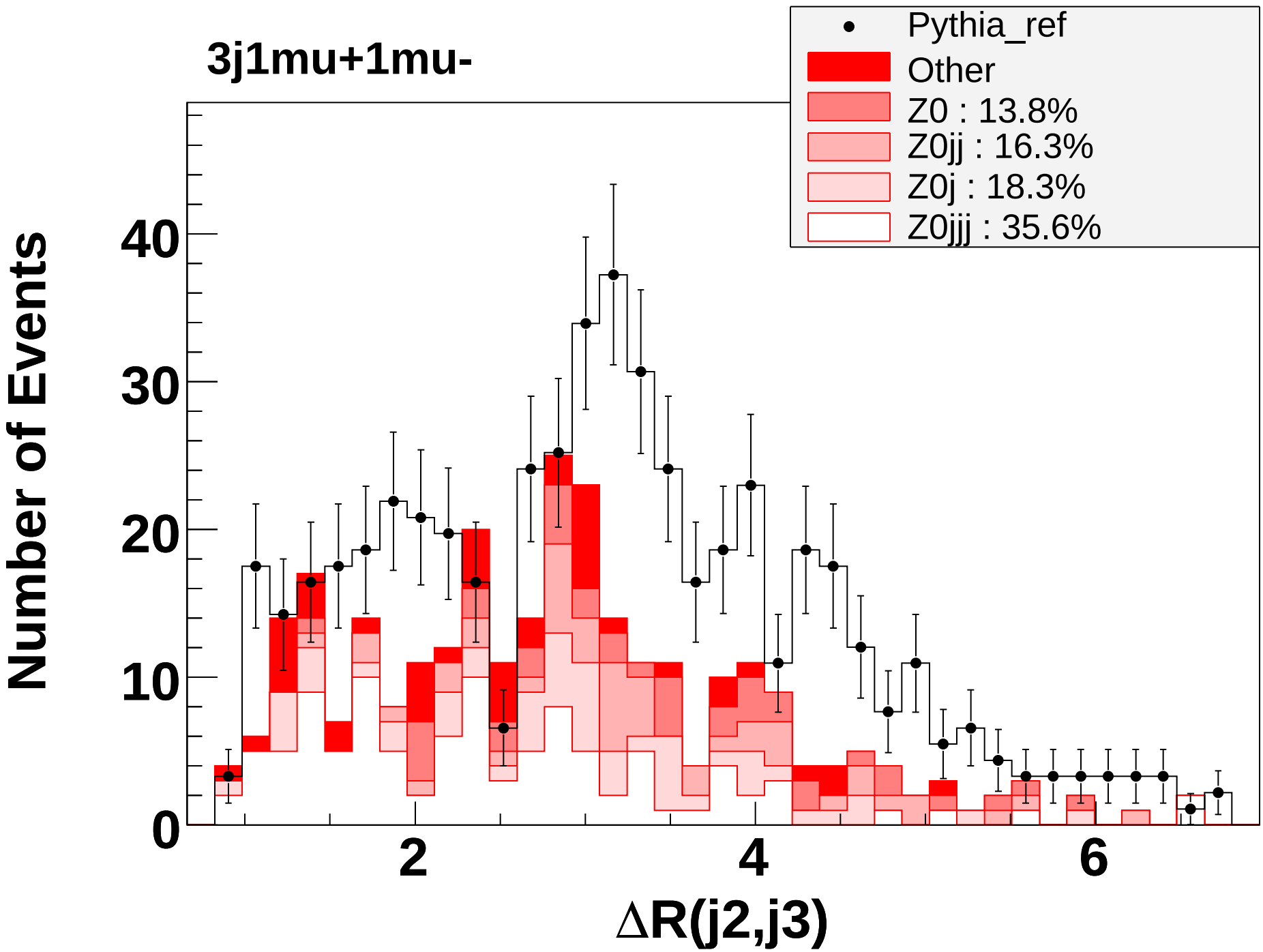
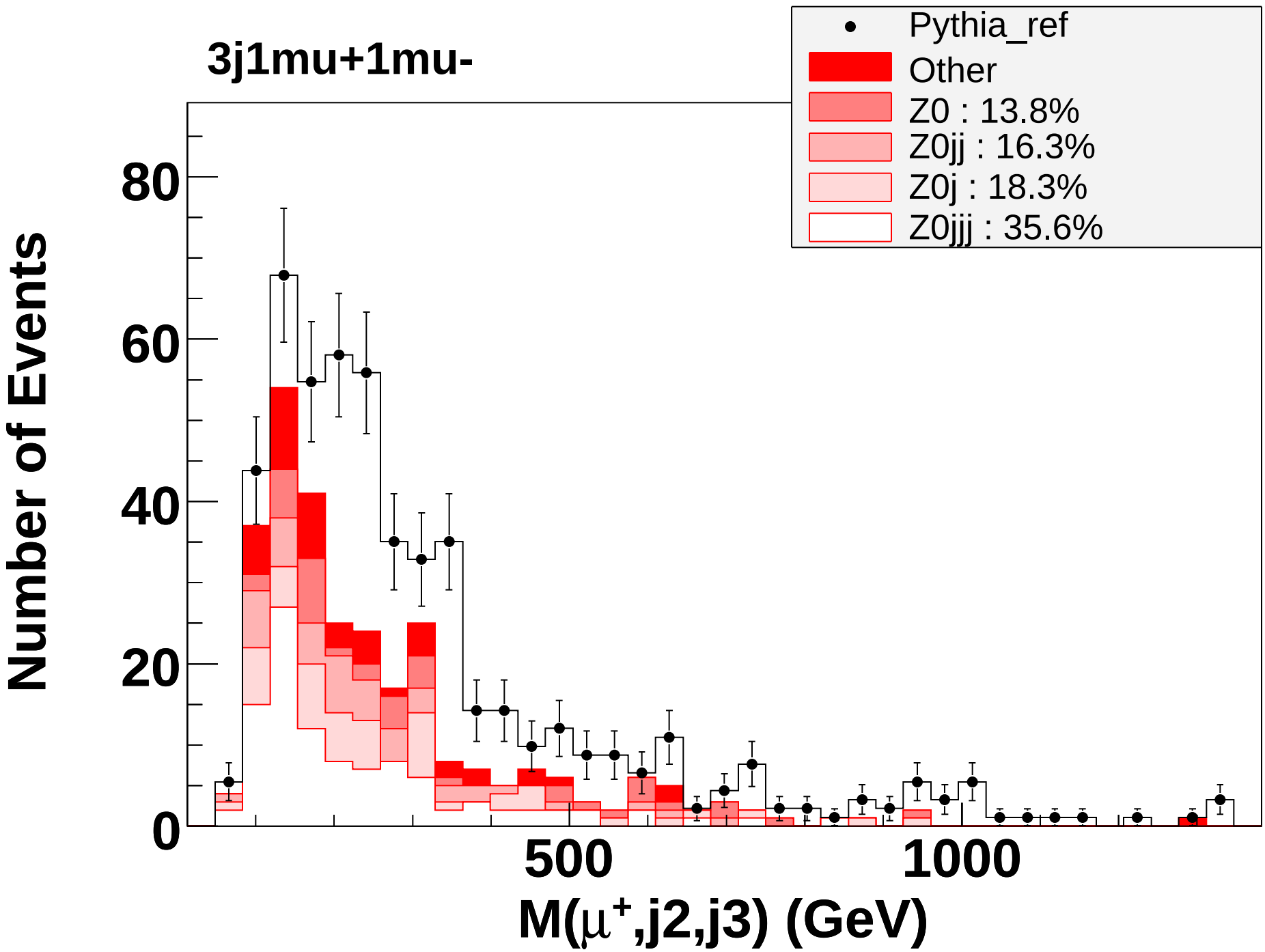
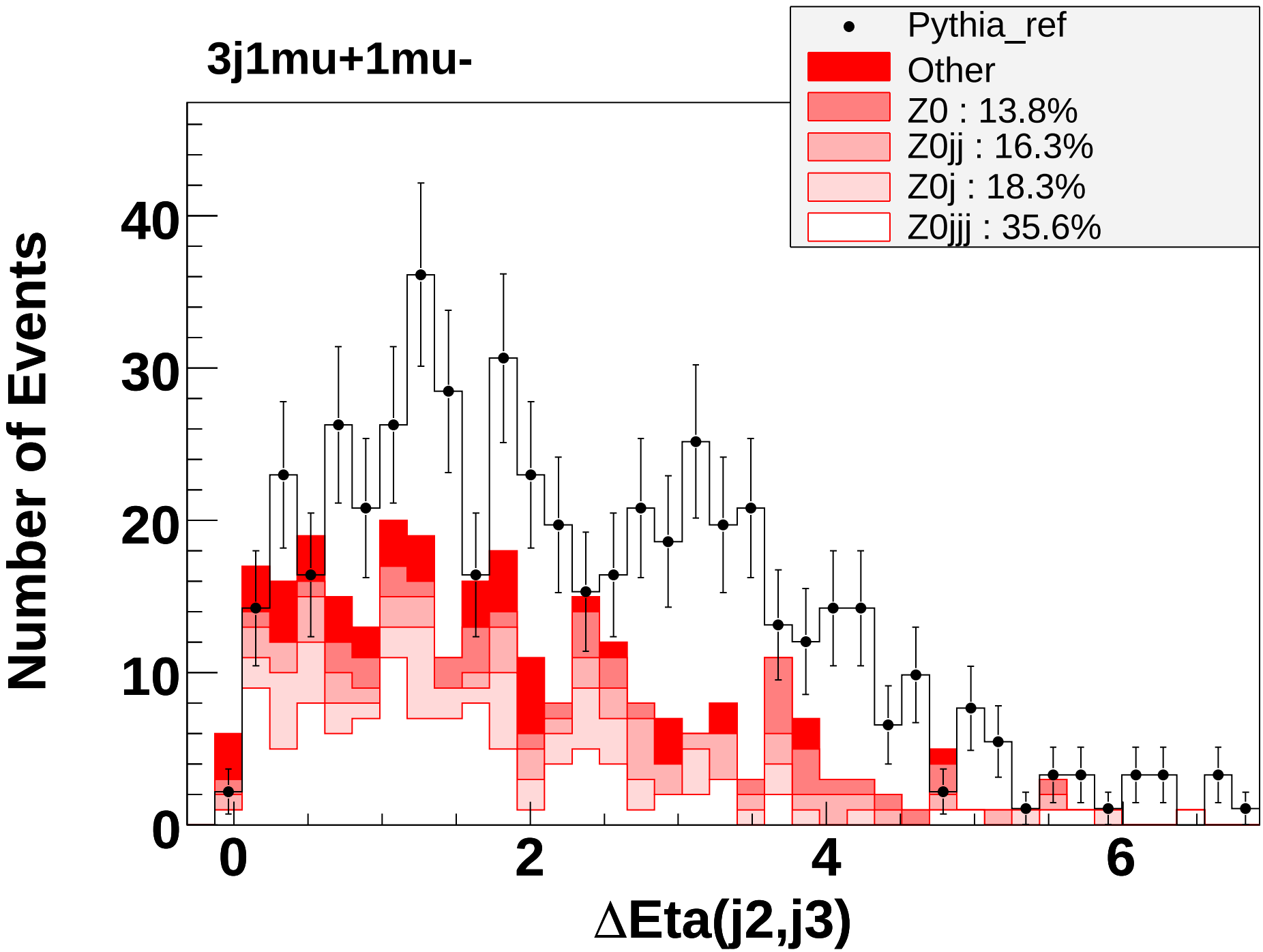
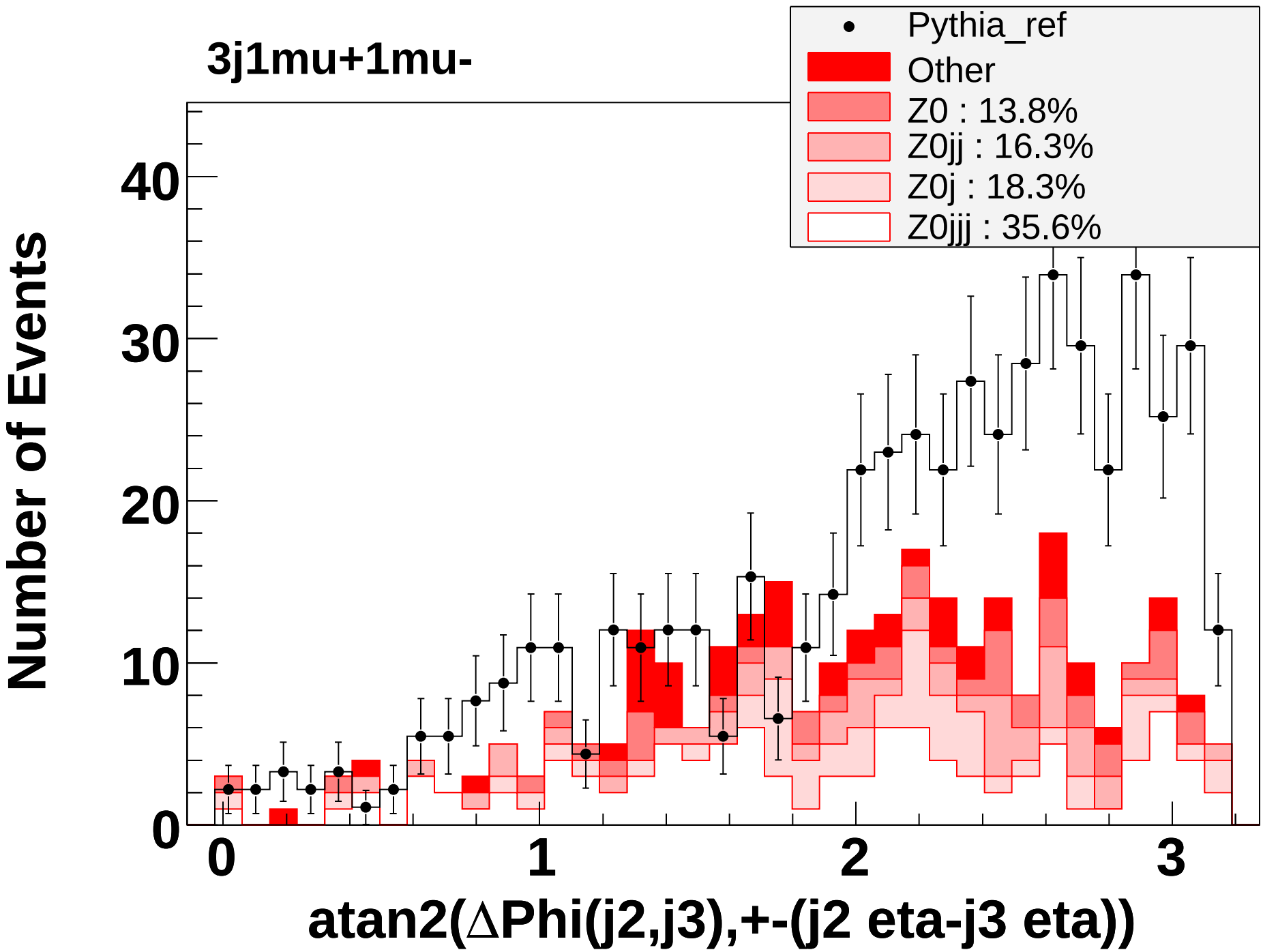
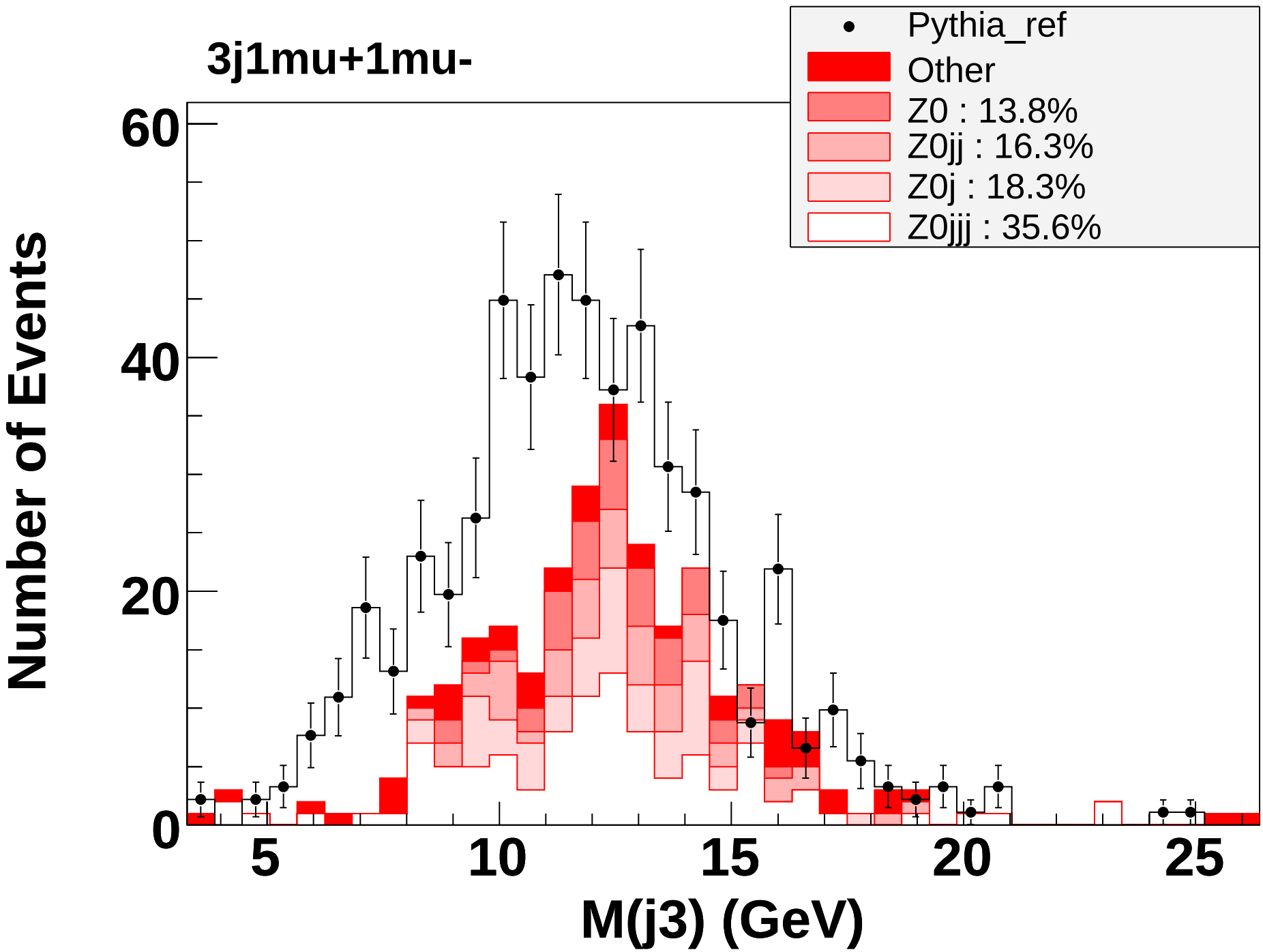
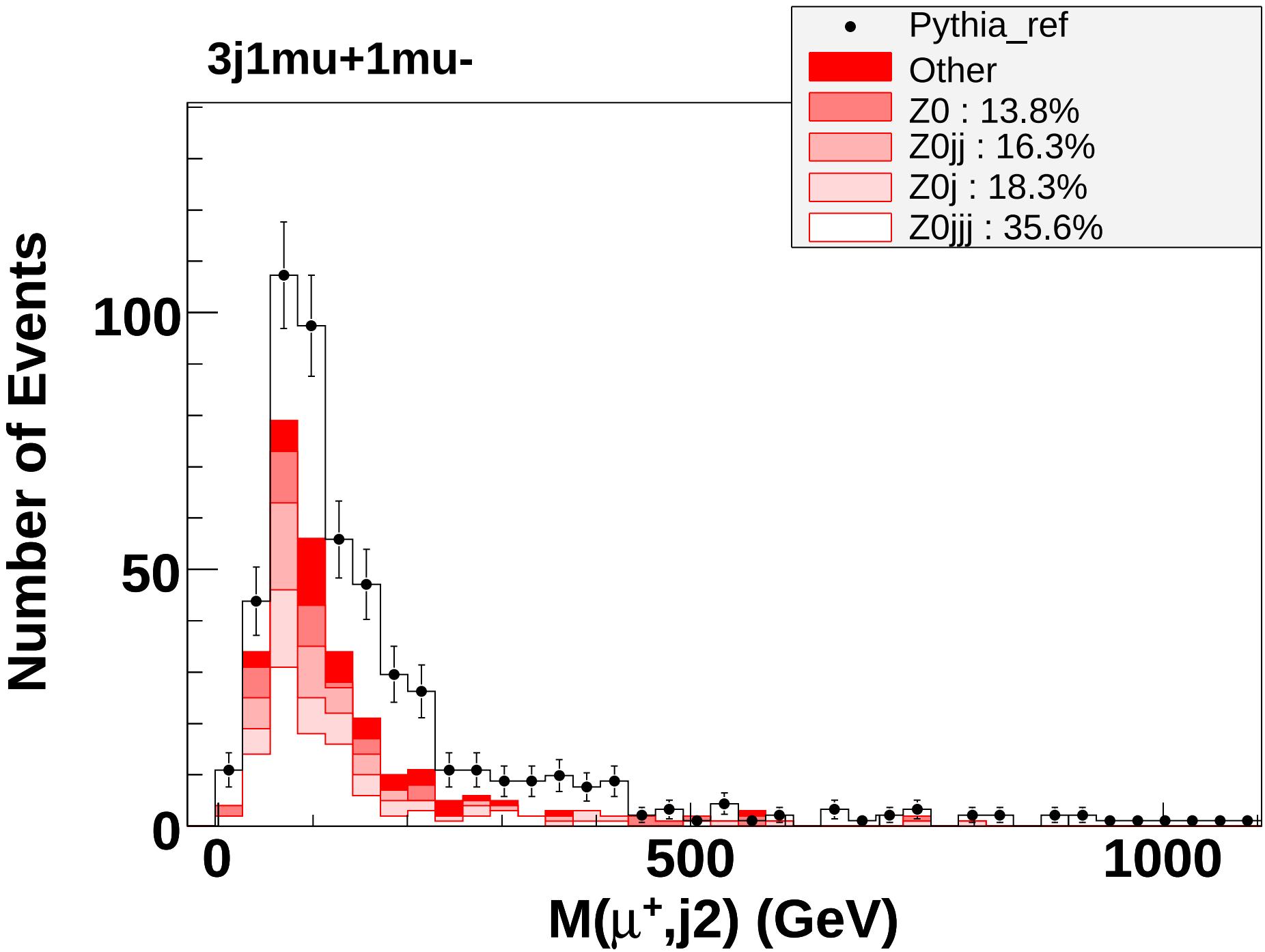

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
40
2
4
6
ΔR(j2,j3)

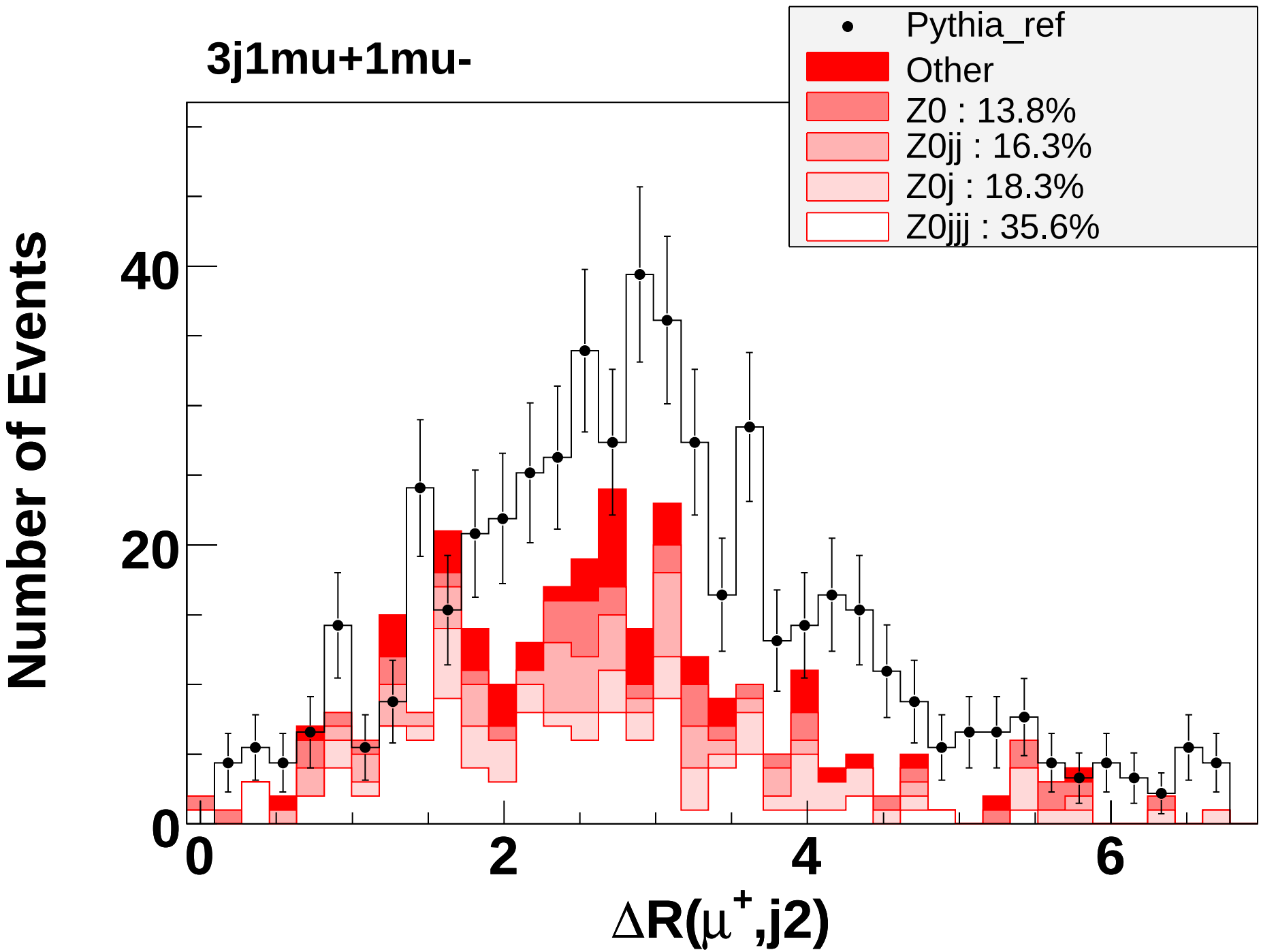

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
80
500
1000
M(μ+,j2,j3) (GeV)

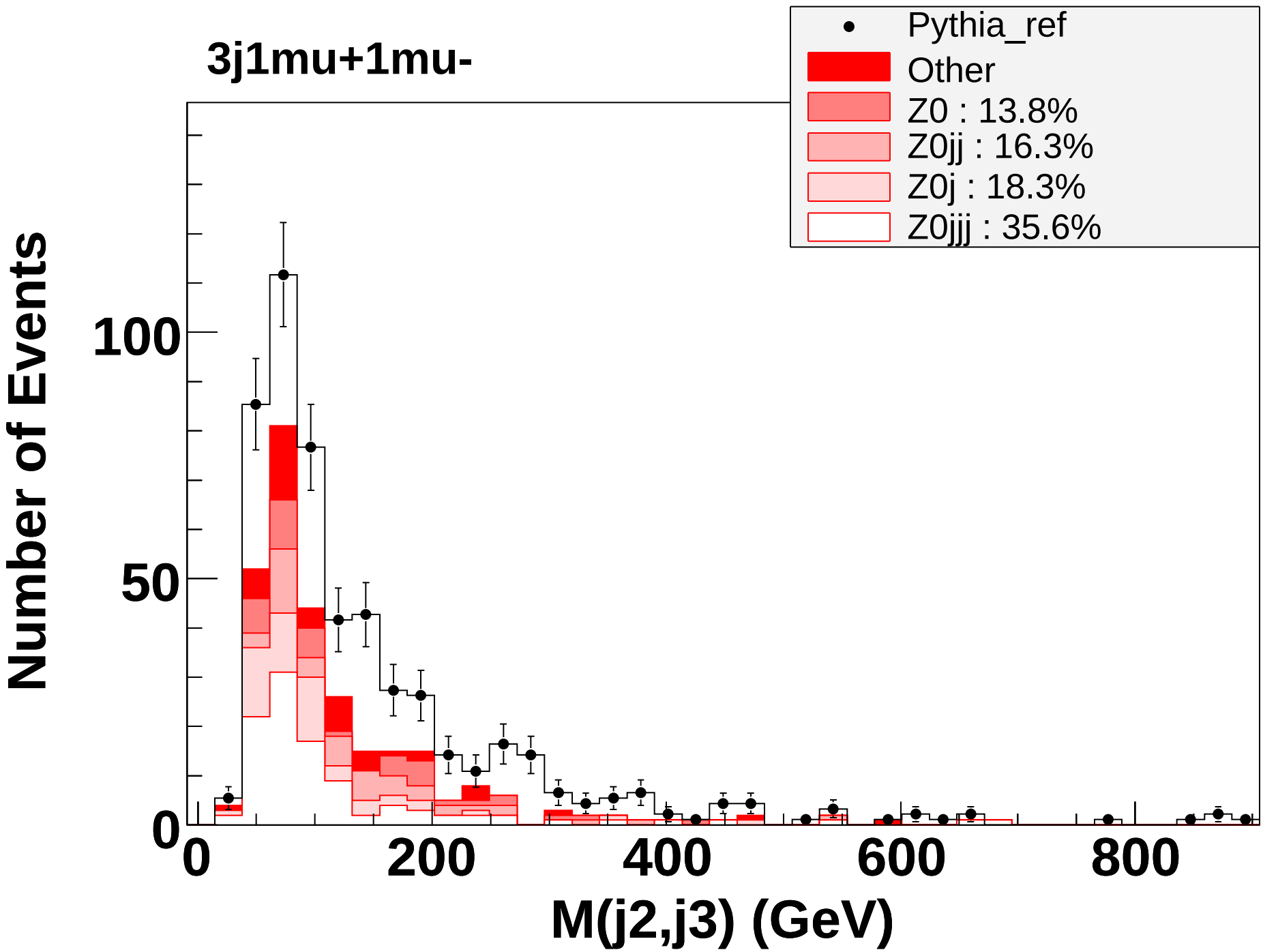

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
40
0
2
4
6
ΔEta(j2,j3)

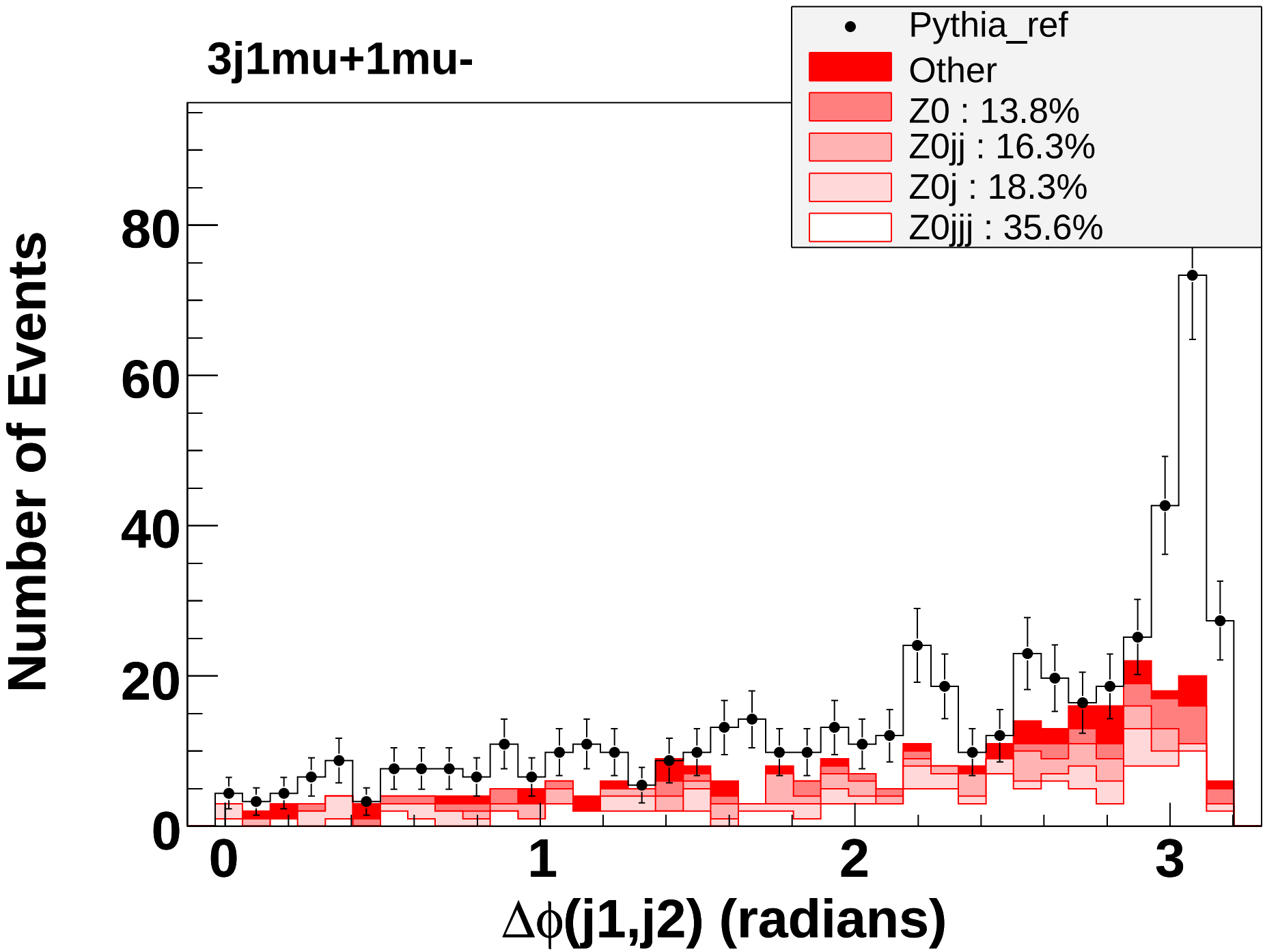

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
40
0
1
2
3
atan2(ΔPhi(j2,j3),+-(j2 eta-j3 eta))

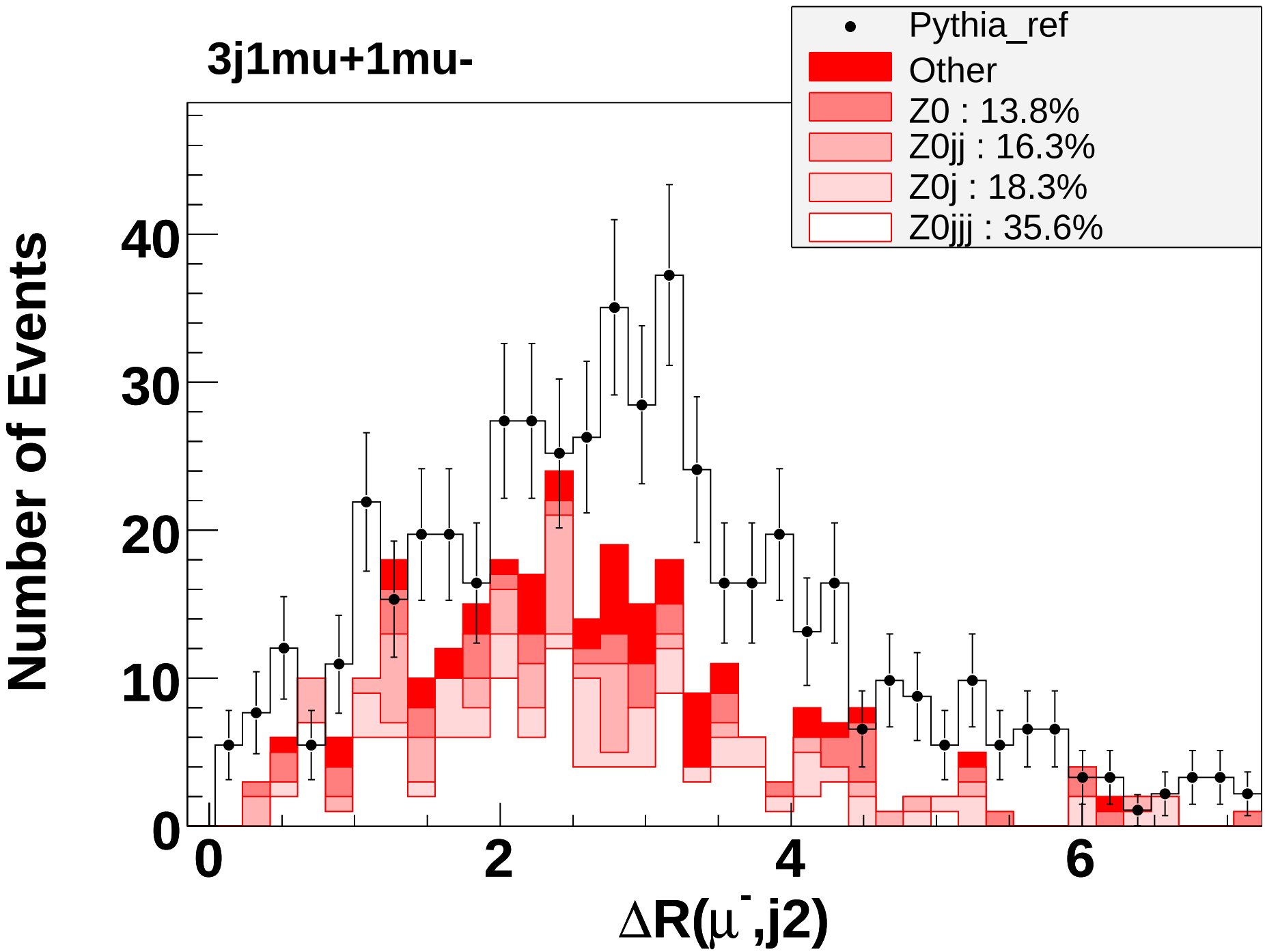

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
5
10
15
20
25
M(j3) (GeV)

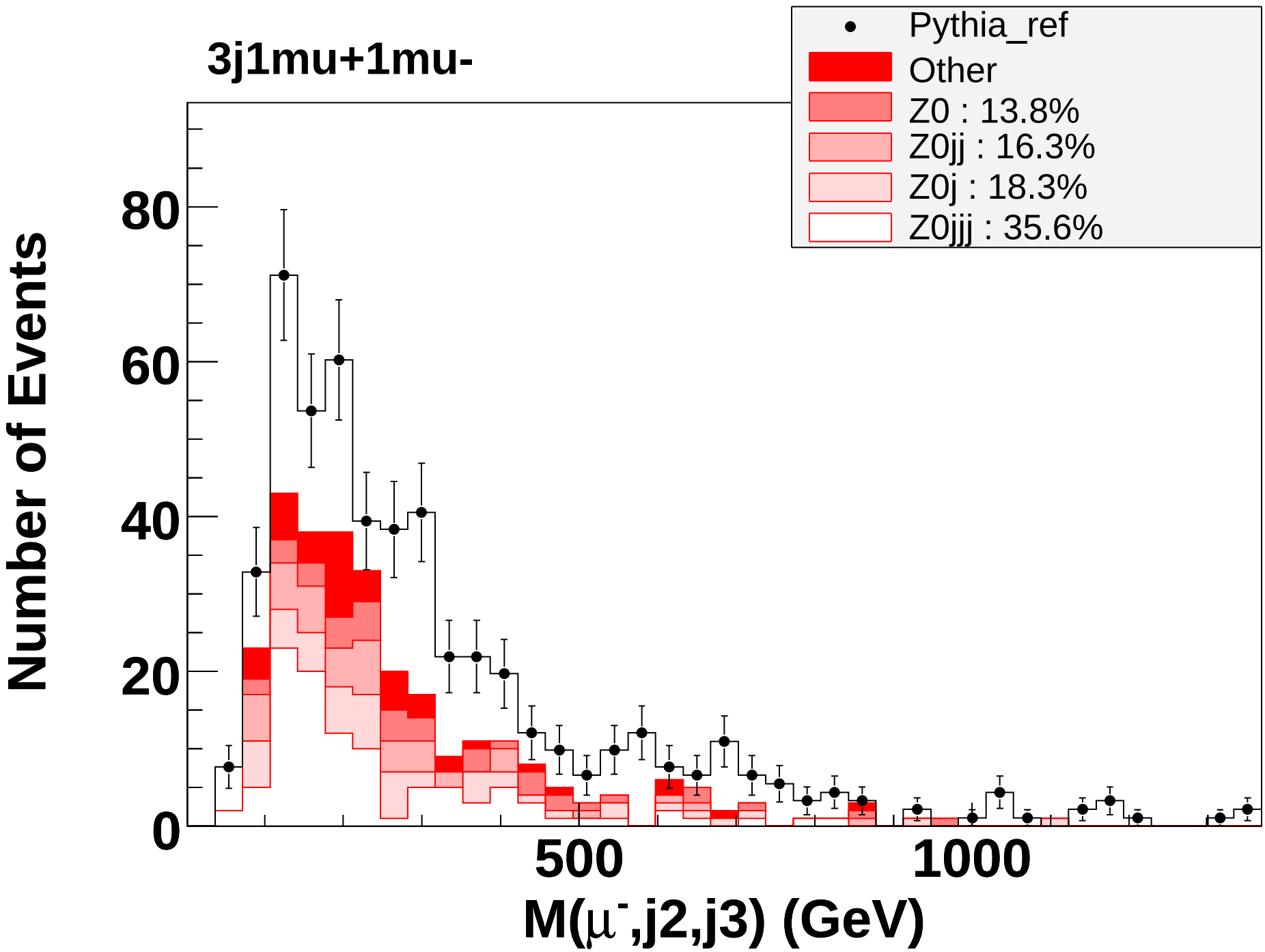

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
100
50
0
0
500
1000
M(μ+,j2) (GeV)

