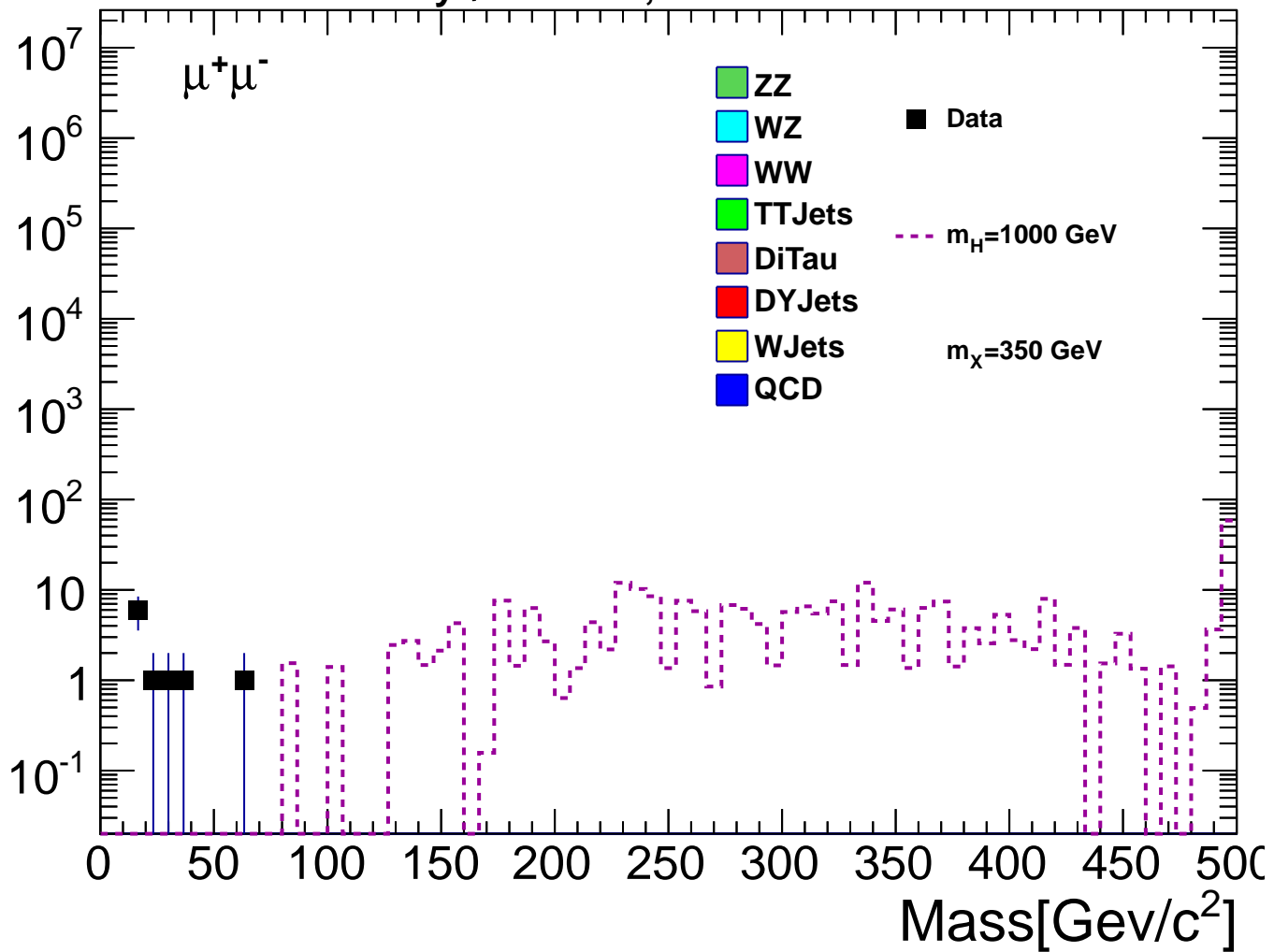


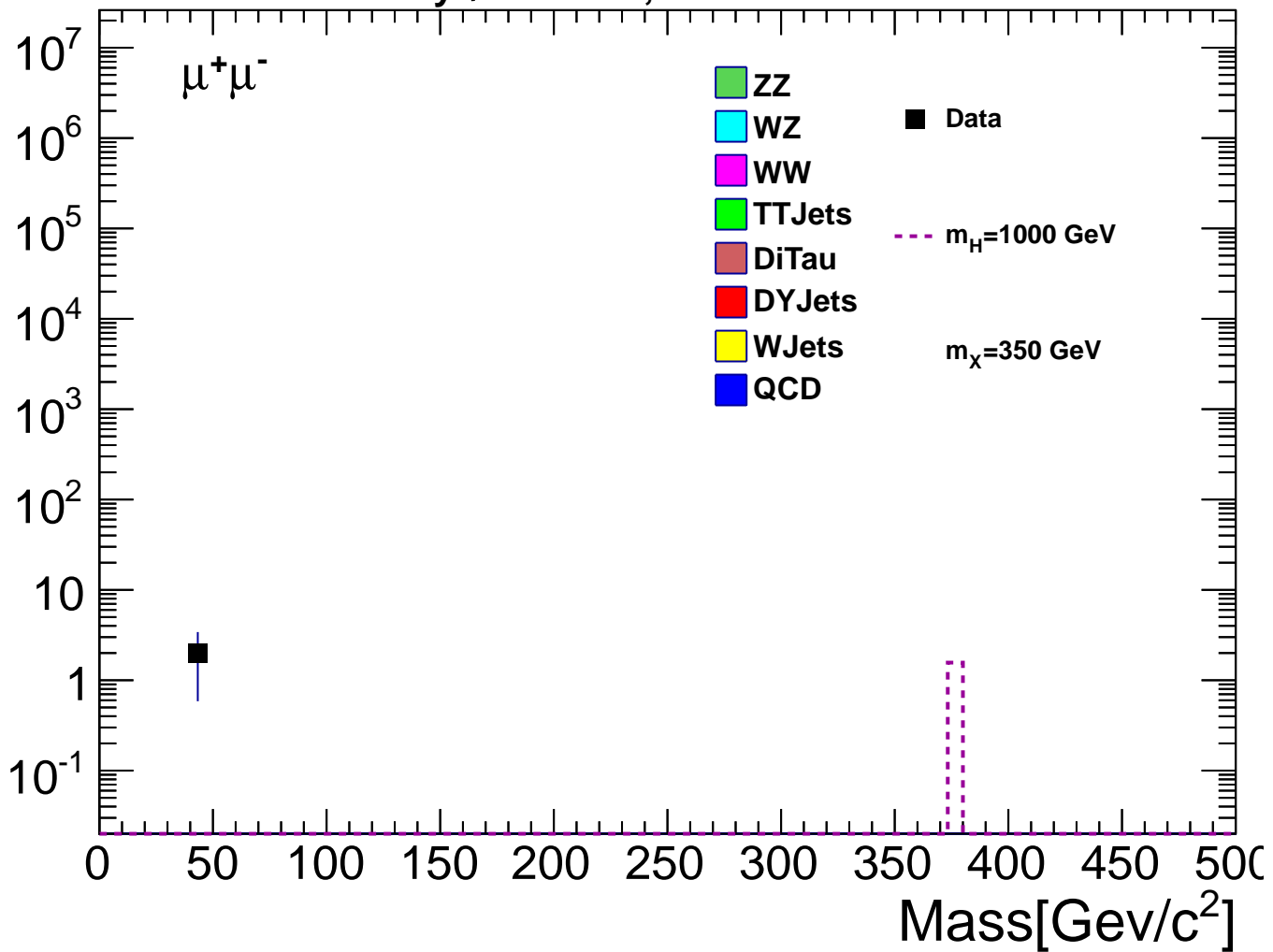
CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

10^6

10^5

10^4

10^3

10^2

0

0.05

0.1

0.15

0.2

0.25

0.3

0.35

0.4

0.45

0.5

$\Sigma p_{\text{lepton}} / p_{\text{t}}$

$\mu^+\mu^-$

ZZ

WZ

WW

TTJets

DiTau

DYJets

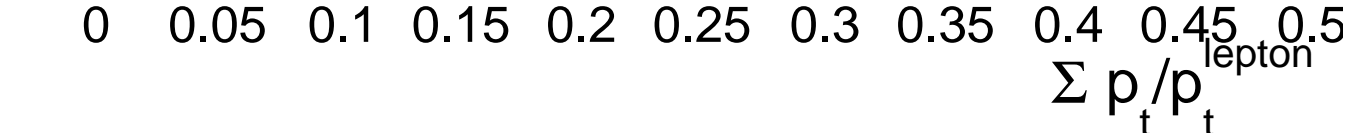
WJets

QCD

■ Data

--- $m_H = 1000 \text{ GeV}$

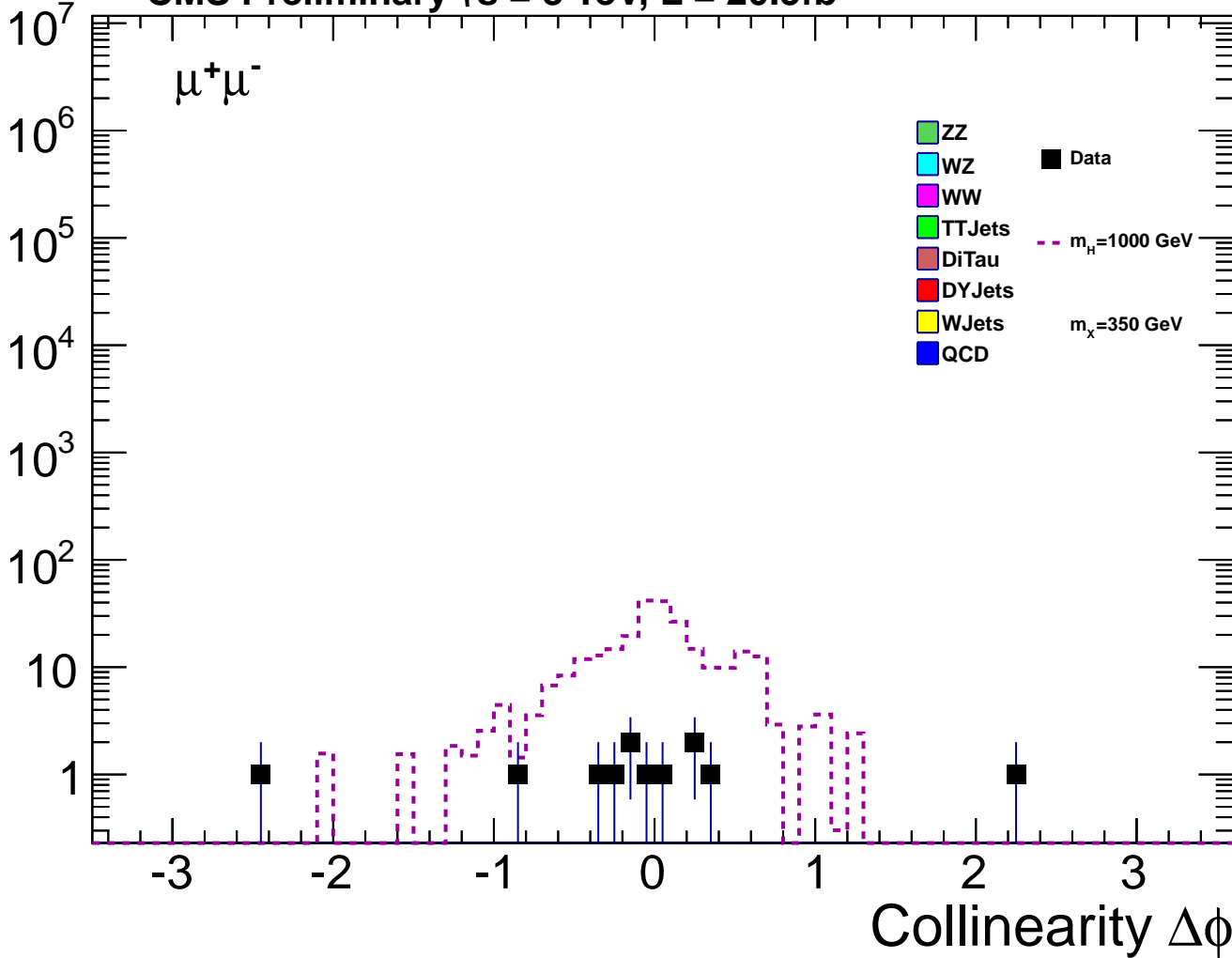
$m_\chi = 350 \text{ GeV}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

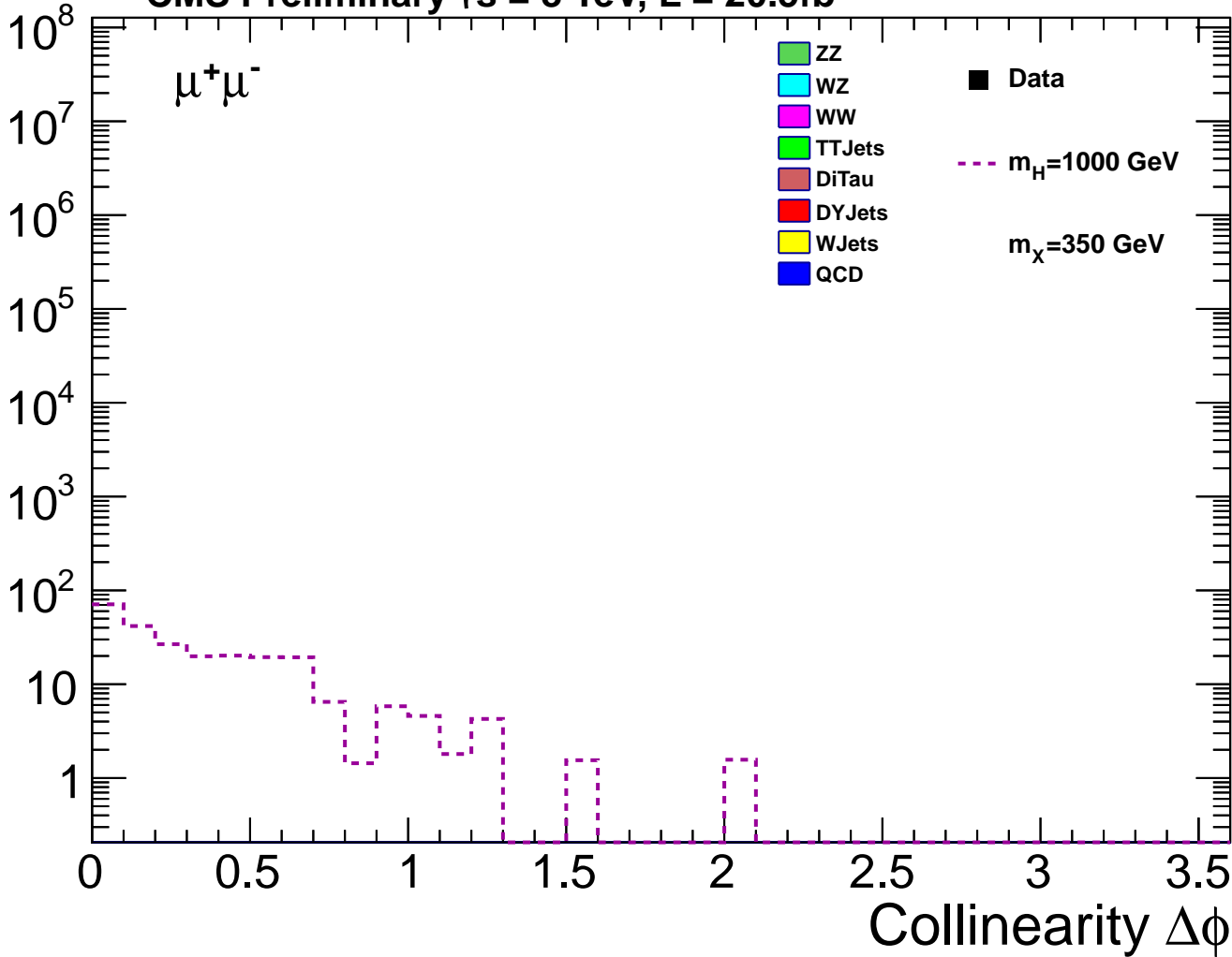
Entries

$\mu^+\mu^-$



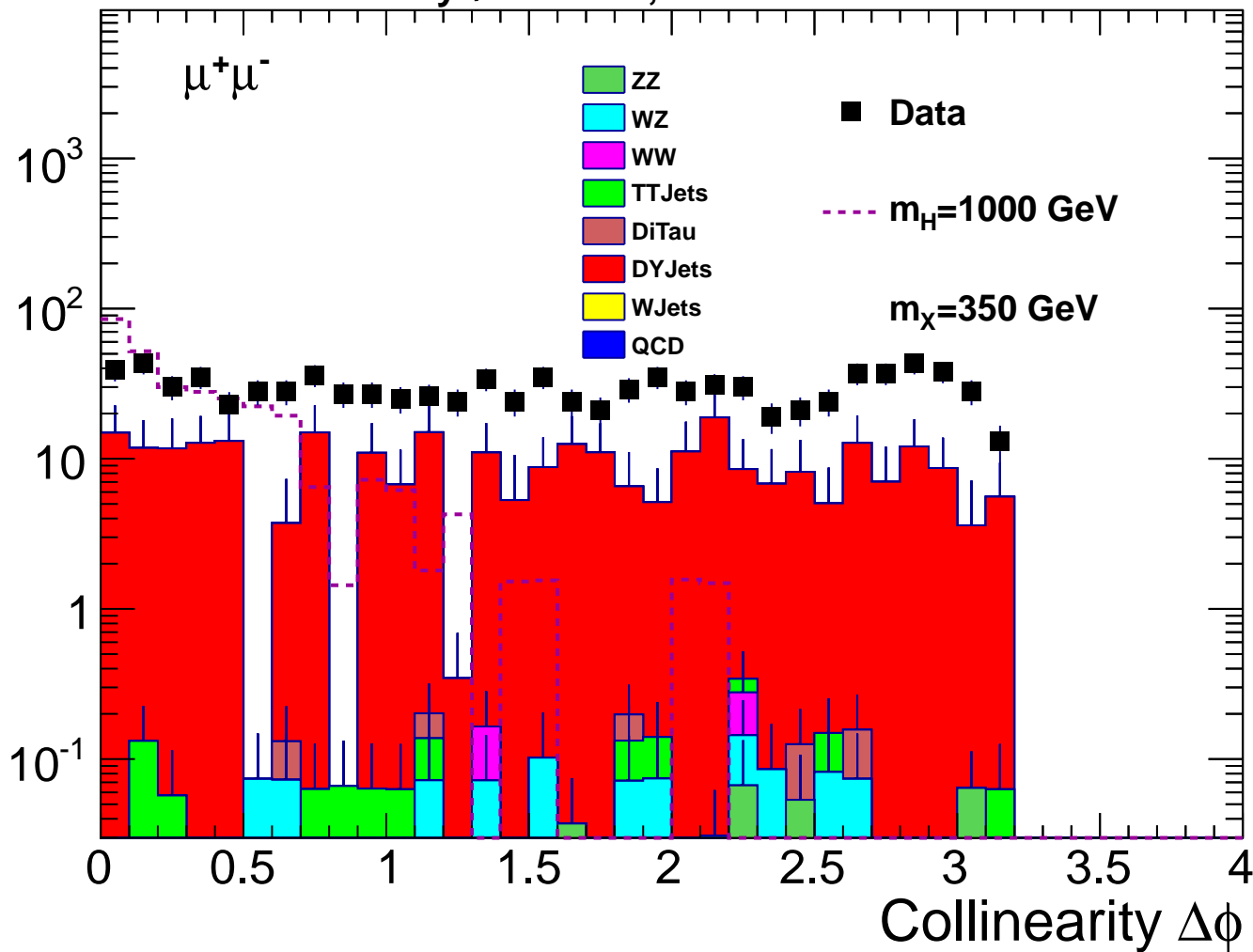
CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

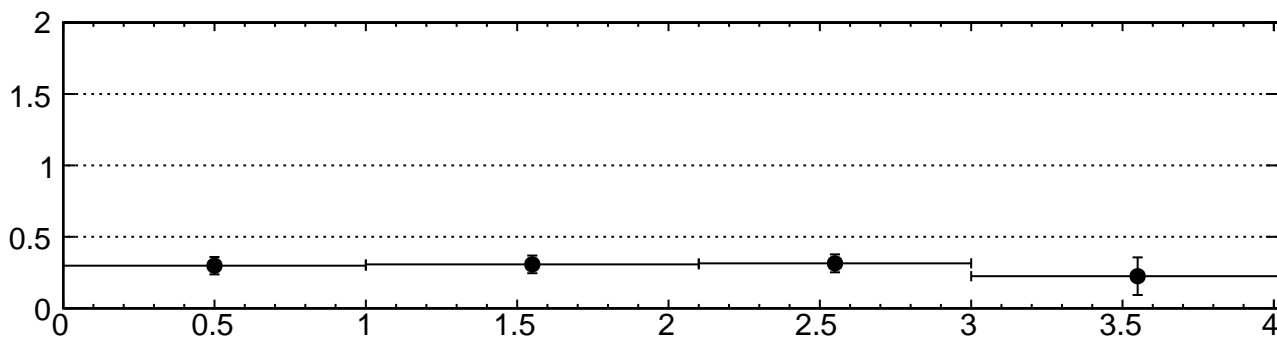


CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

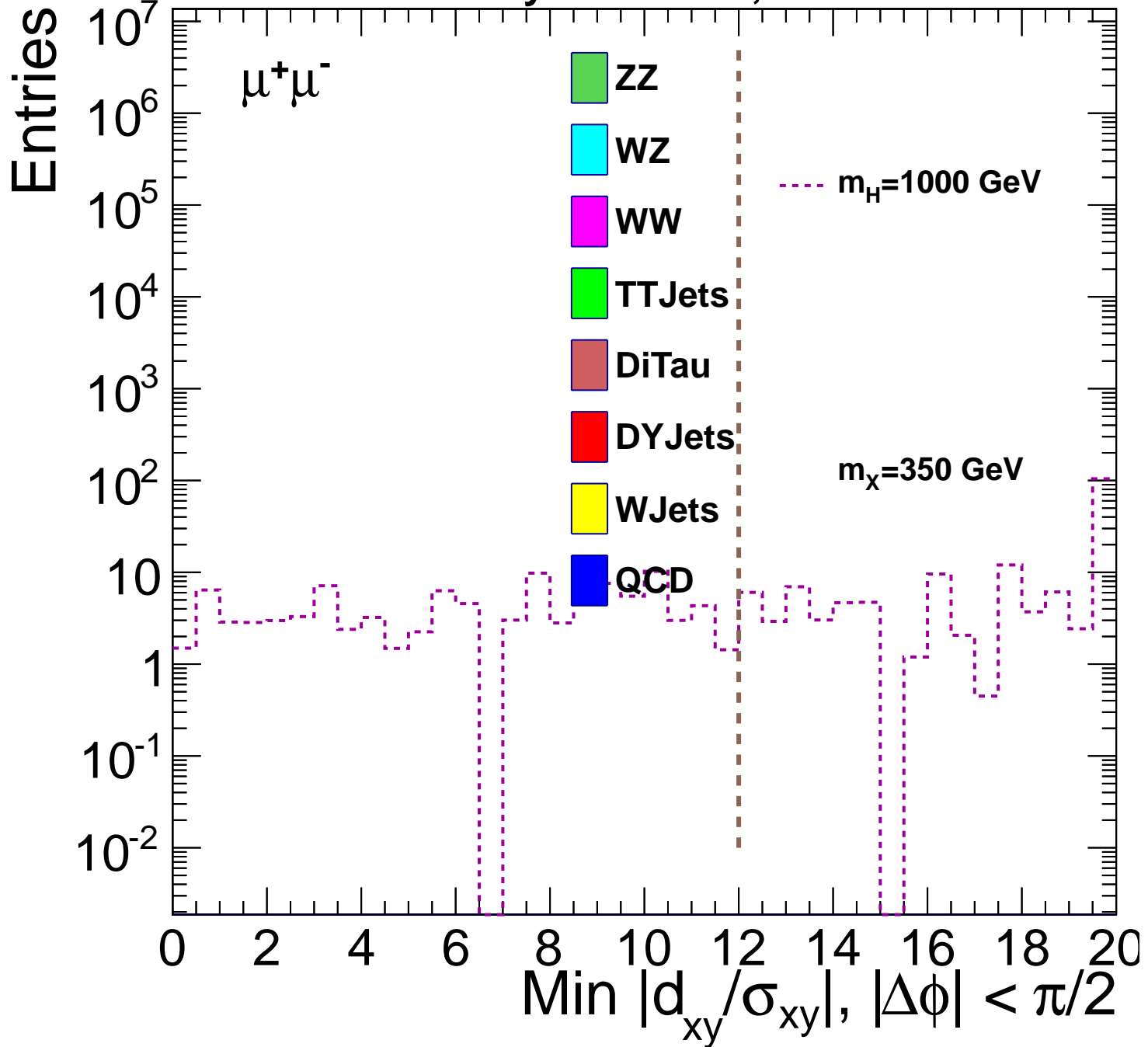
Entries



MC/Data



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

$\mu^+\mu^-$

ZZ

WZ

WW

TTJets

DiTau

DYJets

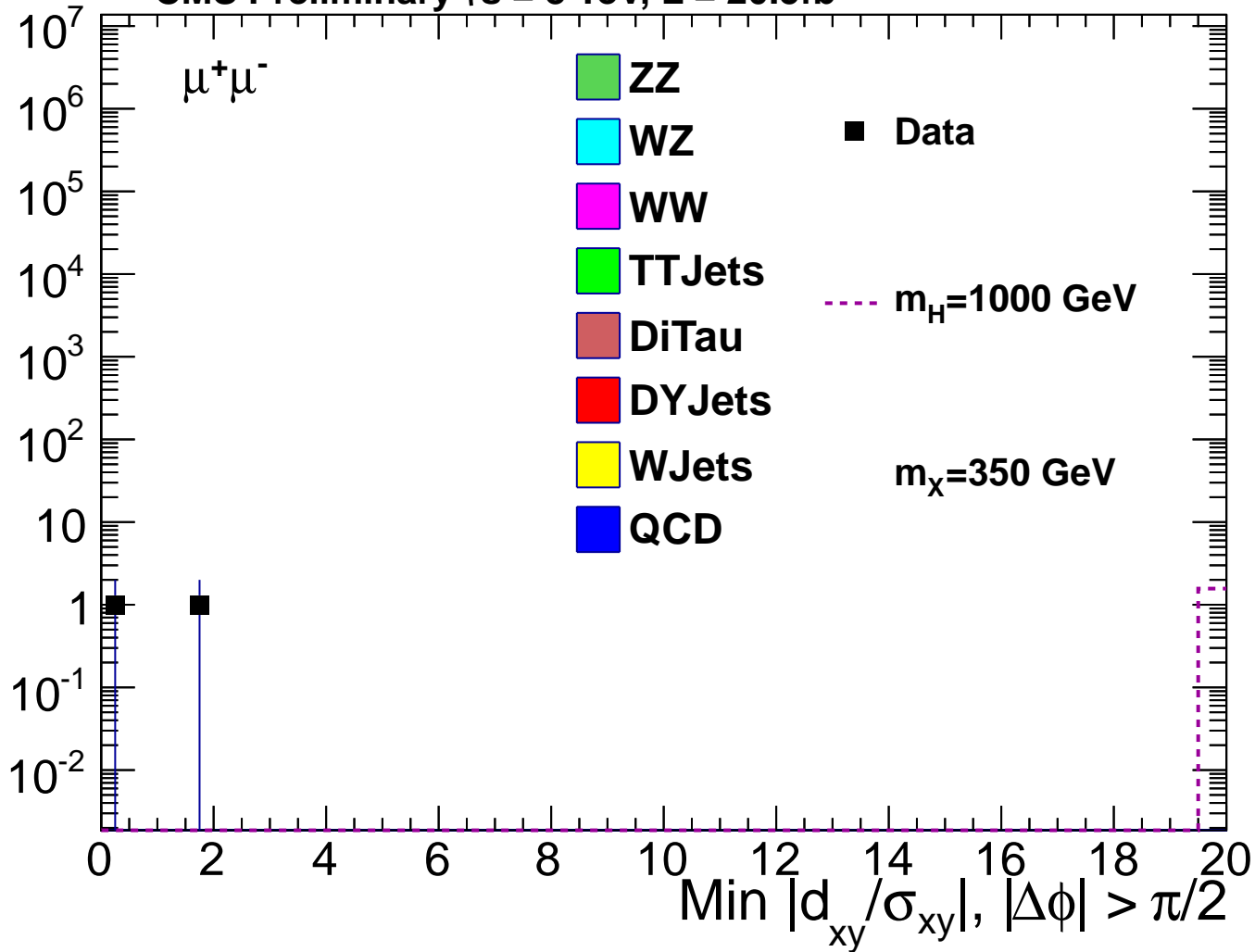
WJets

QCD

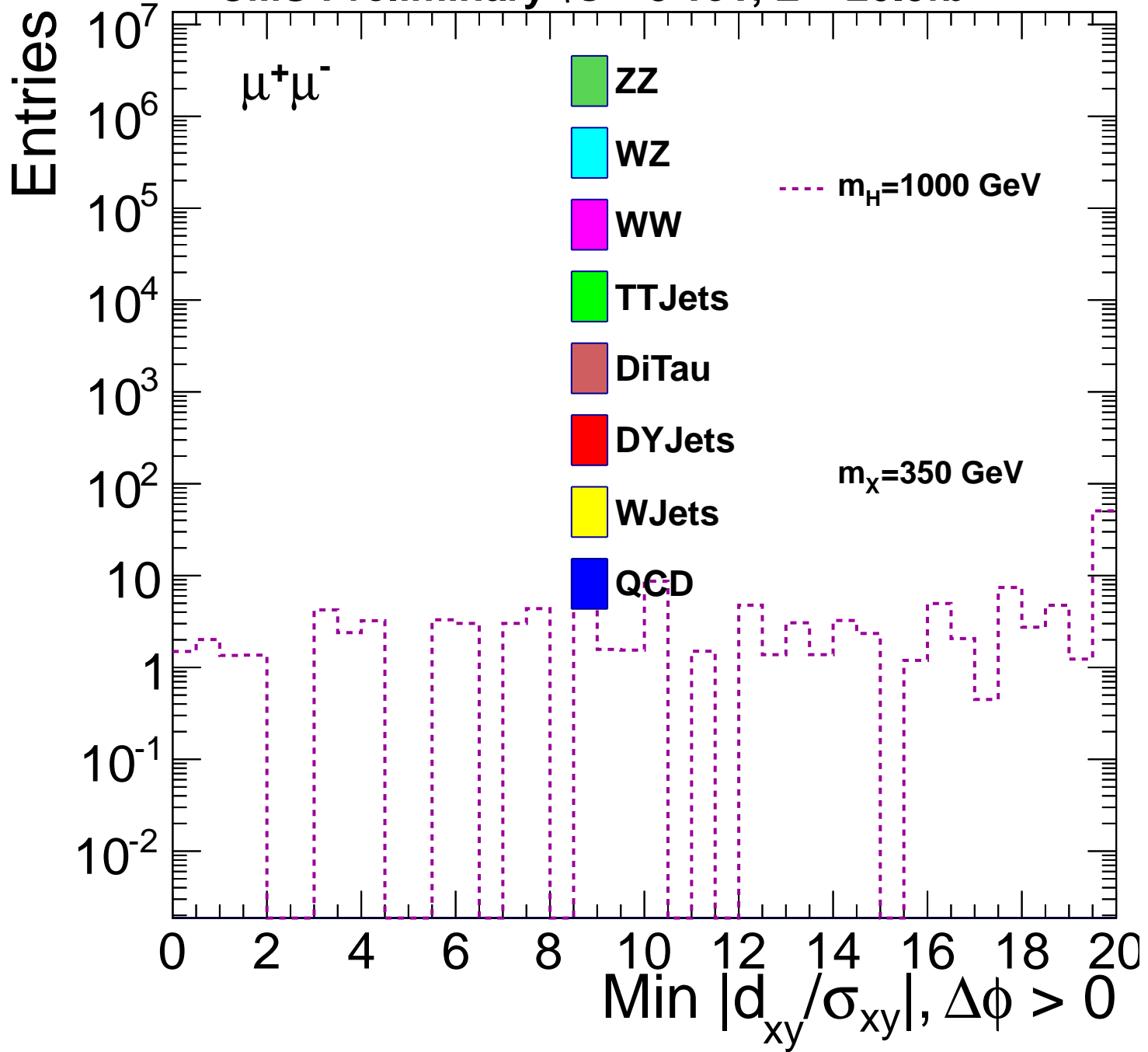
■ Data

--- $m_H = 1000 \text{ GeV}$

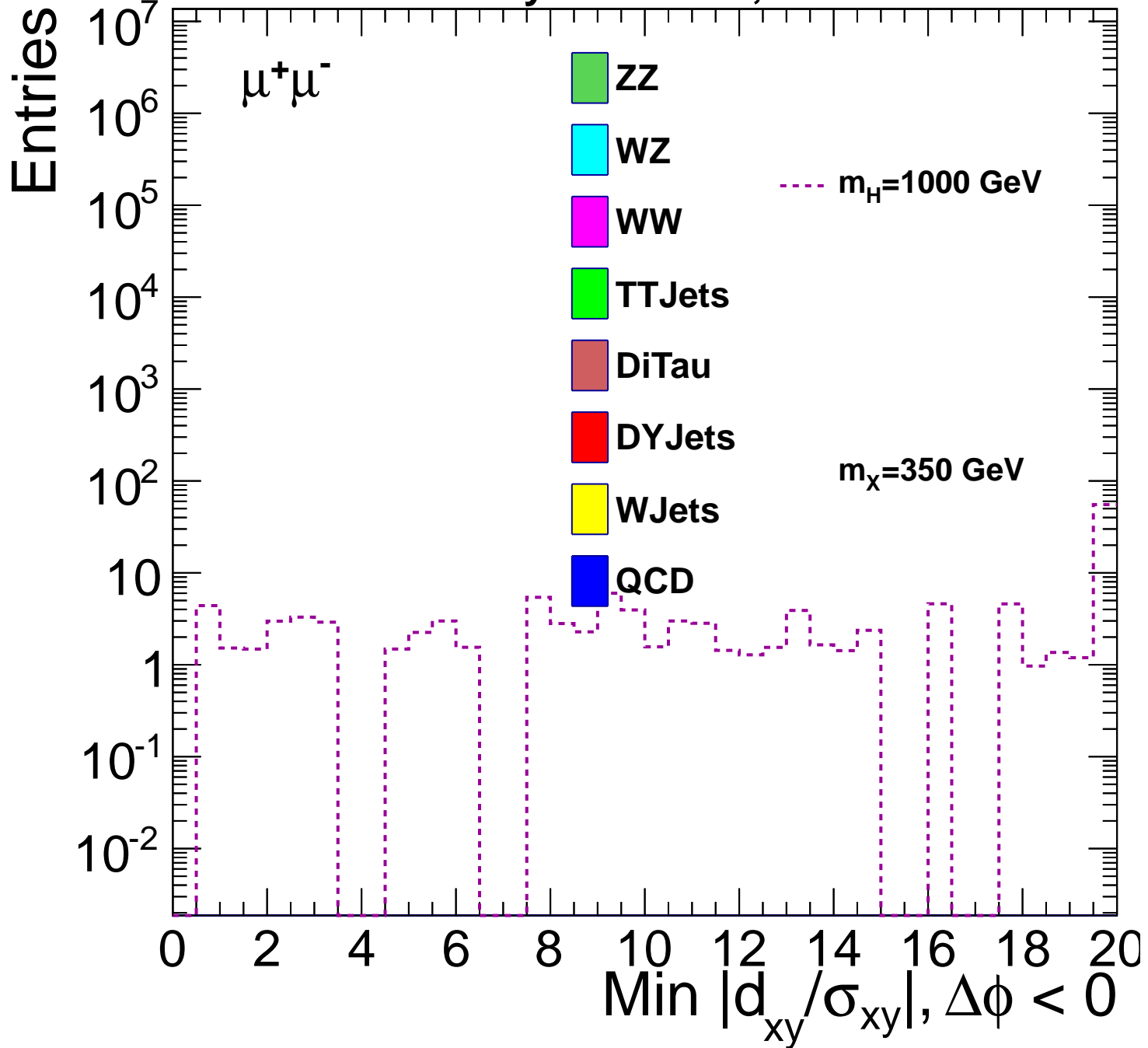
$m_\chi = 350 \text{ GeV}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

