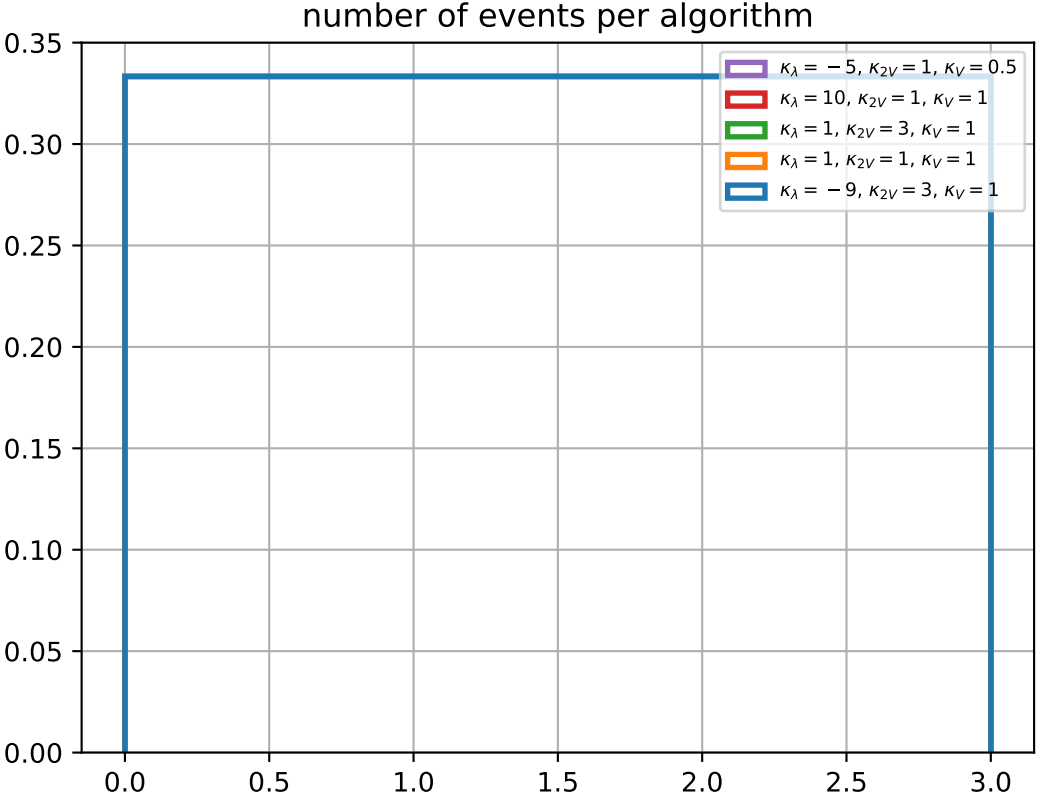
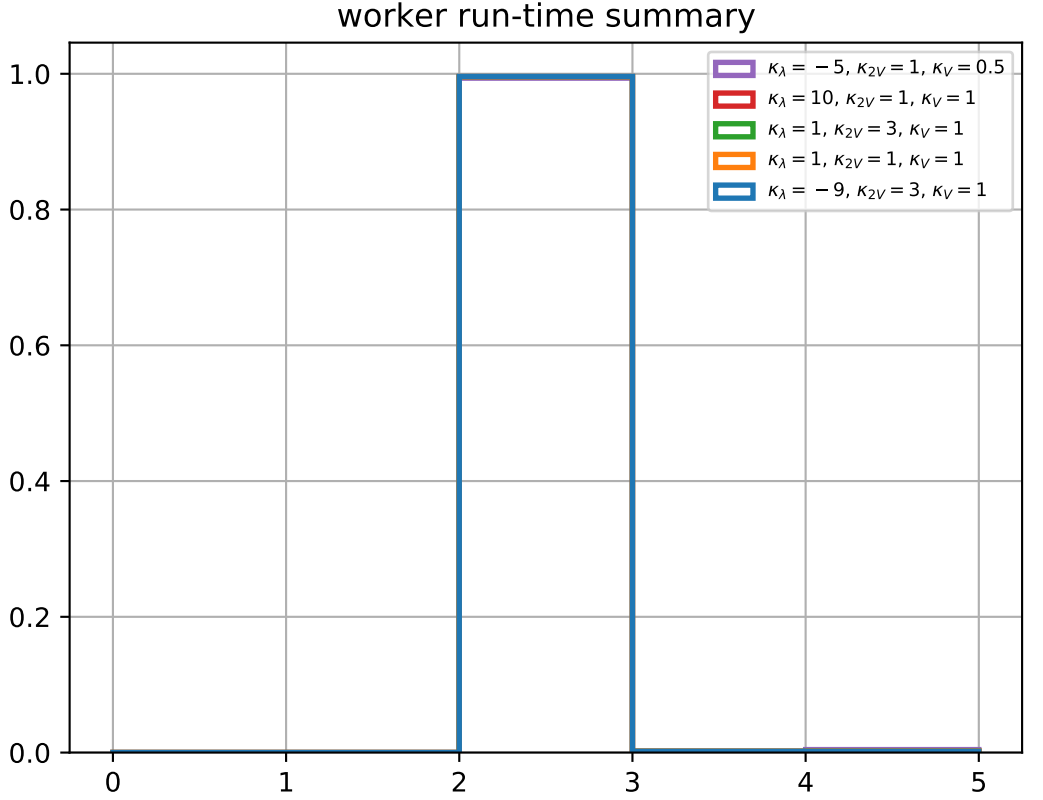
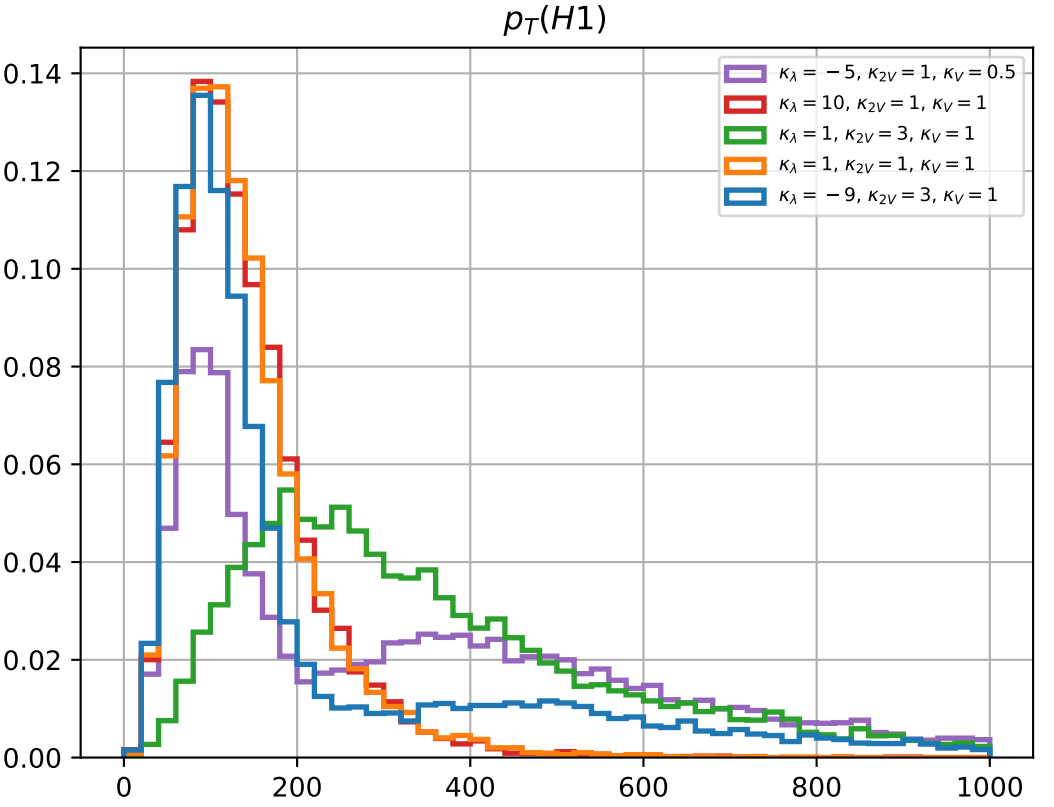
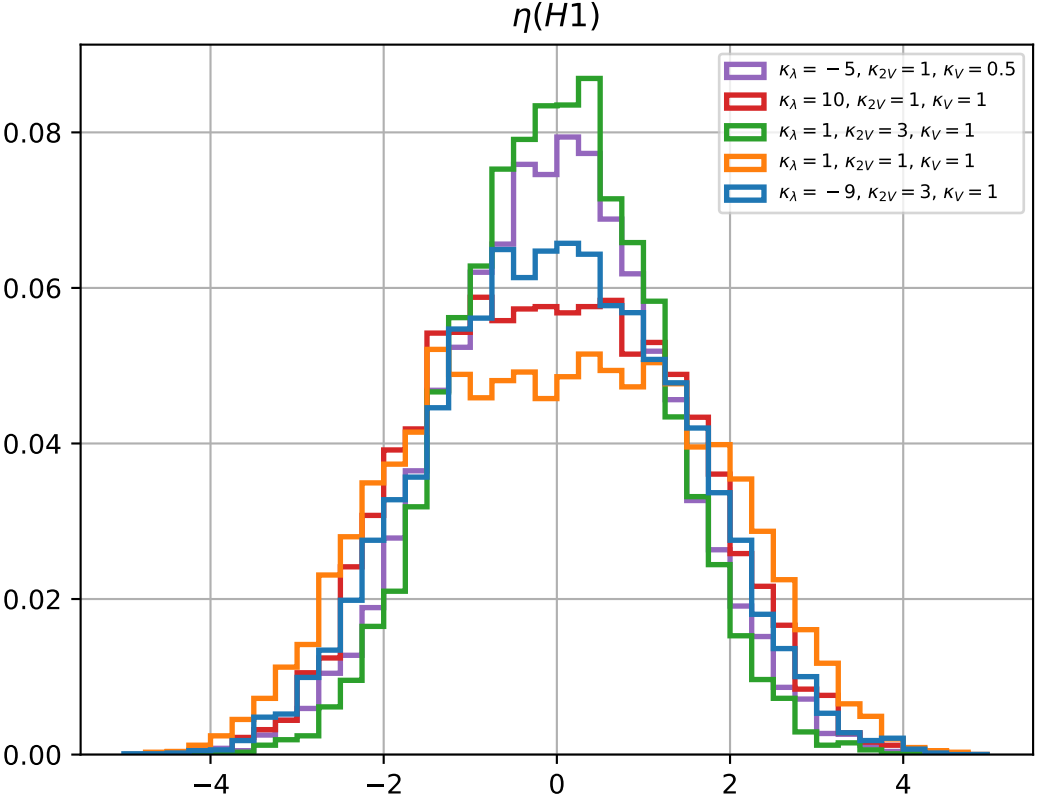
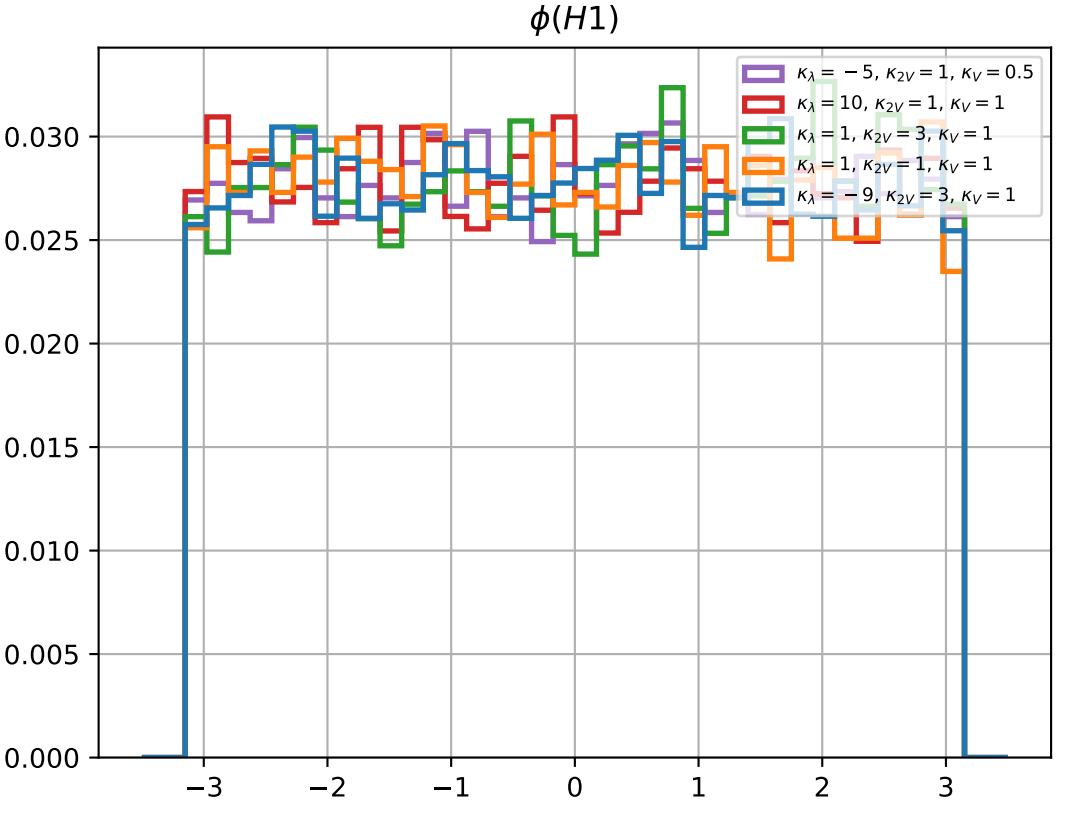
Kinematic Validation Plots for VBF HH 4b

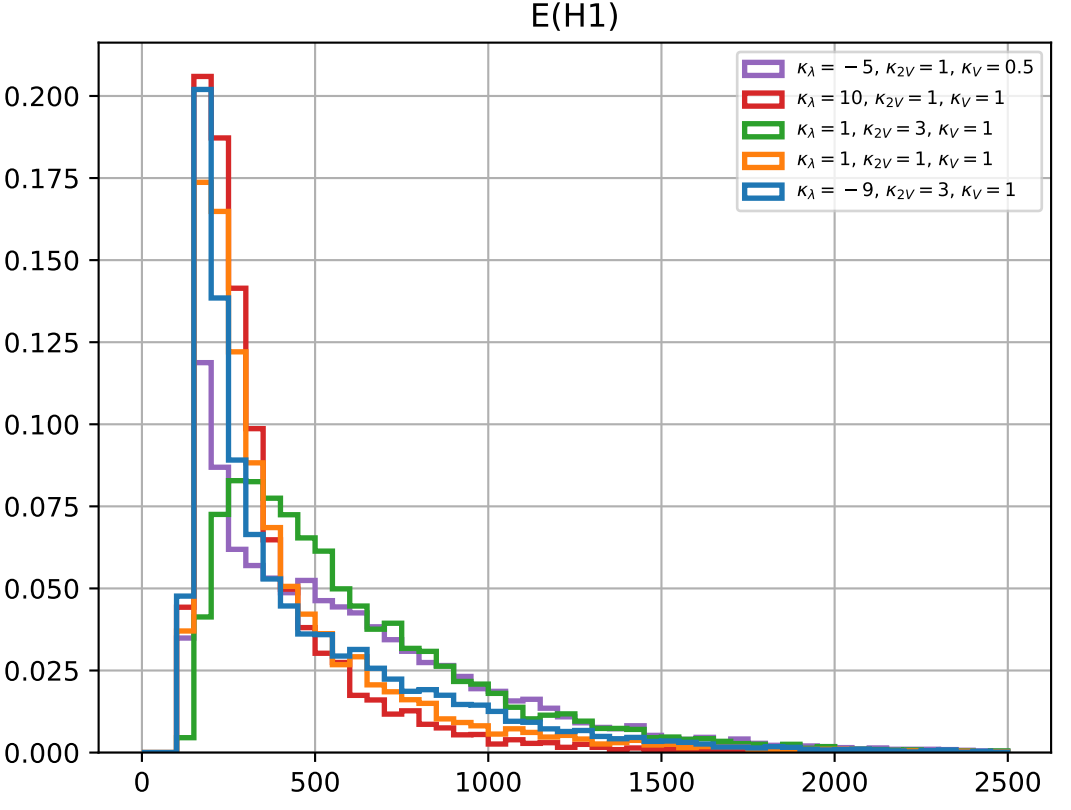

number of events per algorithm
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.0
0.5
1.0
1.5
2.0
2.5
3.0
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$

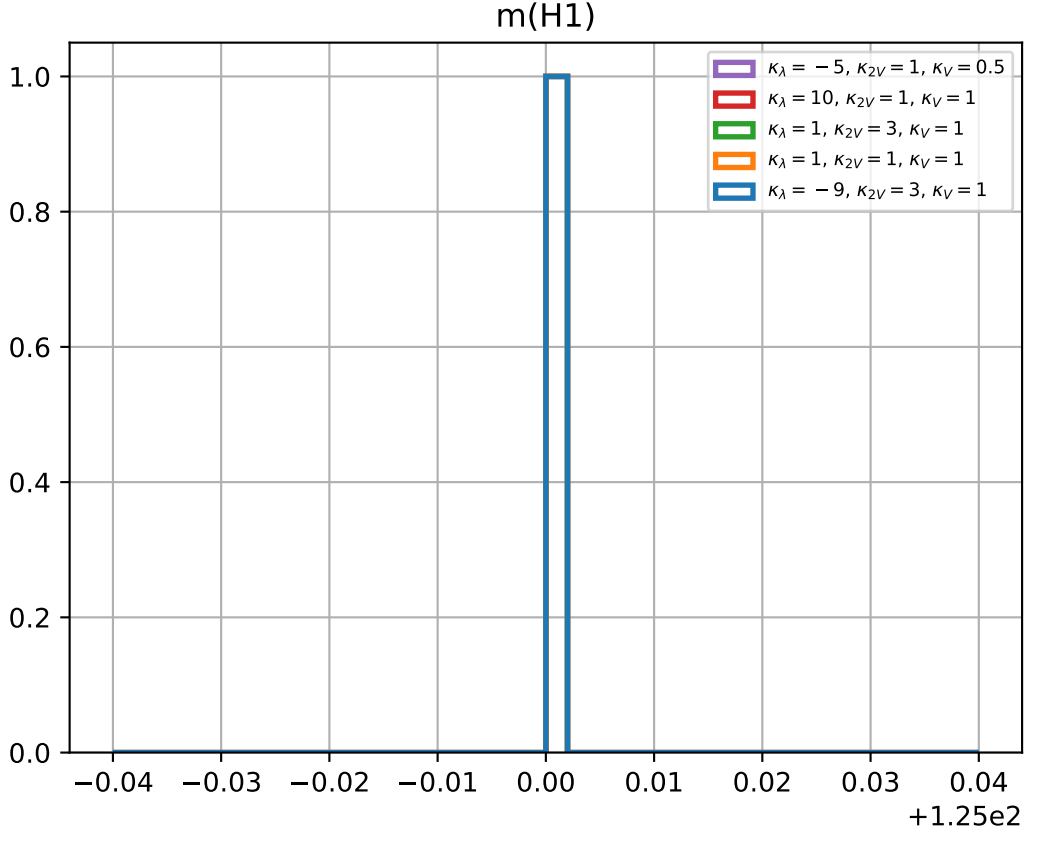

worker run-time summary
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
1.0
0.8
0.6
0.4
0.2
0.0
0
1
2
3
4
5

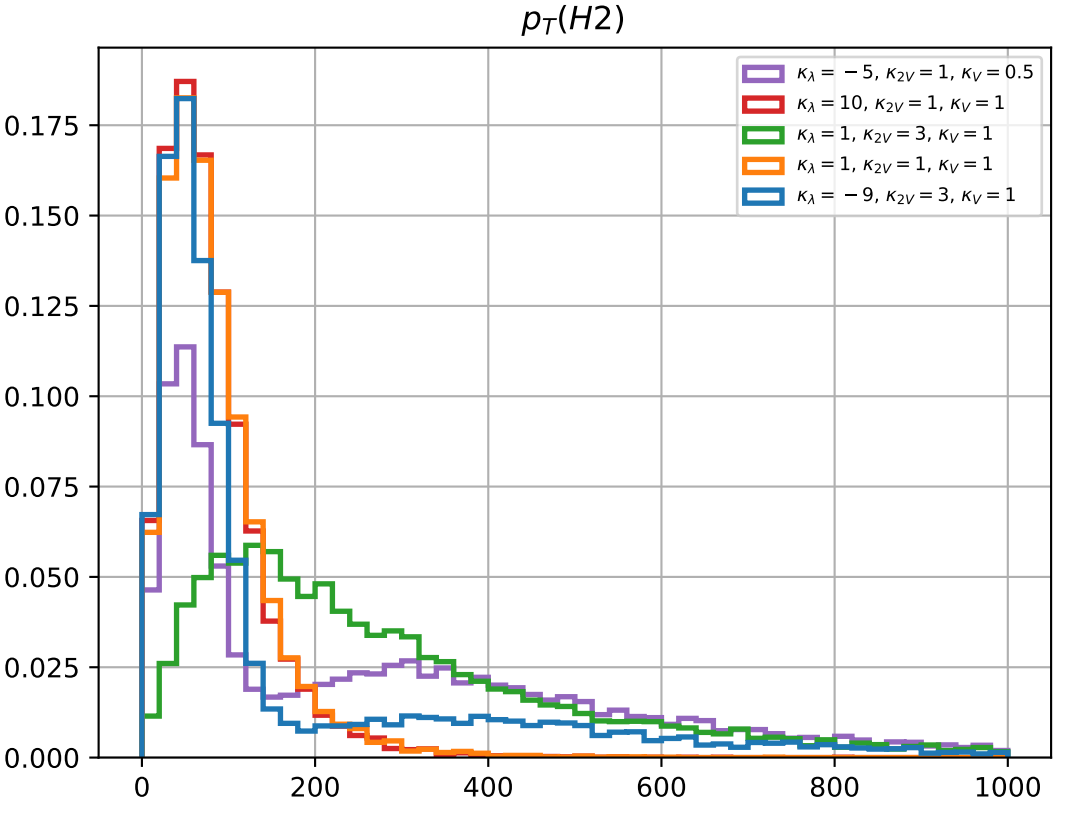

$p_T(H1)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0
200
400
600
800
1000