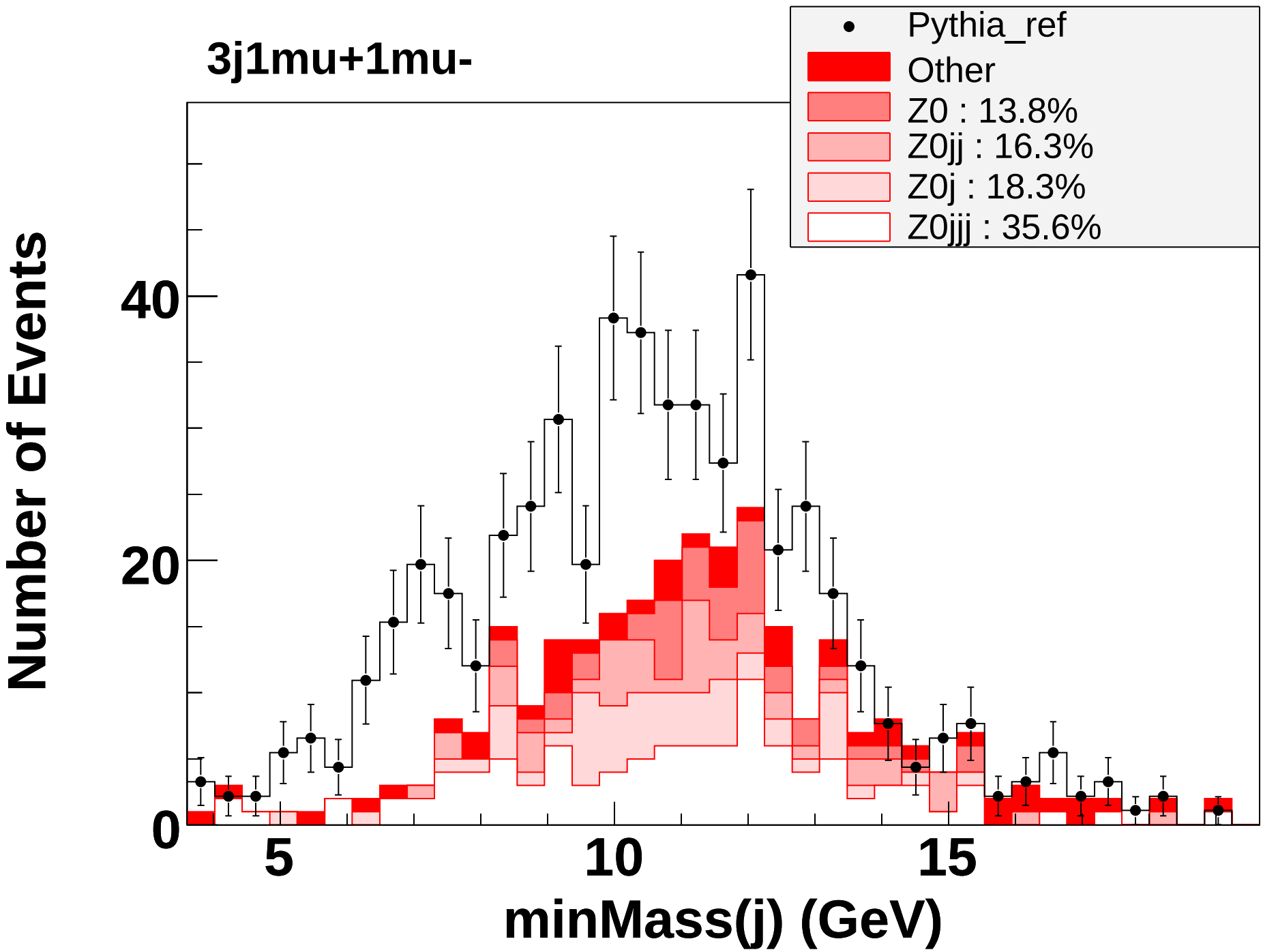

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
0
2
4
6
ΔR(μ+,j2)

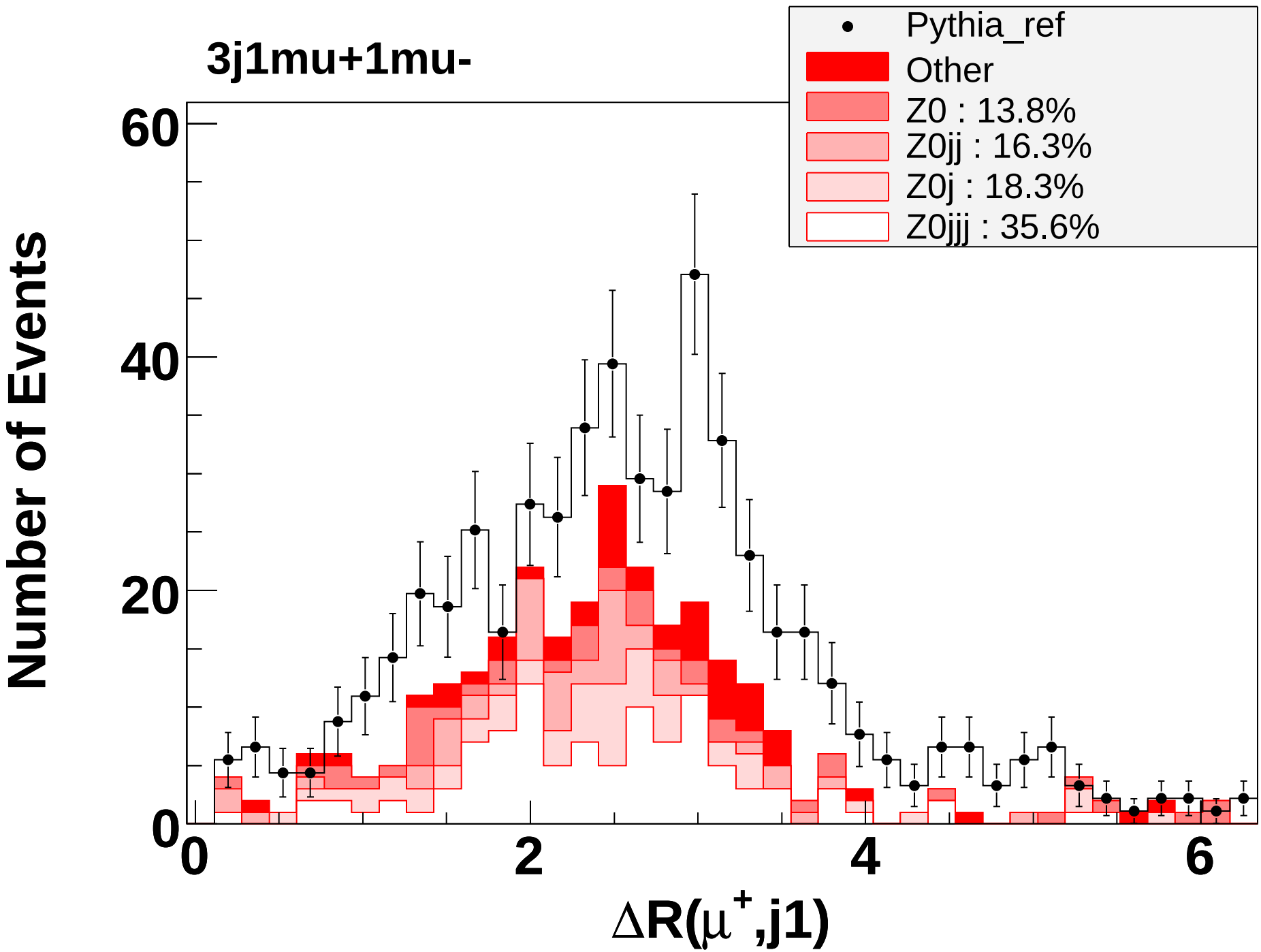

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
50
100
0
200
400
600
800
M(j2,j3) (GeV)

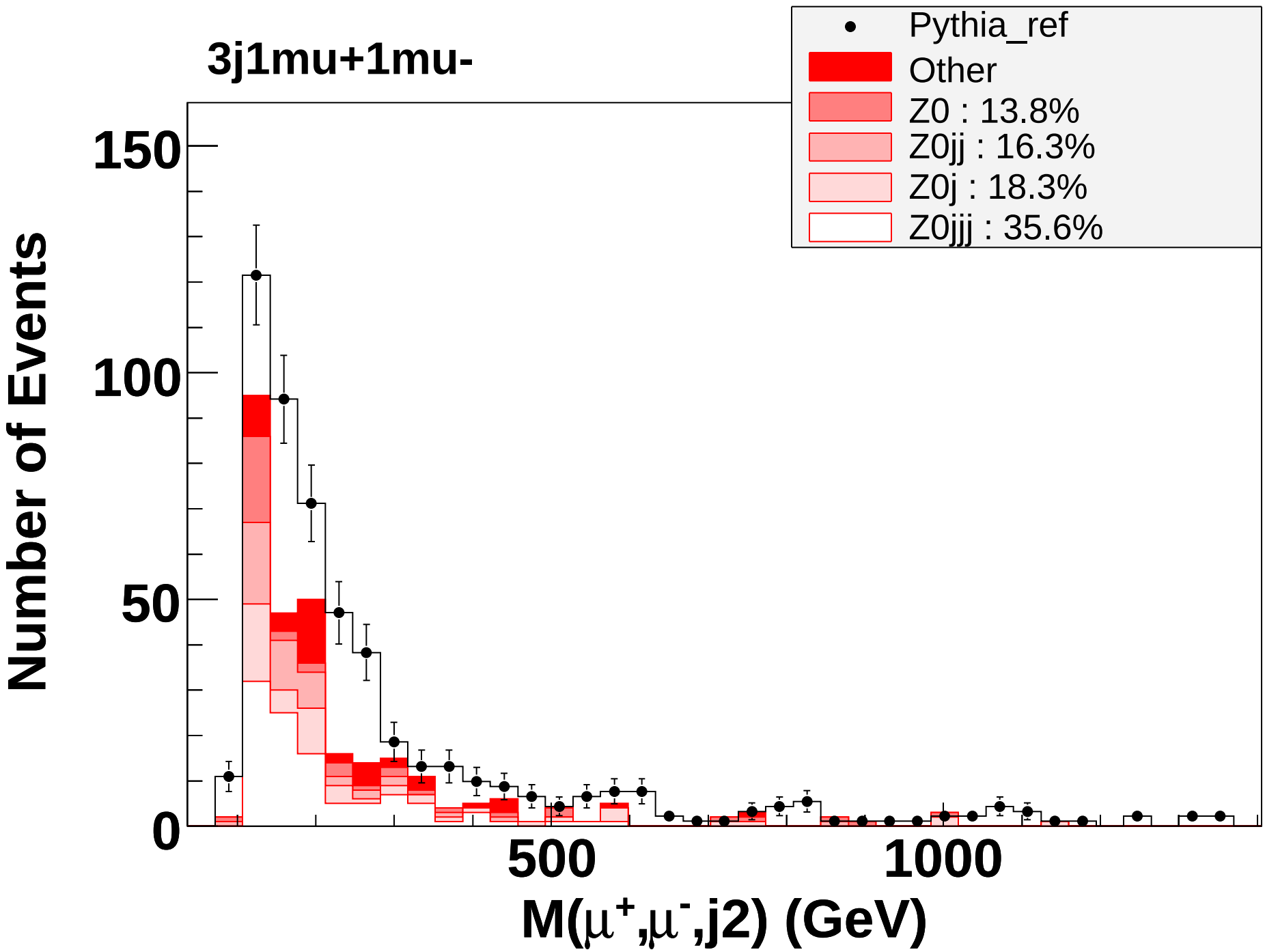

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
80
0
1
2
3
Δϕ(j1,j2) (radians)

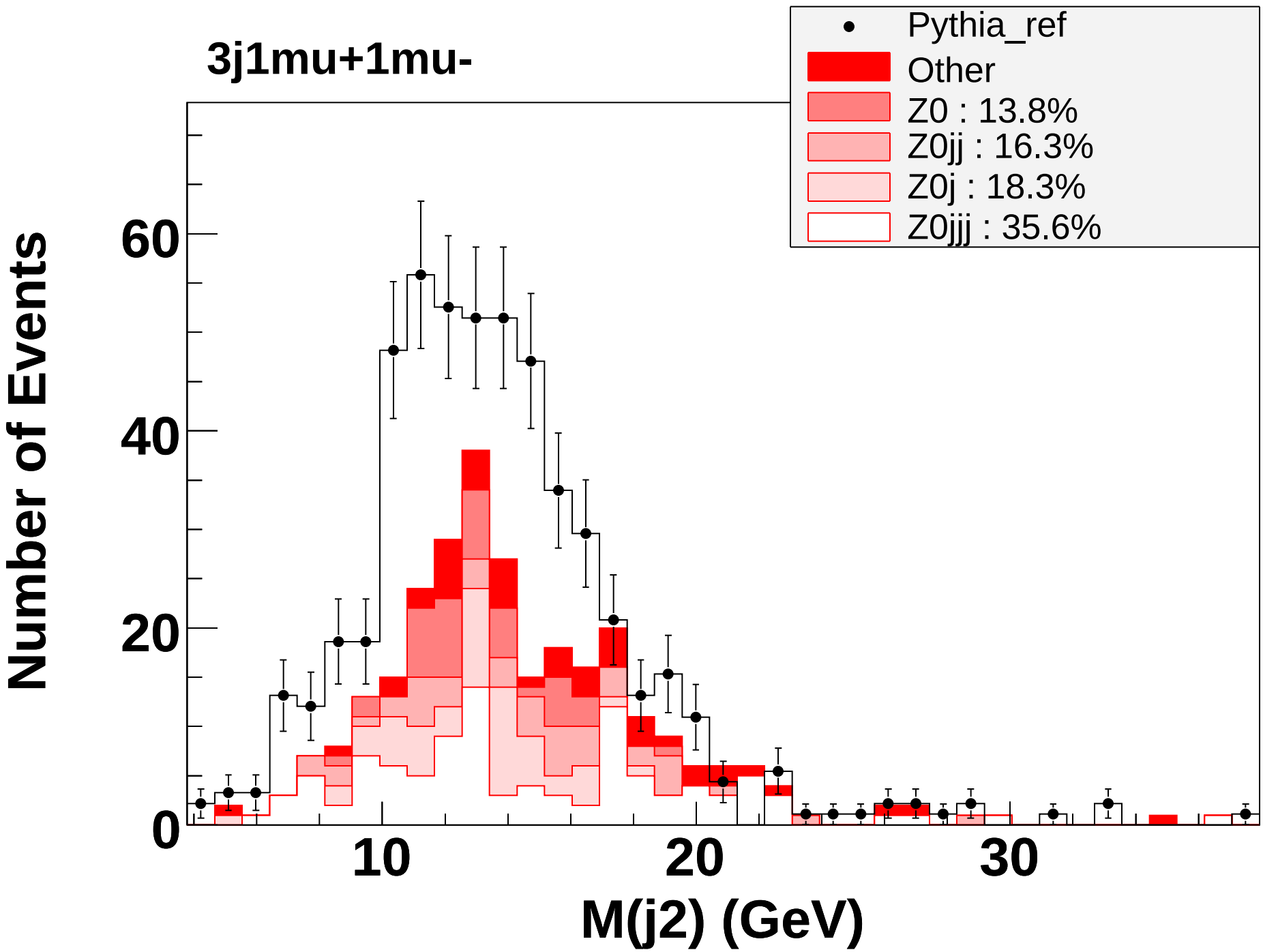

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
40
0
2
4
6
ΔR(μ⁻,j2)

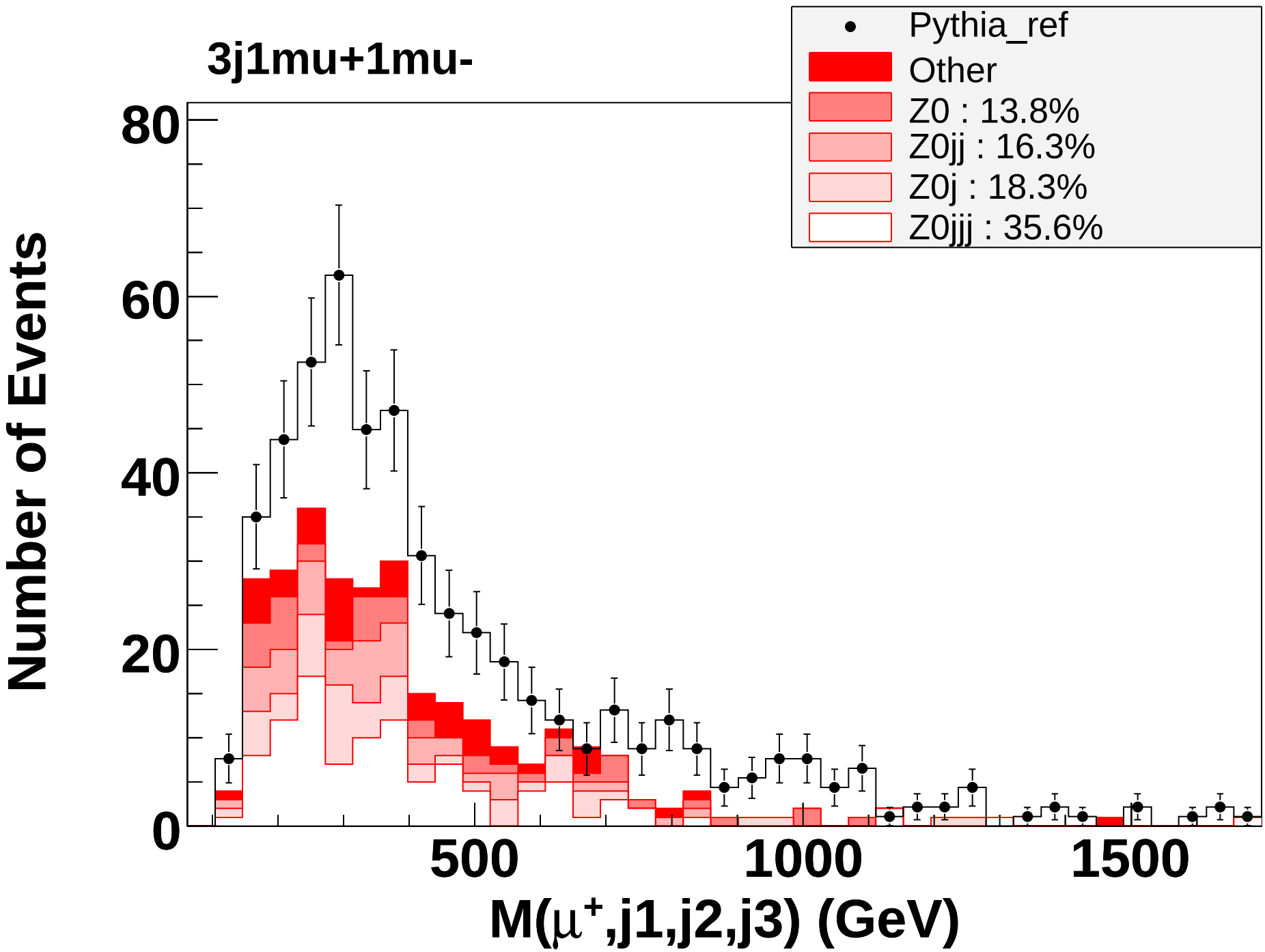

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
80
500
1000
M(μ⁻,j2,j3) (GeV)

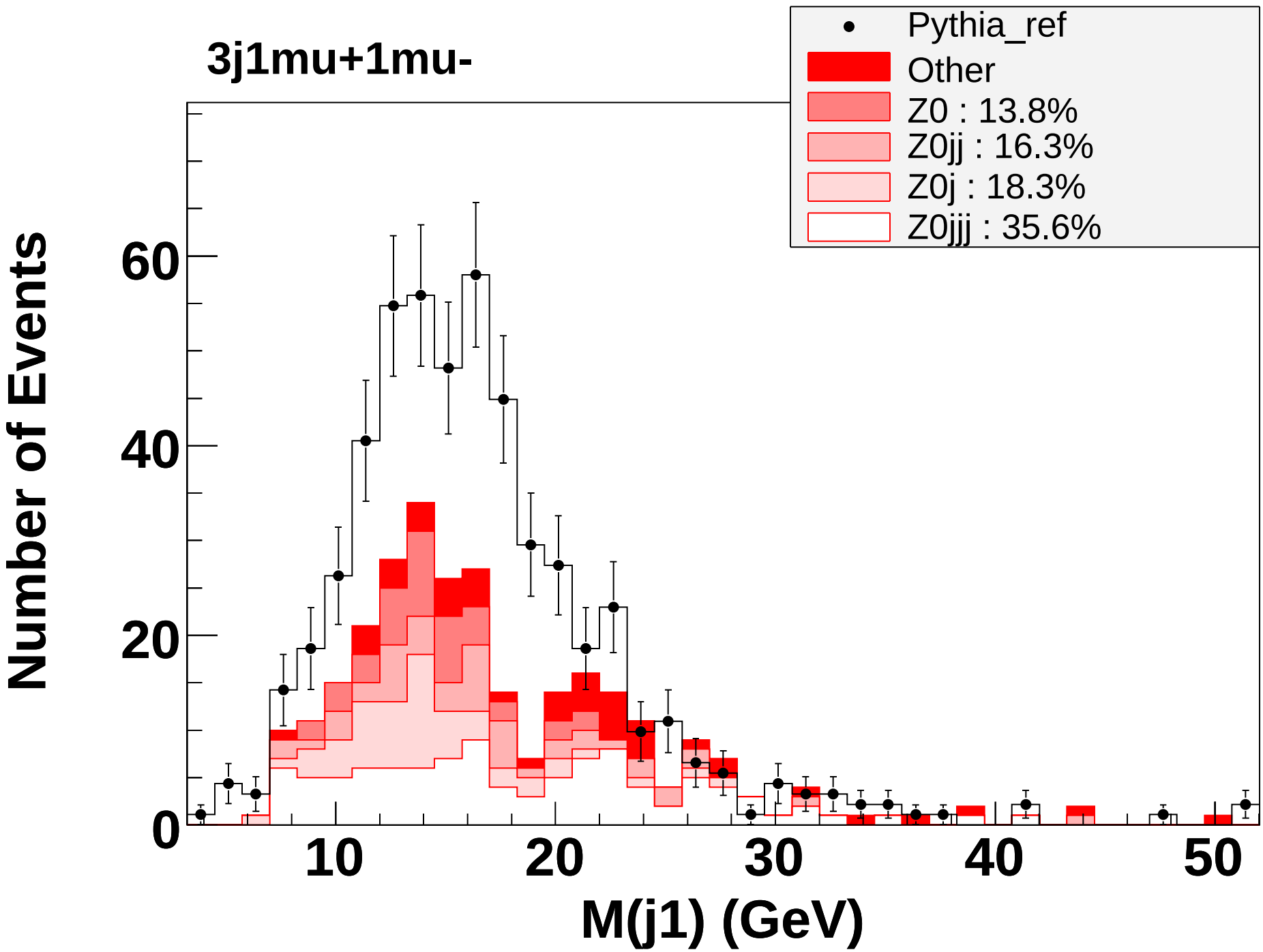

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
5
10
15
minMass(j) (GeV)

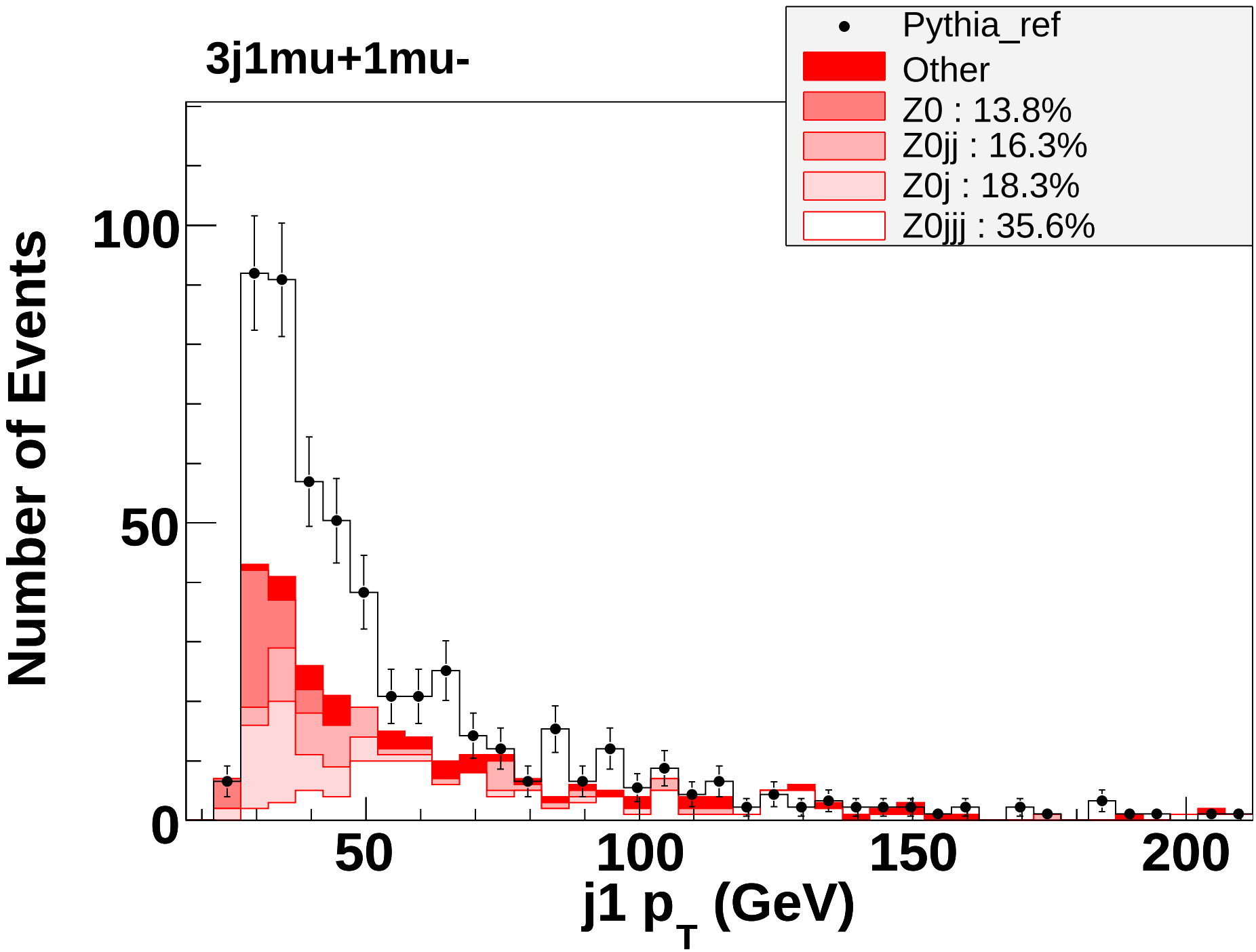

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
0
2
4
6
ΔR(μ+,j1)

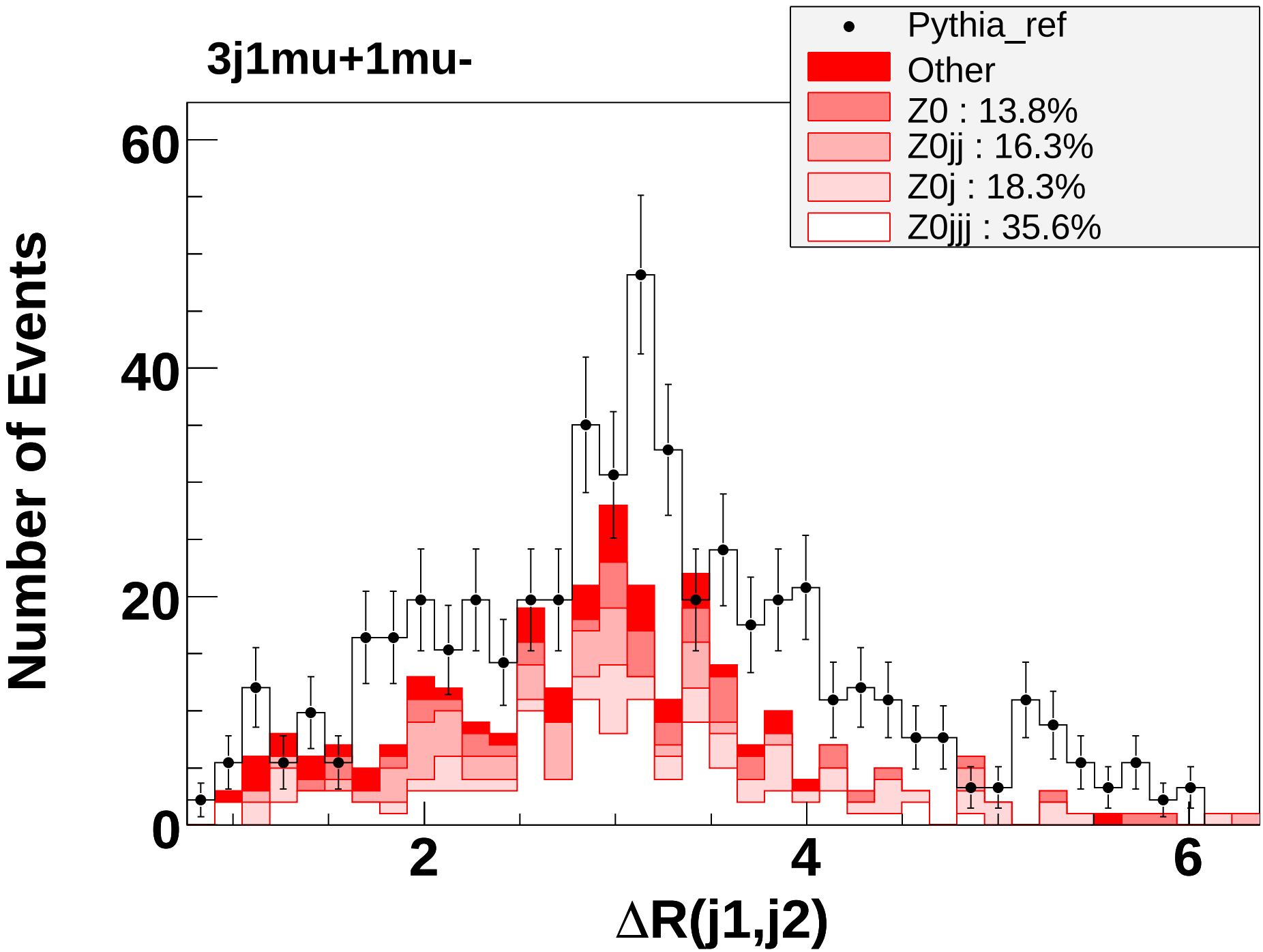

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
150
100
50
0
500
1000
M(μ+,μ-,j2) (GeV)

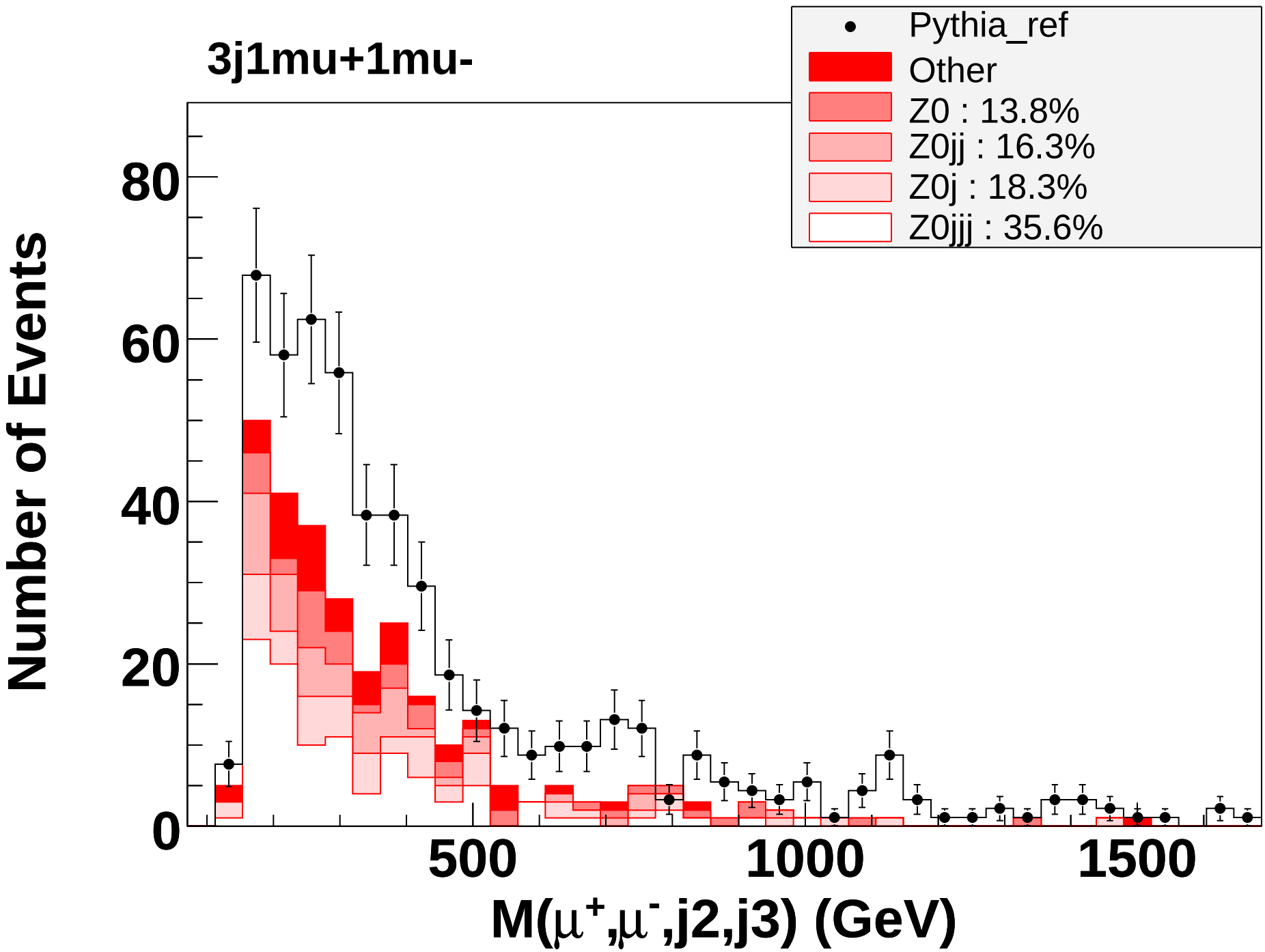

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
10
20
30
M(j2) (GeV)

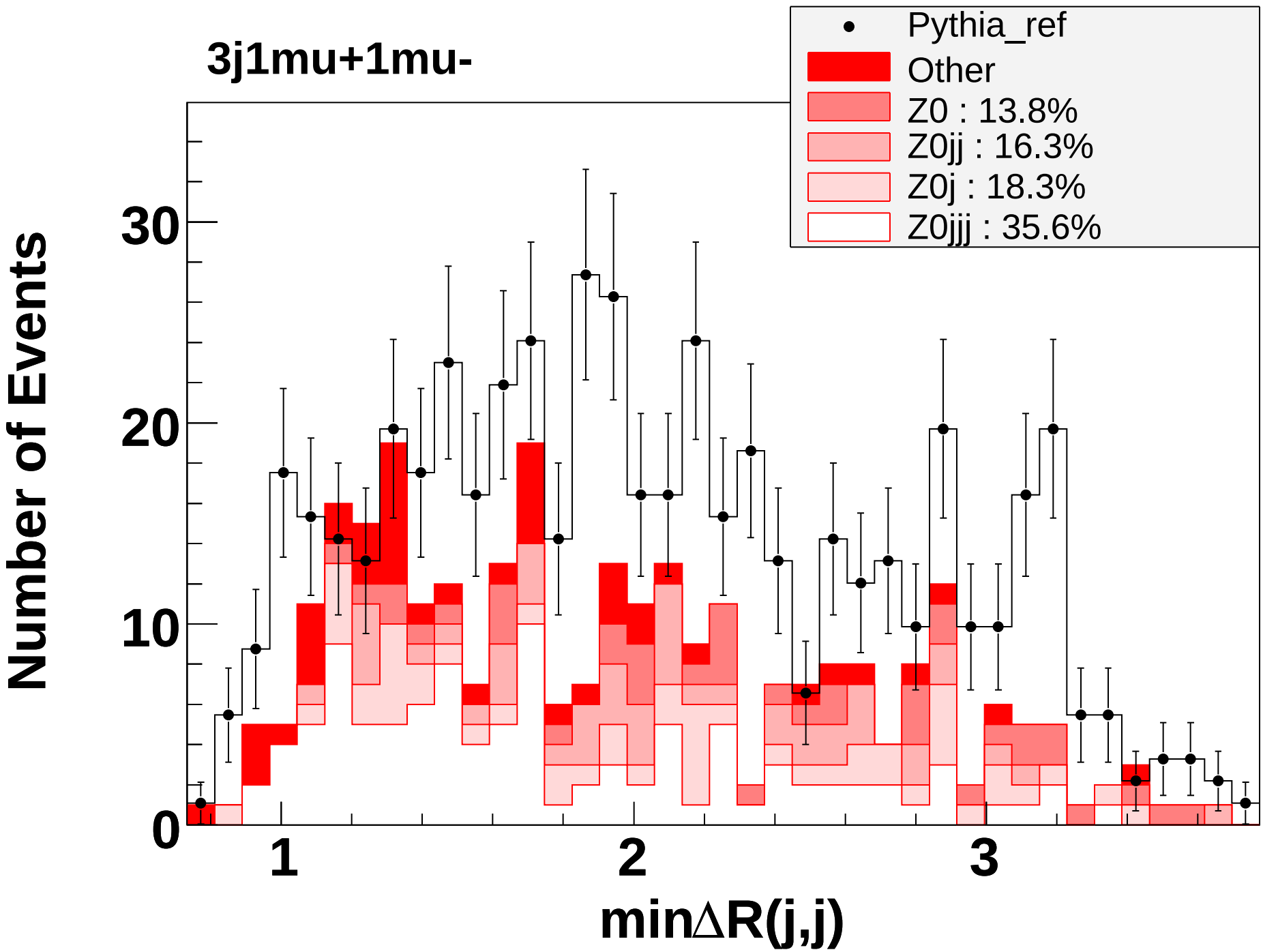

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
80
500
1000
1500
M(μ⁺,j1,j2,j3) (GeV)

