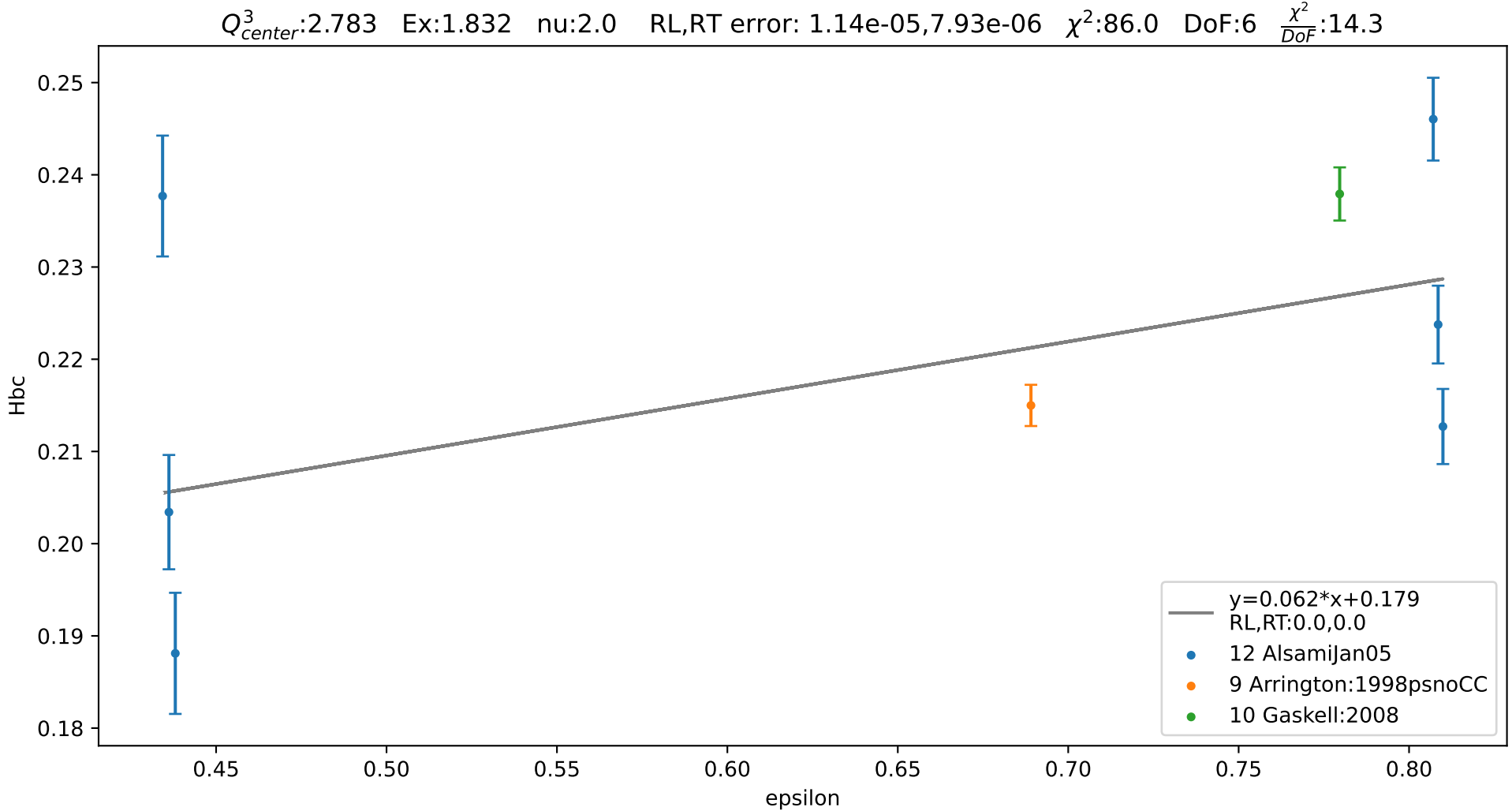

Q^3_{center}:2.5 Ex:2.281 nu:2.32 RL,RT error: 0.00136,0.000195 χ^2:297.8 DoF:4 $\frac{\chi^2}{DoF}$:74.4
y=26.979*x+62.981
RL,RT:0.027,0.017
12 AlsamiJan05
Hbc
epsilon
90
85
80
75
70
0.4
0.5
0.6
0.7
0.8

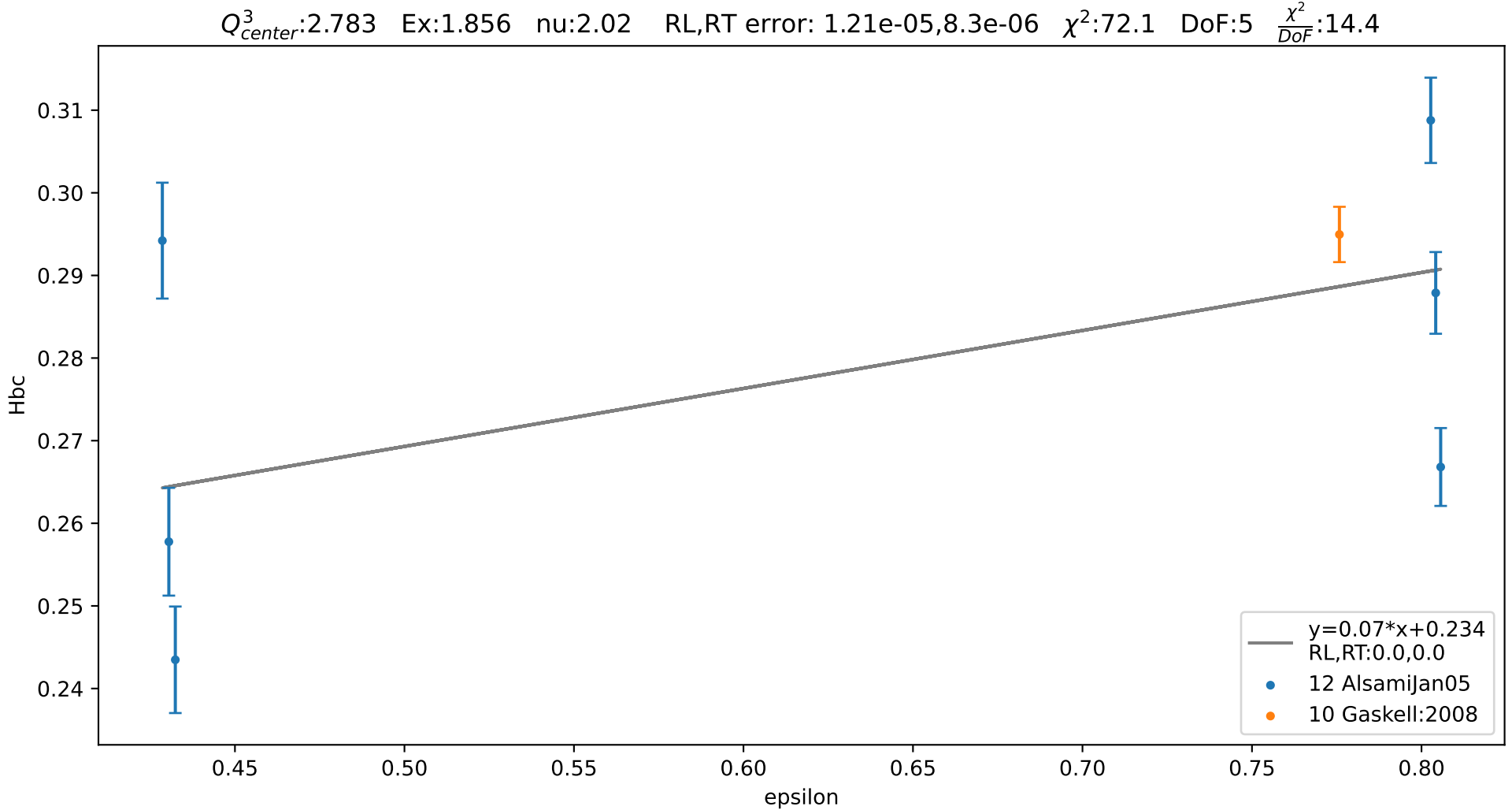

Q^3_{center}:2.5 Ex:2.305 nu:2.34 RL,RT error: 0.00349,0.000376 χ^2:74.0 DoF:1 $\frac{\chi^2}{DoF}$:74.0
y=25.022*x+78.131
RL,RT:0.025,0.019
12 AlsamiJan05
Hbc
epsilon
100
98
96
94
92
90
88
86
84
0.4
0.5
0.6
0.7
0.8

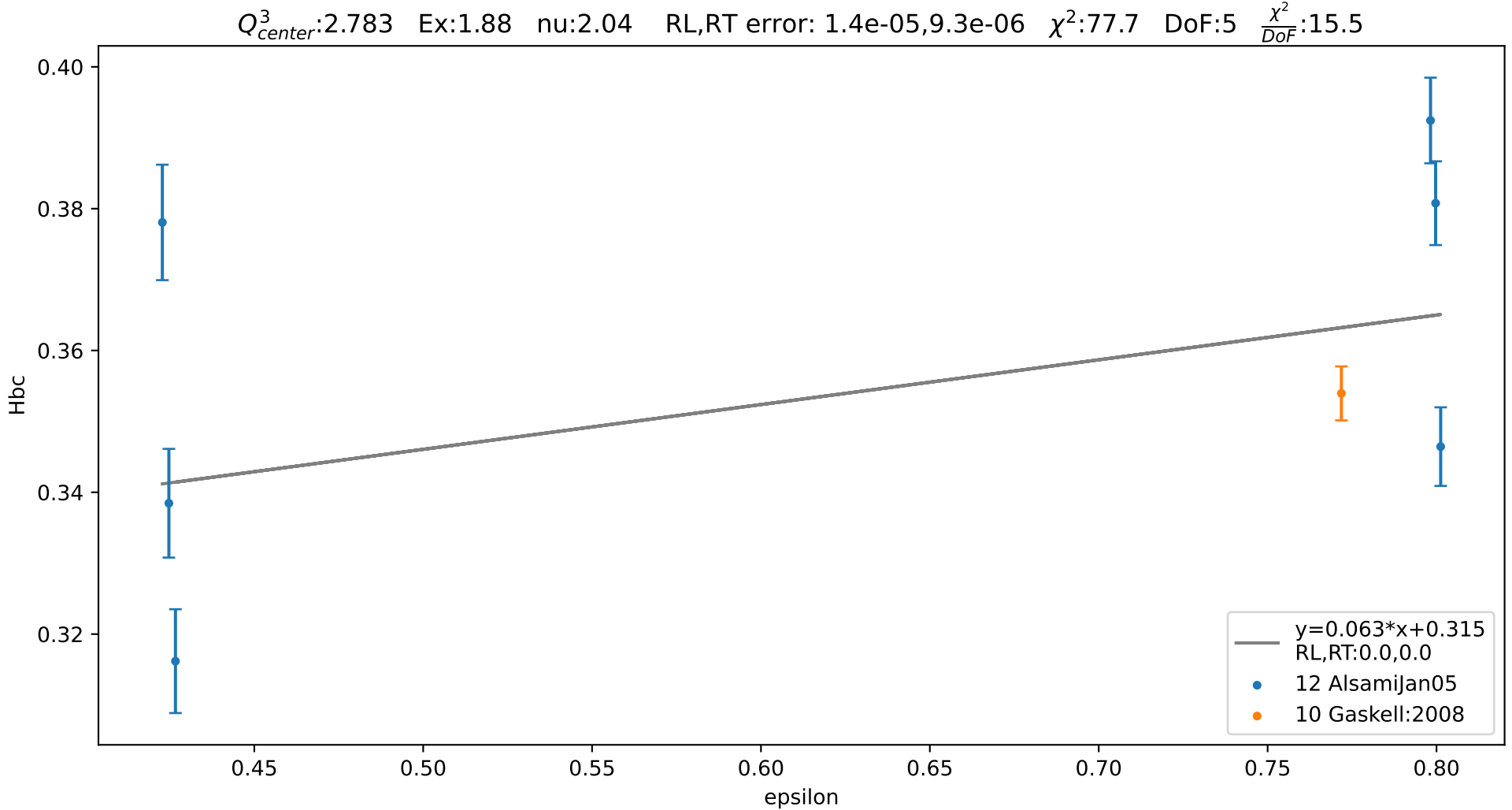

q = 2.5 bin:2.357~2.642
RL Total Christy-Bodek Fit
RL QE Christy-Bodek Fit
RL this analysis
W = 0.93
W = 1.07
W = 1.23
ν = 2.5
(Q² = 0)
R_L
ν(GeV)

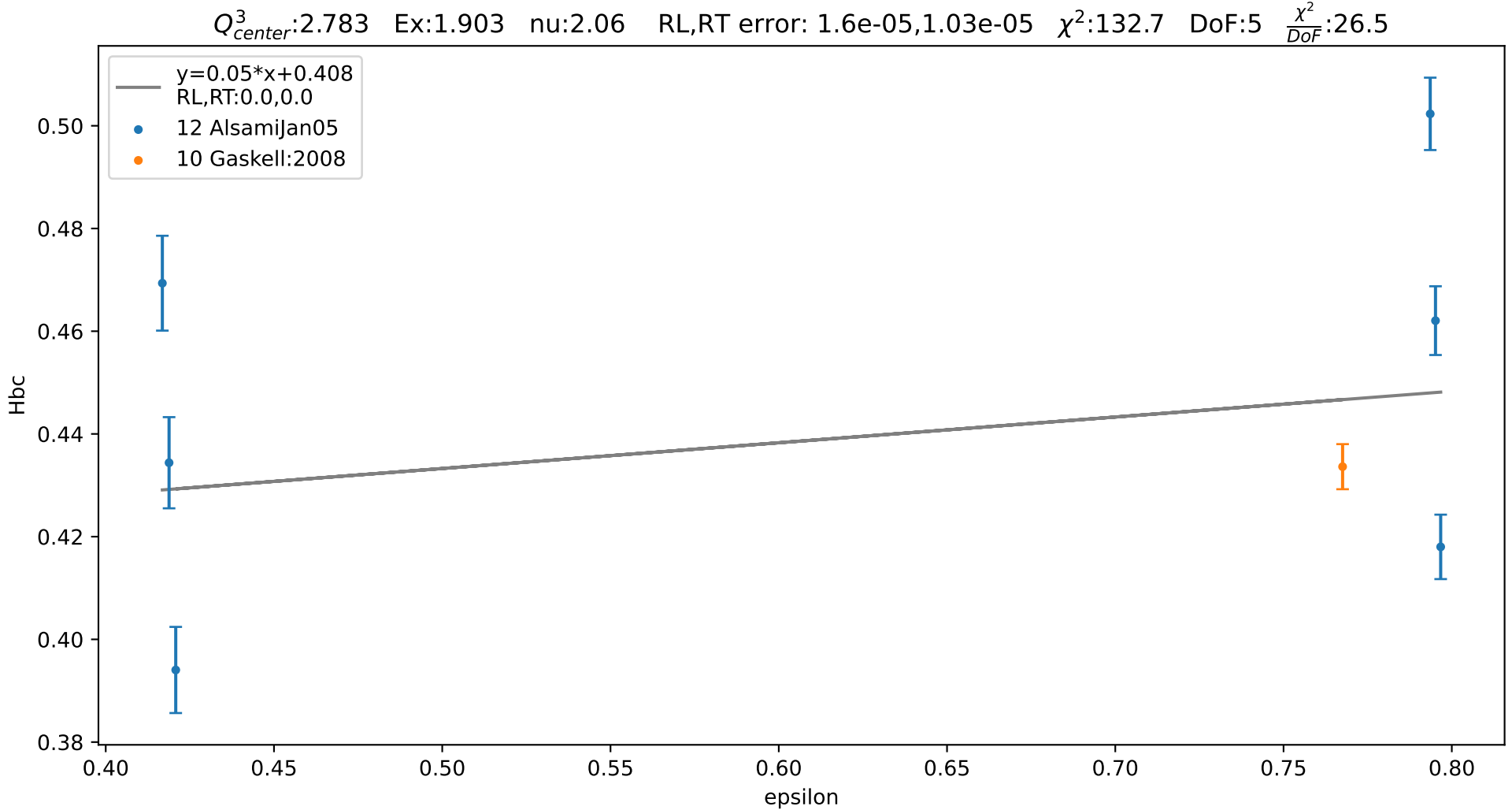

q = 2.5 bin:2.357~2.642
RT Total Christy-Bodek Fit
RT QE Christy-Bodek Fit
RT this analysis
RT Photo-production
W = 0.93
W = 1.07
W = 1.23
ν = 2.5
(Q² = 0)
R_T
ν(GeV)