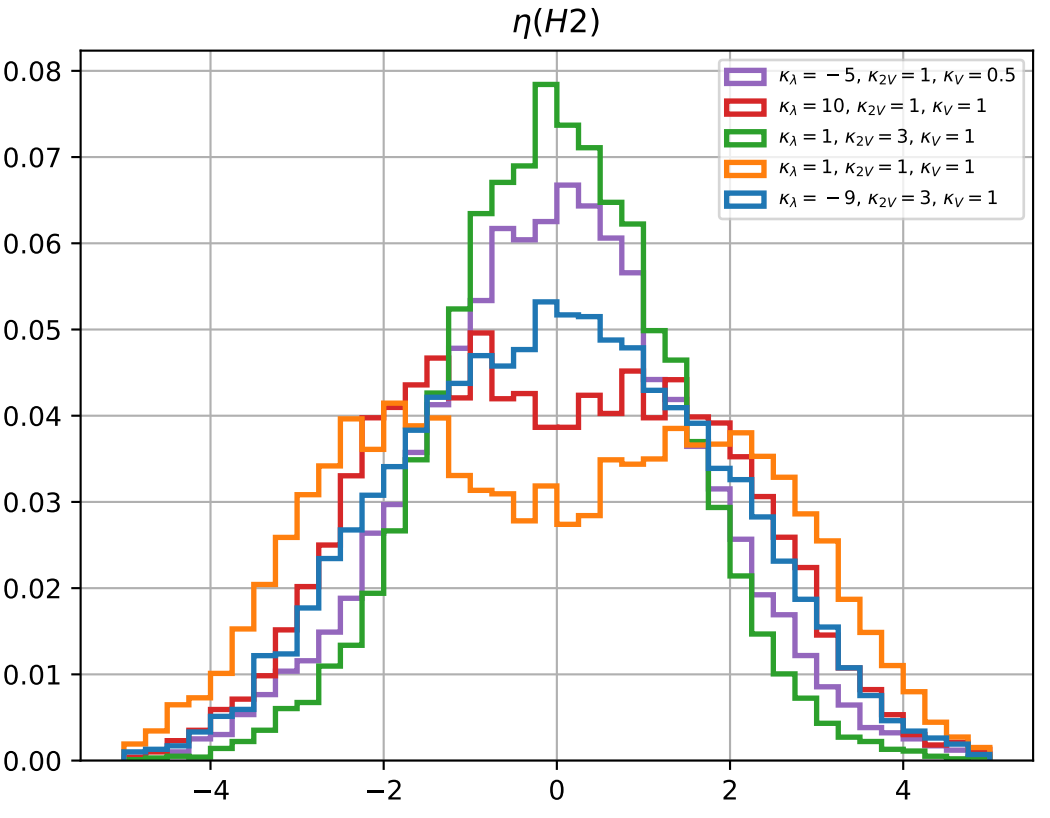

$\eta(H1)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.08
0.06
0.04
0.02
0.00
−4
−2
0
2
4

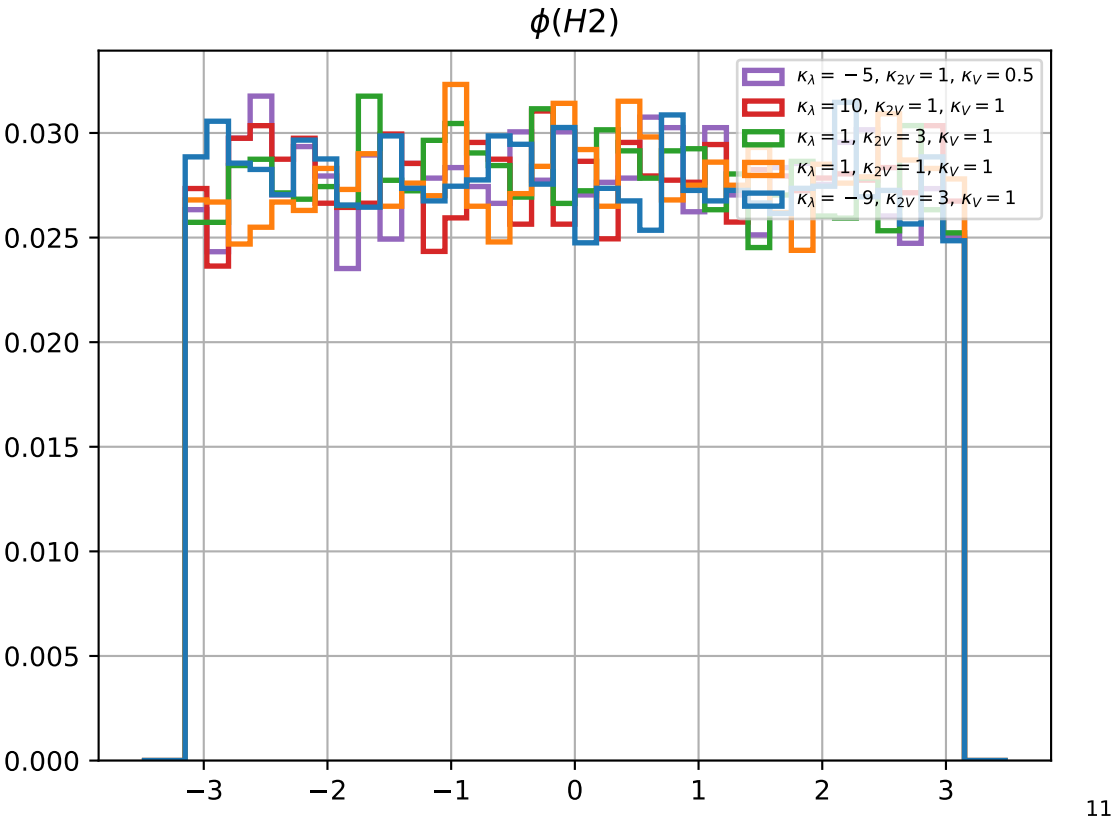

$\phi(H1)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.030
0.025
0.020
0.015
0.010
0.005
0.000
−3
−2
−1
0
1
2
3

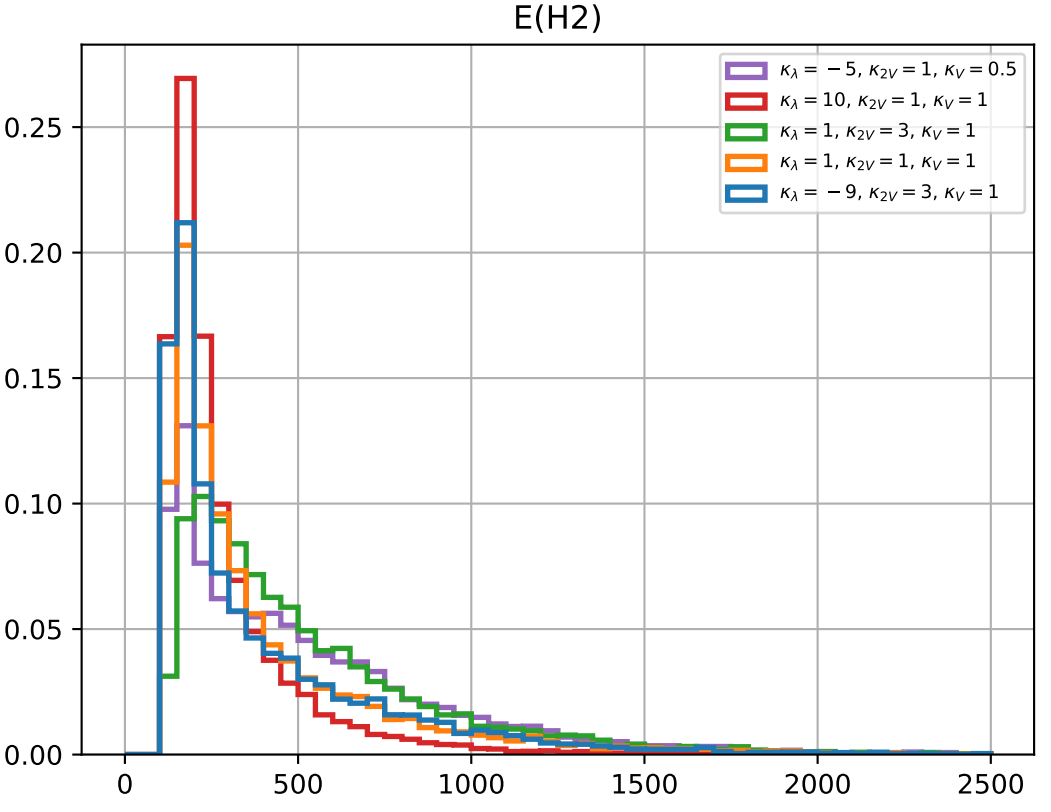

E(H1)
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.200
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
0
500
1000
1500
2000
2500

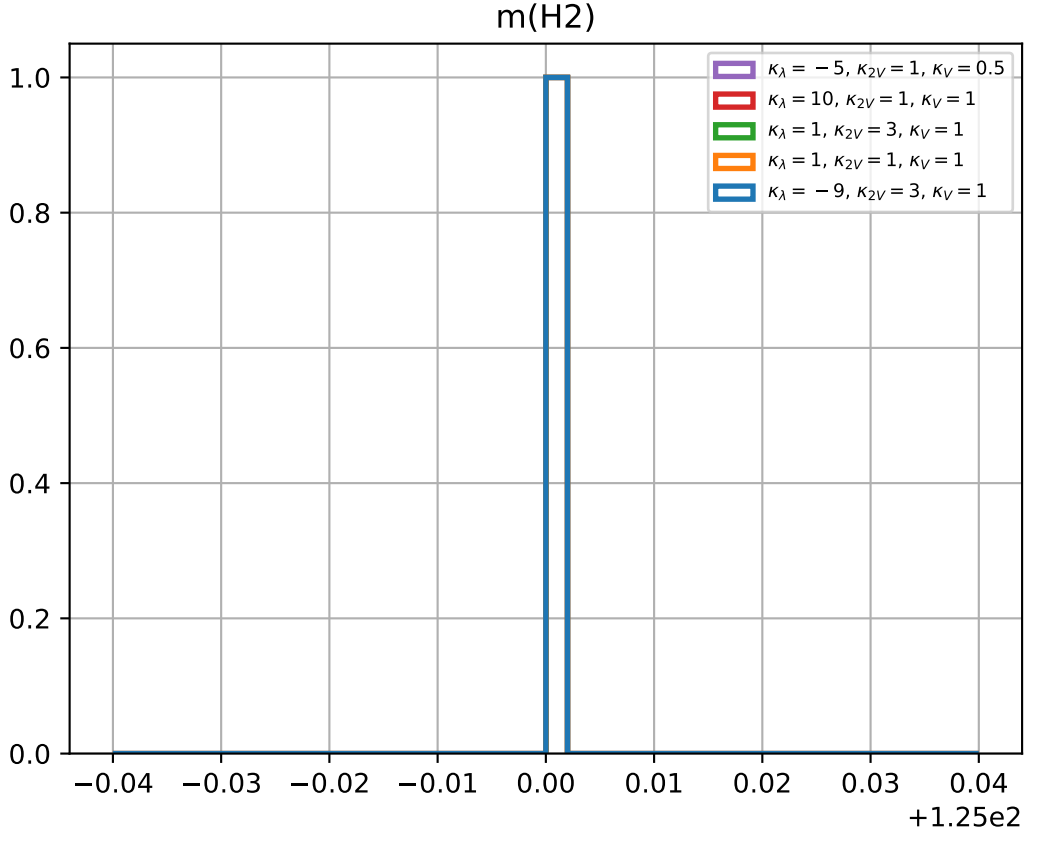

m(H1)
1.0
0.8
0.6
0.4
0.2
0.0
−0.04
−0.03
−0.02
−0.01
0.00
0.01
0.02
0.03
0.04
+1.25e2
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$

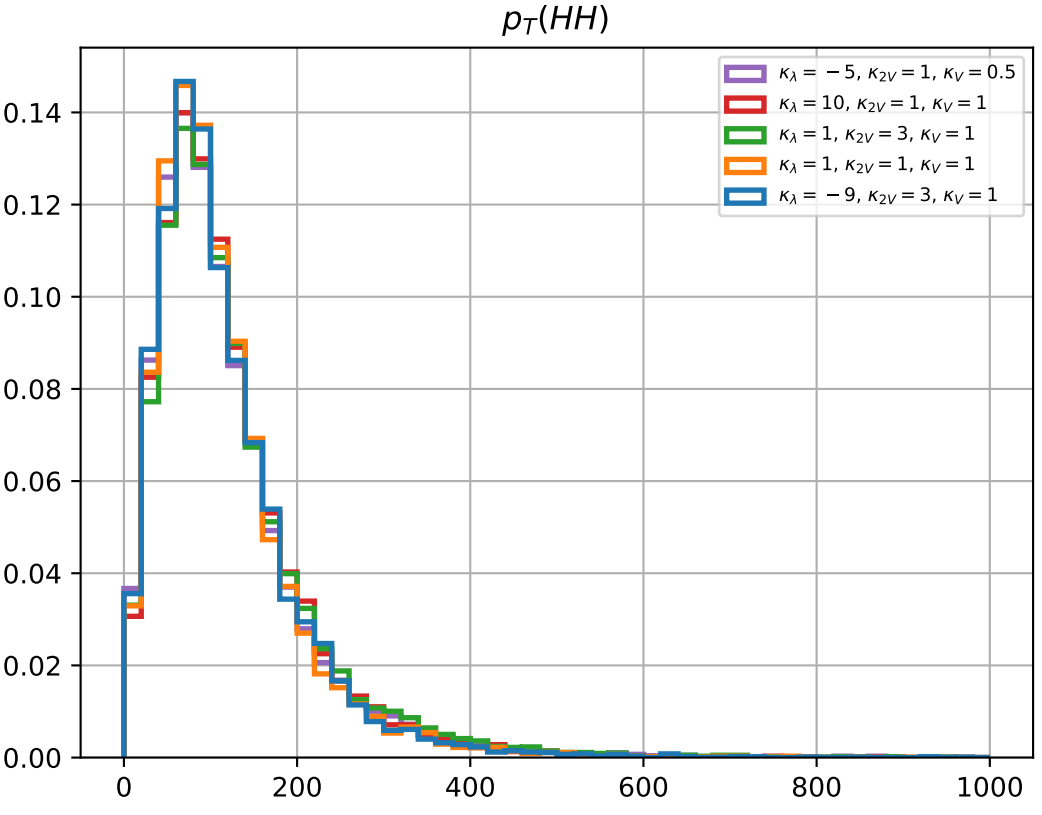

$p_T(H2)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
0
200
400
600
800
1000

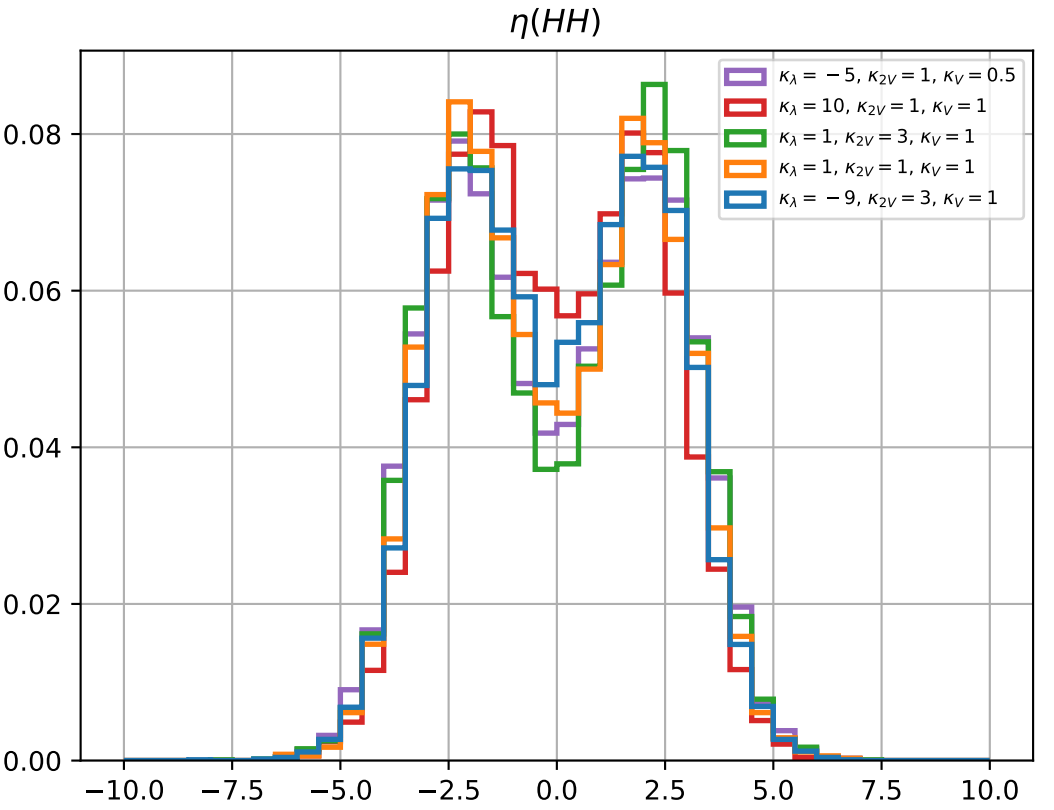

$\eta(H2)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
−4
−2
0
2
4

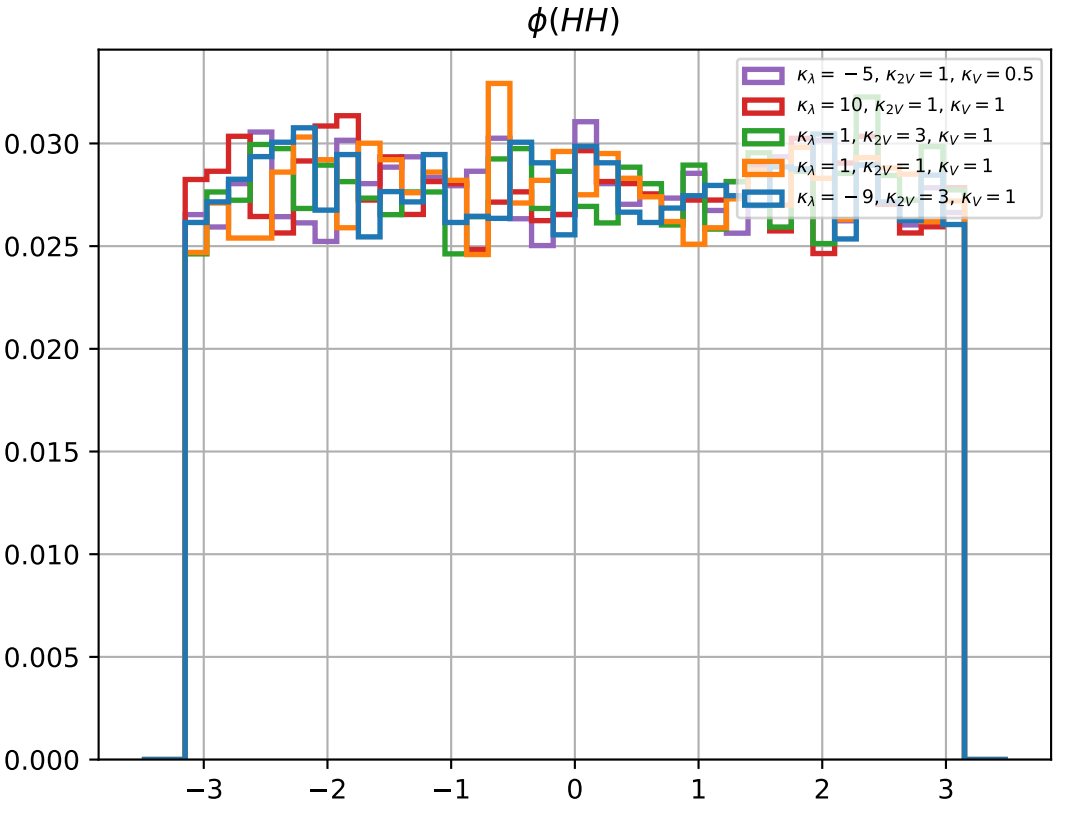

$\phi(H2)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.030
0.025
0.020
0.015
0.010
0.005
0.000
−3
−2
−1
0
1
2
3

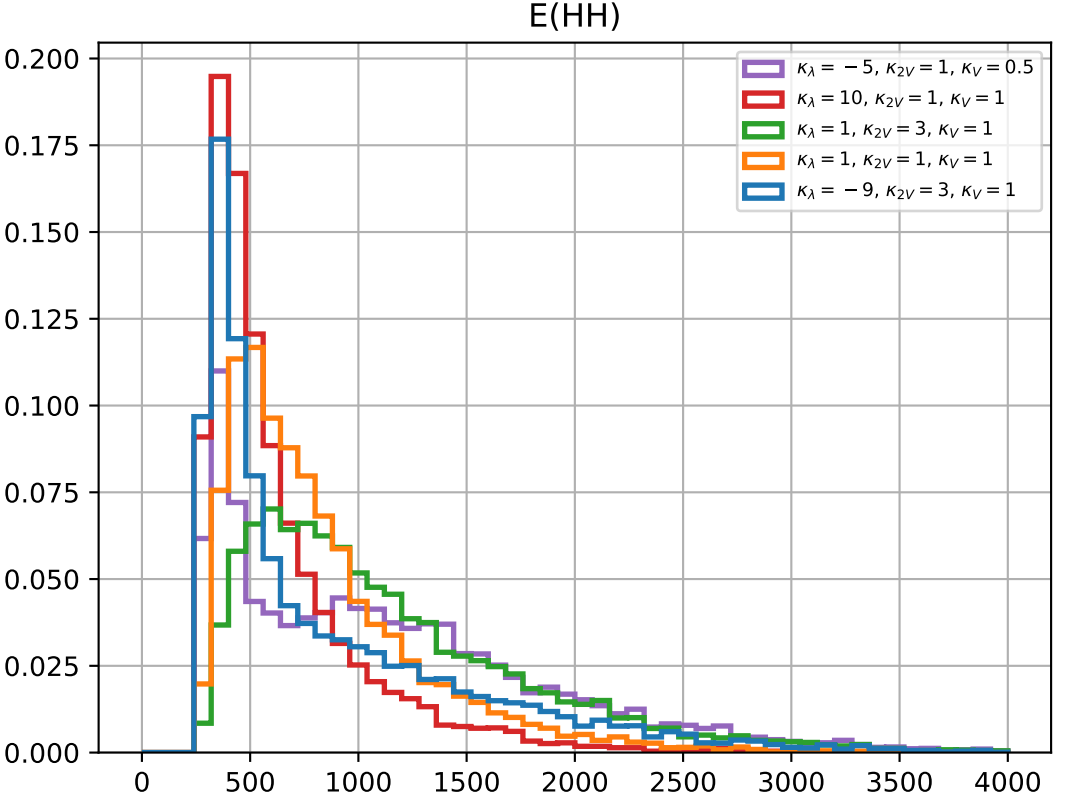

E(H2)
$\kappa_\lambda = -5,\ \kappa_{2V} = 1,\ \kappa_V = 0.5$
$\kappa_\lambda = 10,\ \kappa_{2V} = 1,\ \kappa_V = 1$
$\kappa_\lambda = 1,\ \kappa_{2V} = 3,\ \kappa_V = 1$
$\kappa_\lambda = 1,\ \kappa_{2V} = 1,\ \kappa_V = 1$
$\kappa_\lambda = -9,\ \kappa_{2V} = 3,\ \kappa_V = 1$
0.25
0.20
0.15
0.10
0.05
0.00
0
500
1000
1500
2000
2500