$\mu^+\mu^-$

ZZ

WZ

WW

TTJets

DiTau

DYJets

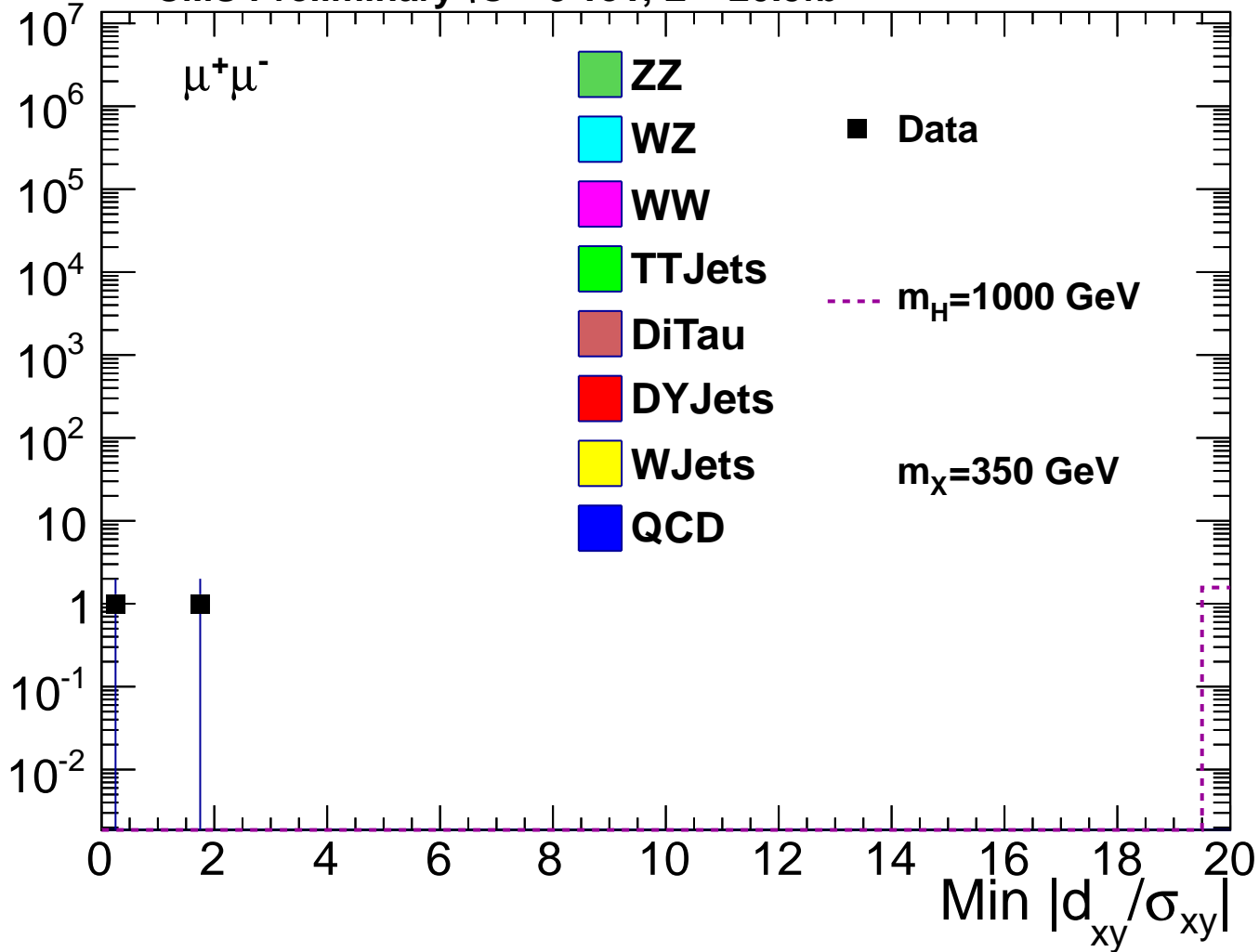
WJets

QCD

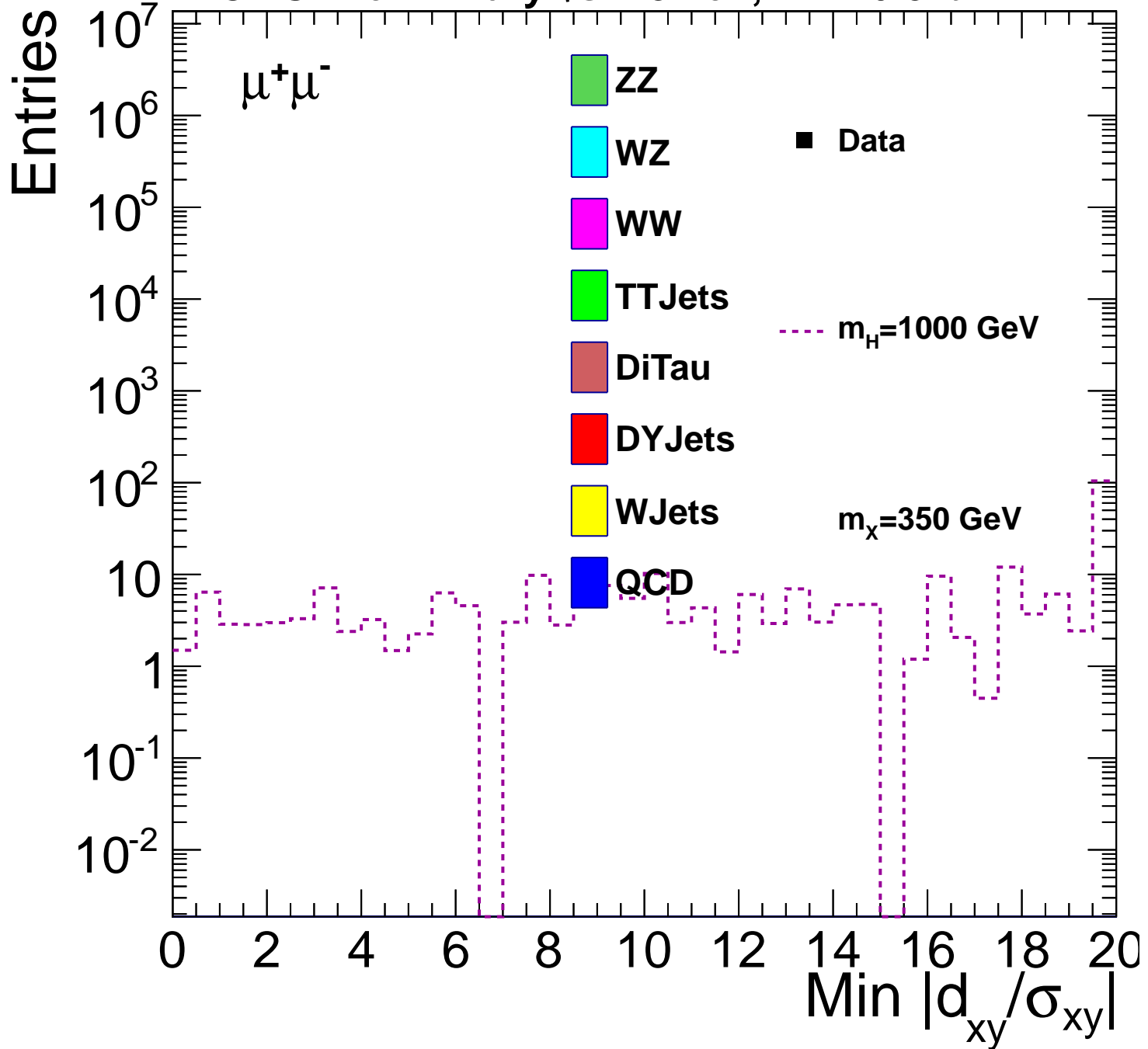
■ Data

--- $m_H = 1000 \text{ GeV}$

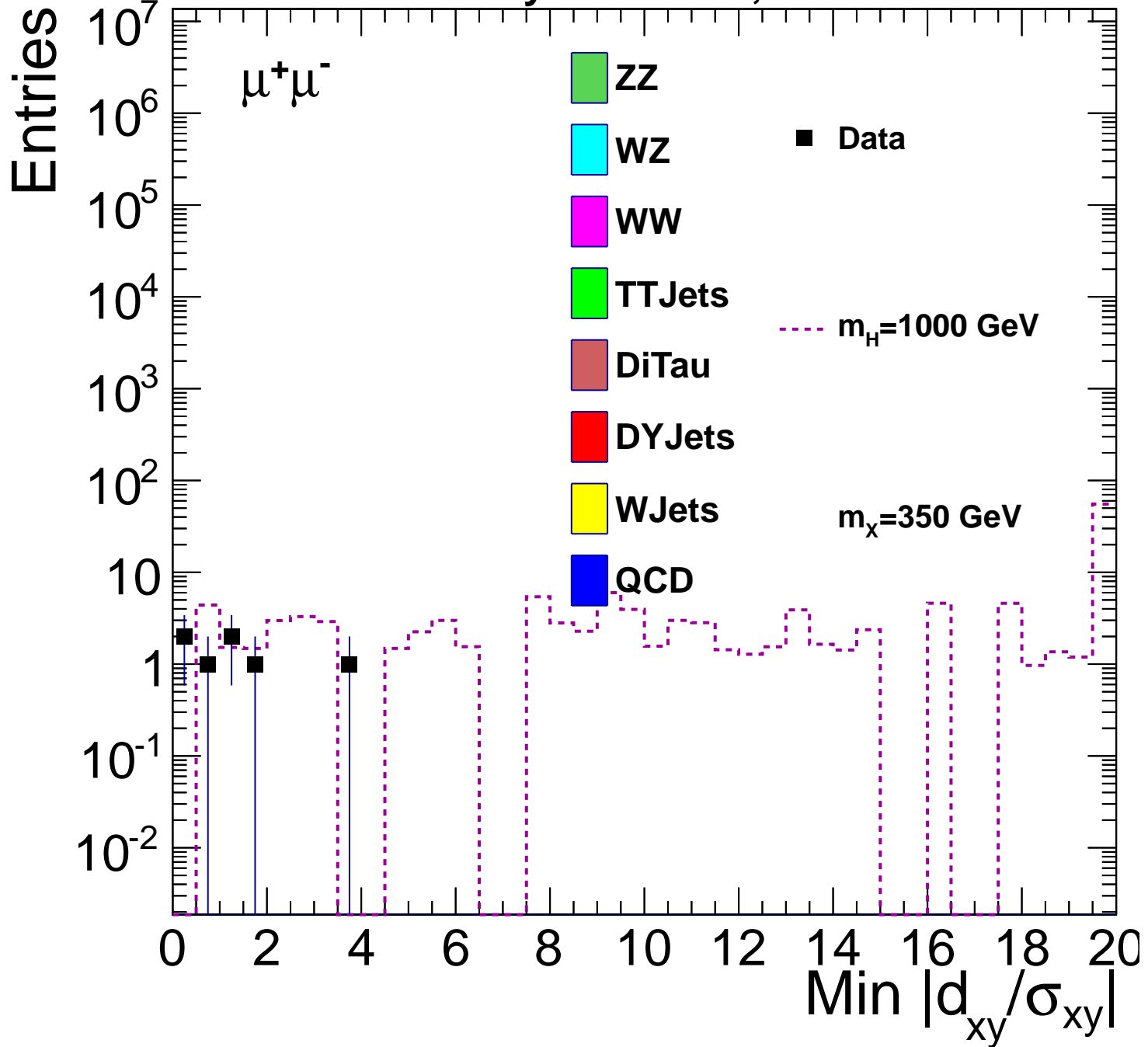
$m_X = 350 \text{ GeV}$



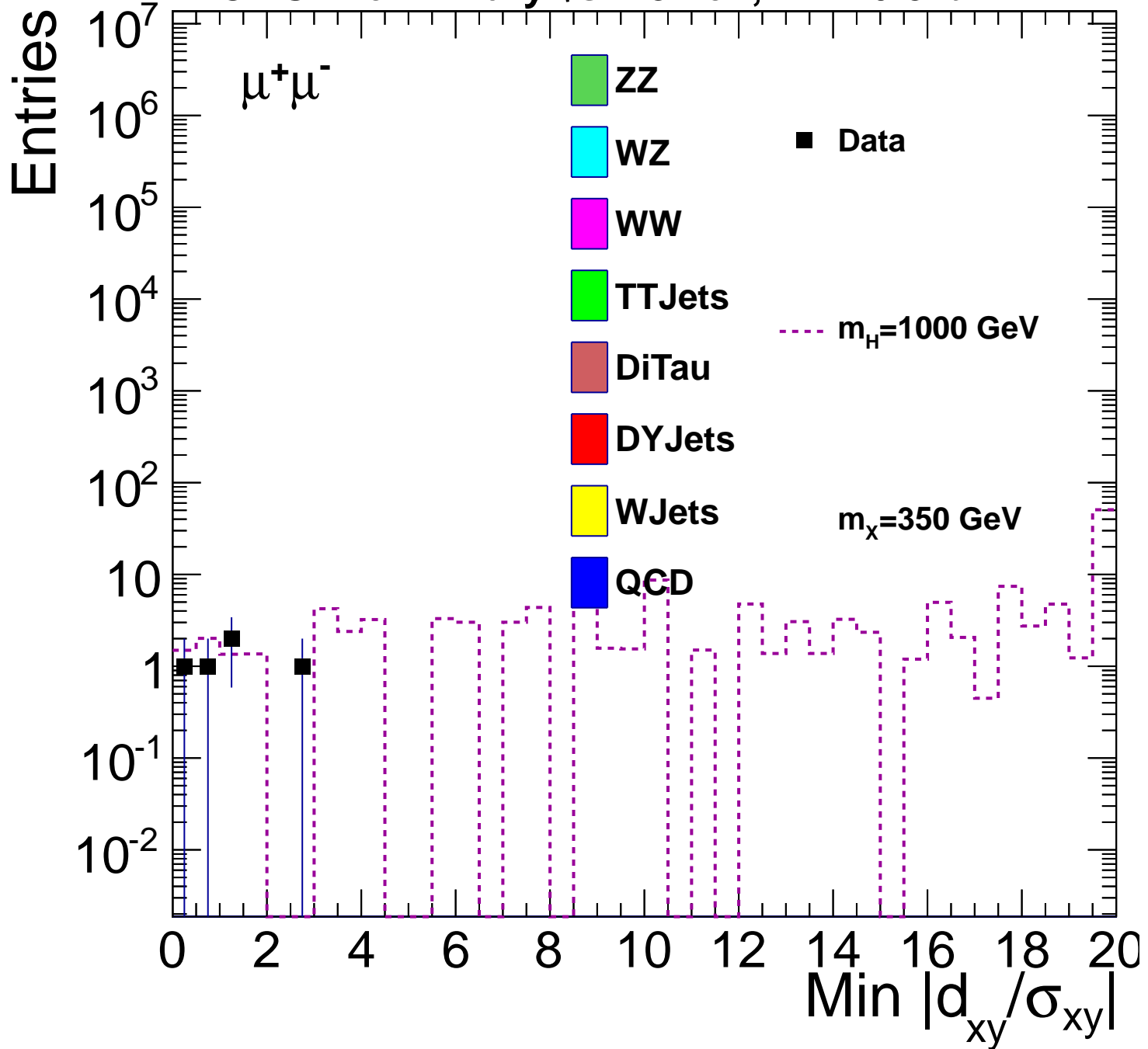
CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

