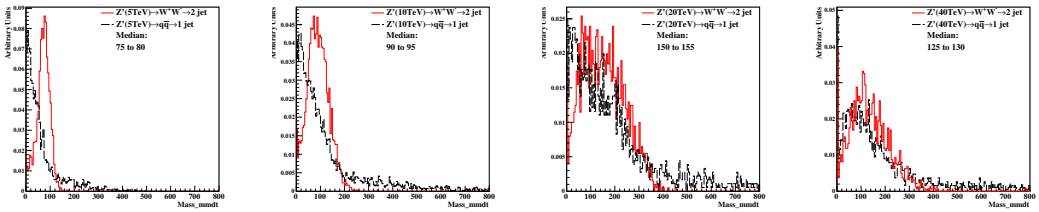
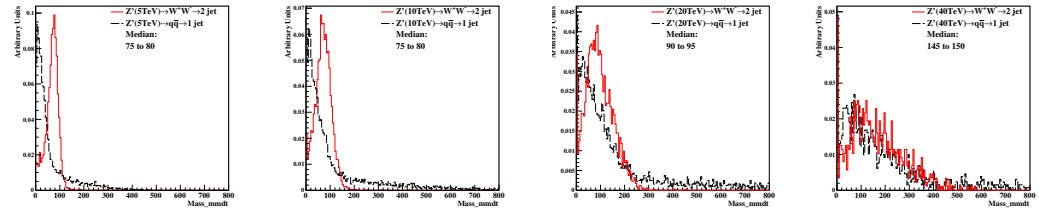
1. Soft drop method in future collider performance

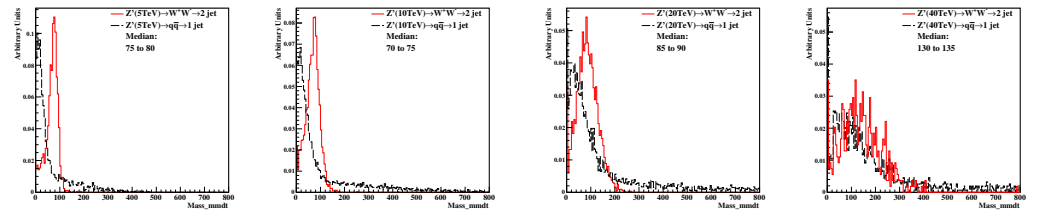
In this section, we use the method about the soft drop mass to study the



(a) 5TeV at 20×20(cm×cm) cluster (b) 10TeV at 20×20(cm×cm) cluster (c) 20TeV at 20×20(cm×cm) cluster (d) 40TeV at 20×20(cm×cm) cluster

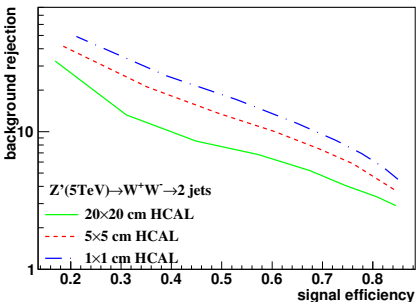


(e) 5TeV at 5×5(cm×cm) cluster (f) 10TeV at 5×5(cm×cm) cluster (g) 20TeV at 5×5(cm×cm) cluster (h) 40TeV at 5×5(cm×cm) cluster

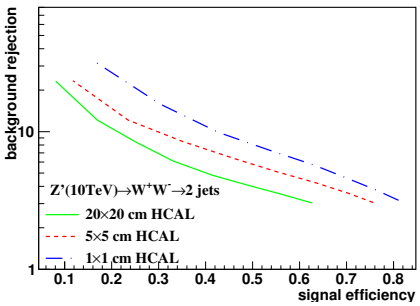


(i) 5TeV at 1×1(cm×cm) cluster (j) 10TeV at 1×1(cm×cm) cluster (k) 20TeV at 1×1(cm×cm) cluster (l) 40TeV at 1×1(cm×cm) cluster