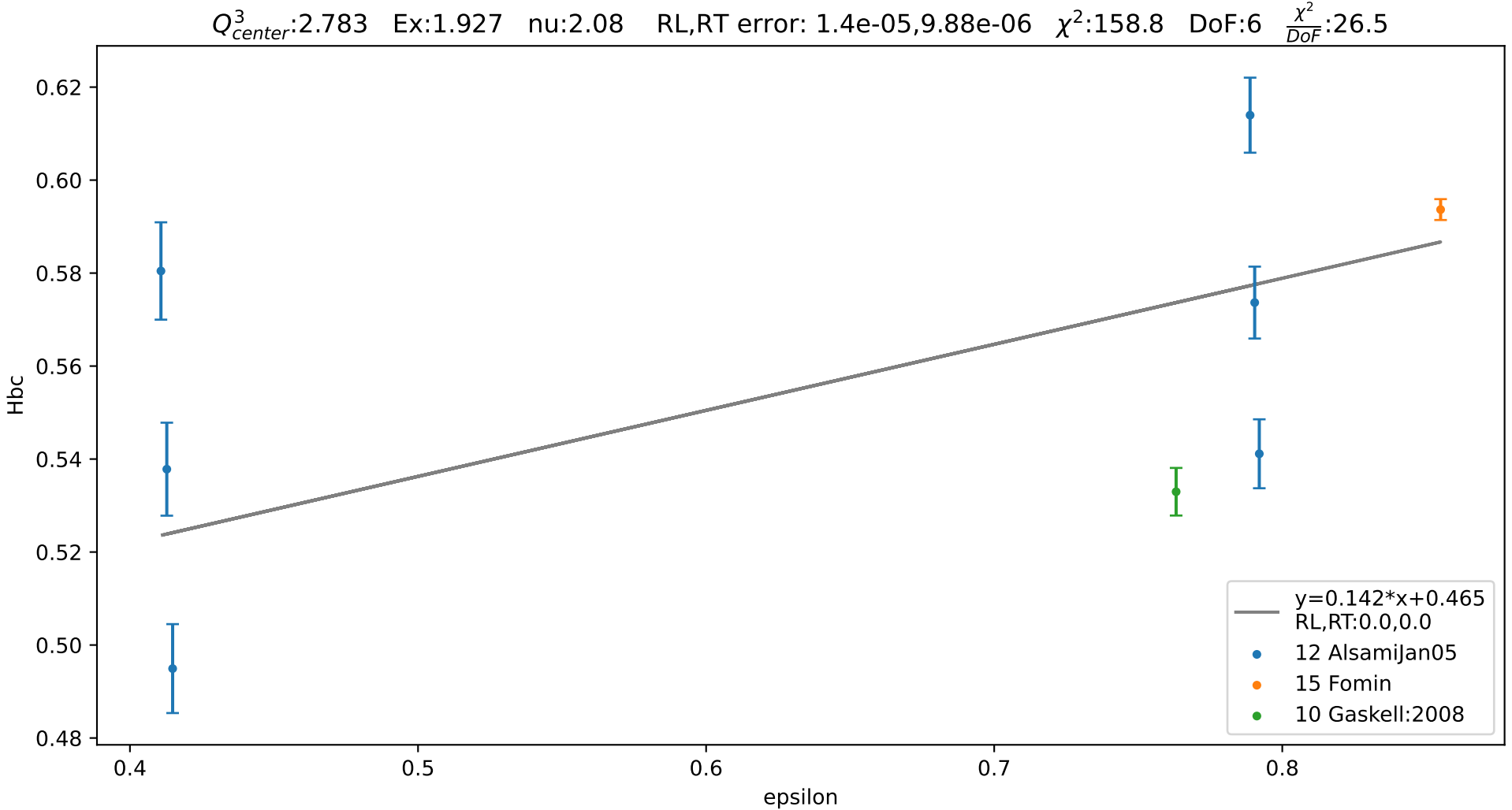

χ²/DoF
χ²/DoF
ν(GeV)

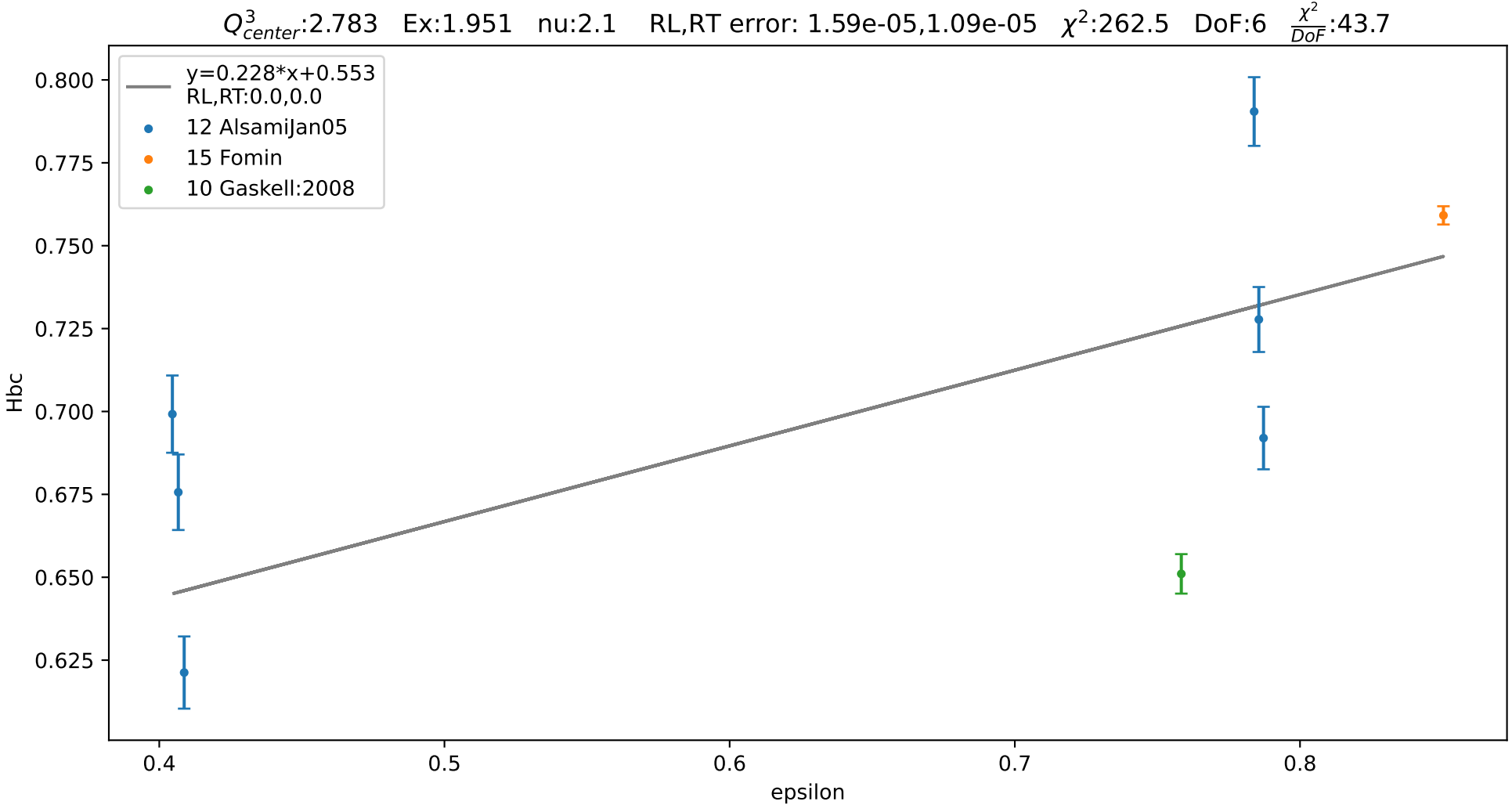

Q^3_{center}:2.783 Ex:1.832 nu:2.0 RL,RT error: 1.14e-05,7.93e-06 χ^2:86.0 DoF:6 $\frac{\chi^2}{DoF}$:14.3
Hbc
epsilon
0.25
0.24
0.23
0.22
0.21
0.20
0.19
0.18
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80
y=0.062*x+0.179
RL,RT:0.0,0.0
12 AlsamiJan05
9 Arrington:1998psnoCC
10 Gaskell:2008

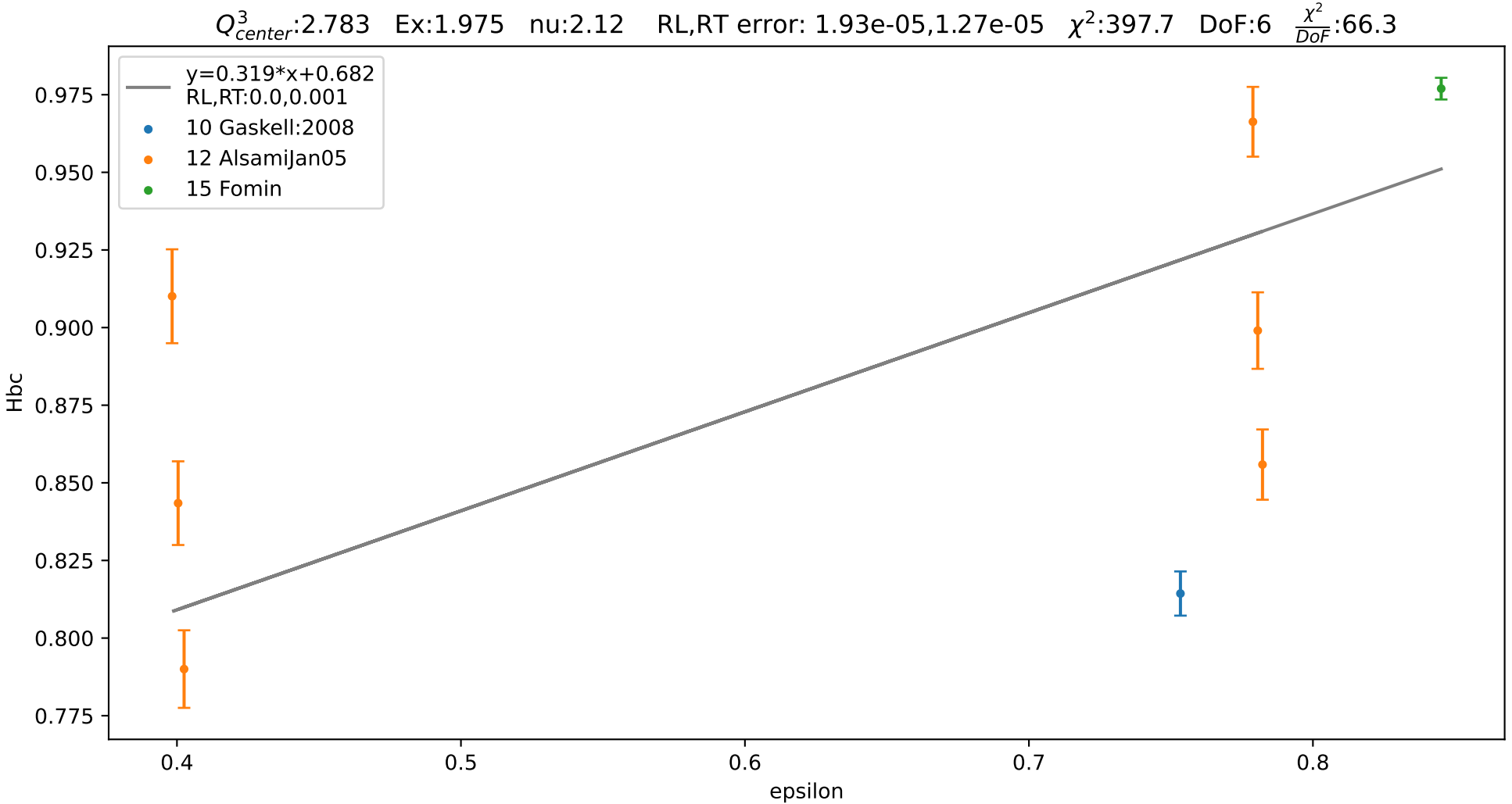

Q^3_{center}:2.783 Ex:1.856 nu:2.02 RL,RT error: 1.21e-05,8.3e-06 χ^2:72.1 DoF:5 $\frac{\chi^2}{DoF}$:14.4
Hbc
epsilon
0.24
0.25
0.26
0.27
0.28
0.29
0.30
0.31
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80
y=0.07*x+0.234
RL,RT:0.0,0.0
12 AlsamiJan05
10 Gaskell:2008

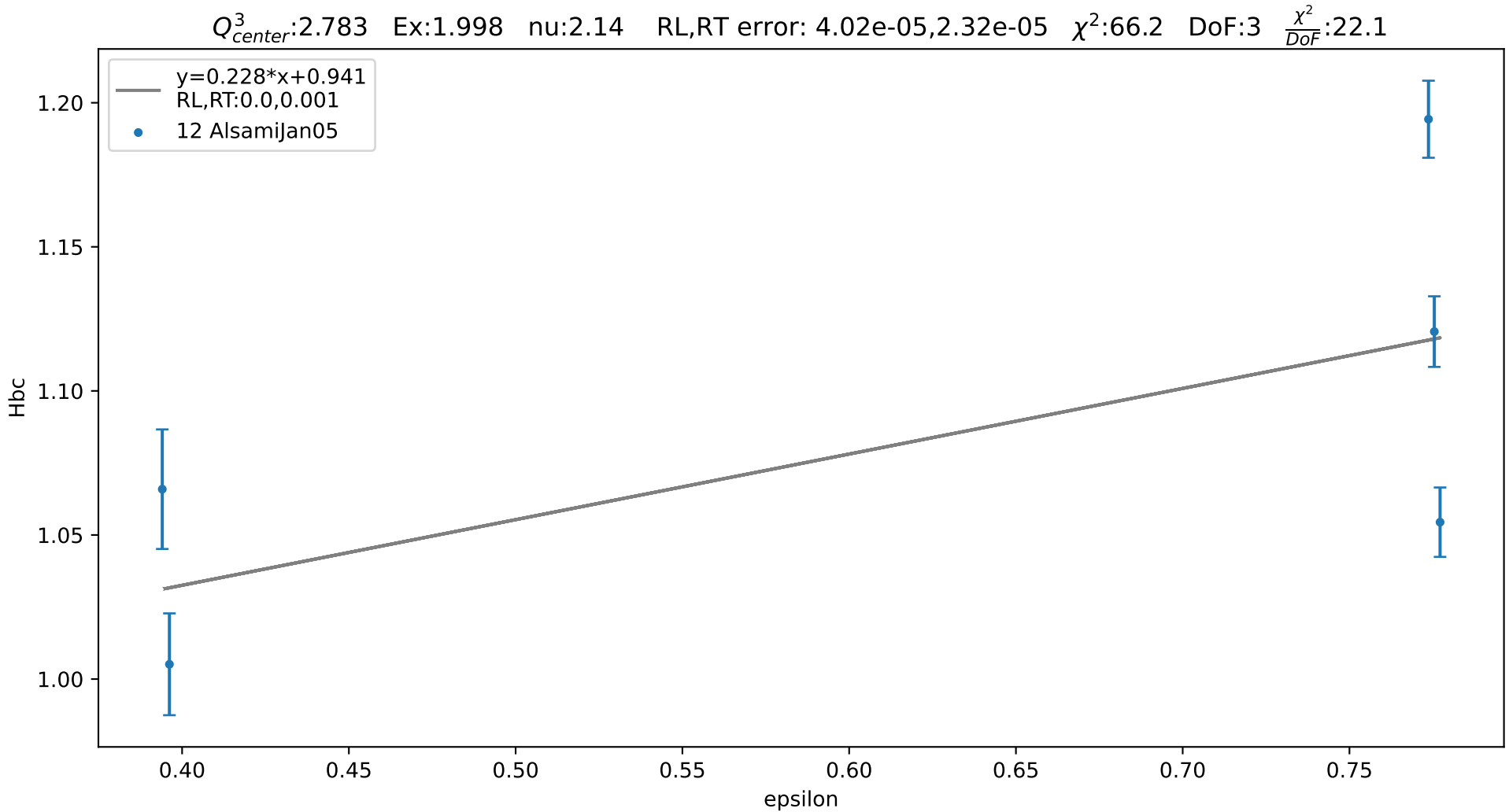

Q^3_{center}:2.783 Ex:1.88 nu:2.04 RL,RT error: 1.4e-05,9.3e-06 χ^2:77.7 DoF:5 $\frac{\chi^2}{DoF}$:15.5
0.40
0.38
0.36
0.34
0.32
Hbc
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80
epsilon
y=0.063*x+0.315
RL,RT:0.0,0.0
12 AlsamiJan05
10 Gaskell:2008