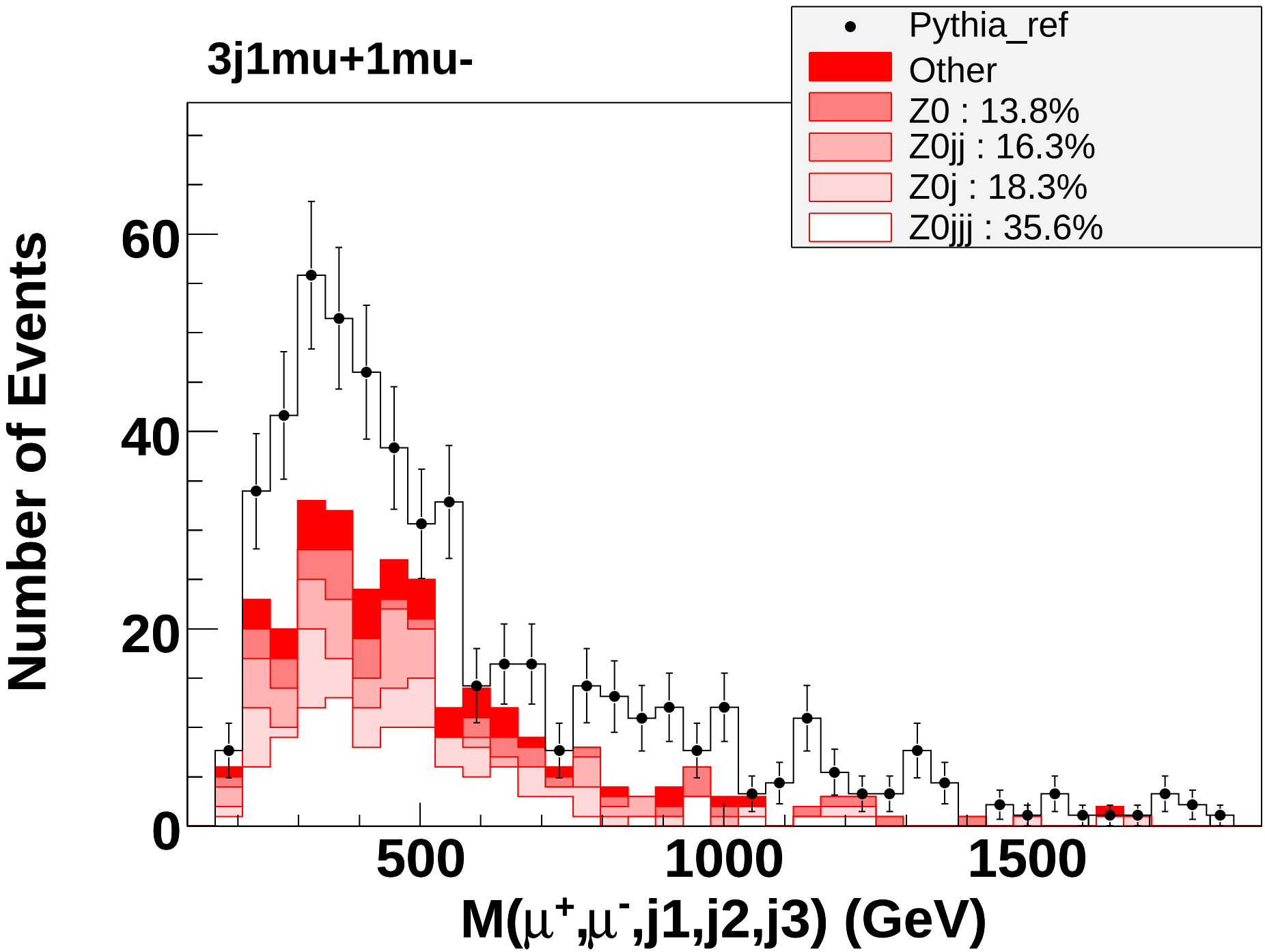

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
10
20
30
40
50
M(j1) (GeV)

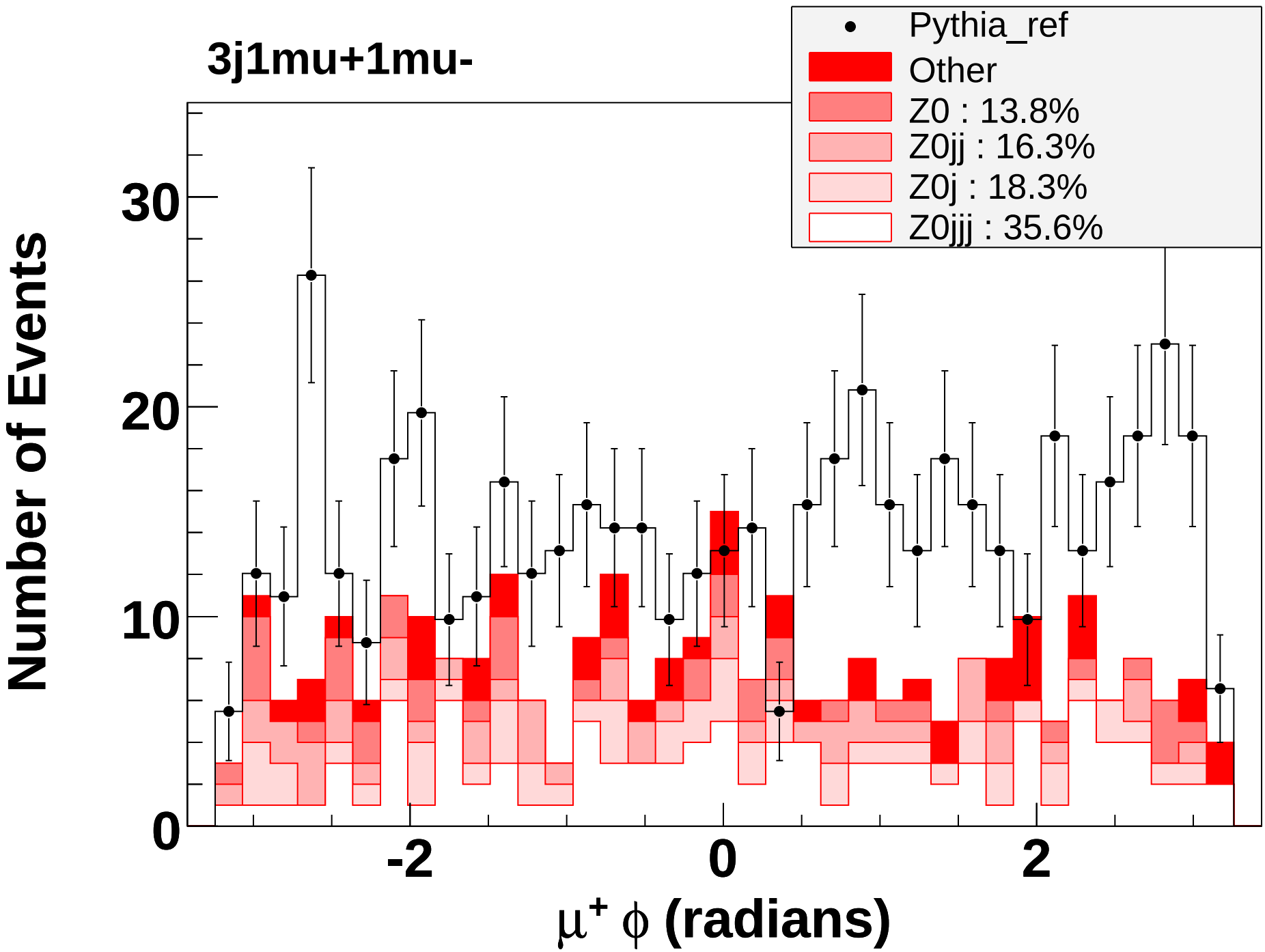

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
50
100
50
100
150
200
j1 p_T (GeV)

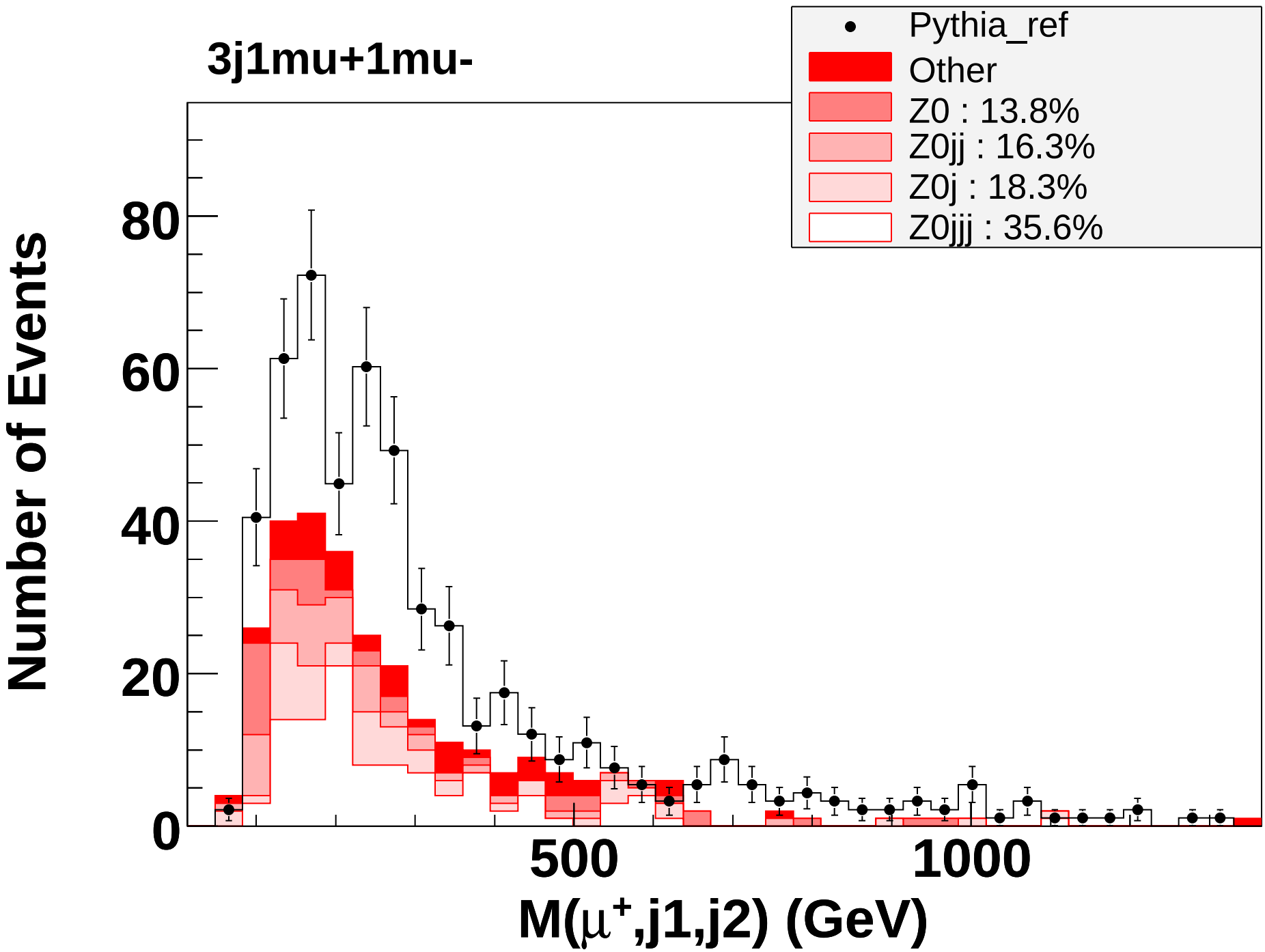

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
2
4
6
ΔR(j1,j2)

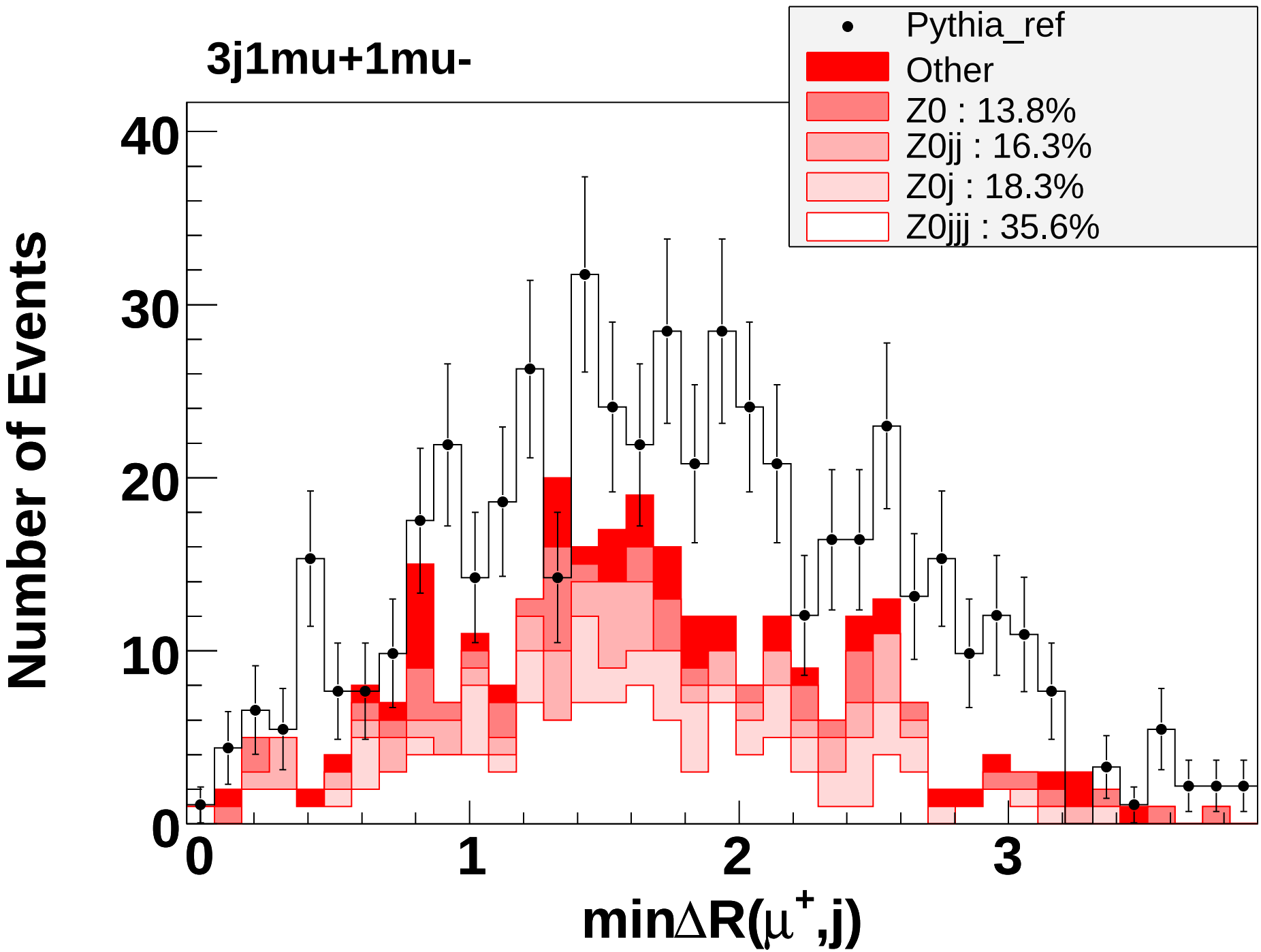

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
80
500
1000
1500
M(μ+,μ-,j2,j3) (GeV)

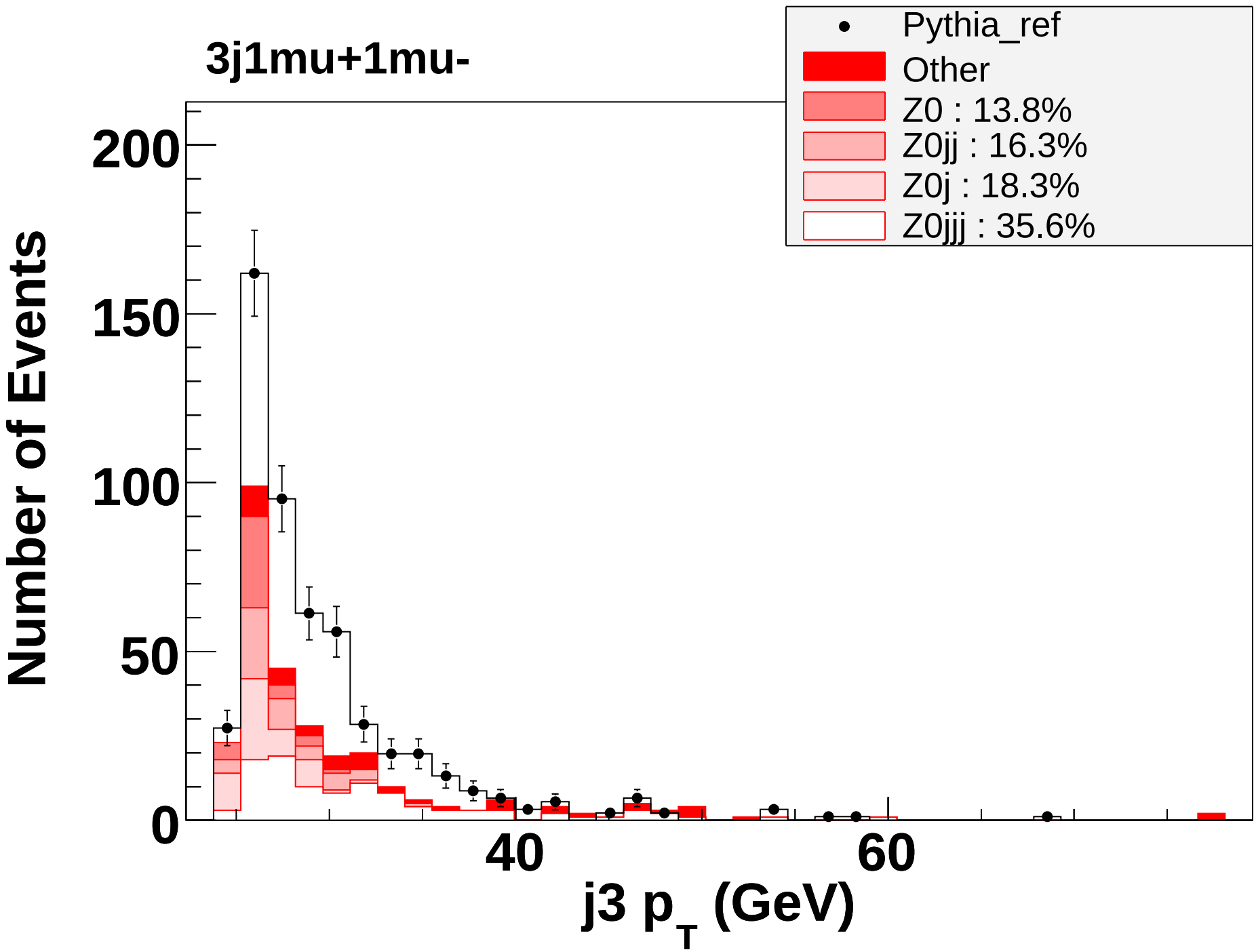

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
1
2
3
minΔR(j,j)

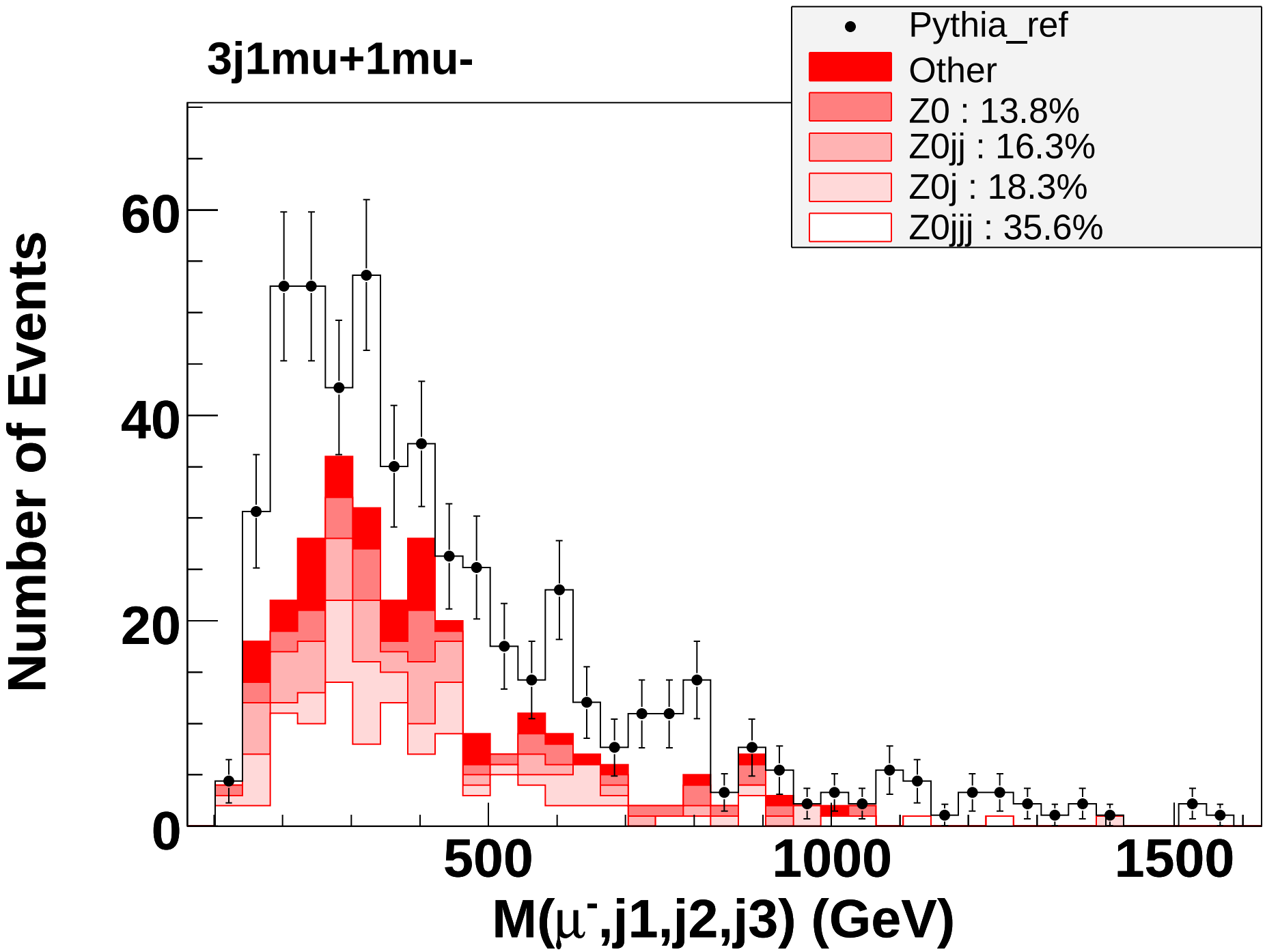

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
500
1000
1500
M(μ+,μ-,j1,j2,j3) (GeV)

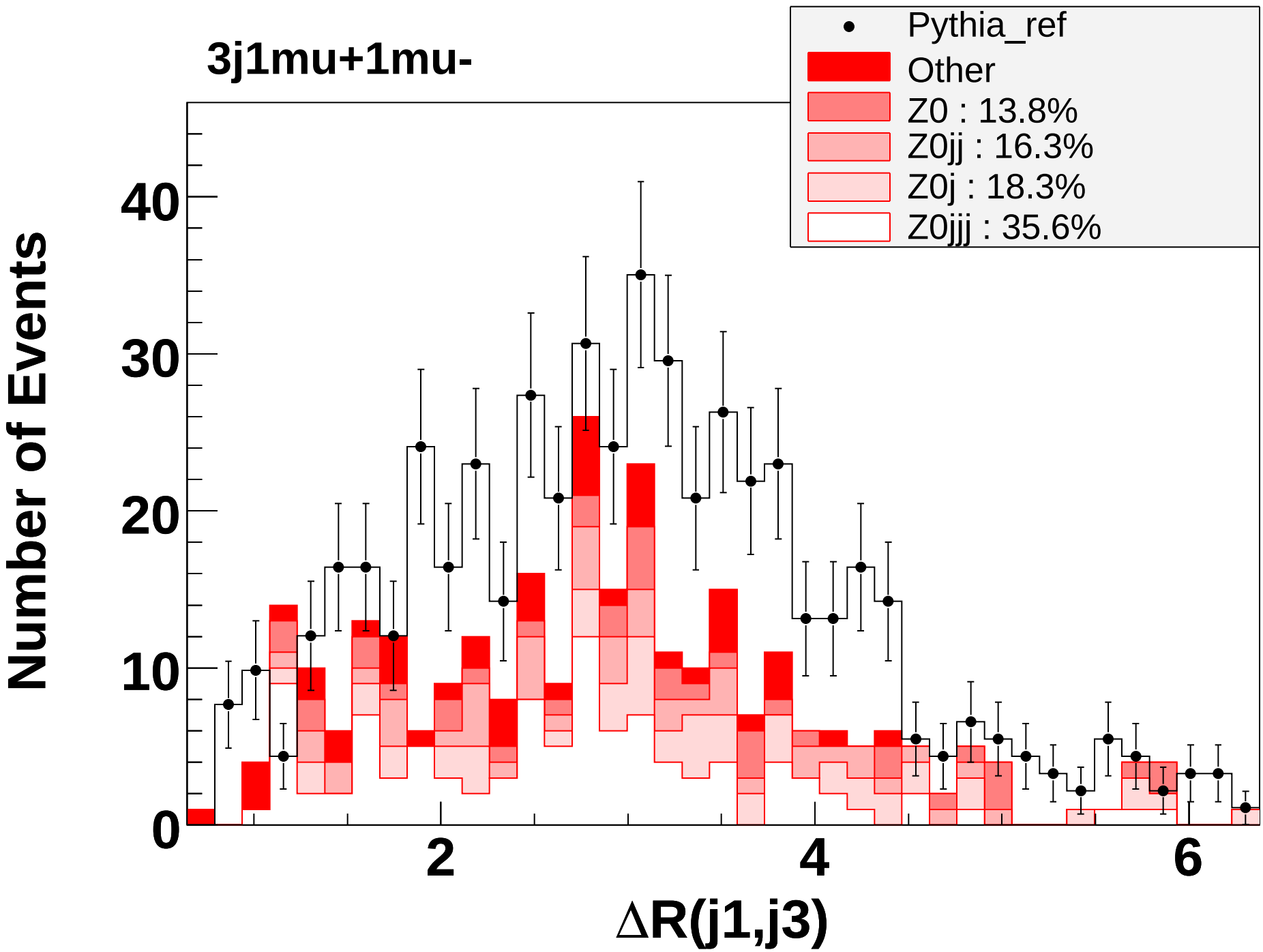

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
-2
0
2
μ+ φ (radians)

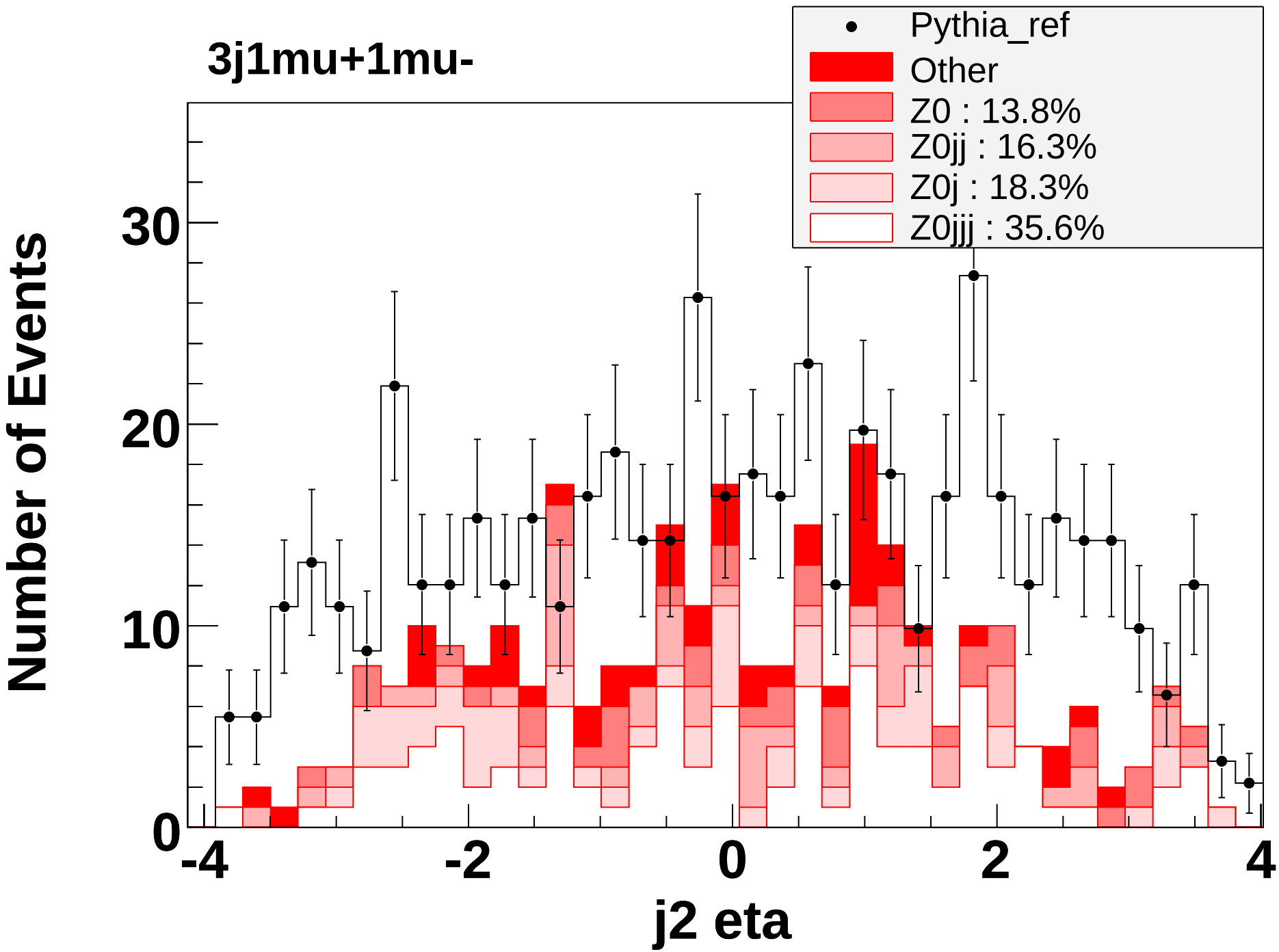

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
80
500
1000
M(μ+,j1,j2) (GeV)

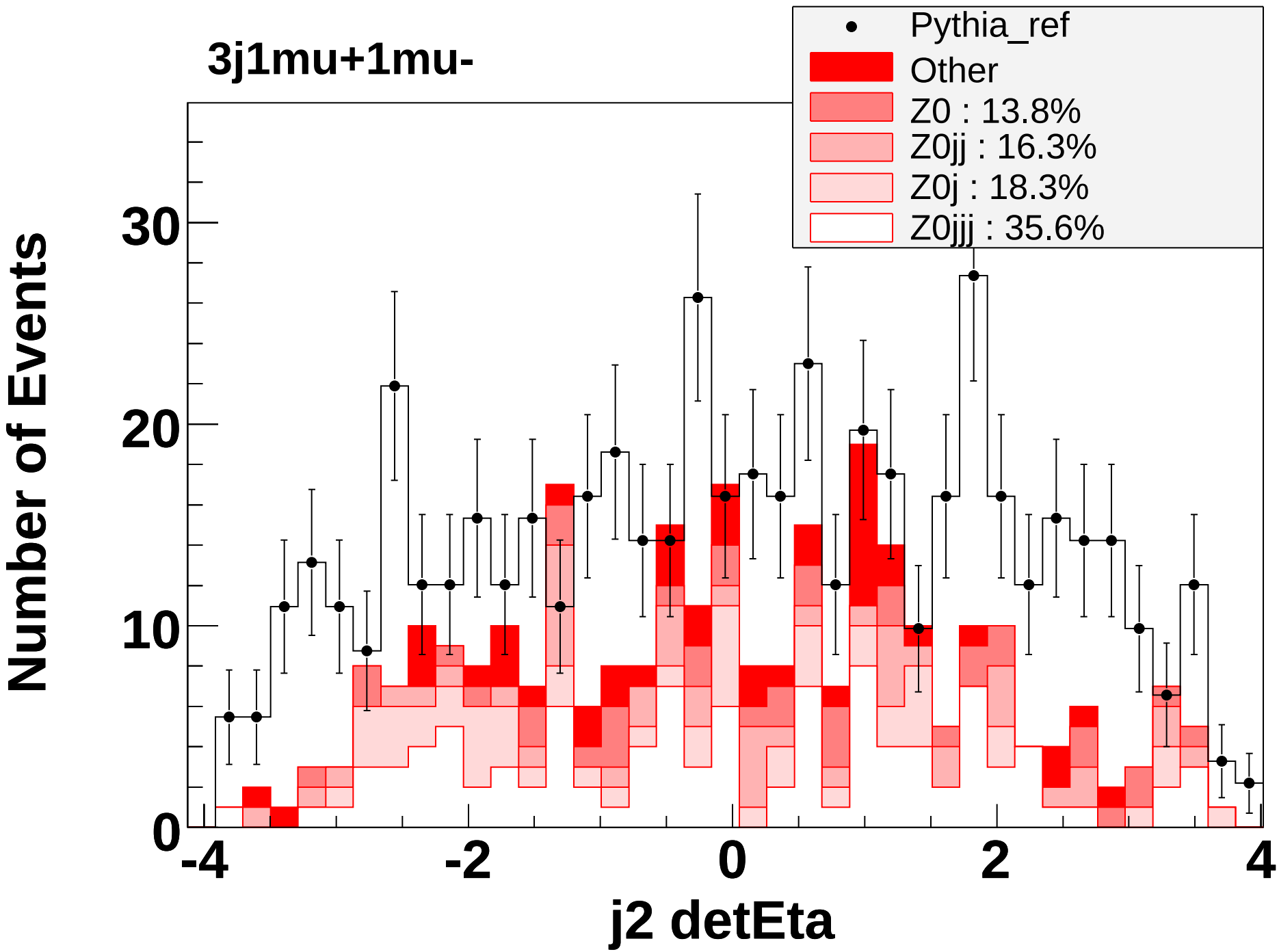

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
40
0
1
2
3
minΔR(μ+,j)

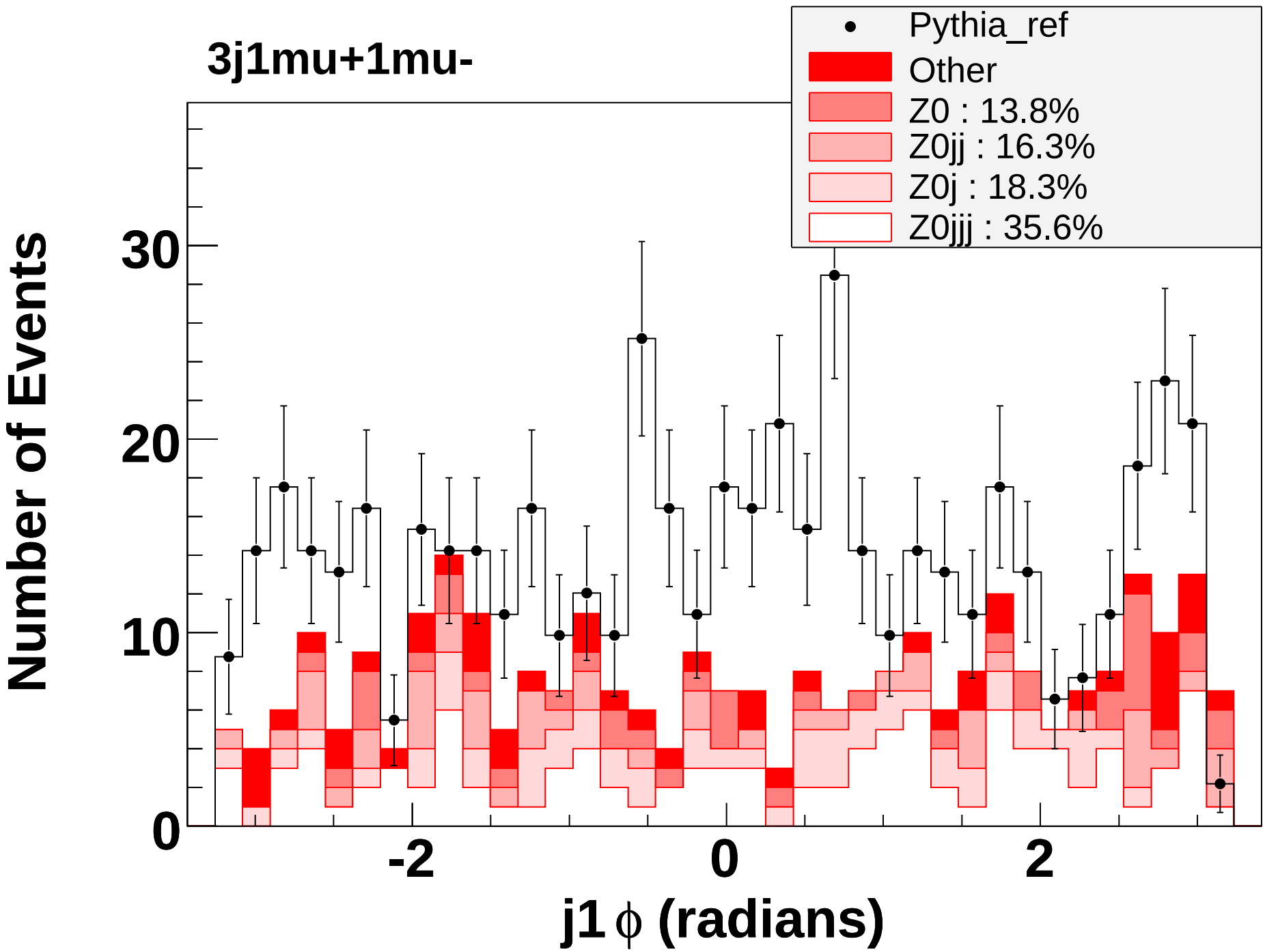

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
200
150
100
50
0
40
60
j3 p_T (GeV)

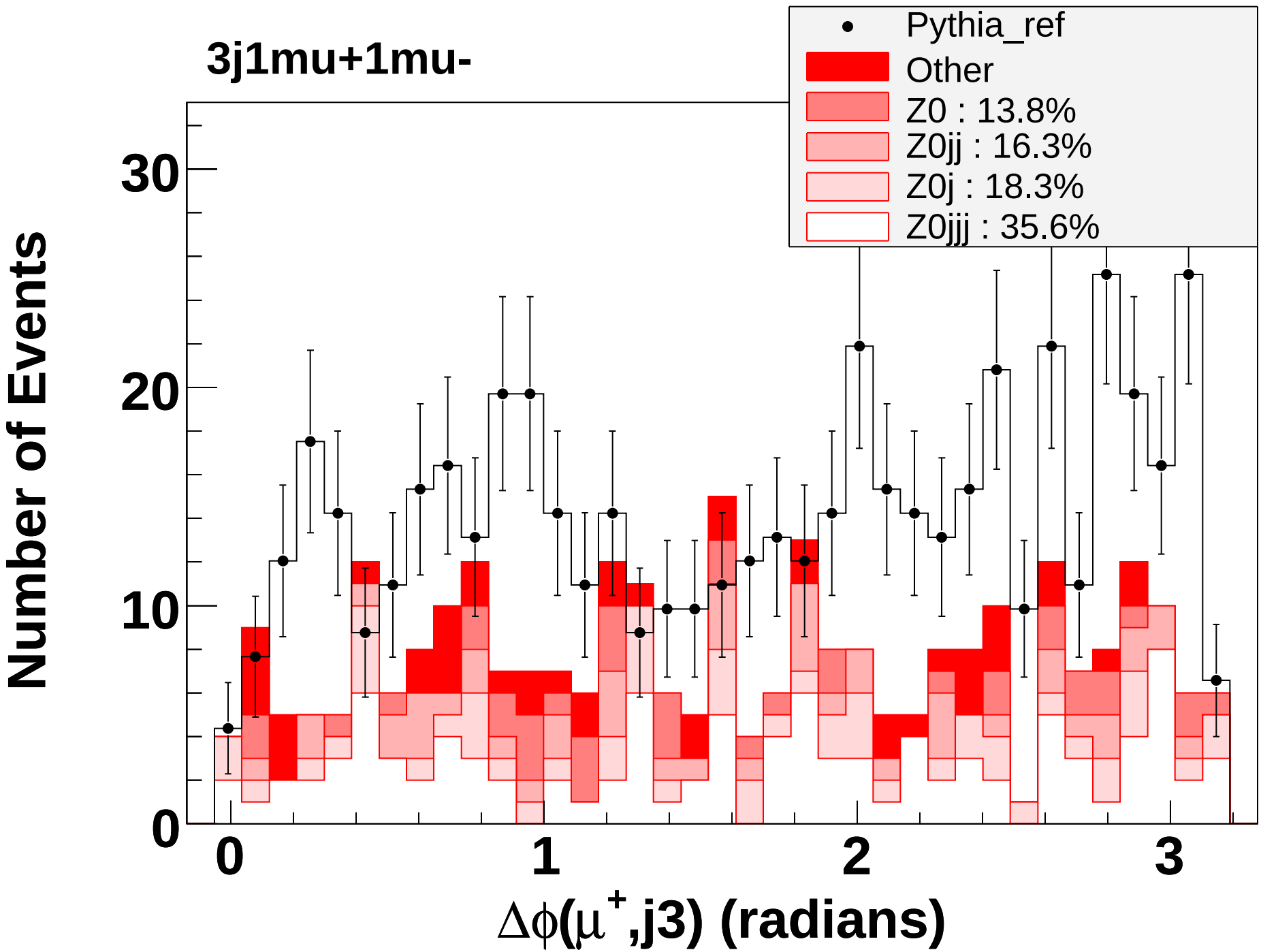

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
500
1000
1500
M(μ⁻,j1,j2,j3) (GeV)