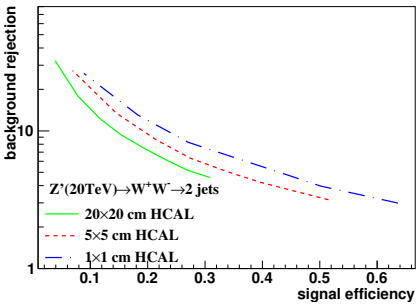
Figure 1: Distributions of mass soft drop at β=0, signal=ww, in 5,10TeV energy of collision in different detector sizes. Cell Size in 20×20, 5×5, and 1×1(cm×cm) are shown here.



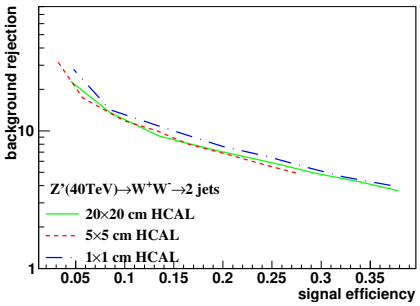
(a) Central at Median(20×20=80,5×5=80,1×1=80) change width in cluster at 5TeV



(b) Central at Median(20×20=95,5×5=80,1×1=75) change width in cluster at 10TeV

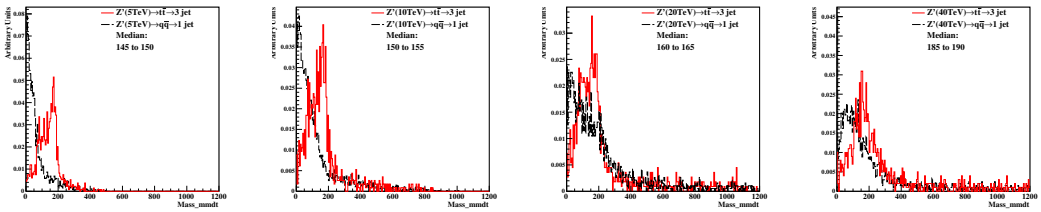


(c) Central at Median(20 × 20=155,5 × 5=95,1 × 1=90) change width in cluster at 20TeV

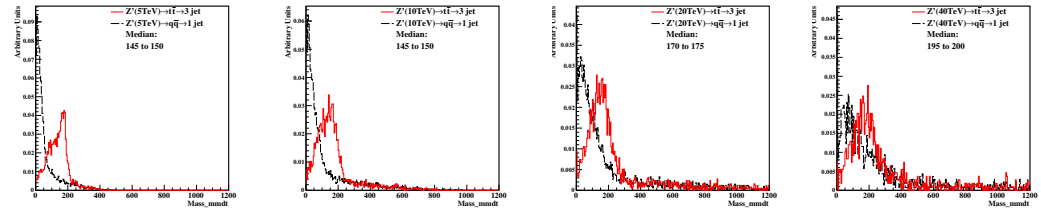


(d) Central at Median(20 × 20=130,5 × 5=150,1 × 1=135) change width in cluster at 40TeV

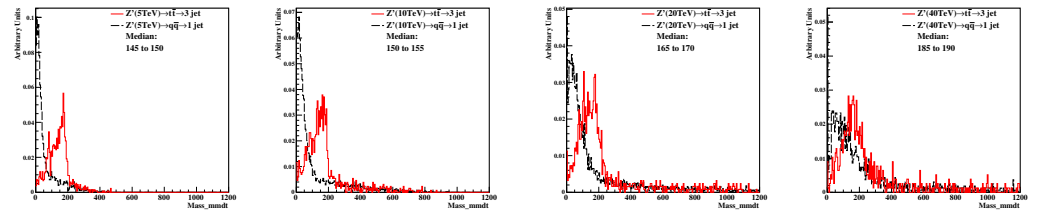
Figure 2: study of "fix central and change width" in mass soft drop at β=0, signal=ww, in 5, 10, 20, 40TeV energy of collision in different detector sizes. Cell Size in 20×20, 5×5, and 1×1(cm×cm) are shown in each picture.