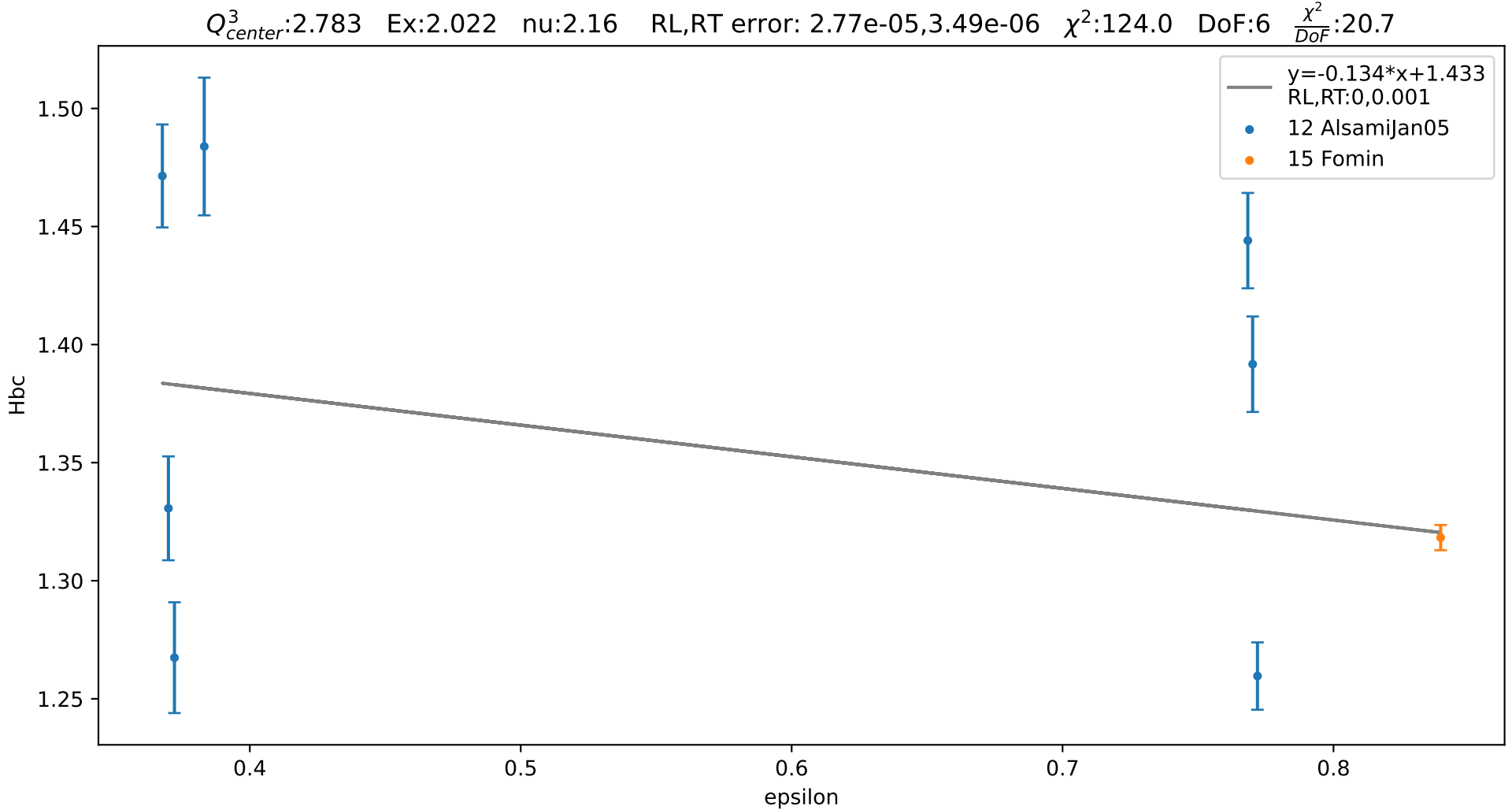

Q^3_{center}:2.783 Ex:1.903 nu:2.06 RL,RT error: 1.6e-05,1.03e-05 χ^2:132.7 DoF:5 $\frac{\chi^2}{DoF}$:26.5
y=0.05*x+0.408
RL,RT:0.0,0.0
12 AlsamiJan05
10 Gaskell:2008
Hbc
epsilon
0.38
0.40
0.42
0.44
0.46
0.48
0.50
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80

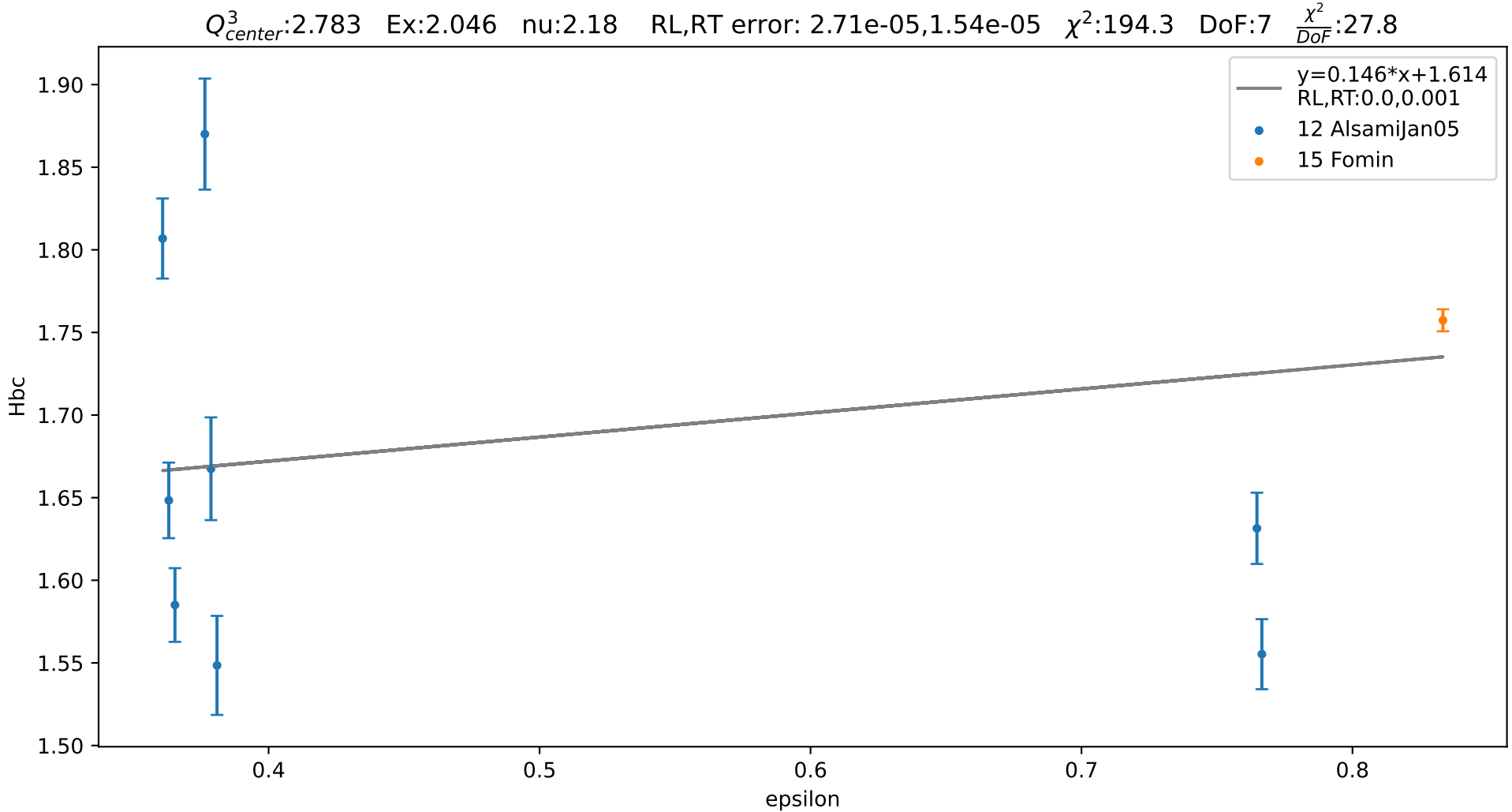

Q^3_{center}:2.783 Ex:1.927 nu:2.08 RL,RT error: 1.4e-05,9.88e-06 χ^2:158.8 DoF:6 $\frac{\chi^2}{DoF}$:26.5
Hbc
epsilon
0.62
0.60
0.58
0.56
0.54
0.52
0.50
0.48
0.4
0.5
0.6
0.7
0.8
y=0.142*x+0.465
RL,RT:0.0,0.0
12 AlsamiJan05
15 Fomin
10 Gaskell:2008

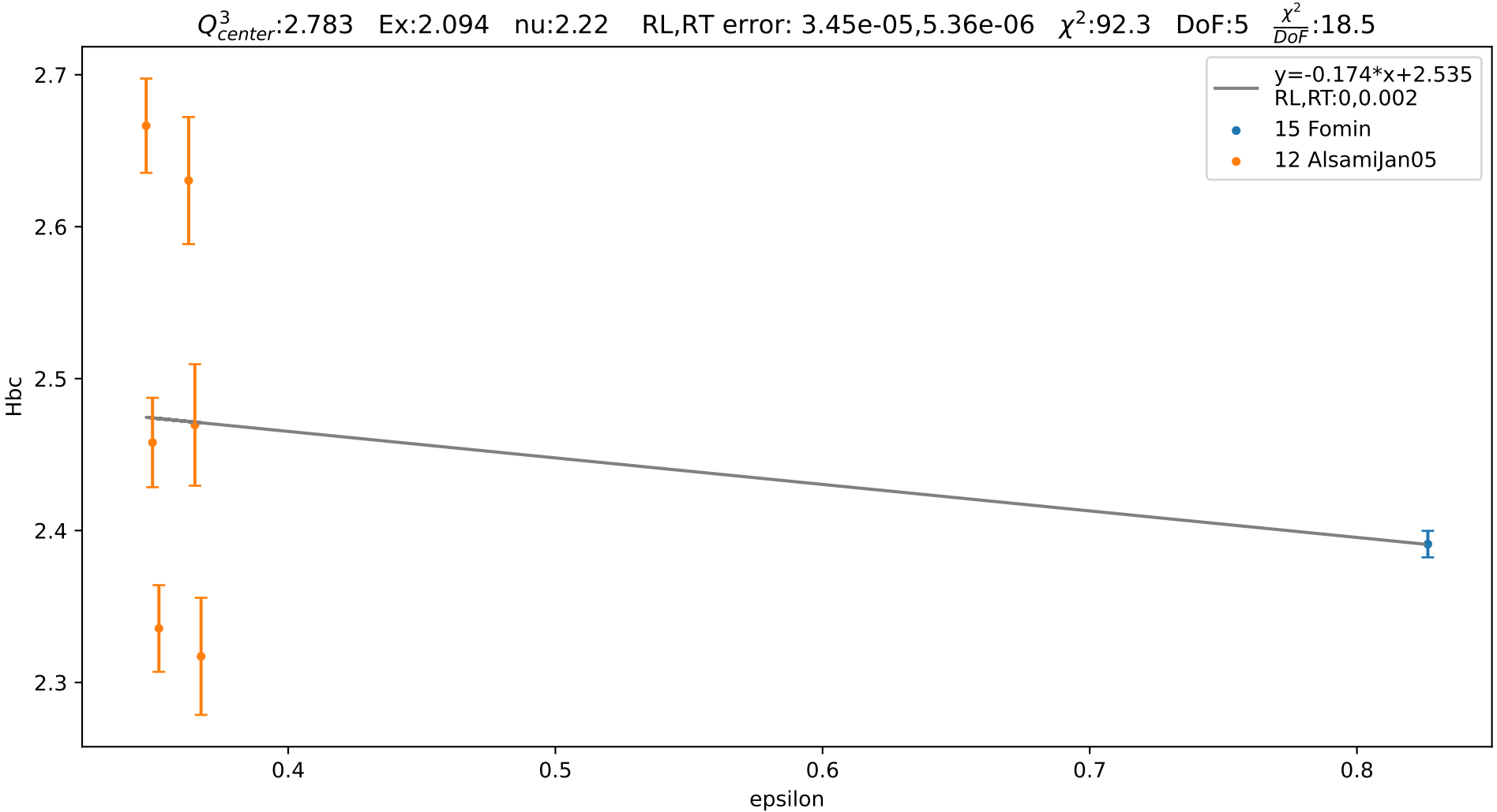

Q^3_{center}:2.783 Ex:1.951 nu:2.1 RL,RT error: 1.59e-05,1.09e-05 χ^2:262.5 DoF:6 $\frac{\chi^2}{DoF}$:43.7
y=0.228*x+0.553
RL,RT:0.0,0.0
12 AlsamiJan05
15 Fomin
10 Gaskell:2008
Hbc
epsilon
0.800
0.775
0.750
0.725
0.700
0.675
0.650
0.625
0.4
0.5
0.6
0.7
0.8