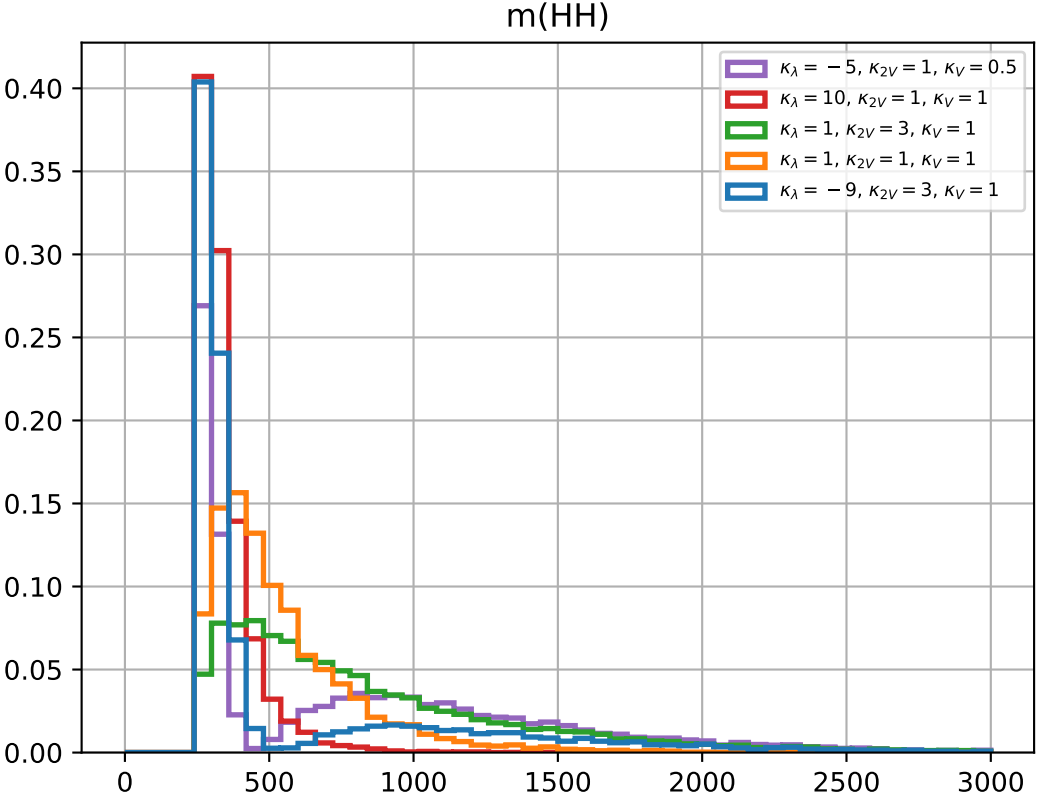

m(H2)
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
1.0
0.8
0.6
0.4
0.2
0.0
−0.04
−0.03
−0.02
−0.01
0.00
0.01
0.02
0.03
0.04
+1.25e2

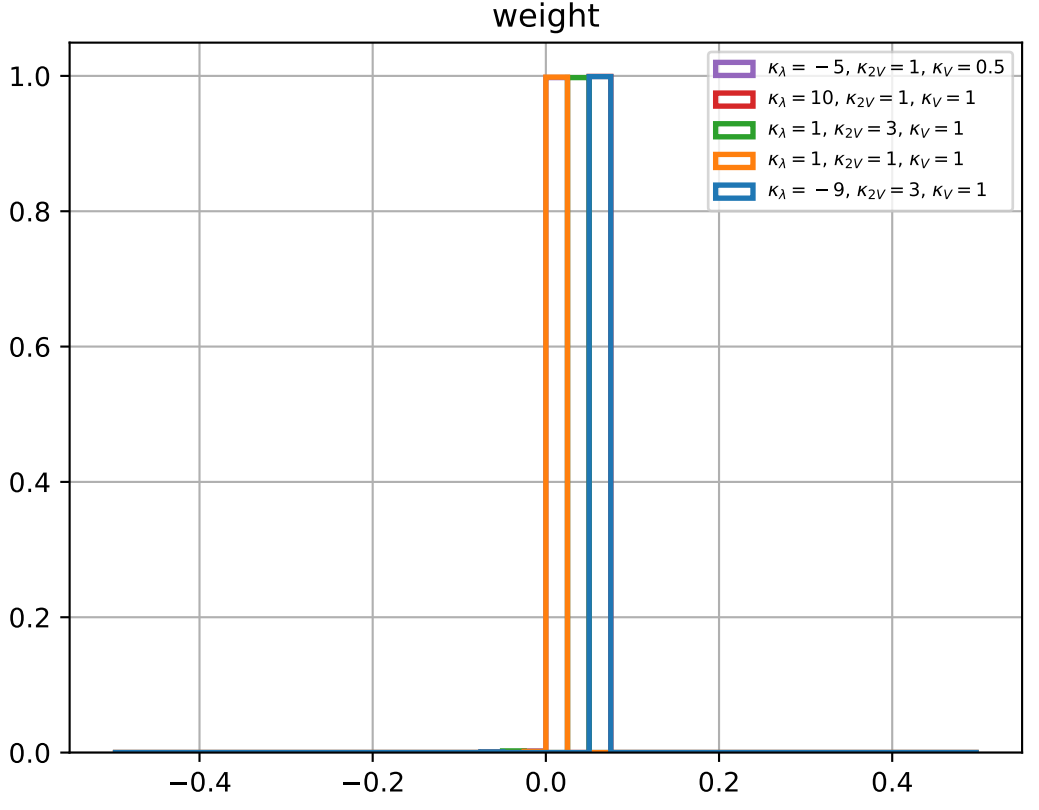

$p_T(HH)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0
200
400
600
800
1000

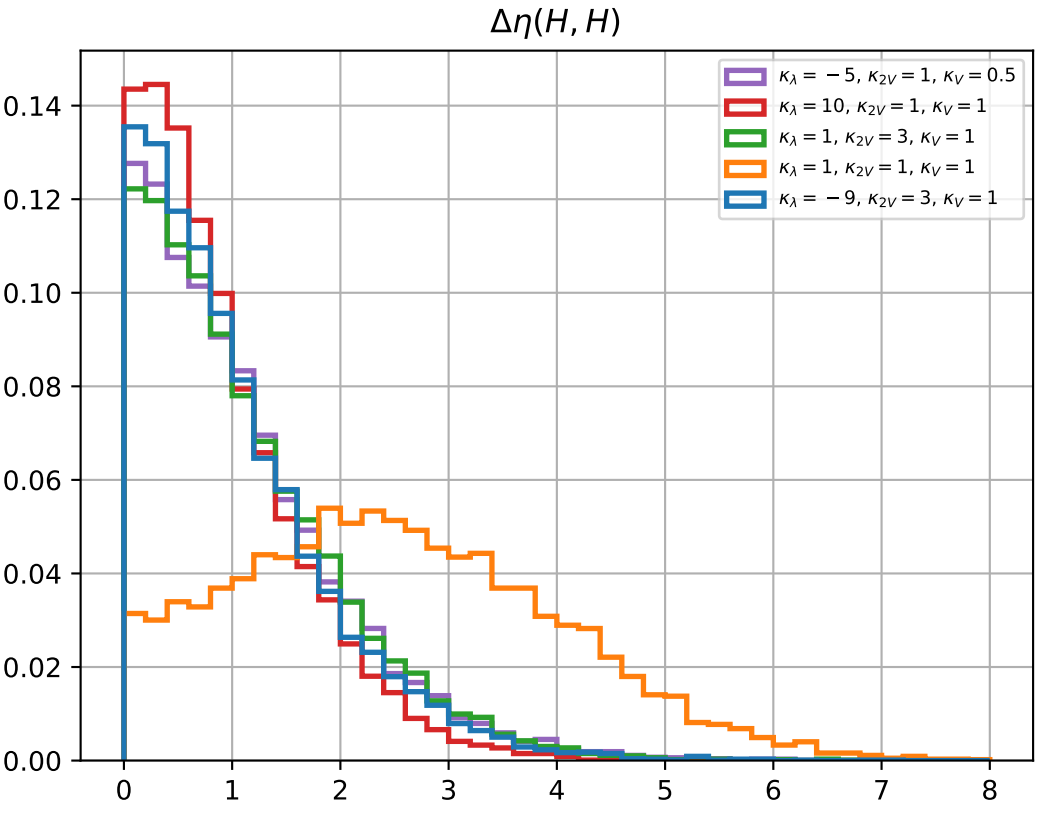

$\eta(HH)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.08
0.06
0.04
0.02
0.00
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0

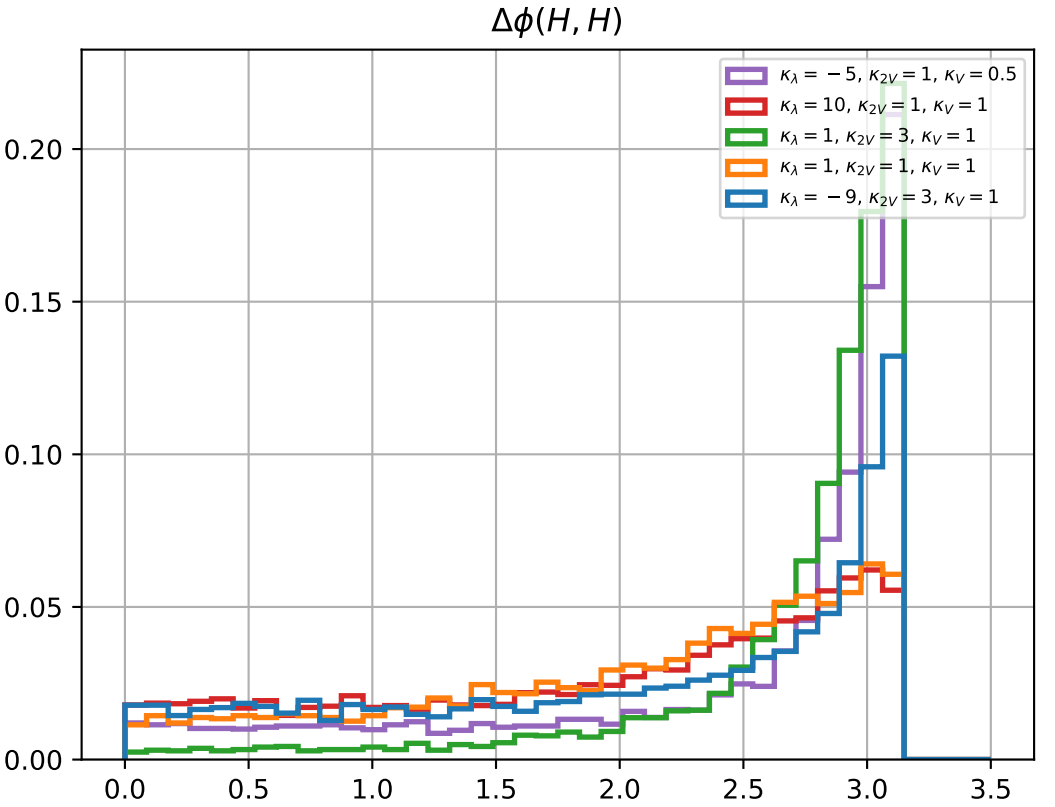

$\phi(HH)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.030
0.025
0.020
0.015
0.010
0.005
0.000
−3
−2
−1
0
1
2
3

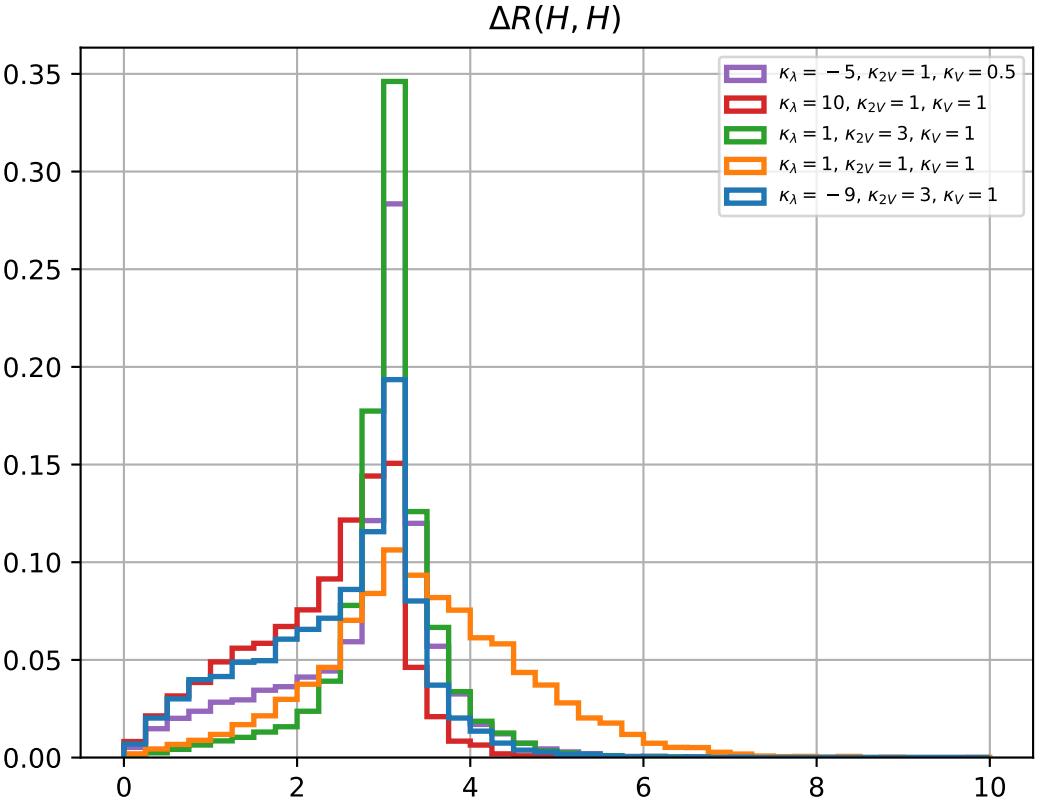

E(HH)
0.200
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
0
500
1000
1500
2000
2500
3000
3500
4000
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$

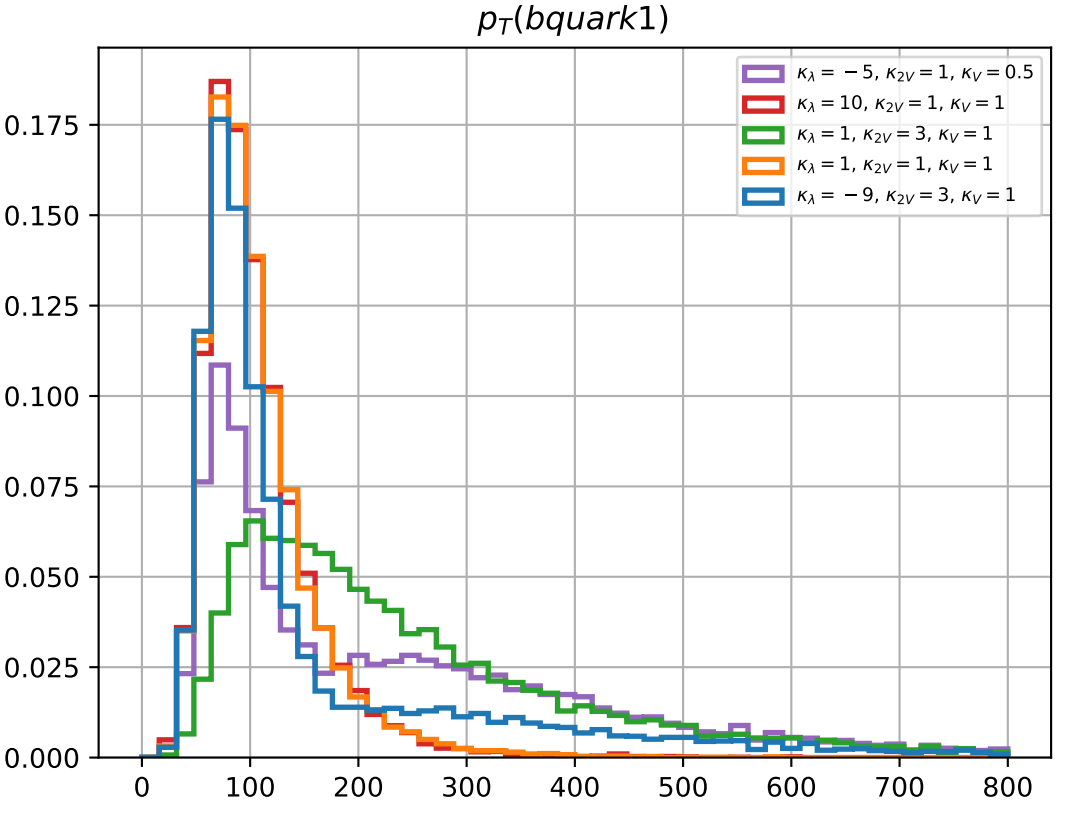

m(HH)
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0
500
1000
1500
2000
2500
3000

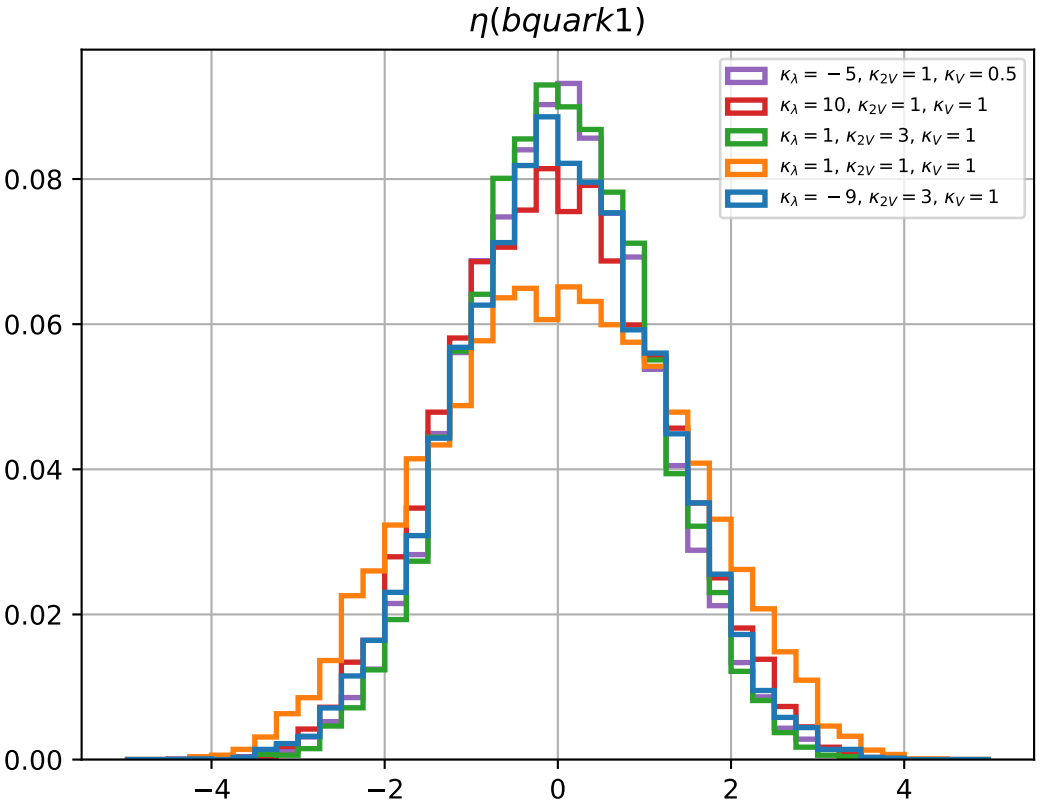

weight
$\kappa_\lambda = -5,\ \kappa_{2V} = 1,\ \kappa_V = 0.5$
$\kappa_\lambda = 10,\ \kappa_{2V} = 1,\ \kappa_V = 1$
$\kappa_\lambda = 1,\ \kappa_{2V} = 3,\ \kappa_V = 1$
$\kappa_\lambda = 1,\ \kappa_{2V} = 1,\ \kappa_V = 1$
$\kappa_\lambda = -9,\ \kappa_{2V} = 3,\ \kappa_V = 1$
1.0
0.8
0.6
0.4
0.2
0.0
−0.4
−0.2
0.0
0.2
0.4

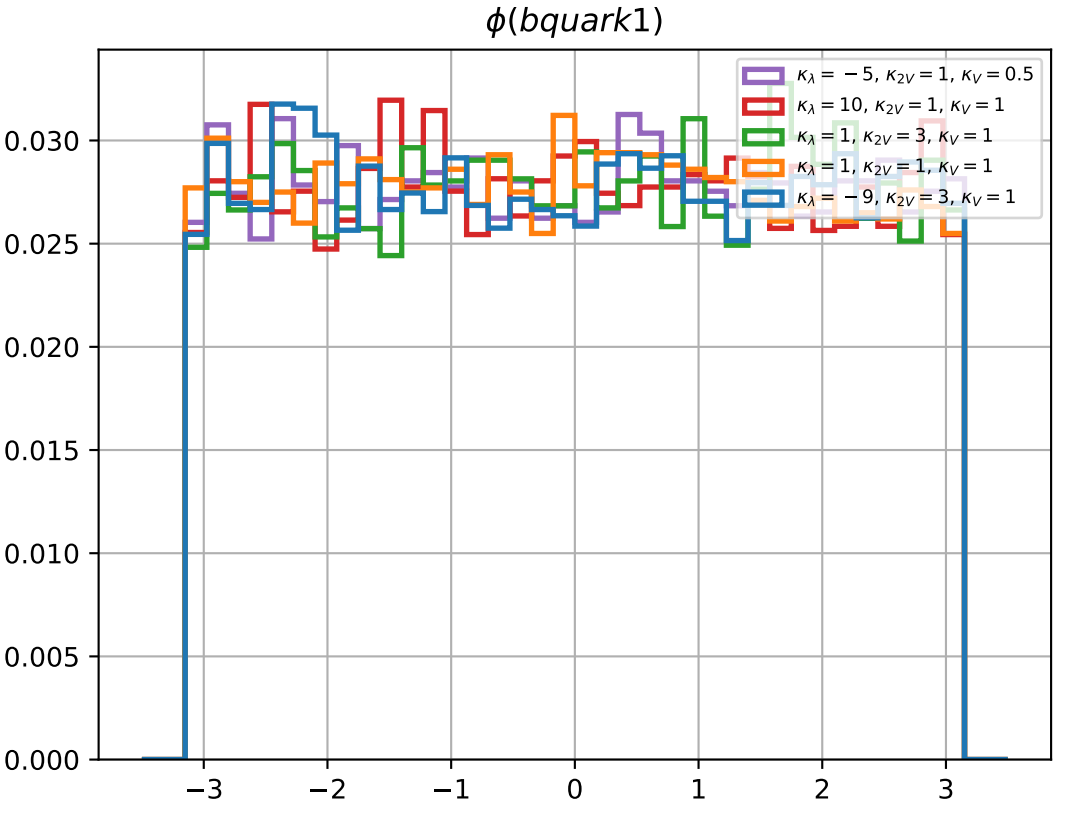

$\Delta\eta(H,H)$
$\kappa_\lambda = -5,\ \kappa_{2V} = 1,\ \kappa_V = 0.5$
$\kappa_\lambda = 10,\ \kappa_{2V} = 1,\ \kappa_V = 1$
$\kappa_\lambda = 1,\ \kappa_{2V} = 3,\ \kappa_V = 1$
$\kappa_\lambda = 1,\ \kappa_{2V} = 1,\ \kappa_V = 1$
$\kappa_\lambda = -9,\ \kappa_{2V} = 3,\ \kappa_V = 1$
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0
1
2
3
4
5
6
7
8