$\mu^+\mu^-$

ZZ

WZ

WW

TTJets

DiTau

DYJets

WJets

QCD

■ Data

--- $m_H = 1000 \text{ GeV}$

$m_X = 350 \text{ GeV}$

10^8
 10^7
 10^6
 10^5
 10^4
 10^3
 10^2
 10
 1
 10^{-1}

0.5 1 1.5 2 2.5 3 3.5 4 4.5

reco cands



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

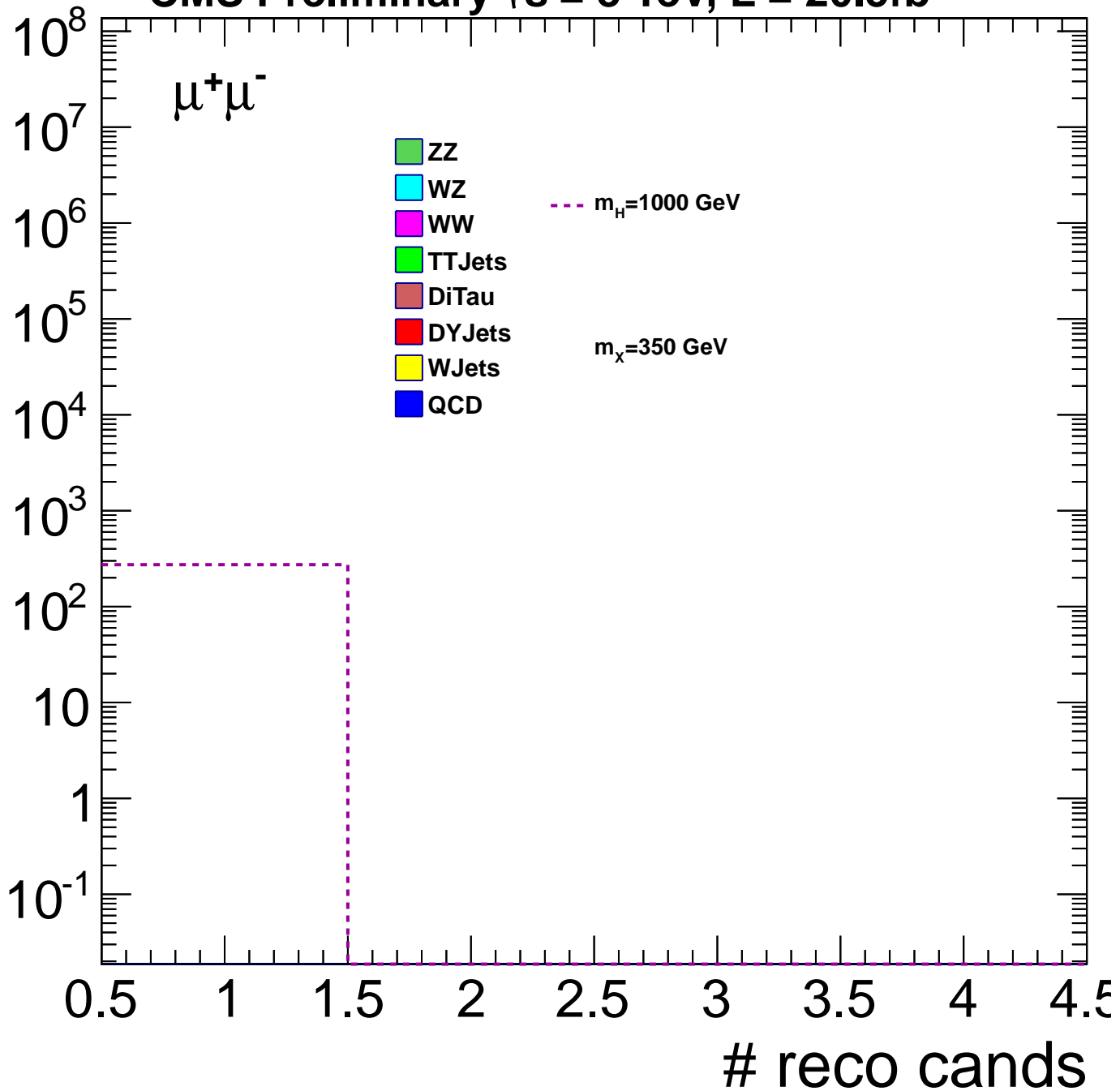
Entries

$\mu^+\mu^-$

ZZ
WZ
WW
TTJets
DiTau
DYJets
WJets
QCD

--- $m_H = 1000 \text{ GeV}$

$m_\chi = 350 \text{ GeV}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

$\mu^+\mu^-$

ZZ

WZ

WW

TTJets

DiTau

DYJets

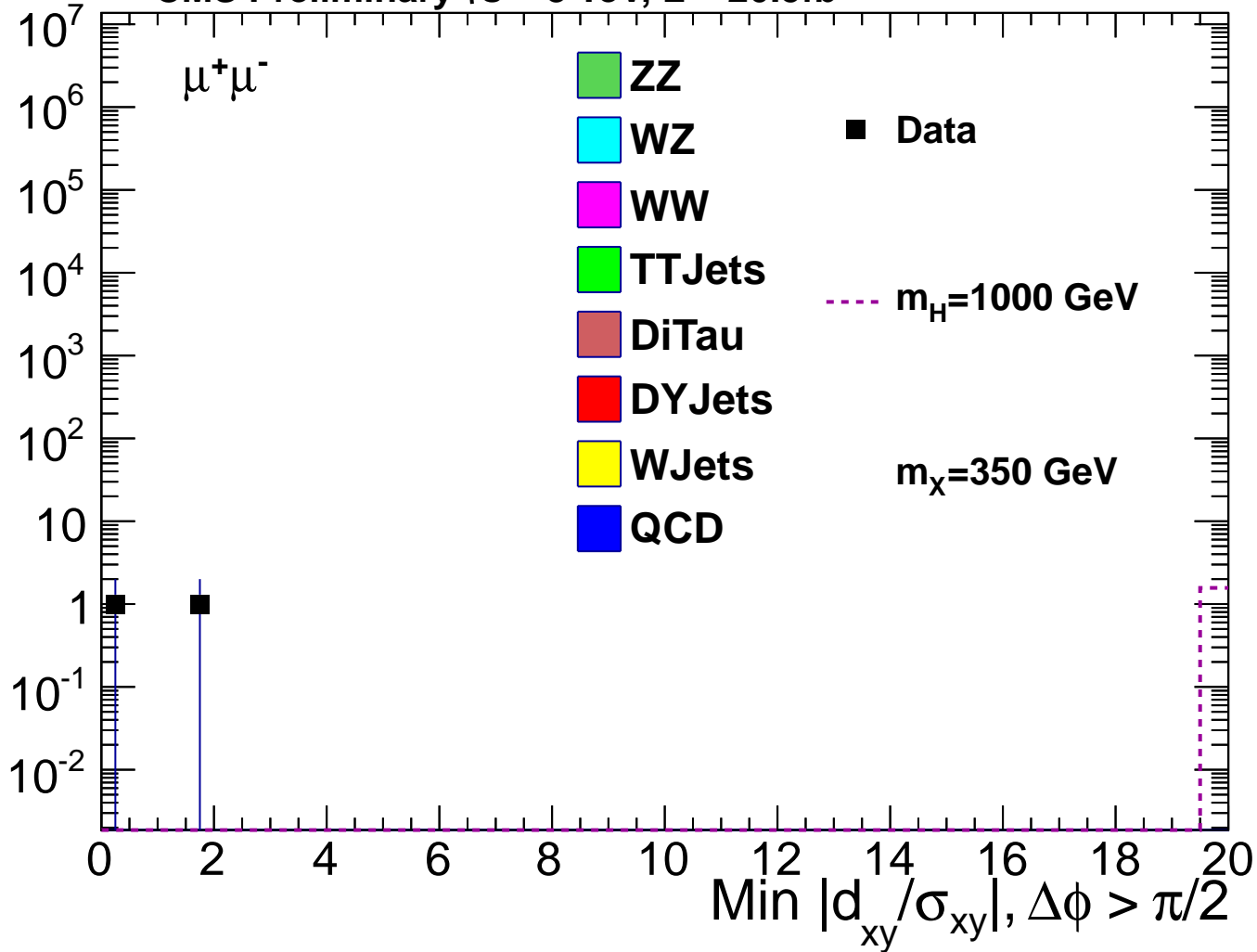
WJets

QCD

■ Data

--- $m_H = 1000 \text{ GeV}$

$m_\chi = 350 \text{ GeV}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

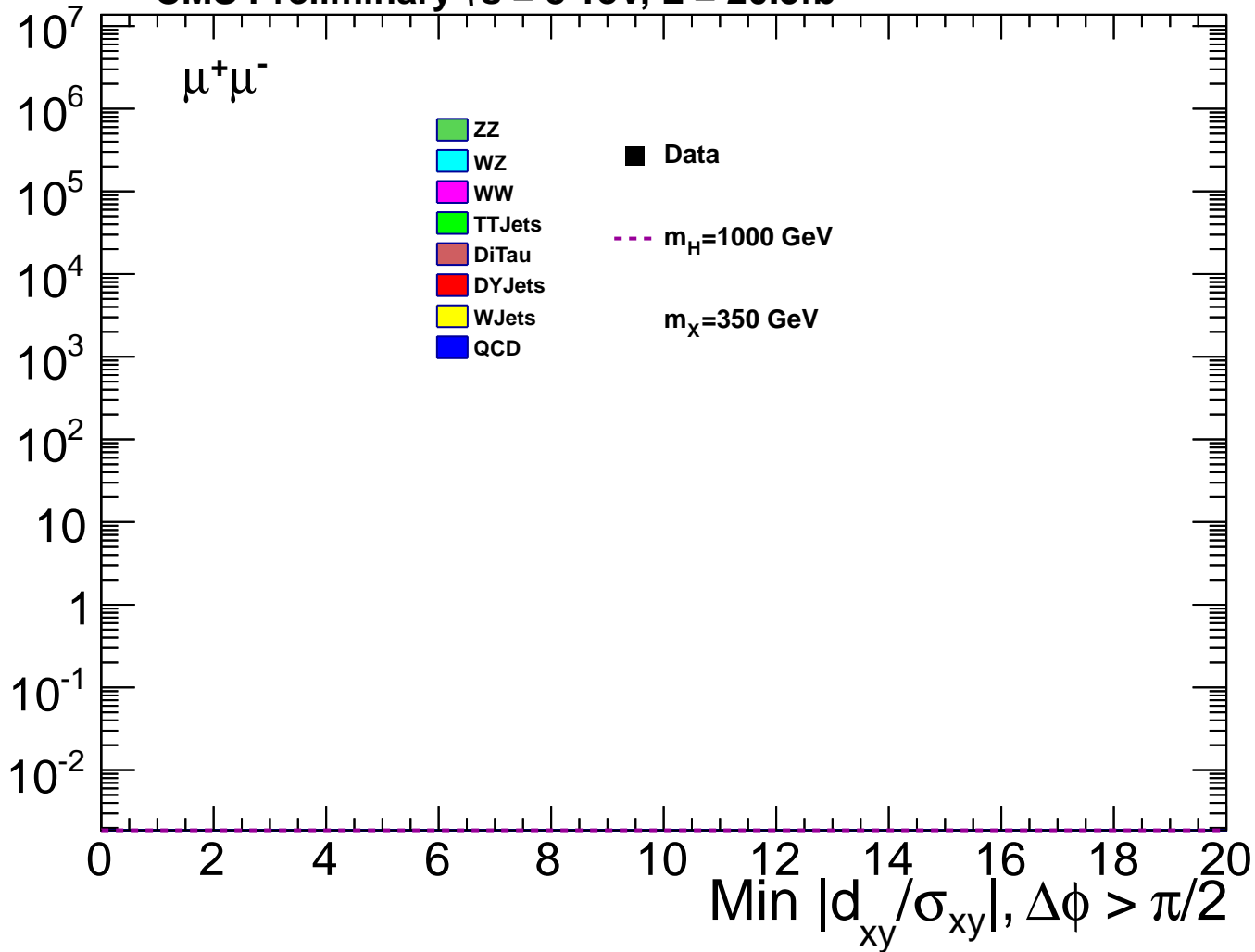
$\mu^+\mu^-$

ZZ
WZ
WW
TTJets
DiTau
DYJets
WJets
QCD

■ Data

--- $m_H = 1000 \text{ GeV}$

$m_\chi = 350 \text{ GeV}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

$\mu^+\mu^-$

ZZ

WZ

WW

TTJets

DiTau

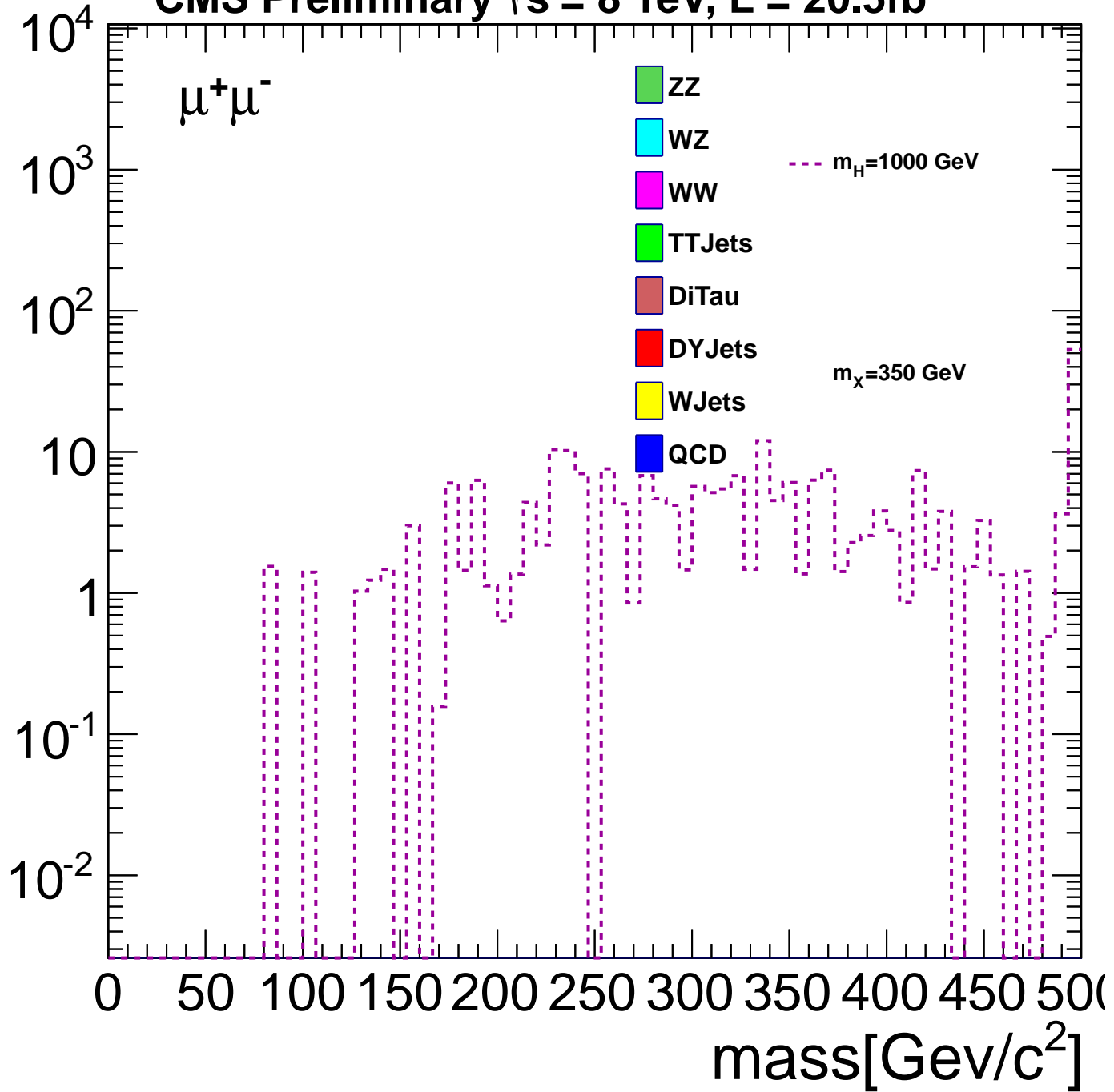
DYJets

WJets

QCD

--- $m_H = 1000 \text{ GeV}$

$m_X = 350 \text{ GeV}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

$\mu^+\mu^-$

ZZ

WZ

WW

TTJets

DiTau

DYJets

WJets

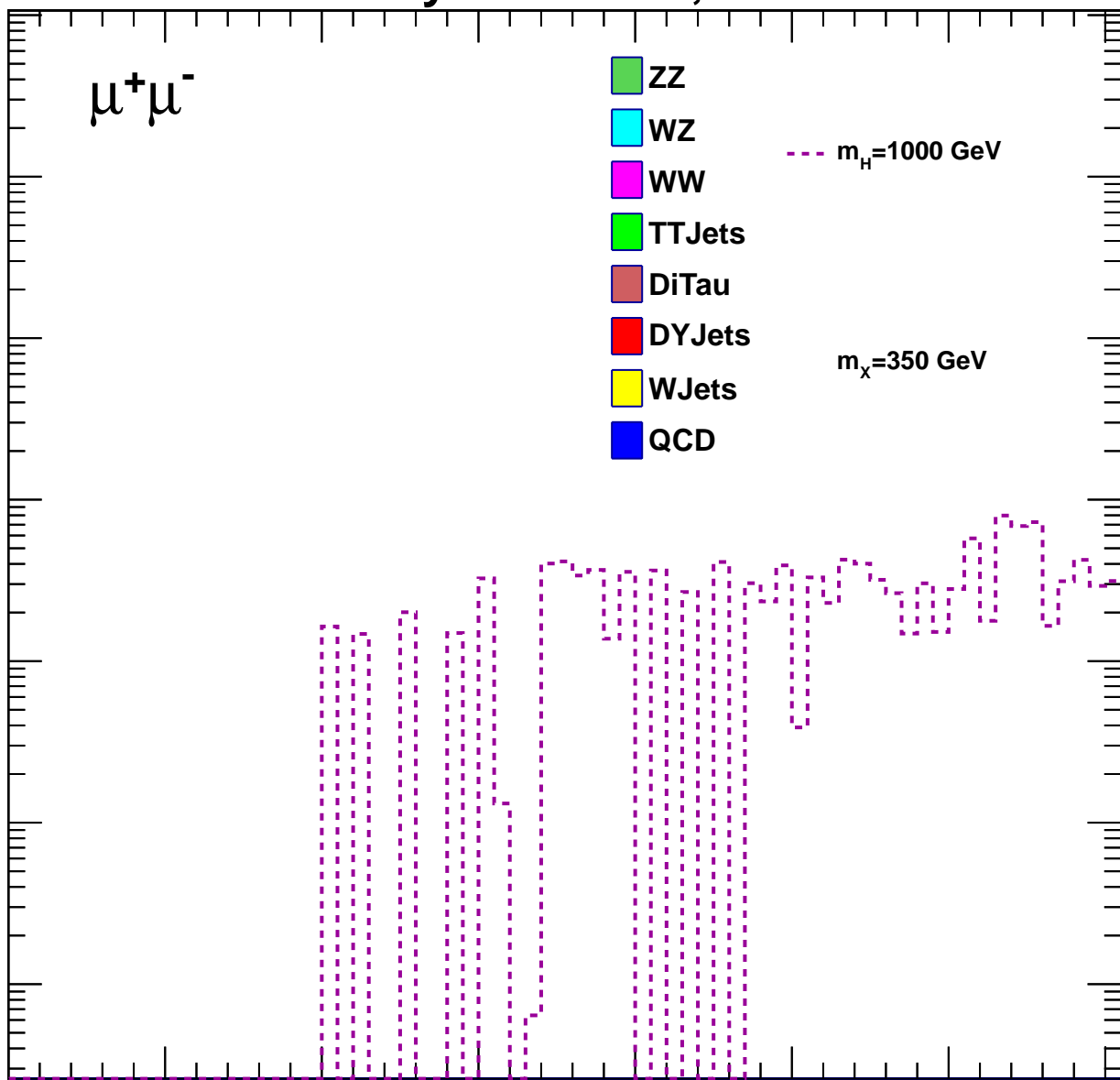
QCD

$m_H = 1000 \text{ GeV}$

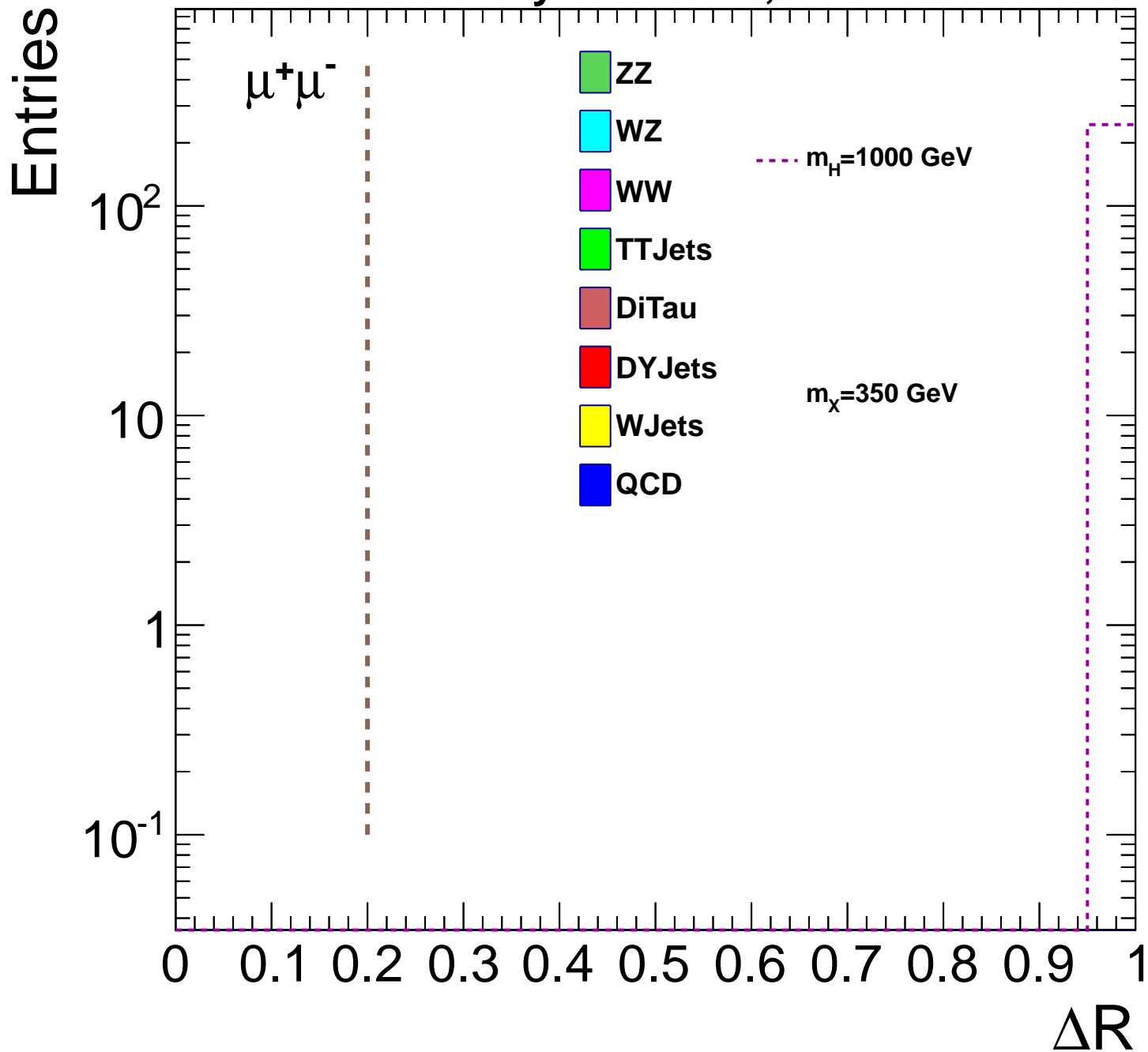
$m_X = 350 \text{ GeV}$

10^4
 10^3
 10^2
 10
 1
 10^{-1}
 10^{-2}

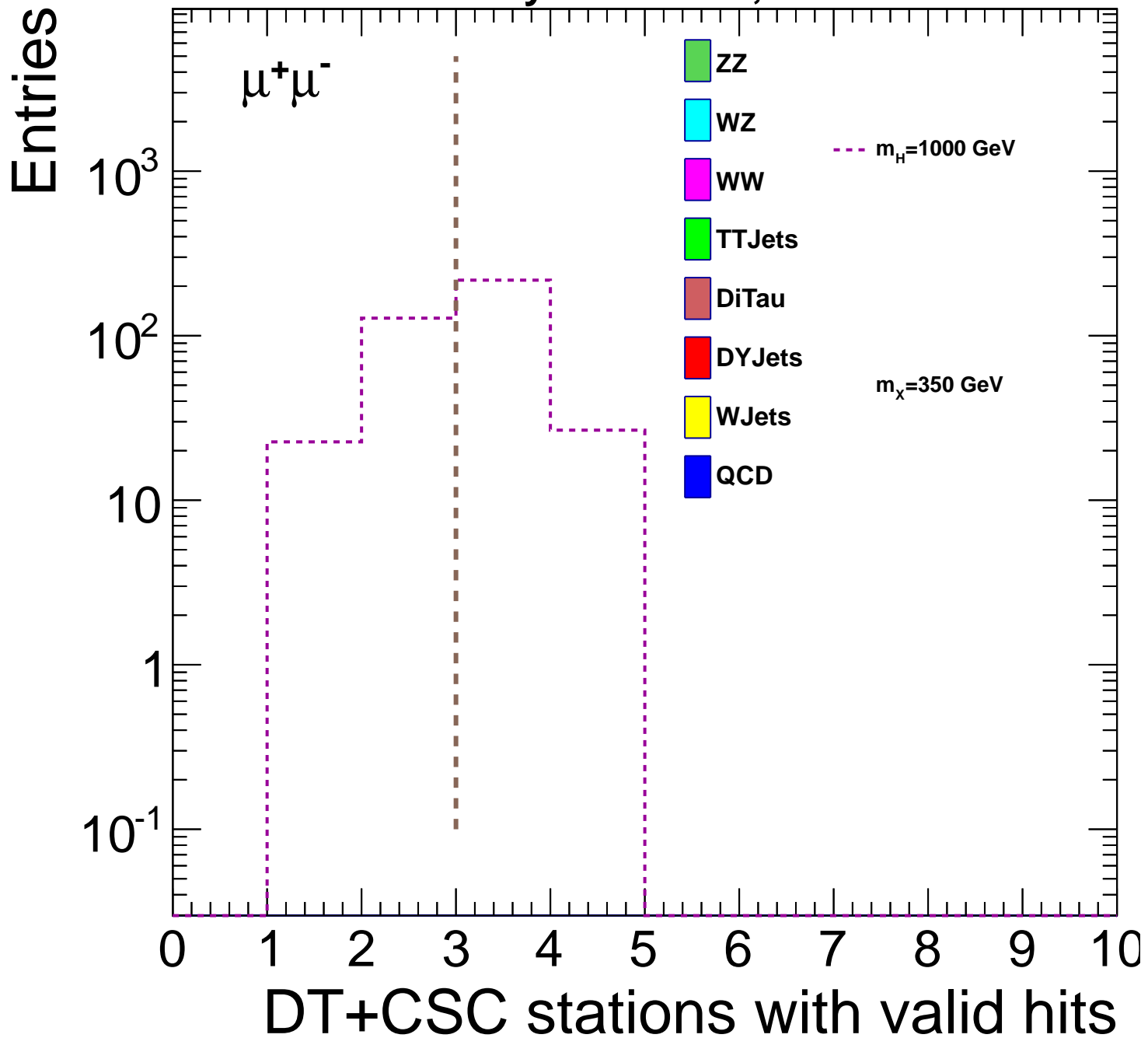
0 10 20 30 40 50 60 70
Candidate $L_{xy} [\text{cm}]$



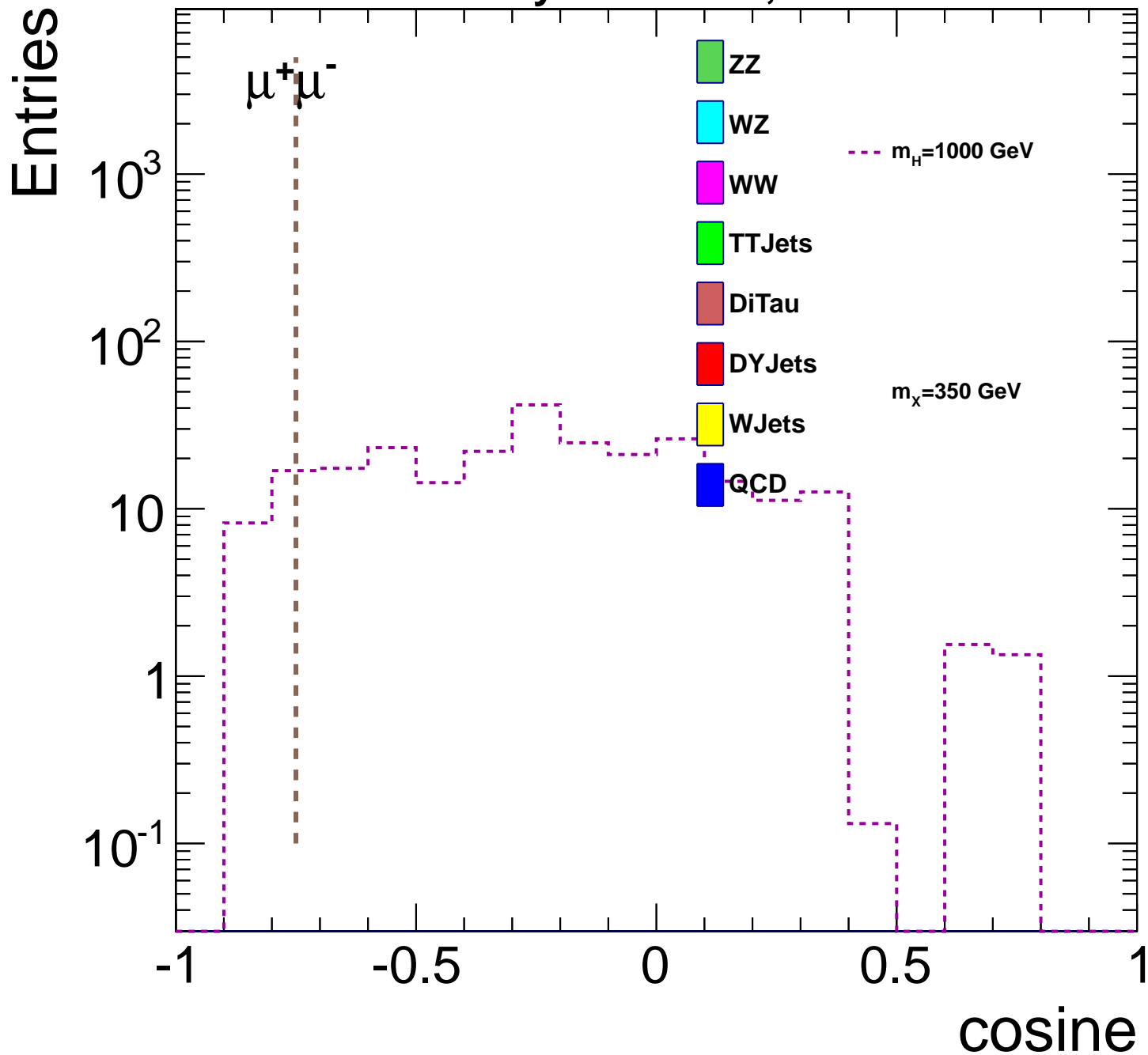
CMS Preliminary $\sqrt{s} = 8$ TeV, $L = 20.5\text{fb}^{-1}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