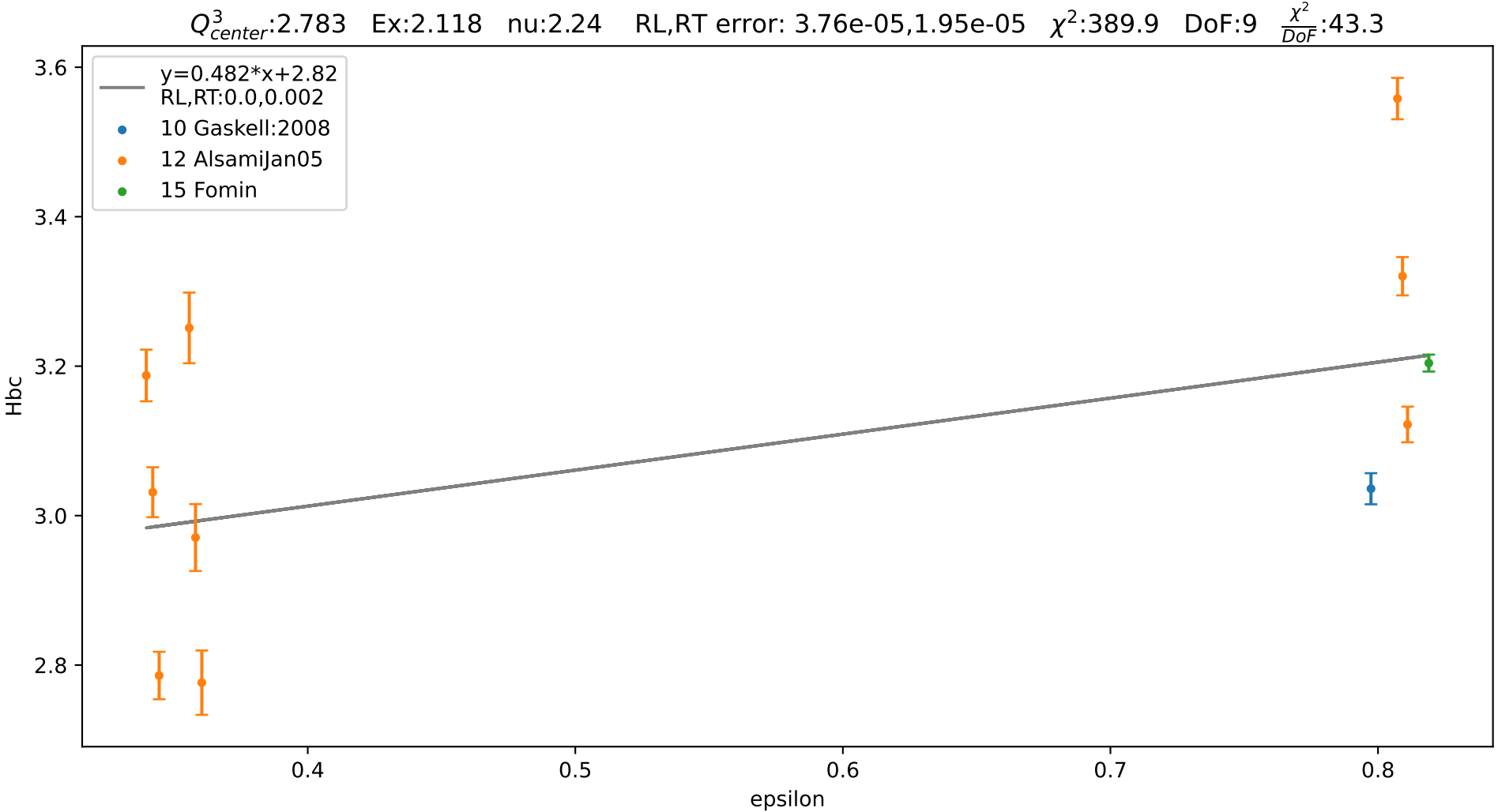

Q^3_{center}:2.783 Ex:1.975 nu:2.12 RL,RT error: 1.93e-05,1.27e-05 χ^2:397.7 DoF:6 $\frac{\chi^2}{DoF}$:66.3
y=0.319*x+0.682
RL,RT:0.0,0.001
10 Gaskell:2008
12 AlsamiJan05
15 Fomin
Hbc
epsilon
0.975
0.950
0.925
0.900
0.875
0.850
0.825
0.800
0.775
0.4
0.5
0.6
0.7
0.8

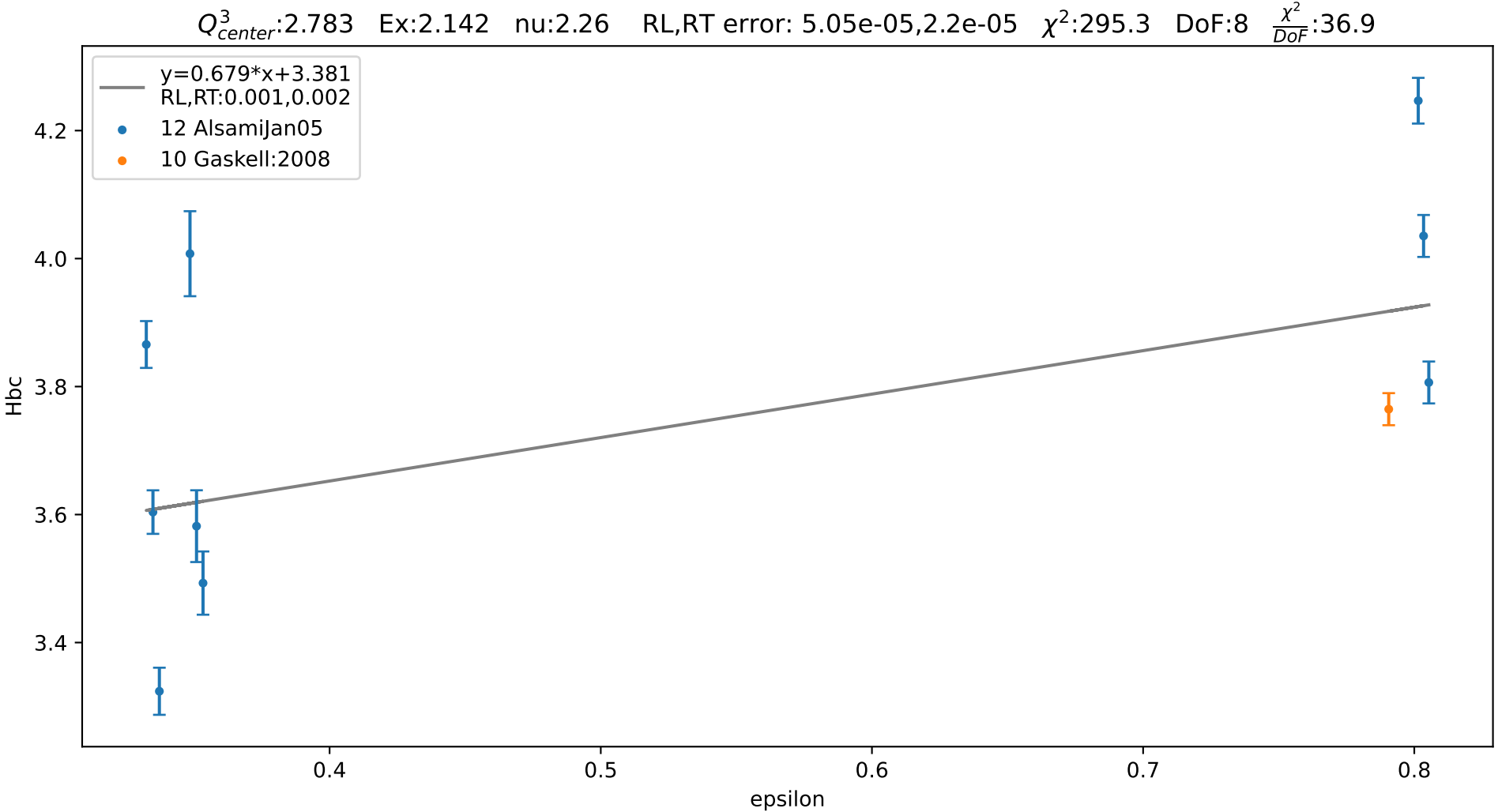

Q^3_{center}:2.783 Ex:1.998 nu:2.14 RL,RT error: 4.02e-05,2.32e-05 χ^2:66.2 DoF:3 $\frac{\chi^2}{DoF}$:22.1
y=0.228*x+0.941
RL,RT:0.0,0.001
12 AlsamiJan05
Hbc
epsilon
1.20
1.15
1.10
1.05
1.00
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75

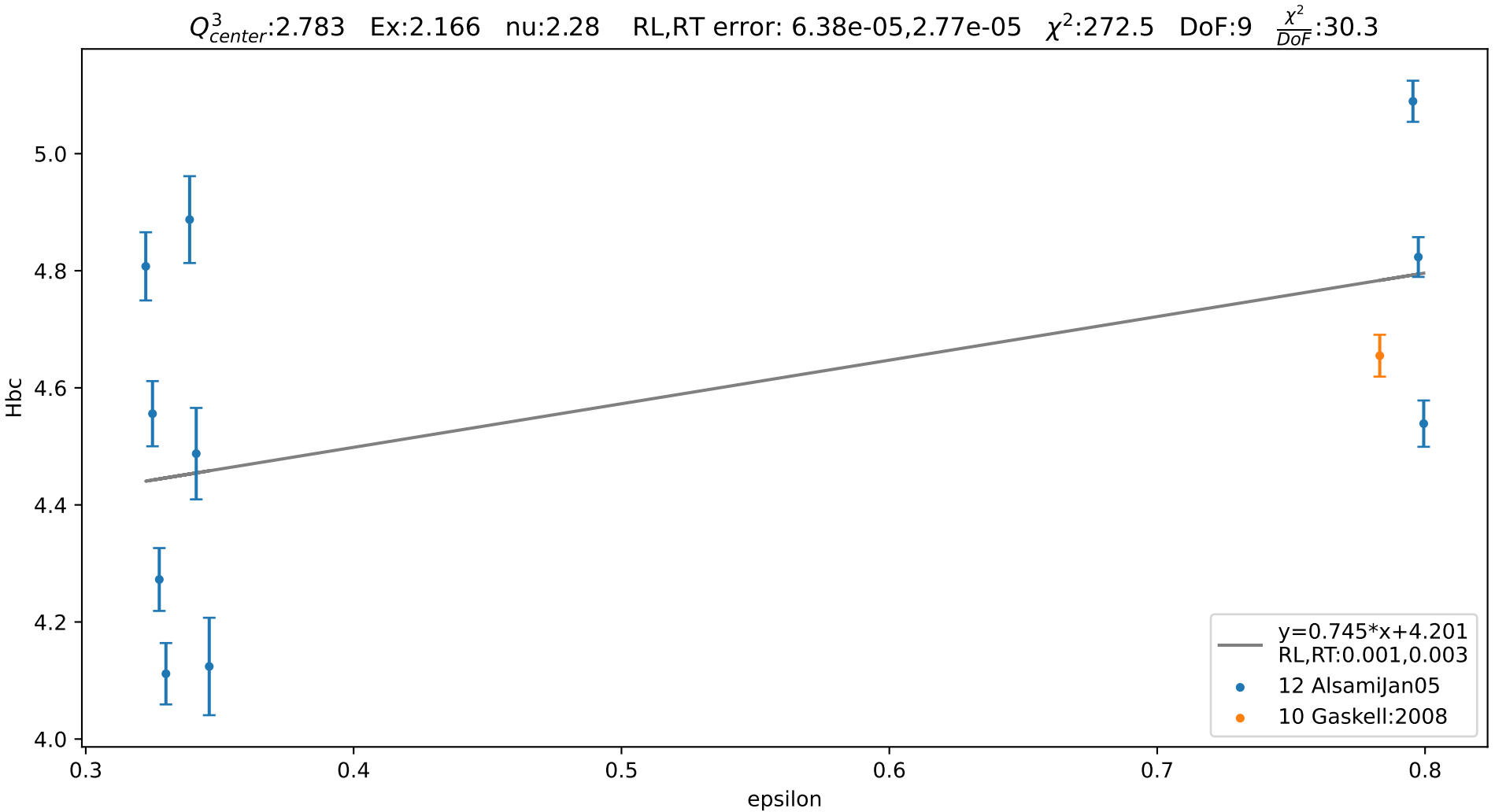

Q^3_{center}:2.783 Ex:2.022 nu:2.16 RL,RT error: 2.77e-05,3.49e-06 χ^2:124.0 DoF:6 $\frac{\chi^2}{DoF}$:20.7
y=-0.134*x+1.433
RL,RT:0,0.001
12 AlsamiJan05
15 Fomin
Hbc
epsilon
1.50
1.45
1.40
1.35
1.30
1.25
0.4
0.5
0.6
0.7
0.8

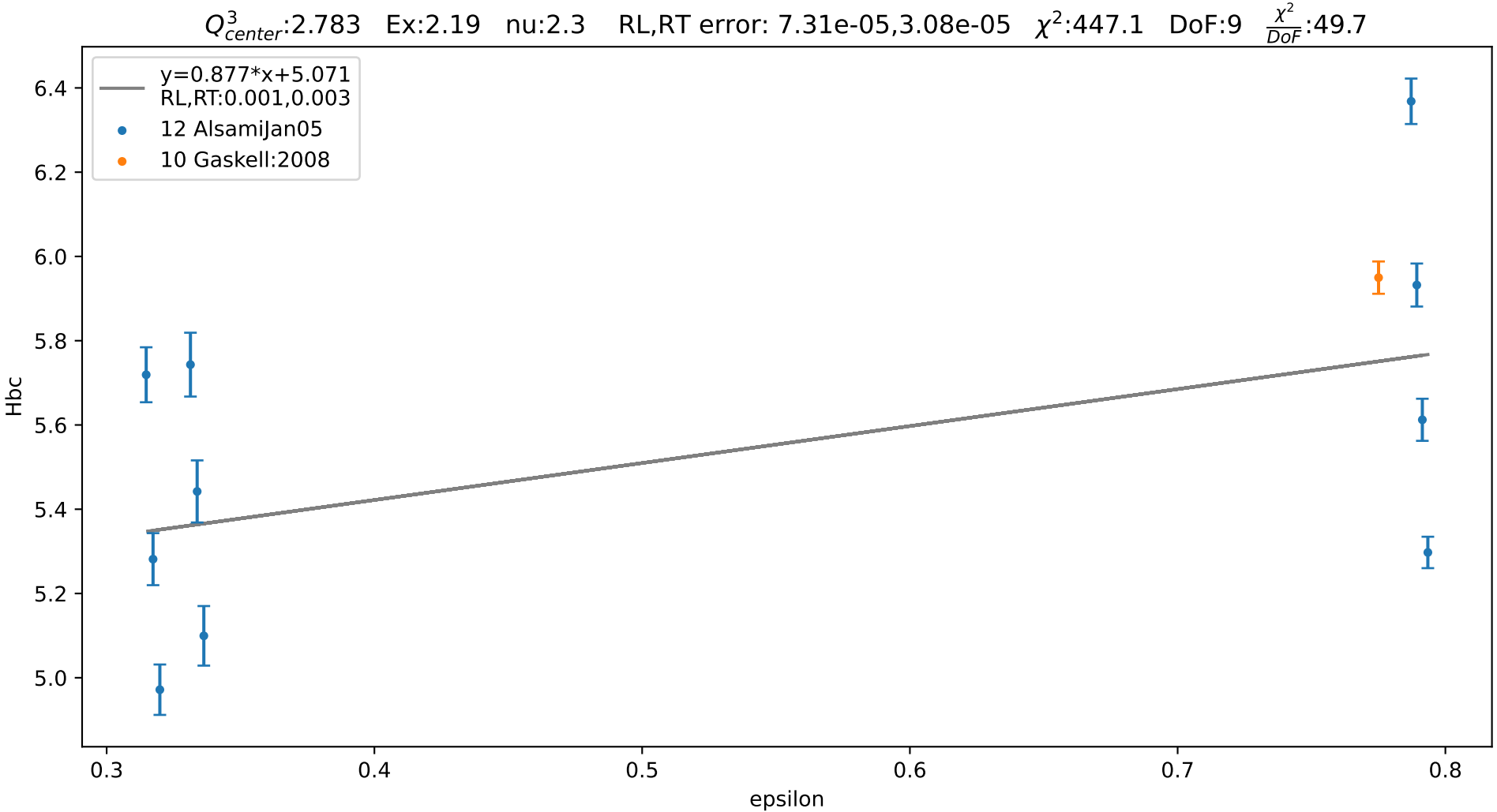

Q^3_{center}:2.783 Ex:2.046 nu:2.18 RL,RT error: 2.71e-05,1.54e-05 χ^2:194.3 DoF:7 $\frac{\chi^2}{DoF}$:27.8
y=0.146*x+1.614
RL,RT:0.0,0.001
12 AlsamiJan05
15 Fomin
Hbc
epsilon
1.90
1.85
1.80
1.75
1.70
1.65
1.60
1.55
1.50
0.4
0.5
0.6
0.7
0.8