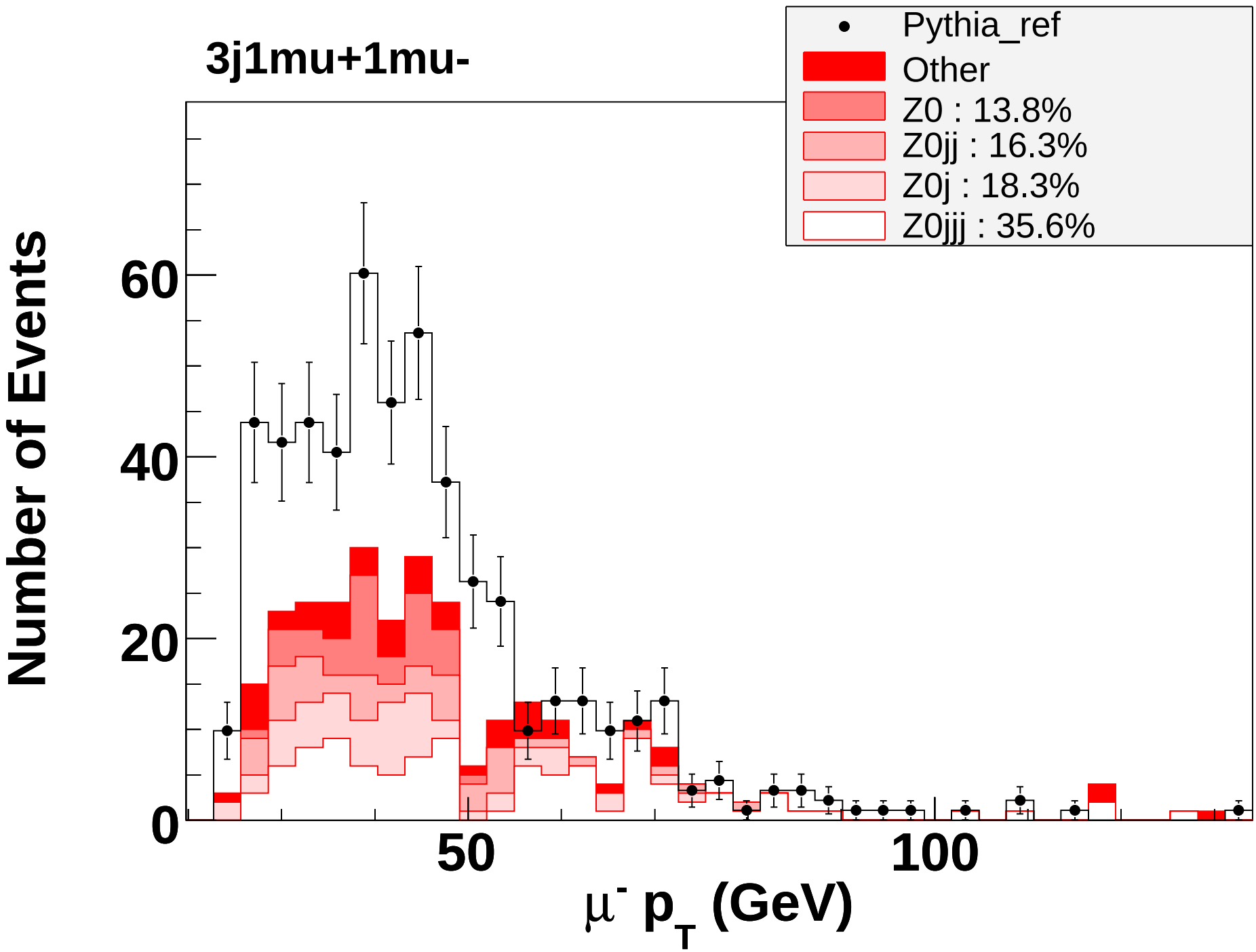

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
40
2
4
6
ΔR(j1,j3)

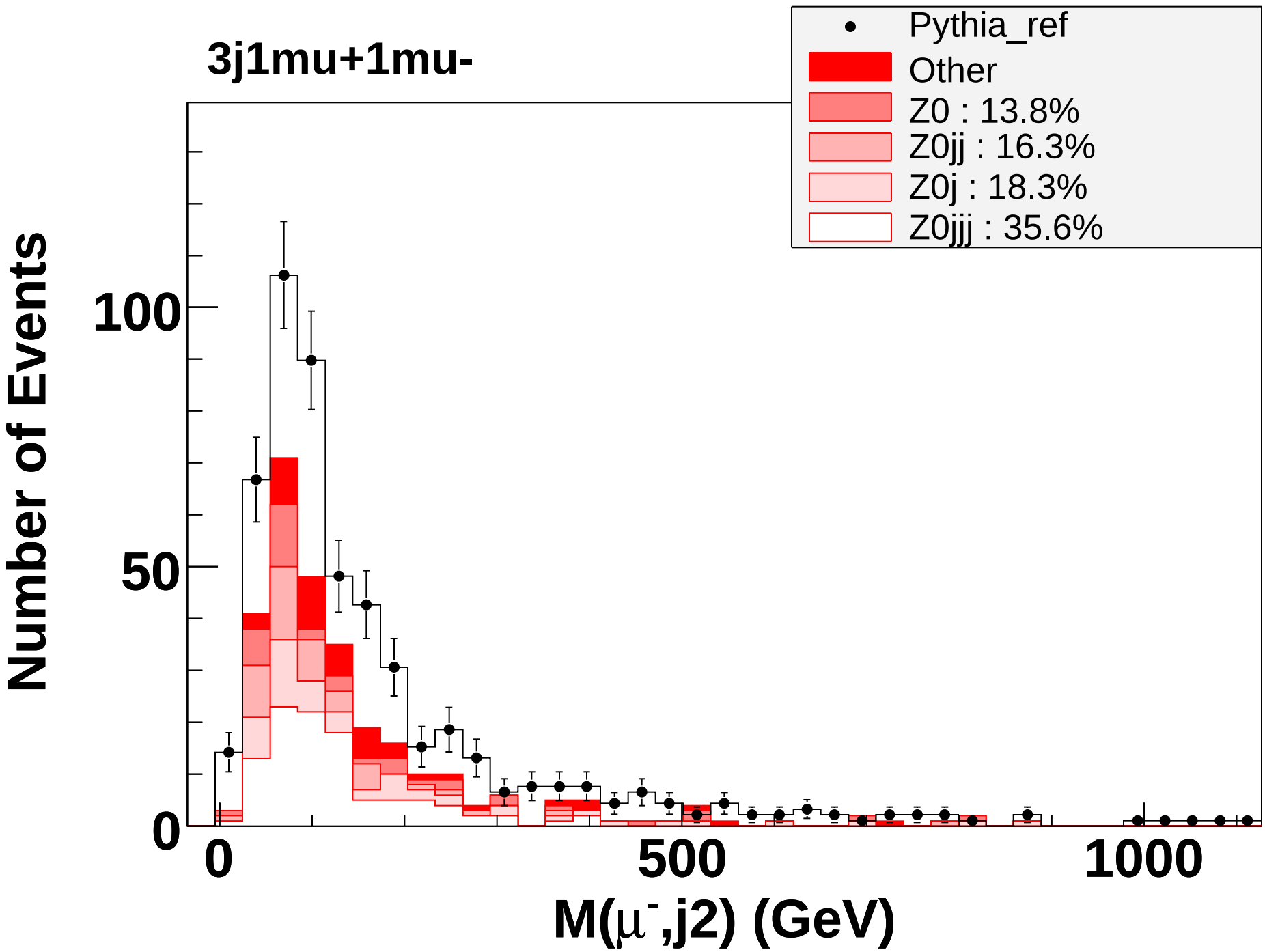

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
-4
-2
0
2
4
j2 eta

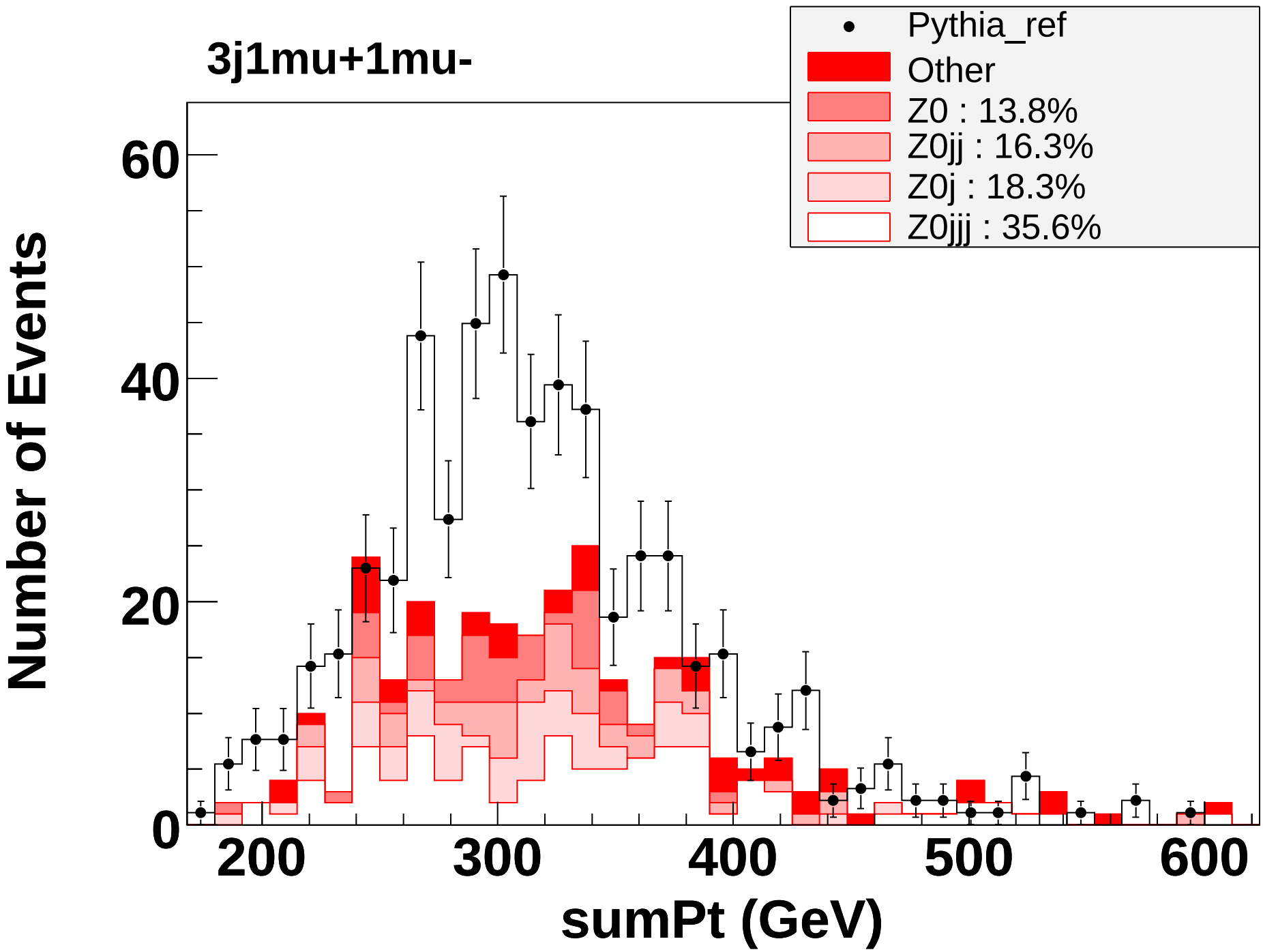

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
-4
-2
0
2
4
j2 detEta

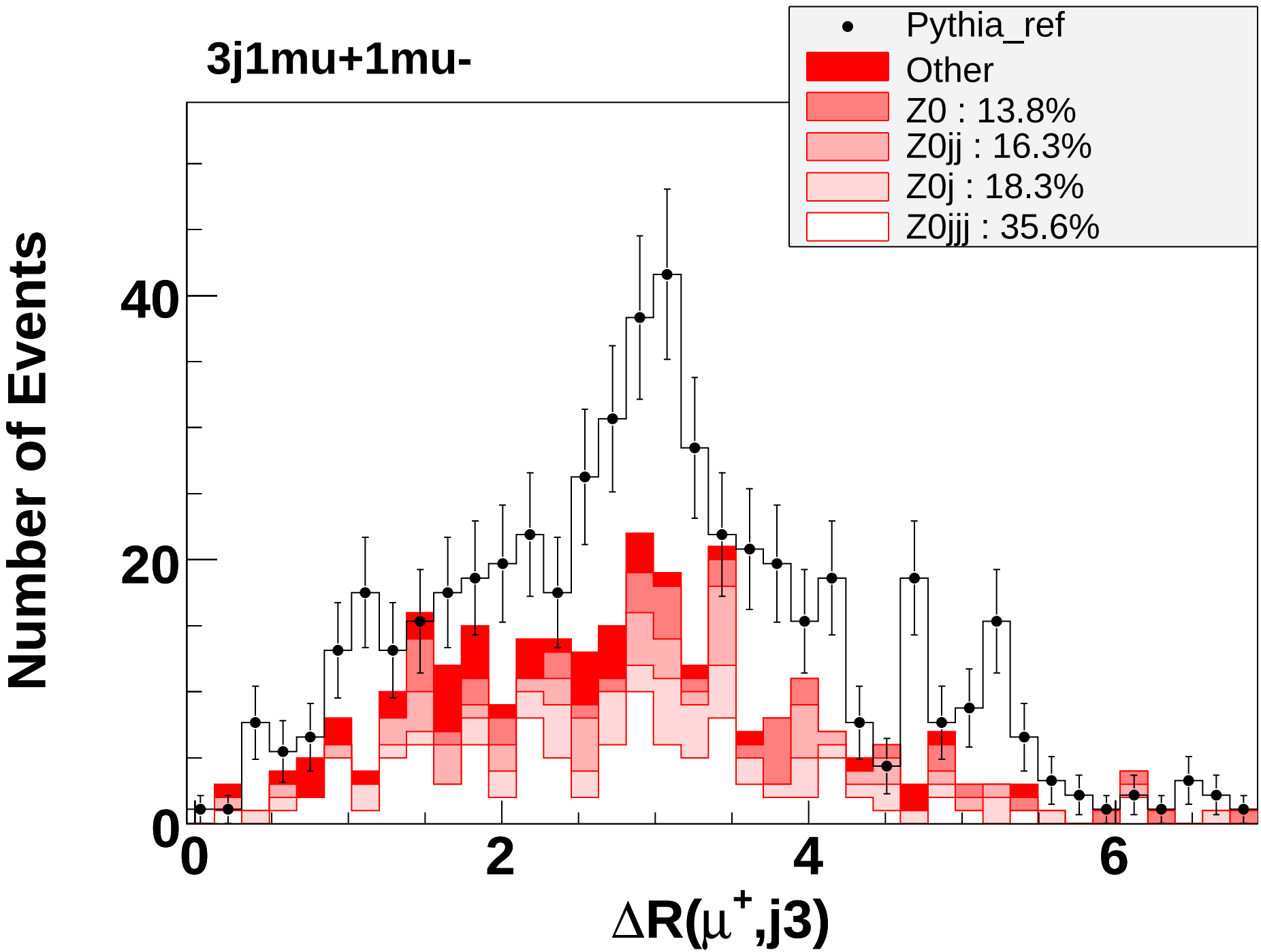

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
-2
0
2
j1 ϕ (radians)

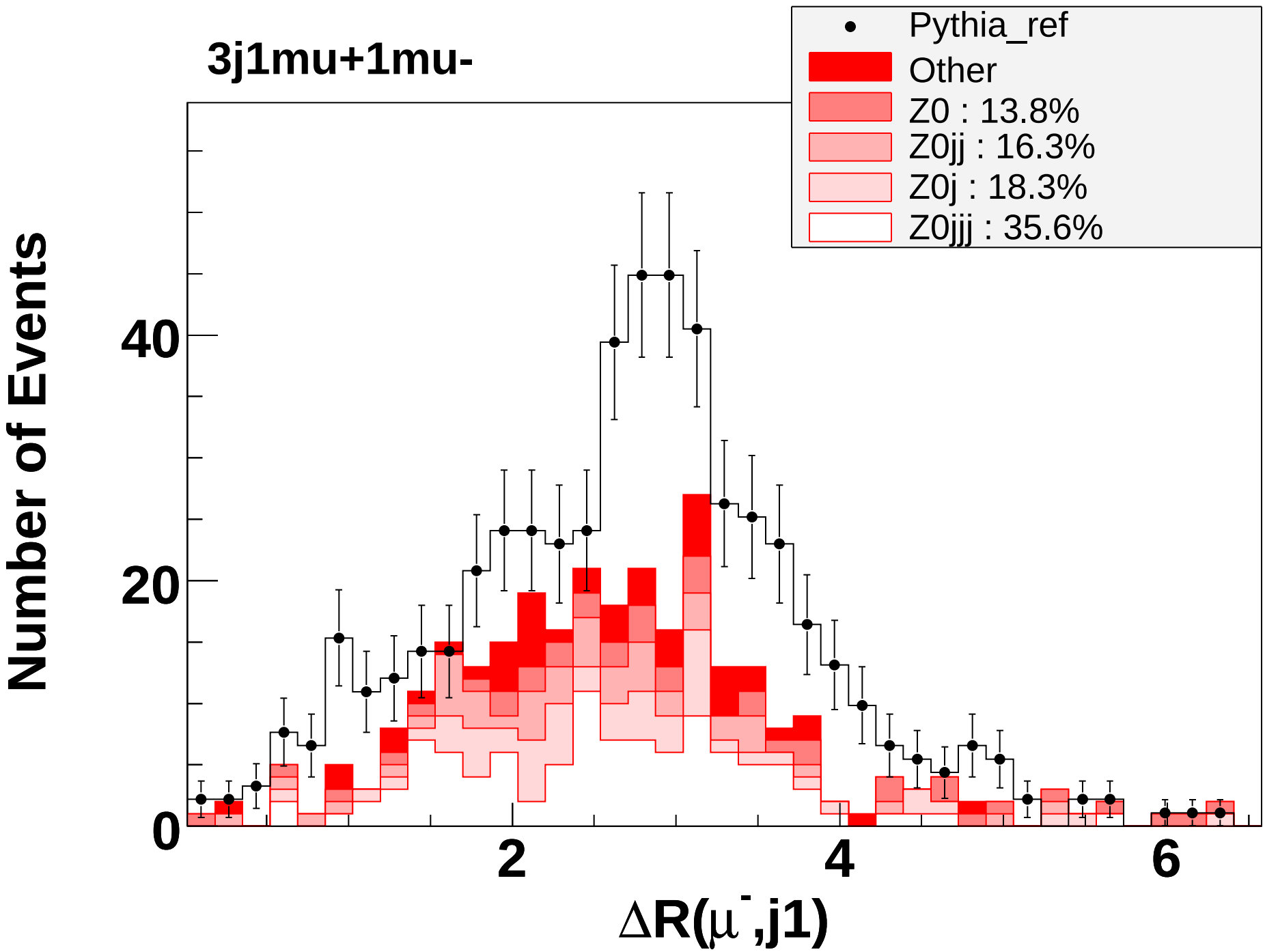

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
0
1
2
3
Δφ(μ+,j3) (radians)

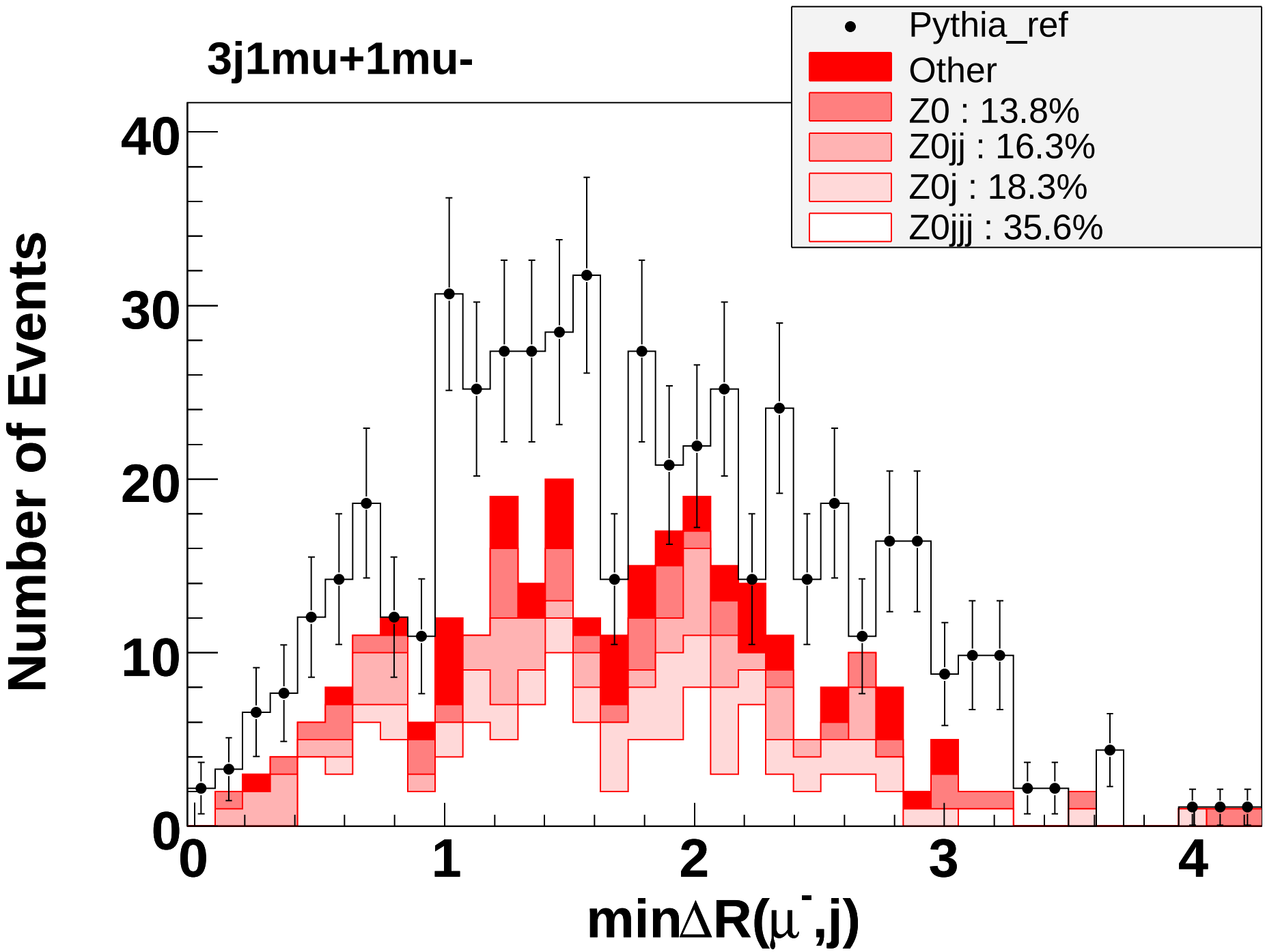

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
50
100
μ- pT (GeV)

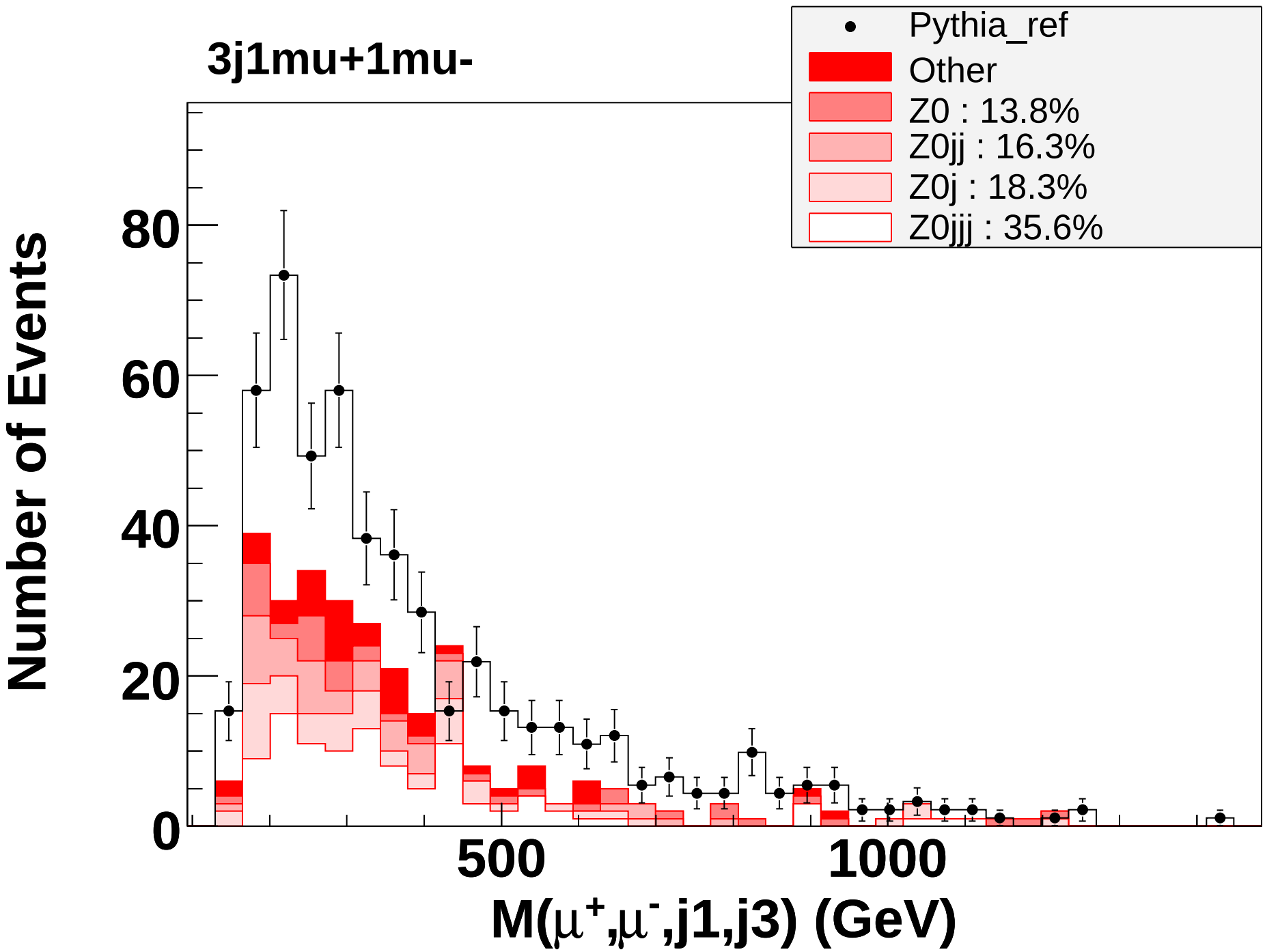

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
100
50
0
0
500
1000
M(μ⁻,j2) (GeV)

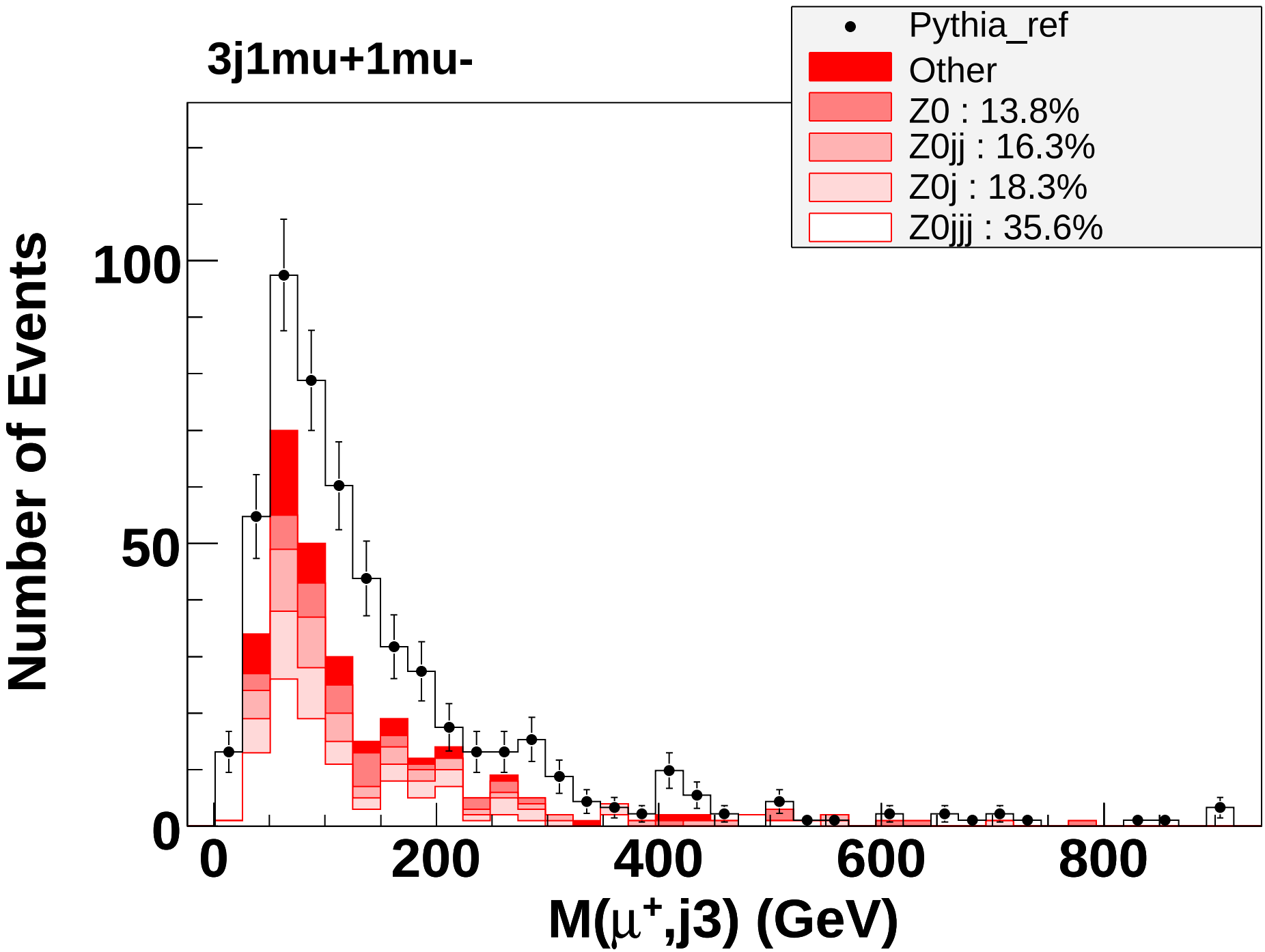

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
200
300
400
500
600
sumPt (GeV)

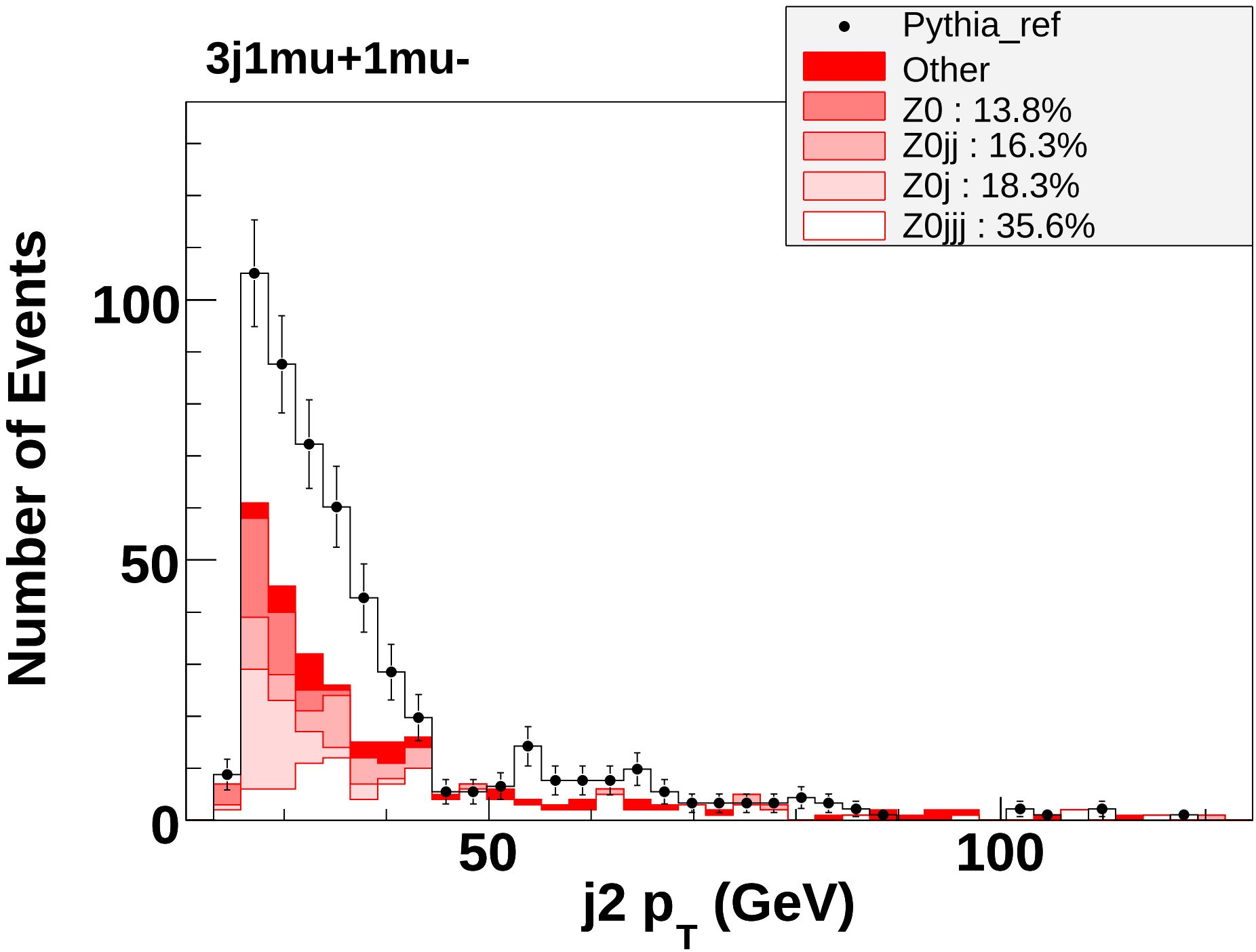

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
0
2
4
6
ΔR(μ+,j3)

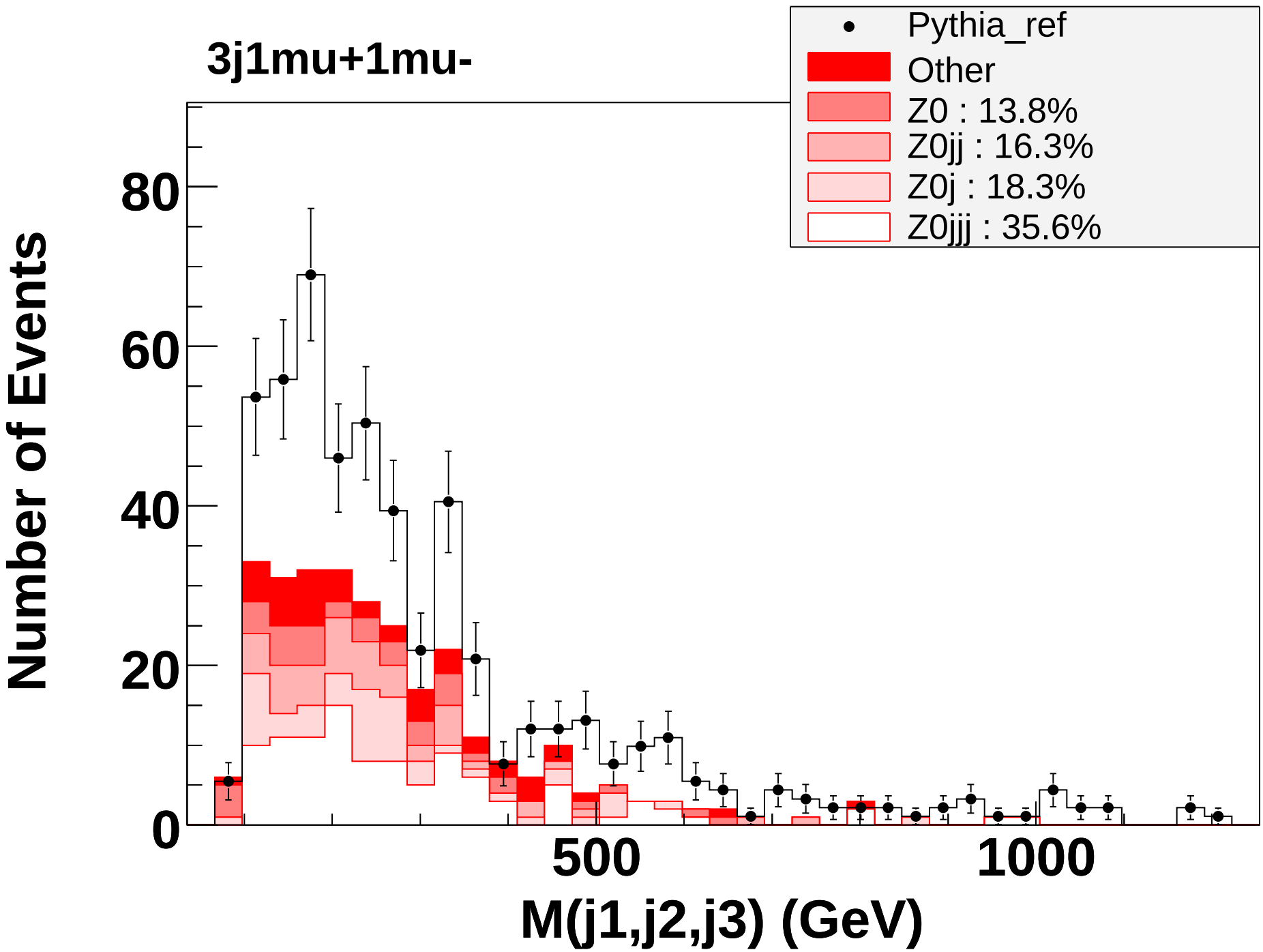

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
2
4
6
ΔR(μ⁻,j1)