$\mu^+\mu^-$

ZZ

WZ

WW

TTJets

DiTau

DYJets

WJets

QCD

$m_H = 1000 \text{ GeV}$

$m_\chi = 350 \text{ GeV}$

10^3

10^2

10

1

10^{-1}

0

5

10

15

20

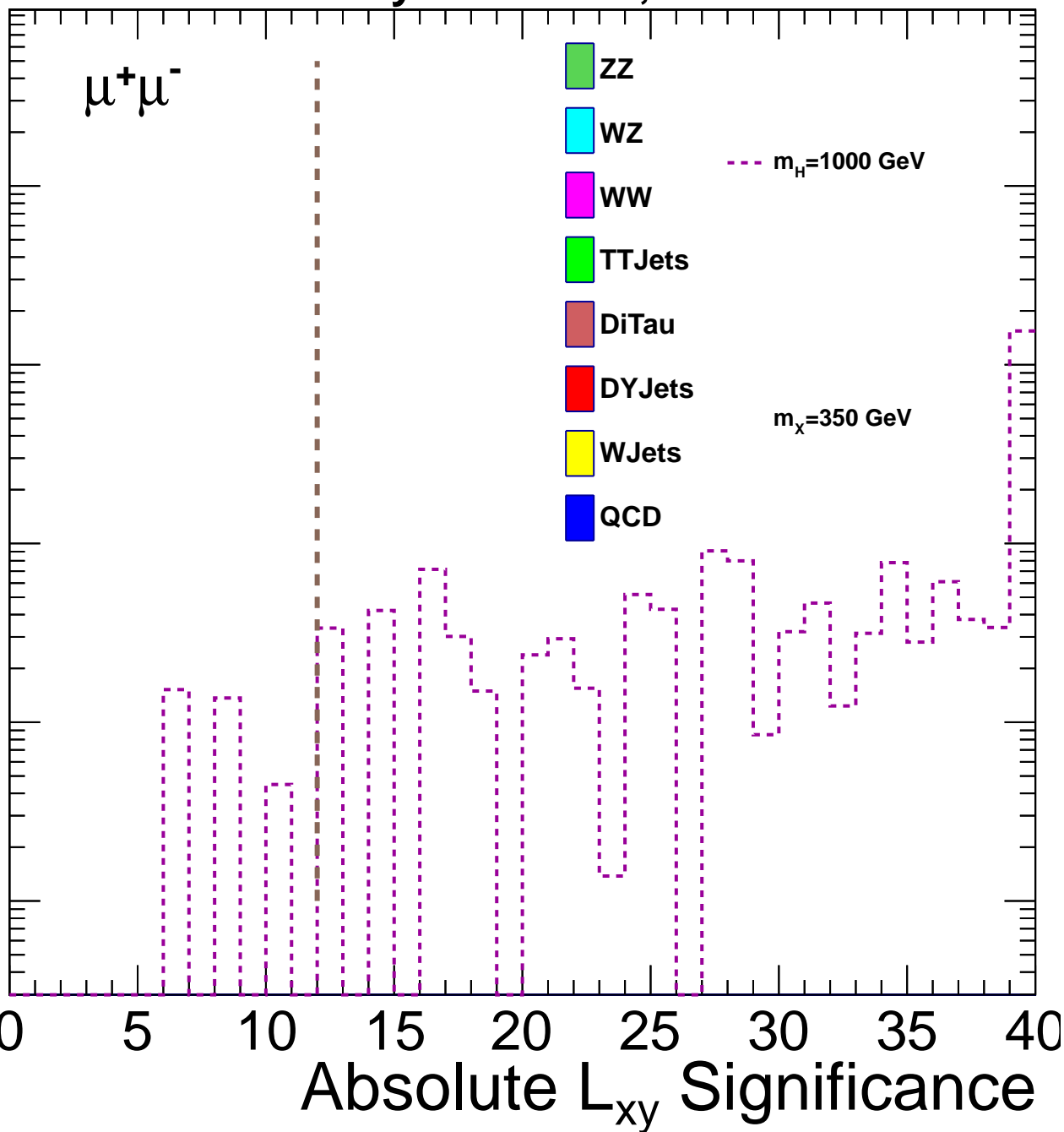
25

30

35

40

Absolute L_{xy} Significance



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

$\mu^+\mu^-$

ZZ

WZ

WW

TTJets

DiTau

DYJets

WJets

QCD

$m_H = 1000 \text{ GeV}$

$m_\chi = 350 \text{ GeV}$

10^3

10^2

10

1

10^{-1}

0

10

20

30

40

50

60

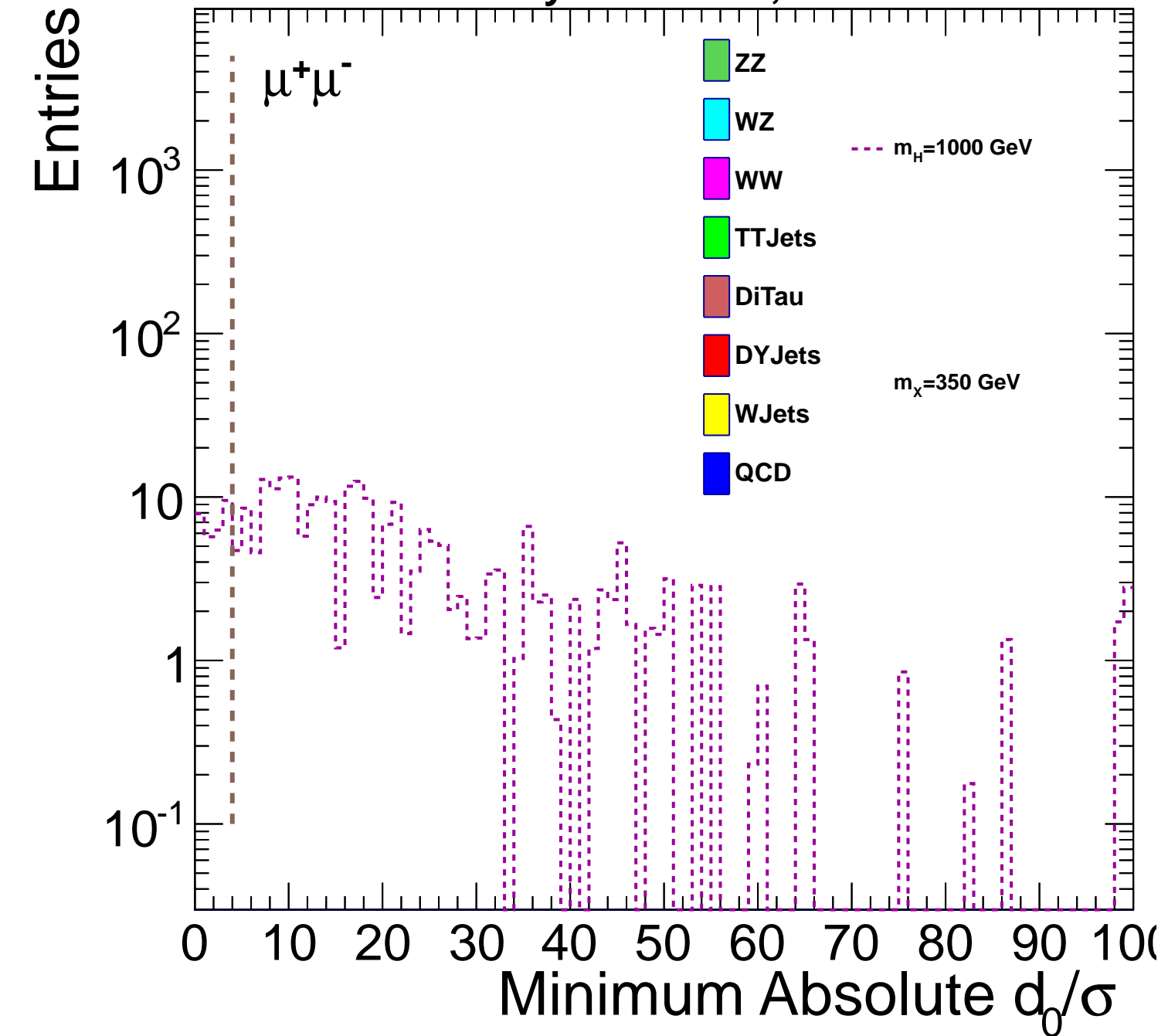
70

80

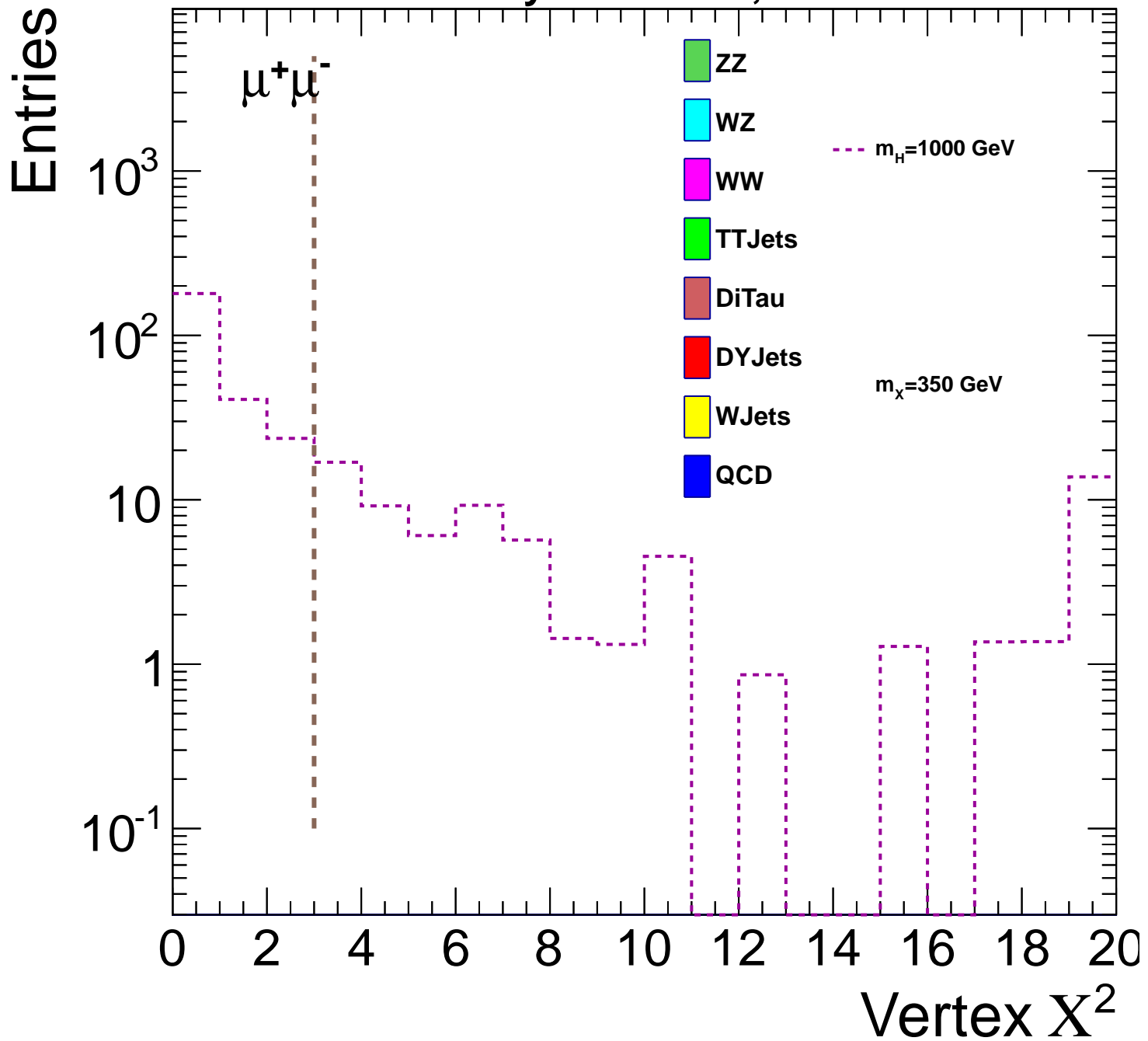
90

100

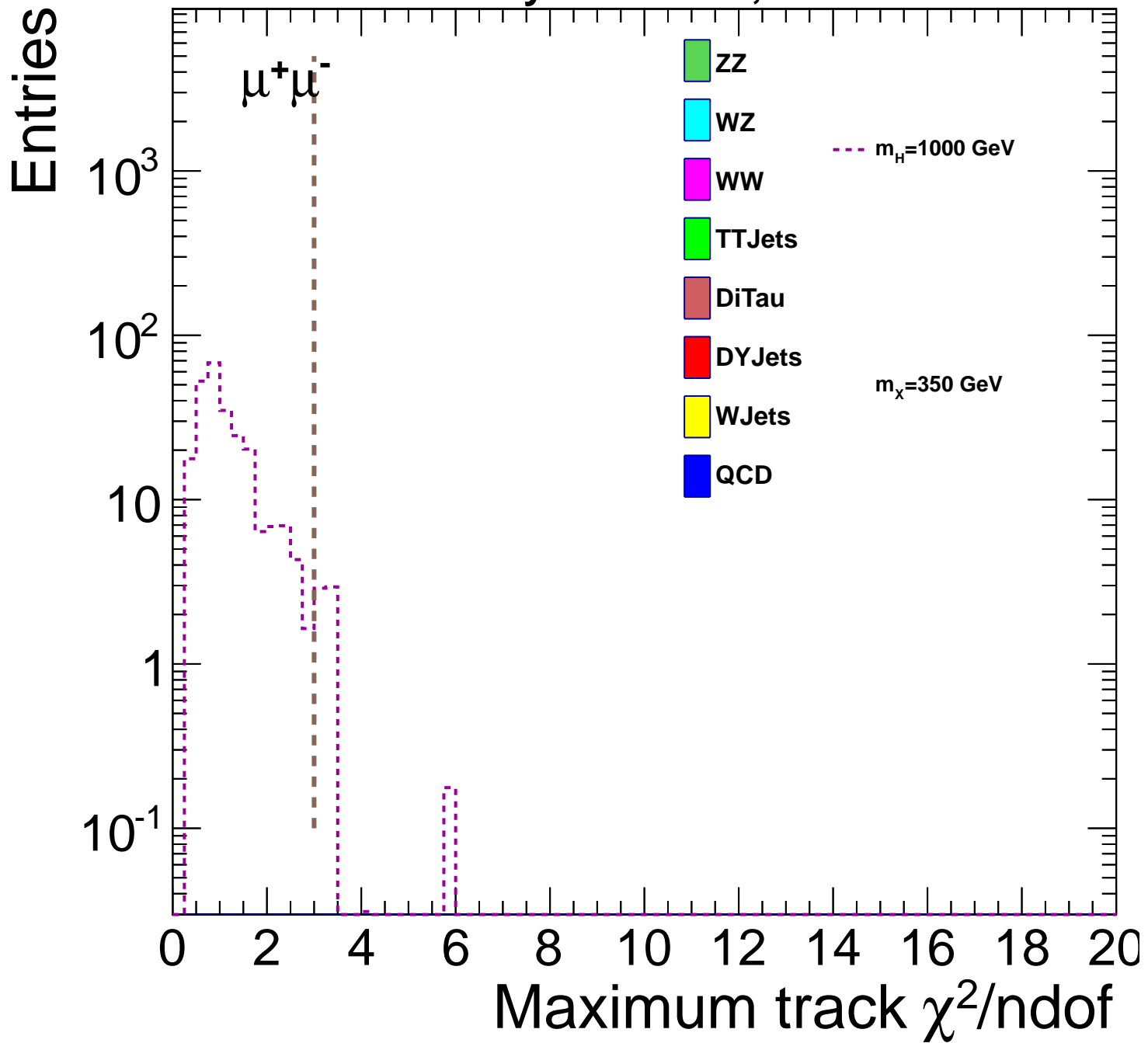
Minimum Absolute d_0/σ



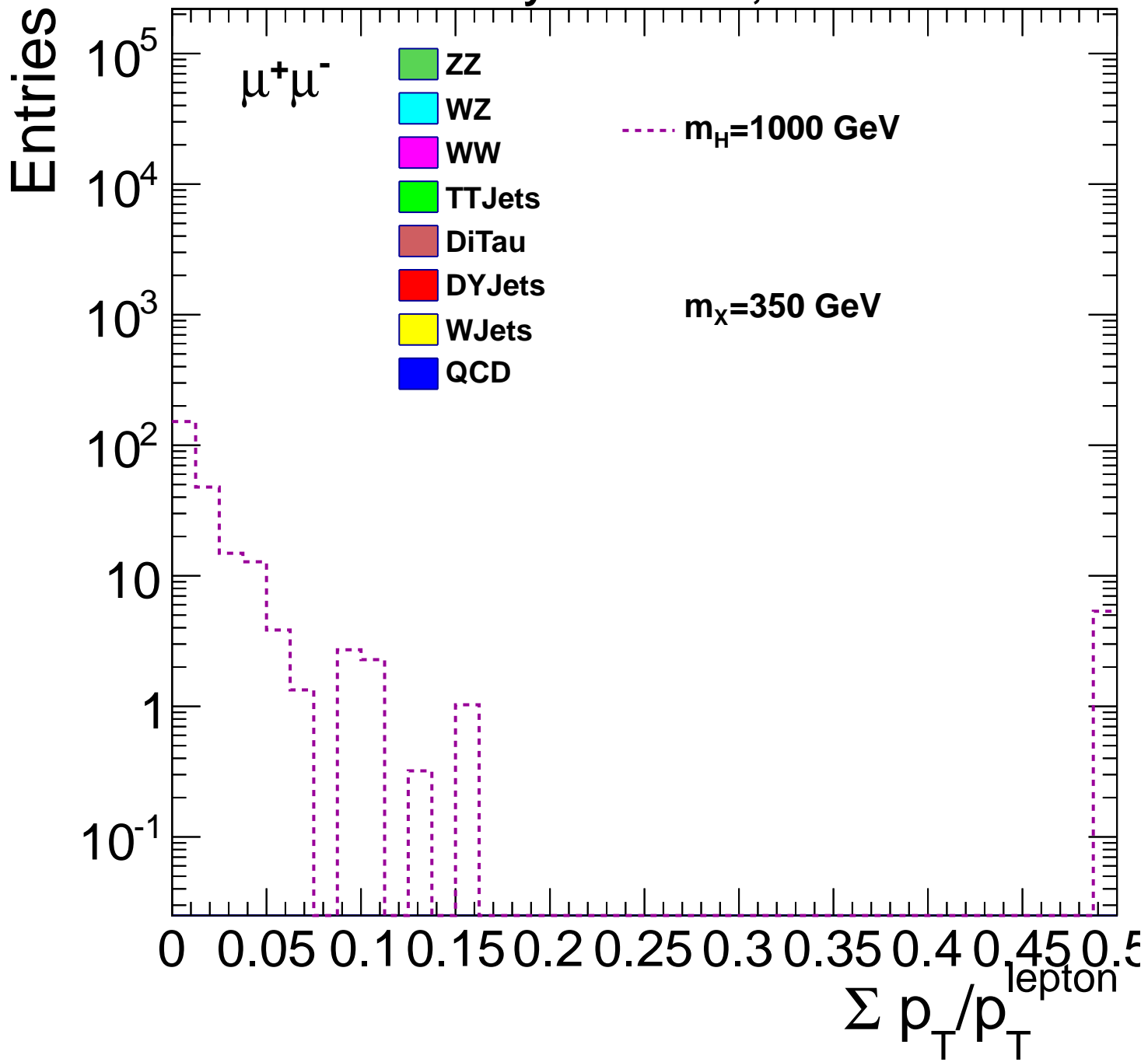
CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$



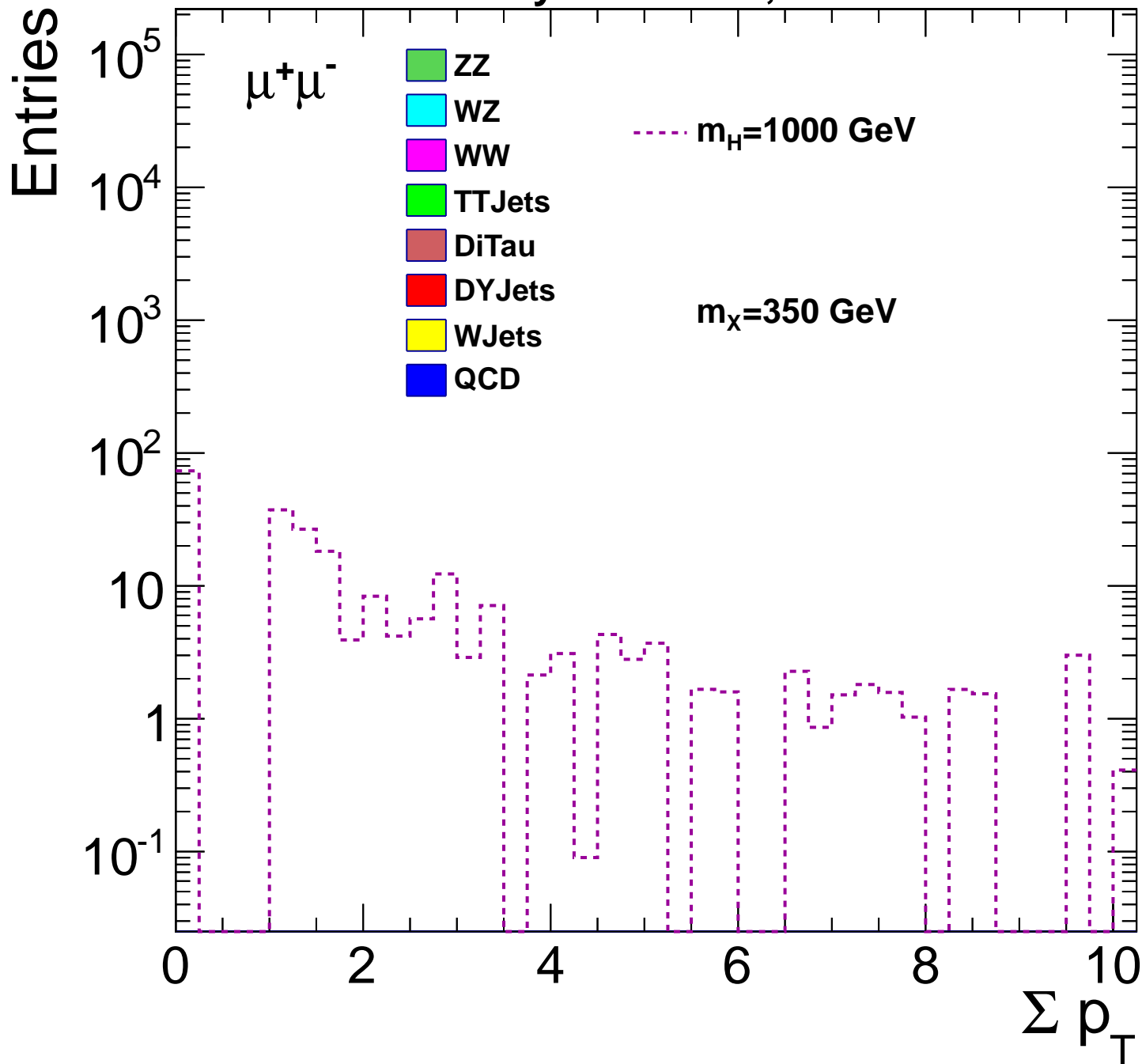
CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$



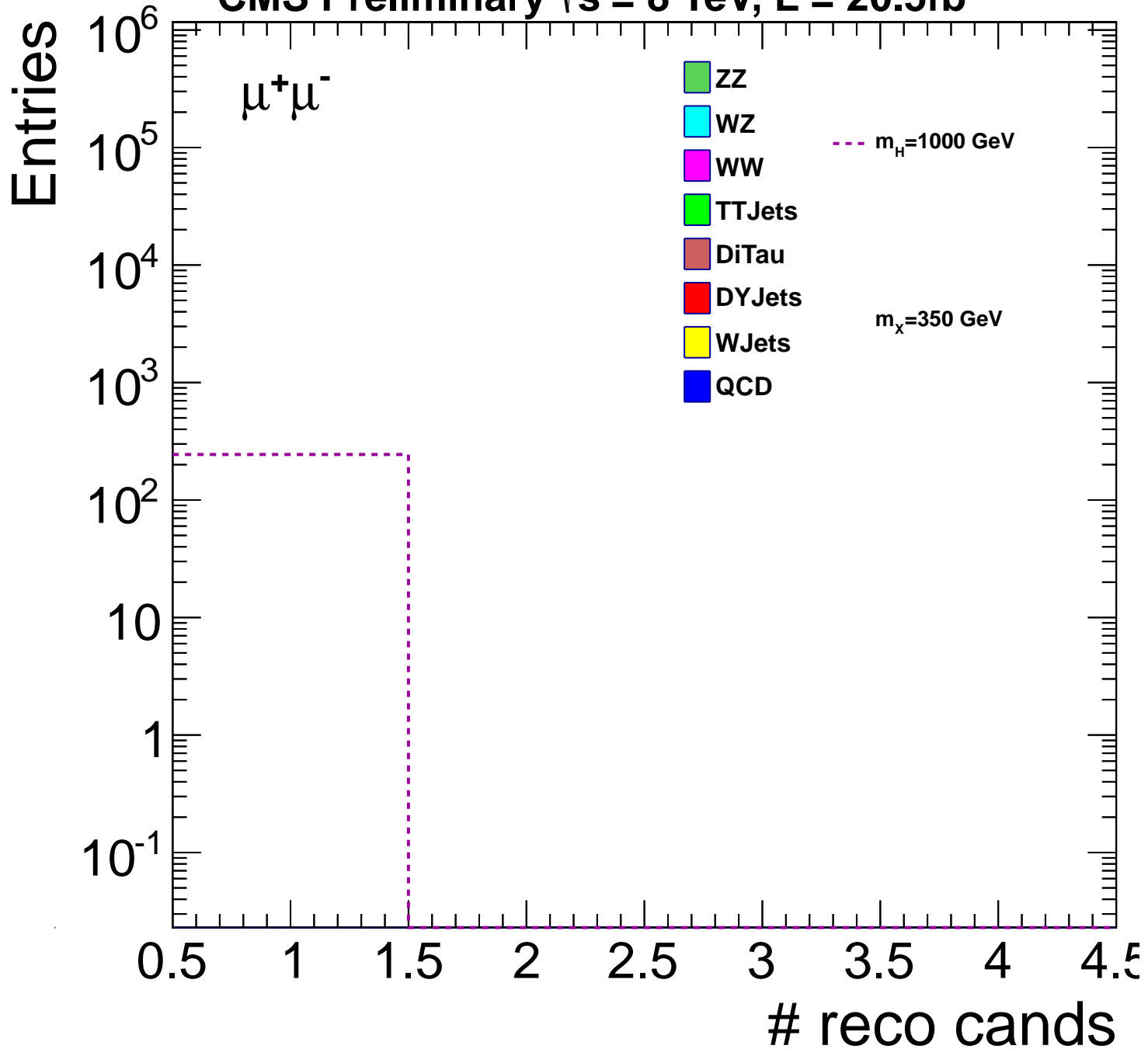
CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$



CMS Preliminary $\sqrt{s} = 8$ TeV, $L = 20.5\text{fb}^{-1}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

$\mu^+\mu^-$

ZZ

WZ

WW

TTJets

DiTau

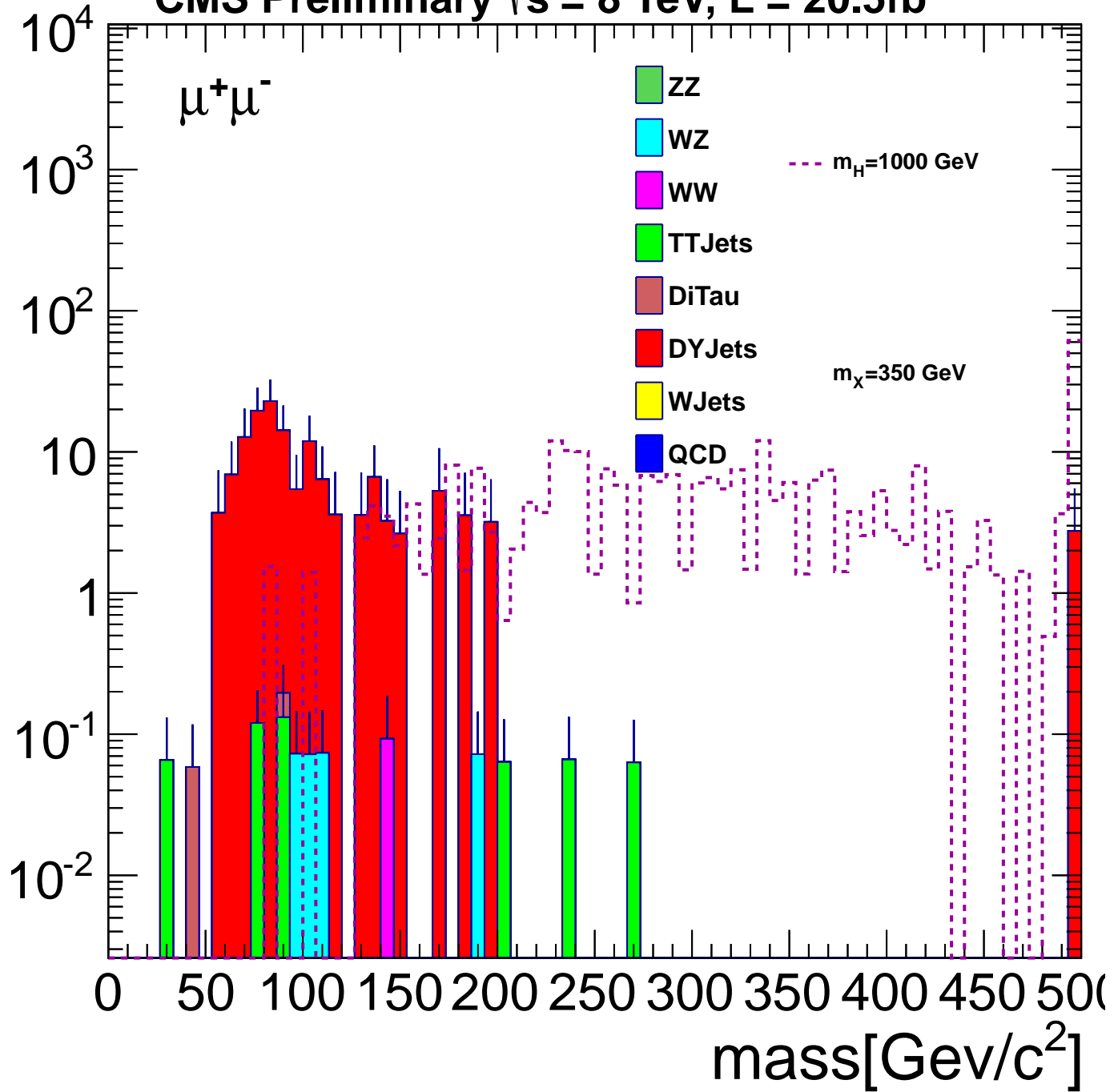
DYJets

WJets

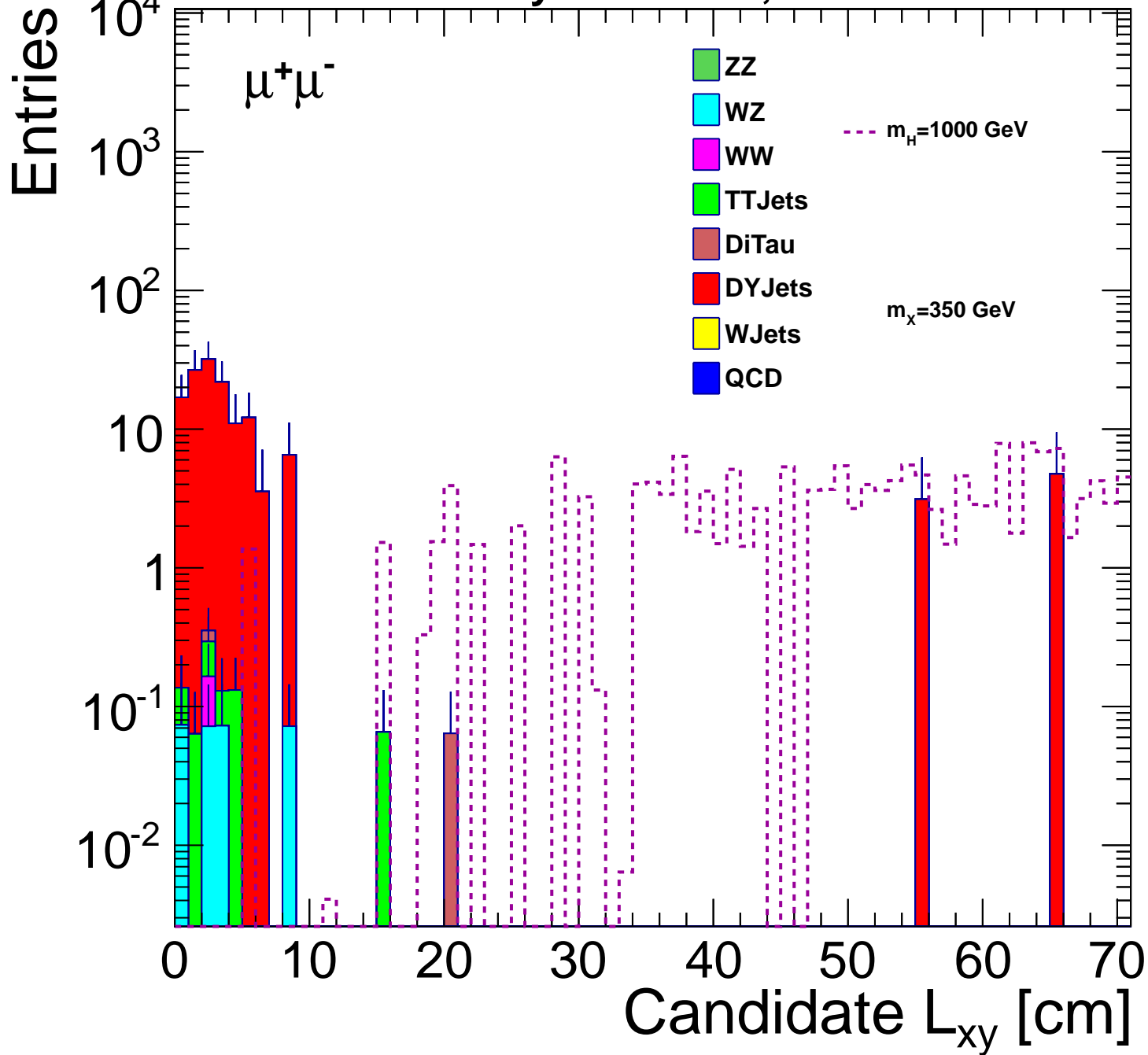
QCD

$m_H = 1000 \text{ GeV}$

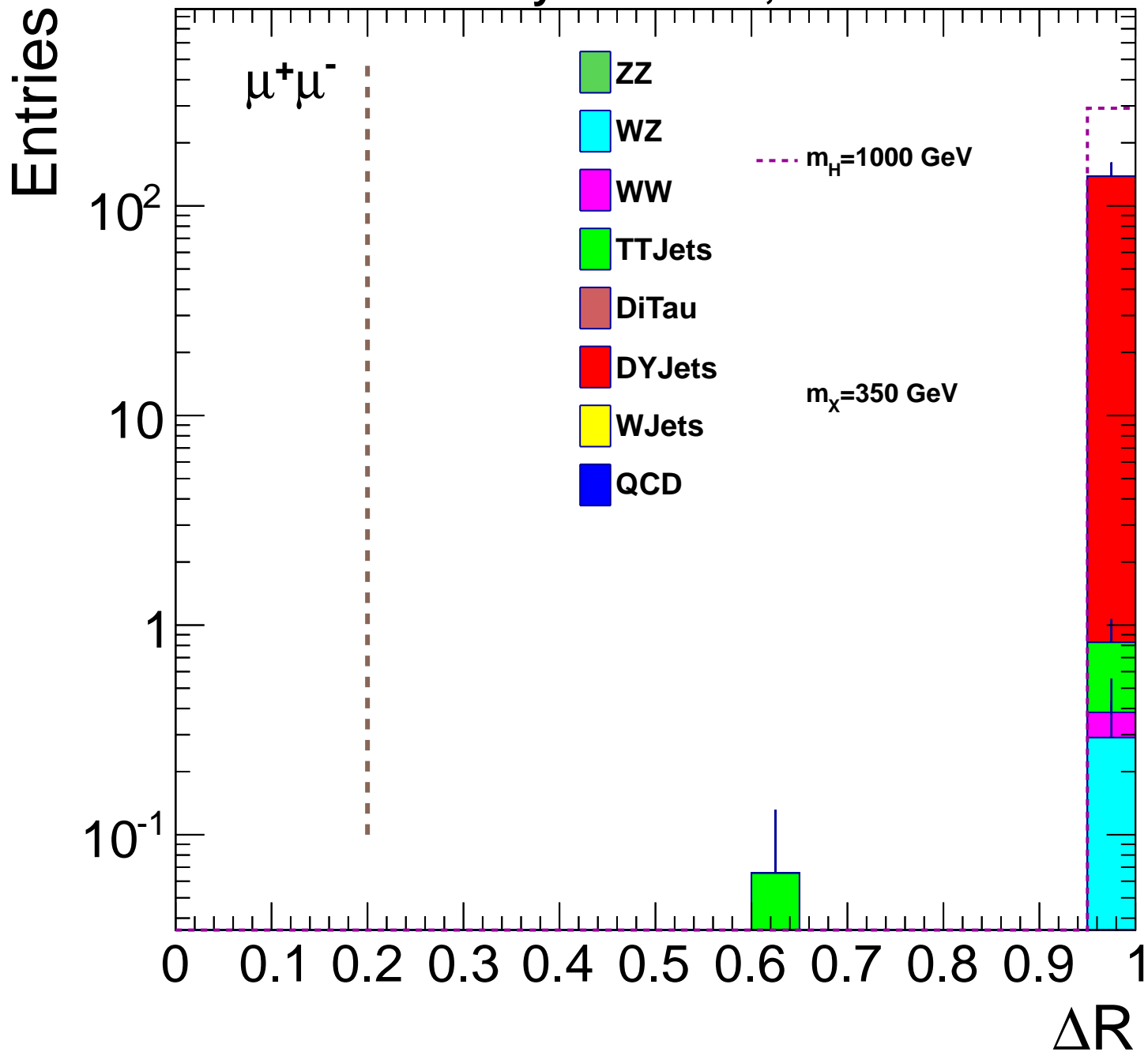
$m_\chi = 350 \text{ GeV}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$



CMS Preliminary $\sqrt{s} = 8$ TeV, $L = 20.5\text{fb}^{-1}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