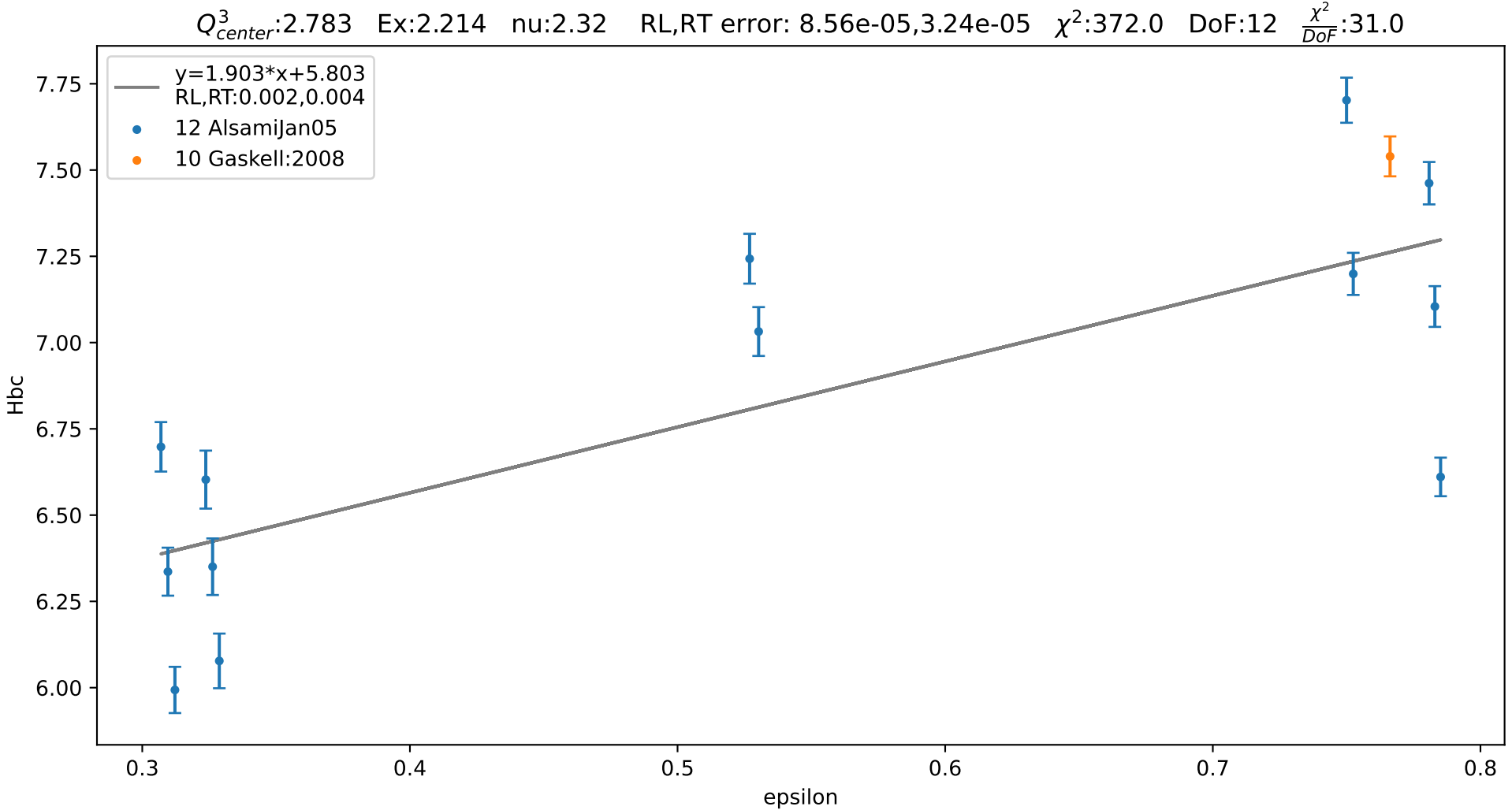

Q^3_{center}:2.783 Ex:2.094 nu:2.22 RL,RT error: 3.45e-05,5.36e-06 χ^2:92.3 DoF:5 $\frac{\chi^2}{DoF}$:18.5
y=-0.174*x+2.535
RL,RT:0,0.002
15 Fomin
12 AlsamiJan05
Hbc
epsilon
2.7
2.6
2.5
2.4
2.3
0.4
0.5
0.6
0.7
0.8

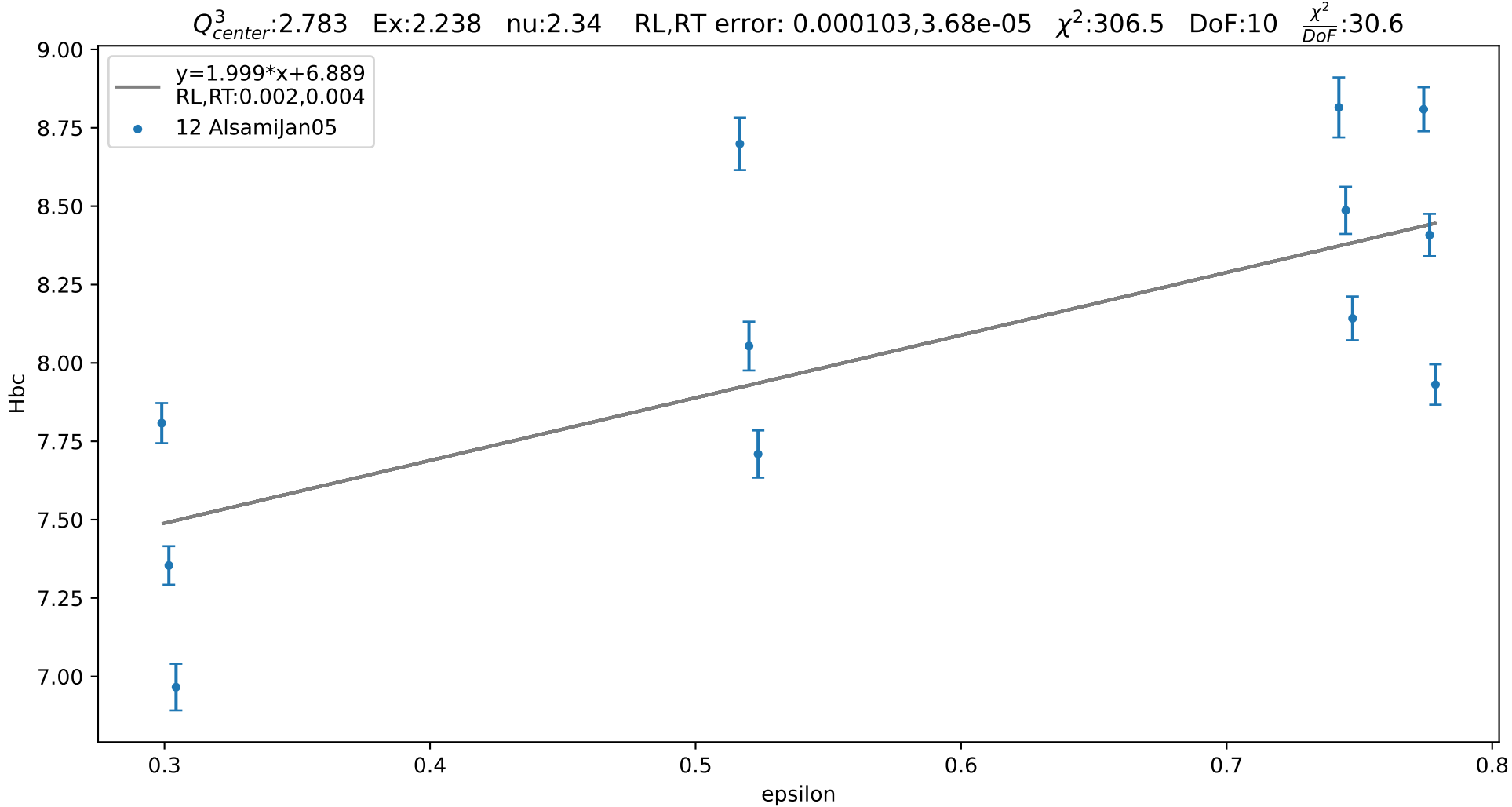

Q^3_{center}:2.783 Ex:2.118 nu:2.24 RL,RT error: 3.76e-05,1.95e-05 χ^2:389.9 DoF:9 $\frac{\chi^2}{DoF}$:43.3
y=0.482*x+2.82
RL,RT:0.0,0.002
10 Gaskell:2008
12 AlsamiJan05
15 Fomin
Hbc
epsilon
3.6
3.4
3.2
3.0
2.8
0.4
0.5
0.6
0.7
0.8

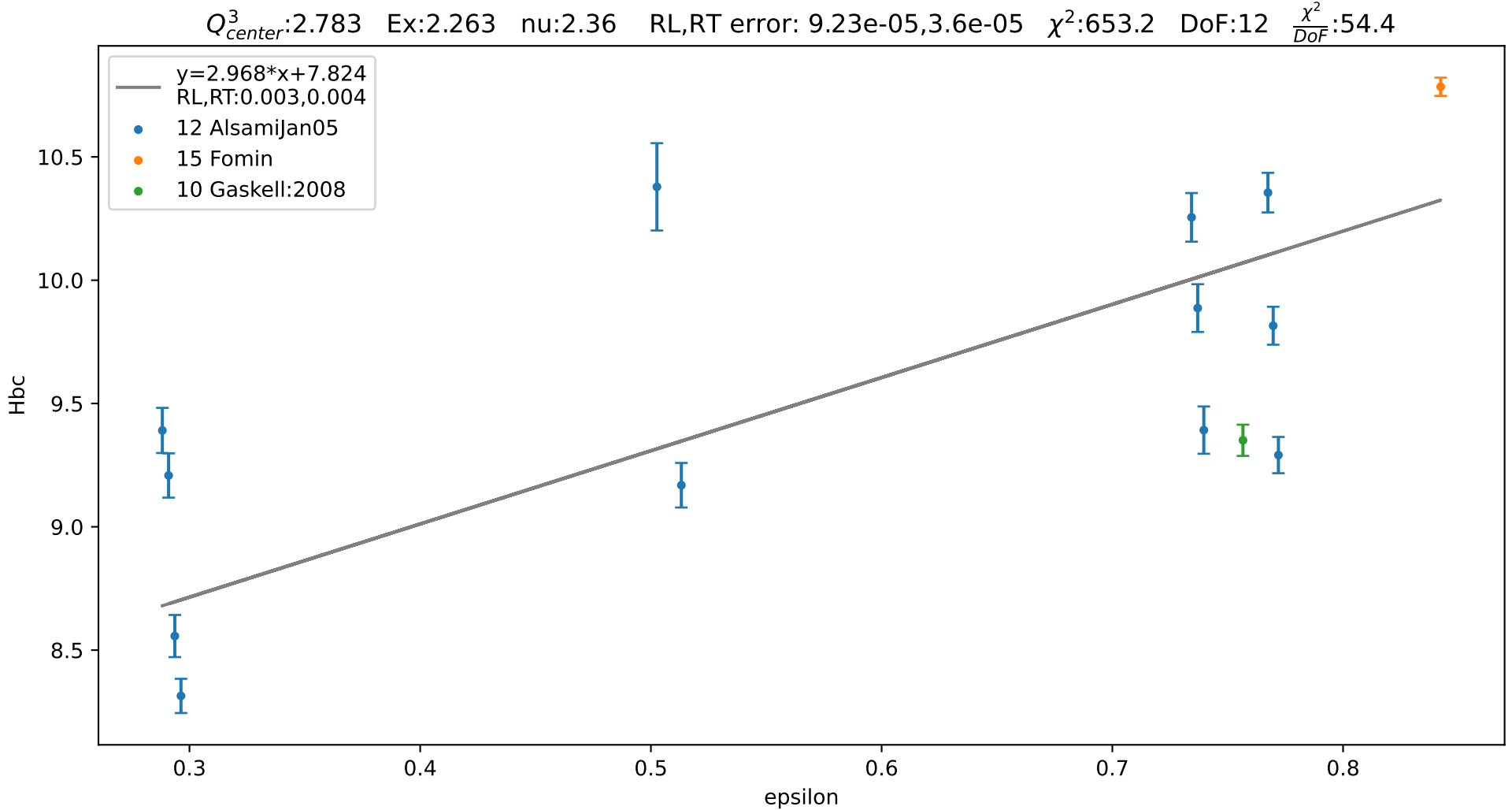

Q^3_{center}:2.783 Ex:2.142 nu:2.26 RL,RT error: 5.05e-05,2.2e-05 χ^2:295.3 DoF:8 $\frac{\chi^2}{DoF}$:36.9
y=0.679*x+3.381
RL,RT:0.001,0.002
12 AlsamiJan05
10 Gaskell:2008
Hbc
epsilon
4.2
4.0
3.8
3.6
3.4
0.4
0.5
0.6
0.7
0.8

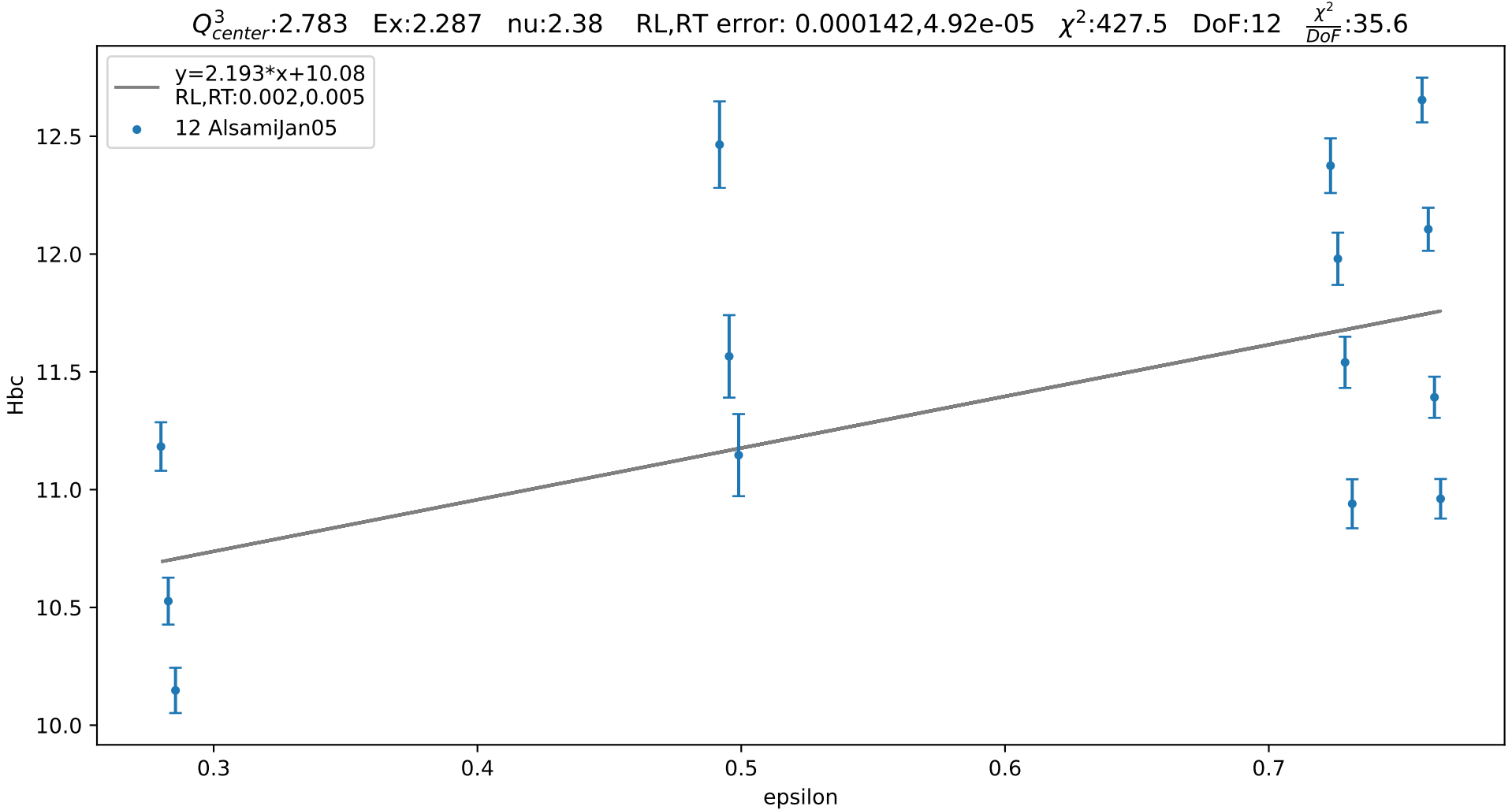

Q^3_{center}:2.783 Ex:2.166 nu:2.28 RL,RT error: 6.38e-05,2.77e-05 χ^2:272.5 DoF:9 $\frac{\chi^2}{DoF}$:30.3
Hbc
epsilon
5.0
4.8
4.6
4.4
4.2
4.0
0.3
0.4
0.5
0.6
0.7
0.8
y=0.745*x+4.201
RL,RT:0.001,0.003
12 AlsamiJan05
10 Gaskell:2008