(a) 5TeV at 20×20(cm×cm) in cluster (b) 10TeV at 20×20(cm×cm) in cluster (c) 20TeV at 5×5(cm×cm) in cluster (d) 40TeV at 5×5(cm×cm) in cluster

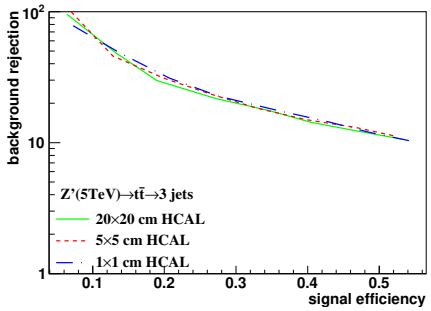


(e) 5TeV at 1×1(cm×cm) in cluster (f) 10TeV at 1×1(cm×cm) in cluster (g) 20TeV at 20×20(cm×cm) in cluster (h) 40TeV at 20×20(cm×cm) in cluster

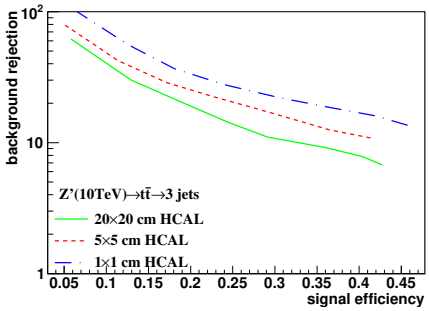


(i) 5TeV at 5×5(cm×cm) in cluster (j) 10TeV at 5×5(cm×cm) in cluster (k) 20TeV at 1×1(cm×cm) in cluster (l) 40TeV at 1×1(cm×cm) in cluster

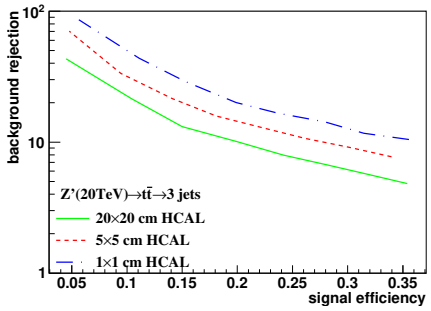
Figure 3: Distributions of mass soft drop at β=0, signal=tt, in 5,10TeV energy of collision in different detector sizes. Cell Size in 20×20, 5×5, and 1×1(cm×cm) are shown here.



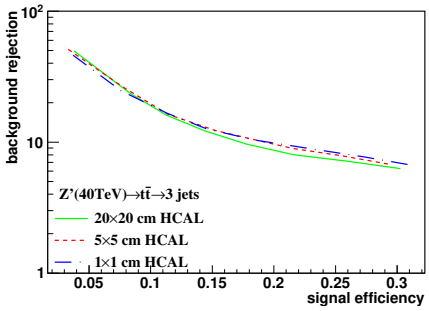
(a) Central at Median(20 × 20=150,5 × 5=150,1 × 1=150) change width in cluster at 5TeV



(b) Central at Median(20 × 20=155,5 × 5=150,1 × 1=155) change width in cluster at 10TeV

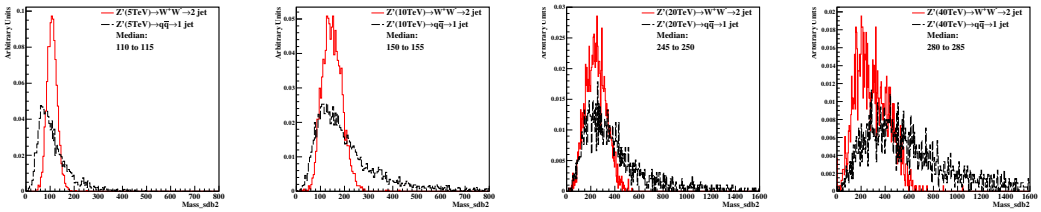


(c) Central at Median(20 × 20=165,5 × 5=175,1 × 1=170) change width in cluster at 20TeV