$\mu^+\mu^-$

10^3

10^2

10

1

10^{-1}

0

1

2

3

4

5

6

7

8

9

10

DT+CSC stations with valid hits

ZZ

WZ

WW

TTJets

DiTau

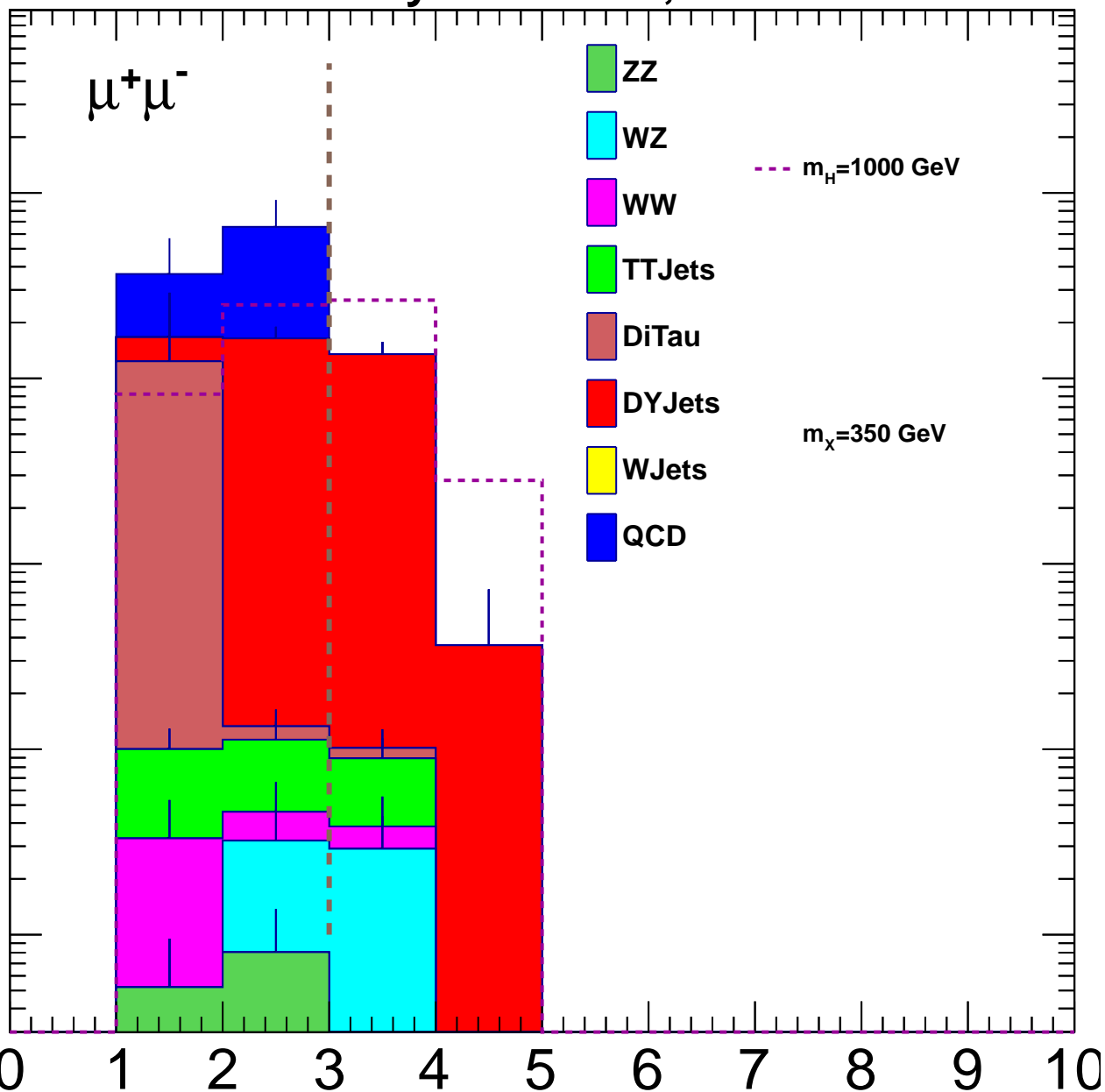
DYJets

WJets

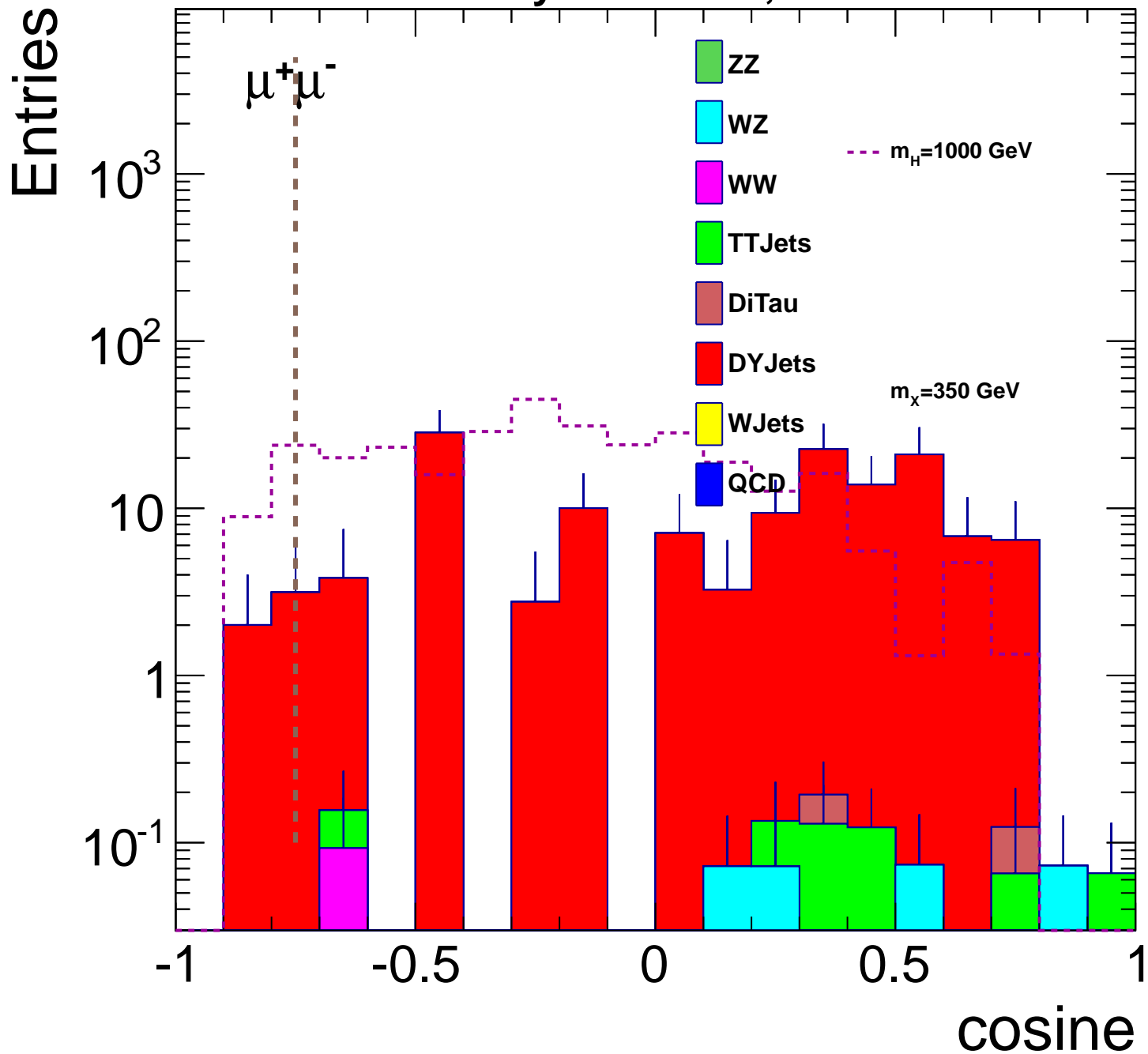
QCD

$m_H = 1000 \text{ GeV}$

$m_\chi = 350 \text{ GeV}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

$\mu^+\mu^-$

ZZ

WZ

WW

TTJets

DiTau

DYJets

WJets

QCD

$m_H = 1000 \text{ GeV}$

$m_{\chi} = 350 \text{ GeV}$

10^3

10^2

10

1

10^{-1}

0

5

10

15

20

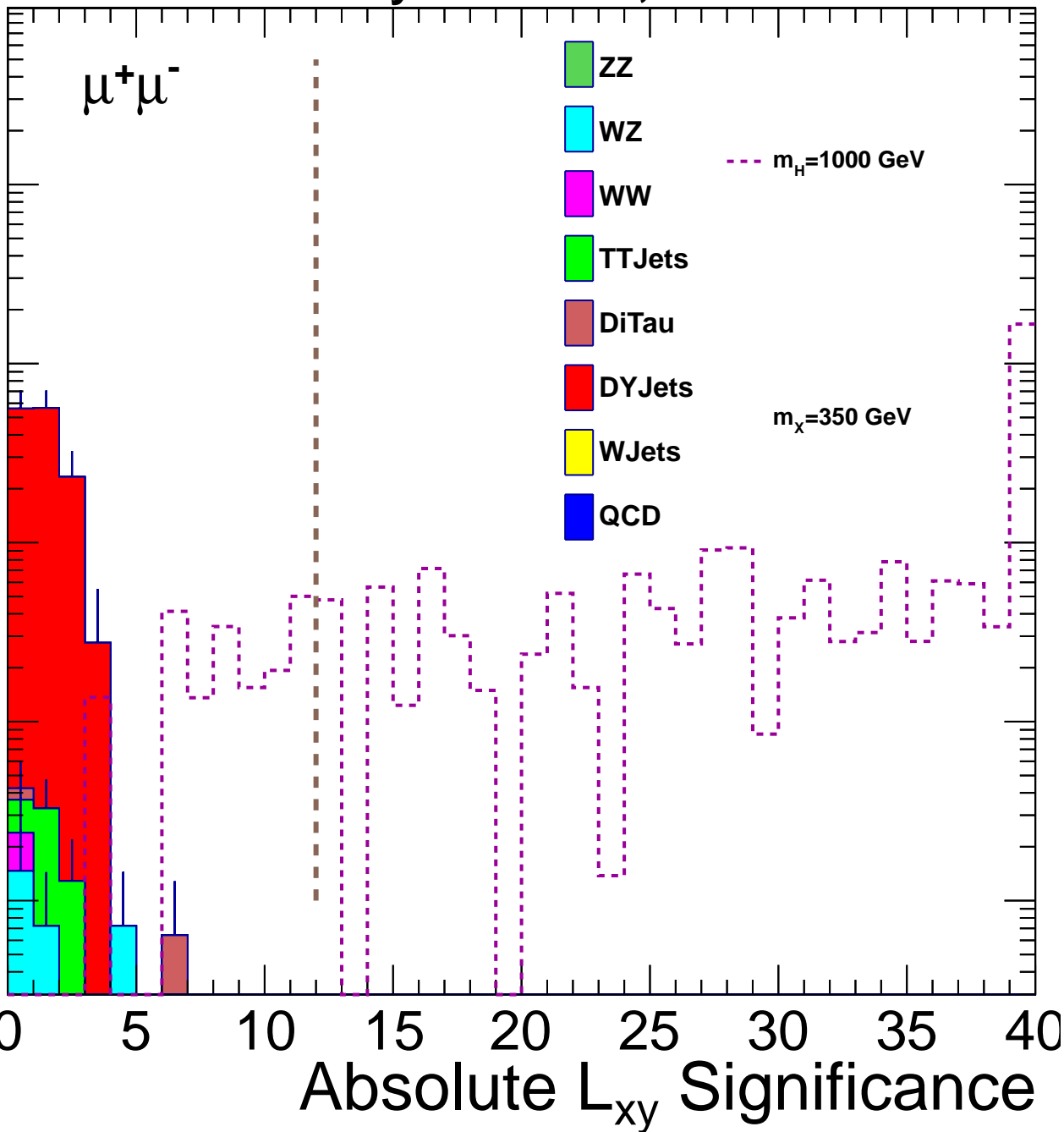
25

30

35

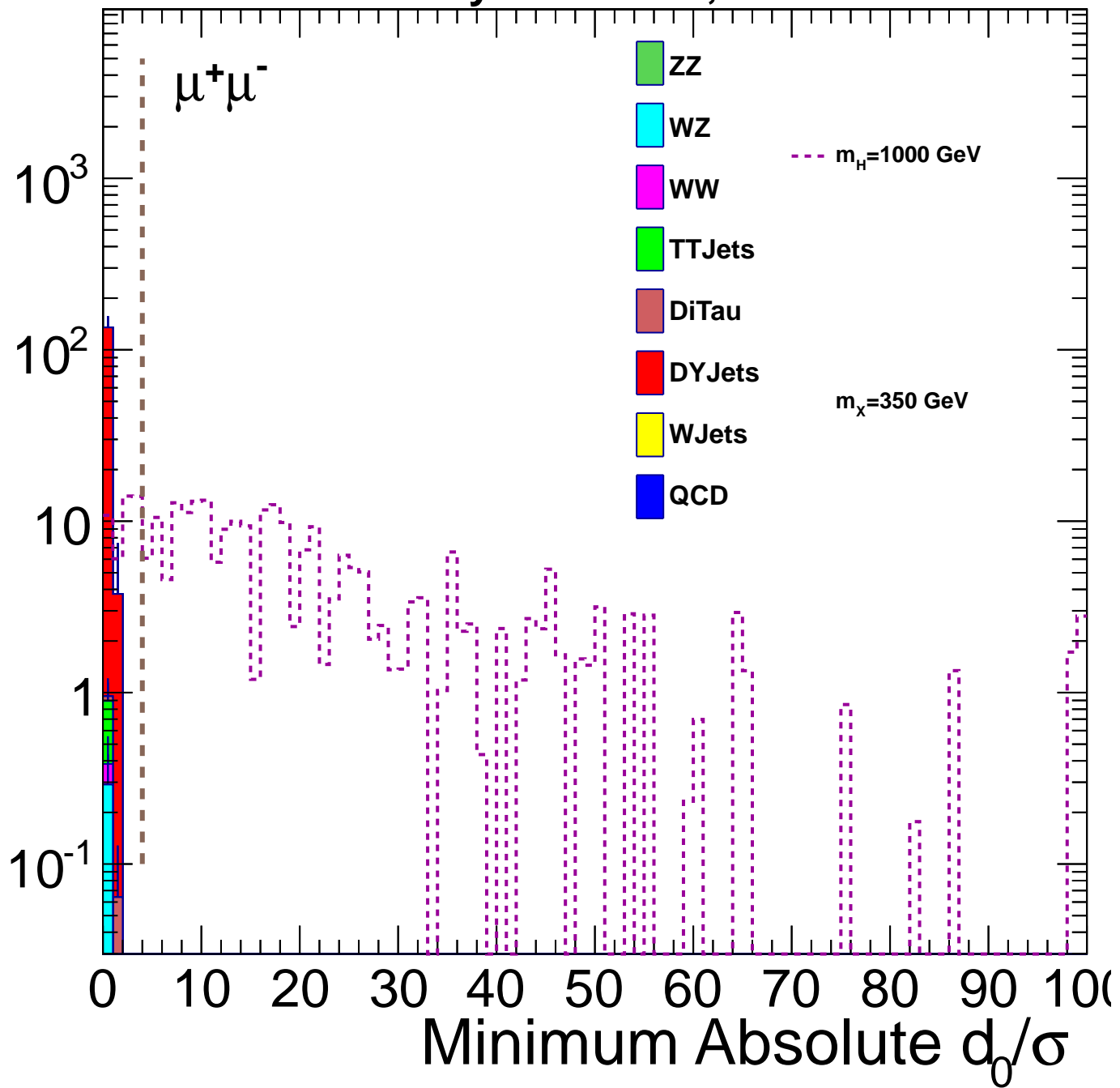
40

Absolute L_{xy} Significance

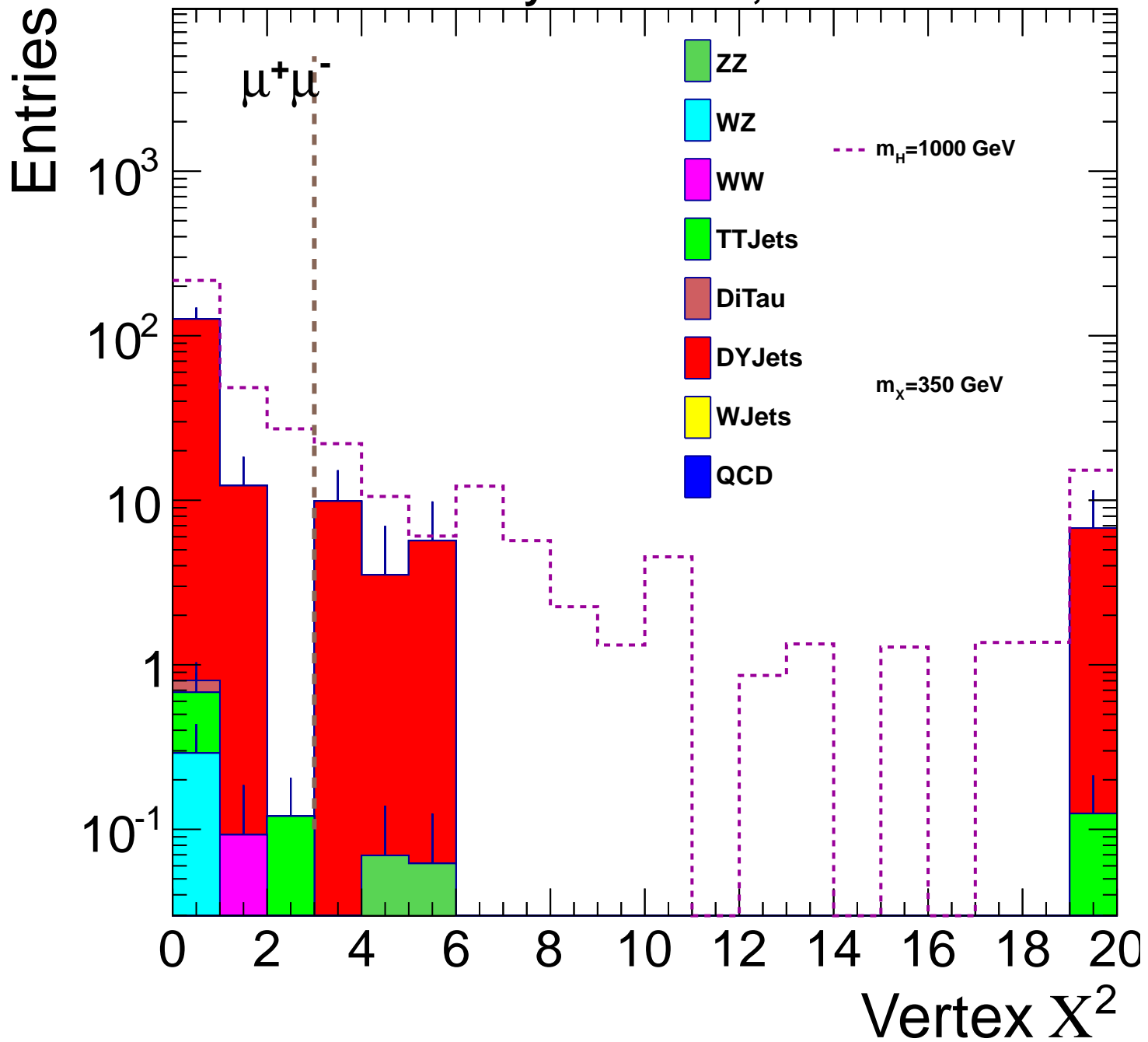


CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

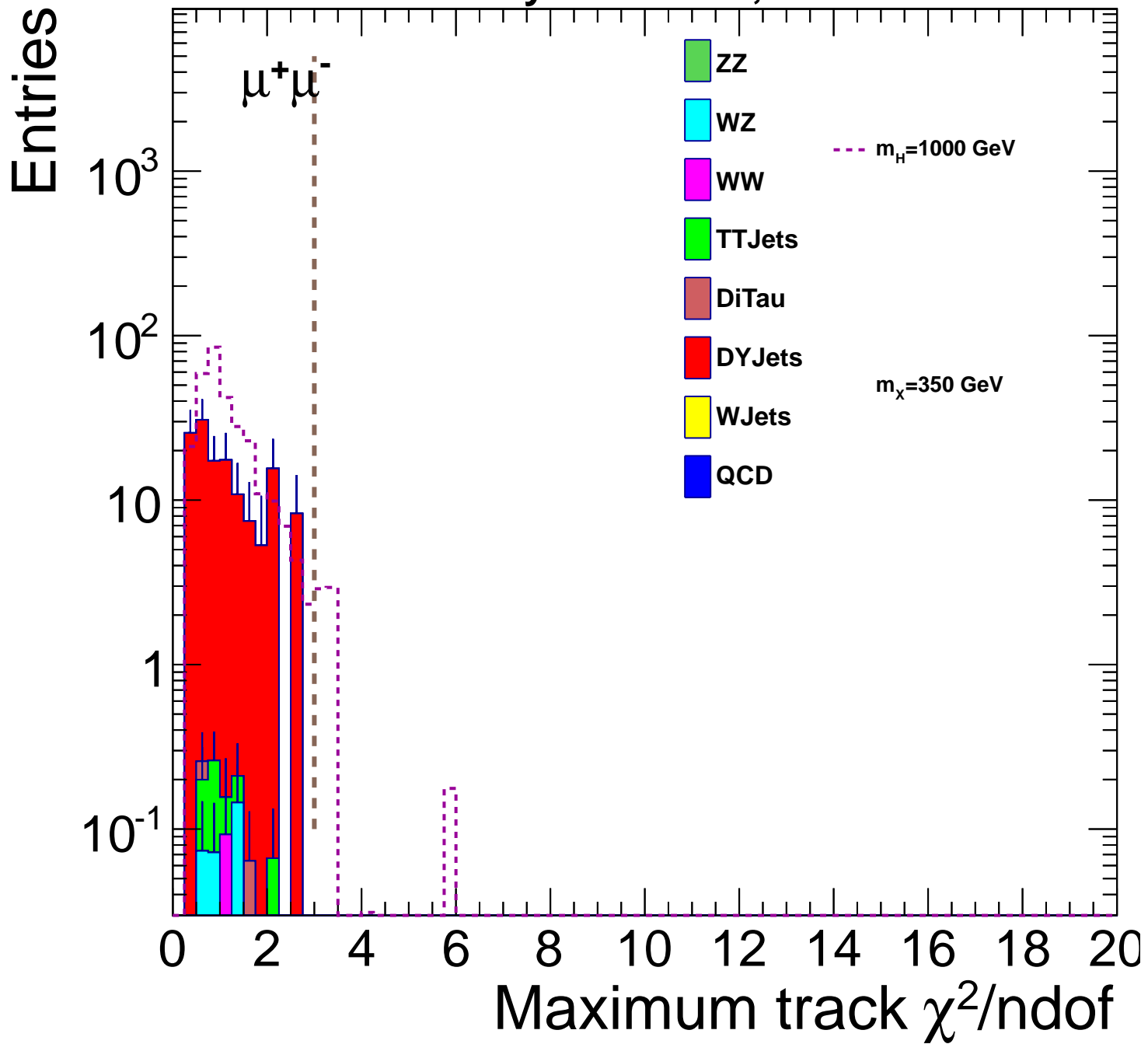
Entries



CMS Preliminary $\sqrt{s} = 8$ TeV, $L = 20.5\text{fb}^{-1}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

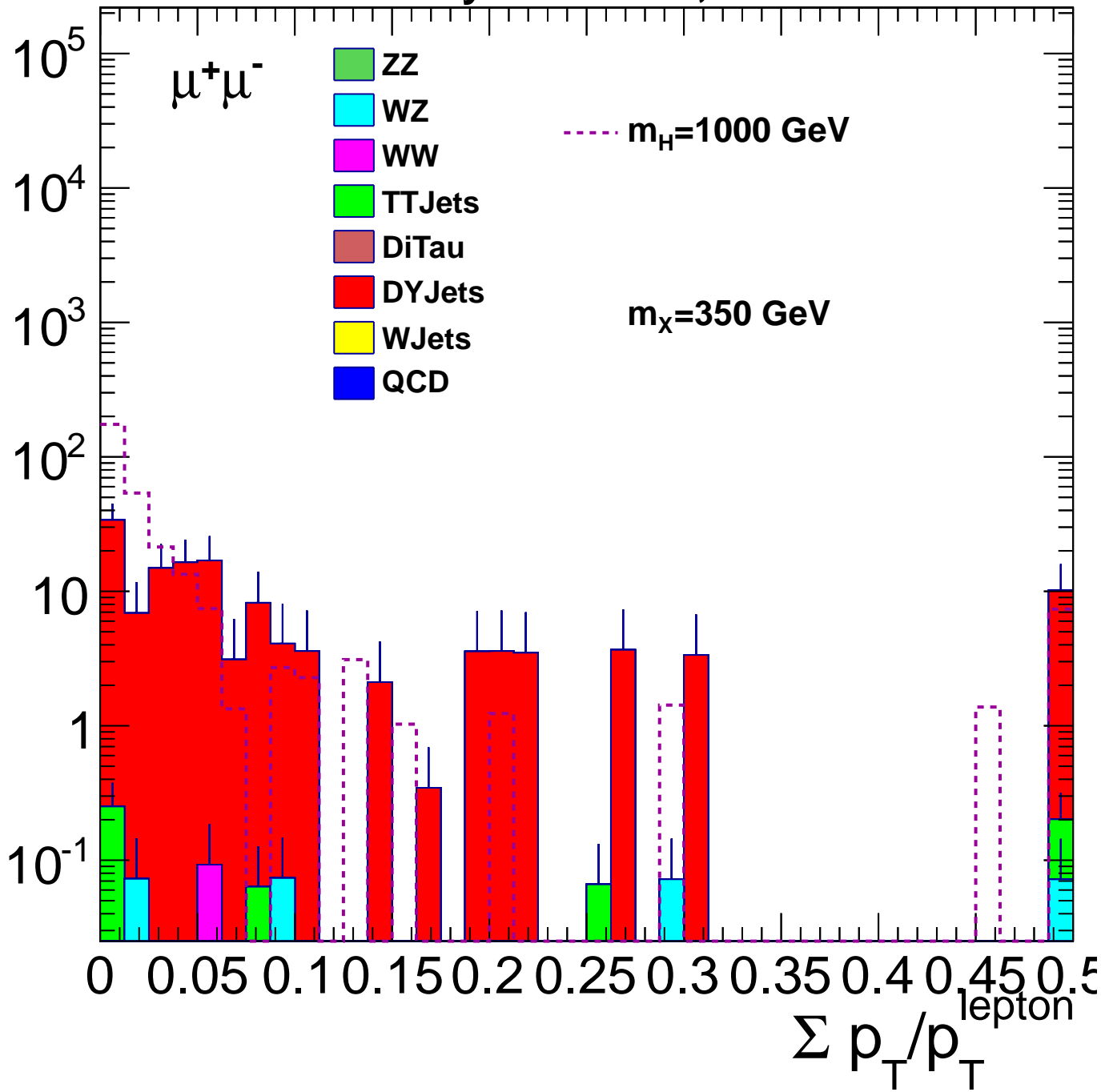
Entries

$\mu^+\mu^-$

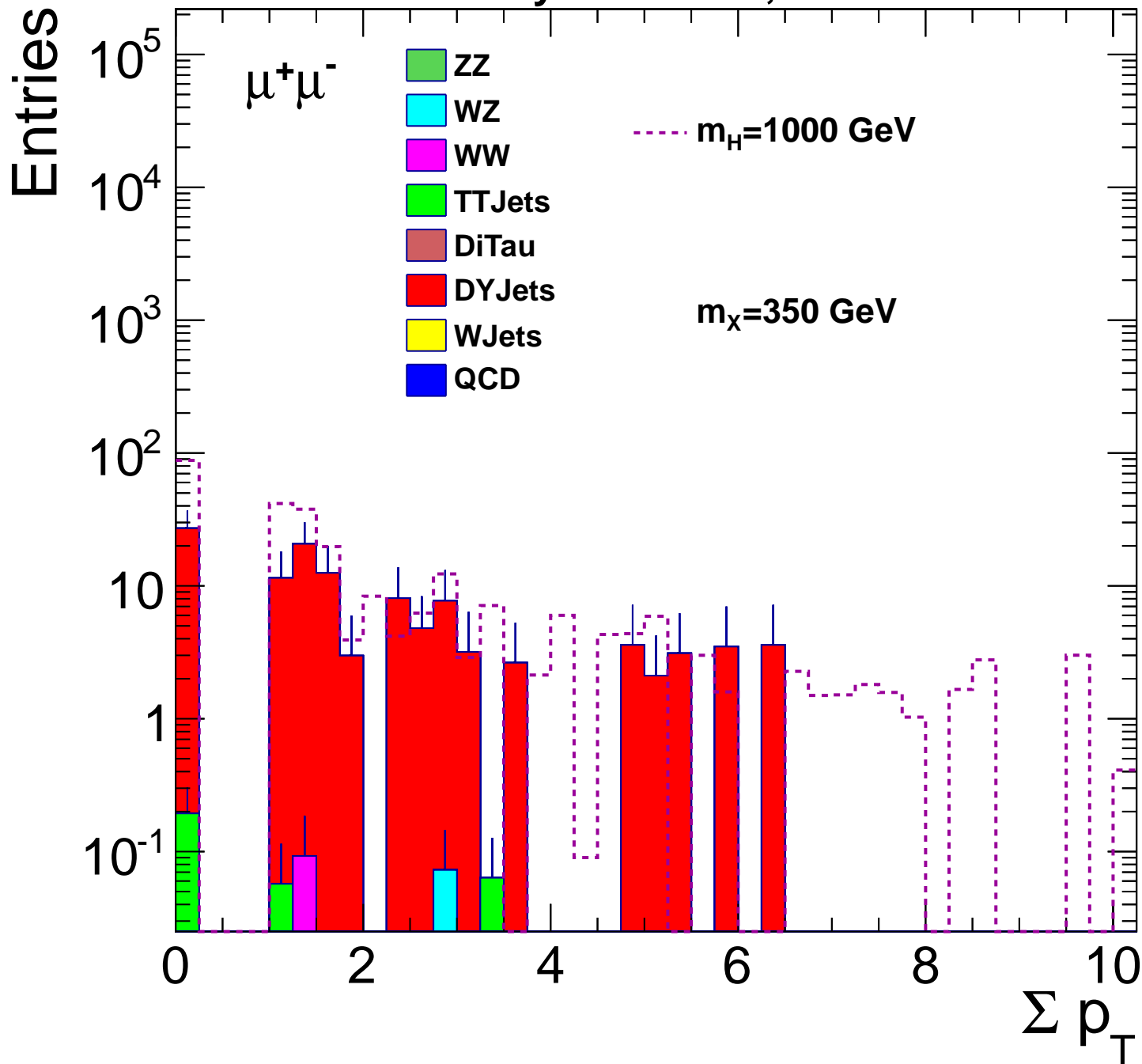
- ZZ
- WZ
- WW
- TTJets
- DiTau
- DYJets
- WJets
- QCD

$m_H = 1000 \text{ GeV}$

$m_\chi = 350 \text{ GeV}$



CMS Preliminary $\sqrt{s} = 8$ TeV, $L = 20.5\text{fb}^{-1}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