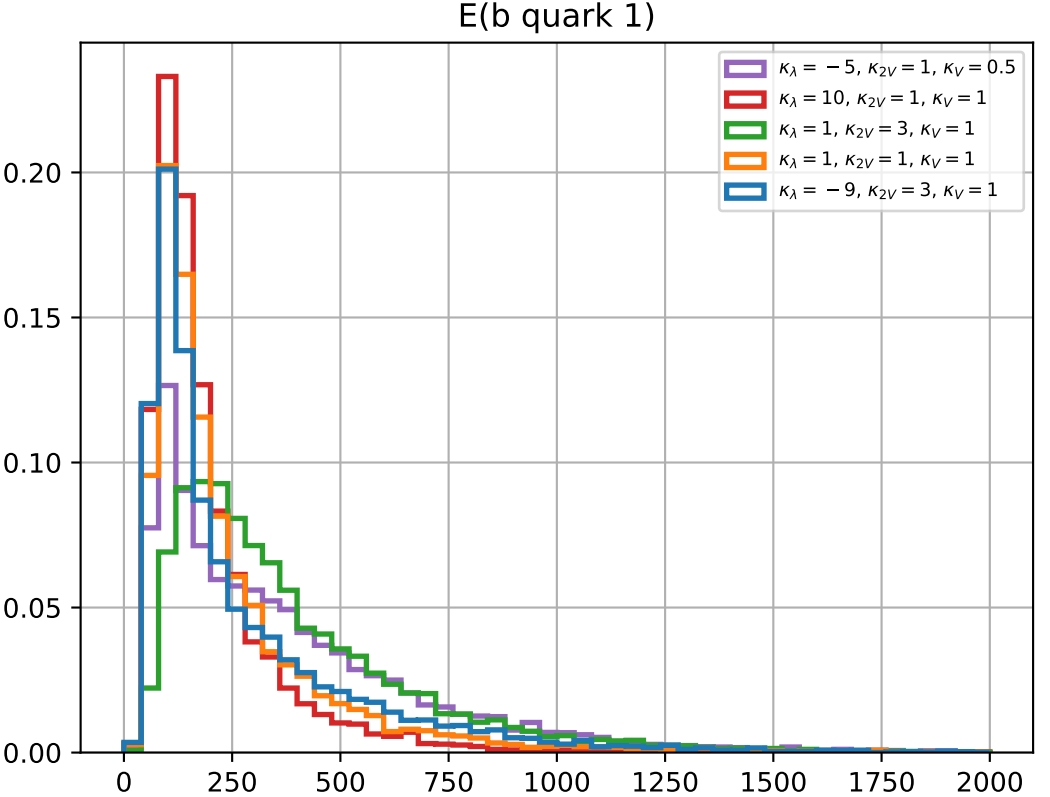

$\Delta\phi(H, H)$
$\kappa_\lambda = -5$, $\kappa_{2V} = 1$, $\kappa_V = 0.5$
$\kappa_\lambda = 10$, $\kappa_{2V} = 1$, $\kappa_V = 1$
$\kappa_\lambda = 1$, $\kappa_{2V} = 3$, $\kappa_V = 1$
$\kappa_\lambda = 1$, $\kappa_{2V} = 1$, $\kappa_V = 1$
$\kappa_\lambda = -9$, $\kappa_{2V} = 3$, $\kappa_V = 1$
0.00
0.05
0.10
0.15
0.20
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

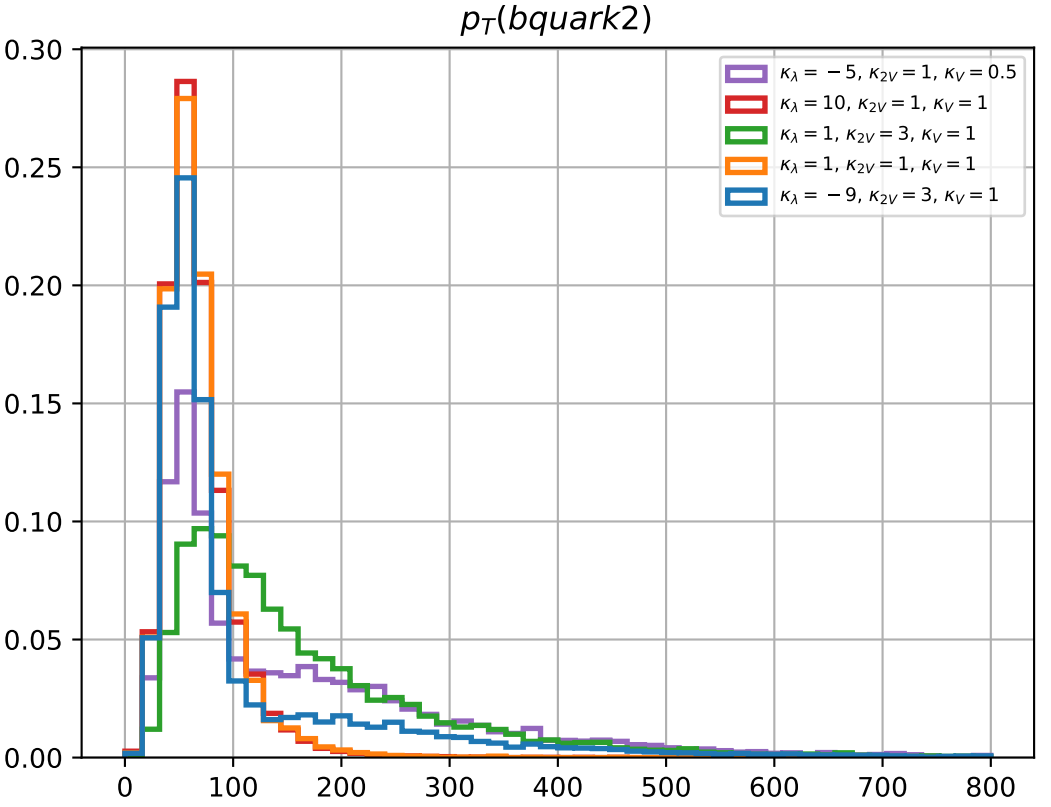

$\Delta R(H, H)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0
2
4
6
8
10

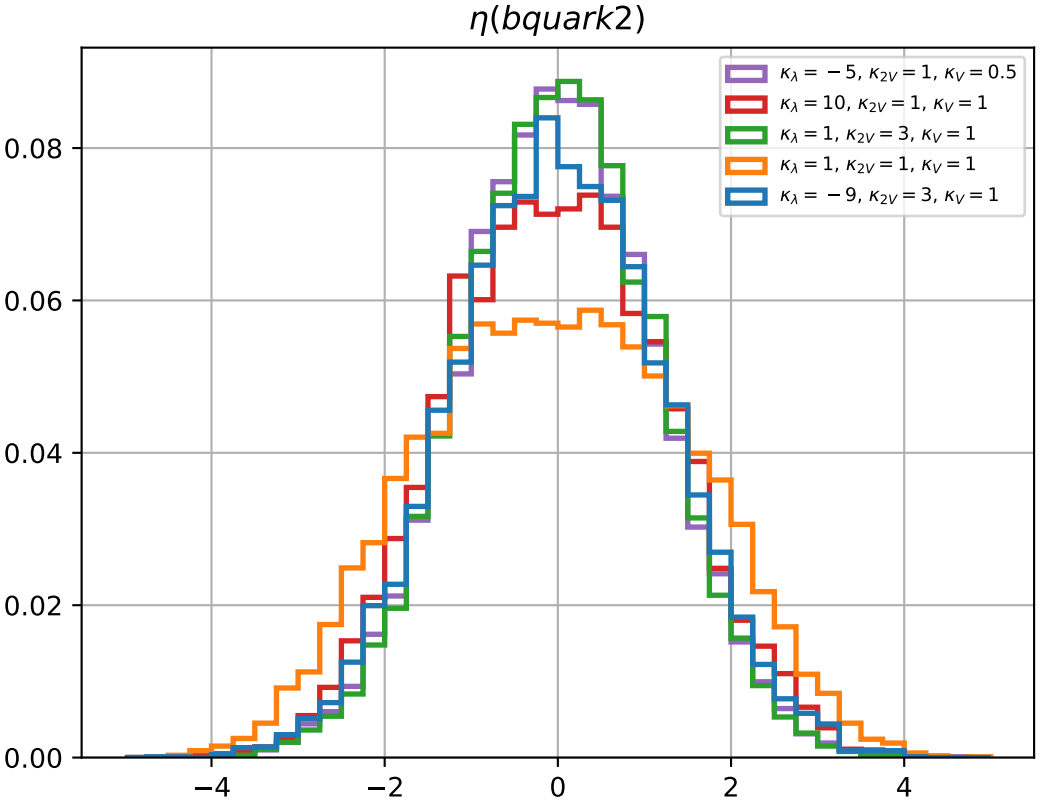

$p_T(bquark1)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
0
100
200
300
400
500
600
700
800

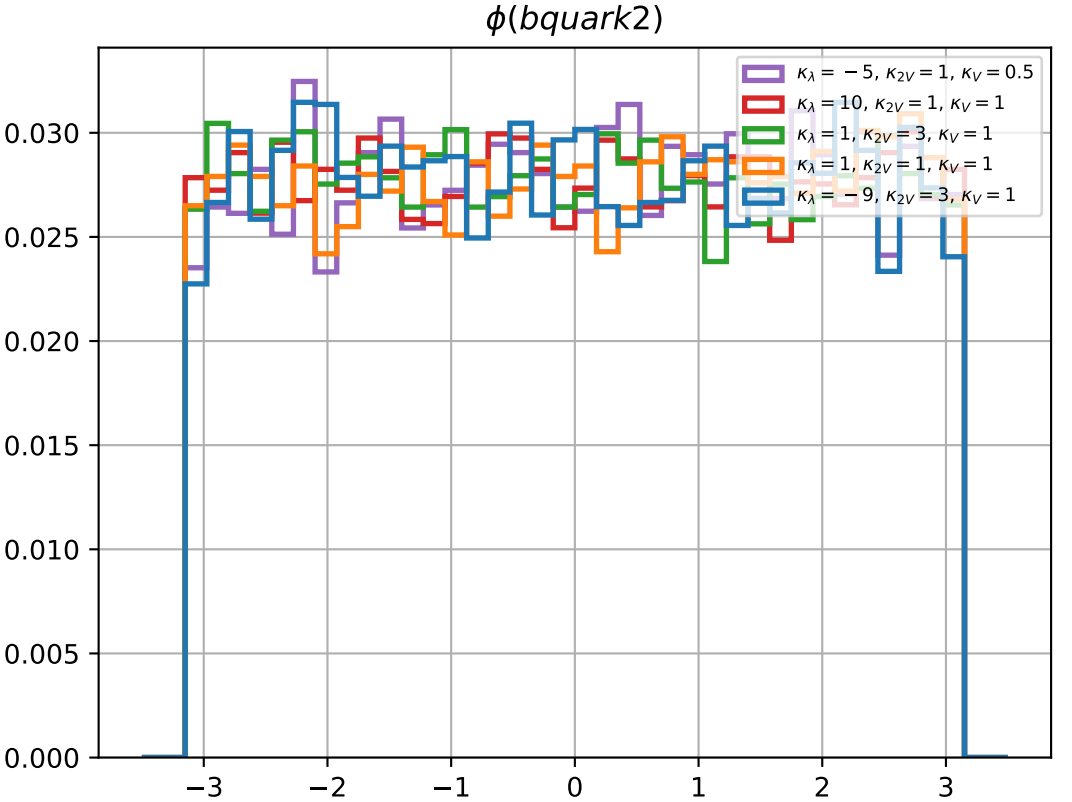

$\eta(bquark1)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.08
0.06
0.04
0.02
0.00
−4
−2
0
2
4

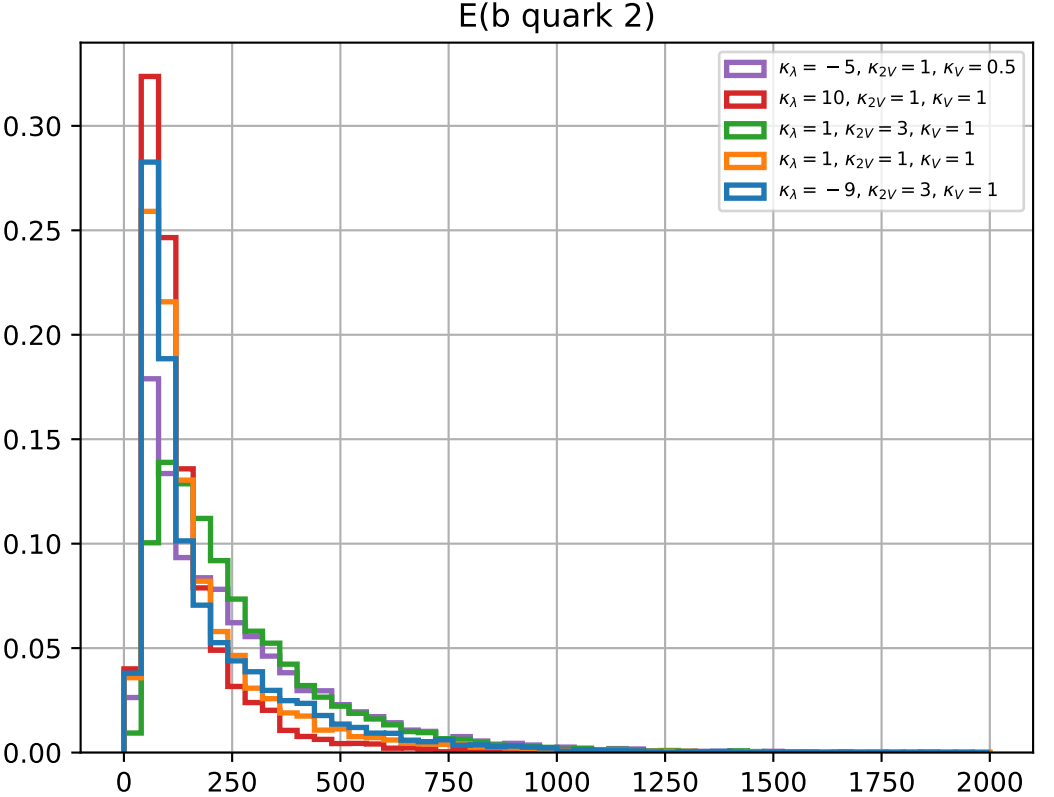

$\phi(bquark1)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.030
0.025
0.020
0.015
0.010
0.005
0.000
−3
−2
−1
0
1
2
3

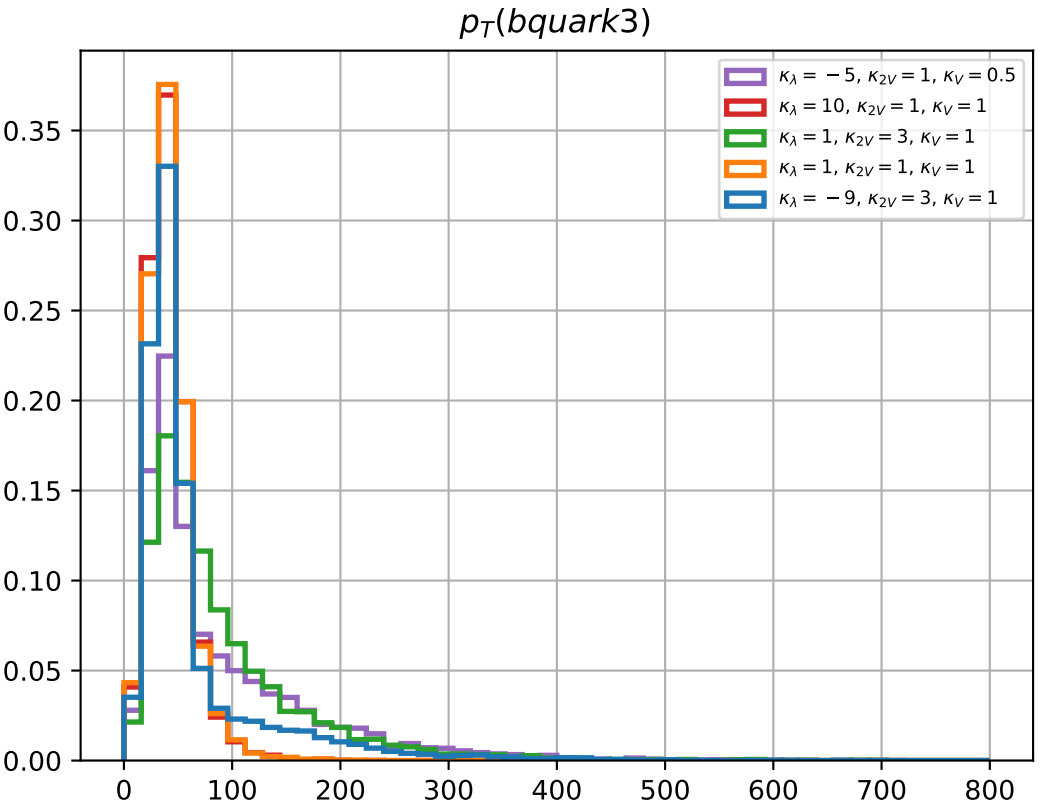

E(b quark 1)
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.20
0.15
0.10
0.05
0.00
0
250
500
750
1000
1250
1500
1750
2000

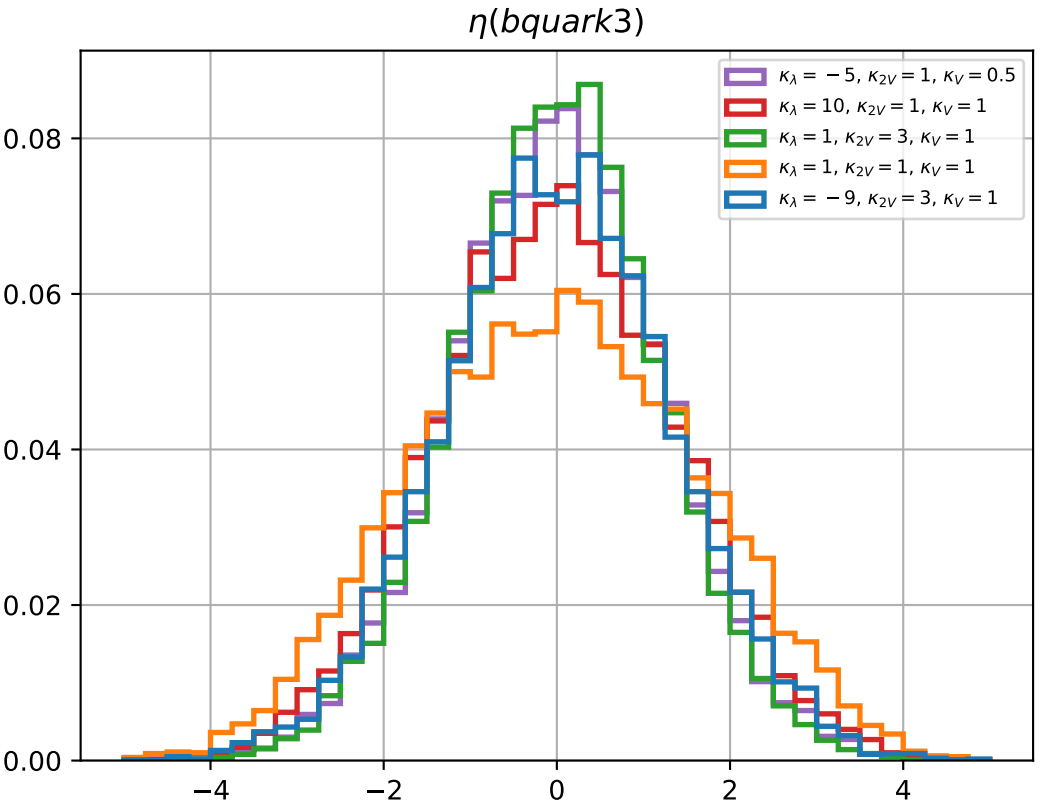

$p_T(bquark2)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0
100
200
300
400
500
600
700
800

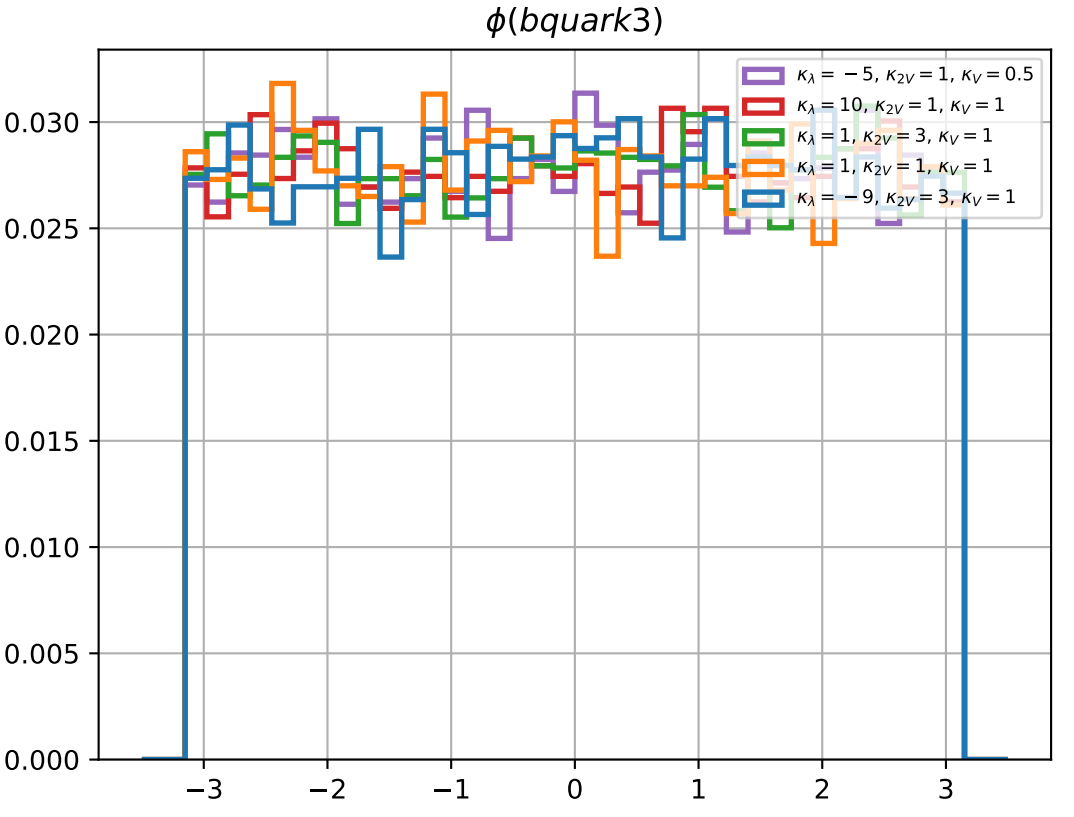

η(bquark2)
κλ = −5, κ2V = 1, κV = 0.5
κλ = 10, κ2V = 1, κV = 1
κλ = 1, κ2V = 3, κV = 1
κλ = 1, κ2V = 1, κV = 1
κλ = −9, κ2V = 3, κV = 1
0.08
0.06
0.04
0.02
0.00
−4
−2
0
2
4