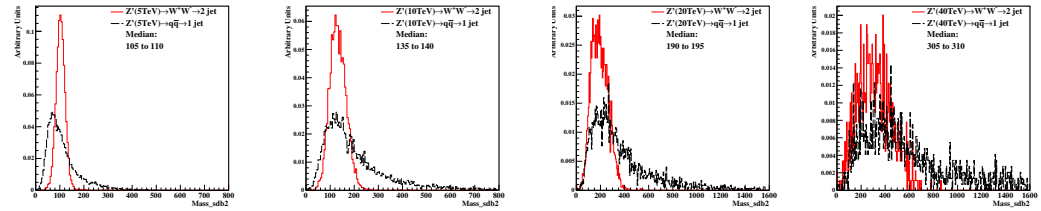


(d) Central at Median(20 × 20=190,5 × 5=200,1 × 1=190) change width in cluster at 40TeV

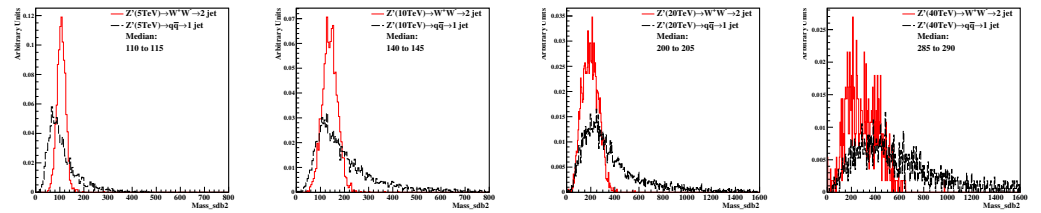
Figure 4: study of "fix central and change width" in mass soft drop at β=0, signal=tt, in 5, 10, 20, 40TeV energy of collision in different detector sizes. Cell Size in 20×20, 5×5, and 1×1(cm×cm) are shown in each picture.



(a) 5TeV at 20×20(cm×cm) cluster (b) 10TeV at 20×20(cm×cm) cluster (c) 20TeV at 20×20(cm×cm) cluster (d) 40TeV at 20×20(cm×cm) cluster

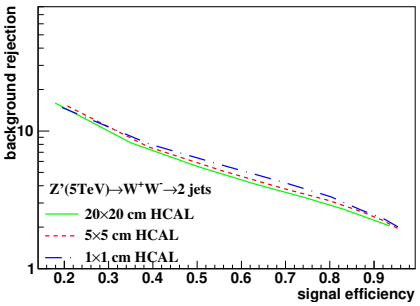


(e) 5TeV at 5×5(cm×cm) cluster (f) 10TeV at 5×5(cm×cm) cluster (g) 20TeV at 5×5(cm×cm) cluster (h) 40TeV at 5×5(cm×cm) cluster

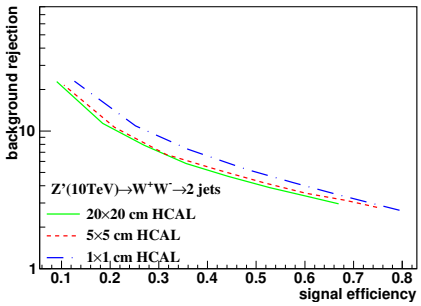


(i) 5TeV at 1×1(cm×cm) cluster (j) 10TeV at 1×1(cm×cm) cluster (k) 20TeV at 1×1(cm×cm) cluster (l) 40TeV at 1×1(cm×cm) cluster