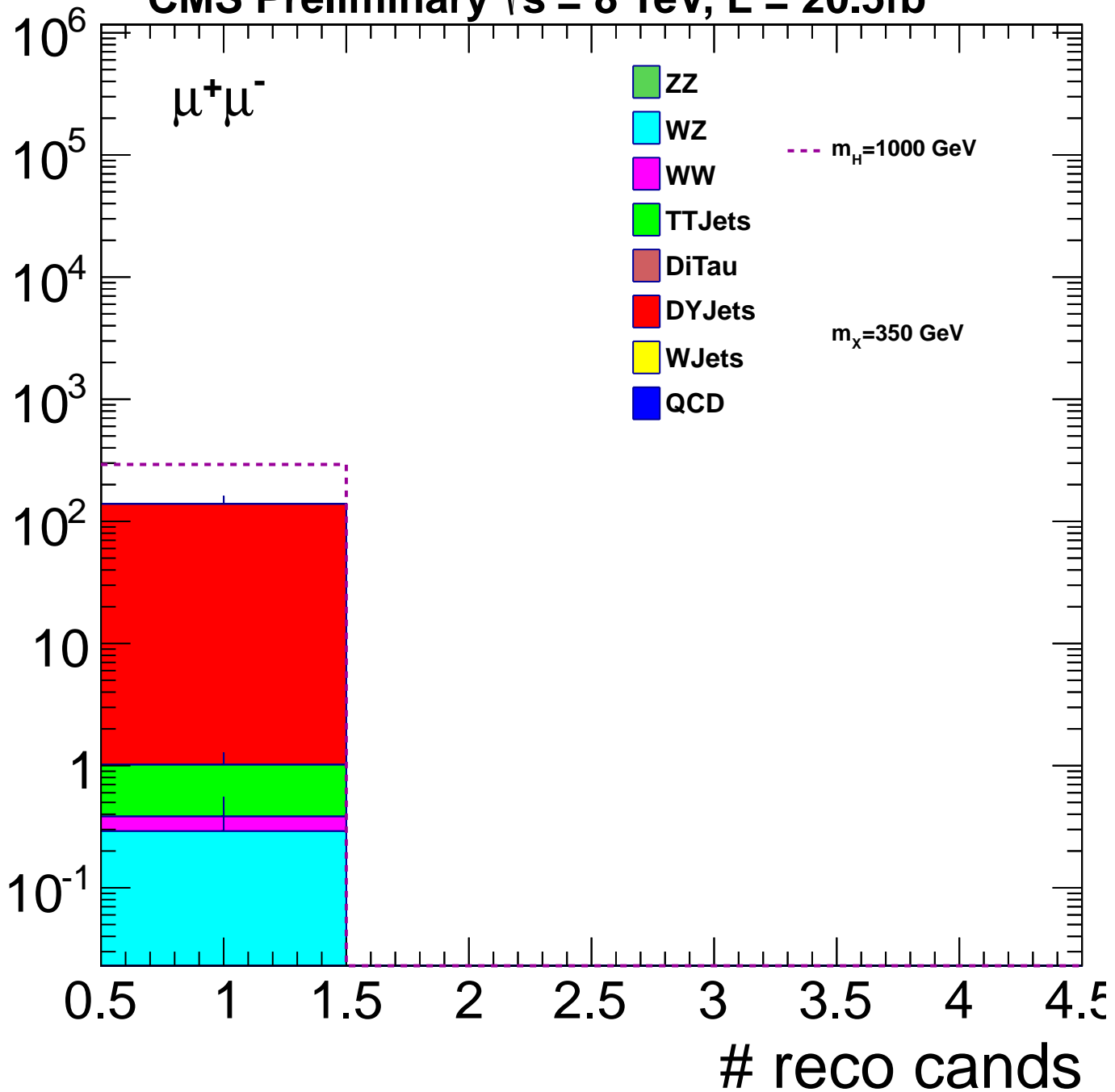
Entries

$\mu^+\mu^-$

ZZ
WZ
WW
TTJets
DiTau
DYJets
WJets
QCD

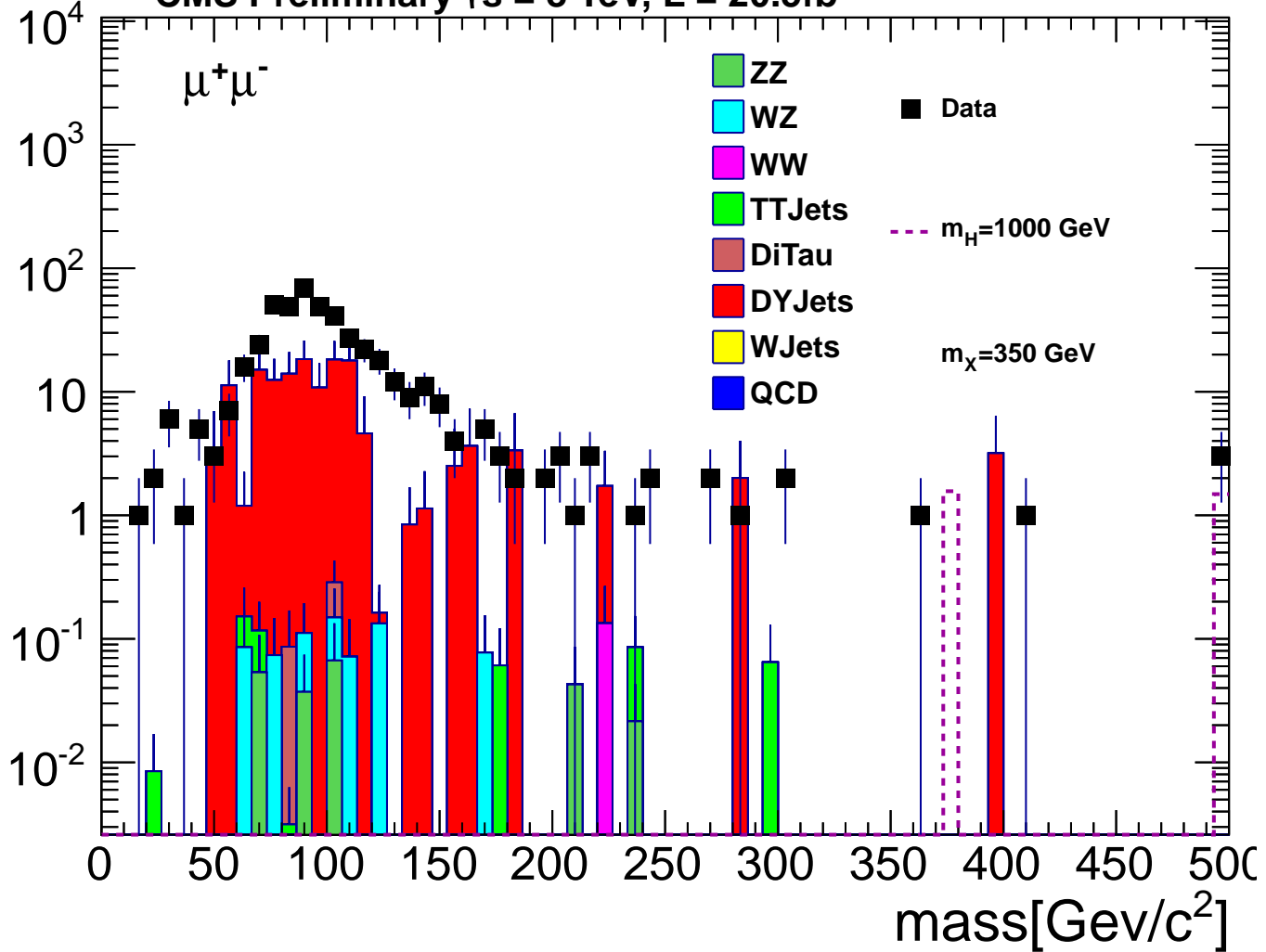
--- $m_H = 1000 \text{ GeV}$

$m_X = 350 \text{ GeV}$

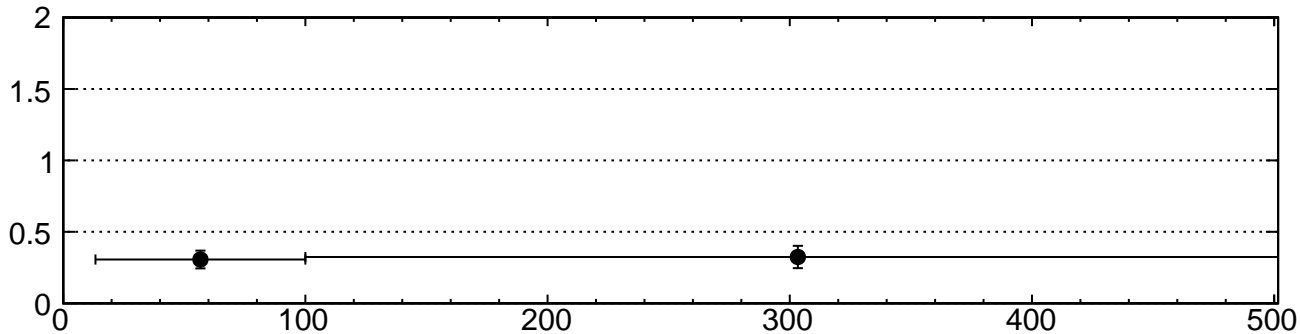


CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

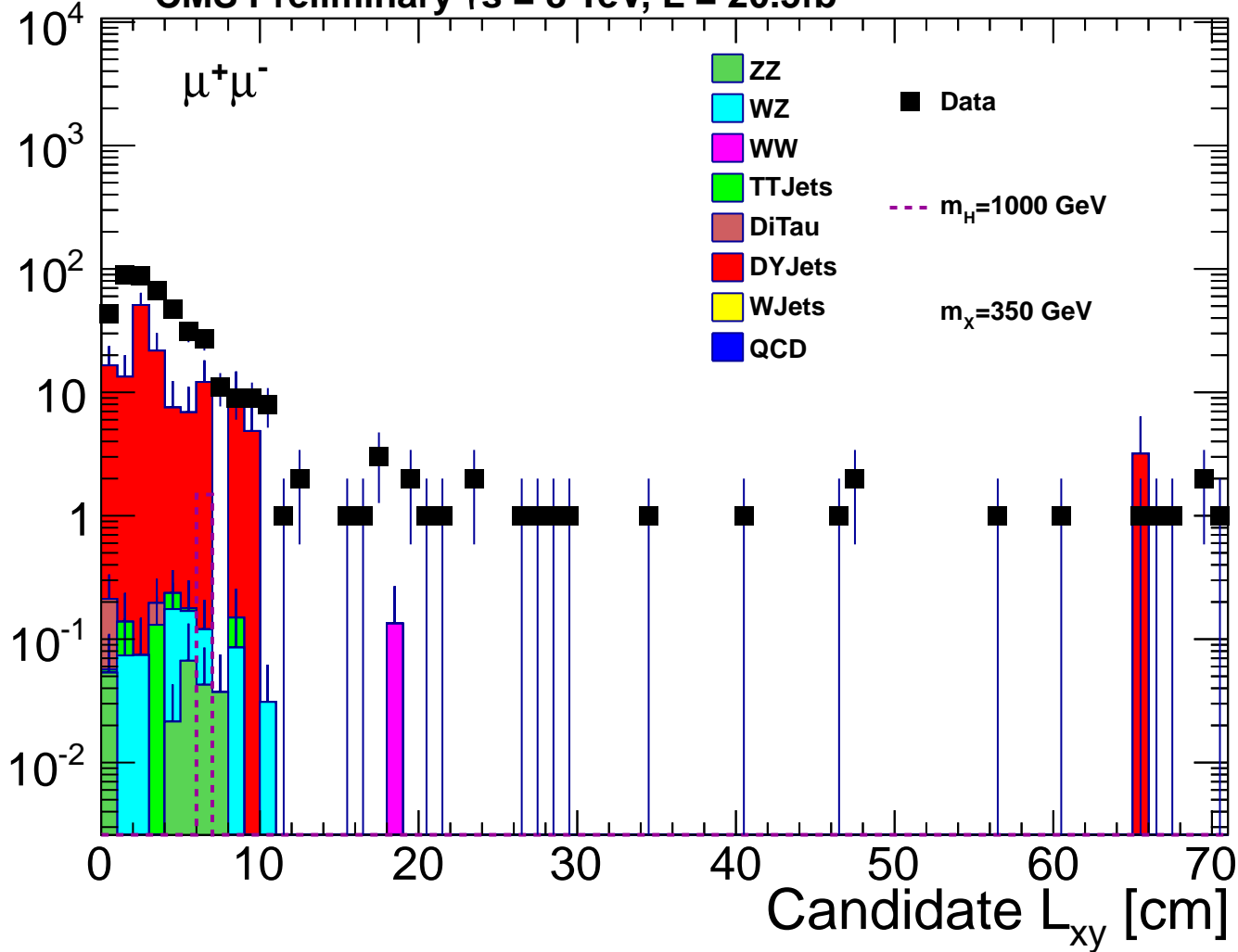


MC/Data

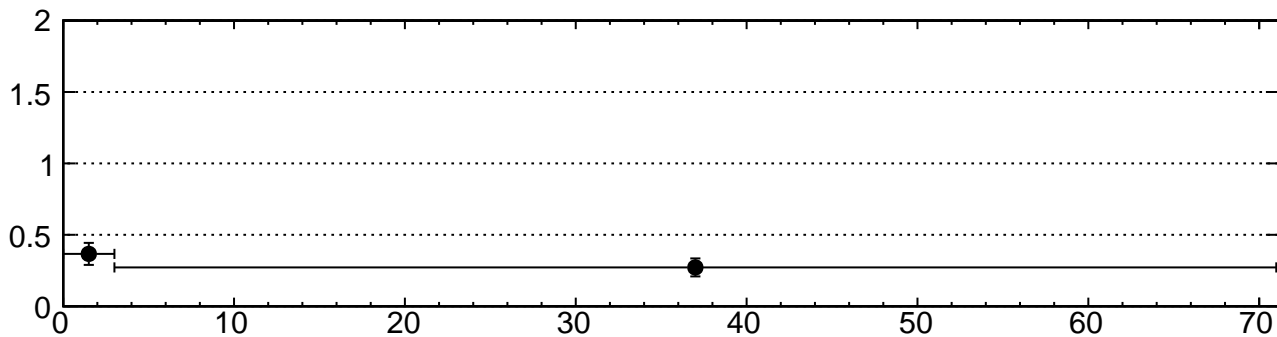


CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

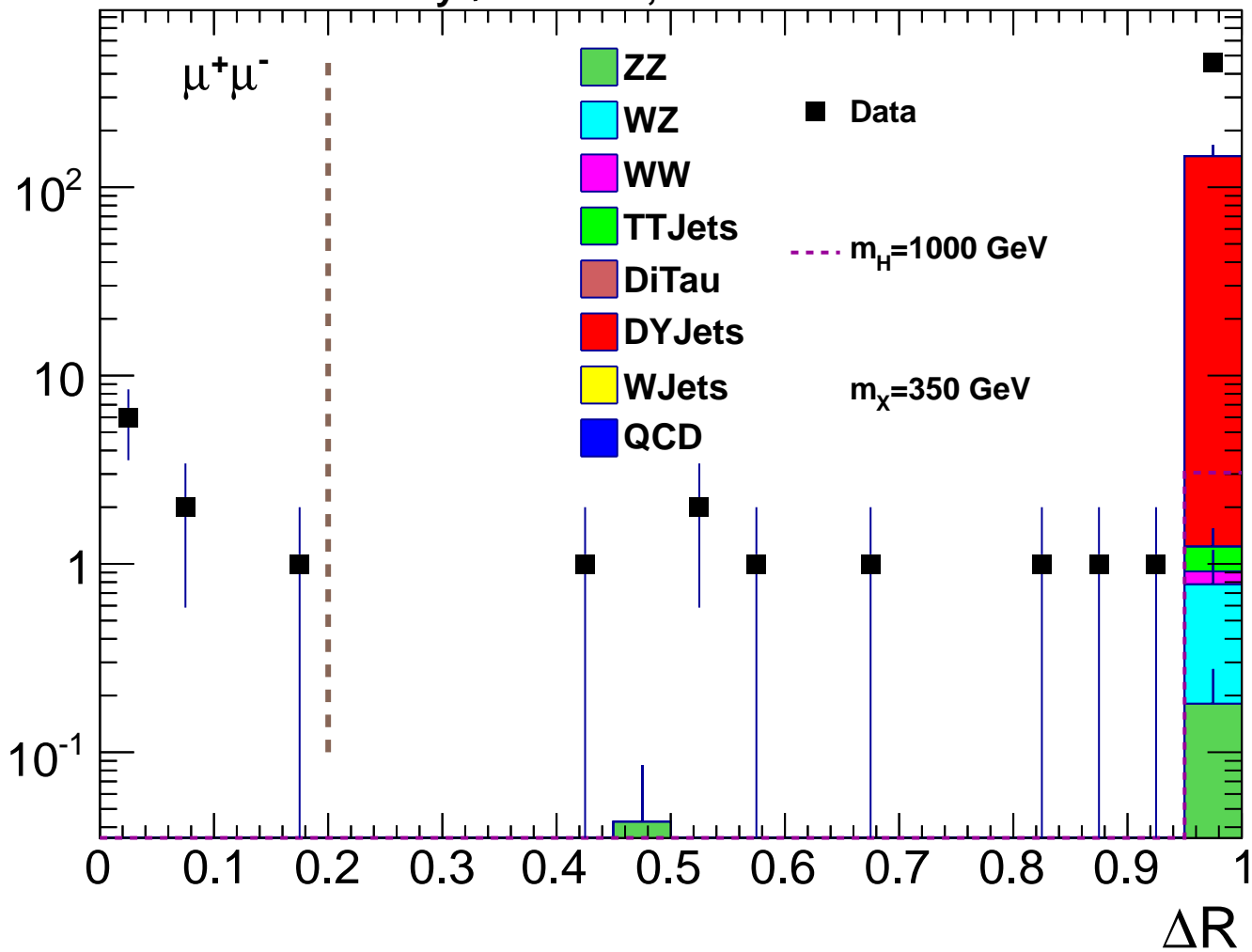


MC/Data

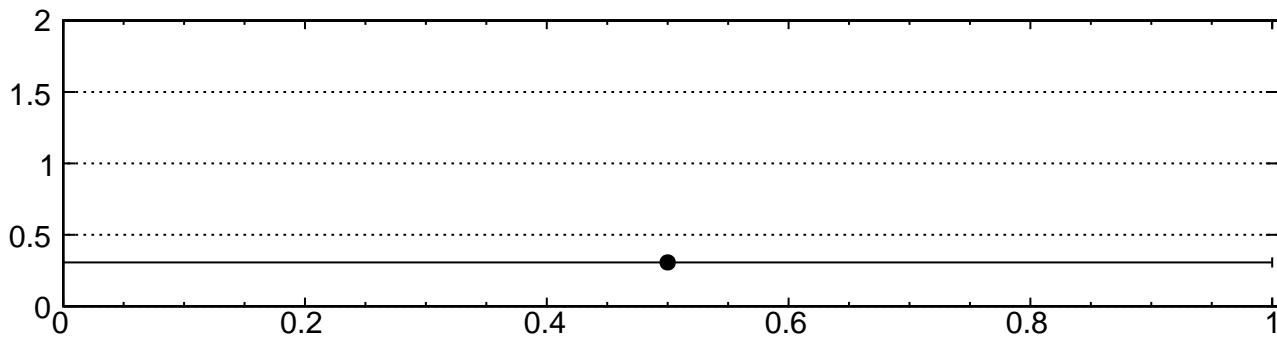


CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

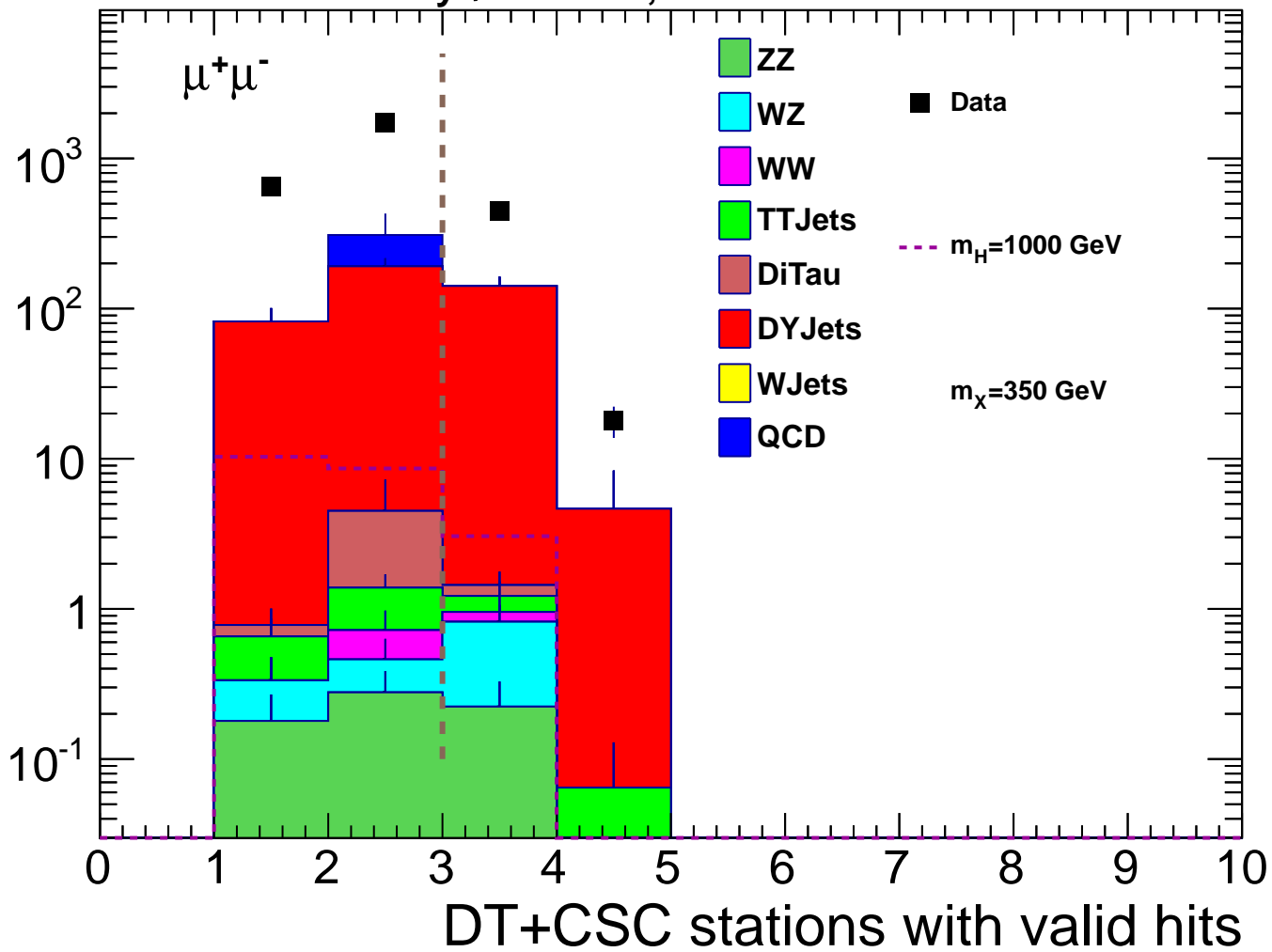


MC/Data

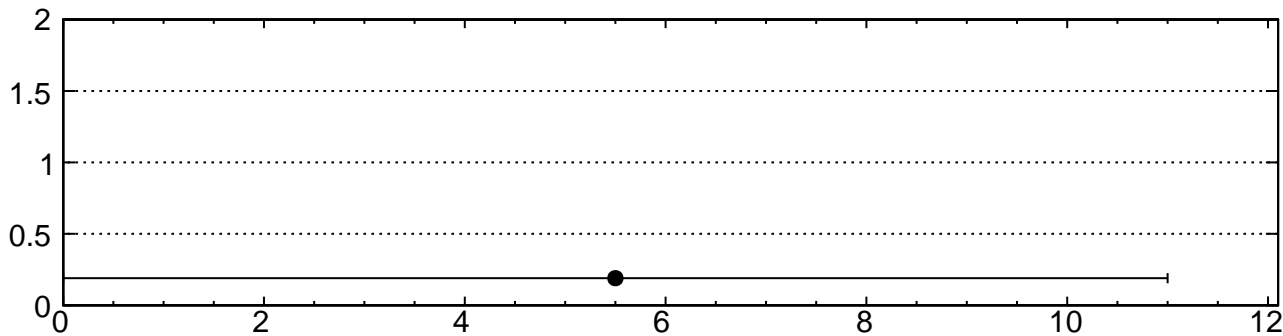


CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

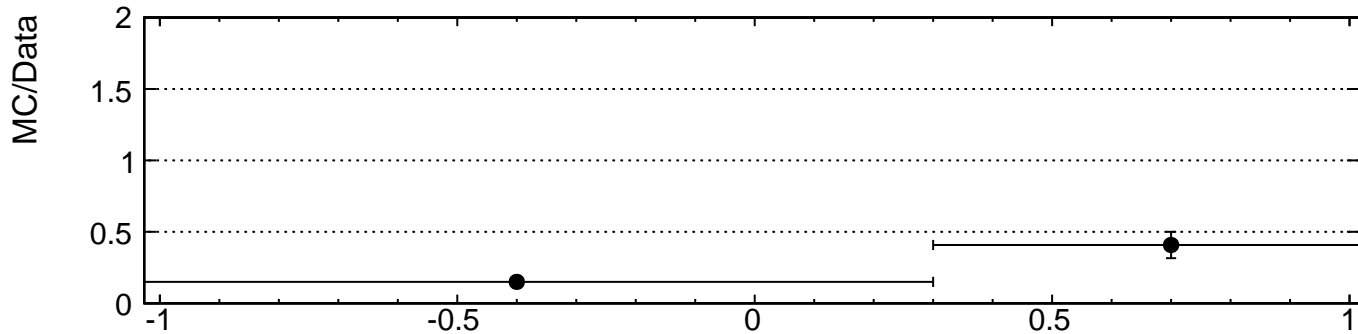
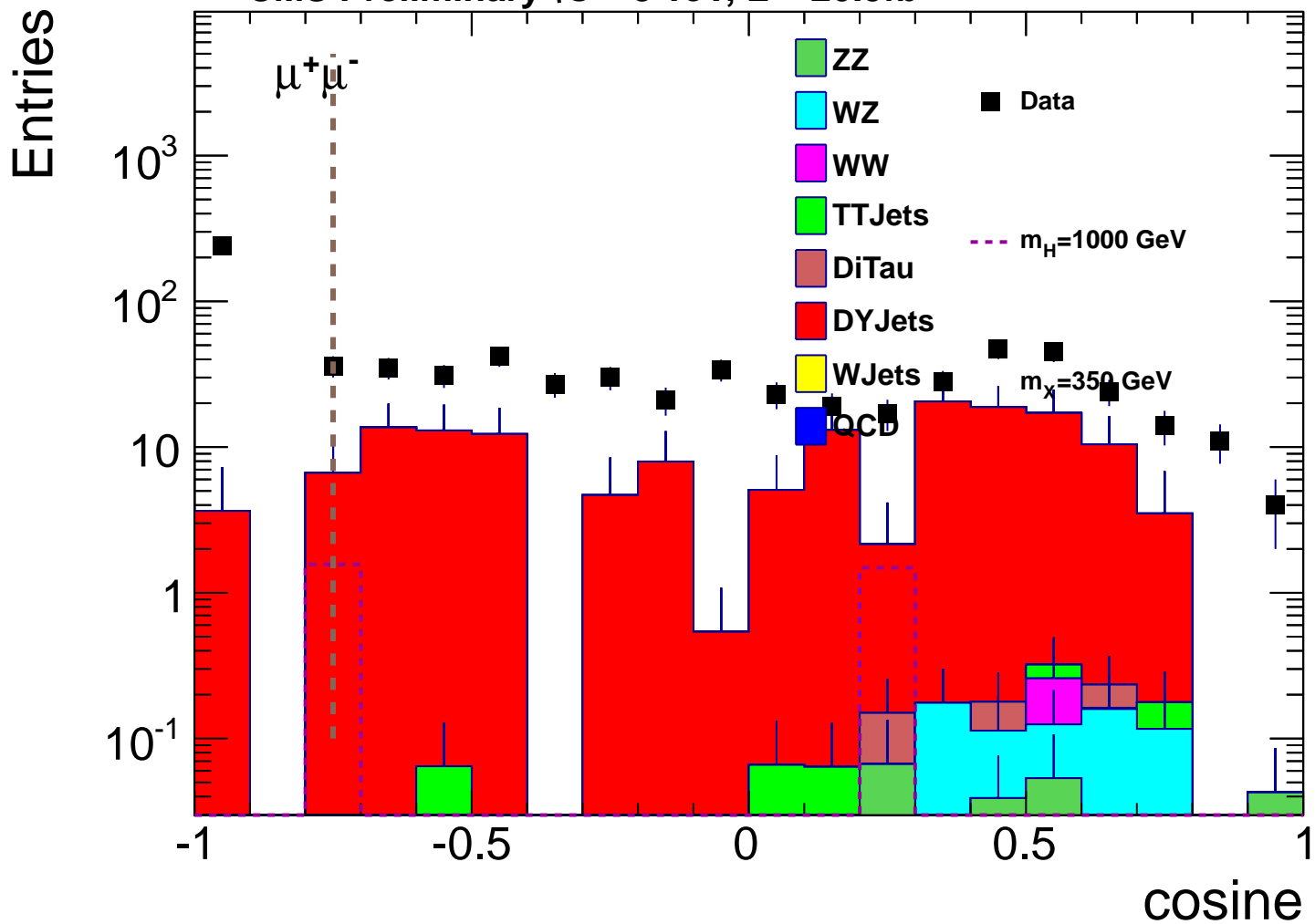
Entries