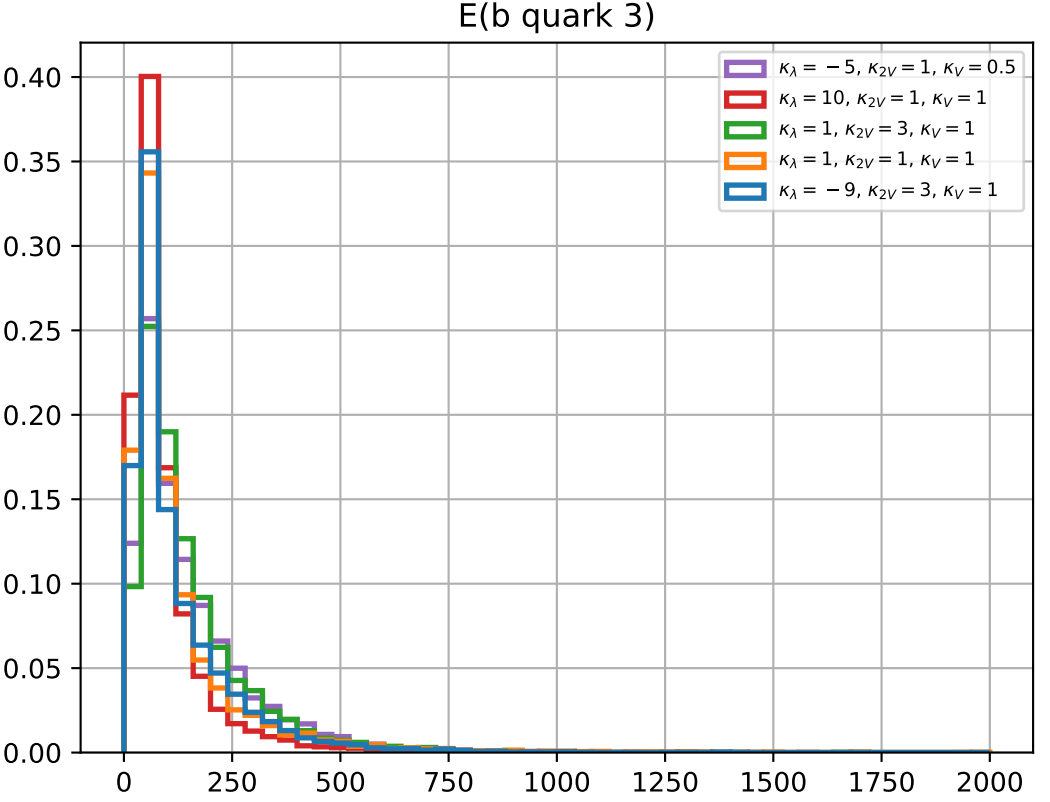

$\phi(bquark2)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.030
0.025
0.020
0.015
0.010
0.005
0.000
−3
−2
−1
0
1
2
3

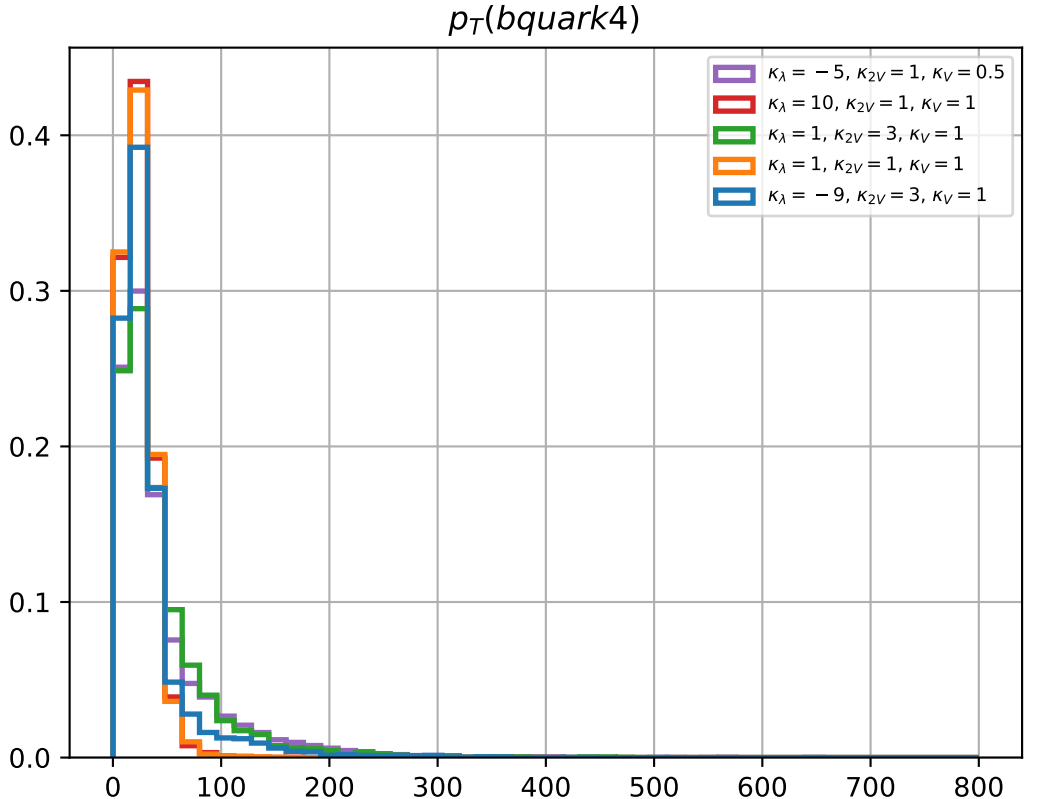

E(b quark 2)
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0
250
500
750
1000
1250
1500
1750
2000

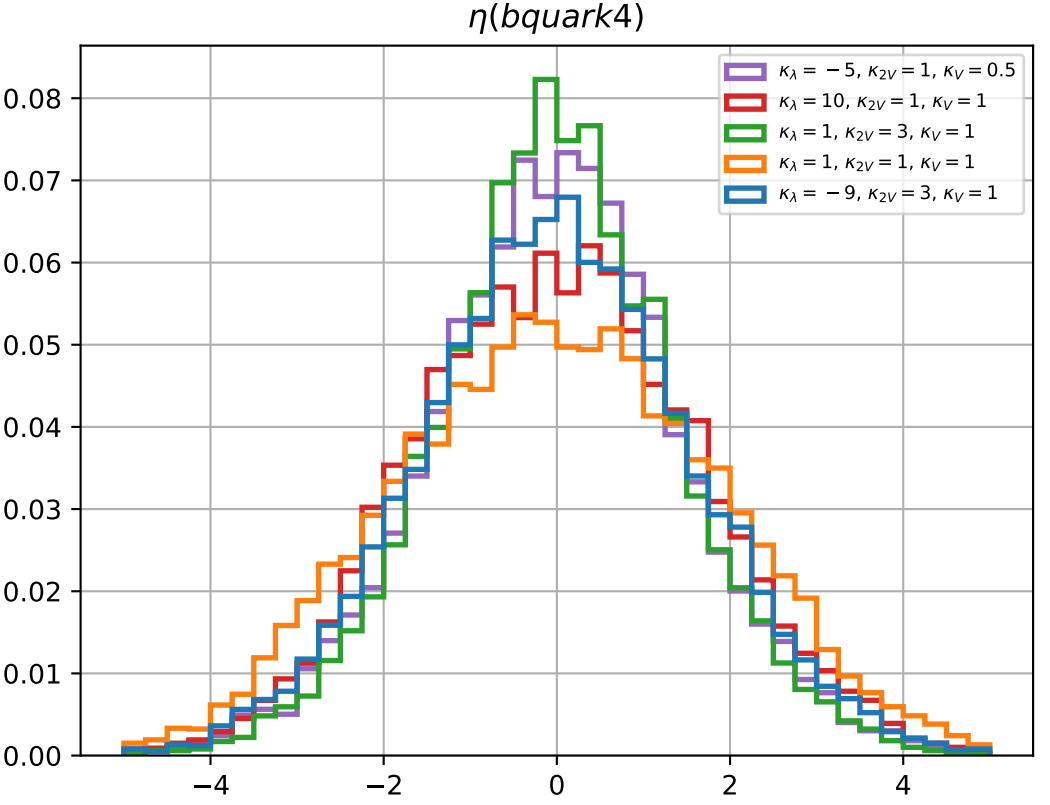

$p_T(bquark3)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0
100
200
300
400
500
600
700
800

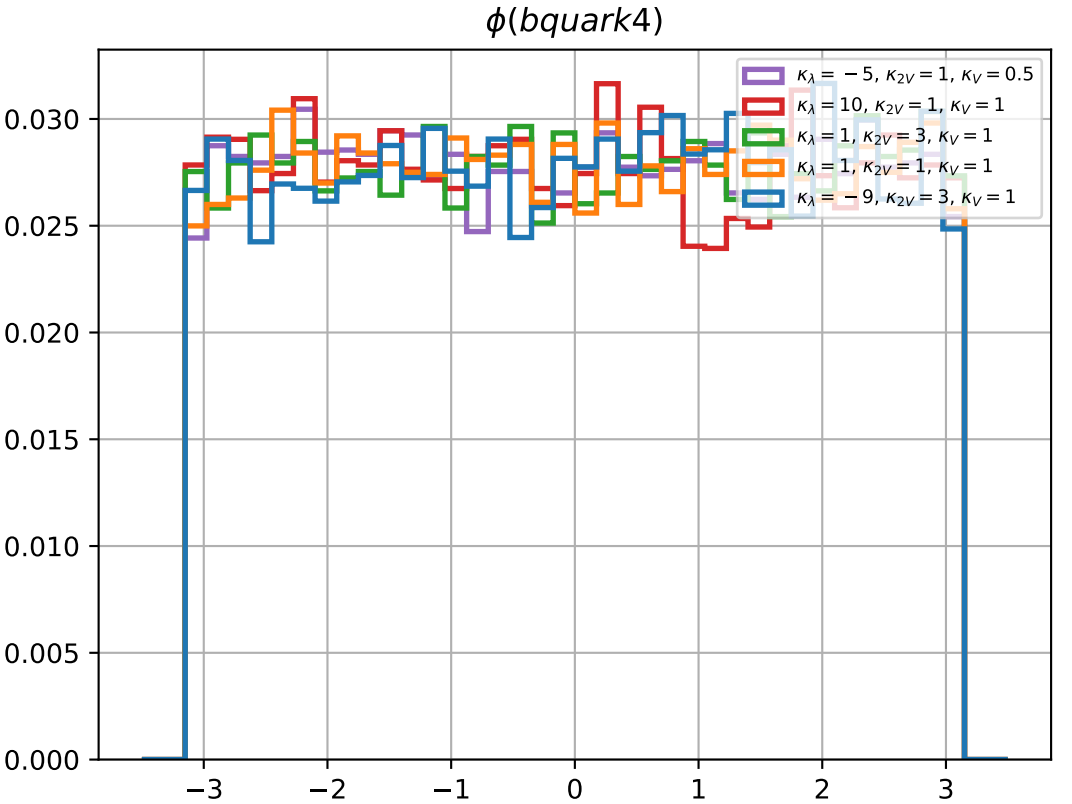

$\eta(bquark3)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.08
0.06
0.04
0.02
0.00
−4
−2
0
2
4

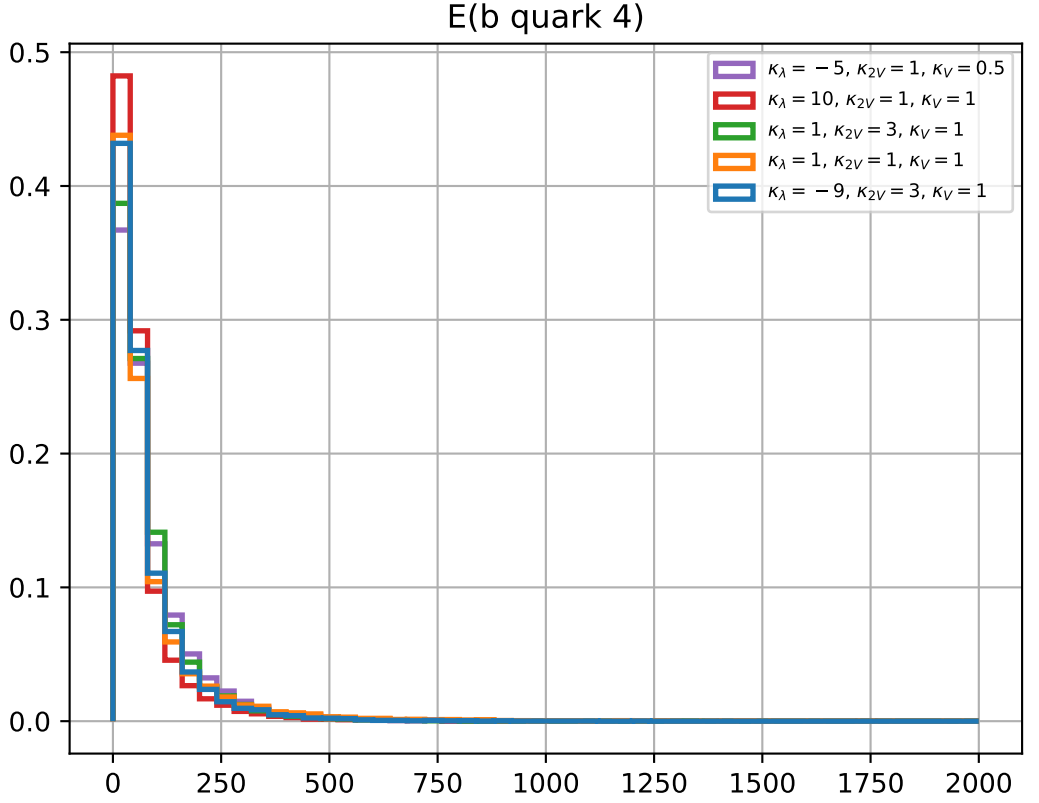

$\phi(bquark3)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.030
0.025
0.020
0.015
0.010
0.005
0.000
−3
−2
−1
0
1
2
3

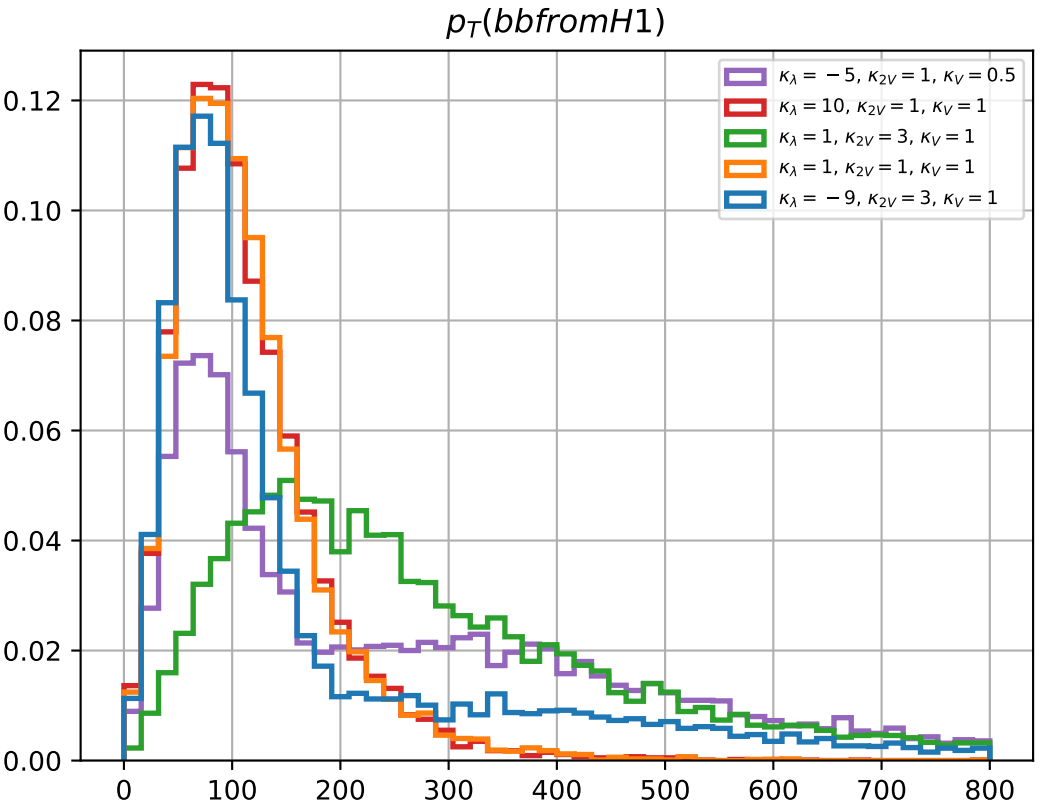

E(b quark 3)
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0
250
500
750
1000
1250
1500
1750
2000

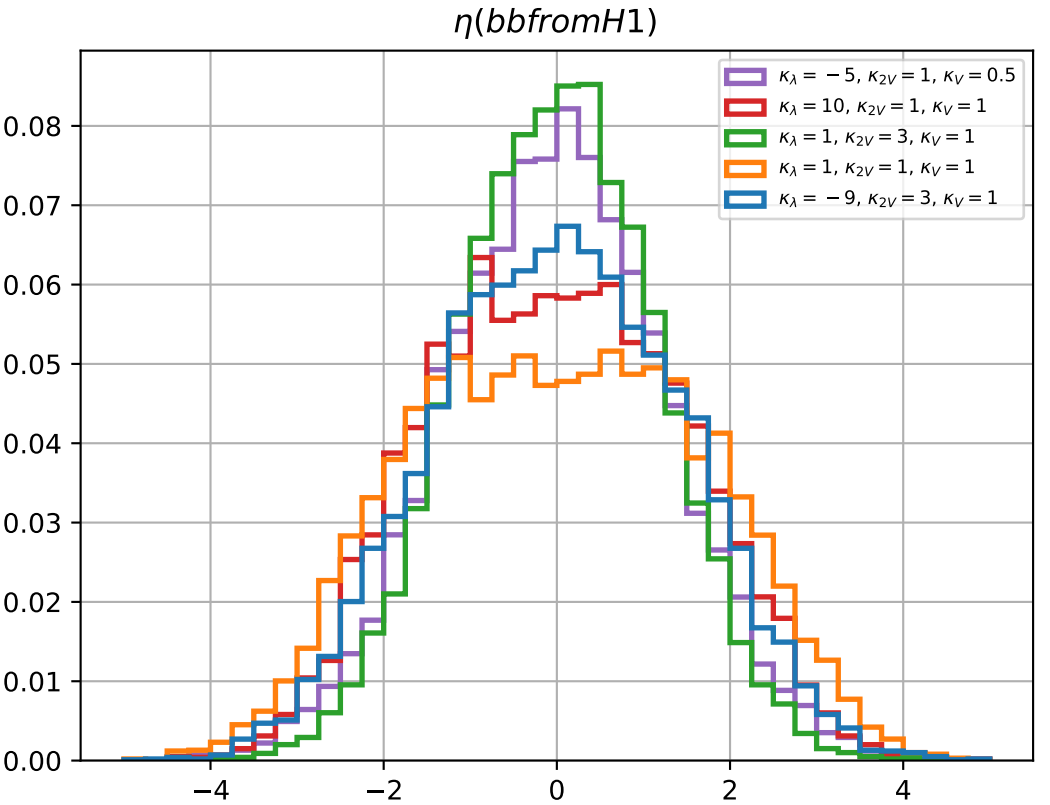

$p_T(bquark4)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.0
0.1
0.2
0.3
0.4
0
100
200
300
400
500
600
700
800

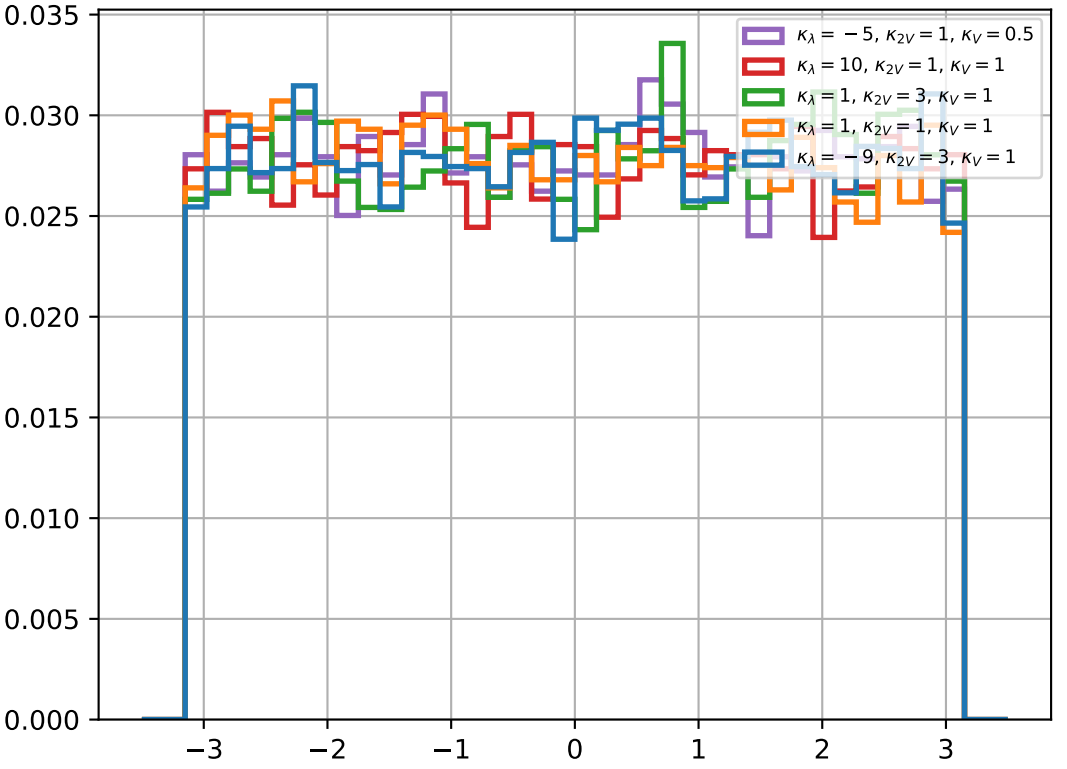

η(bquark4)
κλ = −5, κ2V = 1, κV = 0.5
κλ = 10, κ2V = 1, κV = 1
κλ = 1, κ2V = 3, κV = 1
κλ = 1, κ2V = 1, κV = 1
κλ = −9, κ2V = 3, κV = 1
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
−4
−2
0
2
4