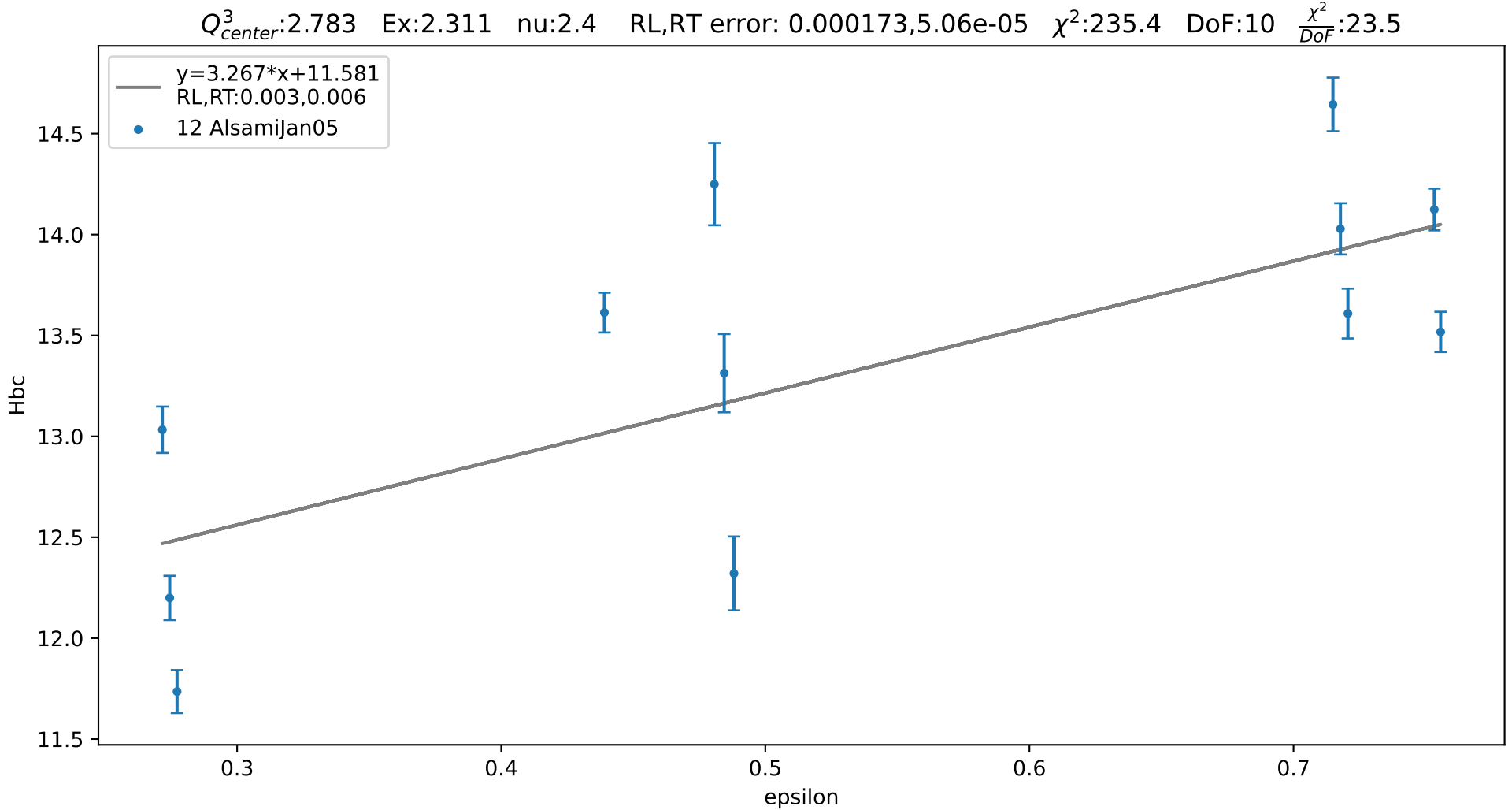

Q^3_{center}:2.783 Ex:2.19 nu:2.3 RL,RT error: 7.31e-05,3.08e-05 χ^2:447.1 DoF:9 $\frac{\chi^2}{DoF}$:49.7
y=0.877*x+5.071
RL,RT:0.001,0.003
12 AlsamiJan05
10 Gaskell:2008
Hbc
epsilon
6.4
6.2
6.0
5.8
5.6
5.4
5.2
5.0
0.3
0.4
0.5
0.6
0.7
0.8

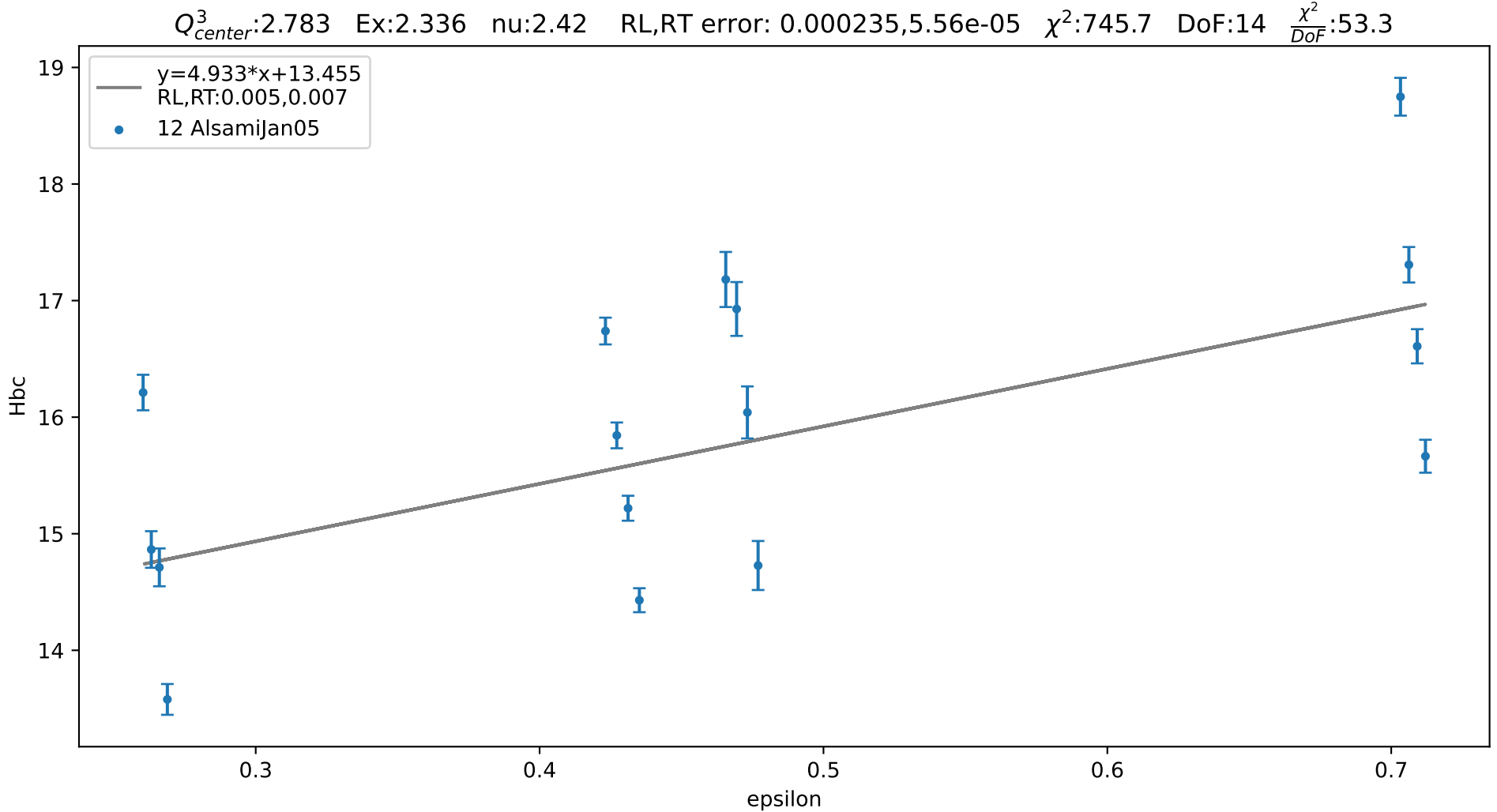

Q^3_{center}:2.783 Ex:2.214 nu:2.32 RL,RT error: 8.56e-05,3.24e-05 χ^2:372.0 DoF:12 $\frac{\chi^2}{DoF}$:31.0
y=1.903*x+5.803
RL,RT:0.002,0.004
12 AlsamiJan05
10 Gaskell:2008
Hbc
epsilon
7.75
7.50
7.25
7.00
6.75
6.50
6.25
6.00
0.3
0.4
0.5
0.6
0.7
0.8

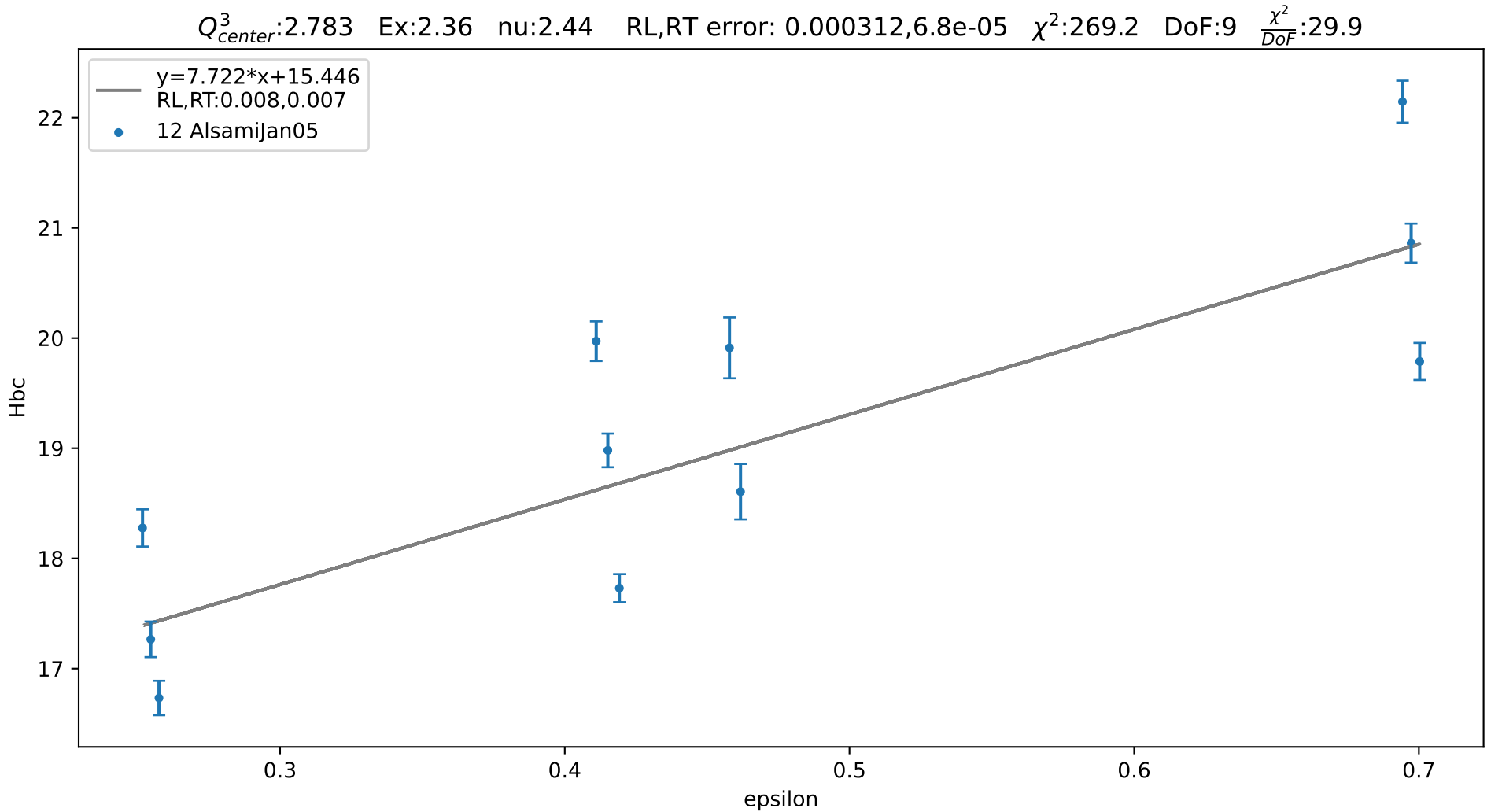

Q^3_{center}:2.783 Ex:2.238 nu:2.34 RL,RT error: 0.000103,3.68e-05 χ^2:306.5 DoF:10 $\frac{\chi^2}{DoF}$:30.6
y=1.999*x+6.889
RL,RT:0.002,0.004
12 AlsamiJan05
Hbc
epsilon
9.00
8.75
8.50
8.25
8.00
7.75
7.50
7.25
7.00
0.3
0.4
0.5
0.6
0.7
0.8

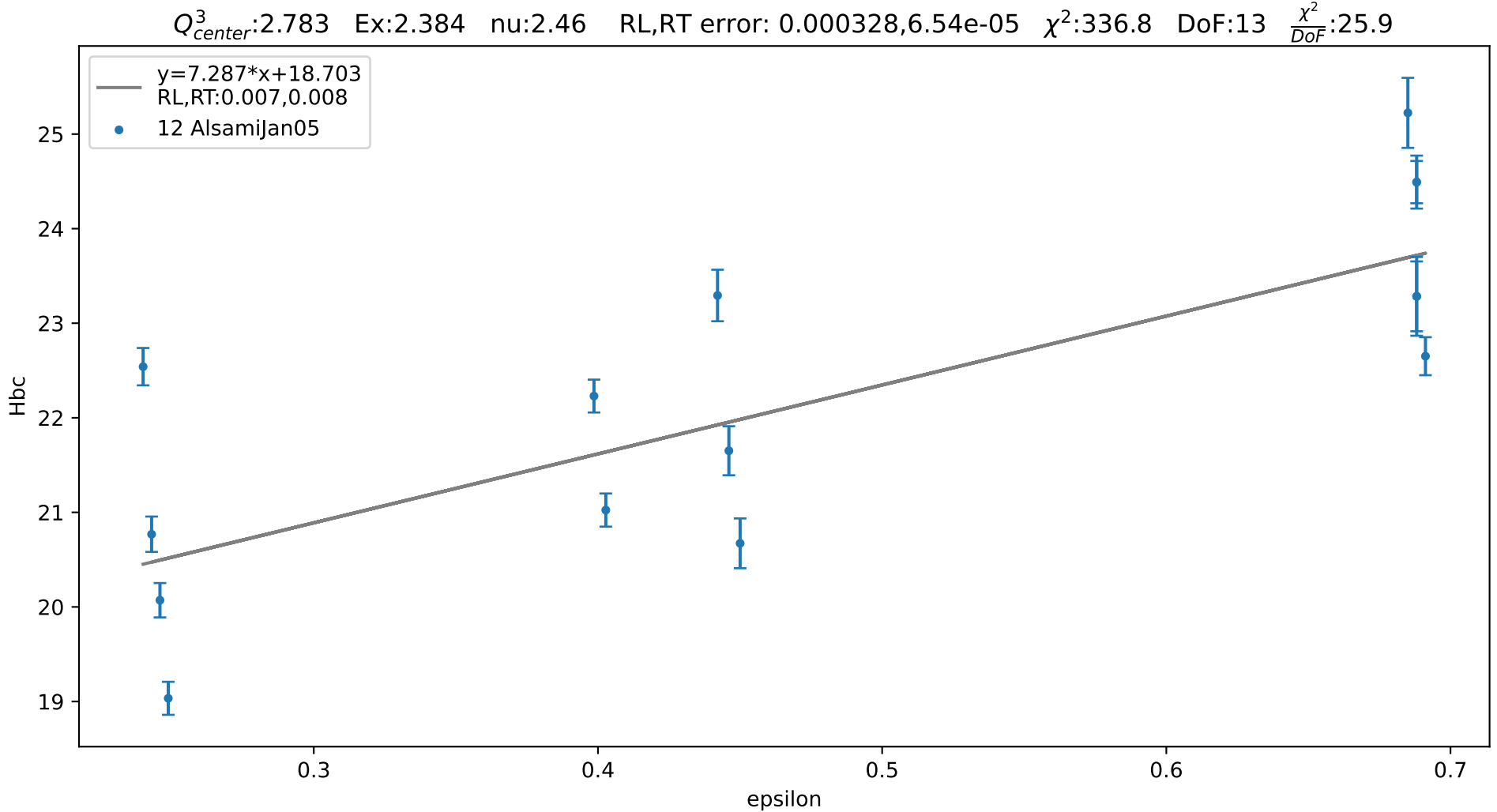

Q^3_{center}:2.783 Ex:2.263 nu:2.36 RL,RT error: 9.23e-05,3.6e-05 χ^2:653.2 DoF:12 $\frac{\chi^2}{DoF}$:54.4
y=2.968*x+7.824
RL,RT:0.003,0.004
12 AlsamiJan05
15 Fomin
10 Gaskell:2008
Hbc
epsilon
10.5
10.0
9.5
9.0
8.5
0.3
0.4
0.5
0.6
0.7
0.8