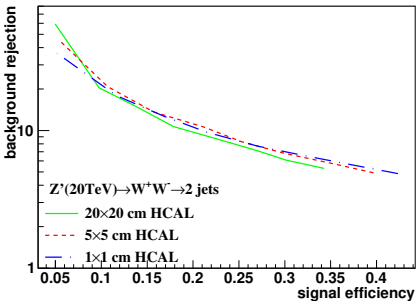
Figure 5: Distributions of mass soft drop at β=2, signal=ww, in 5,10TeV energy of collision in different detector sizes. Cell Size in 20×20, 5×5, and 1×1(cm×cm) are shown here.



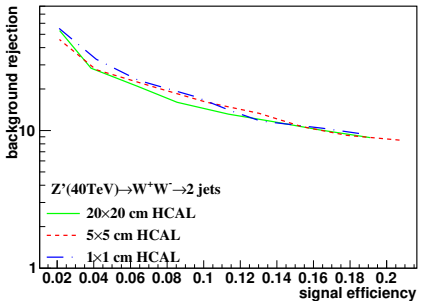
(a) Central at Median(20 × 20=115,5 × 5=110,1 × 1=115) change width in cluster at 5TeV



(b) Central at Median(20 × 20=155,5 × 5=140,1 × 1=145) change width in cluster at 10TeV

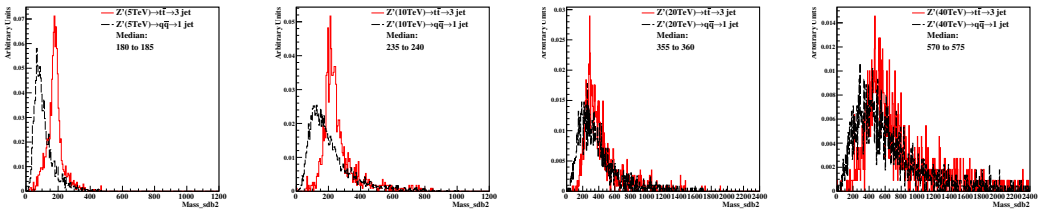


(c) Central at Median(20 × 20=250,5 × 5=195,1 × 1=205) change width in cluster at 20TeV

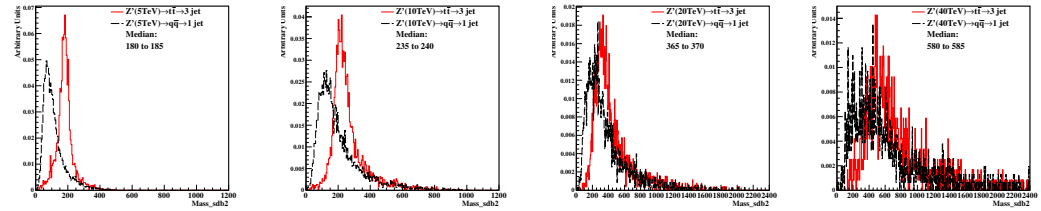


(d) Central at Median(20 × 20=285,5 × 5=310,1 × 1=290) change width in cluster at 40TeV

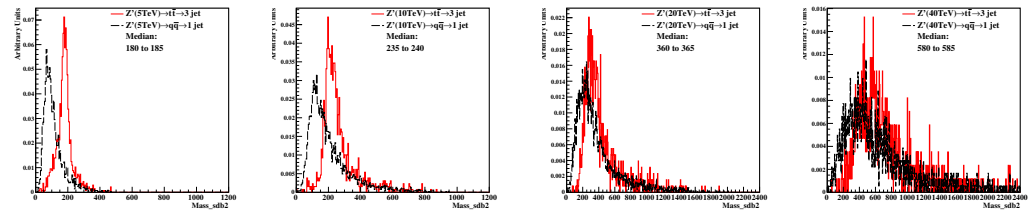
Figure 6: study of "fix central and change width" in mass soft drop at β=2, signal=ww, in 5, 10, 20, 40TeV energy of collision in different detector sizes. Cell Size in 20×20, 5×5, and 1×1(cm×cm) are shown in each picture.