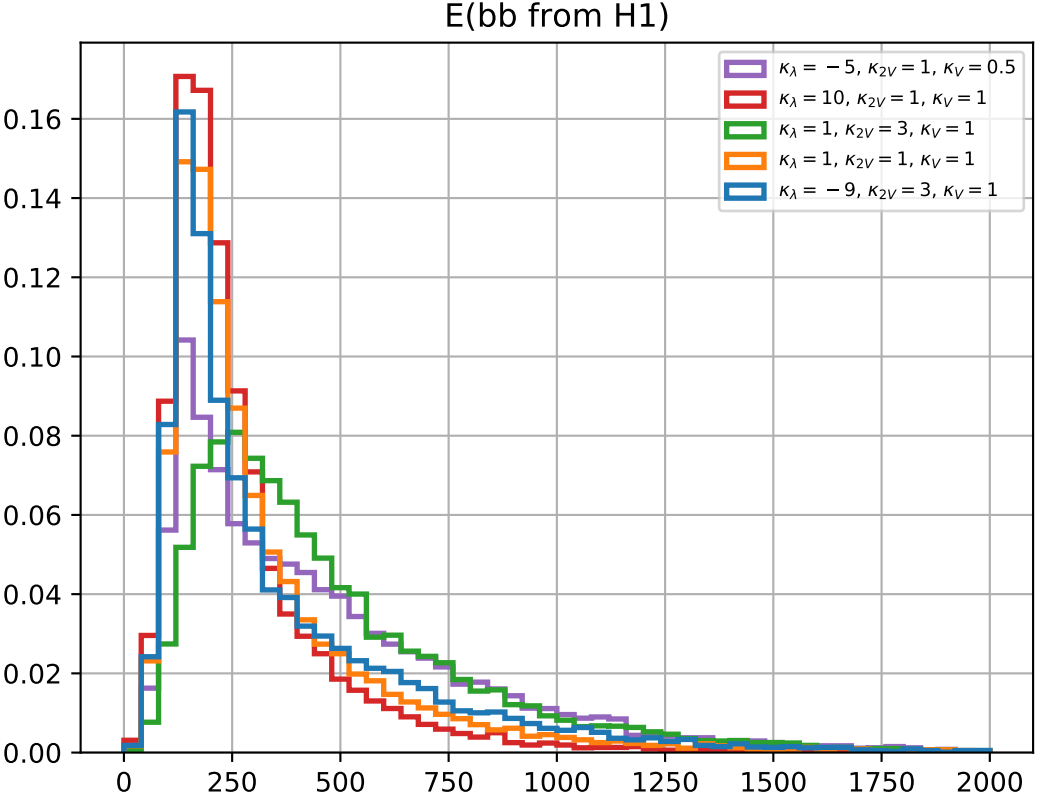

$\phi(bquark4)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.030
0.025
0.020
0.015
0.010
0.005
0.000
−3
−2
−1
0
1
2
3

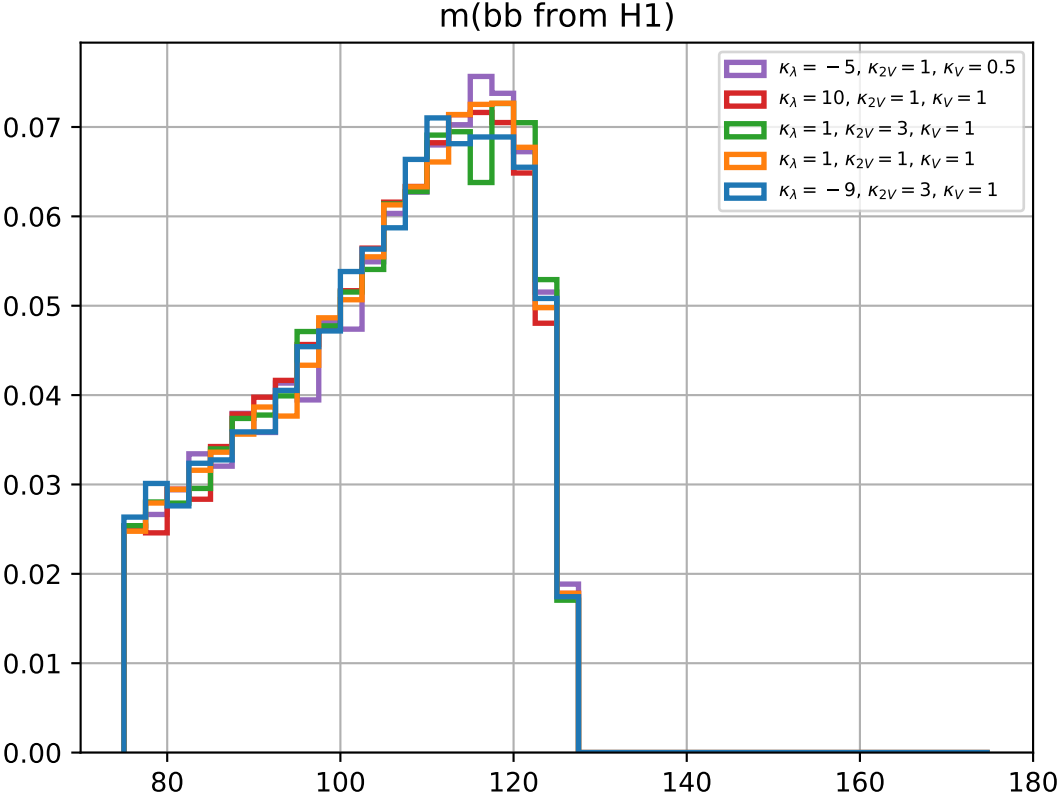

E(b quark 4)
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.5
0.4
0.3
0.2
0.1
0.0
0
250
500
750
1000
1250
1500
1750
2000

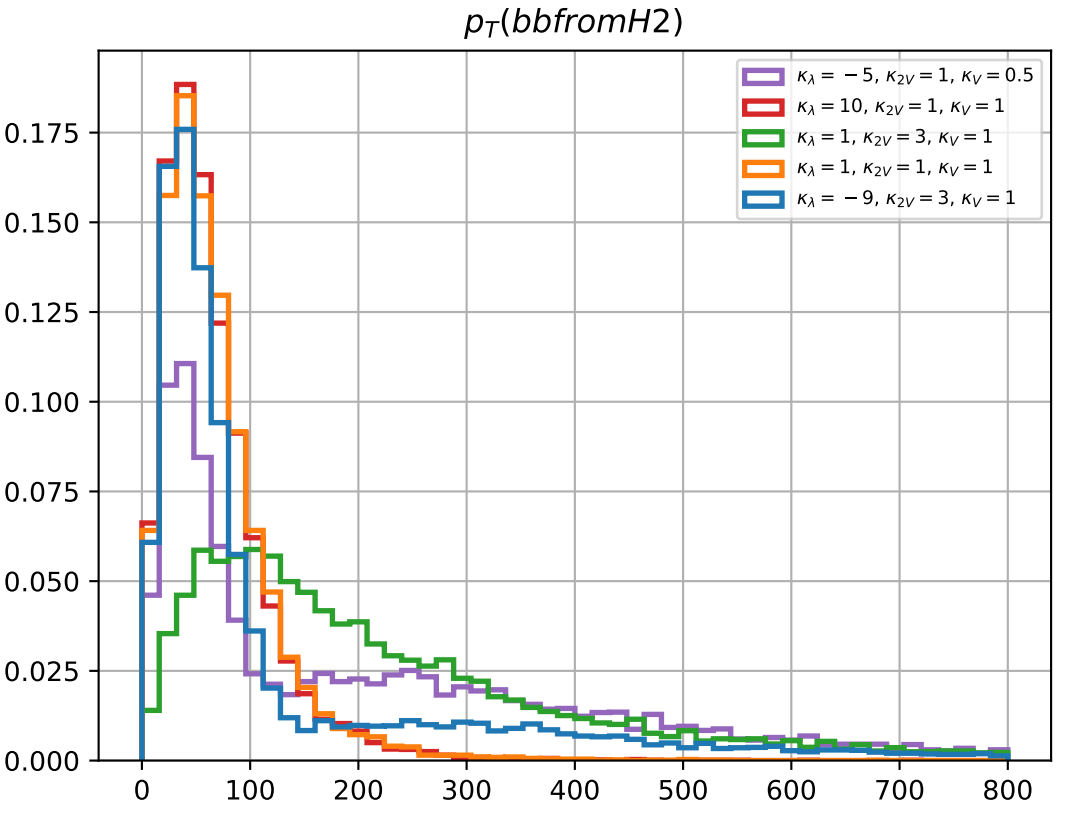

$p_T(bbfromH1)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0
100
200
300
400
500
600
700
800

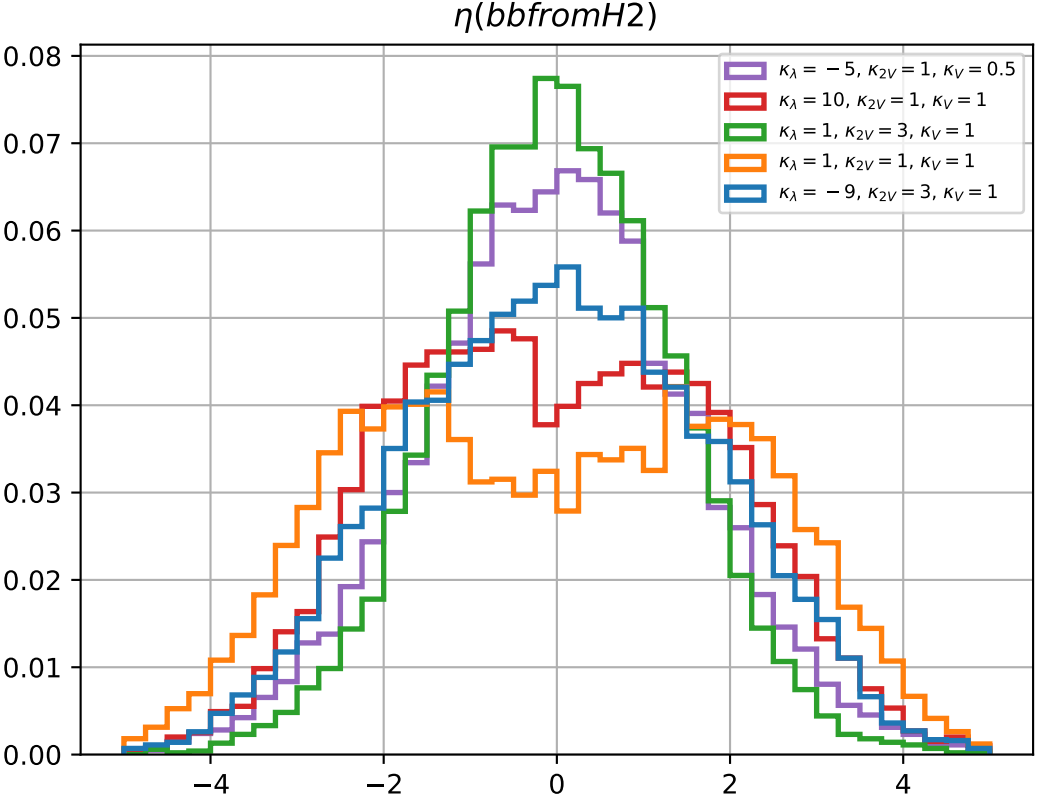

$\eta(bbfromH1)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
−4
−2
0
2
4

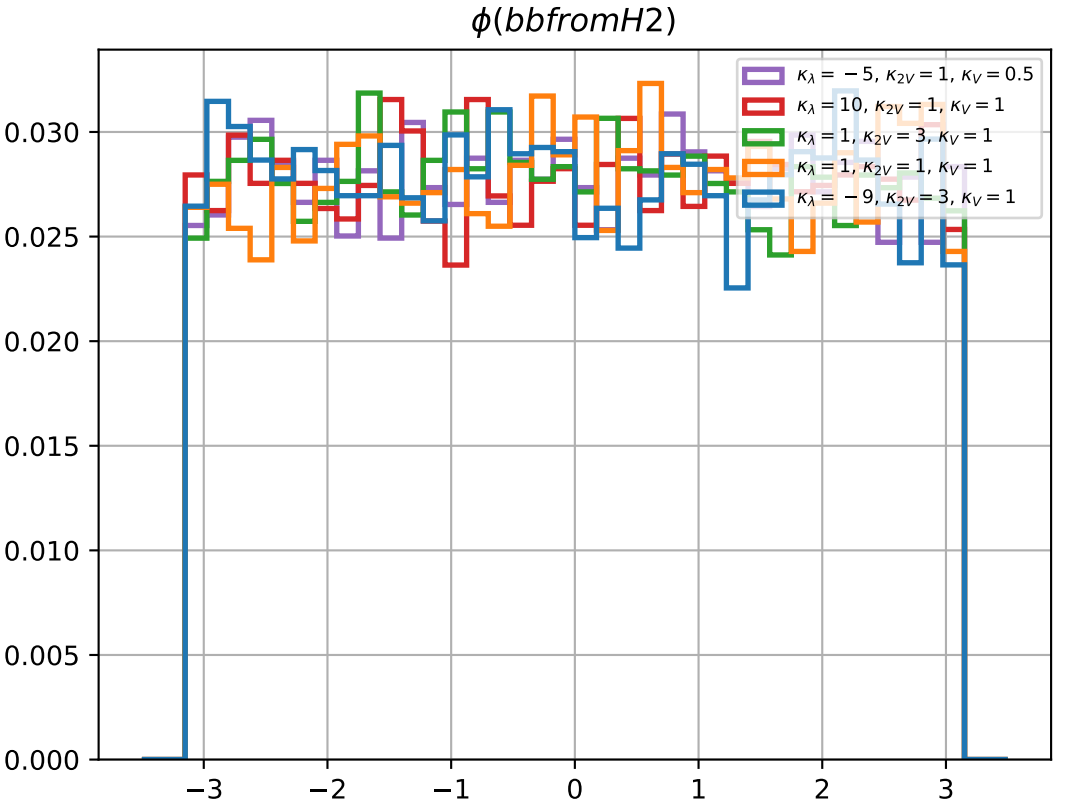

$\phi(bbfromH1)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
−3
−2
−1
0
1
2
3

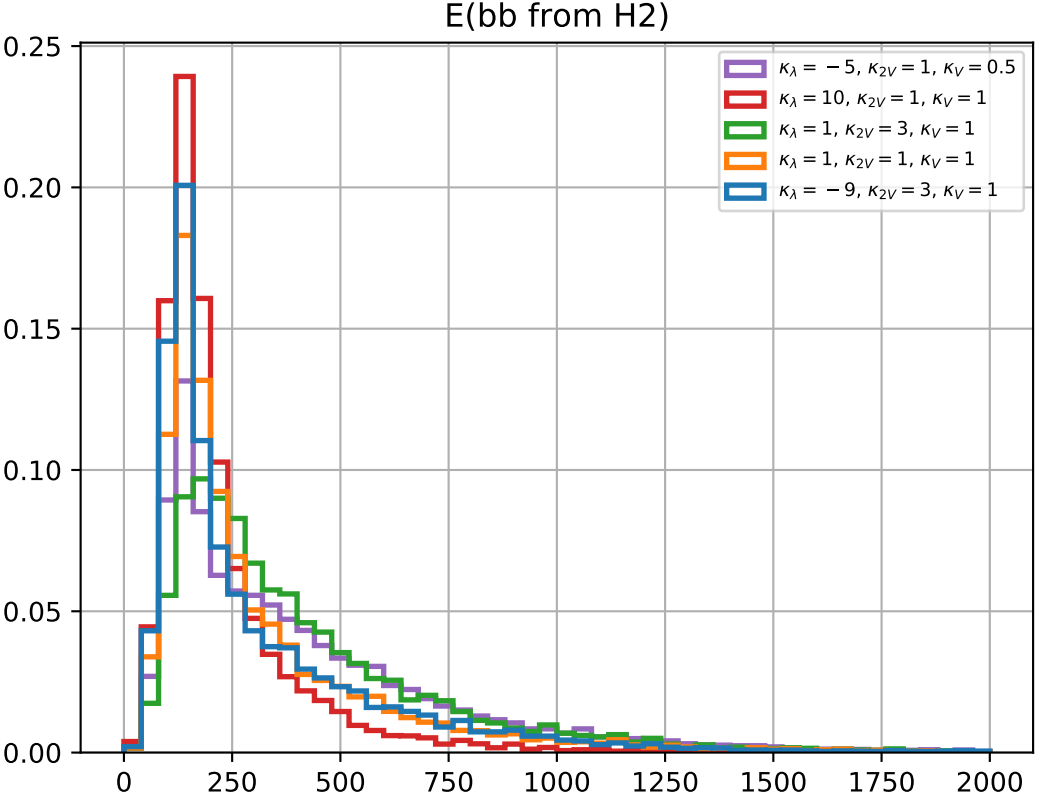

E(bb from H1)
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0
250
500
750
1000
1250
1500
1750
2000

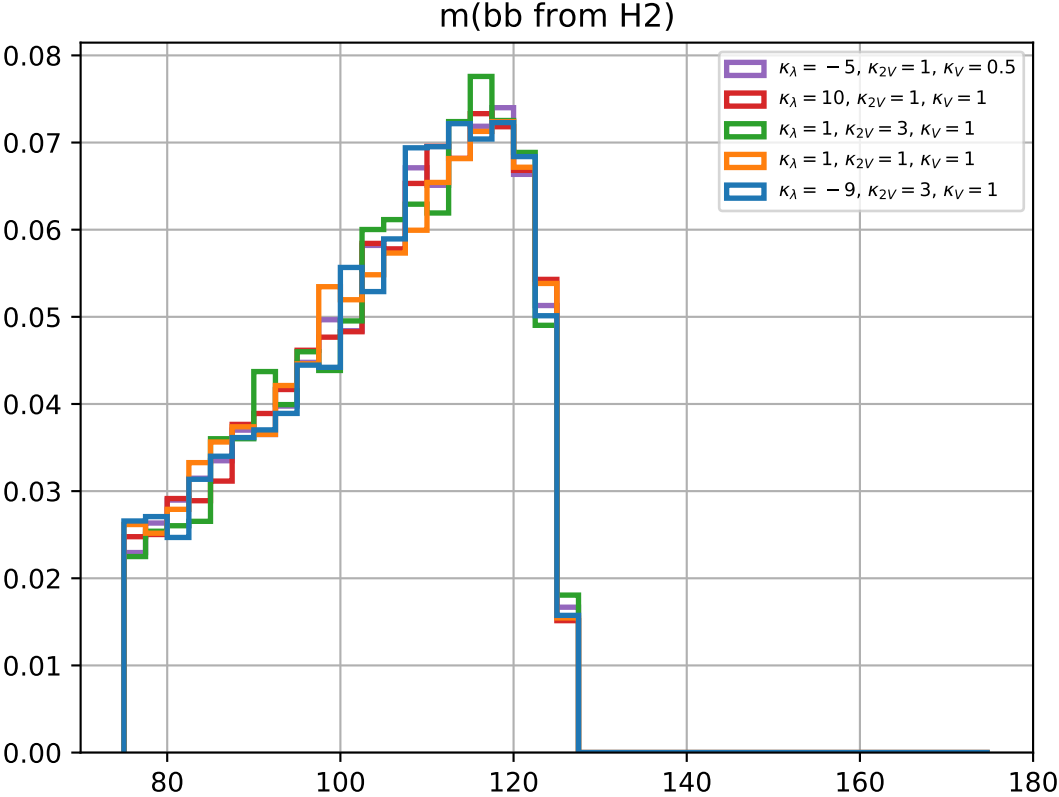

m(bb from H1)
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
80
100
120
140
160
180

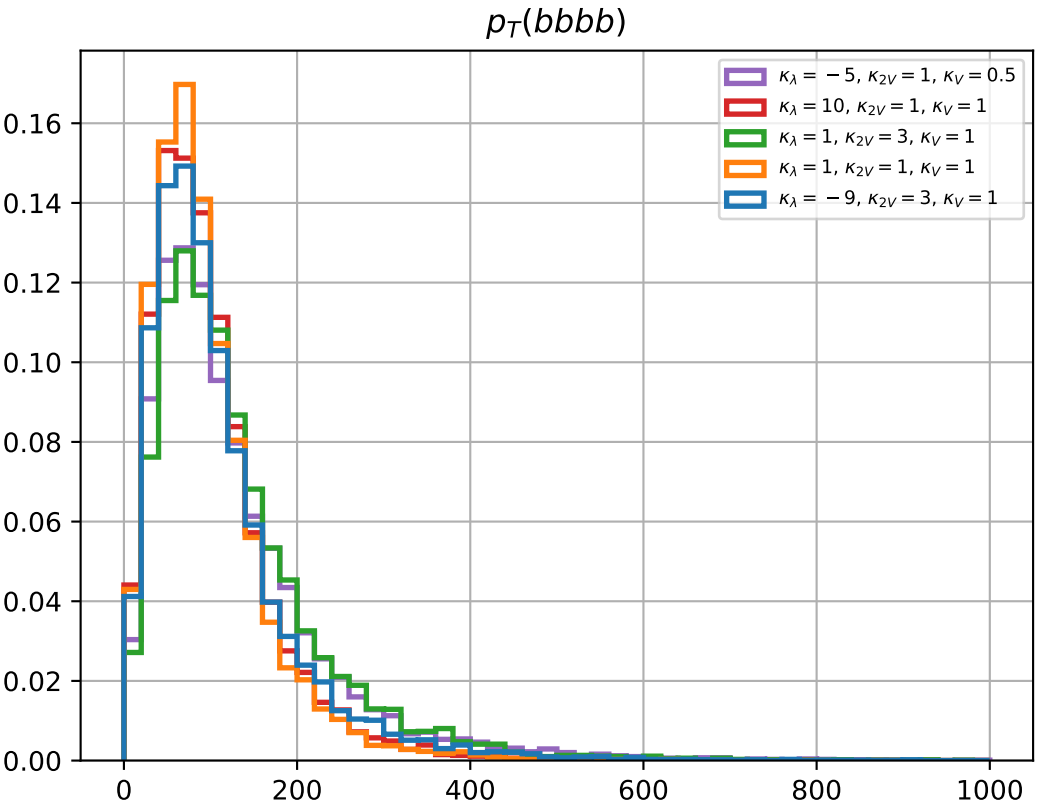

$p_T(bbfromH2)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
0
100
200
300
400
500
600
700
800