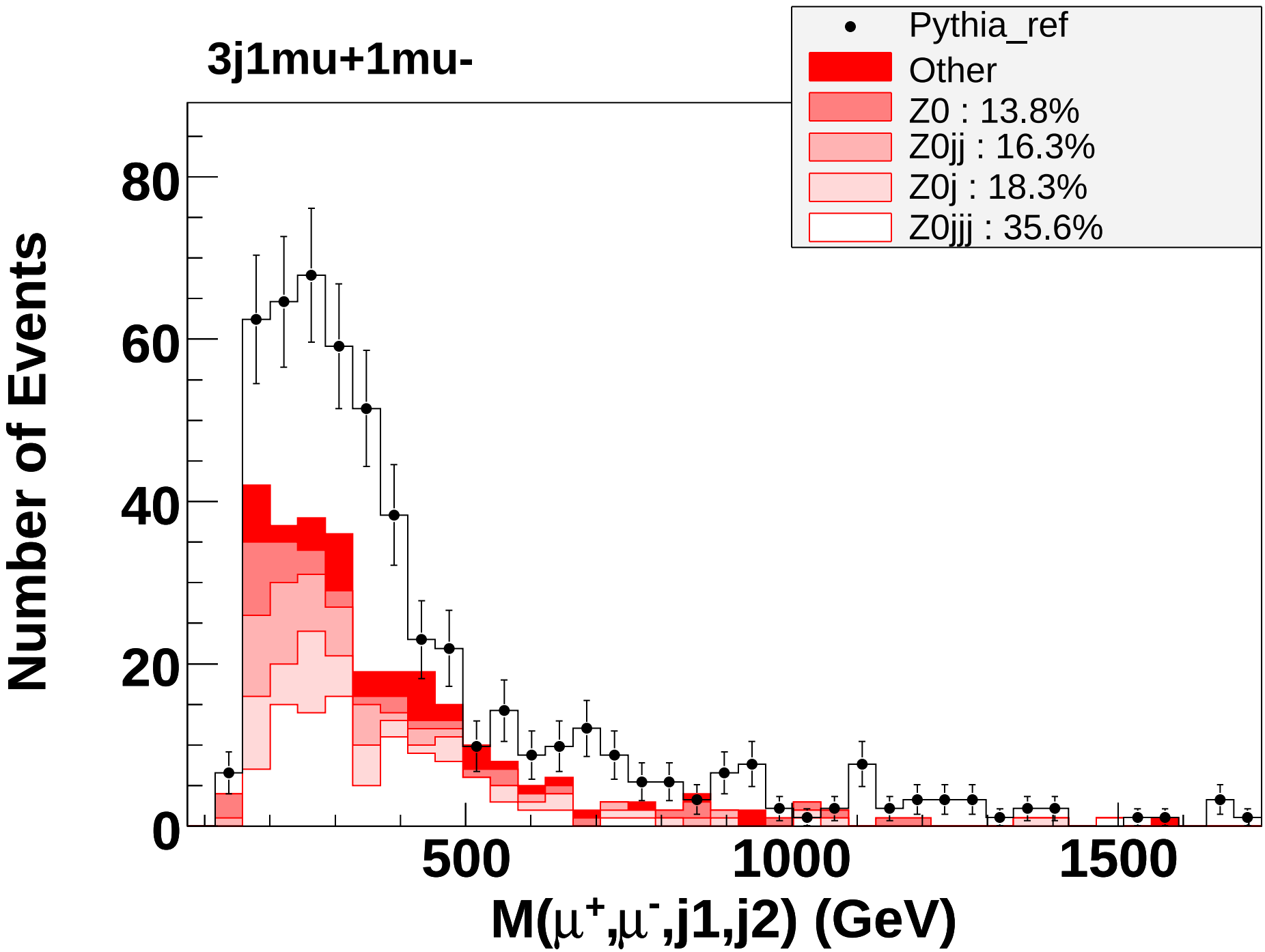

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
40
0
1
2
3
4
minΔR(μ⁻,j)

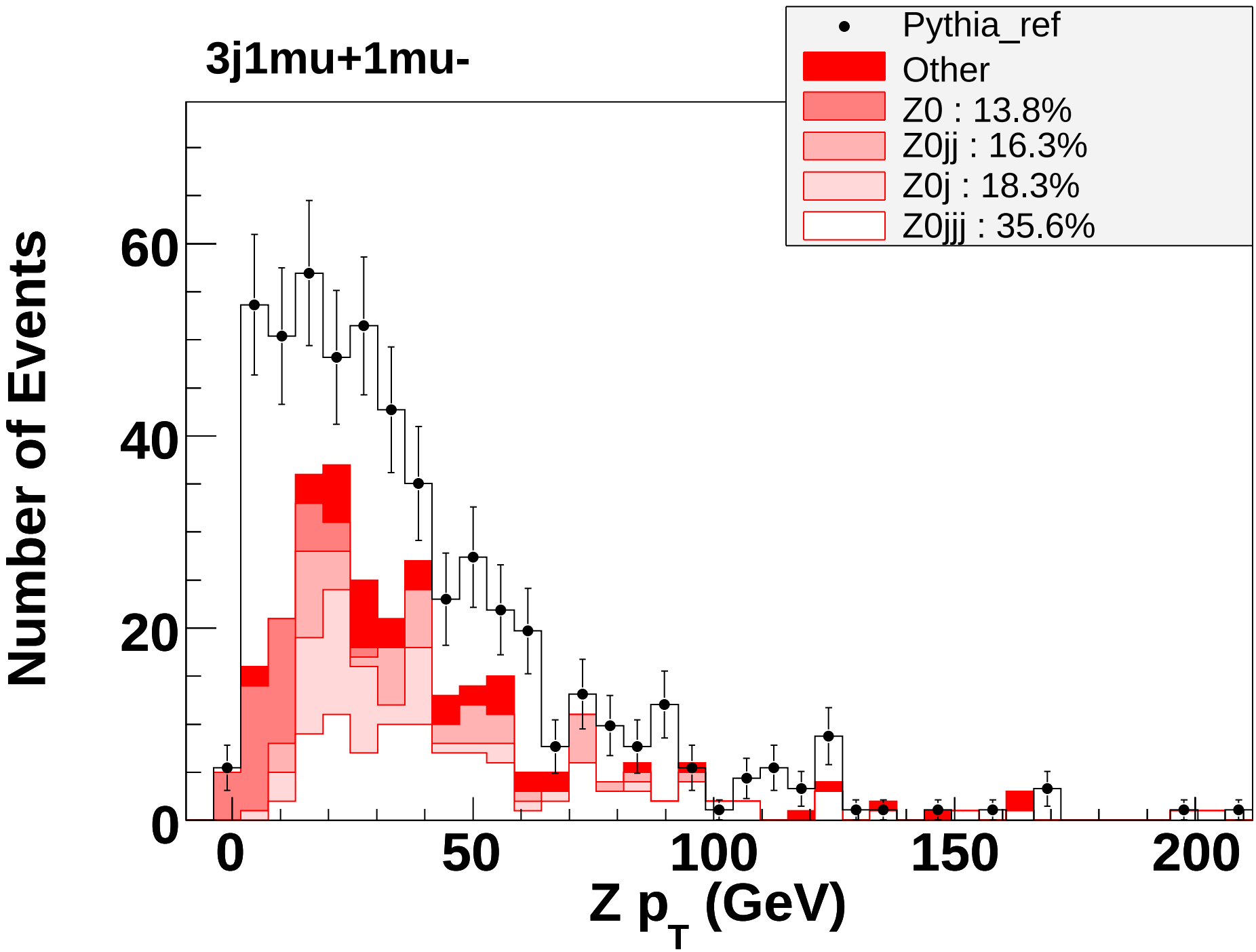

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
80
500
1000
M(μ+,μ-,j1,j3) (GeV)

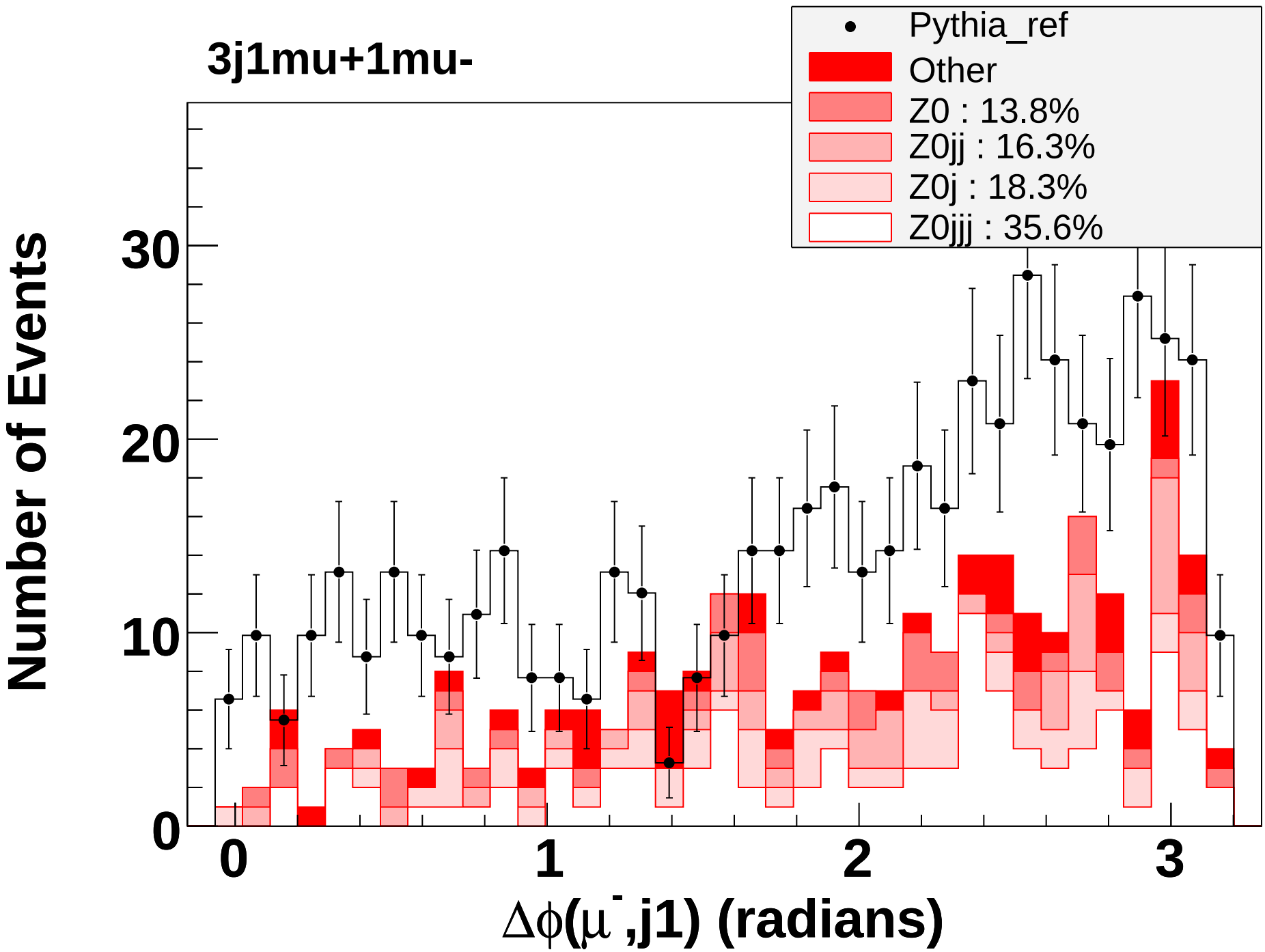

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
50
100
0
200
400
600
800
M(μ+,j3) (GeV)

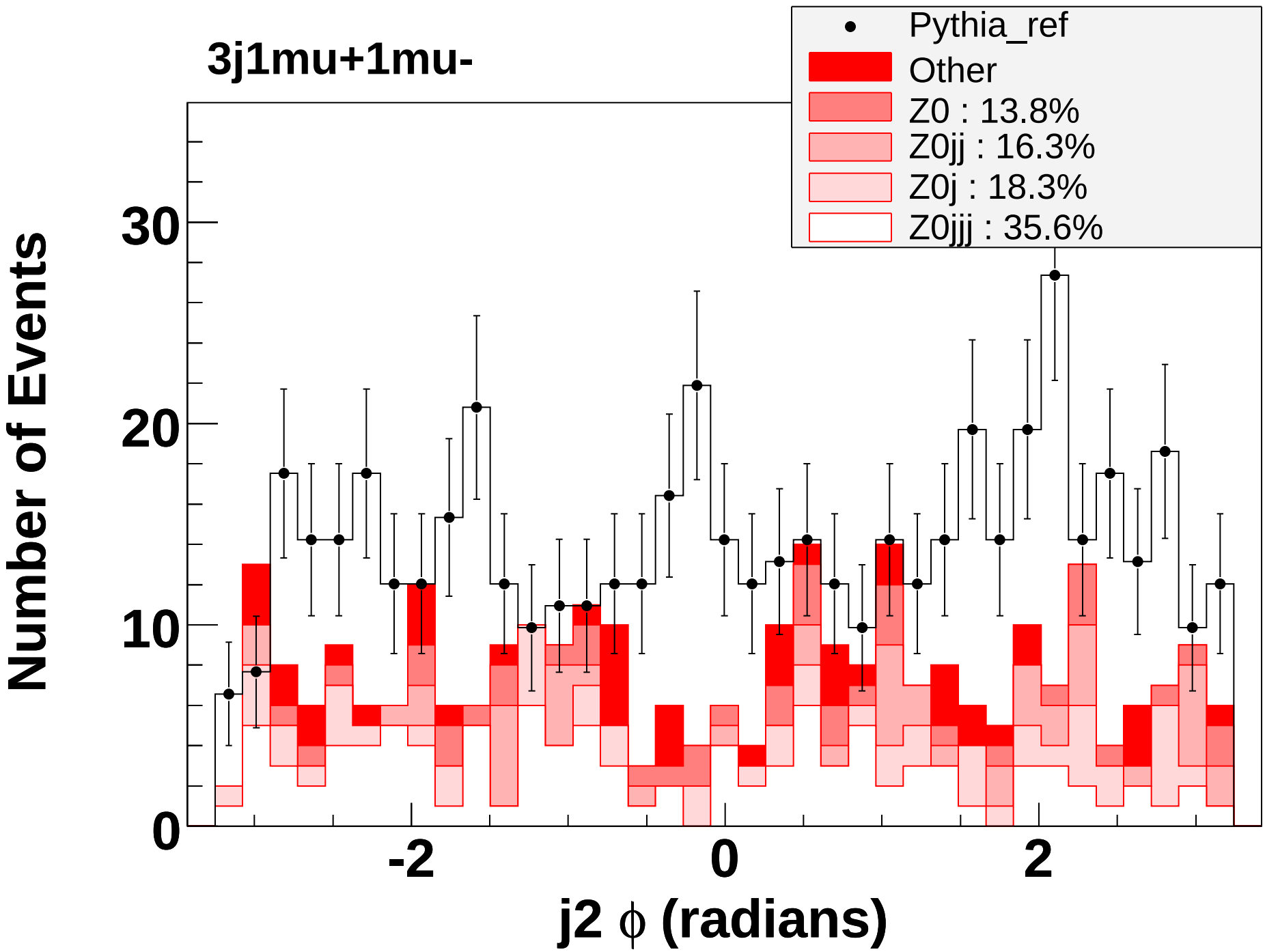

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
50
100
50
100
j2 p_T (GeV)

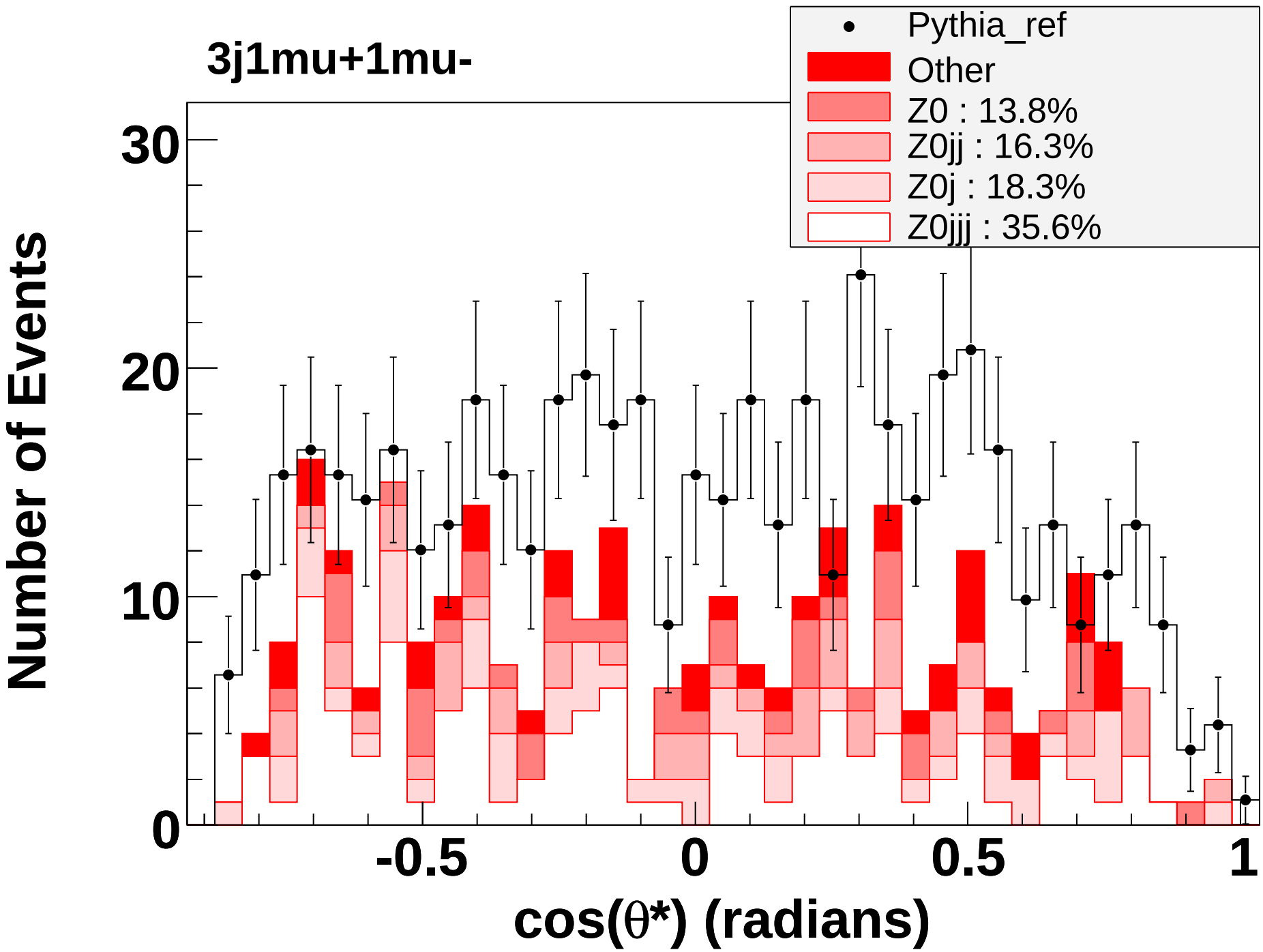

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
80
500
1000
M(j1,j2,j3) (GeV)

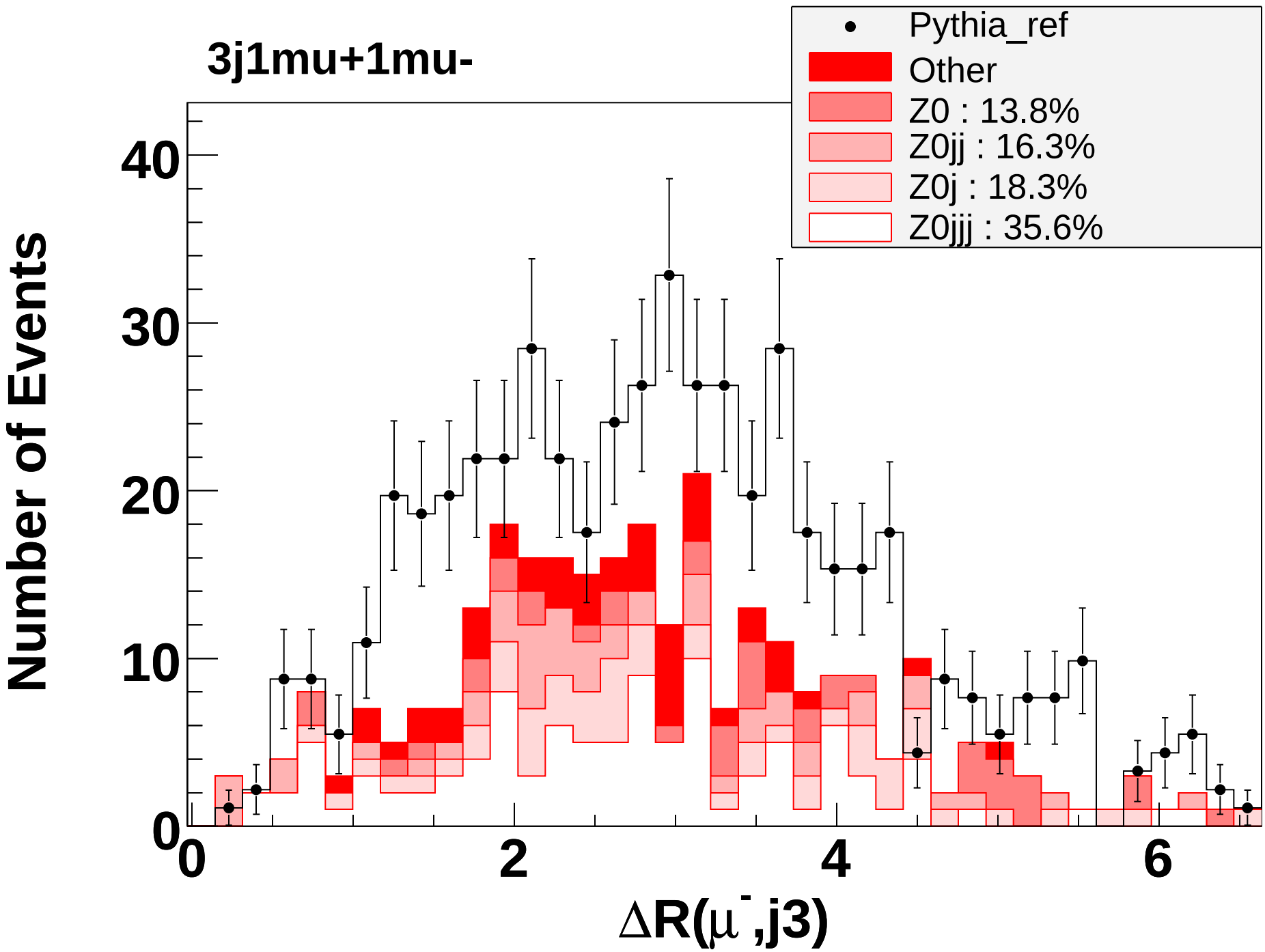

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
80
500
1000
1500
M(μ+,μ-,j1,j2) (GeV)

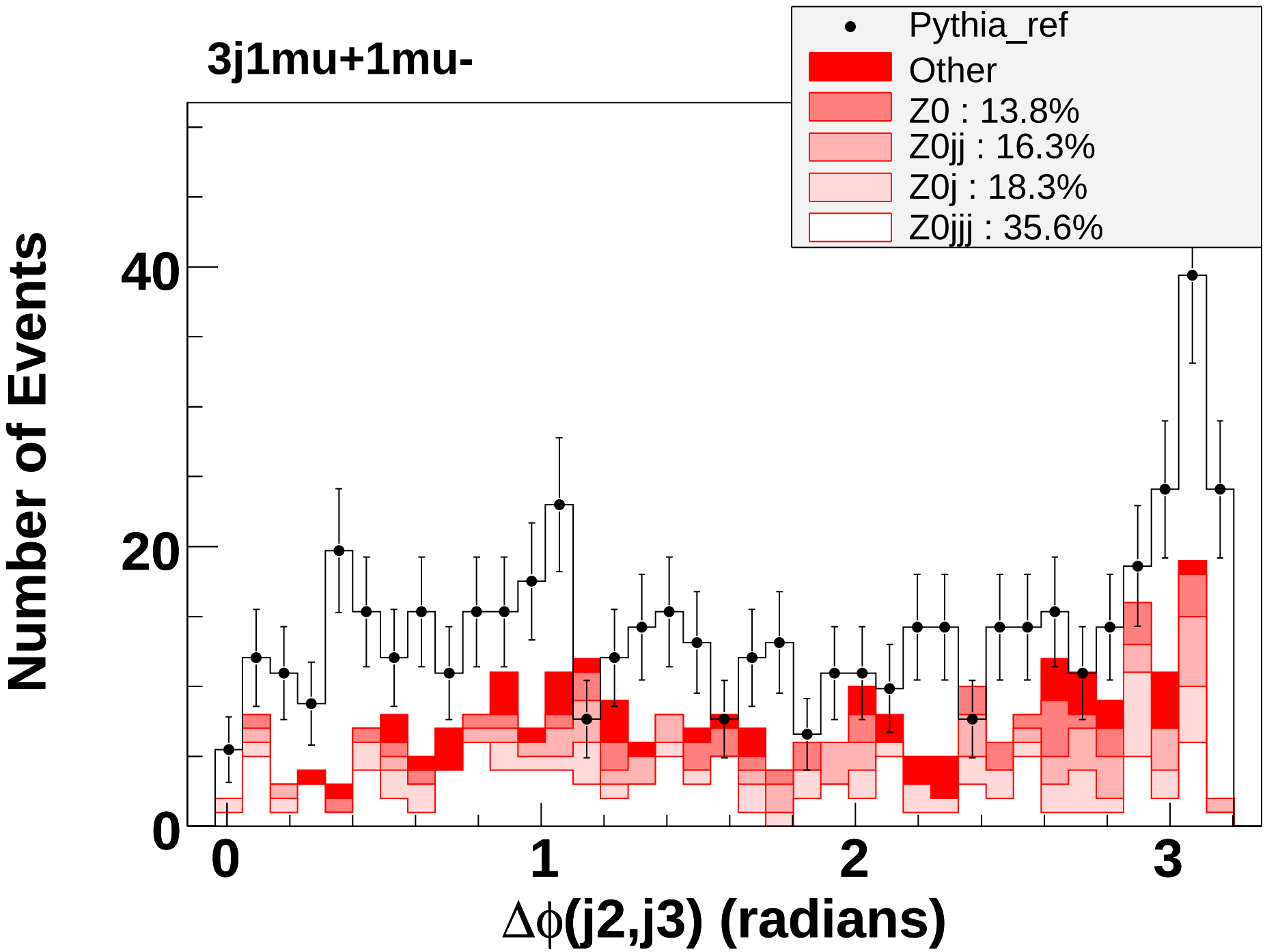

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
0
50
100
150
200
Z p_T (GeV)

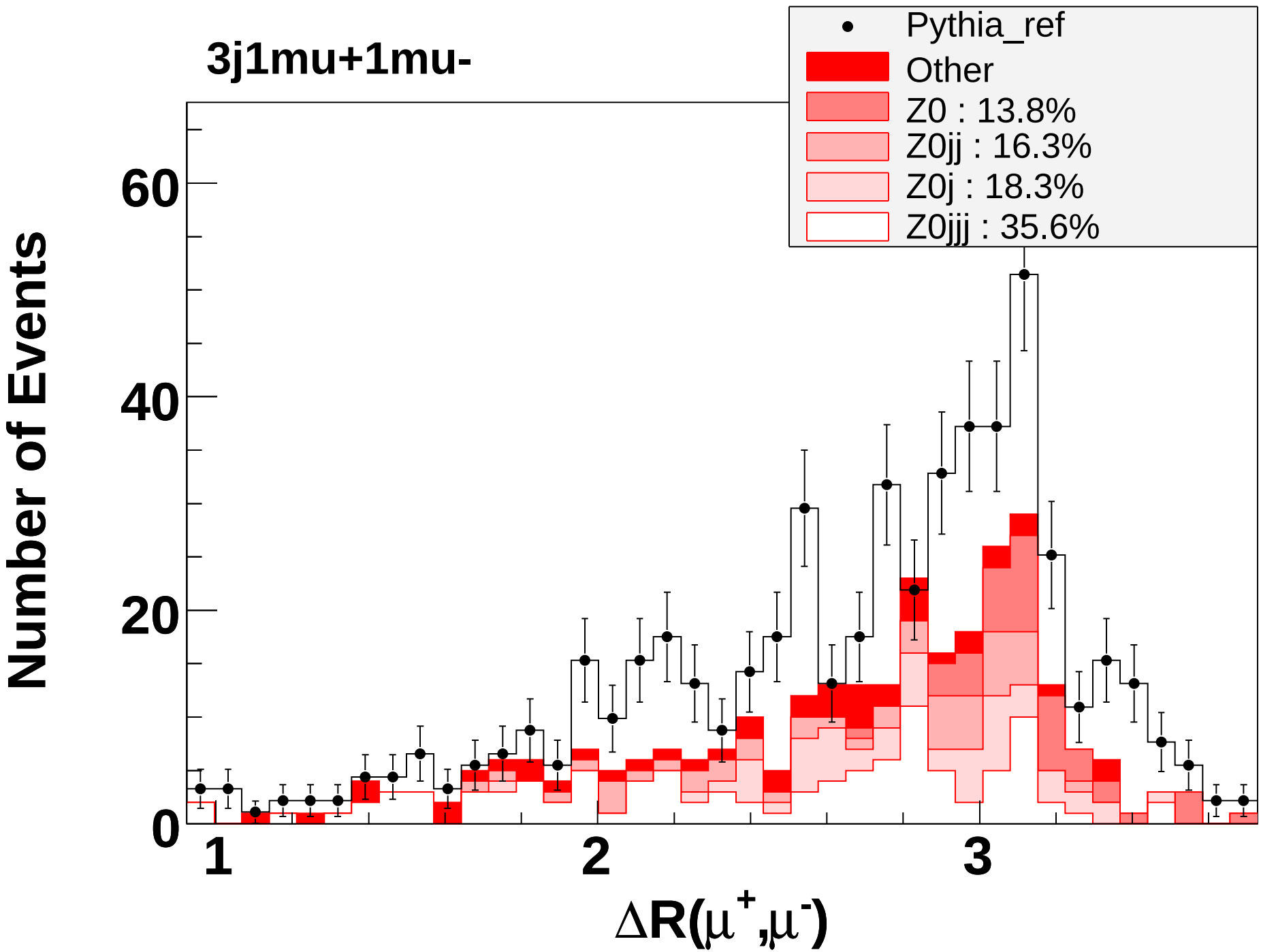

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
0
1
2
3
Δφ(μ⁻,j1) (radians)

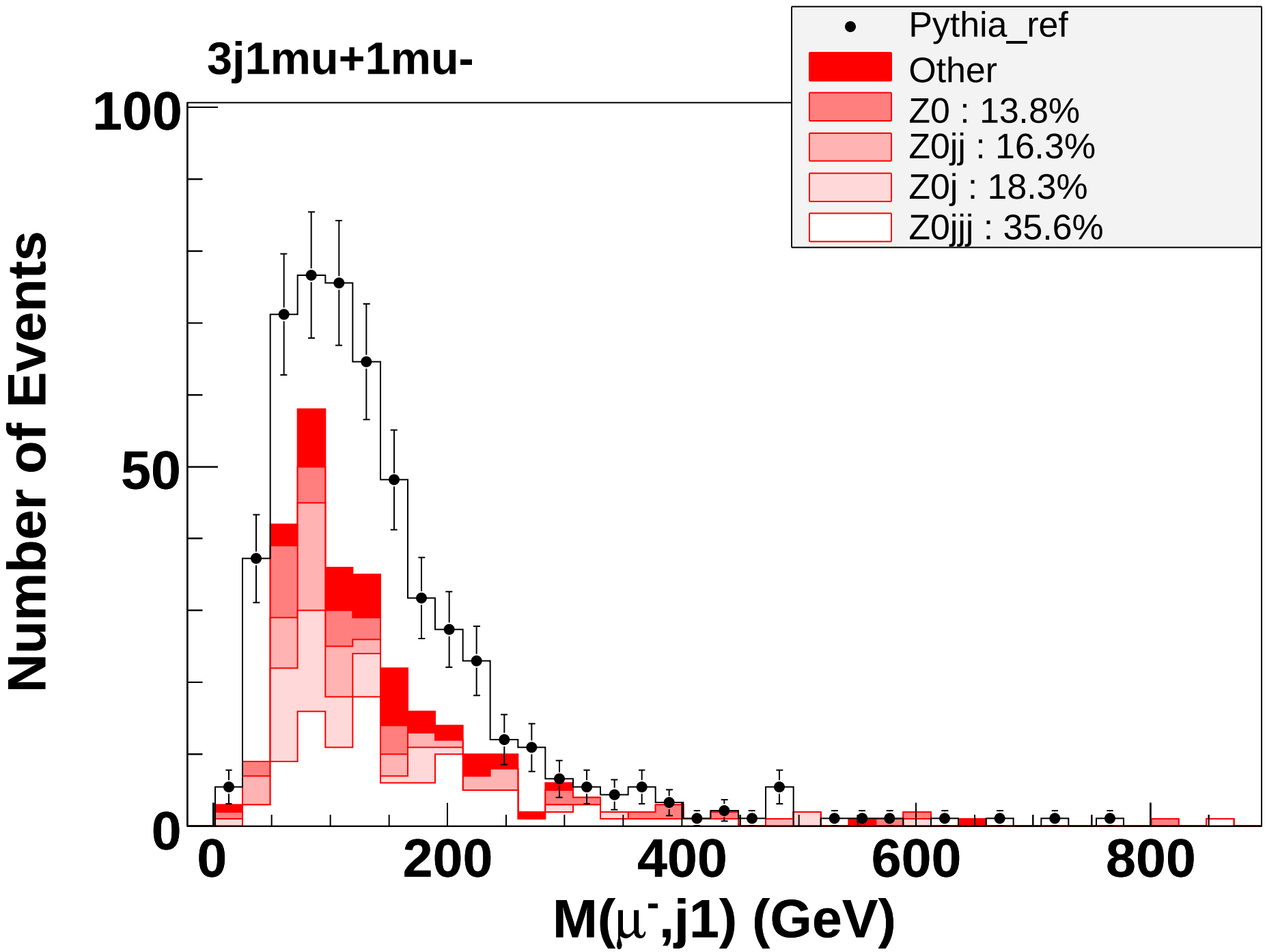

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
-2
0
2
j2 ϕ (radians)

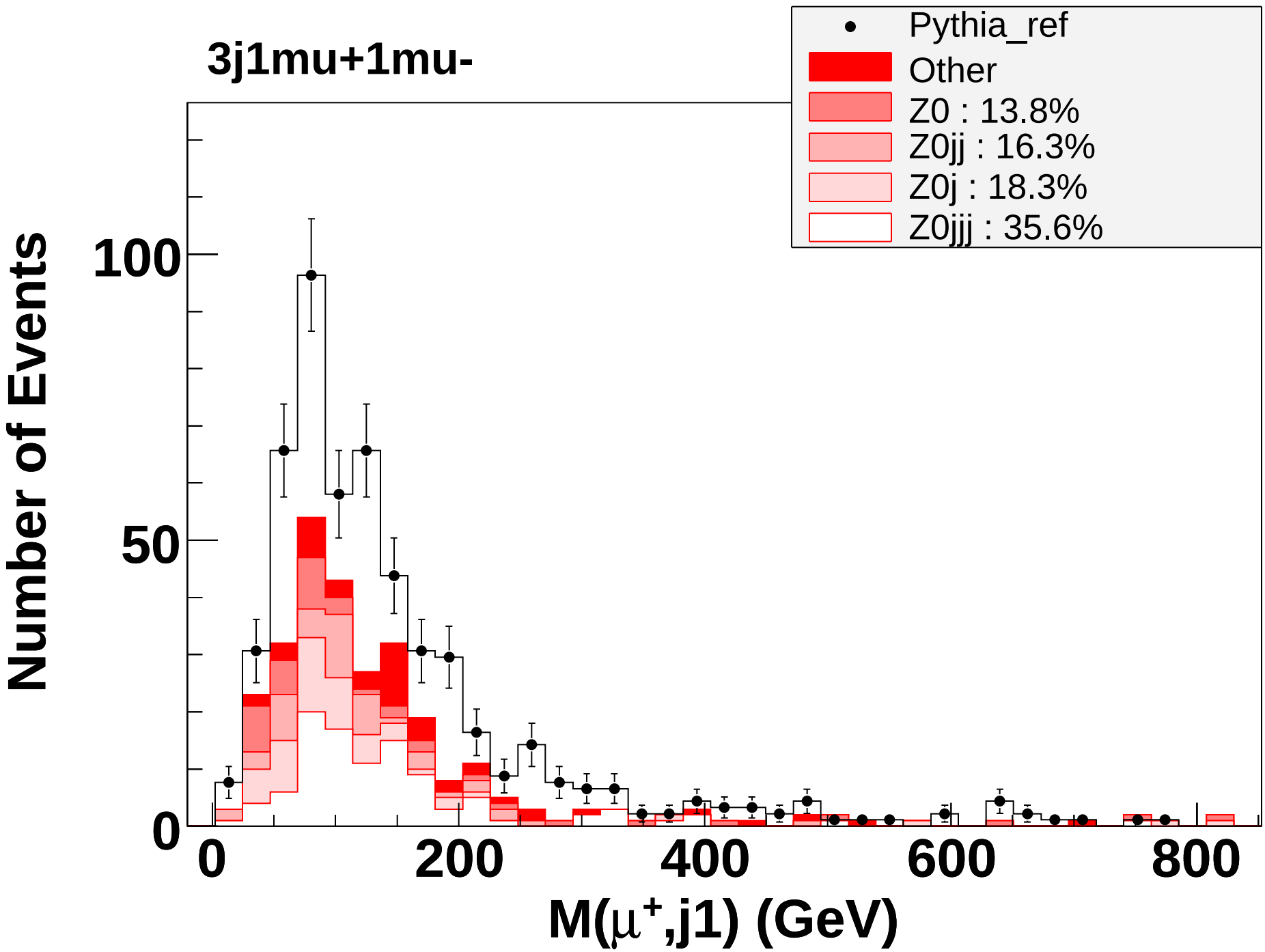

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
30
20
10
0
-0.5
0
0.5
1
cos(θ*) (radians)

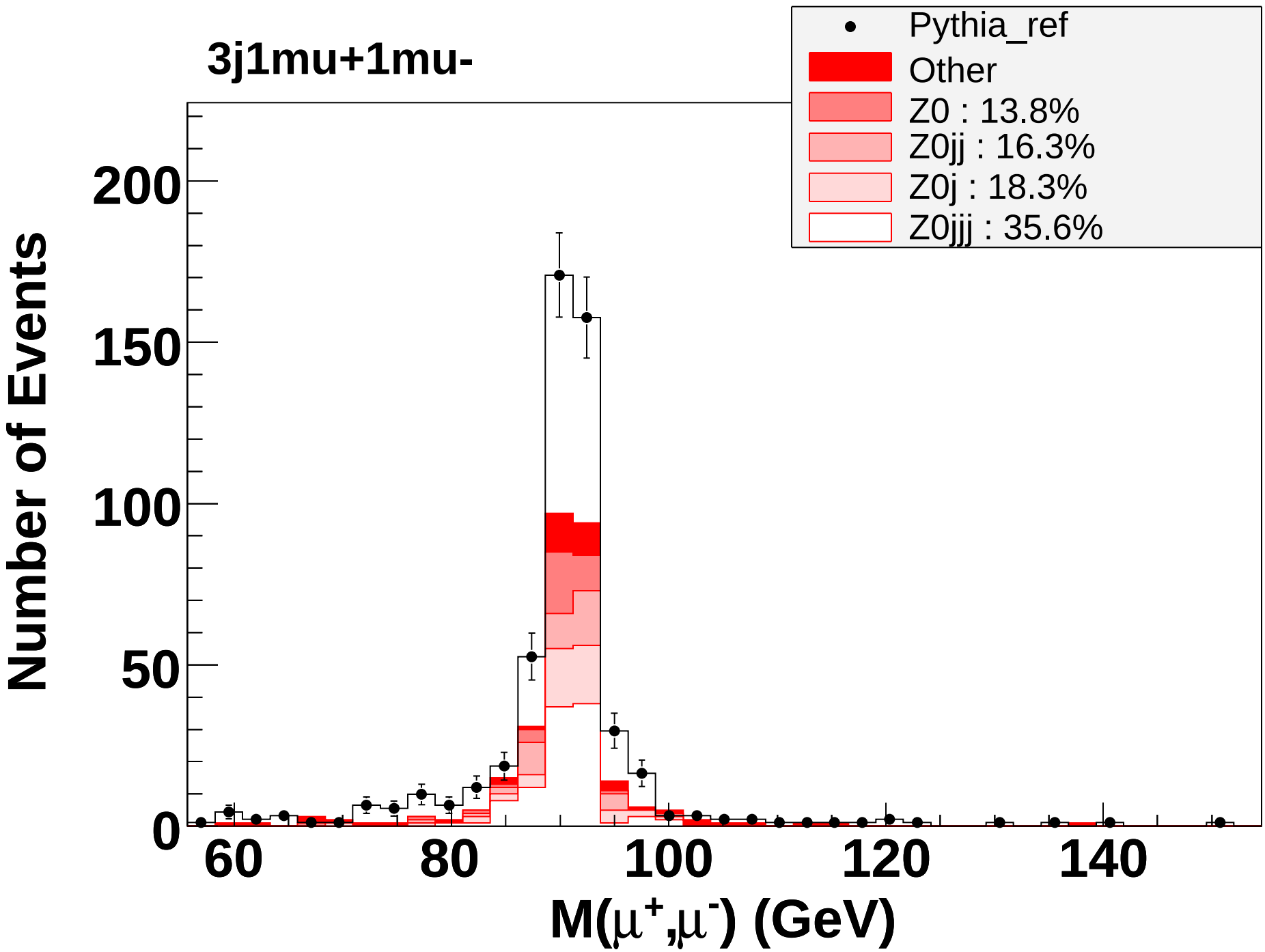

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
40
0
2
4
6
ΔR(μ⁻,j3)