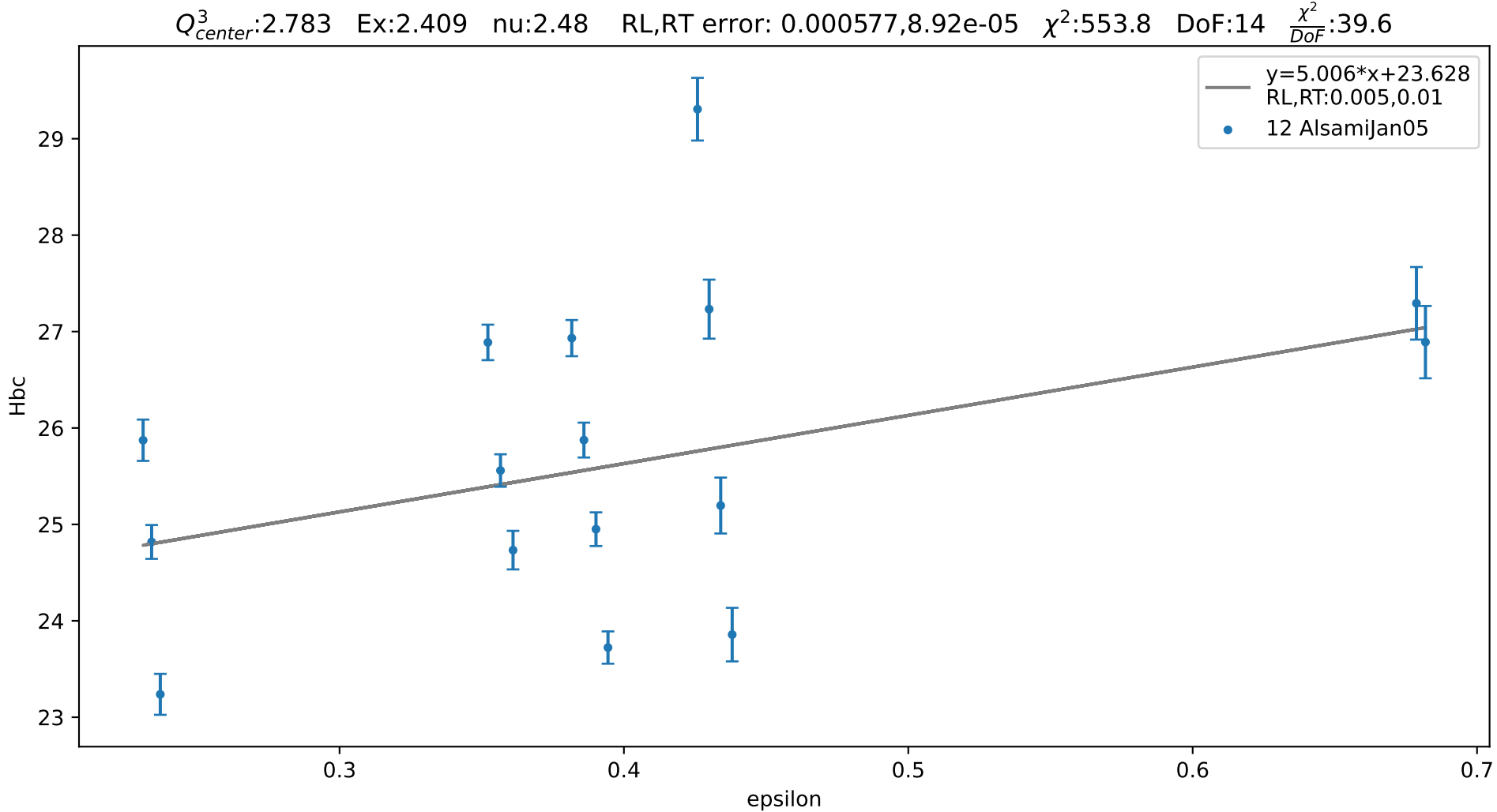

Q^3_{center}:2.783 Ex:2.287 nu:2.38 RL,RT error: 0.000142,4.92e-05 χ^2:427.5 DoF:12 $\frac{\chi^2}{DoF}$:35.6
y=2.193*x+10.08
RL,RT:0.002,0.005
12 AlsamiJan05
Hbc
epsilon
10.0
10.5
11.0
11.5
12.0
12.5
0.3
0.4
0.5
0.6
0.7

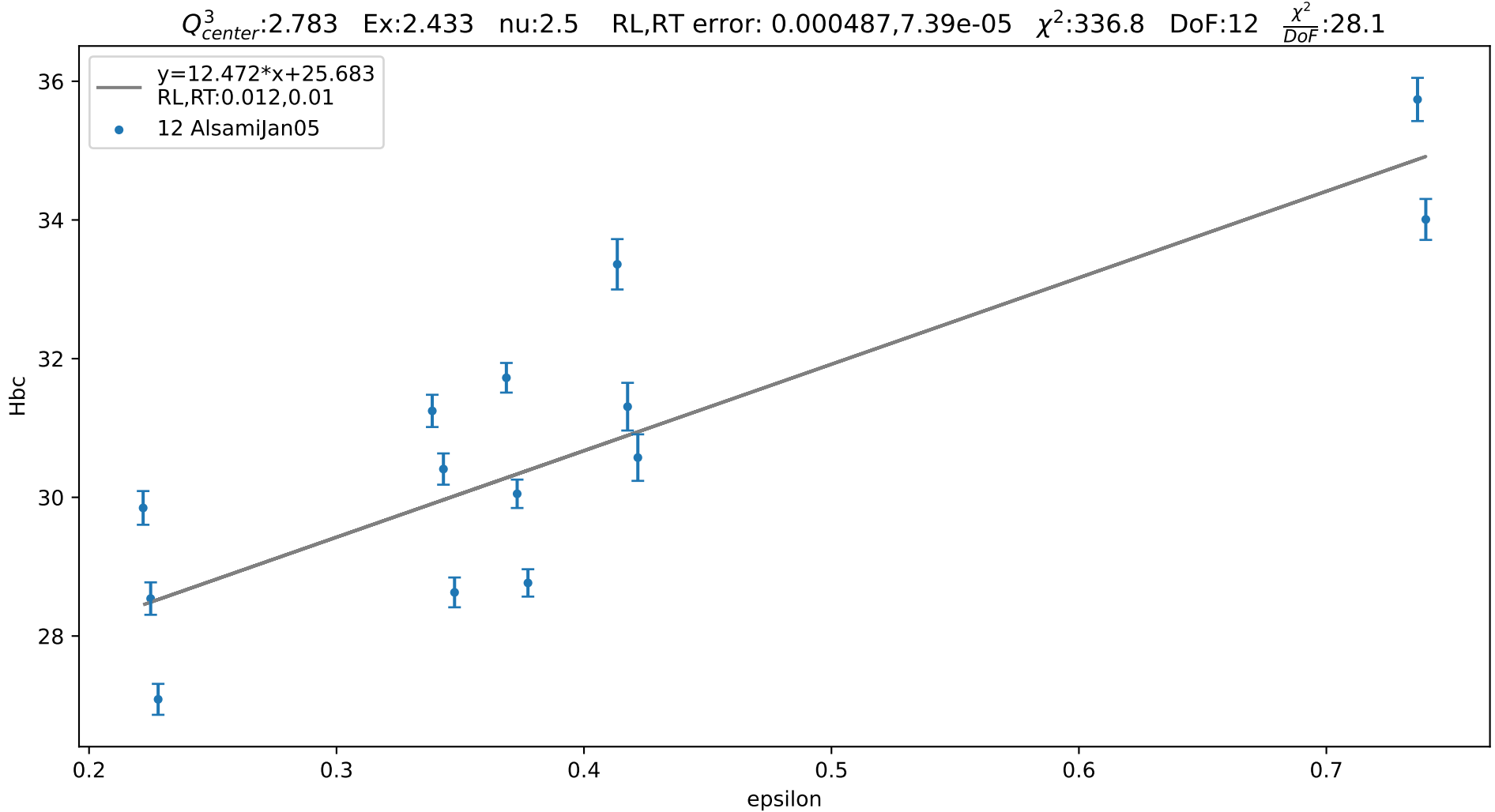

Q^3_{center}:2.783 Ex:2.311 nu:2.4 RL,RT error: 0.000173,5.06e-05 χ^2:235.4 DoF:10 $\frac{\chi^2}{DoF}$:23.5
y=3.267*x+11.581
RL,RT:0.003,0.006
12 AlsamiJan05
Hbc
epsilon
14.5
14.0
13.5
13.0
12.5
12.0
11.5
0.3
0.4
0.5
0.6
0.7

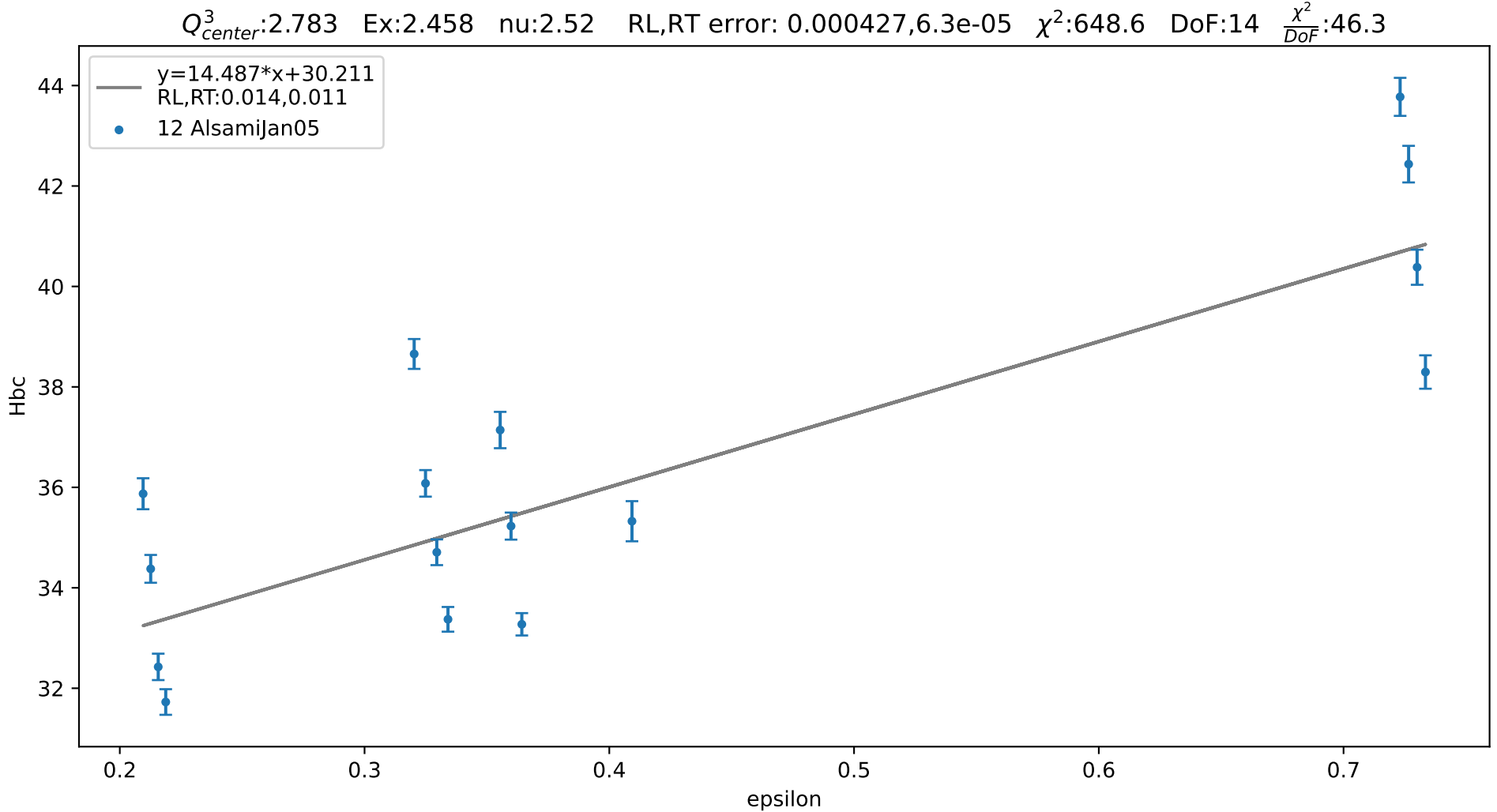

Q^3_{center}:2.783 Ex:2.336 nu:2.42 RL,RT error: 0.000235,5.56e-05 χ^2:745.7 DoF:14 $\frac{\chi^2}{DoF}$:53.3
y=4.933*x+13.455
RL,RT:0.005,0.007
12 AlsamiJan05
Hbc
epsilon
19
18
17
16
15
14
0.3
0.4
0.5
0.6
0.7

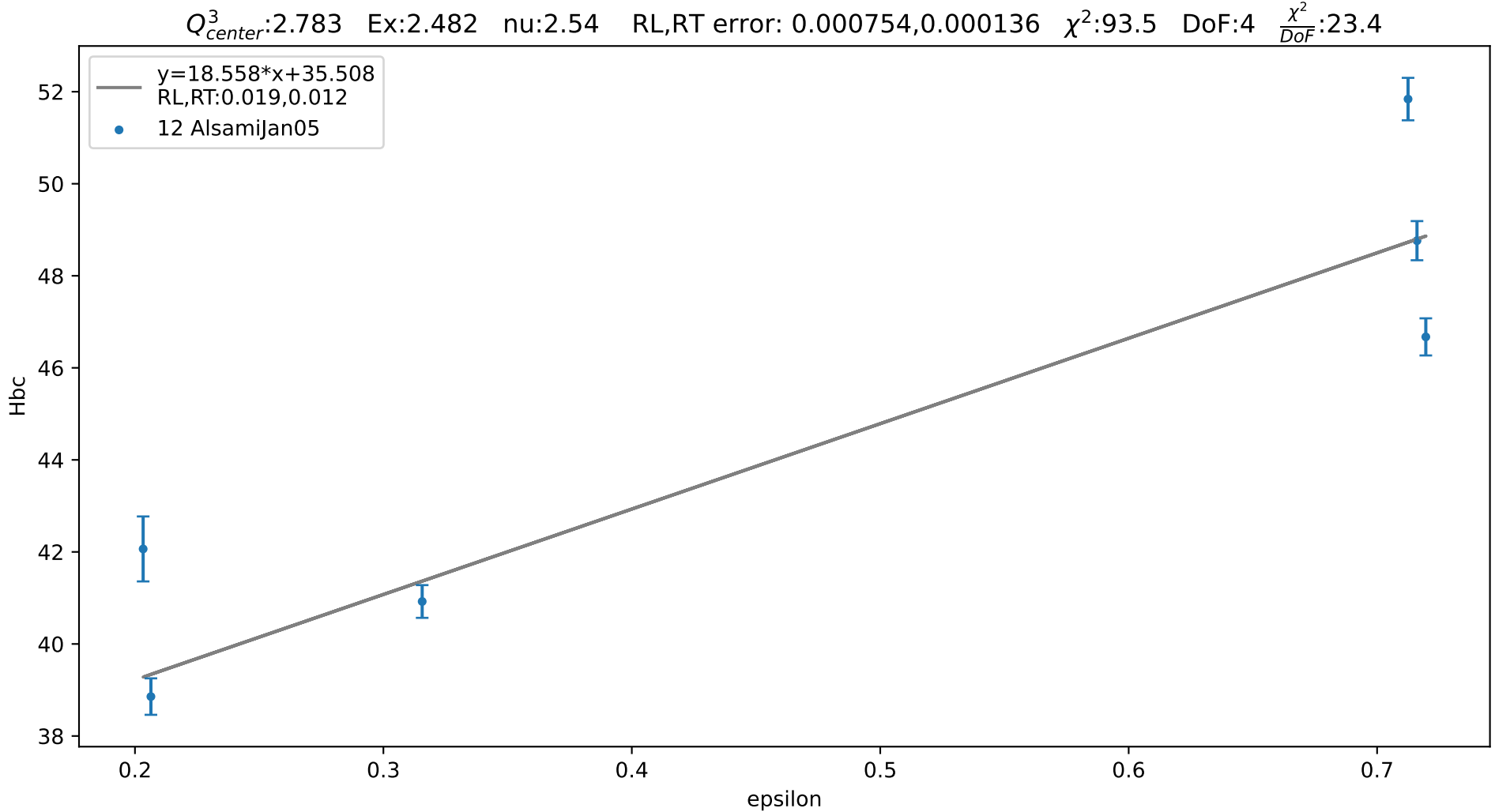

Q^3_{center}:2.783 Ex:2.36 nu:2.44 RL,RT error: 0.000312,6.8e-05 χ^2:269.2 DoF:9 $\frac{\chi^2}{DoF}$:29.9
y=7.722*x+15.446
RL,RT:0.008,0.007
12 AlsamiJan05
Hbc
epsilon
17
18
19
20
21
22
0.3
0.4
0.5
0.6
0.7