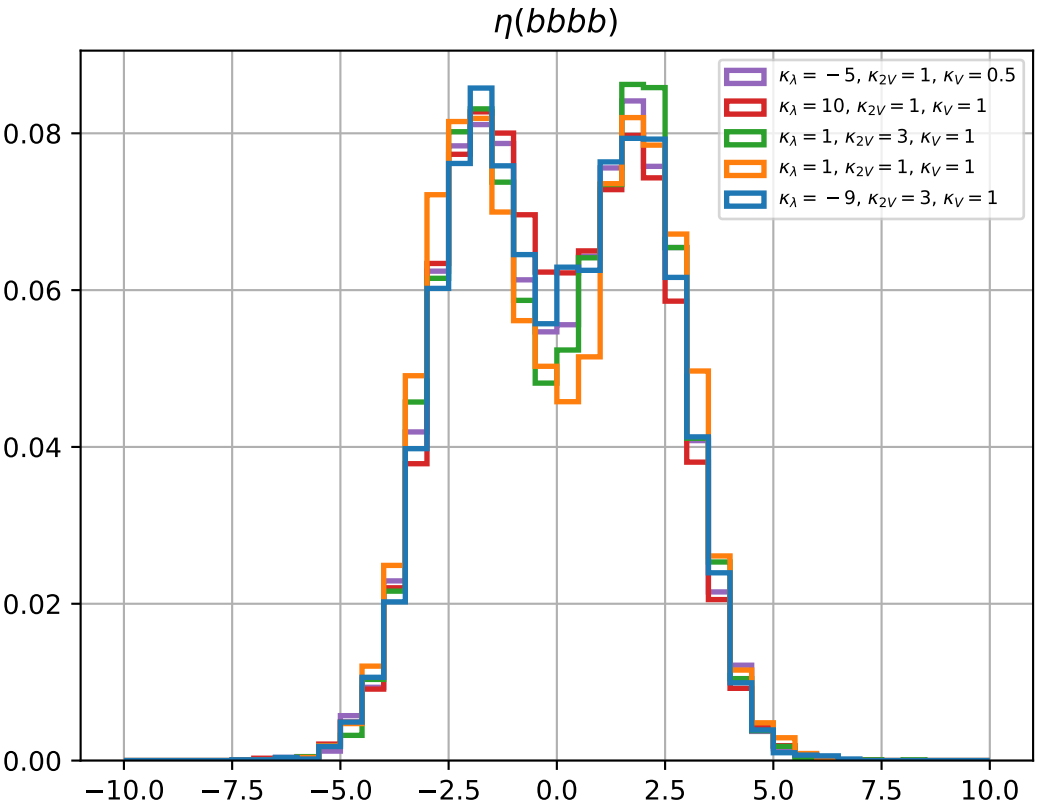

$\eta(bbfromH2)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
−4
−2
0
2
4

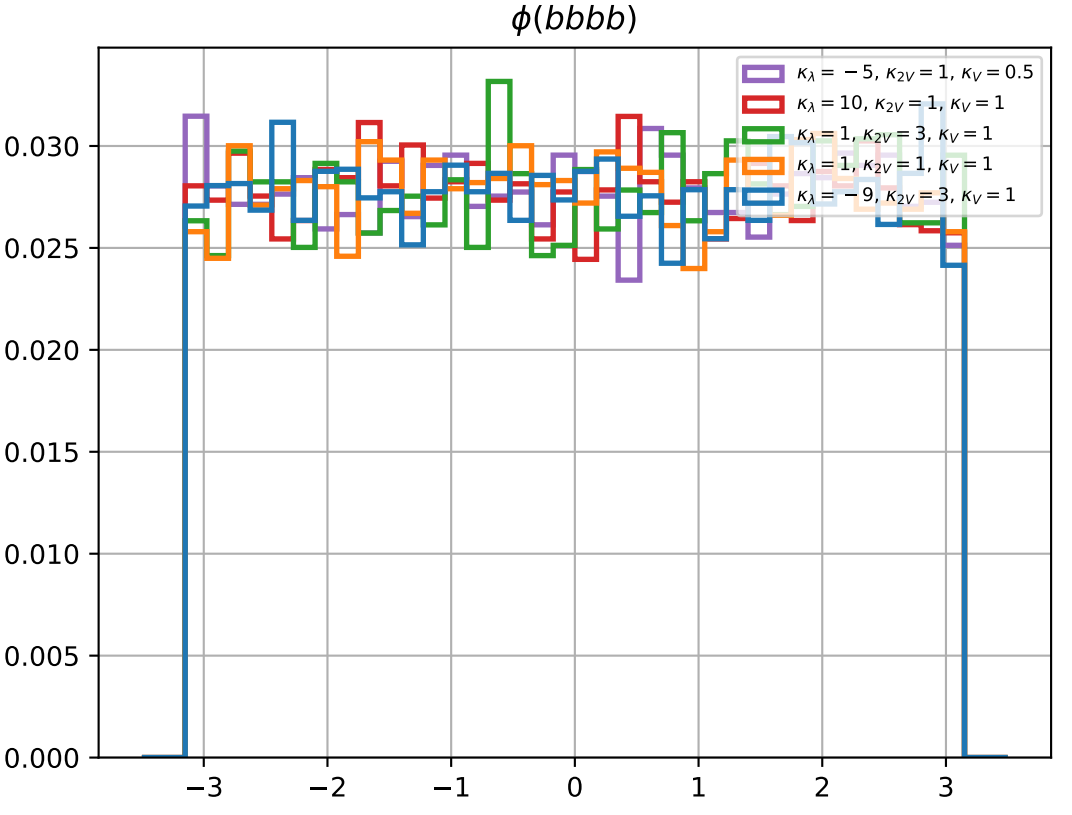

$\phi(bbfromH2)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.030
0.025
0.020
0.015
0.010
0.005
0.000
−3
−2
−1
0
1
2
3

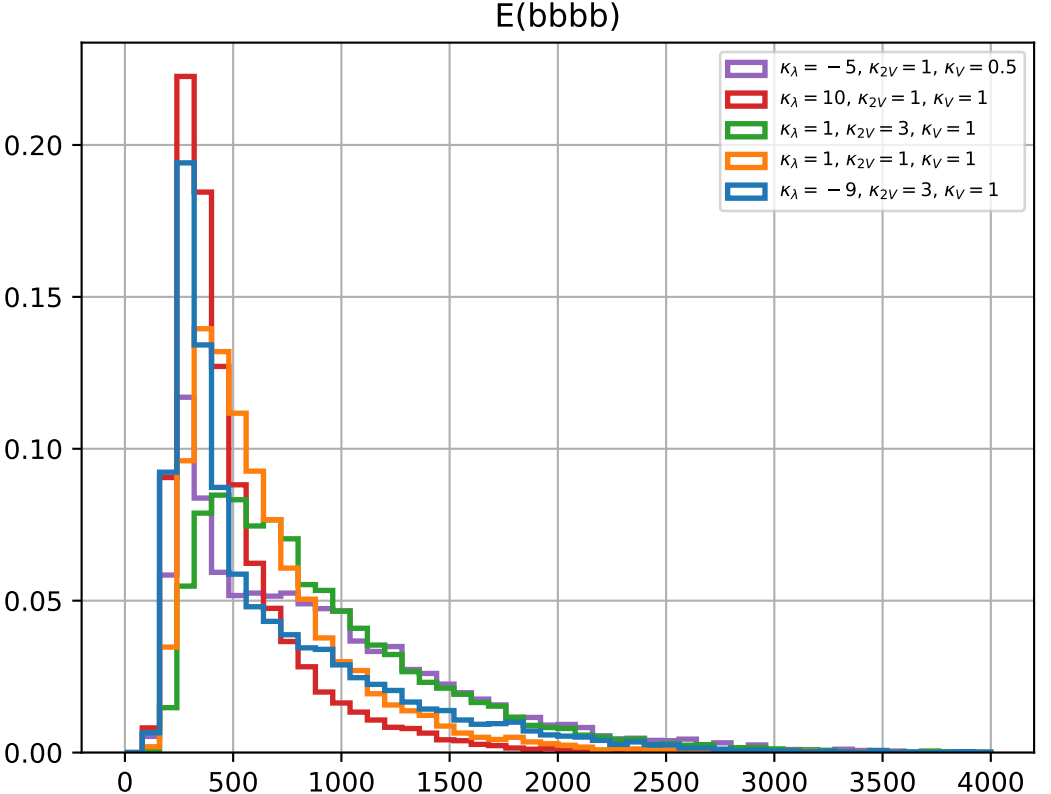

E(bb from H2)
0.25
0.20
0.15
0.10
0.05
0.00
0
250
500
750
1000
1250
1500
1750
2000
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$

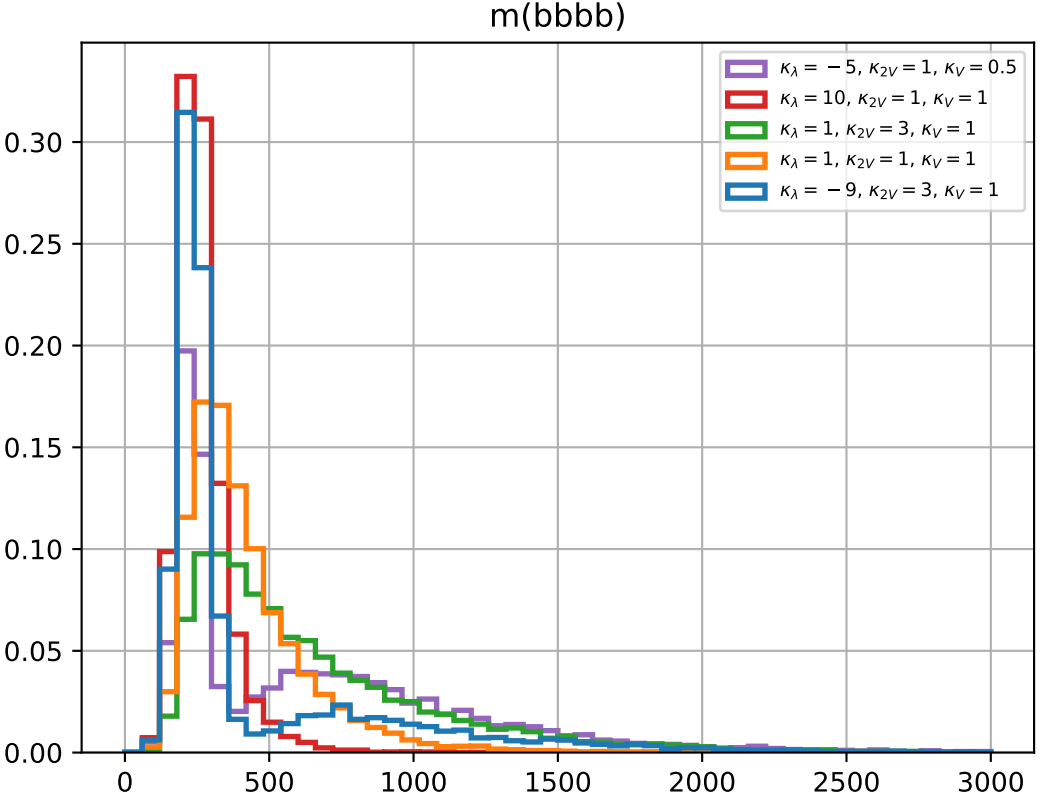

m(bb from H2)
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
80
100
120
140
160
180
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$

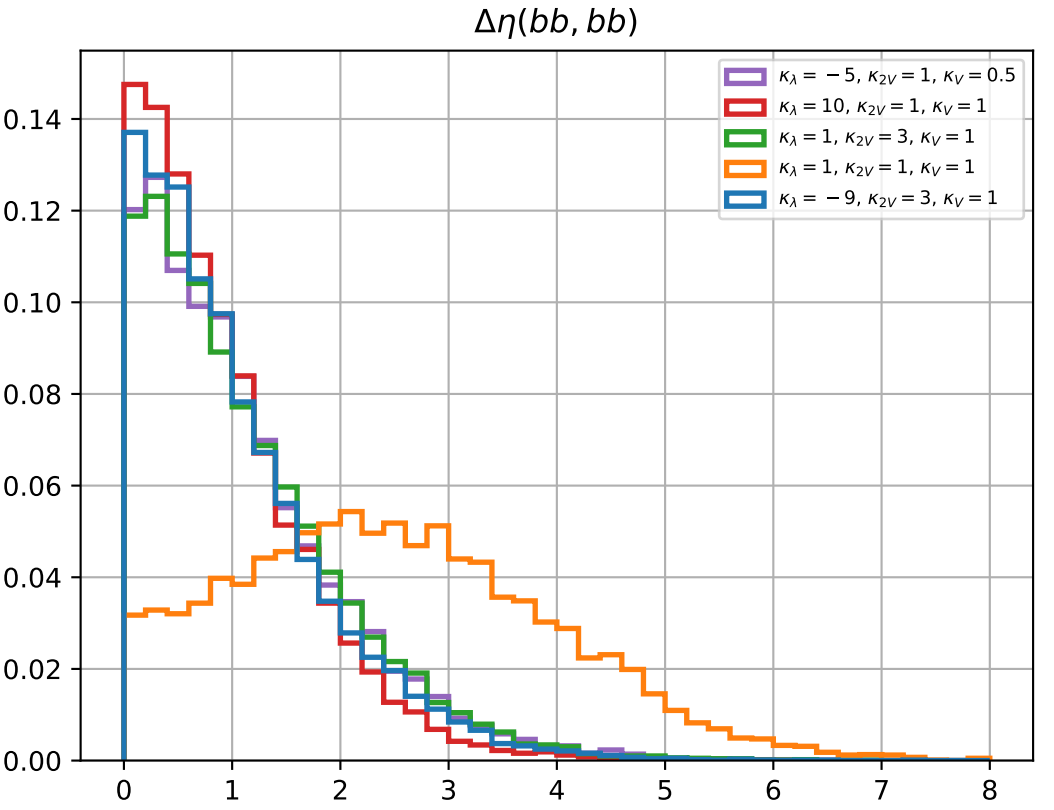

$p_T(bbbb)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0
200
400
600
800
1000

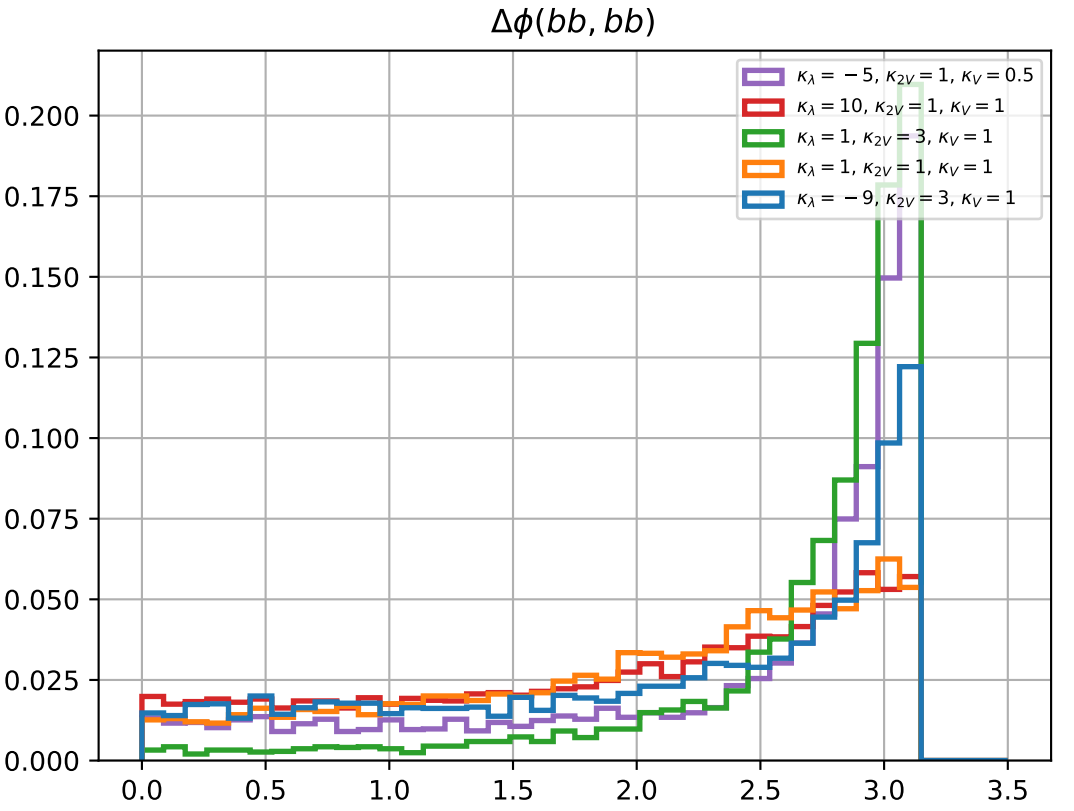

$\eta(bbbb)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.08
0.06
0.04
0.02
0.00
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0

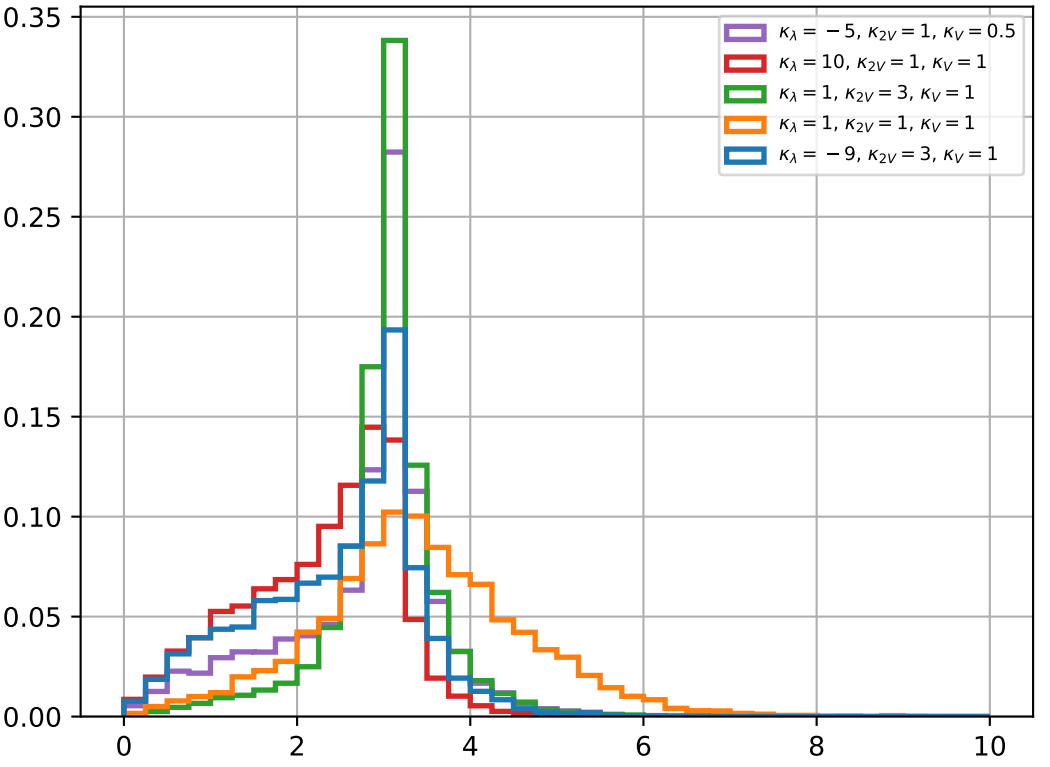

$\phi(bbbb)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.030
0.025
0.020
0.015
0.010
0.005
0.000
−3
−2
−1
0
1
2
3

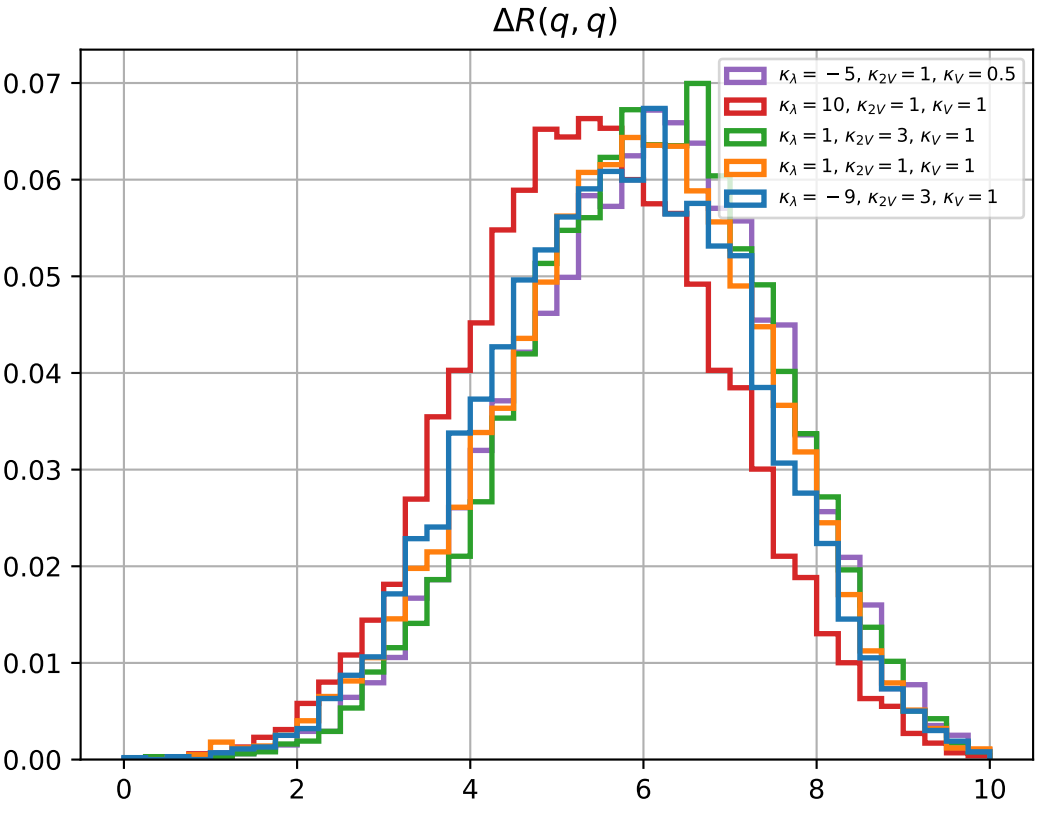

E(bbbb)
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.20
0.15
0.10
0.05
0.00
0
500
1000
1500
2000
2500
3000
3500
4000

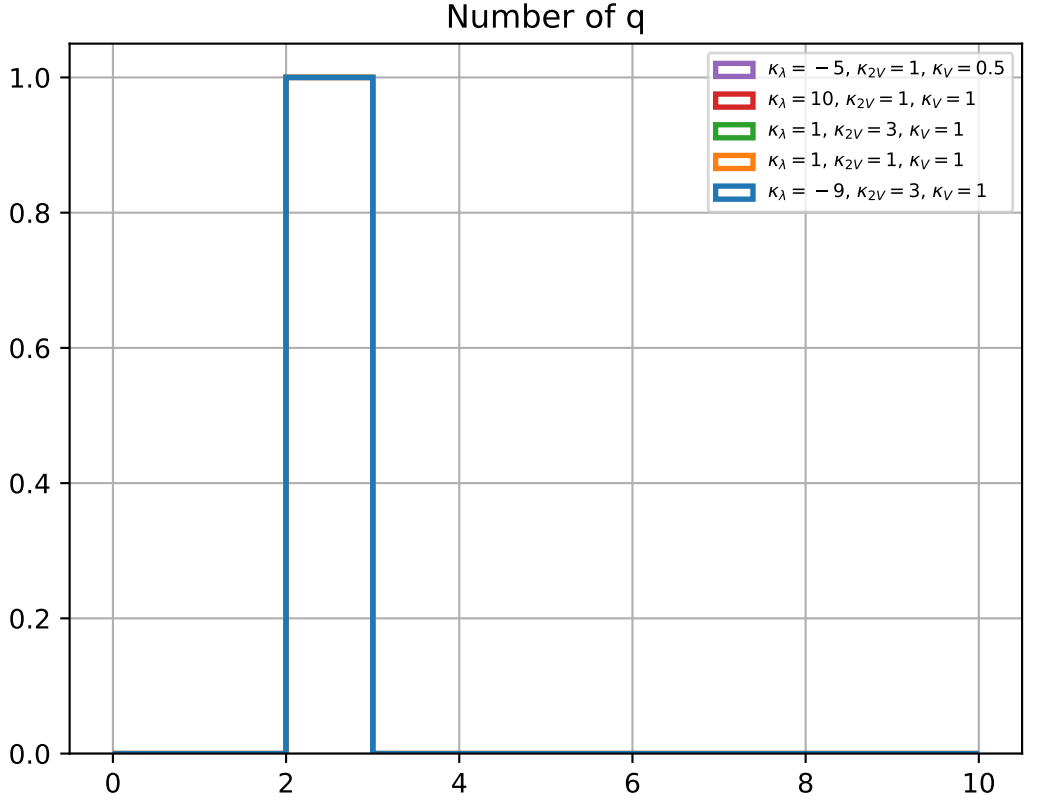

m(bbbb)
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0
500
1000
1500
2000
2500
3000