MC/Data

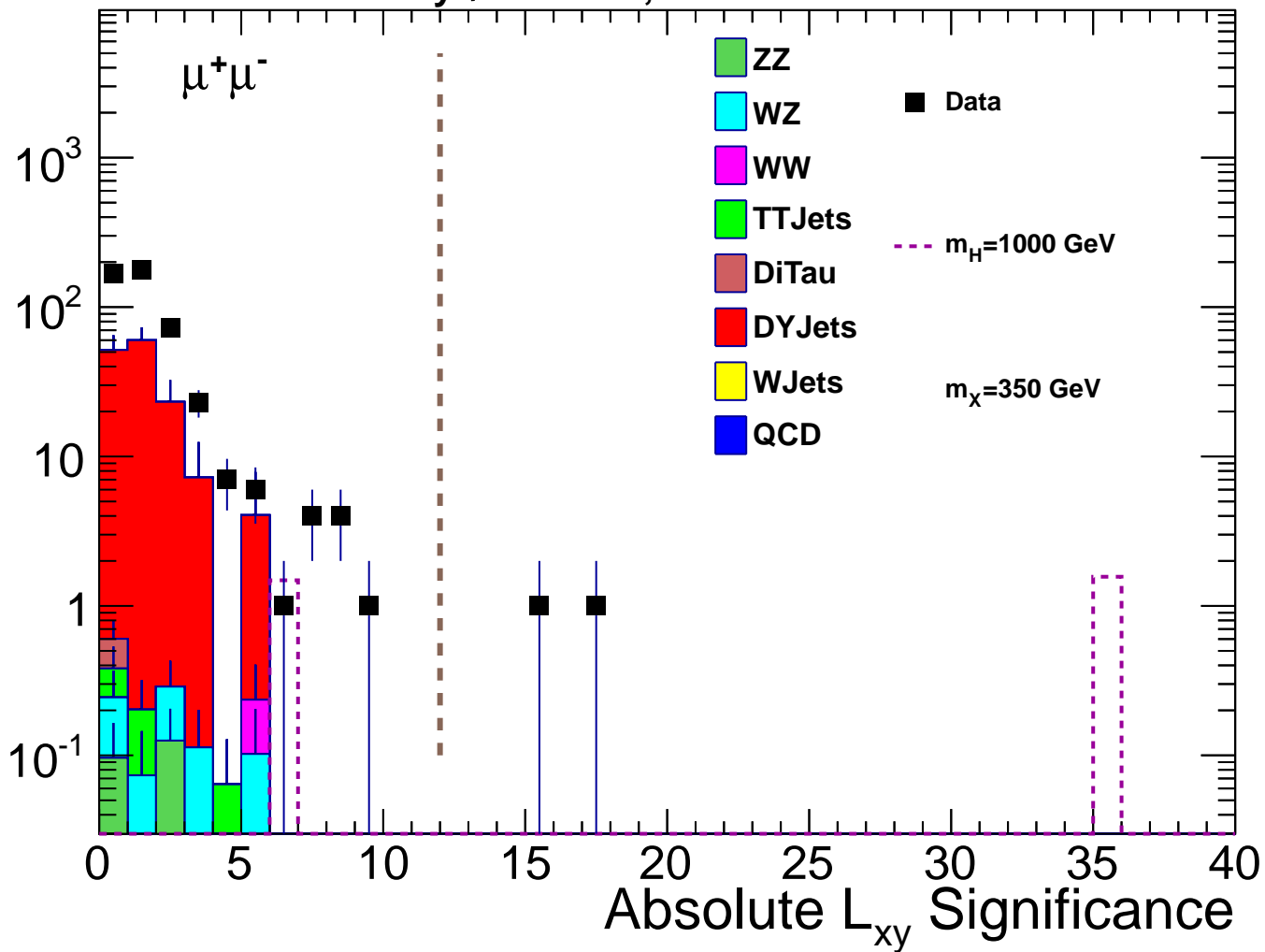


CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

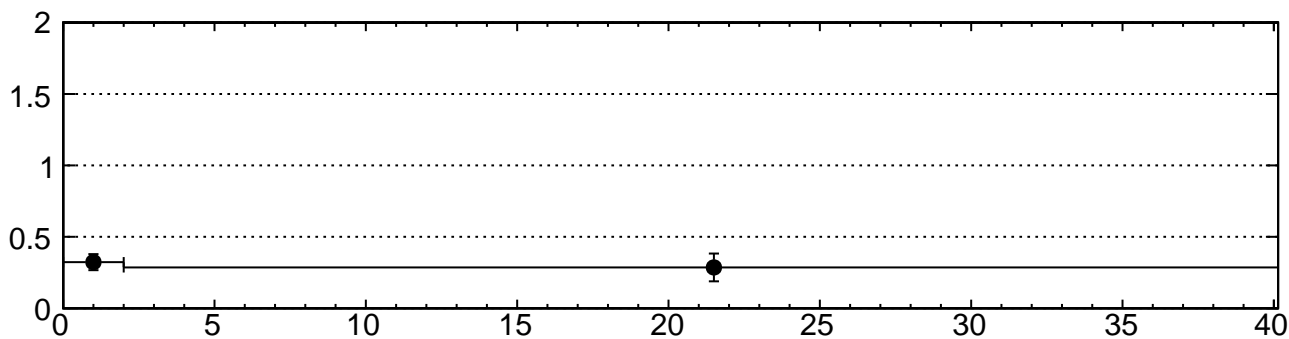


CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

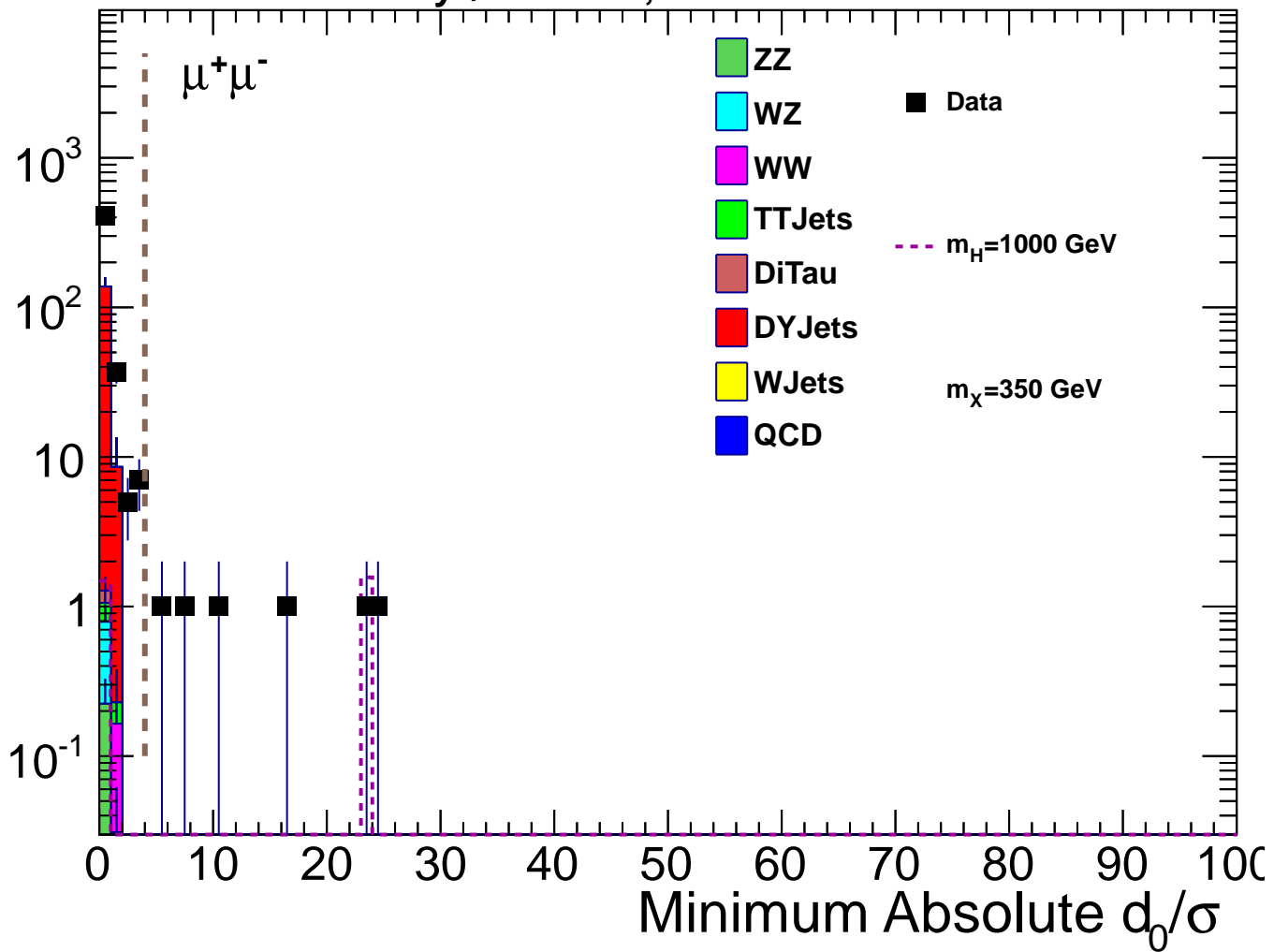


MC/Data

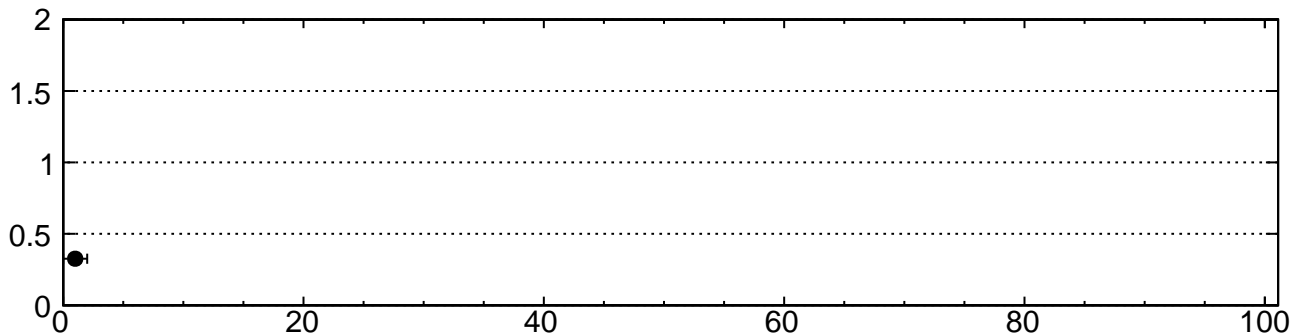


CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

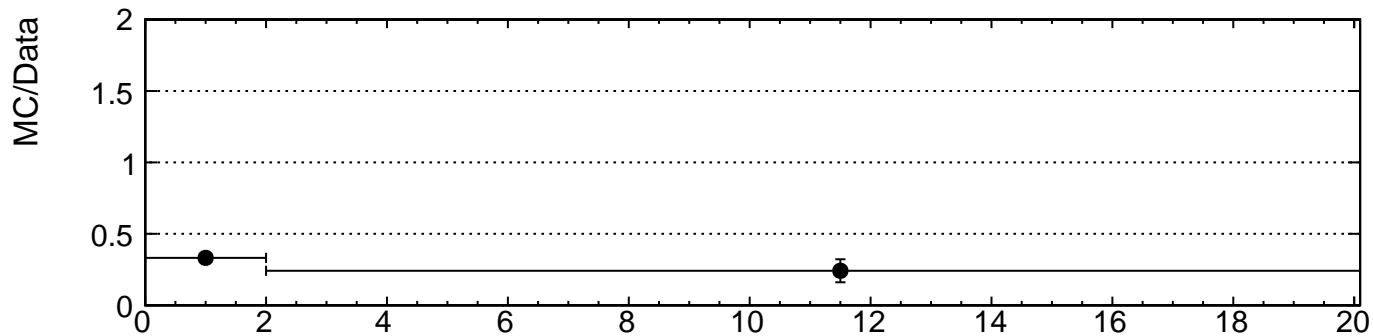
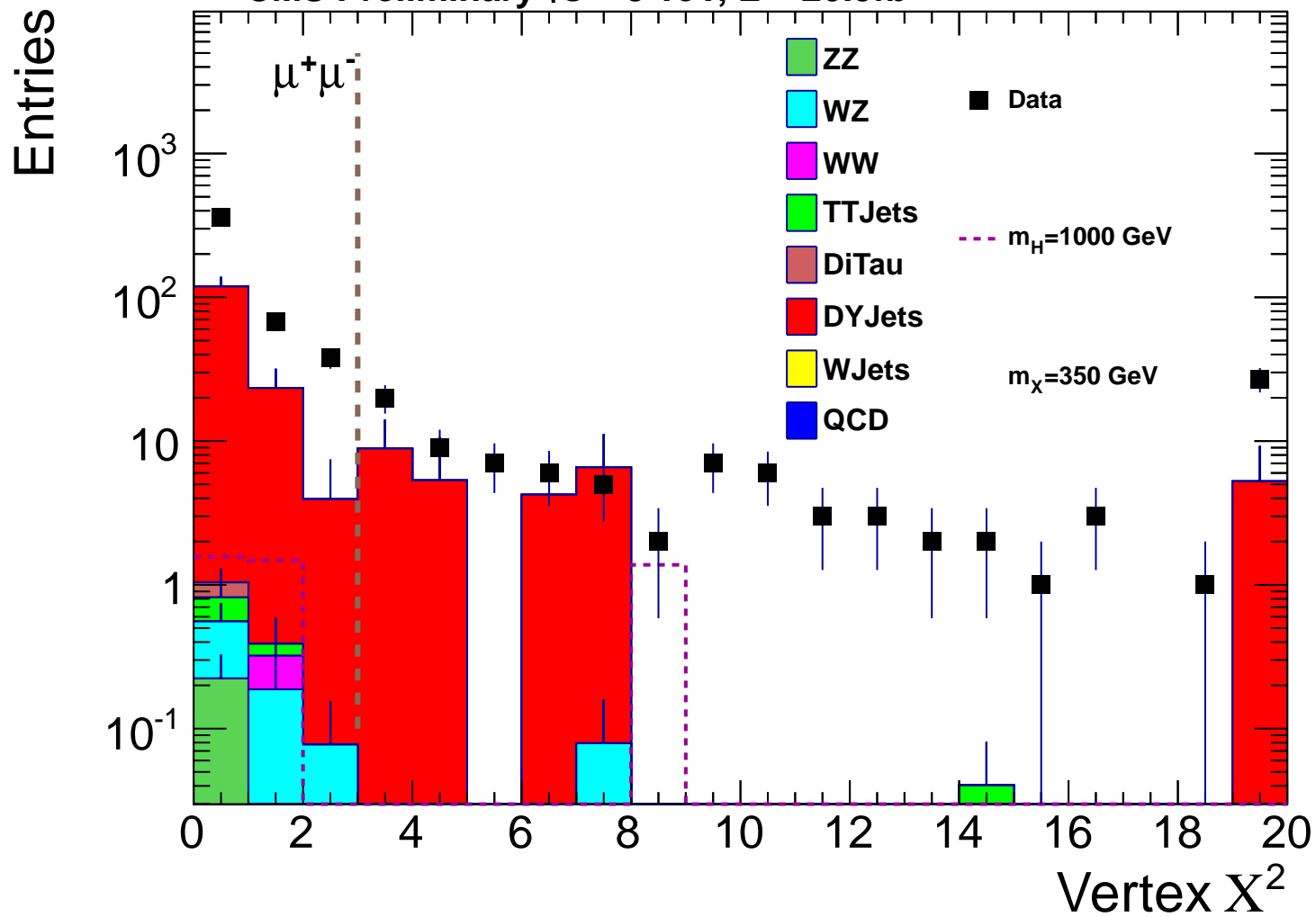
Entries



MC/Data

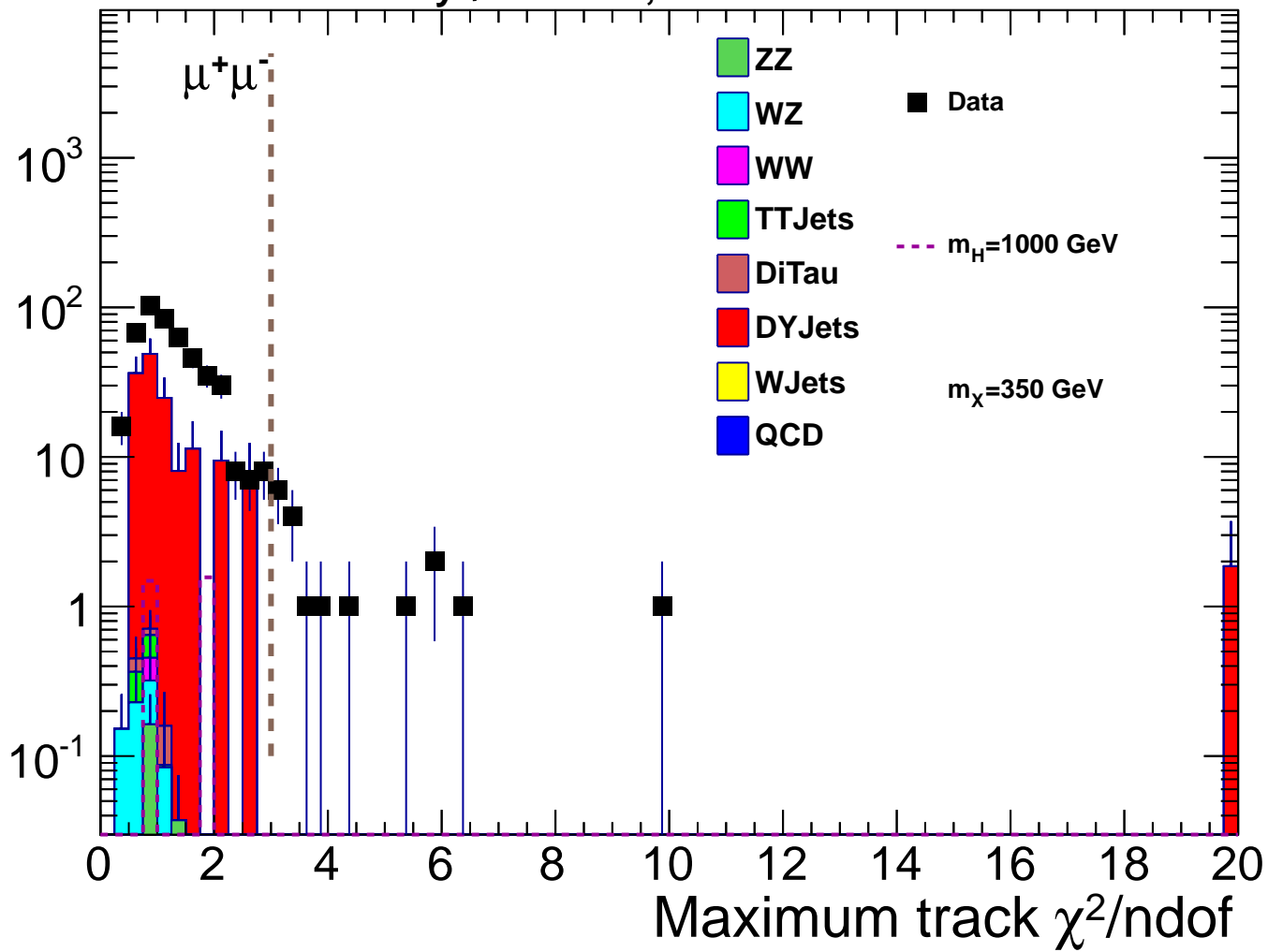


CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

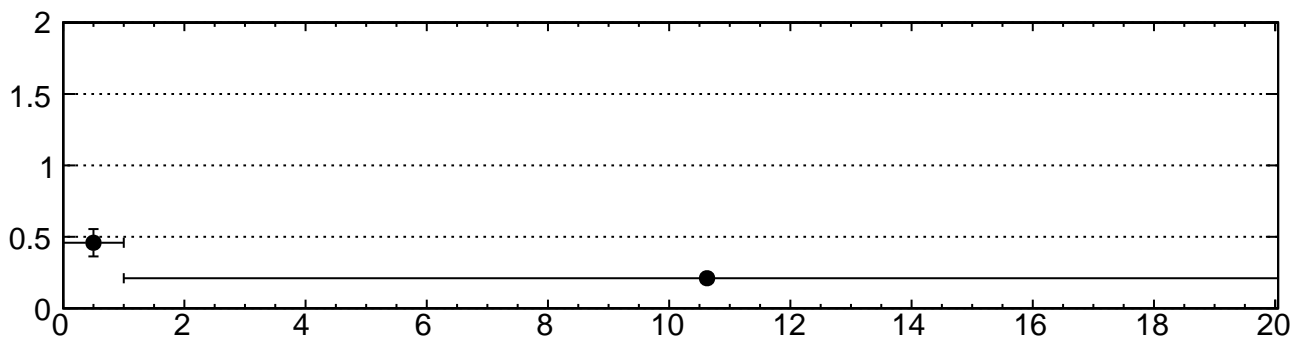


CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

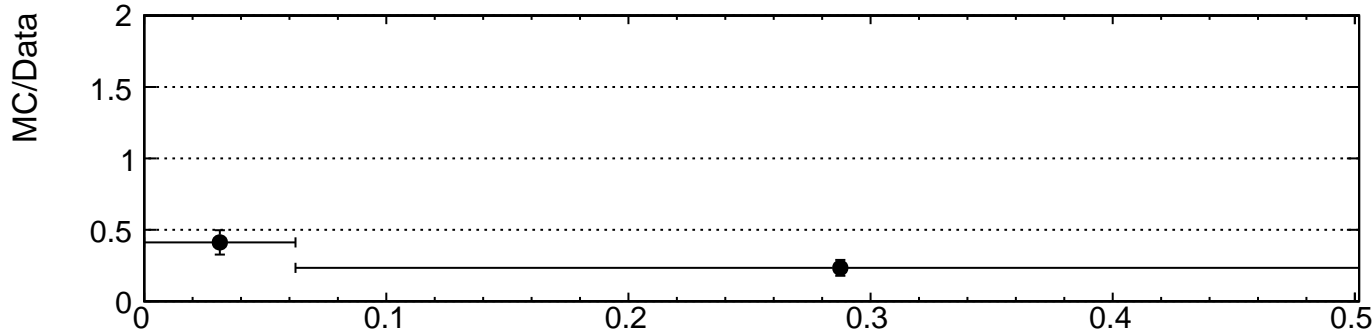
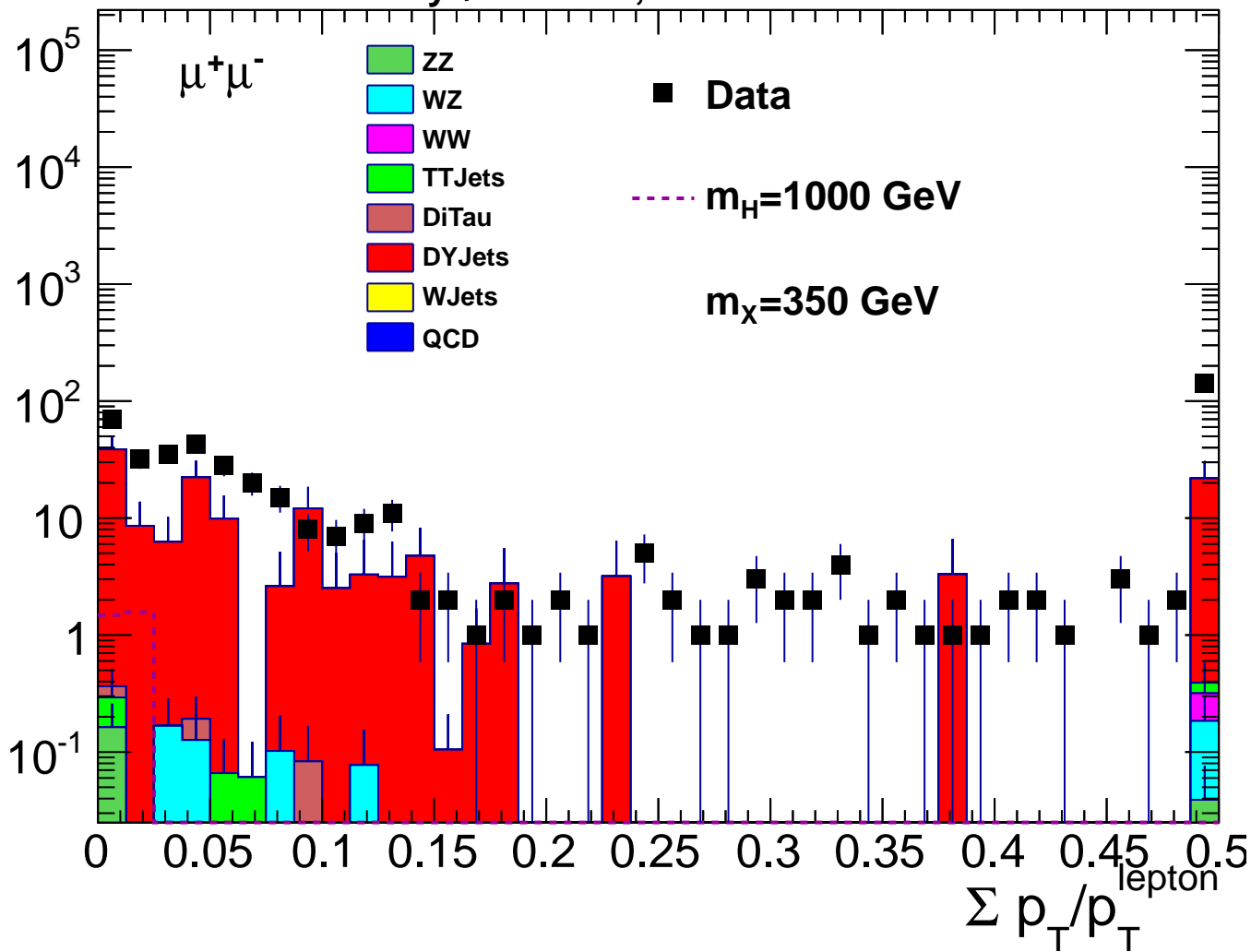


MC/Data



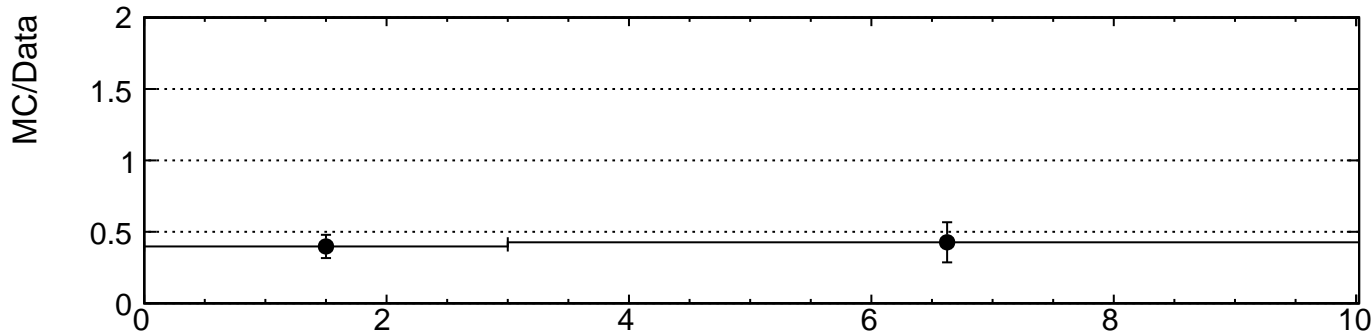
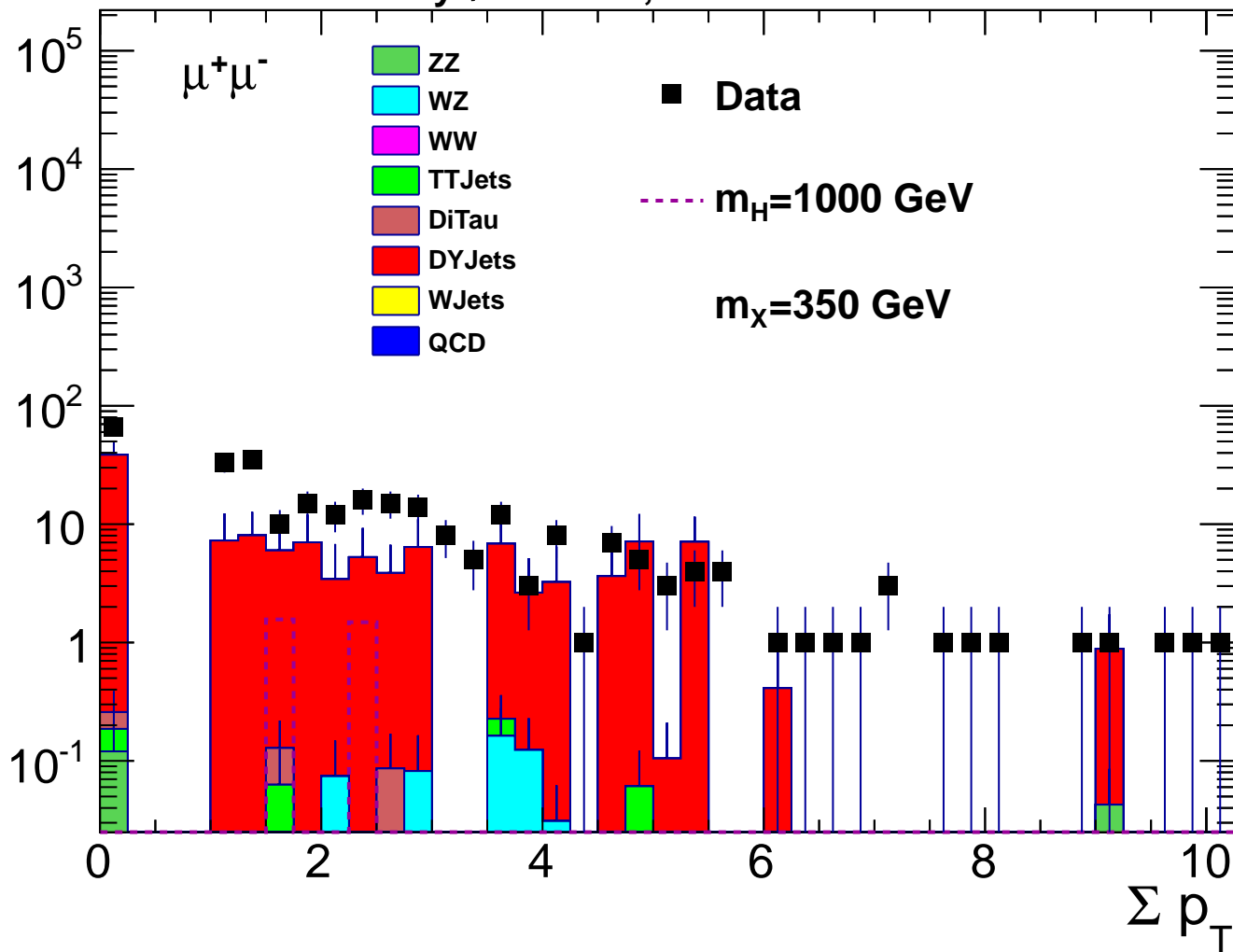
CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries



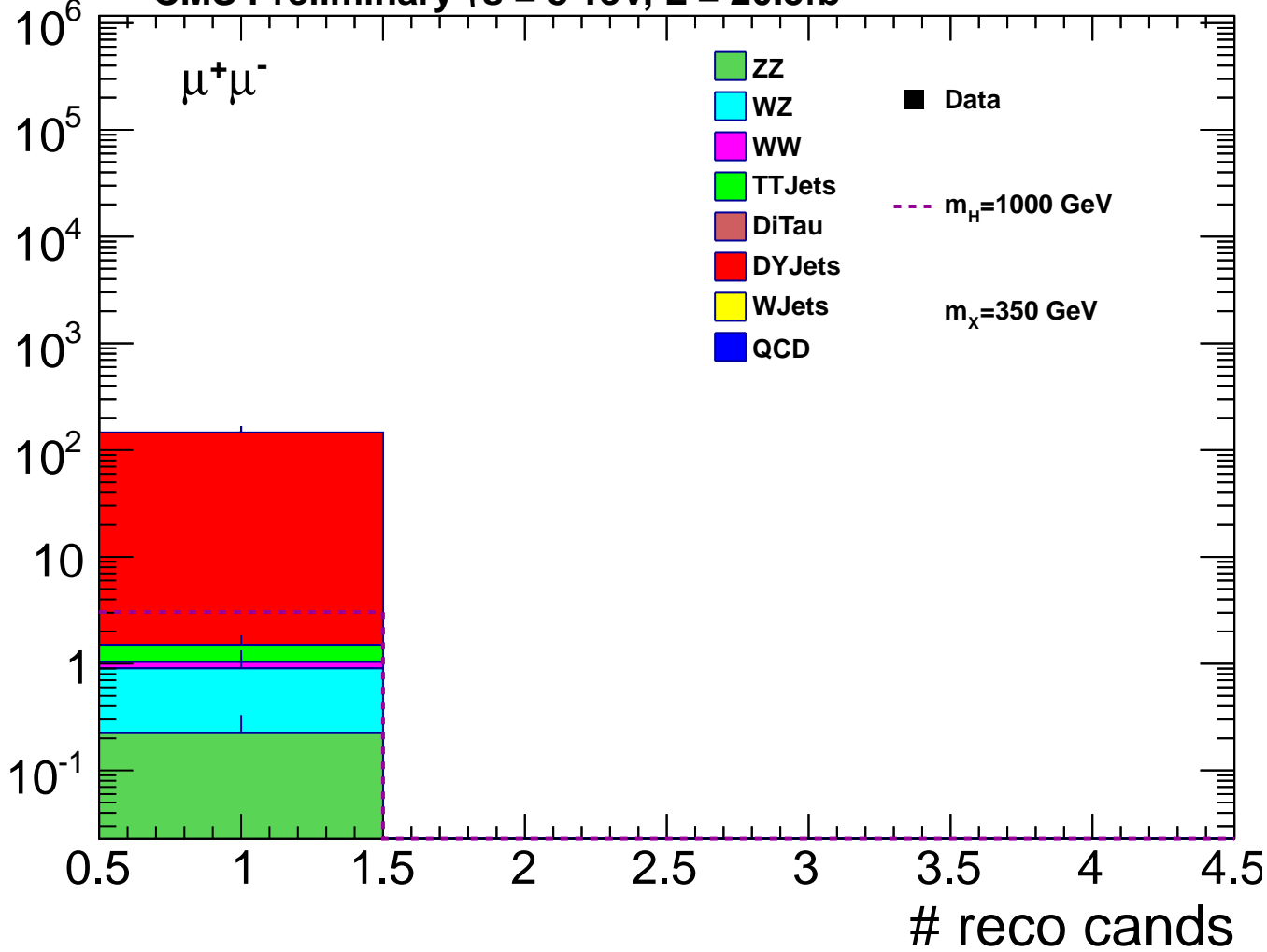
CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

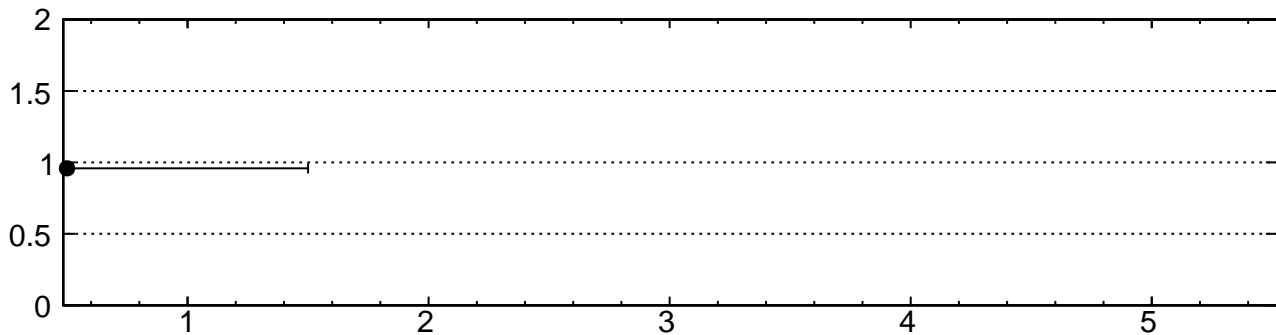


CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries



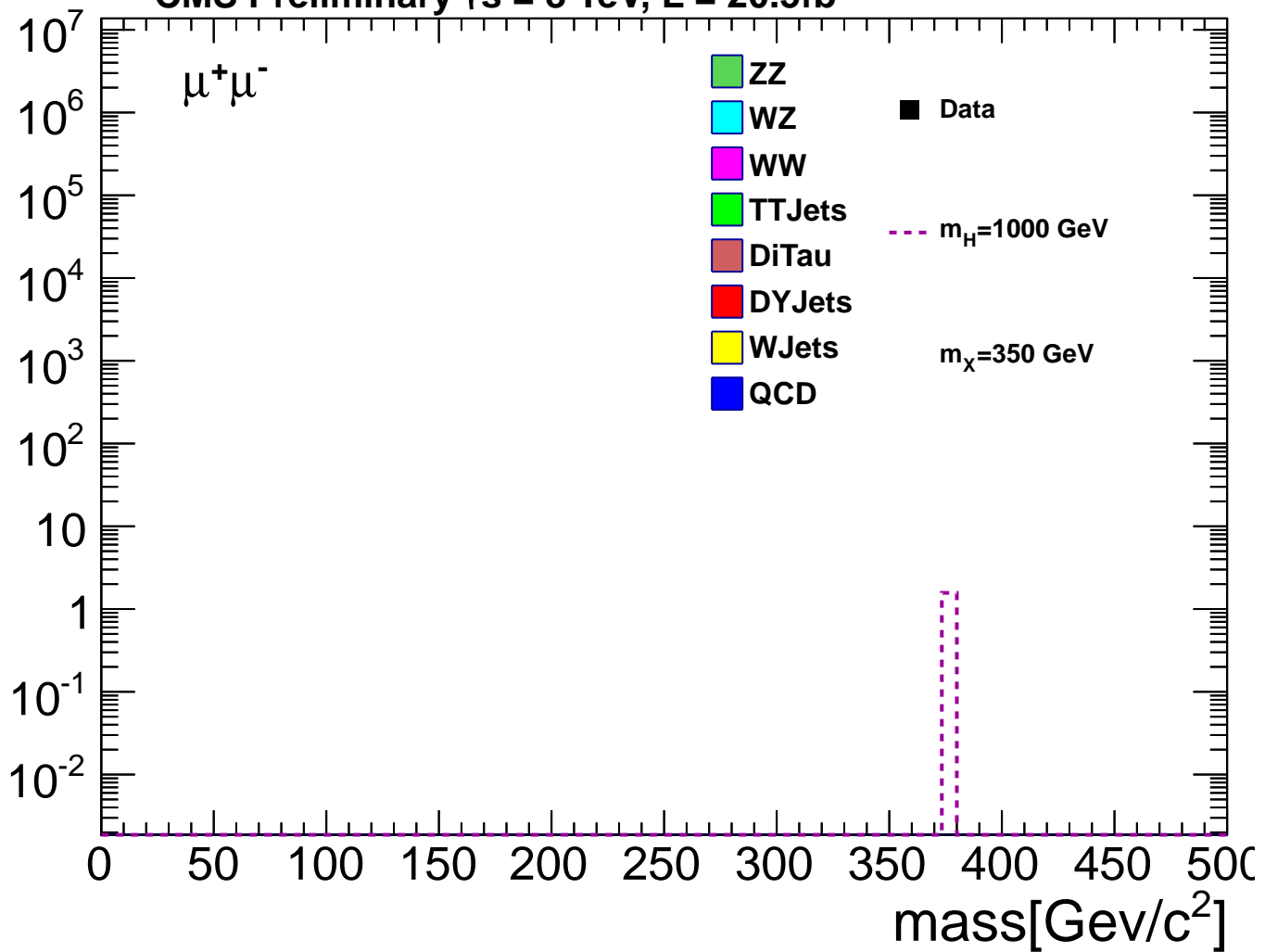
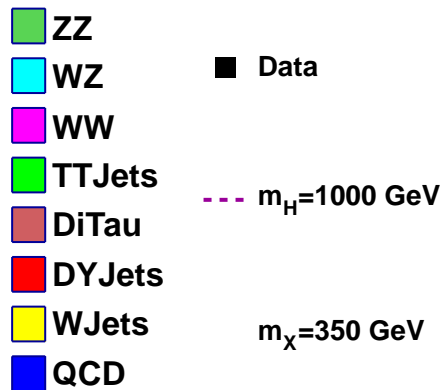
MC/Data