(a) 5TeV at 20×20(cm×cm) in cluster (b) 10TeV at 20×20(cm×cm) in cluster (c) 20TeV at 20×20(cm×cm) in cluster (d) 40TeV at 20×20(cm×cm) in cluster

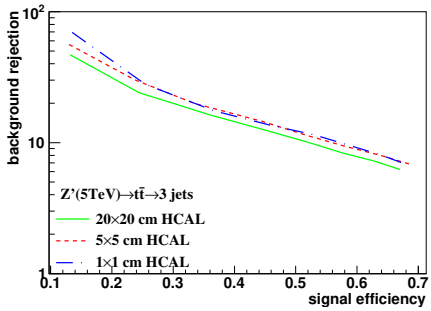


(e) 5TeV at 5×5(cm×cm) in cluster (f) 10TeV at 5×5(cm×cm) in cluster (g) 20TeV at 5×5(cm×cm) in cluster (h) 40TeV at 5×5(cm×cm) in cluster

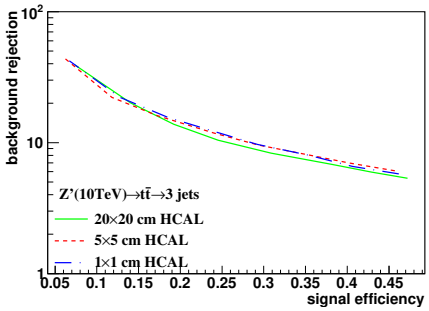


(i) 5TeV at 1×1(cm×cm) in cluster (j) 10TeV at 1×1(cm×cm) in cluster (k) 20TeV at 1×1(cm×cm) in cluster (l) 40TeV at 1×1(cm×cm) in cluster

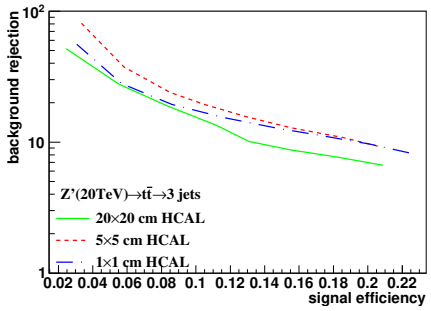
Figure 7: Distributions of mass soft drop at β=2, signal=tt, in 5,10TeV energy of collision in different detector sizes. Cell Size in 20×20, 5×5, and 1×1(cm×cm) are shown here.



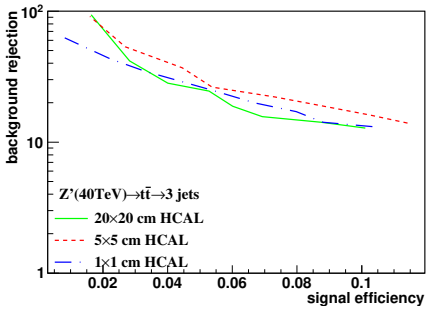
(a) Central at Median(20 × 20=185,5 × 5=185,1 × 1=185) change width in cluster at 5TeV



(b) Central at Median(20 × 20=240,5 × 5=240,1 × 1=240) change width in cluster at 10TeV



(c) Central at Median(20 × 20=360,5 × 5=375,1 × 1=365) change width in cluster at 20TeV



(d) Central at Median(20 × 20=620,5 × 5=625,1 × 1=630) change width in cluster at 40TeV

Figure 8: study of "fix central and change width" in mass soft drop at β=2, signal=tt, in 5, 10, 20, 40TeV energy of collision in different detector sizes. Cell Size in 20×20, 5×5, and 1×1(cm×cm) are shown in each picture.