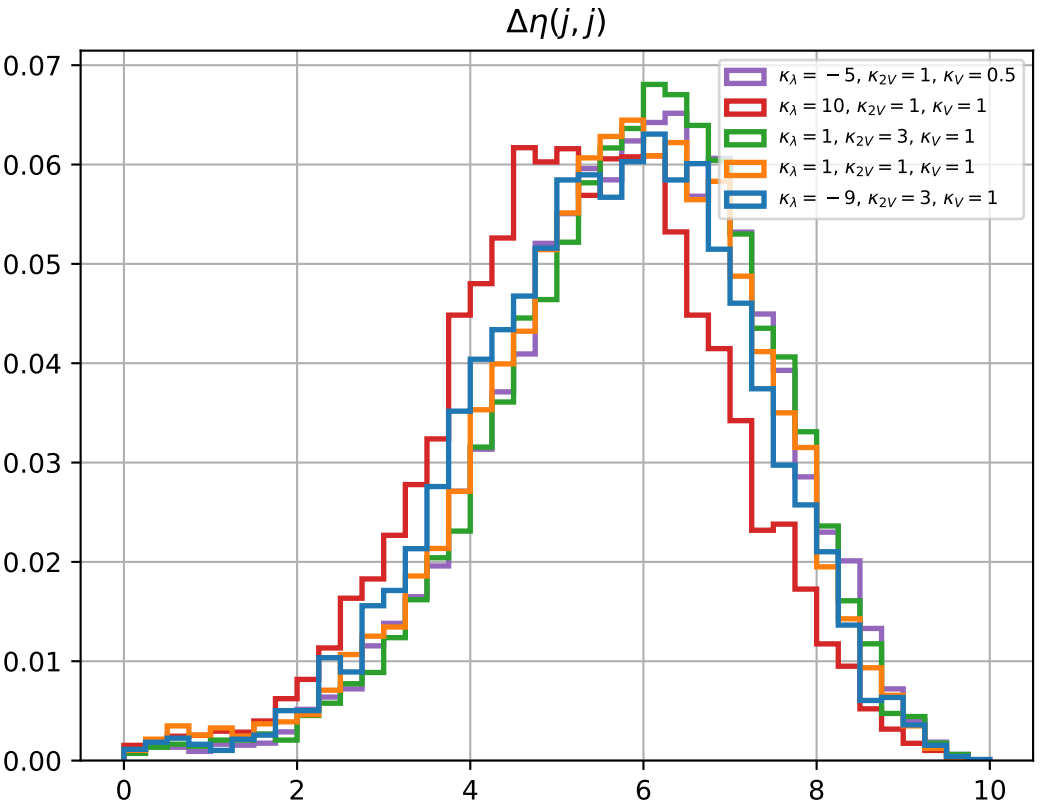

$\Delta\eta(bb, bb)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0
1
2
3
4
5
6
7
8

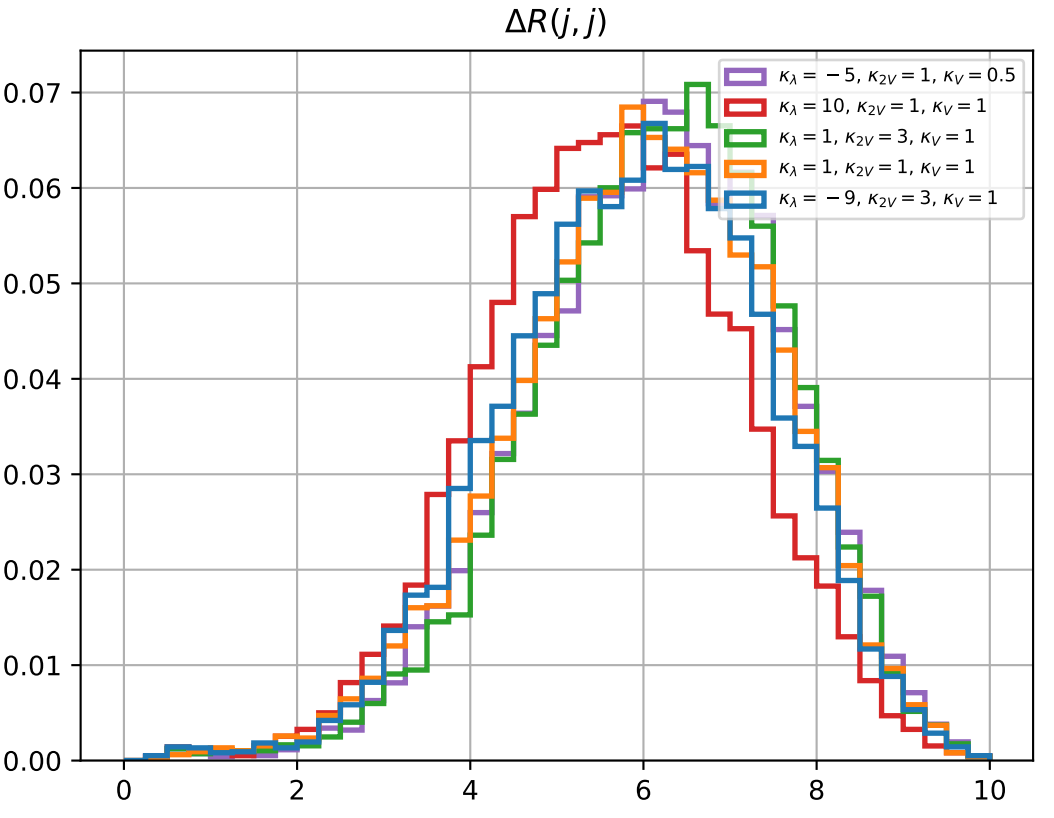

$\Delta\phi(bb, bb)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.200
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

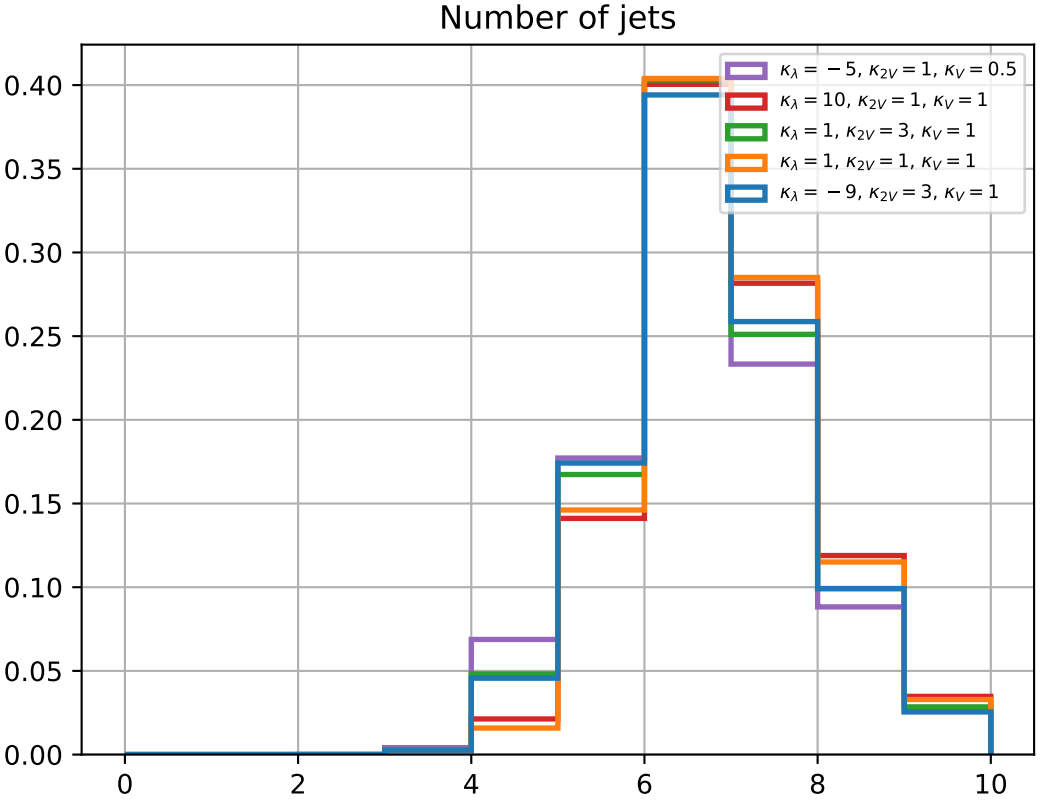

$\Delta R(bb, bb)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0
2
4
6
8
10

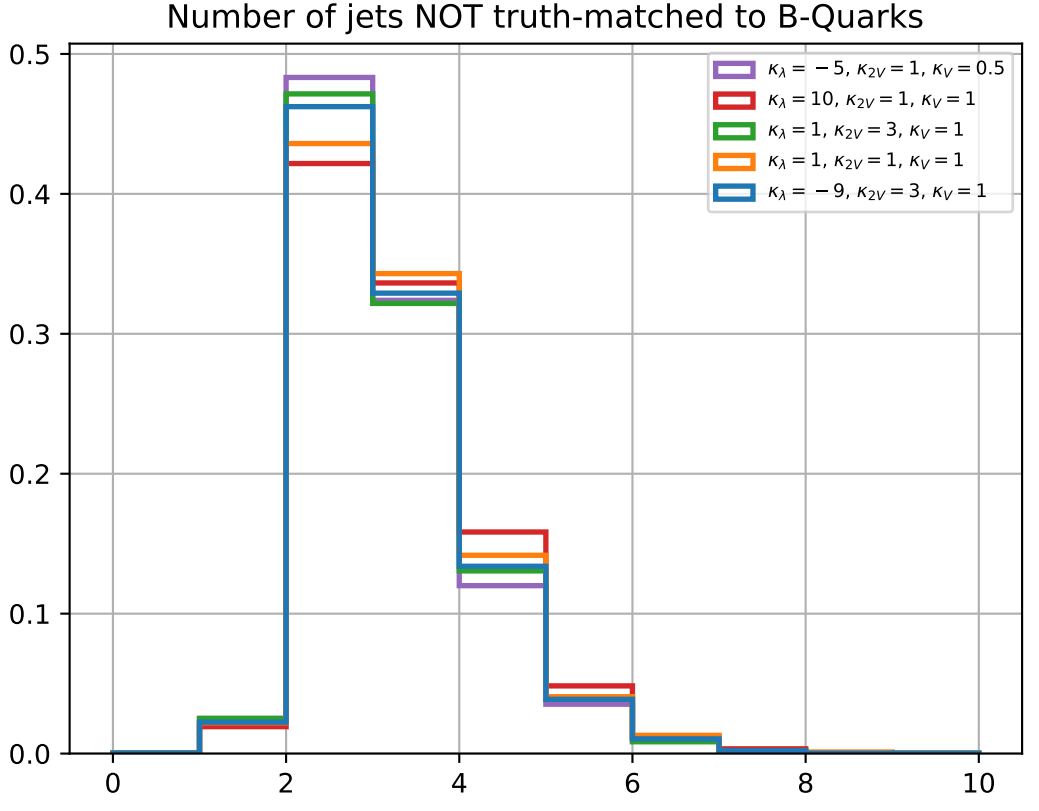

$\Delta R(q,q)$
$\kappa_\lambda = -5,\ \kappa_{2V} = 1,\ \kappa_V = 0.5$
$\kappa_\lambda = 10,\ \kappa_{2V} = 1,\ \kappa_V = 1$
$\kappa_\lambda = 1,\ \kappa_{2V} = 3,\ \kappa_V = 1$
$\kappa_\lambda = 1,\ \kappa_{2V} = 1,\ \kappa_V = 1$
$\kappa_\lambda = -9,\ \kappa_{2V} = 3,\ \kappa_V = 1$
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
0
2
4
6
8
10

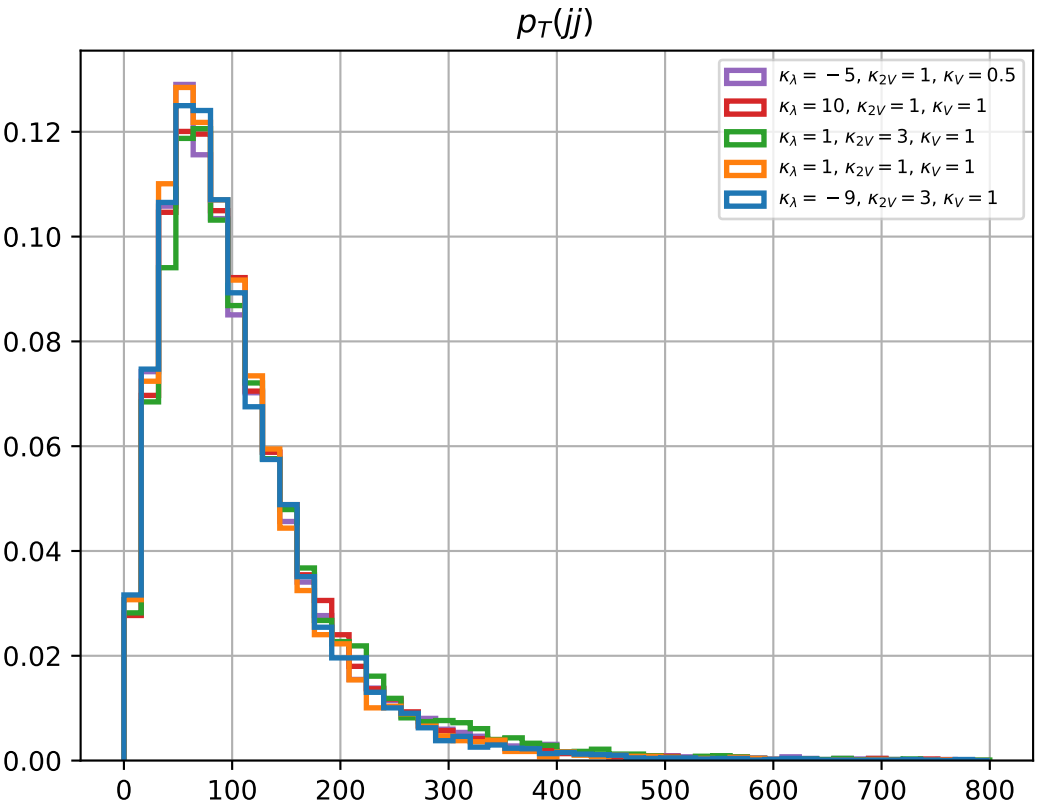

Number of q
$\kappa_\lambda = -5,\ \kappa_{2V} = 1,\ \kappa_V = 0.5$
$\kappa_\lambda = 10,\ \kappa_{2V} = 1,\ \kappa_V = 1$
$\kappa_\lambda = 1,\ \kappa_{2V} = 3,\ \kappa_V = 1$
$\kappa_\lambda = 1,\ \kappa_{2V} = 1,\ \kappa_V = 1$
$\kappa_\lambda = -9,\ \kappa_{2V} = 3,\ \kappa_V = 1$
1.0
0.8
0.6
0.4
0.2
0.0
0
2
4
6
8
10

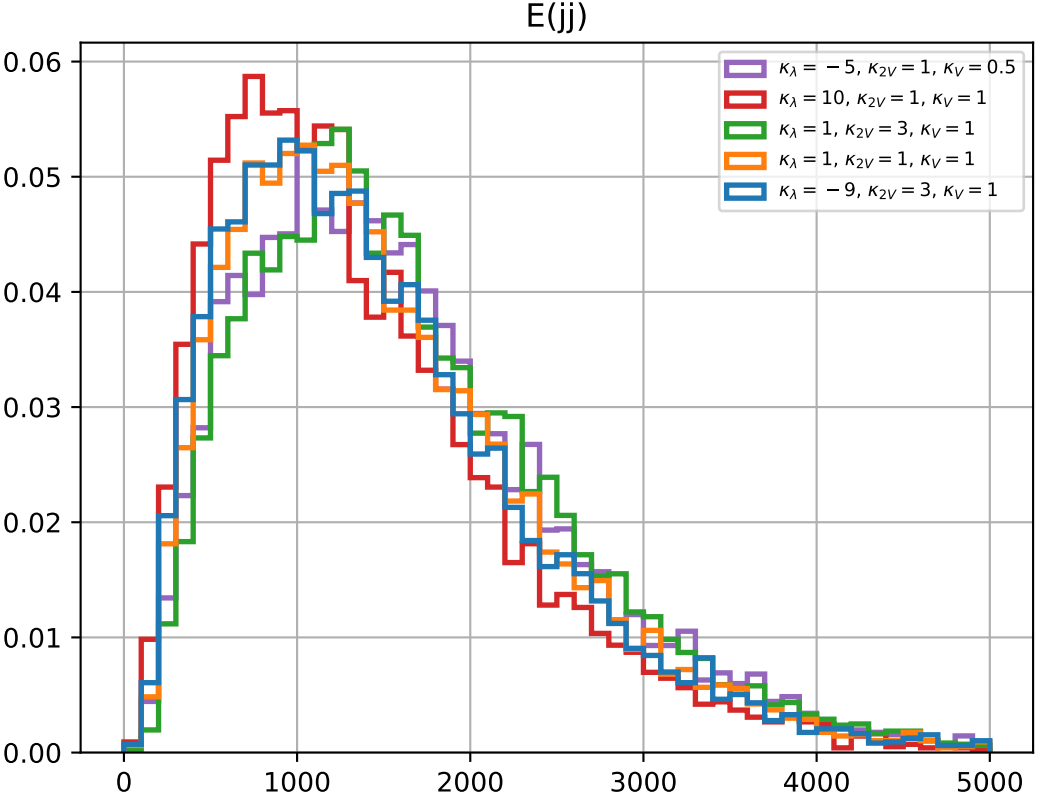

$\Delta\eta(j,j)$
$\kappa_\lambda = -5,\ \kappa_{2V} = 1,\ \kappa_V = 0.5$
$\kappa_\lambda = 10,\ \kappa_{2V} = 1,\ \kappa_V = 1$
$\kappa_\lambda = 1,\ \kappa_{2V} = 3,\ \kappa_V = 1$
$\kappa_\lambda = 1,\ \kappa_{2V} = 1,\ \kappa_V = 1$
$\kappa_\lambda = -9,\ \kappa_{2V} = 3,\ \kappa_V = 1$
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
0
2
4
6
8
10

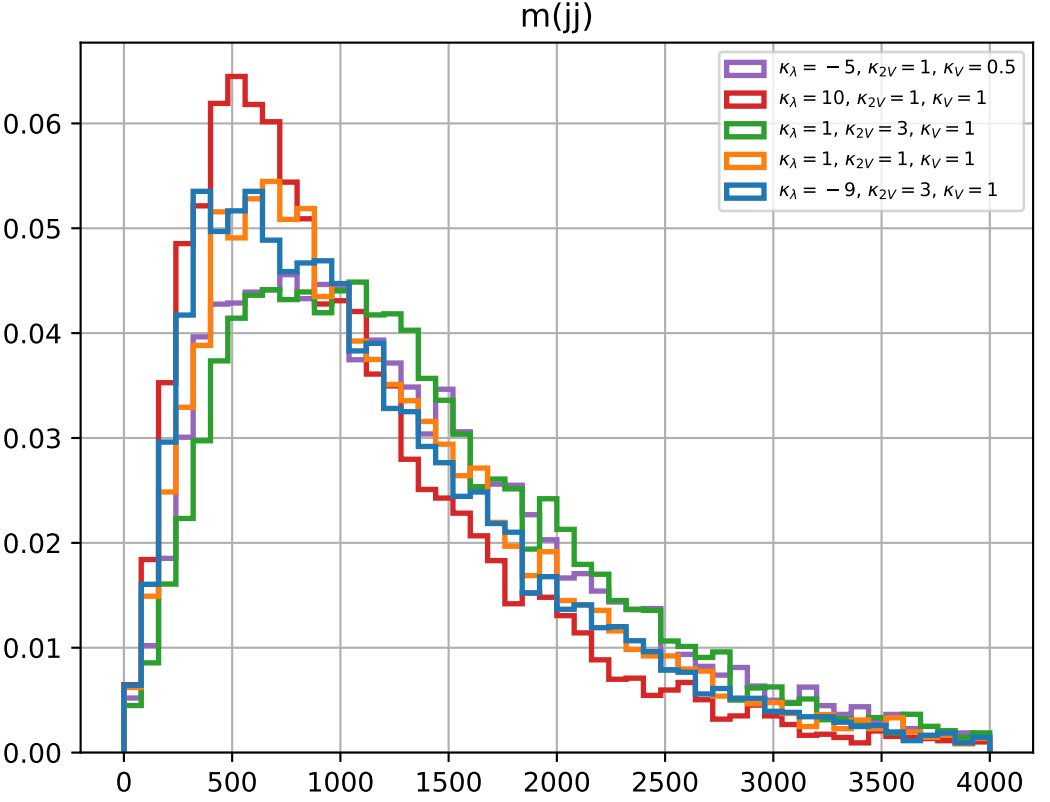

$\Delta R(j,j)$
$\kappa_\lambda = -5,\ \kappa_{2V} = 1,\ \kappa_V = 0.5$
$\kappa_\lambda = 10,\ \kappa_{2V} = 1,\ \kappa_V = 1$
$\kappa_\lambda = 1,\ \kappa_{2V} = 3,\ \kappa_V = 1$
$\kappa_\lambda = 1,\ \kappa_{2V} = 1,\ \kappa_V = 1$
$\kappa_\lambda = -9,\ \kappa_{2V} = 3,\ \kappa_V = 1$
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
0
2
4
6
8
10


Number of jets
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0
2
4
6
8
10


Number of jets NOT truth-matched to B-Quarks
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.5
0.4
0.3
0.2
0.1
0.0
0
2
4
6
8
10


$p_T(jj)$
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0
100
200
300
400
500
600
700
800


E(jj)
0.06
0.05
0.04
0.03
0.02
0.01
0.00
0
1000
2000
3000
4000
5000
$\kappa_\lambda = -5,\ \kappa_{2V} = 1,\ \kappa_V = 0.5$
$\kappa_\lambda = 10,\ \kappa_{2V} = 1,\ \kappa_V = 1$
$\kappa_\lambda = 1,\ \kappa_{2V} = 3,\ \kappa_V = 1$
$\kappa_\lambda = 1,\ \kappa_{2V} = 1,\ \kappa_V = 1$
$\kappa_\lambda = -9,\ \kappa_{2V} = 3,\ \kappa_V = 1$


m(jj)
$\kappa_\lambda = -5, \kappa_{2V} = 1, \kappa_V = 0.5$
$\kappa_\lambda = 10, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 3, \kappa_V = 1$
$\kappa_\lambda = 1, \kappa_{2V} = 1, \kappa_V = 1$
$\kappa_\lambda = -9, \kappa_{2V} = 3, \kappa_V = 1$
0.06
0.05
0.04
0.03
0.02
0.01
0.00
0
500
1000
1500
2000
2500
3000
3500
4000