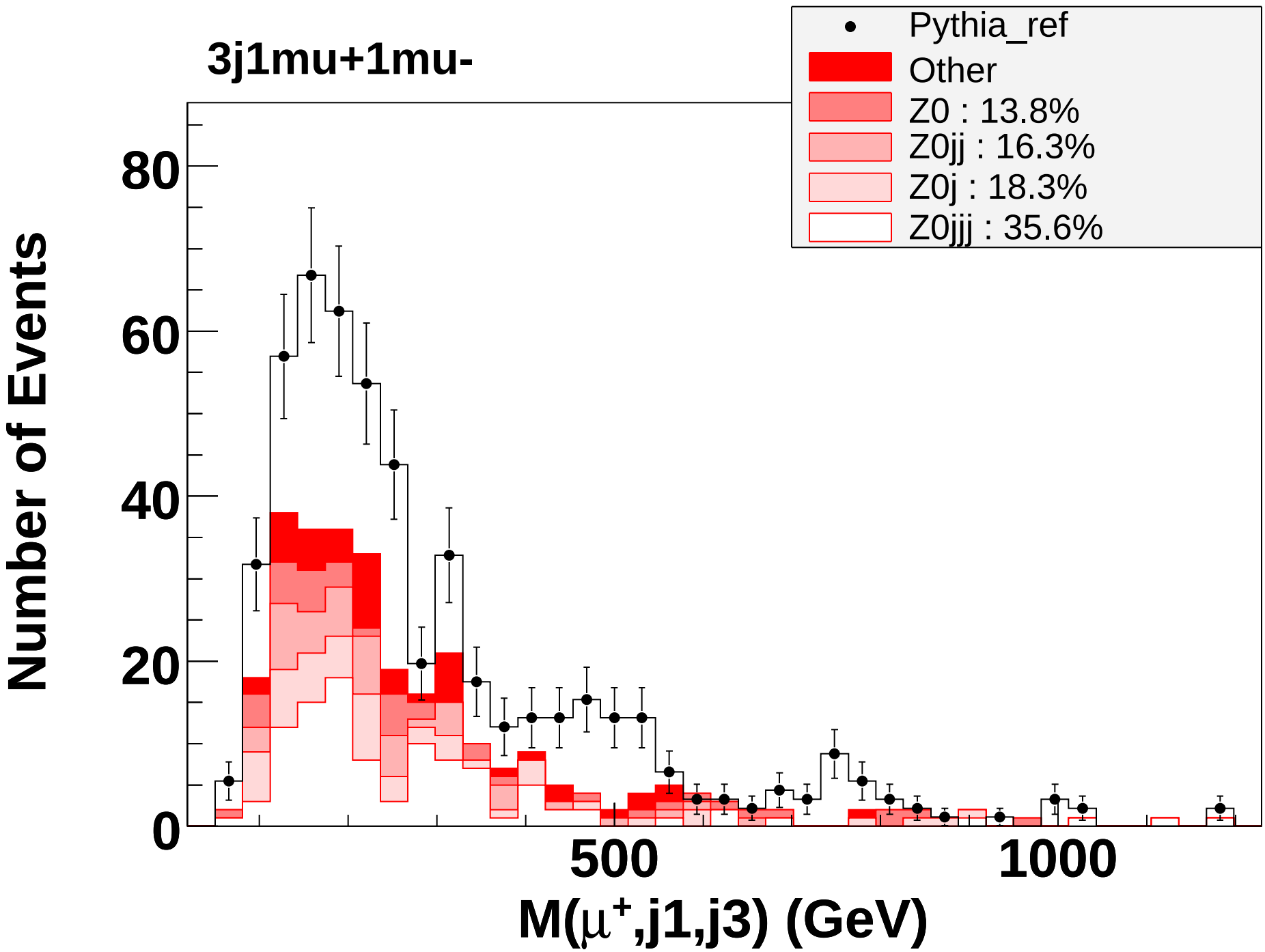

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
0
1
2
3
Δϕ(j2,j3) (radians)

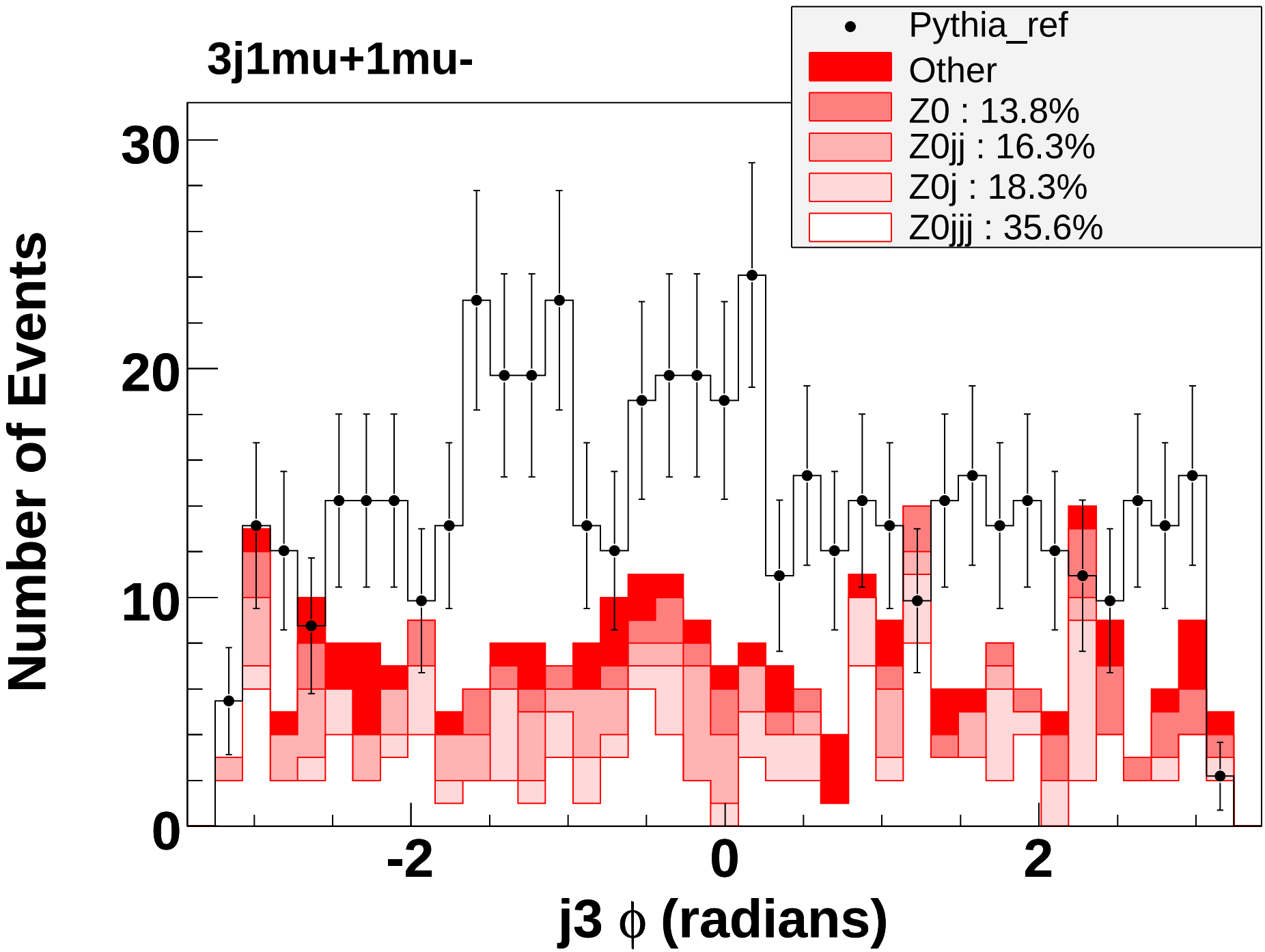

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
1
2
3
ΔR(μ+,μ-)

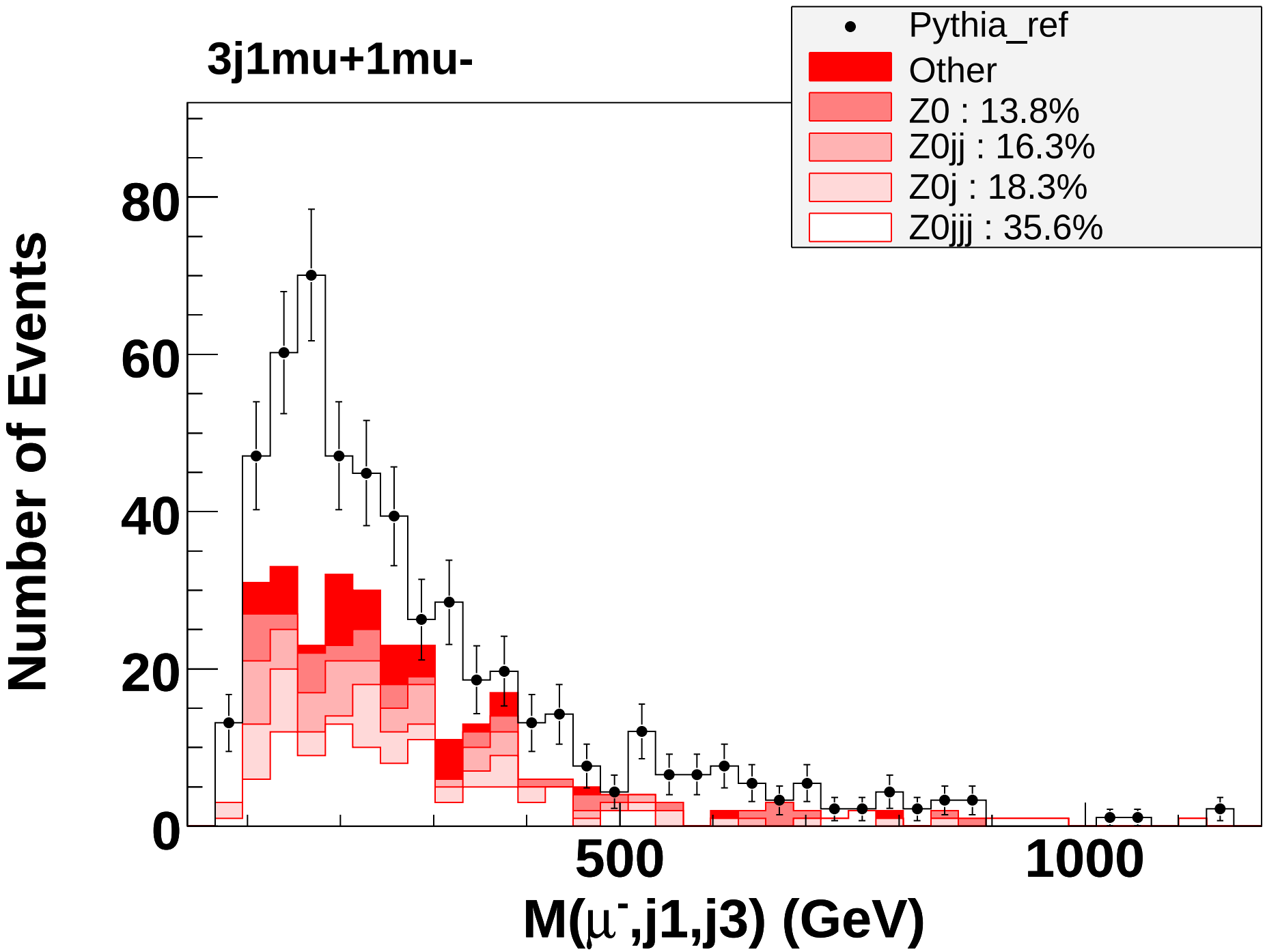

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
100
50
0
0
200
400
600
800
M(μ⁻,j1) (GeV)

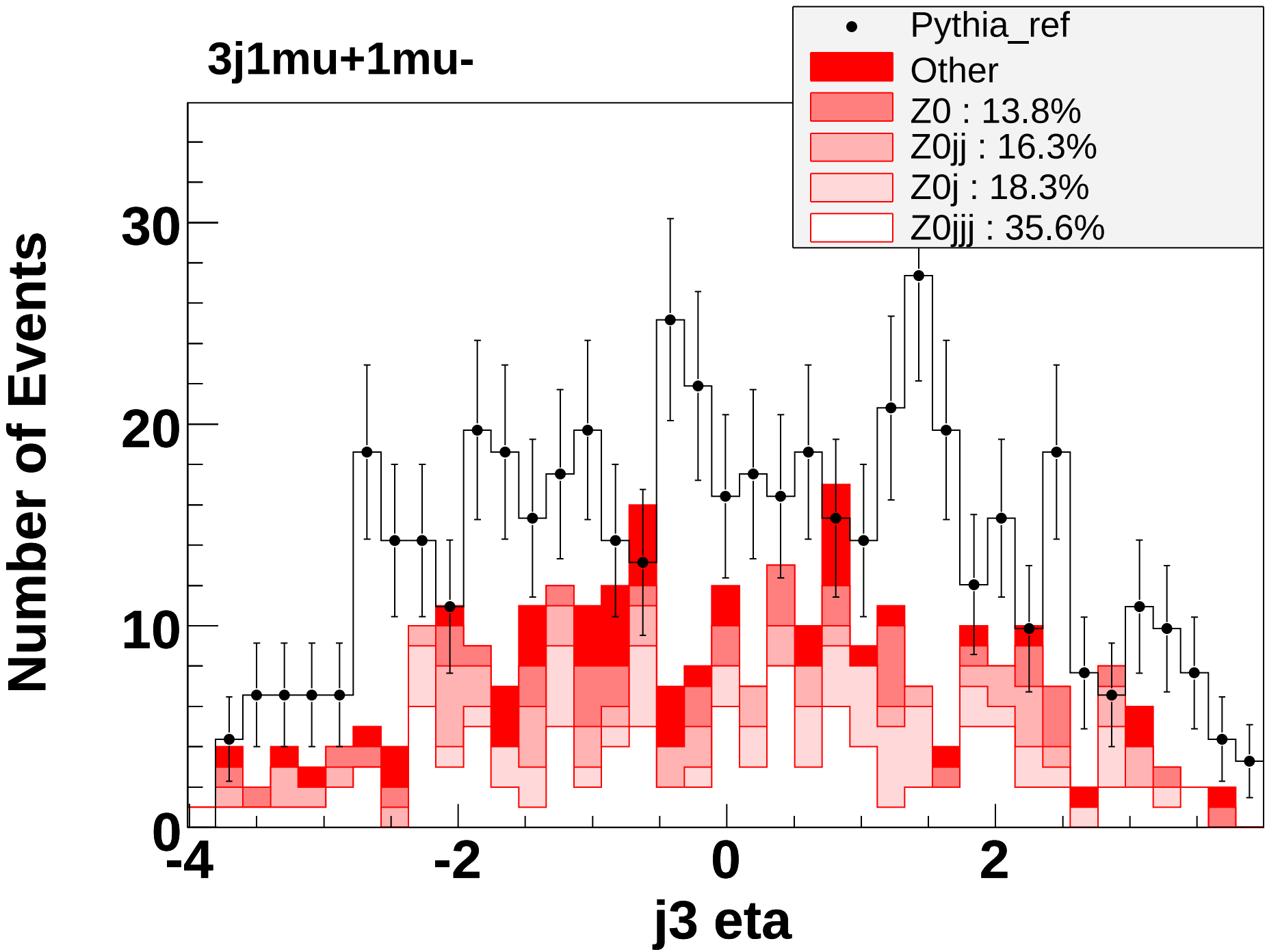

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
50
100
0
200
400
600
800
M(μ+,j1) (GeV)

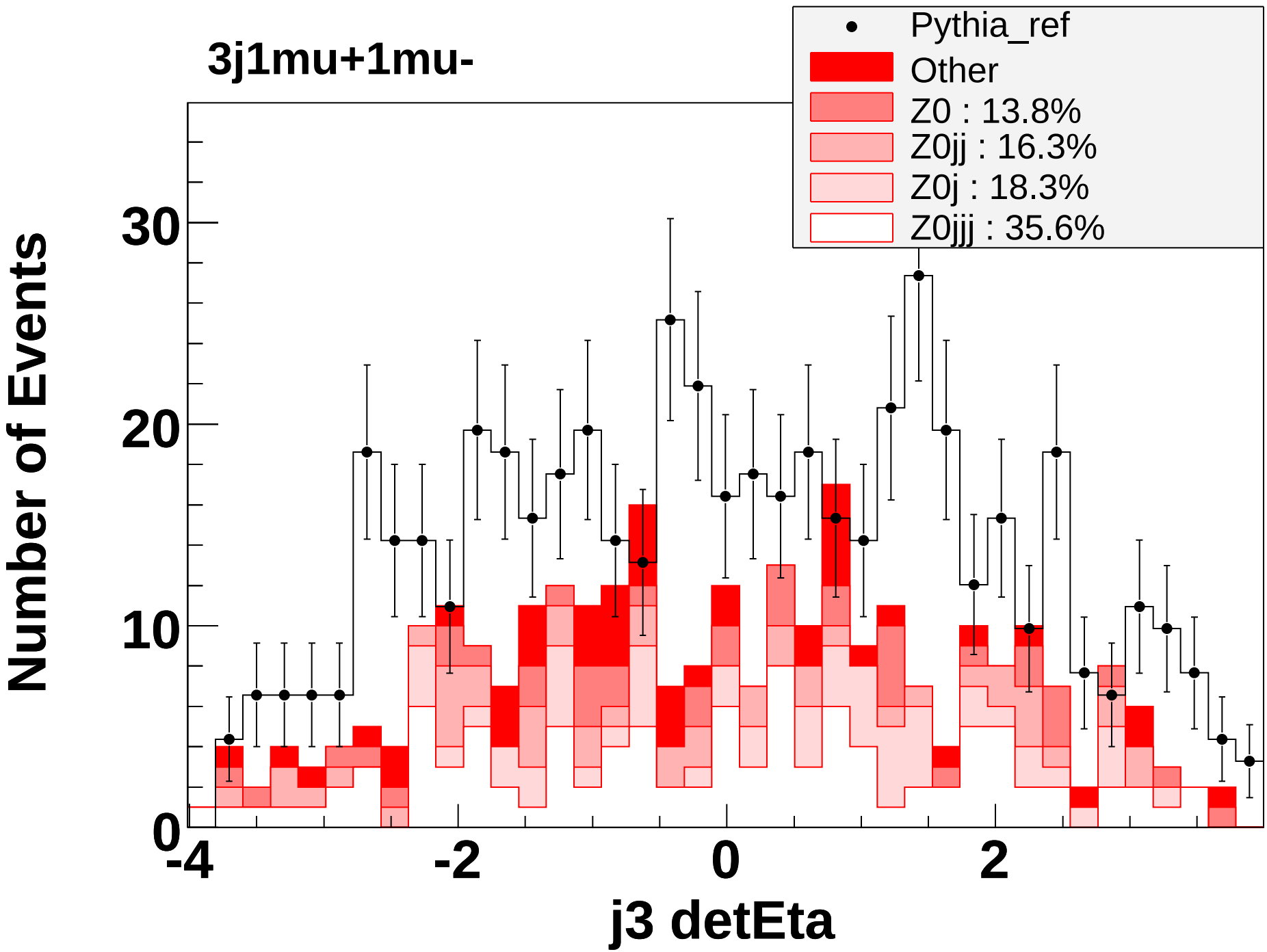

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
50
100
150
200
60
80
100
120
140
M(μ+,μ-) (GeV)

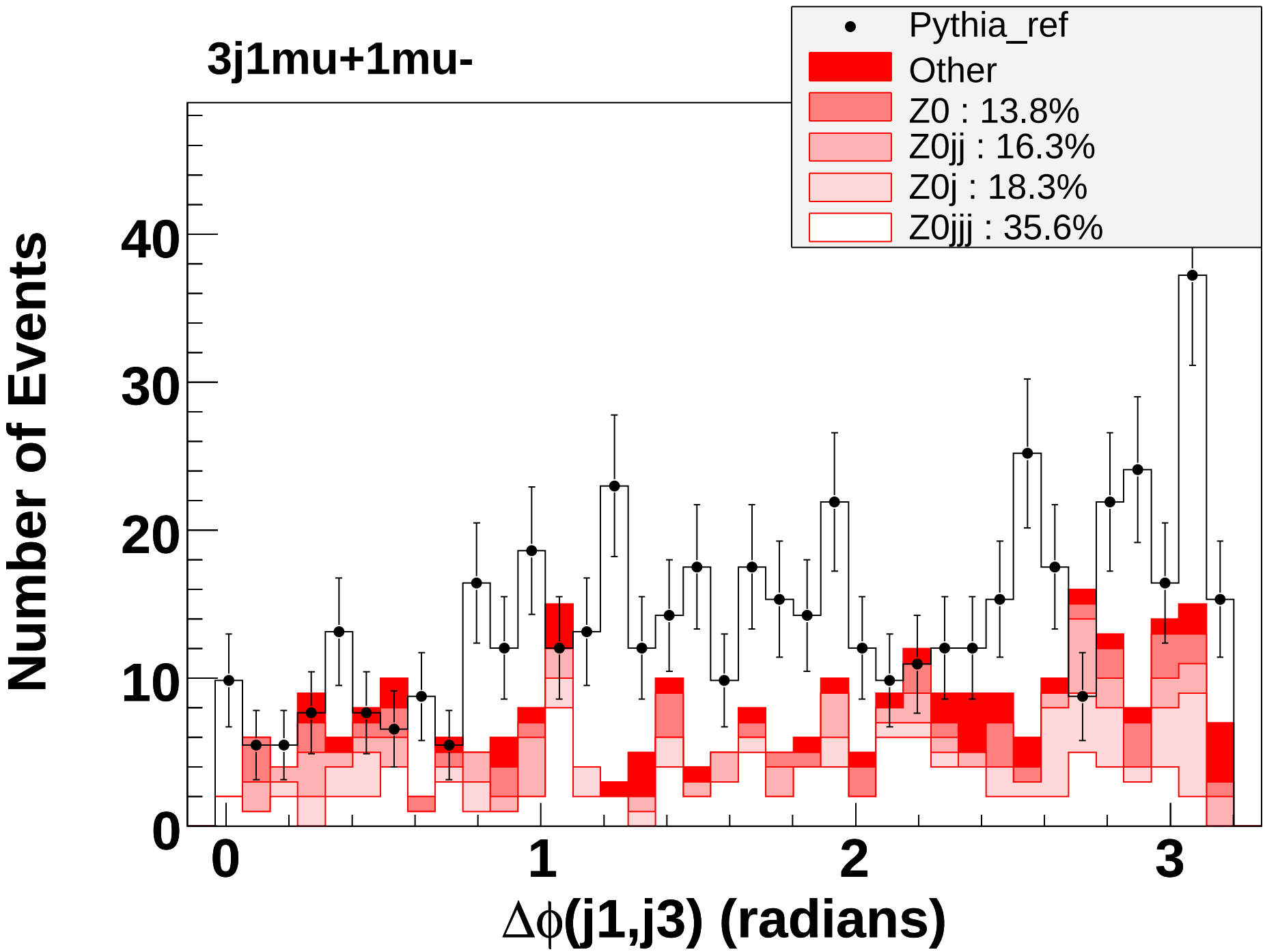

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
80
500
1000
M(μ+,j1,j3) (GeV)

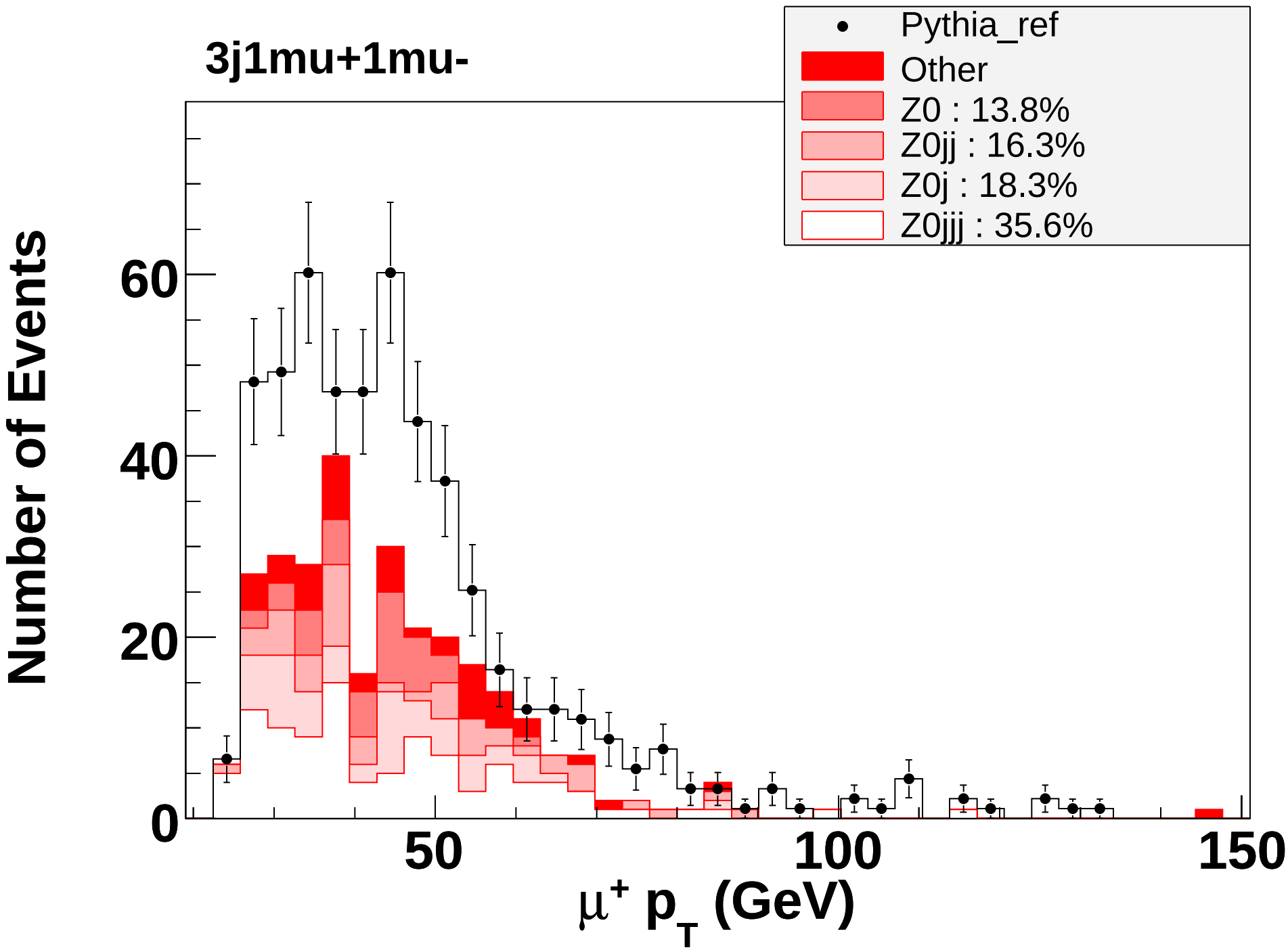

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
30
20
10
0
-2
0
2
j3 ϕ (radians)

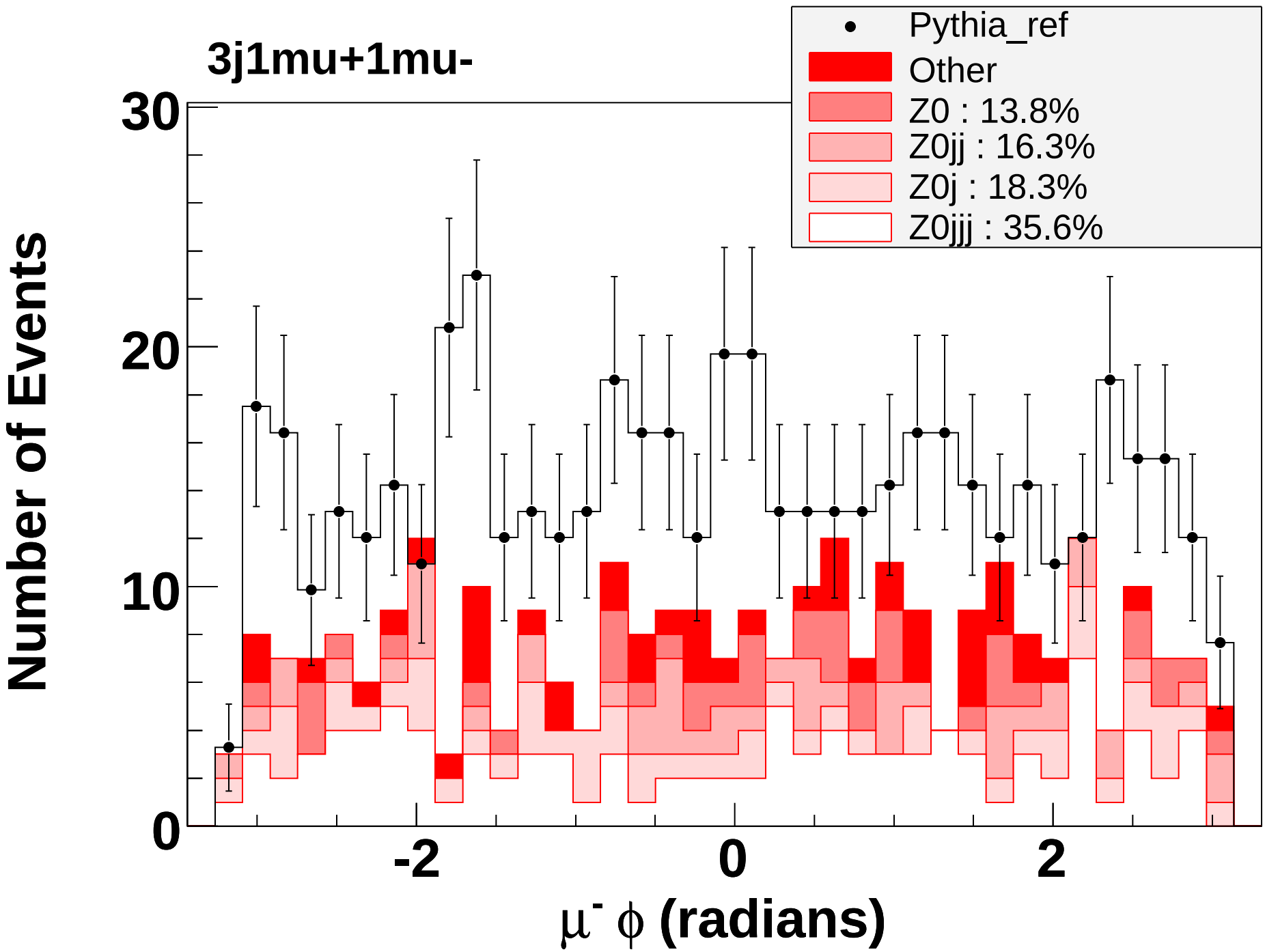

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
80
500
1000
M(μ⁻,j1,j3) (GeV)

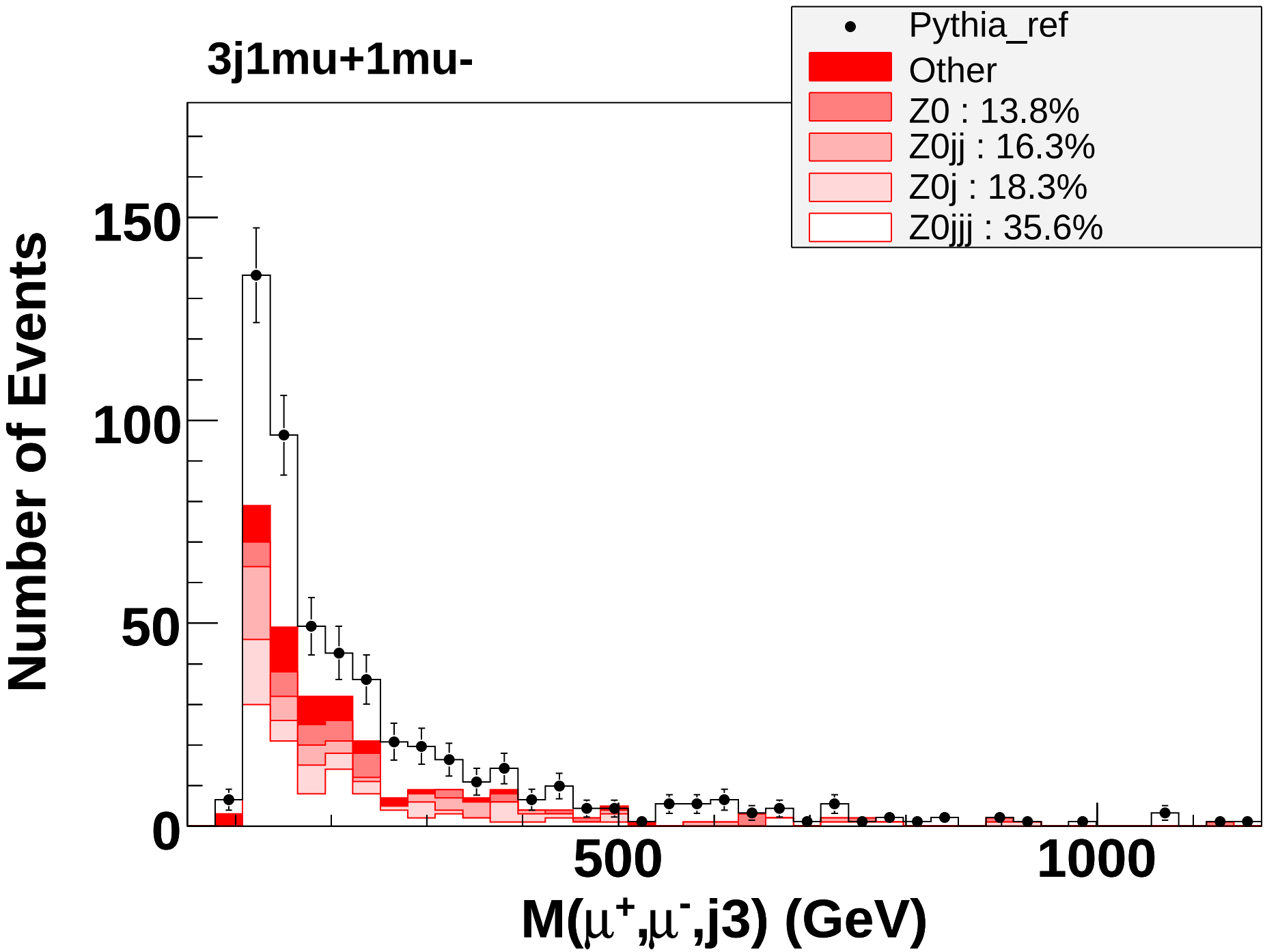

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
-4
-2
0
2
j3 eta

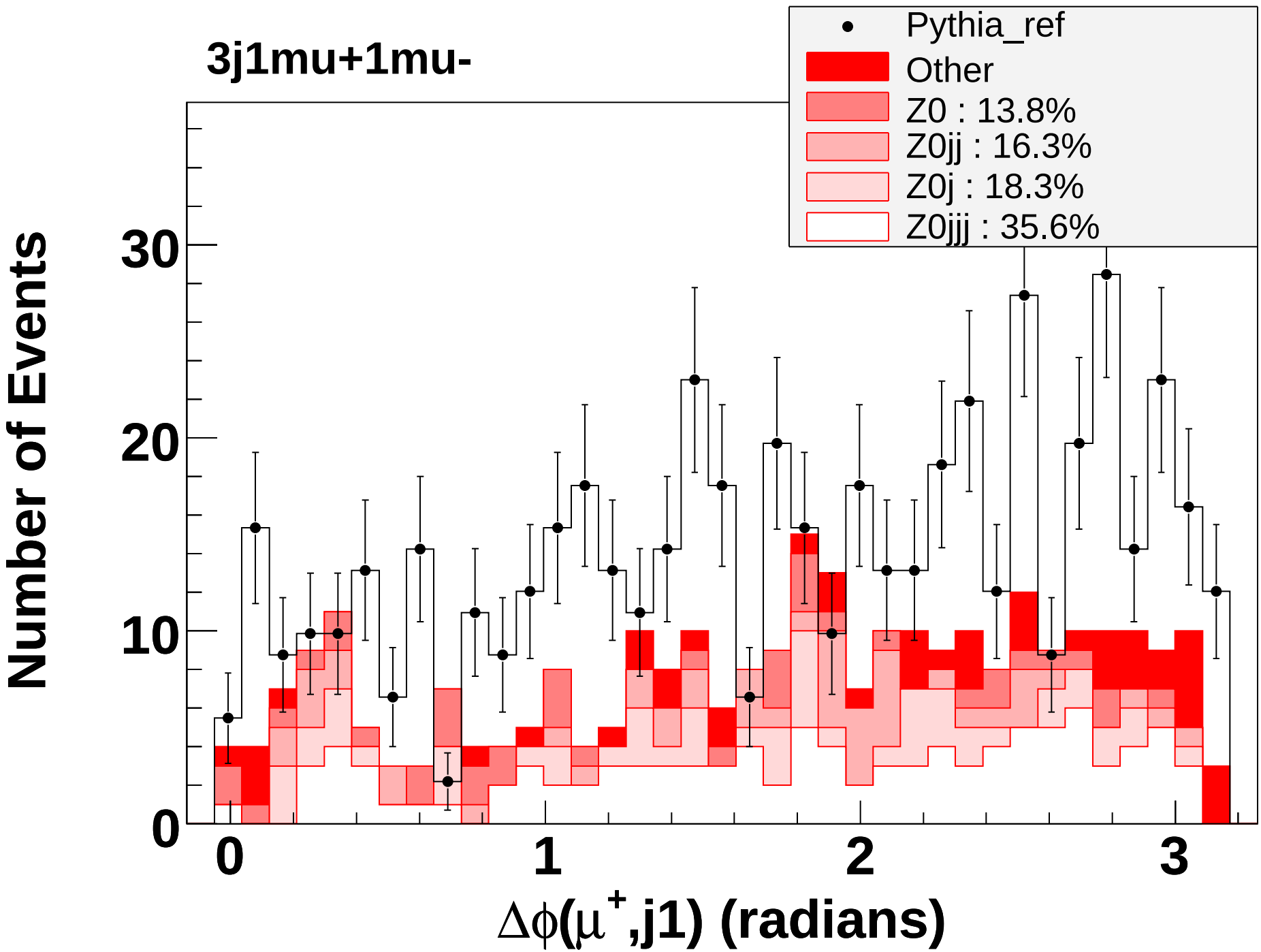

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
-4
-2
0
2
j3 detEta

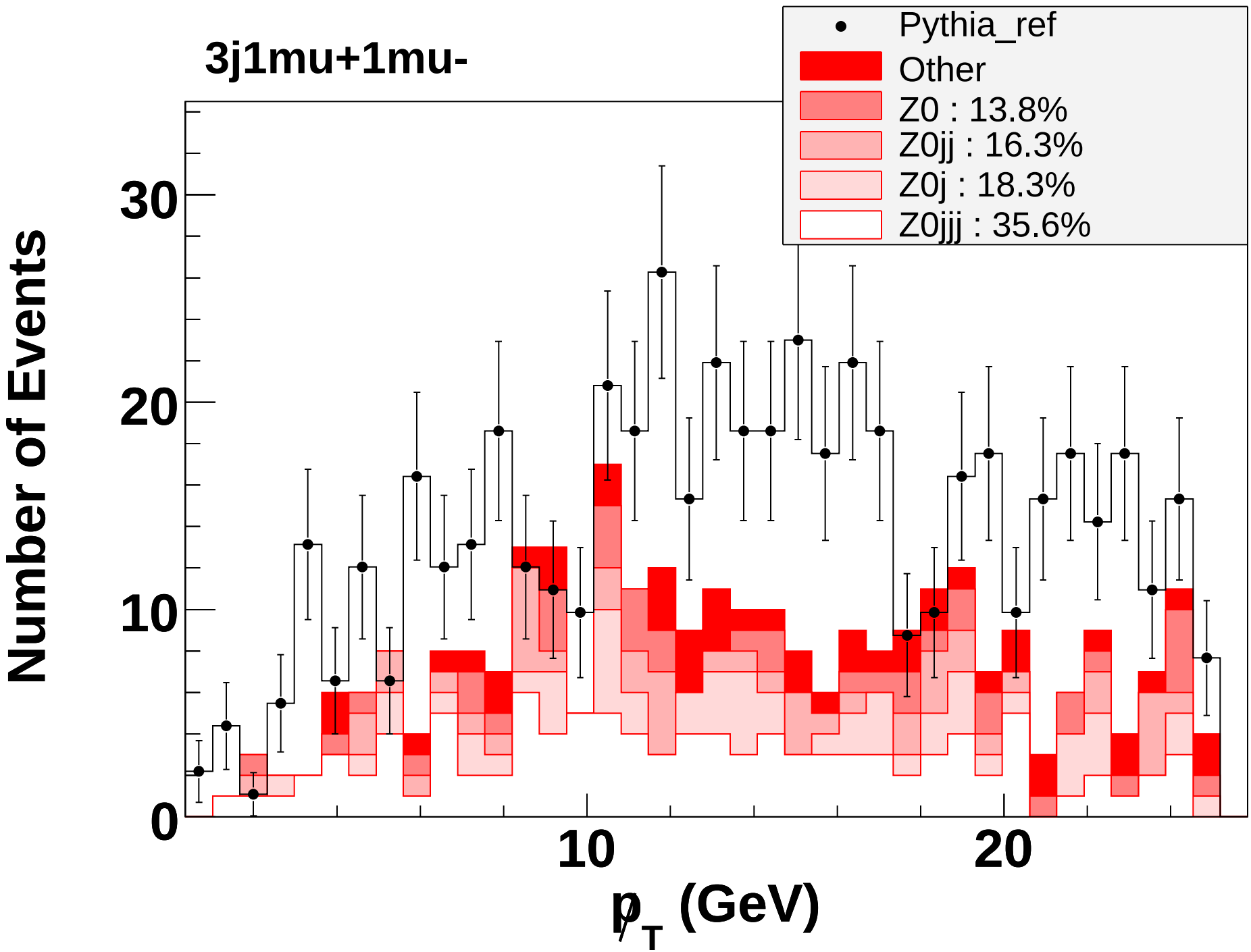

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
40
0
1
2
3
Δϕ(j1,j3) (radians)