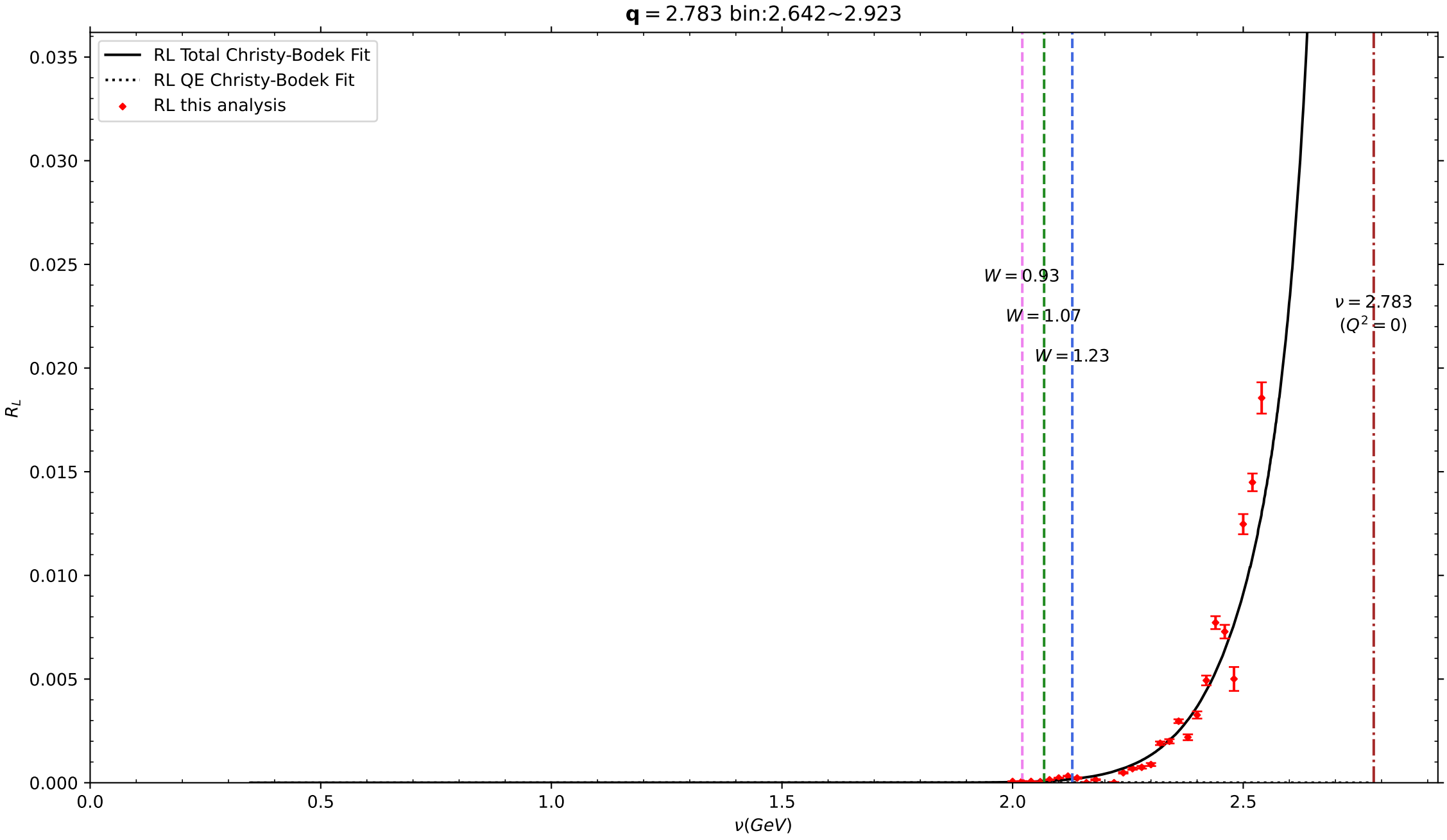

Q^3_{center}:2.783 Ex:2.384 nu:2.46 RL,RT error: 0.000328,6.54e-05 χ^2:336.8 DoF:13 $\frac{\chi^2}{DoF}$:25.9
y=7.287*x+18.703
RL,RT:0.007,0.008
12 AlsamiJan05
Hbc
epsilon
25
24
23
22
21
20
19
0.3
0.4
0.5
0.6
0.7

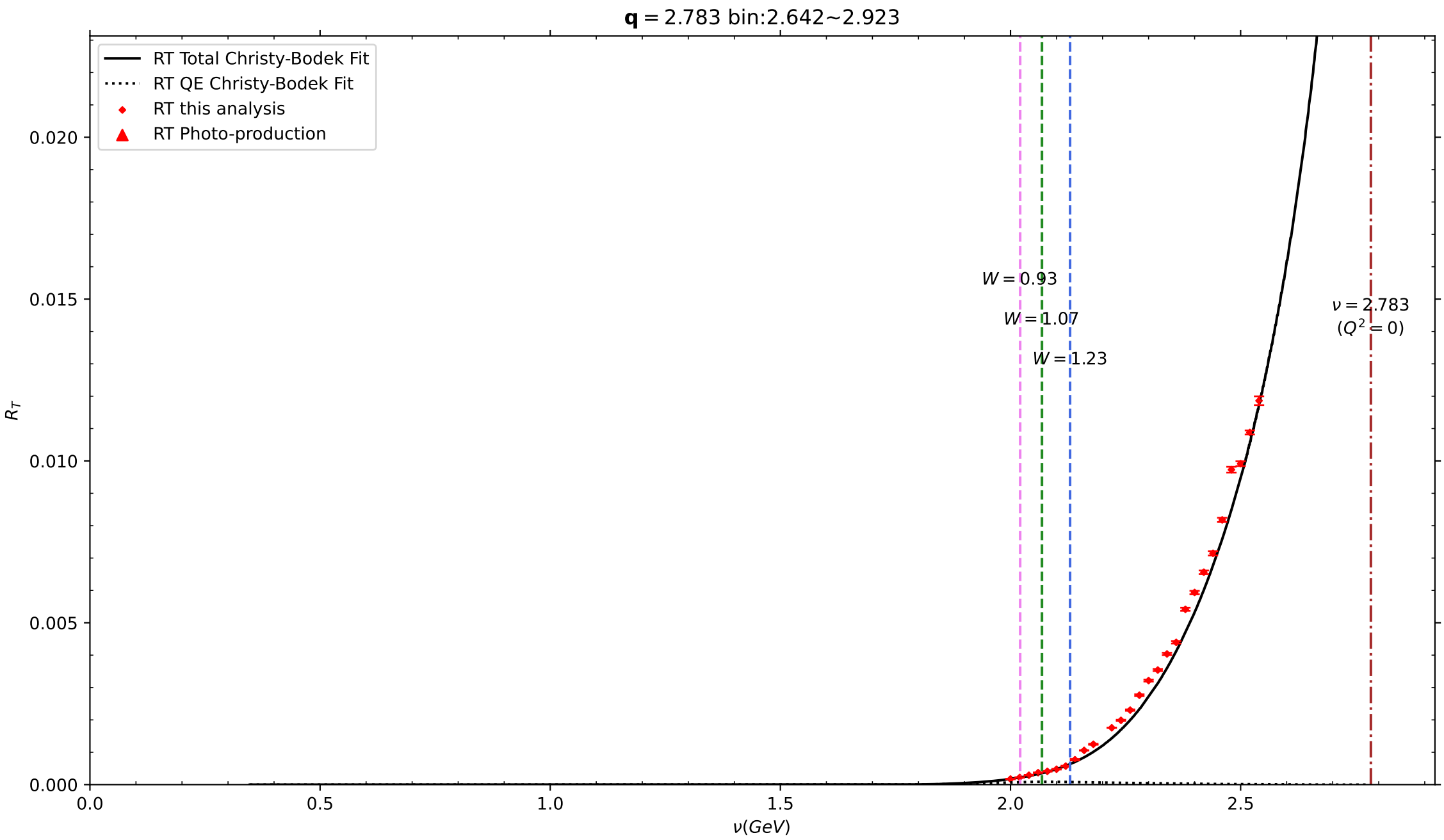

Q^3_{center}:2.783 Ex:2.409 nu:2.48 RL,RT error: 0.000577,8.92e-05 χ^2:553.8 DoF:14 $\frac{\chi^2}{DoF}$:39.6
y=5.006*x+23.628
RL,RT:0.005,0.01
12 AlsamiJan05
Hbc
epsilon
29
28
27
26
25
24
23
0.3
0.4
0.5
0.6
0.7

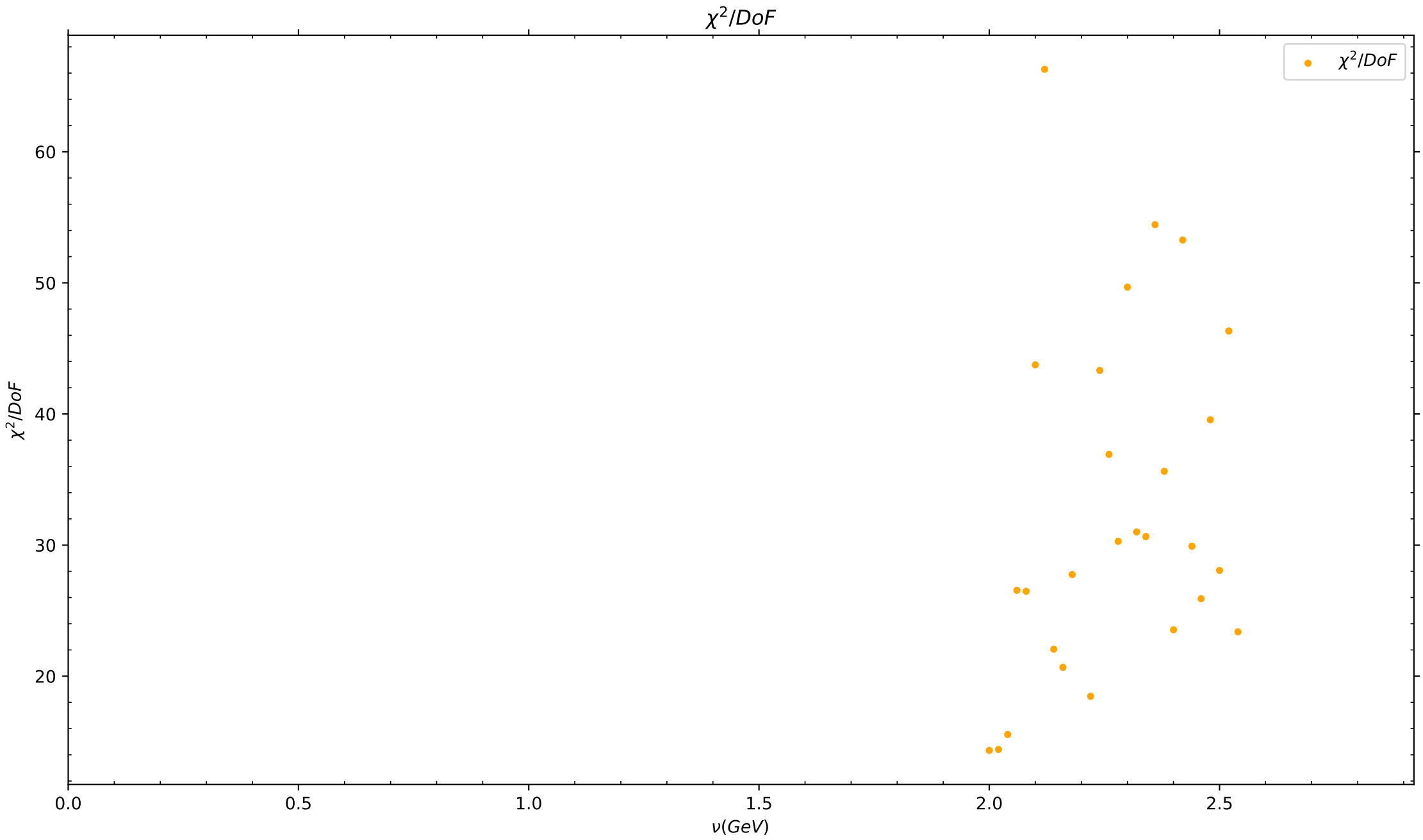

Q^3_{center}:2.783 Ex:2.433 nu:2.5 RL,RT error: 0.000487,7.39e-05 χ^2:336.8 DoF:12 $\frac{\chi^2}{DoF}$:28.1
y=12.472*x+25.683
RL,RT:0.012,0.01
12 AlsamiJan05
Hbc
epsilon
36
34
32
30
28
0.2
0.3
0.4
0.5
0.6
0.7


Q^3_{center}:2.783 Ex:2.458 nu:2.52 RL,RT error: 0.000427,6.3e-05 χ^2:648.6 DoF:14 $\frac{\chi^2}{DoF}$:46.3
y=14.487*x+30.211
RL,RT:0.014,0.011
12 AlsamiJan05
Hbc
epsilon
44
42
40
38
36
34
32
0.2
0.3
0.4
0.5
0.6
0.7


Q^3_{center}:2.783 Ex:2.482 nu:2.54 RL,RT error: 0.000754,0.000136 χ^2:93.5 DoF:4 $\frac{\chi^2}{DoF}$:23.4
y=18.558*x+35.508
RL,RT:0.019,0.012
12 AlsamiJan05
Hbc
epsilon
52
50
48
46
44
42
40
38
0.2
0.3
0.4
0.5
0.6
0.7


q = 2.783 bin:2.642~2.923
RL Total Christy-Bodek Fit
RL QE Christy-Bodek Fit
RL this analysis
W = 0.93
W = 1.07
W = 1.23
ν = 2.783
(Q² = 0)
R_L
ν(GeV)


q = 2.783 bin:2.642~2.923
RT Total Christy-Bodek Fit
RT QE Christy-Bodek Fit
RT this analysis
RT Photo-production
W = 0.93
W = 1.07
W = 1.23
ν = 2.783
(Q² = 0)
R_T
ν(GeV)


χ²/DoF
χ²/DoF
χ²/DoF
ν(GeV)