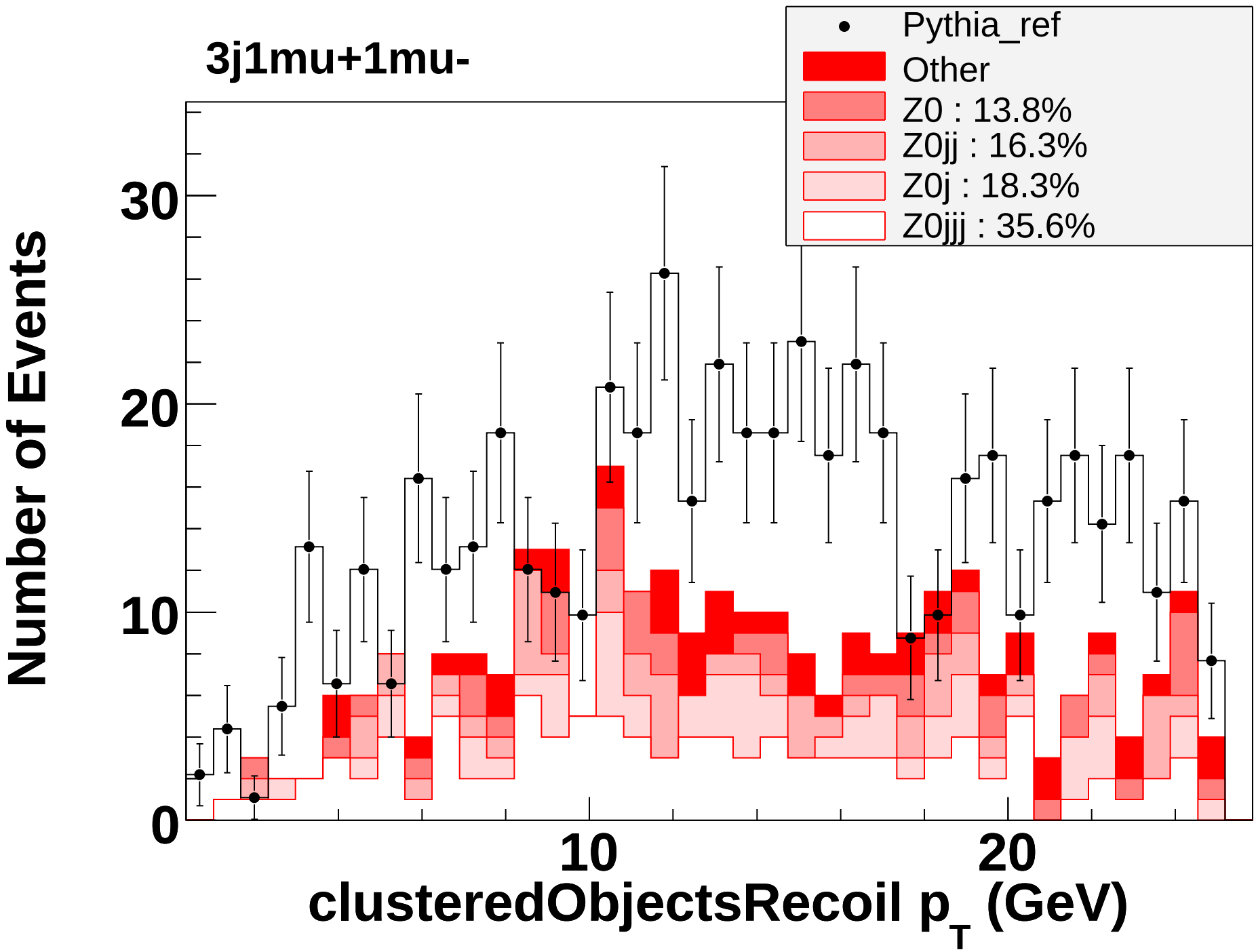

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
50
100
150
μ+ pT (GeV)

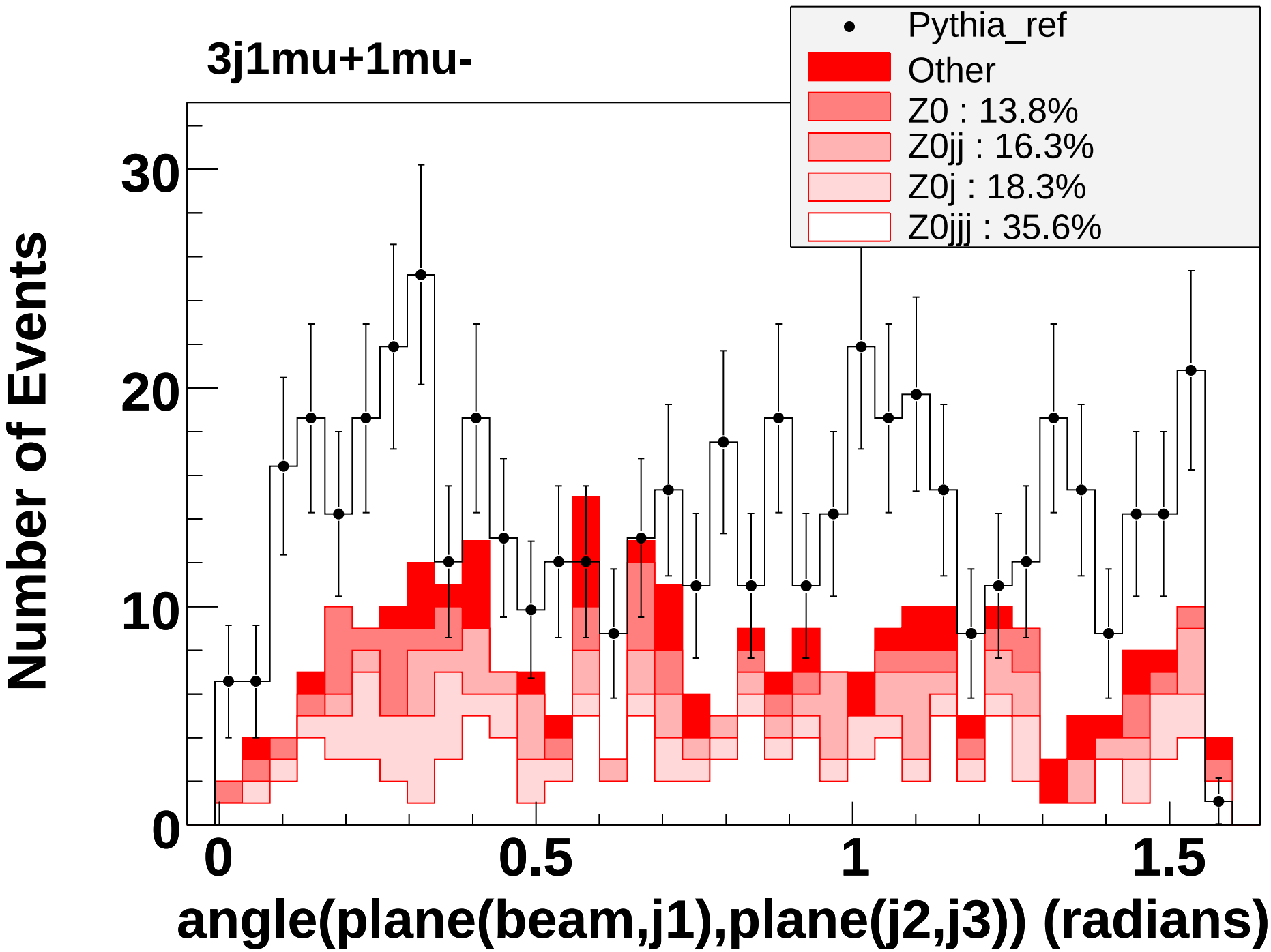

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
30
20
10
0
-2
0
2
μ⁻ φ (radians)

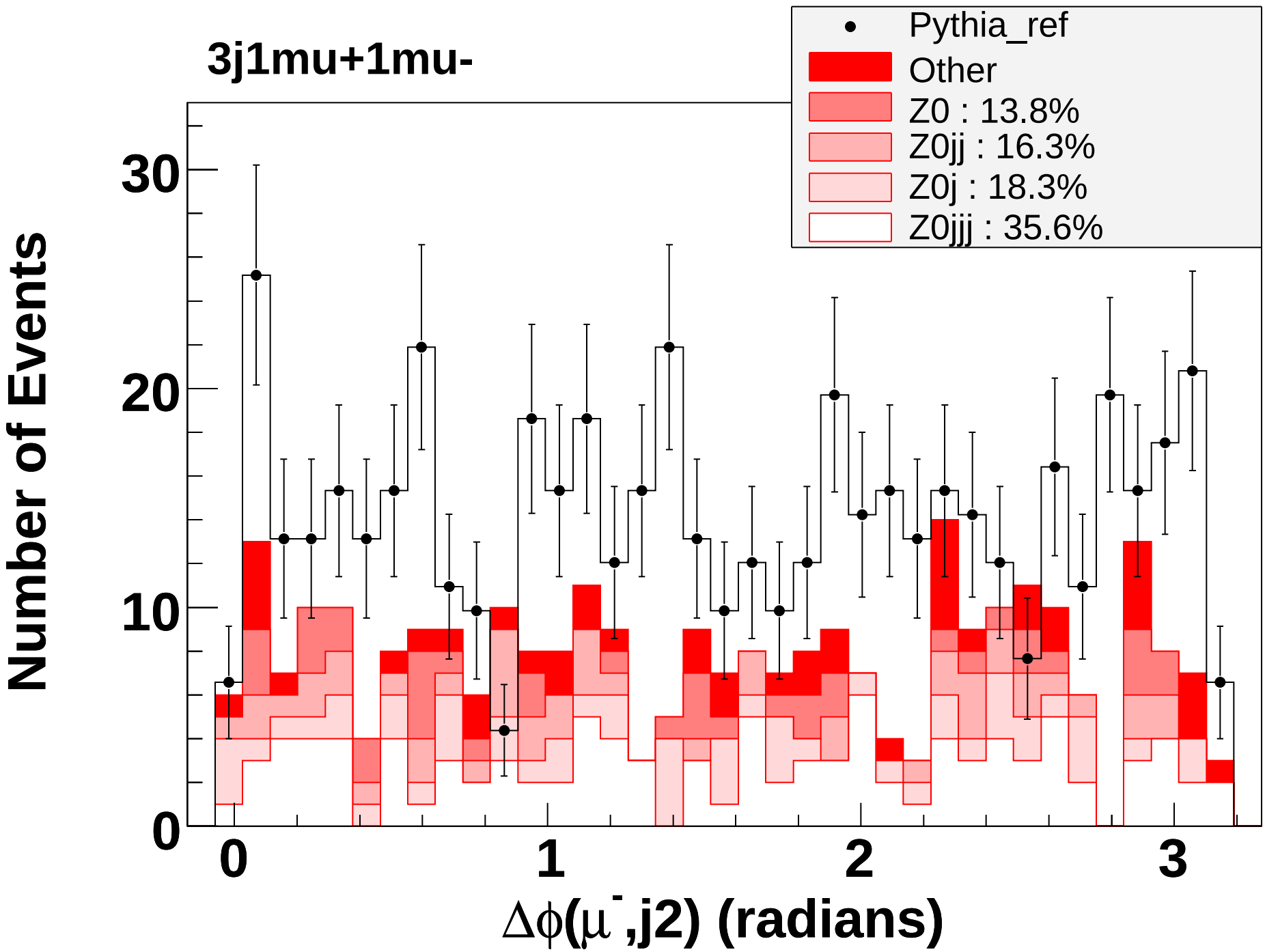

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
50
100
150
500
1000
M(μ+,μ-,j3) (GeV)

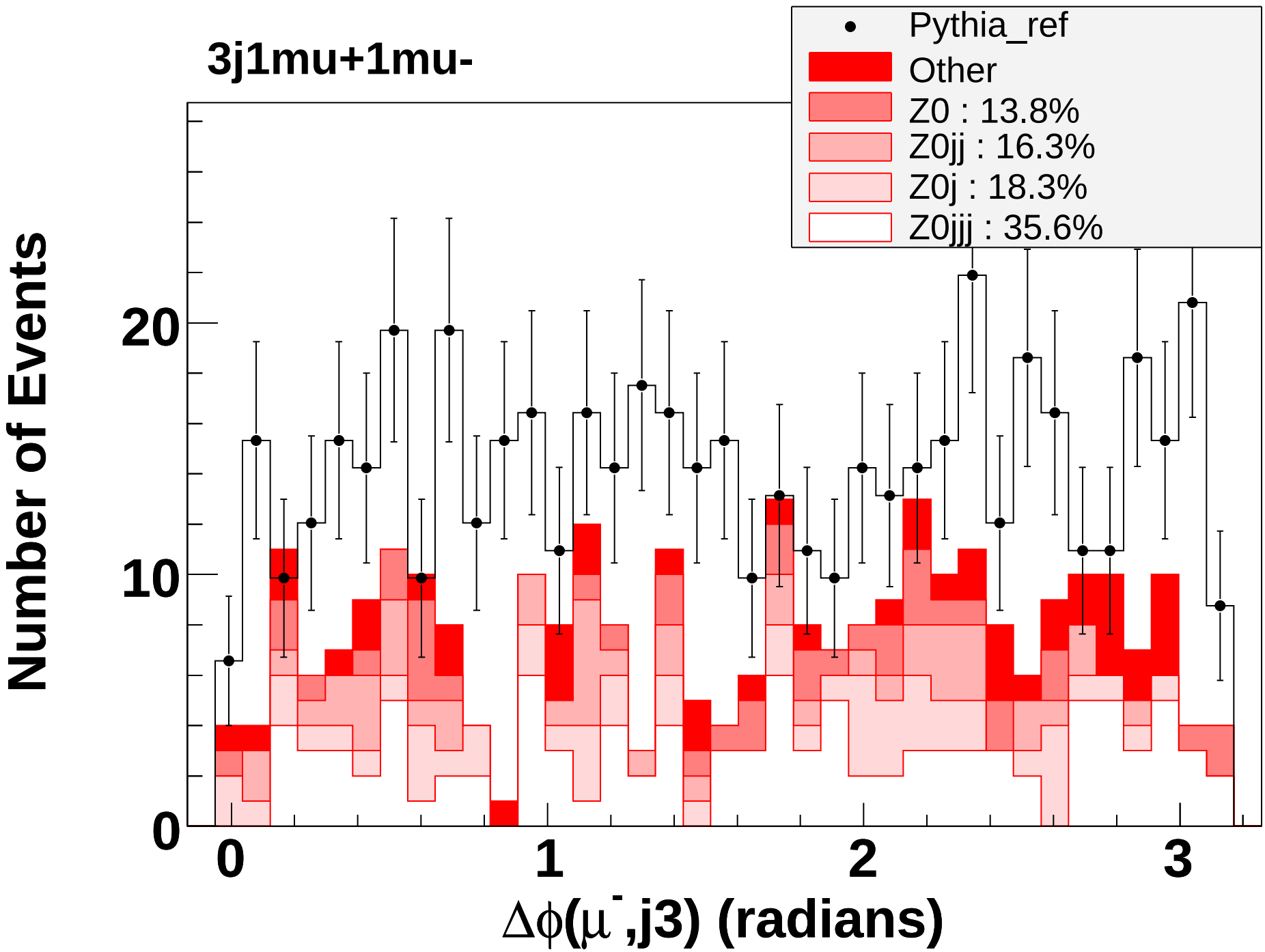

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
0
1
2
3
Δφ(μ+,j1) (radians)

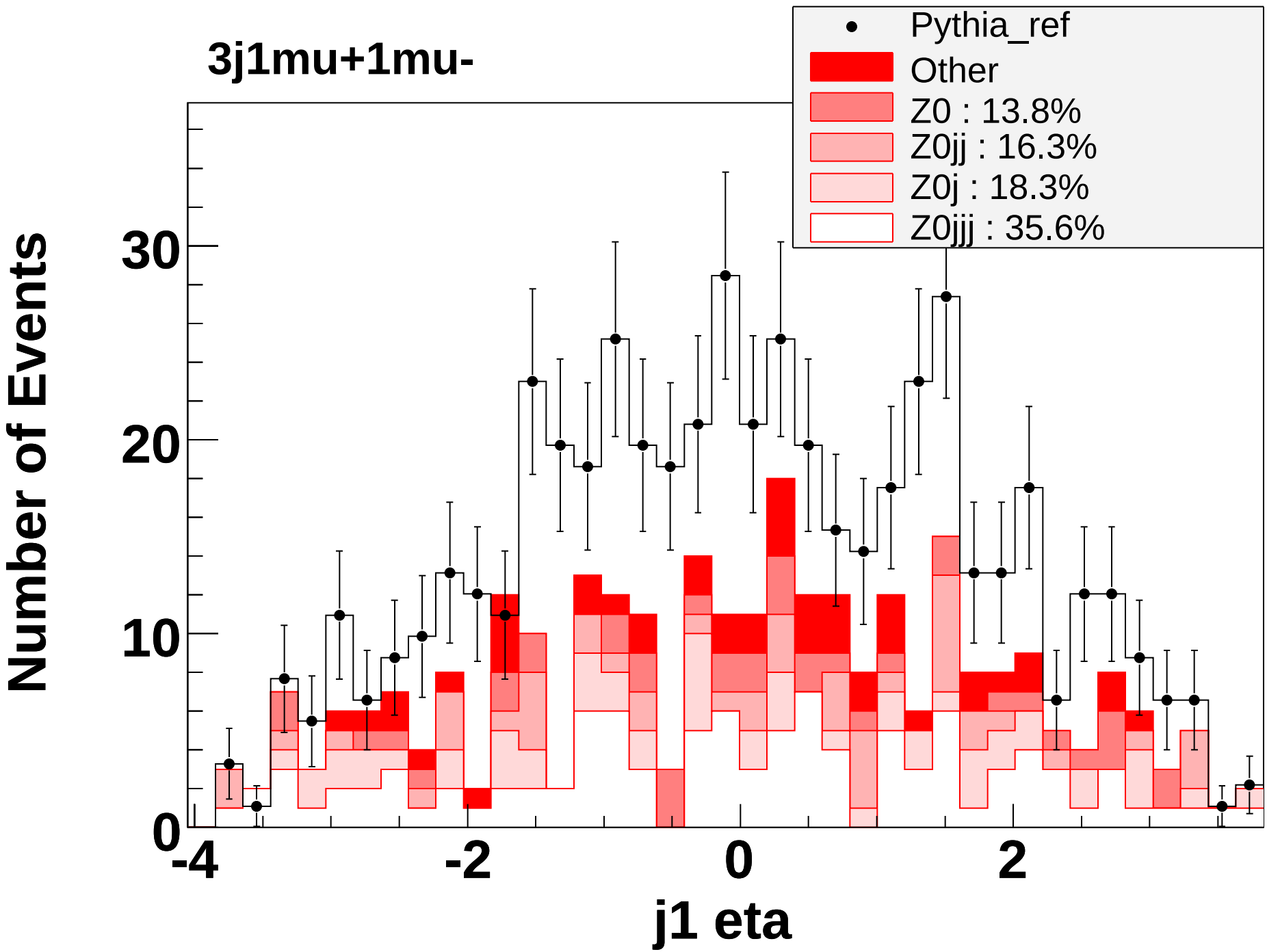

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
10
20
p_T (GeV)

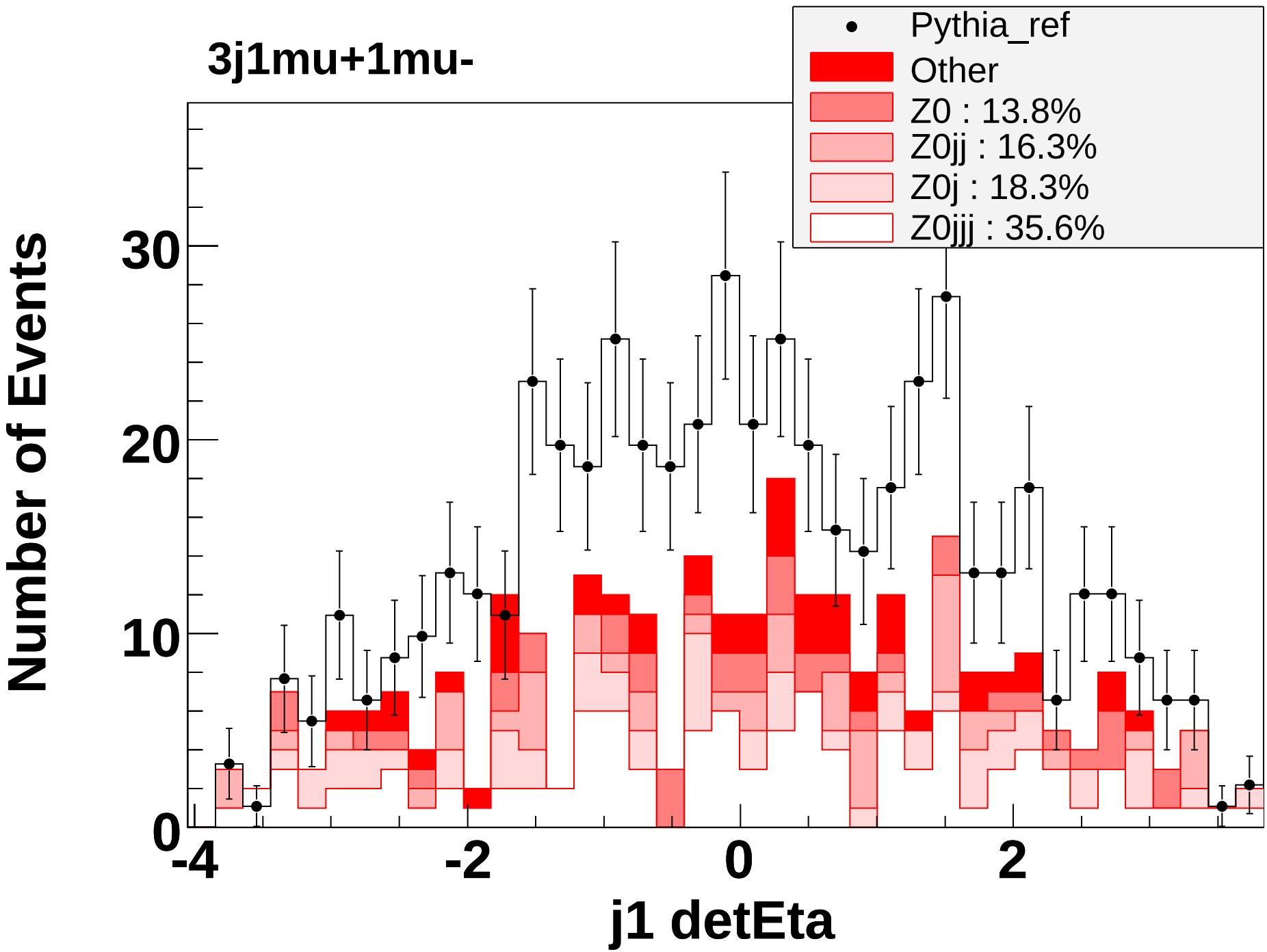

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
10
20
clusteredObjectsRecoil p_T (GeV)

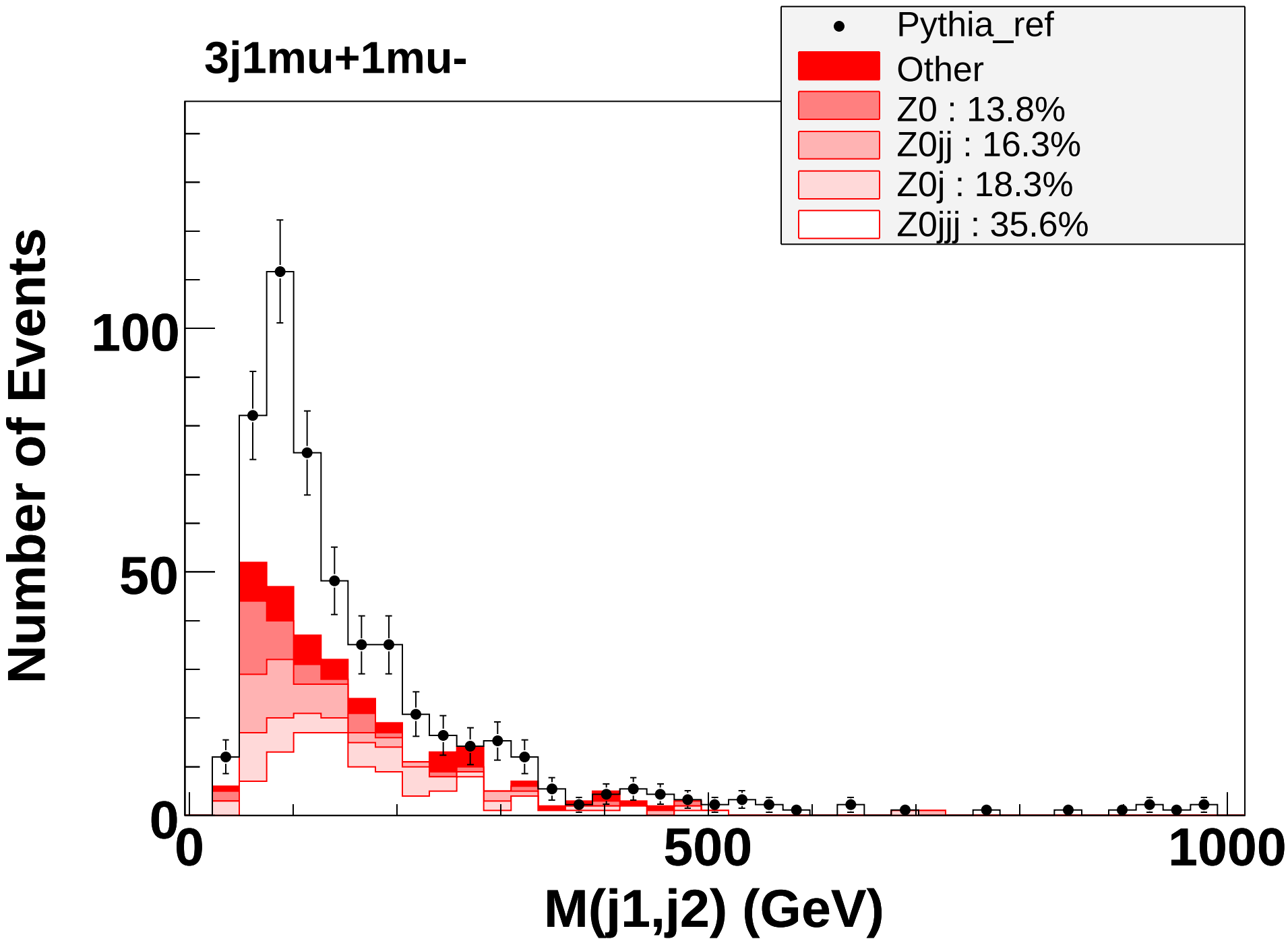

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
0
0.5
1
1.5
angle(plane(beam,j1),plane(j2,j3)) (radians)

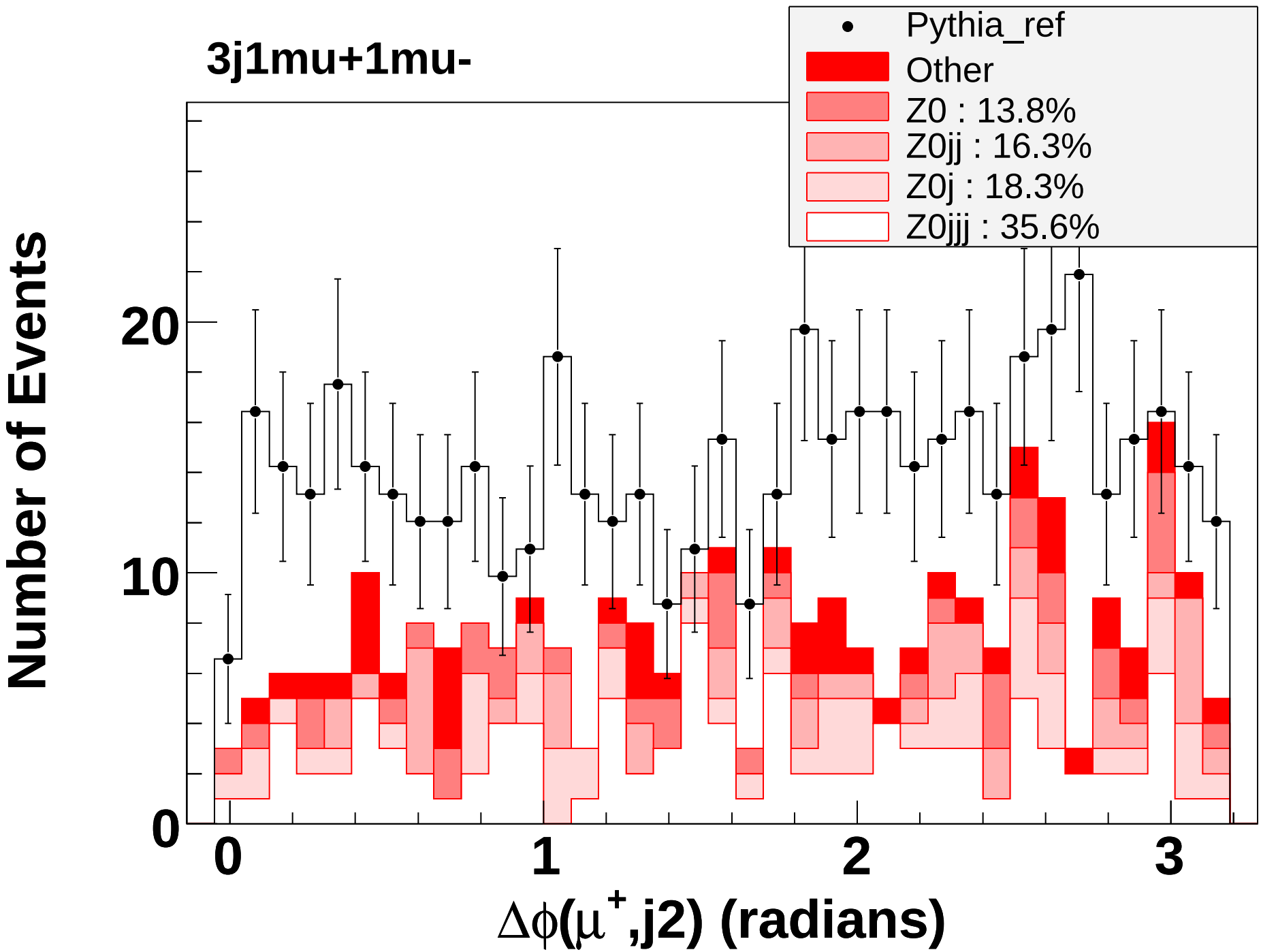

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
0
1
2
3
Δφ(μ⁻,j2) (radians)

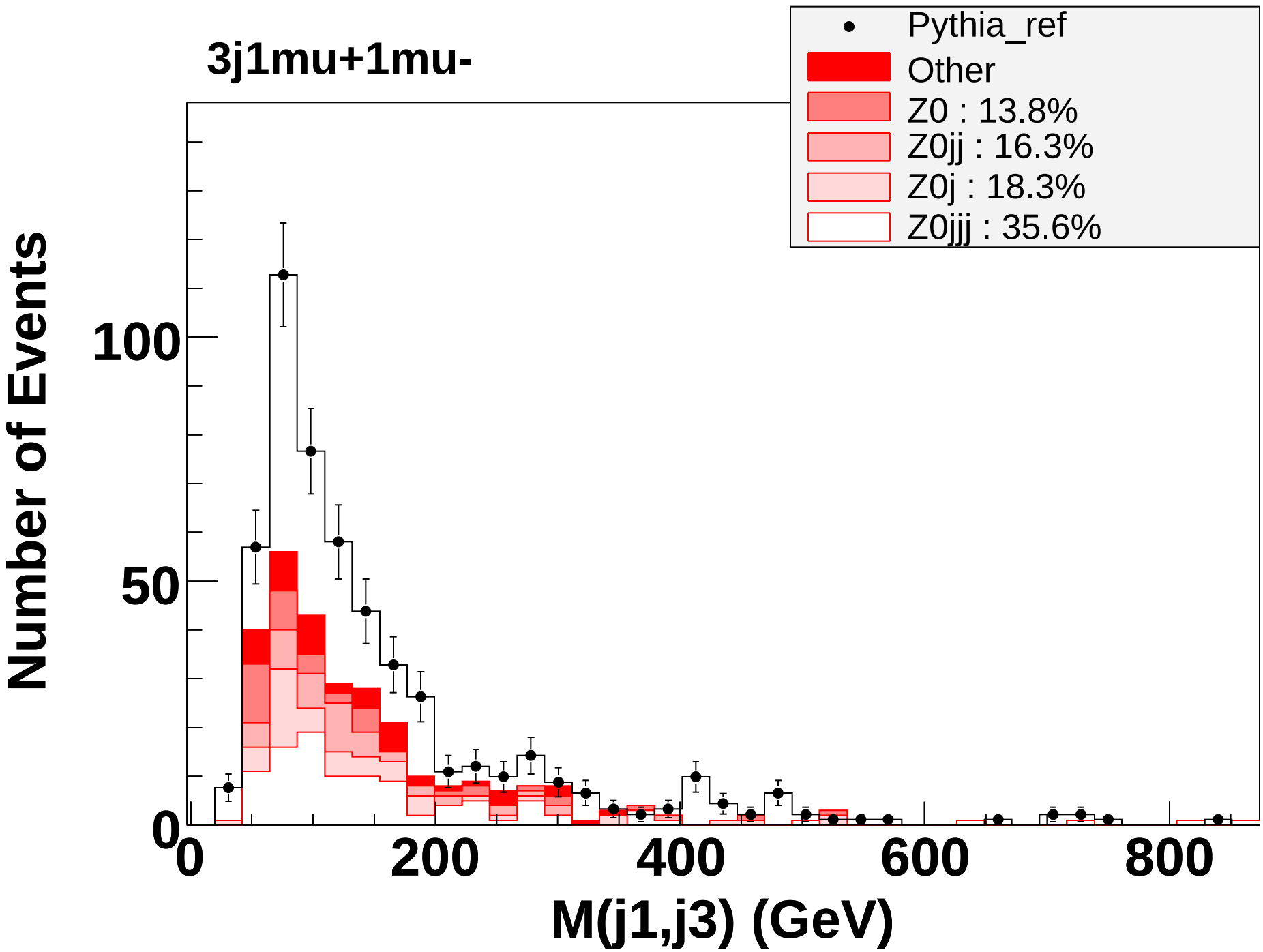

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
0
1
2
3
Δφ(μ⁻,j3) (radians)

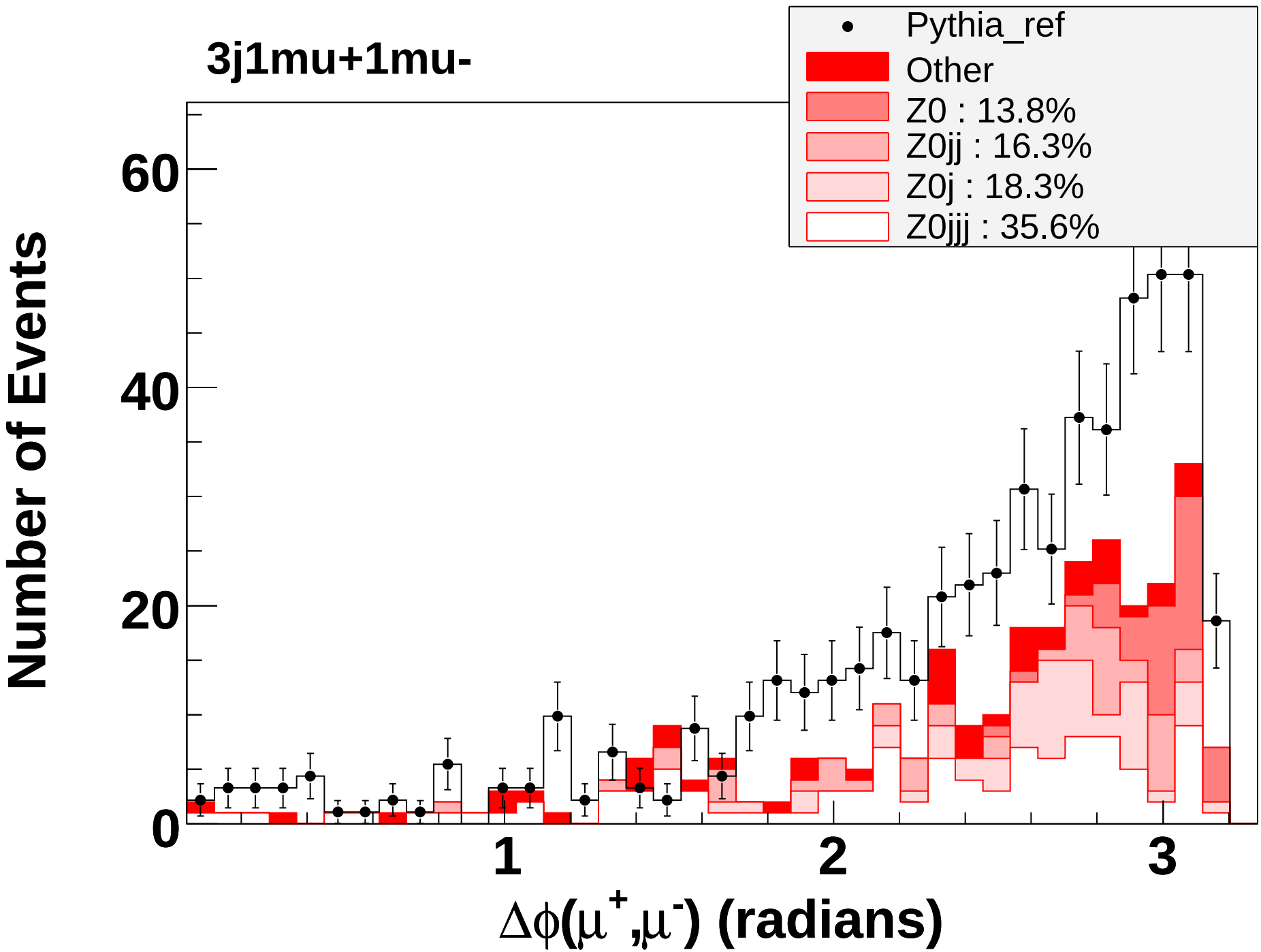

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
-4
-2
0
2
j1 eta

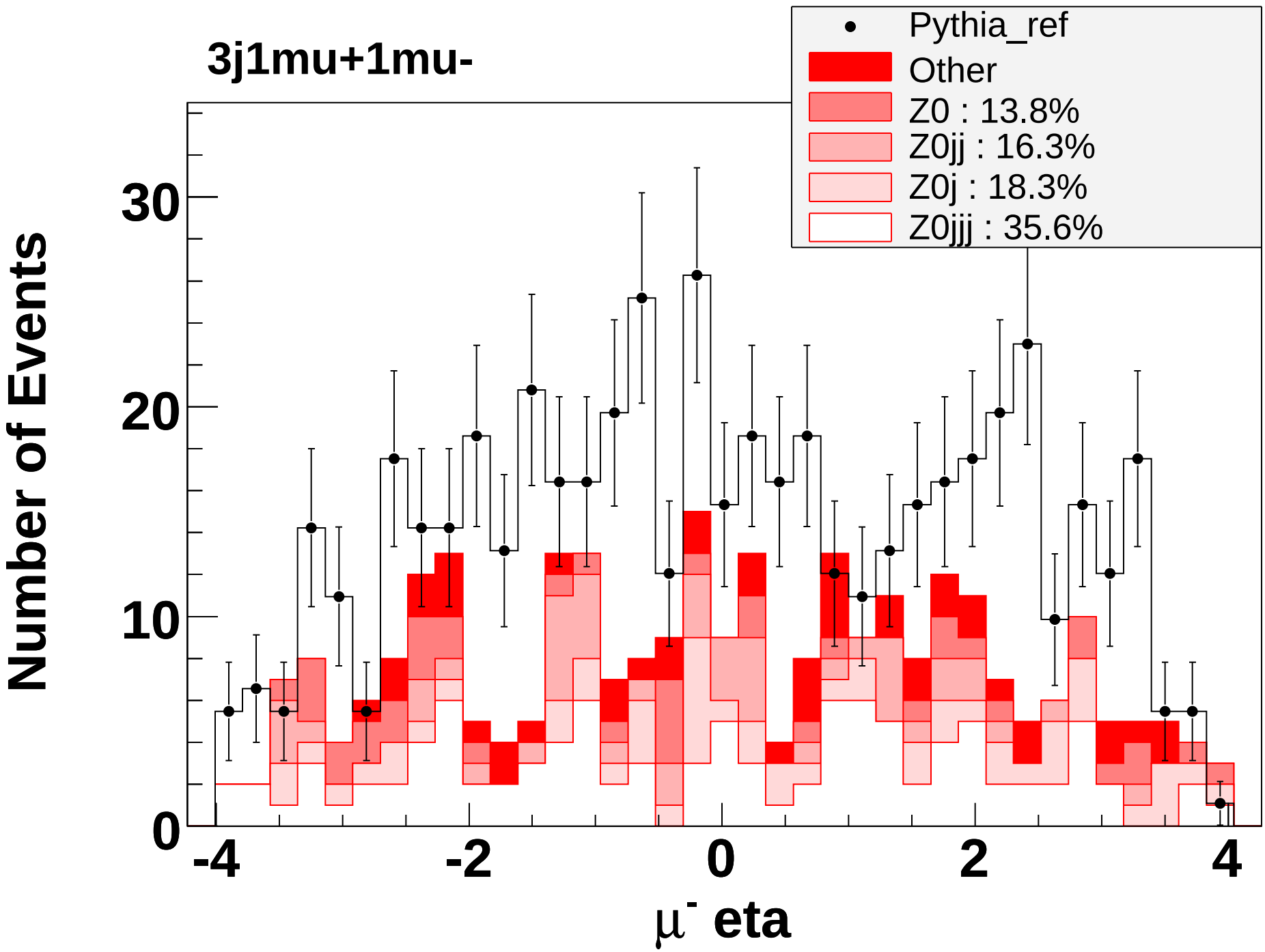

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
-4
-2
0
2
j1 detEta

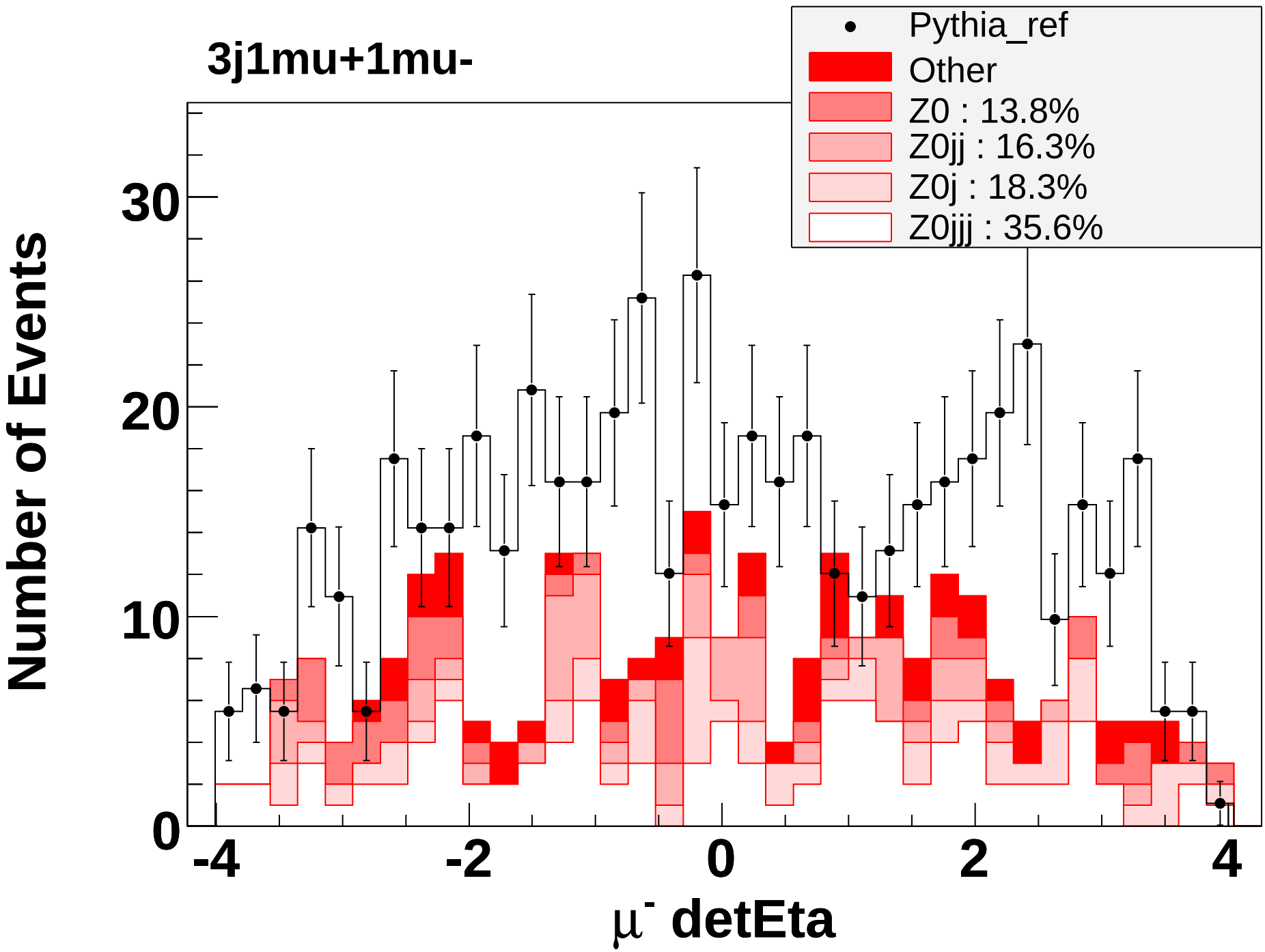

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
50
100
0
500
1000
M(j1,j2) (GeV)

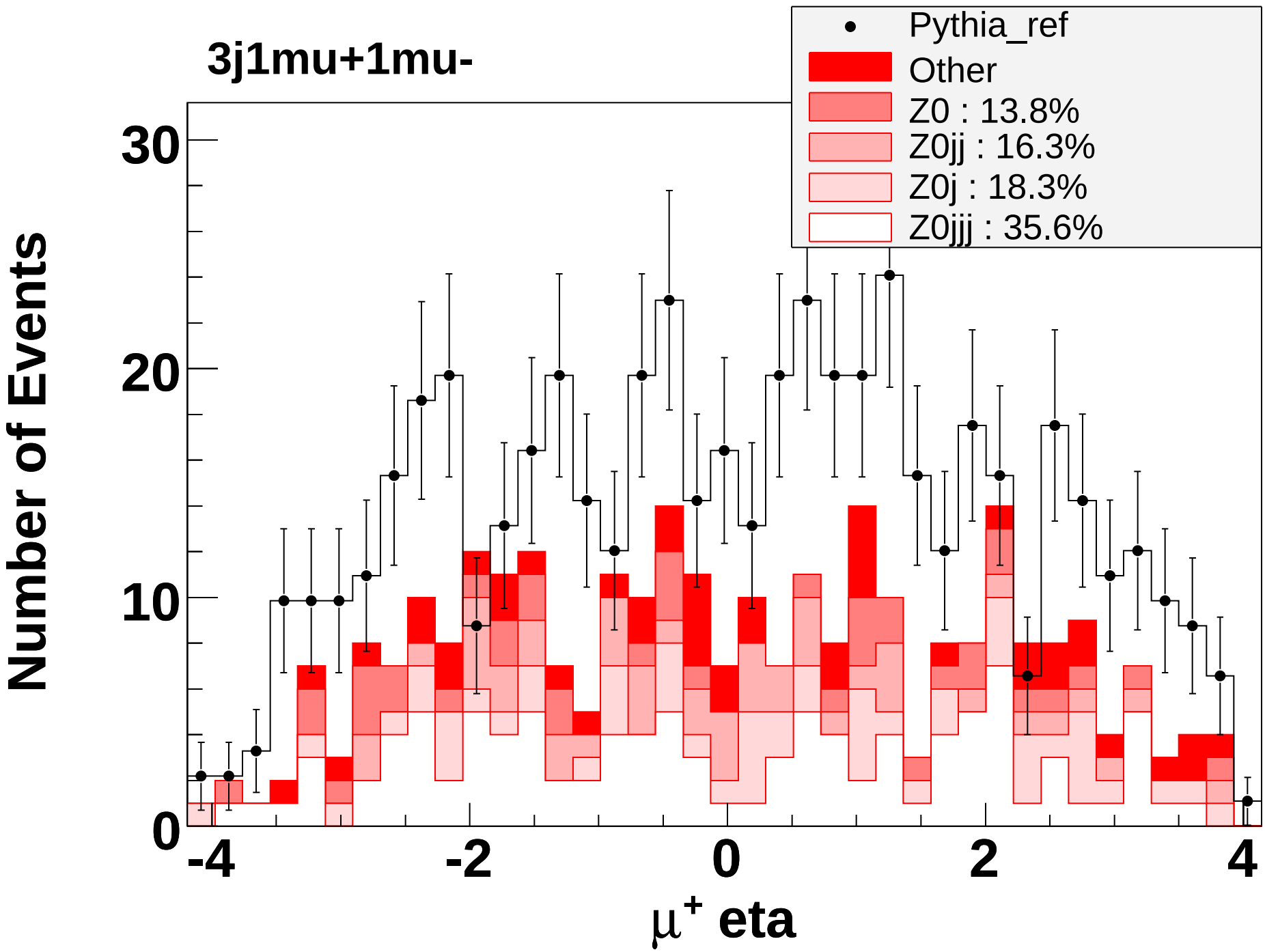

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
0
1
2
3
Δφ(μ+,j2) (radians)

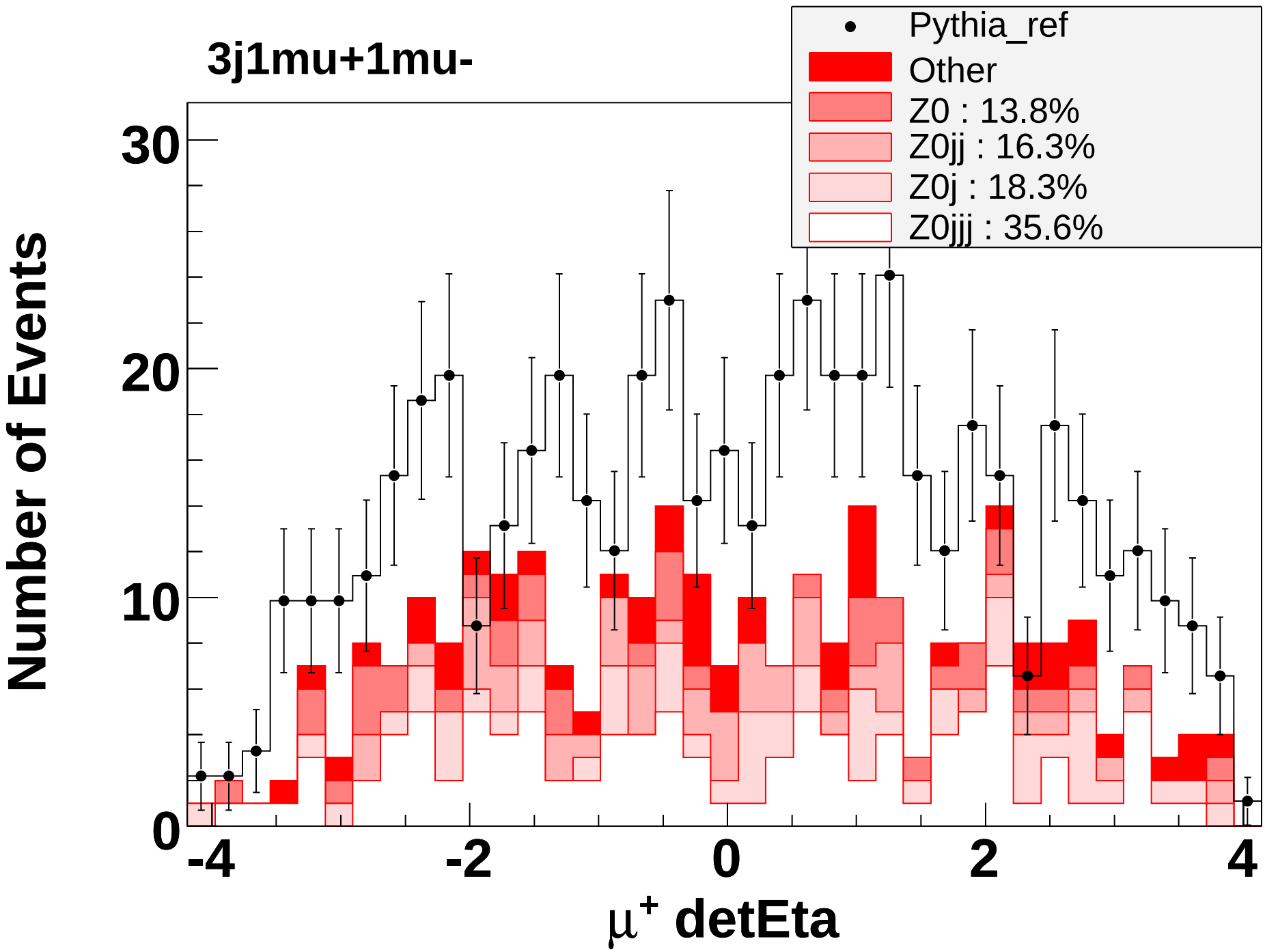

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
50
100
0
200
400
600
800
M(j1,j3) (GeV)

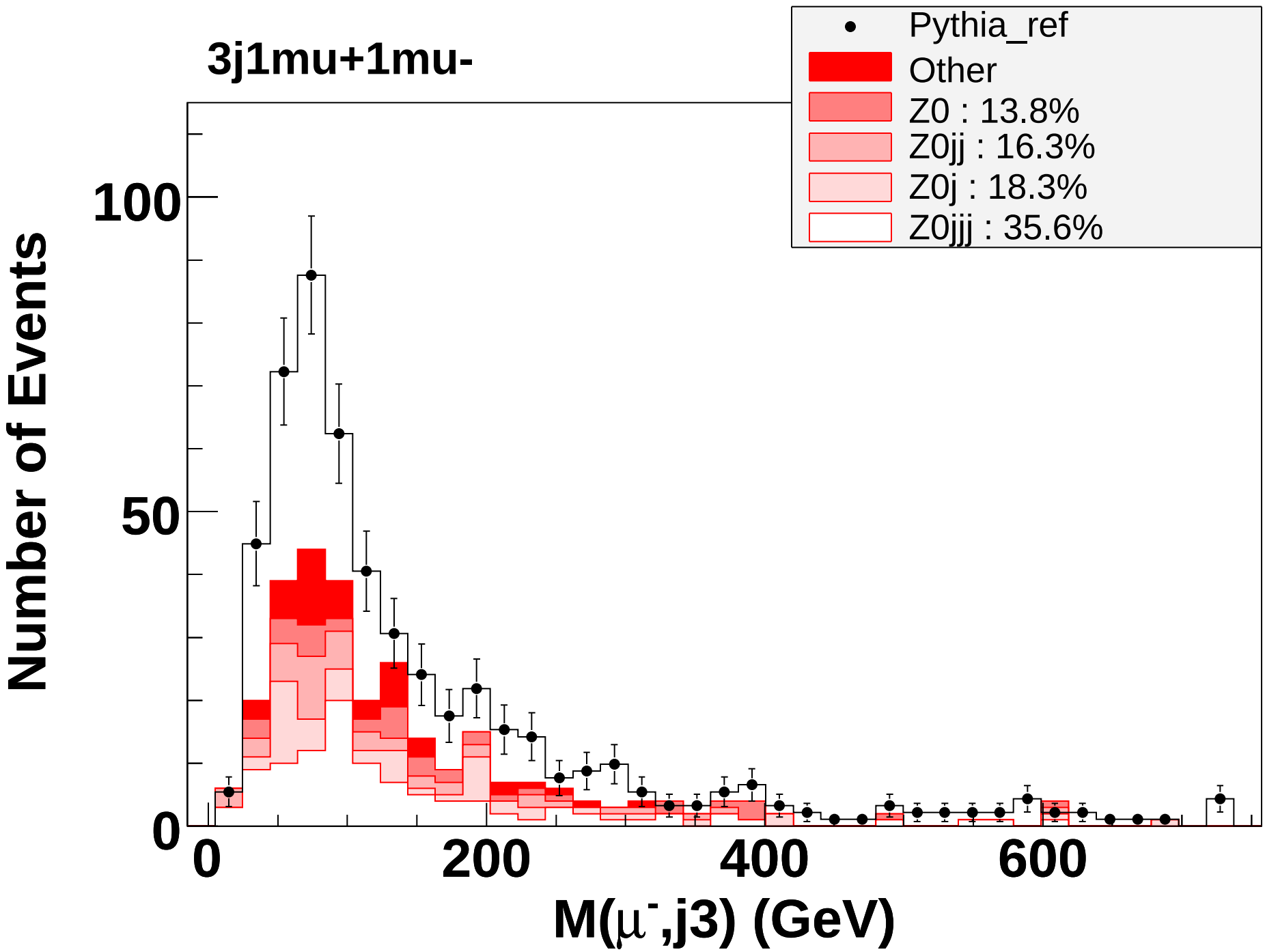

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
1
2
3
Δφ(μ+,μ-) (radians)

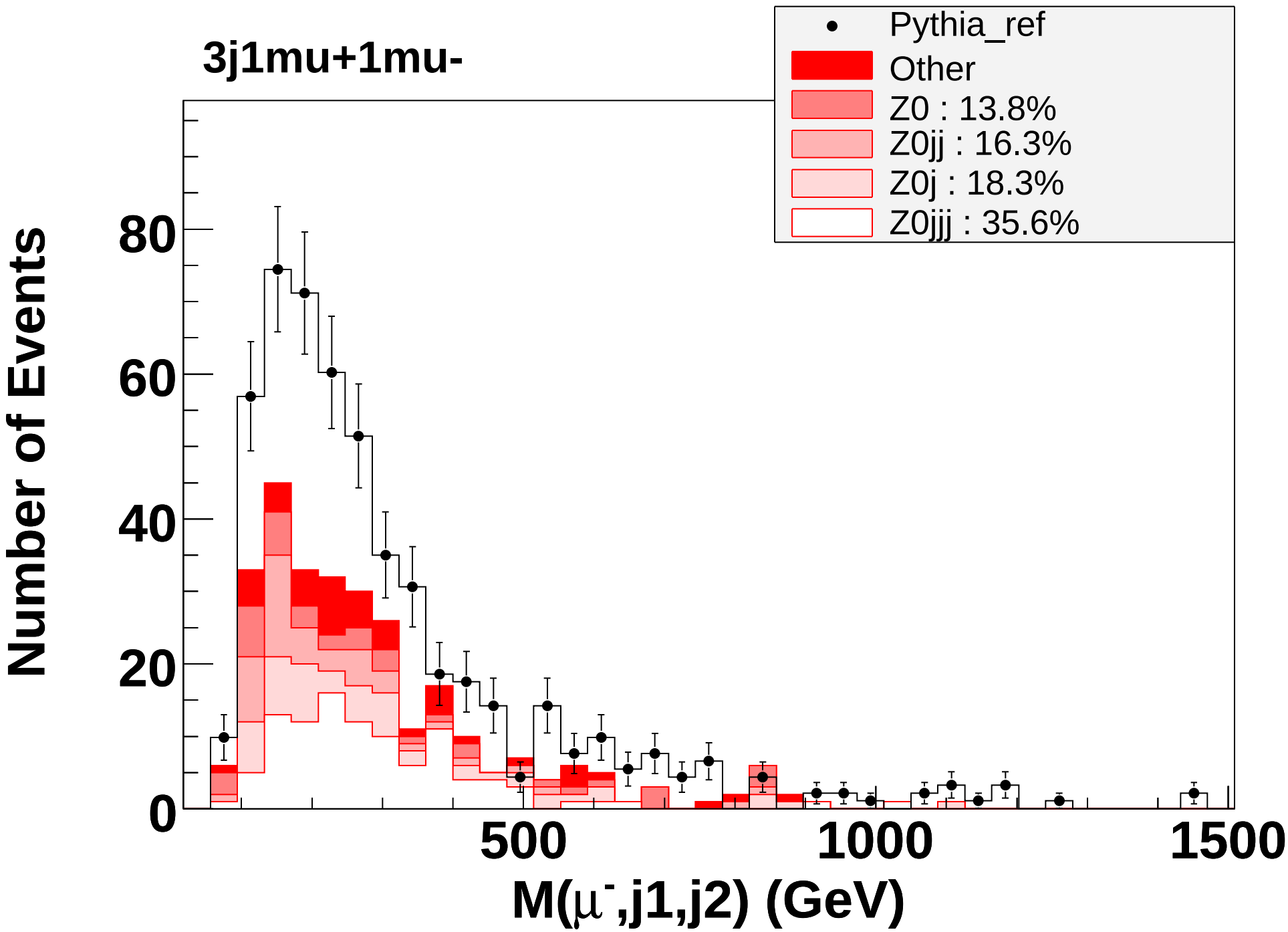

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
-4
-2
0
2
4
μ⁻ eta

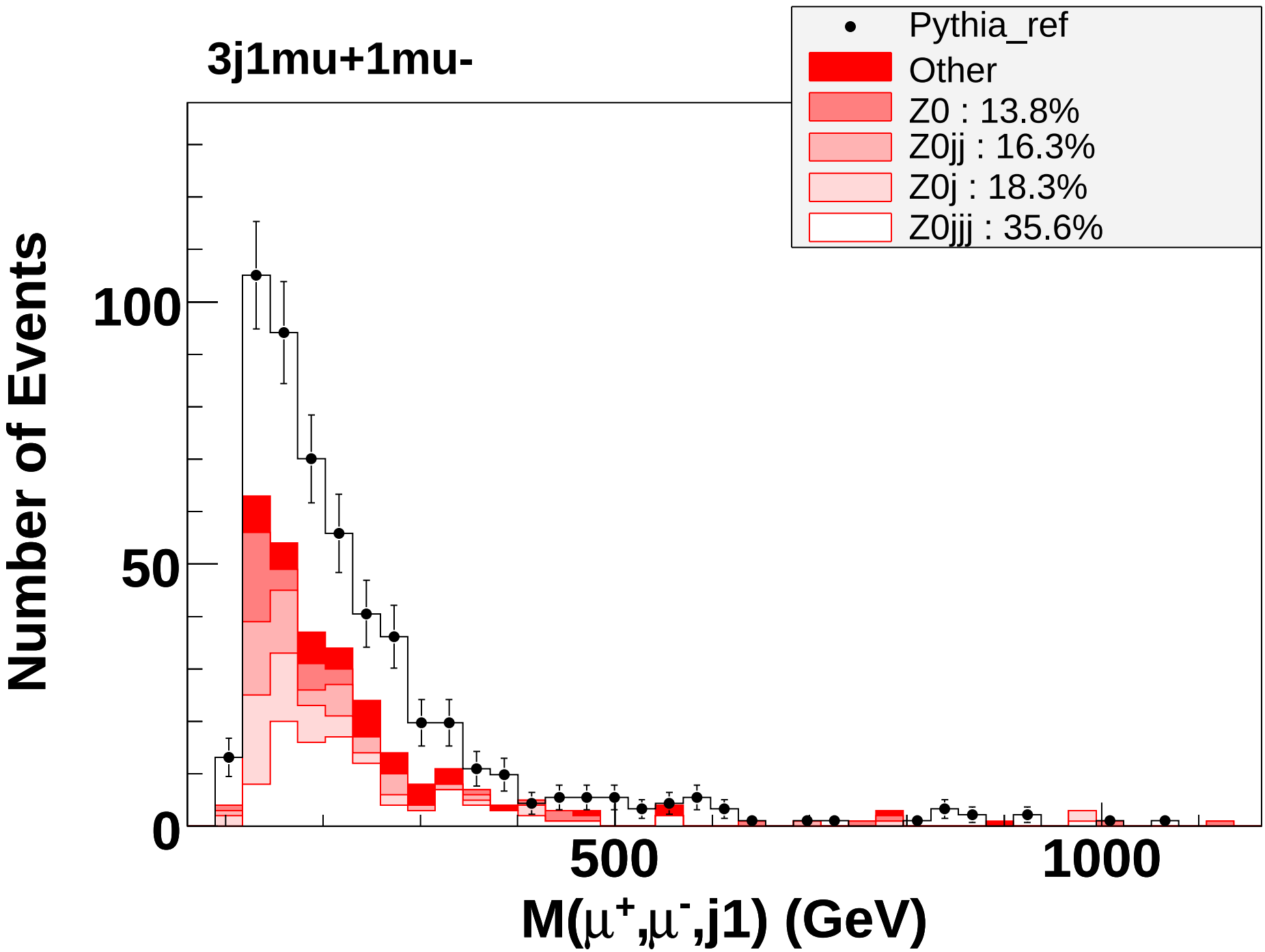

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
-4
-2
0
2
4
μ⁻ detEta

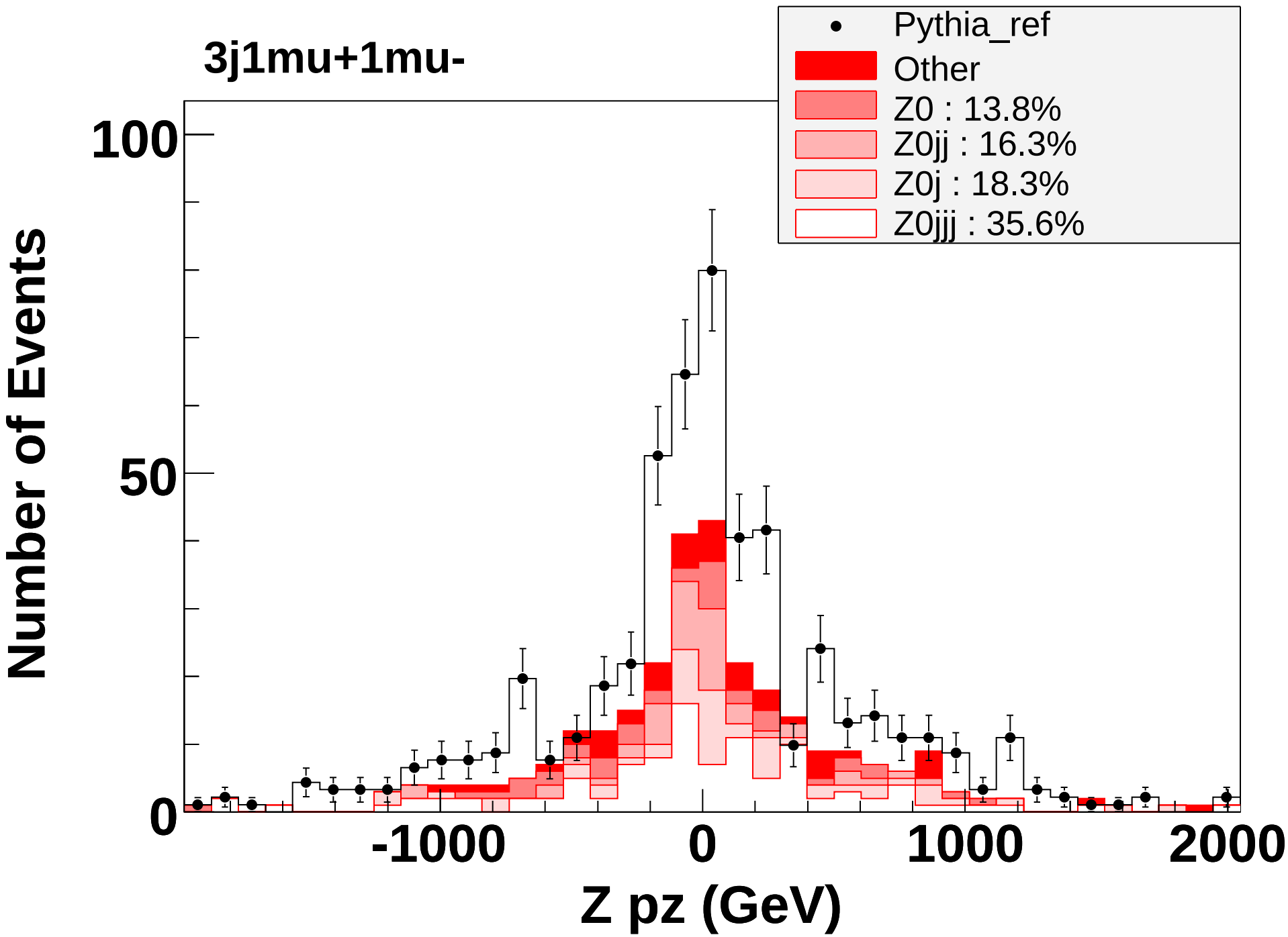

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
30
20
10
0
-4
-2
0
2
4
μ+ eta

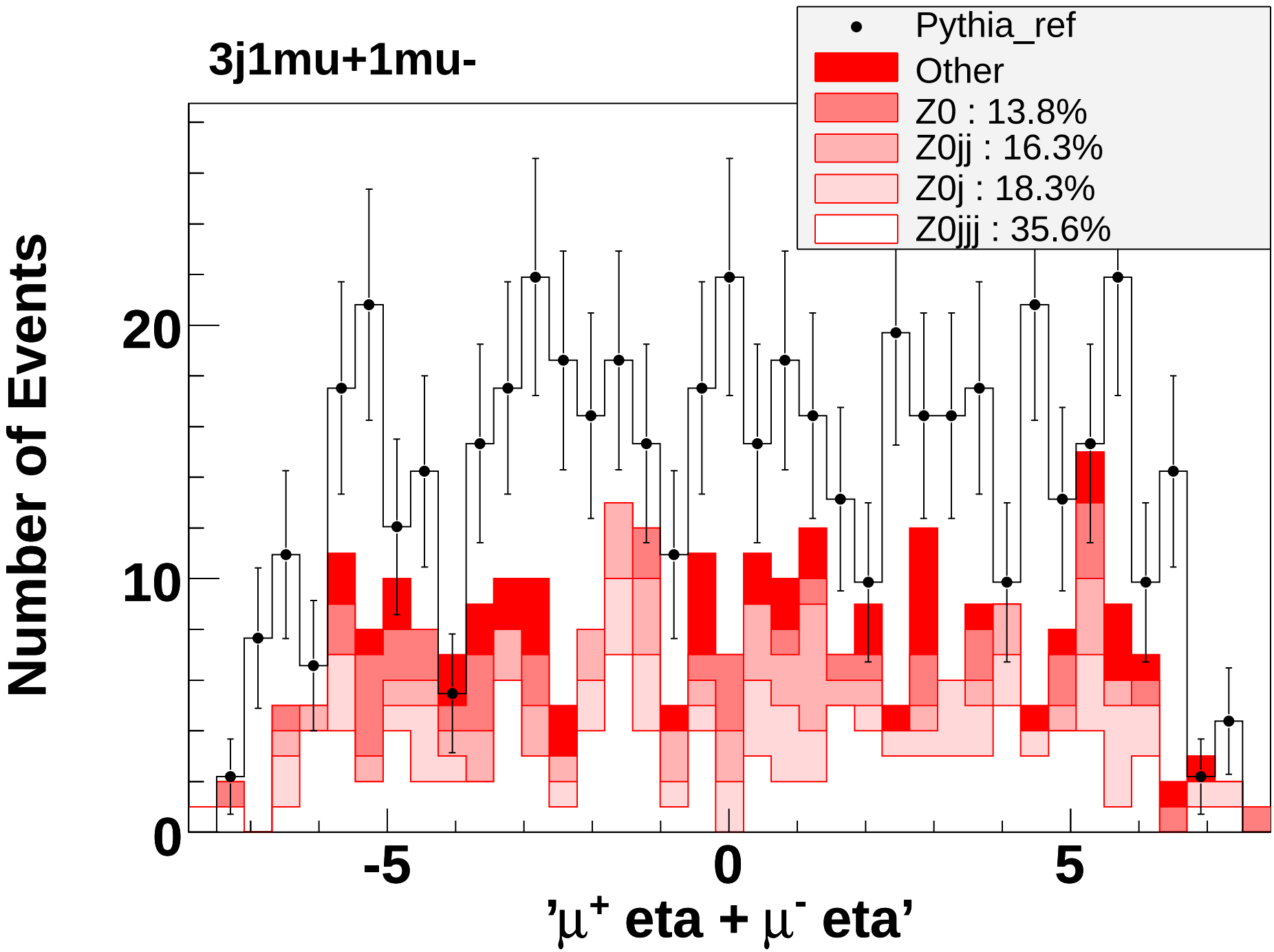

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
30
-4
-2
0
2
4
μ+ detEta

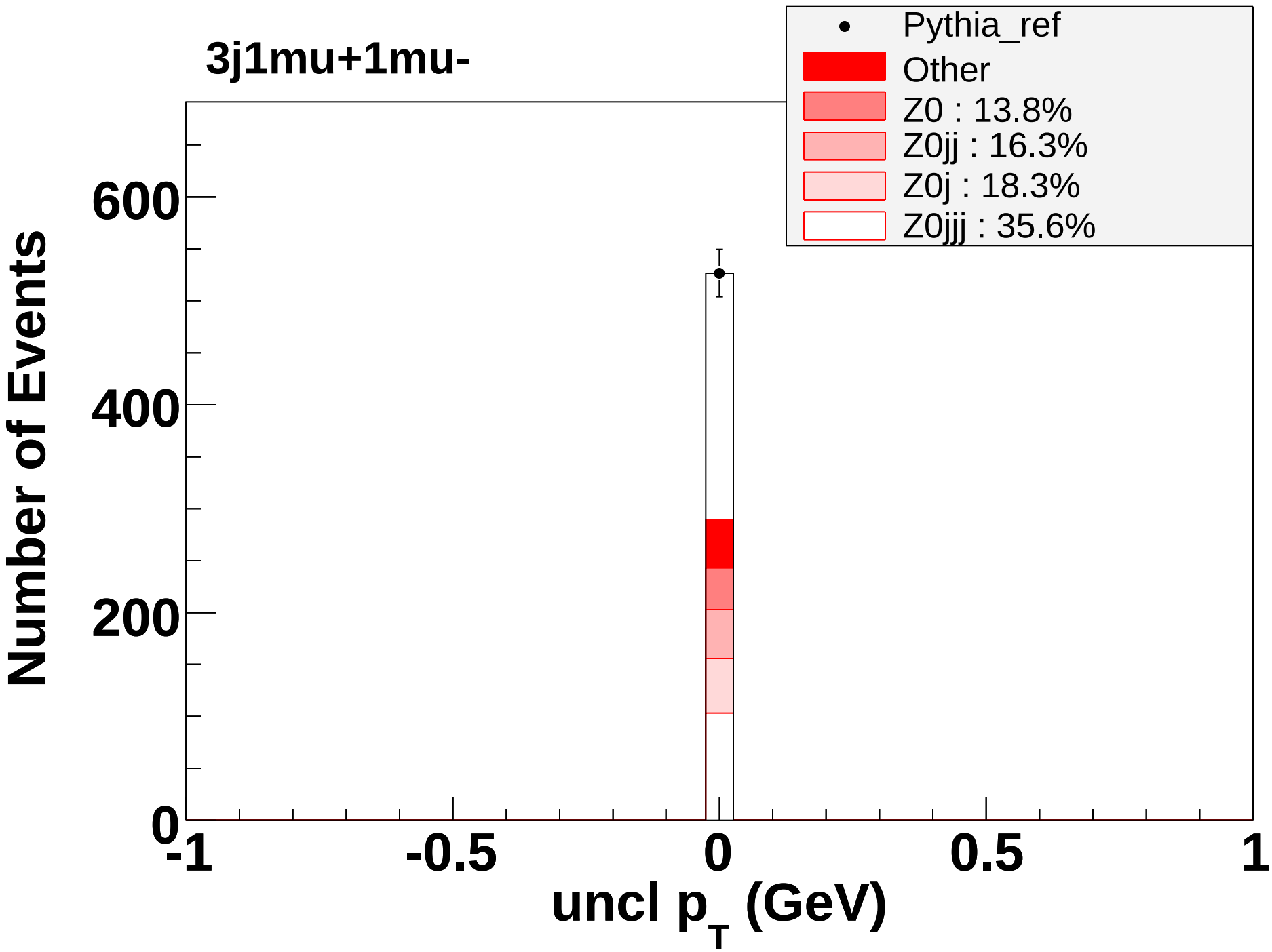

3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
50
100
0
200
400
600
M(μ⁻,j3) (GeV)


3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
20
40
60
80
500
1000
1500
M(μ⁻,j1,j2) (GeV)


3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
100
50
0
500
1000
M(μ+,μ-,j1) (GeV)


3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
100
50
0
-1000
0
1000
2000
Z pz (GeV)


3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
0
10
20
-5
0
5
'μ+ eta + μ- eta'


3j1mu+1mu-
Pythia_ref
Other
Z0 : 13.8%
Z0jj : 16.3%
Z0j : 18.3%
Z0jjj : 35.6%
Number of Events
600
400
200
0
-1
-0.5
0
0.5
1
uncl p_T (GeV)