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

$\mu^+\mu^-$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

$\mu^+\mu^-$

ZZ

WZ

WW

TTJets

DiTau

DYJets

WJets

QCD

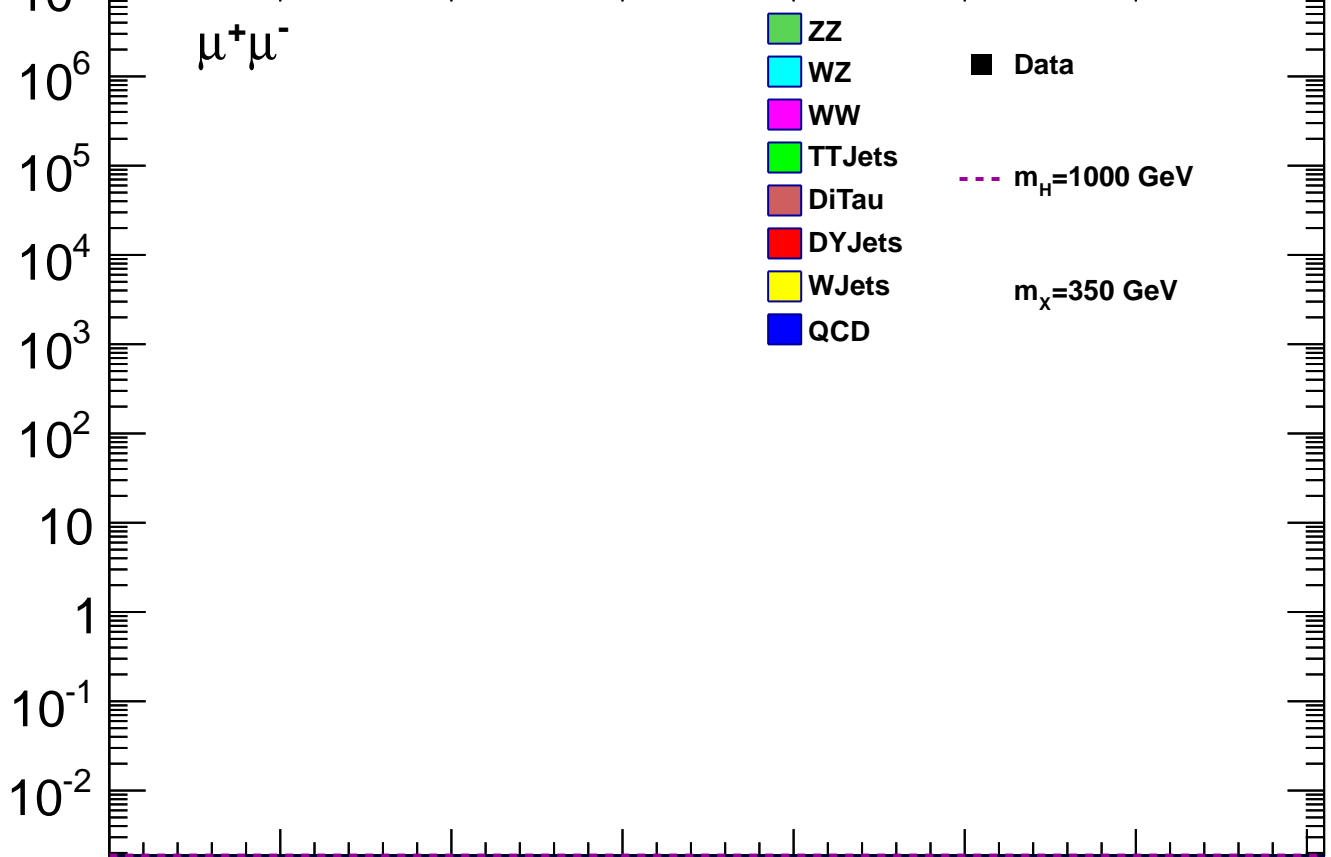
■ Data

--- $m_H = 1000 \text{ GeV}$

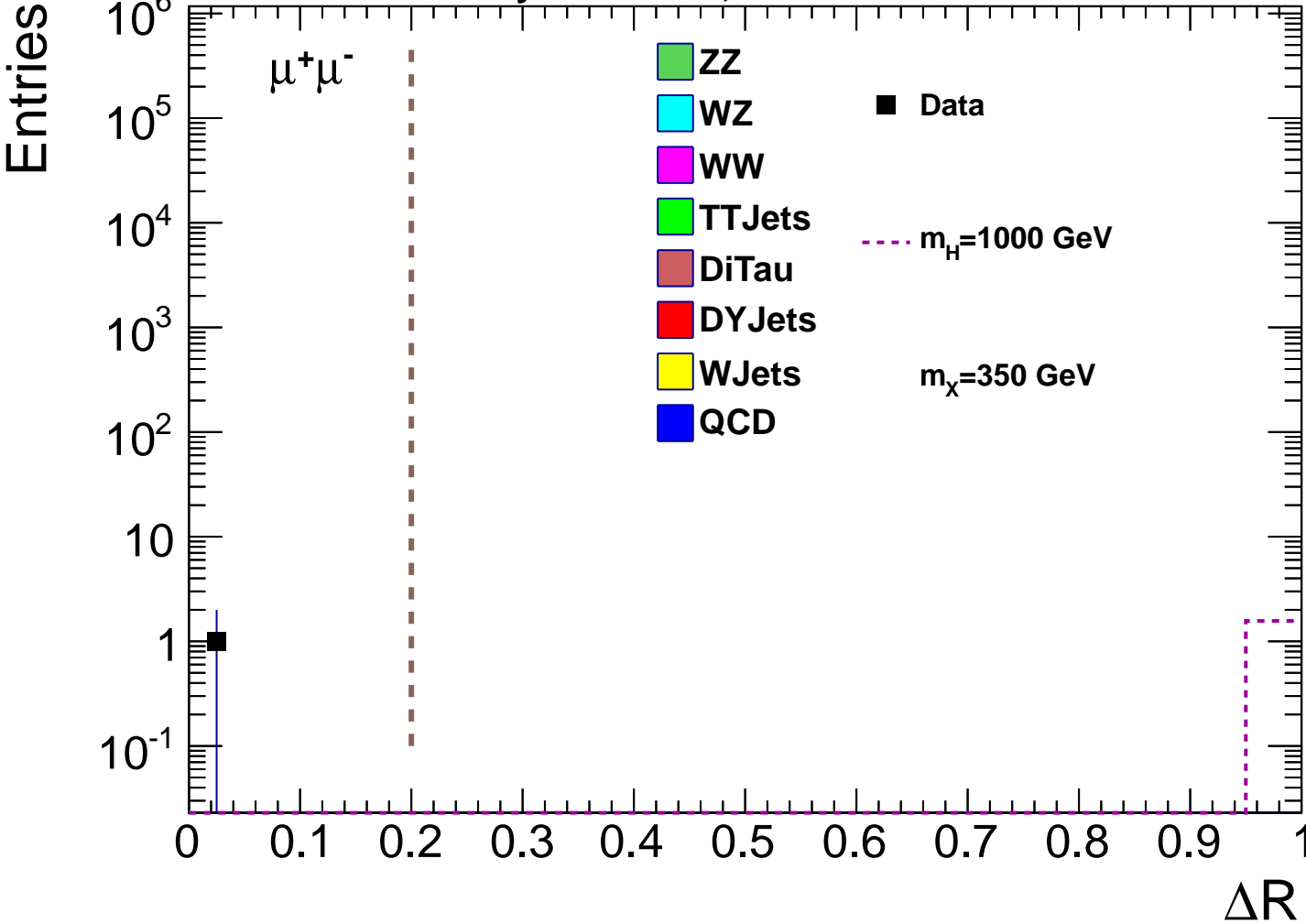
$m_\chi = 350 \text{ GeV}$

10^7
 10^6
 10^5
 10^4
 10^3
 10^2
 10
 1
 10^{-1}
 10^{-2}

0 10 20 30 40 50 60 70
Candidate $L_{xy} [\text{cm}]$

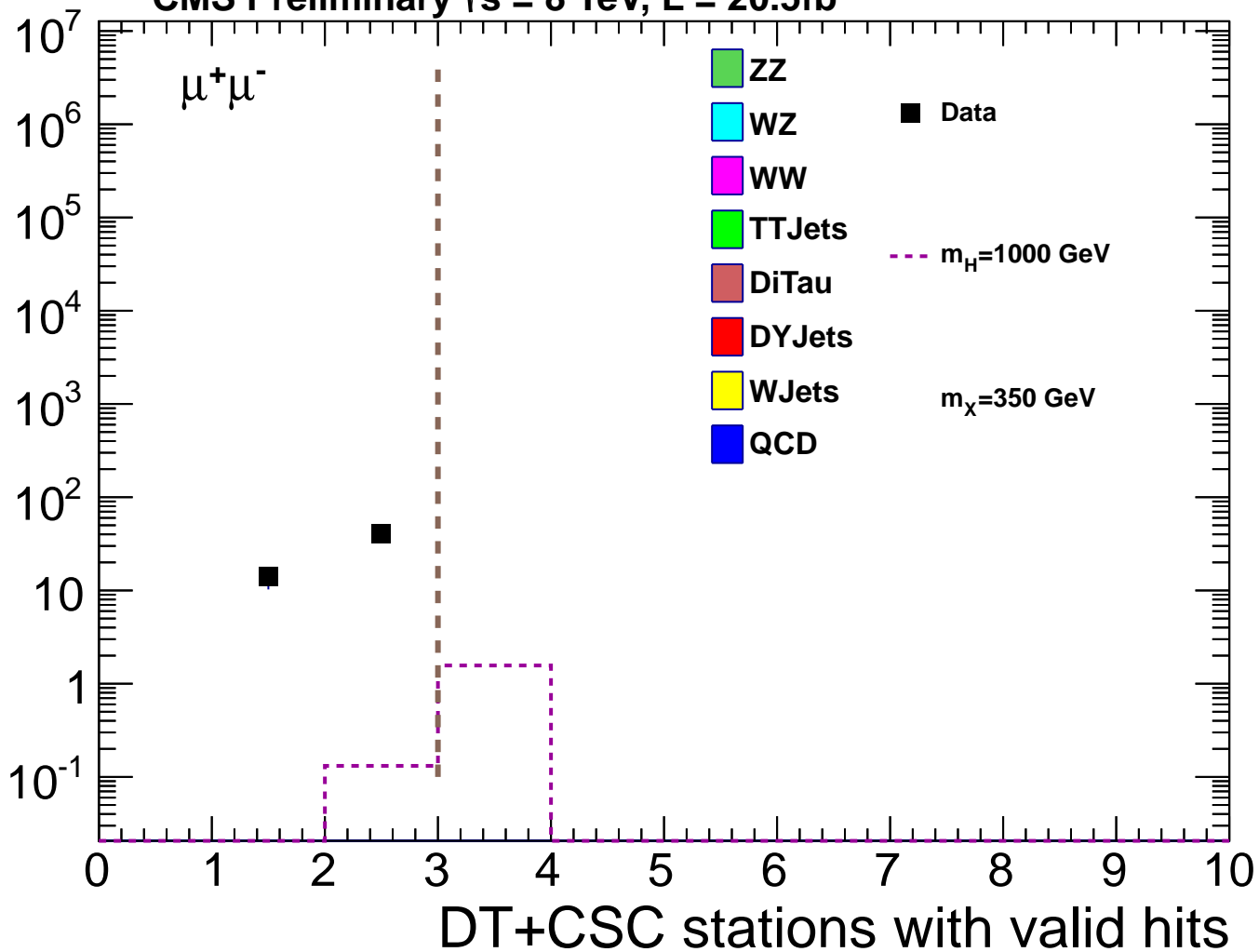


CMS Preliminary $\sqrt{s} = 8$ TeV, $L = 20.5\text{fb}^{-1}$

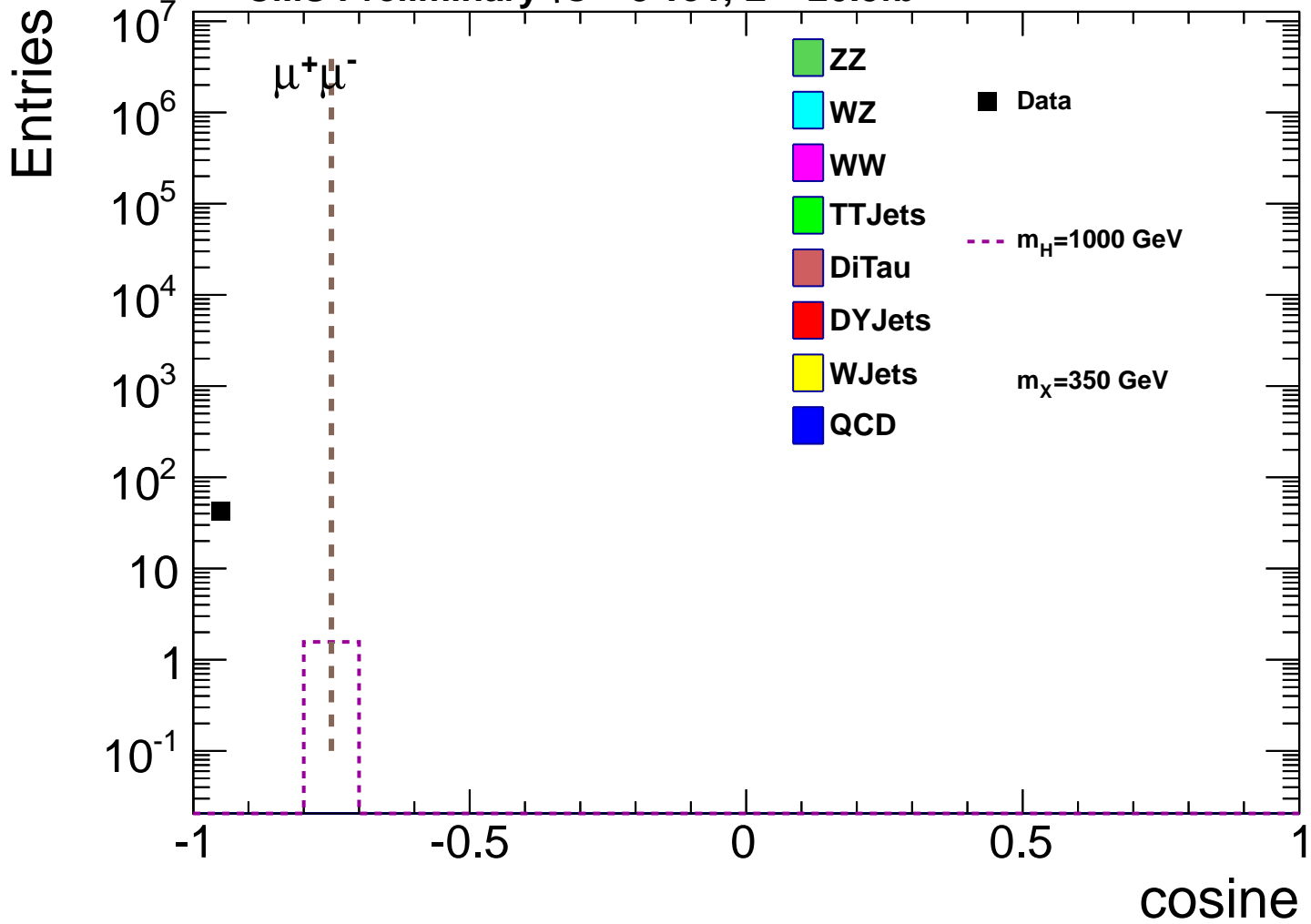


CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

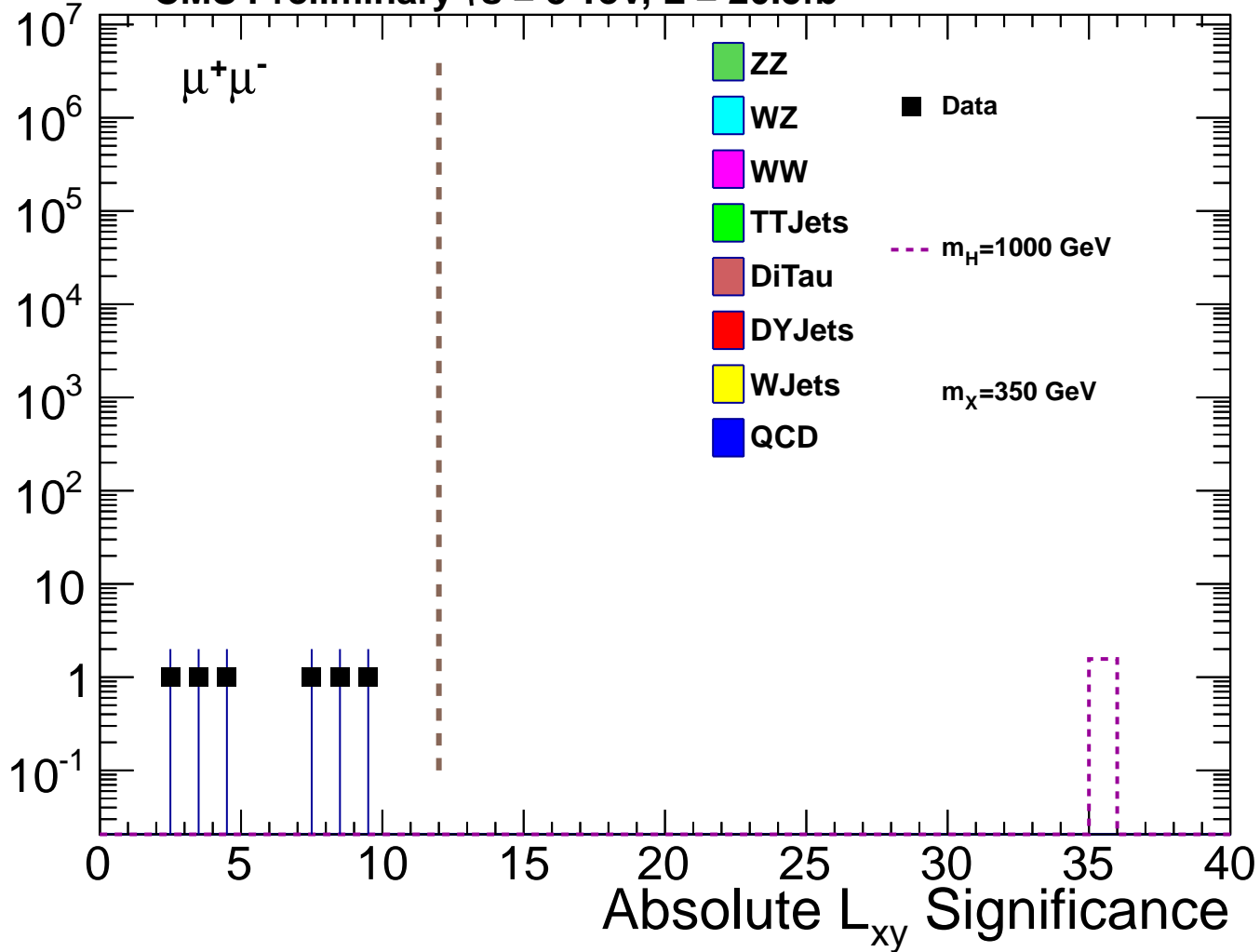


CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$



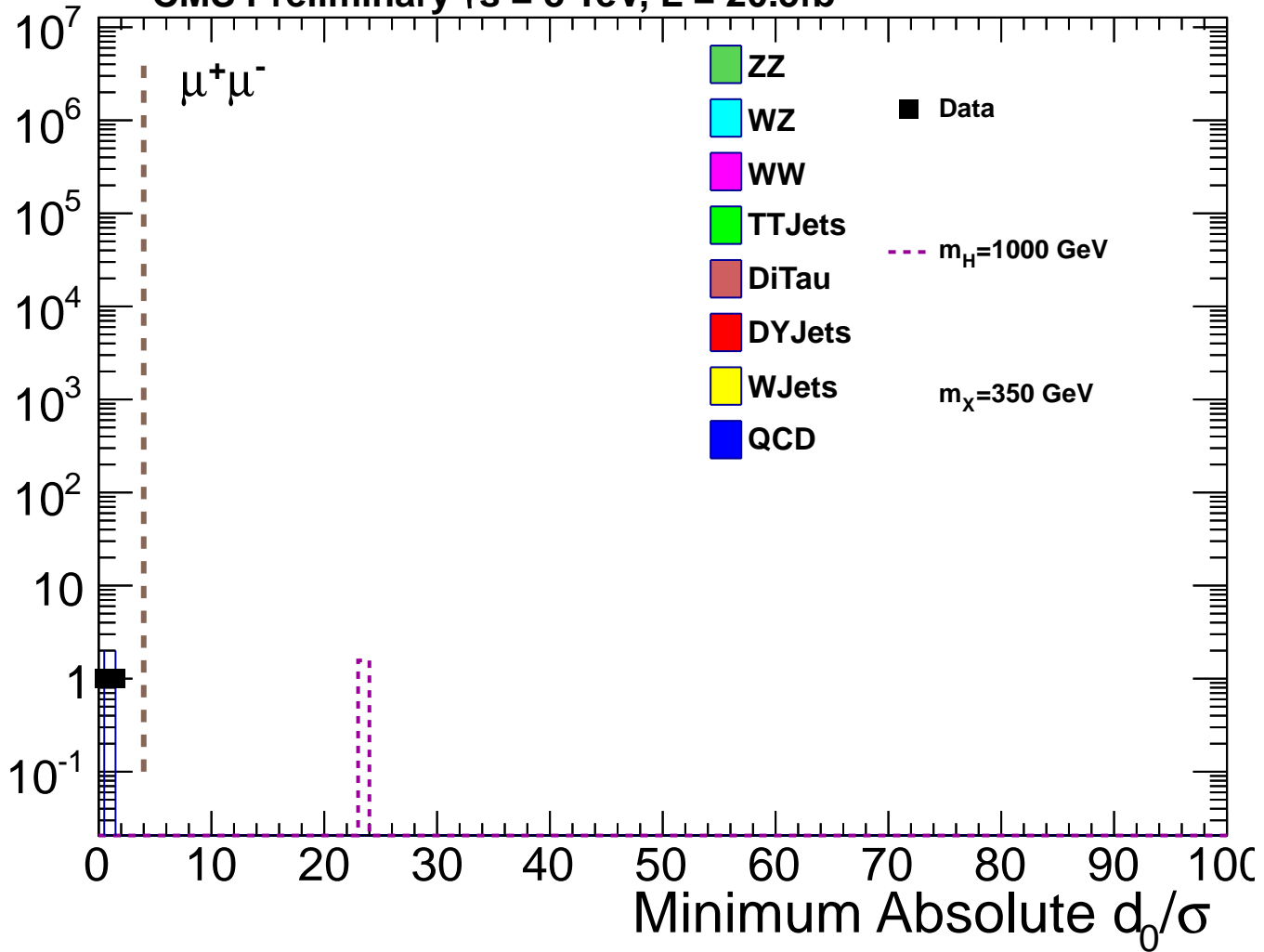
CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries



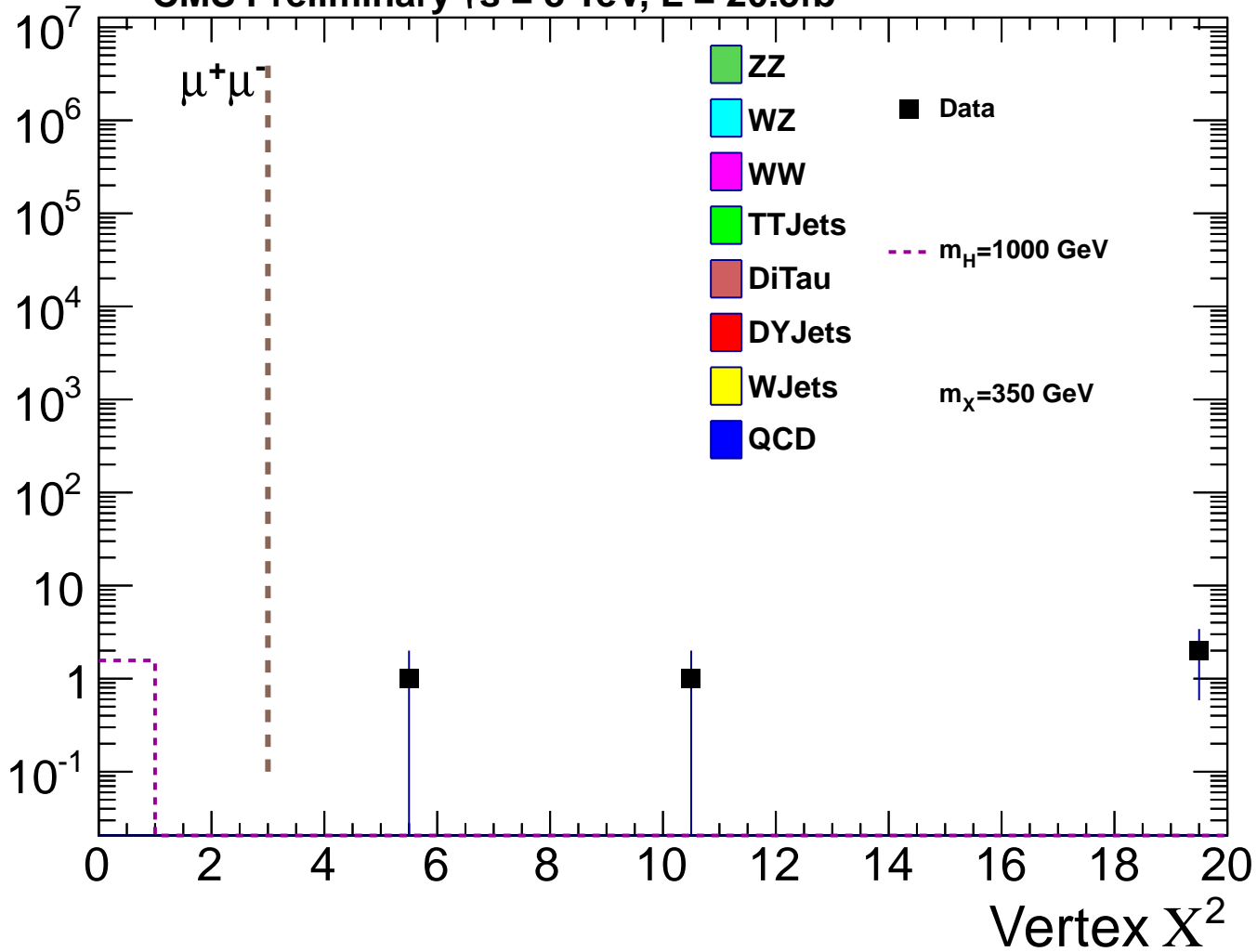
CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries



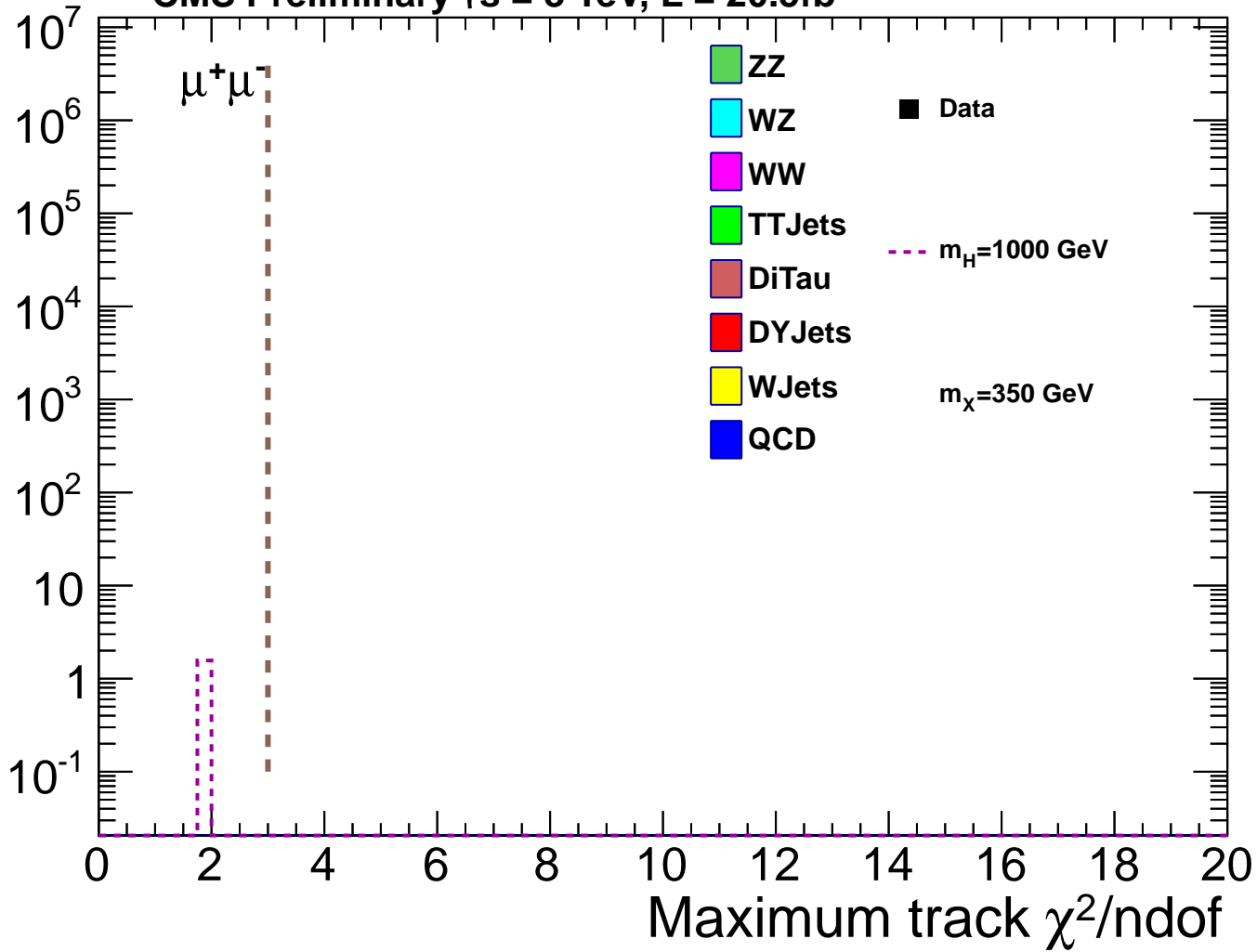
CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

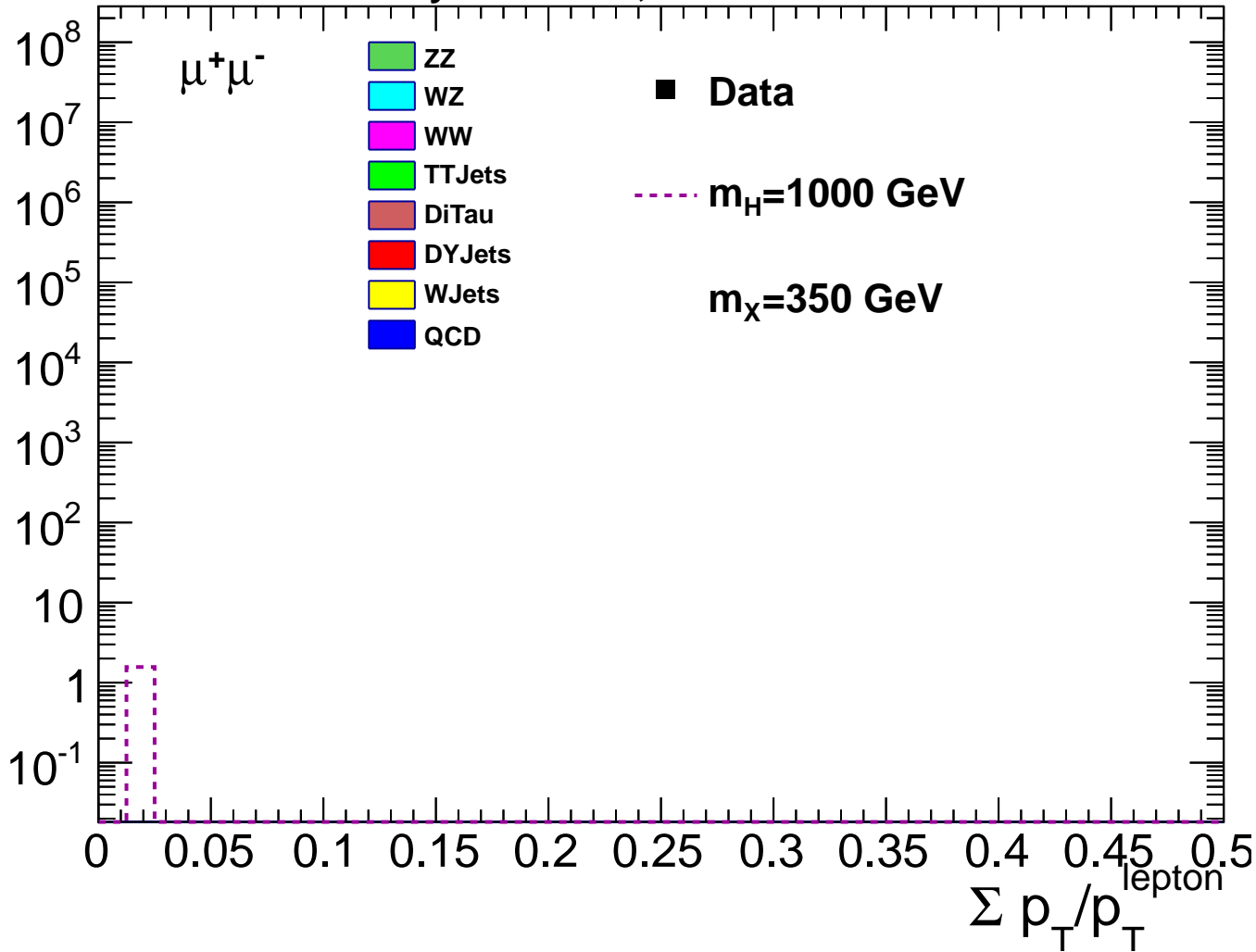
$\mu^+\mu^-$



■ Data

--- $m_H = 1000 \text{ GeV}$

$m_\chi = 350 \text{ GeV}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

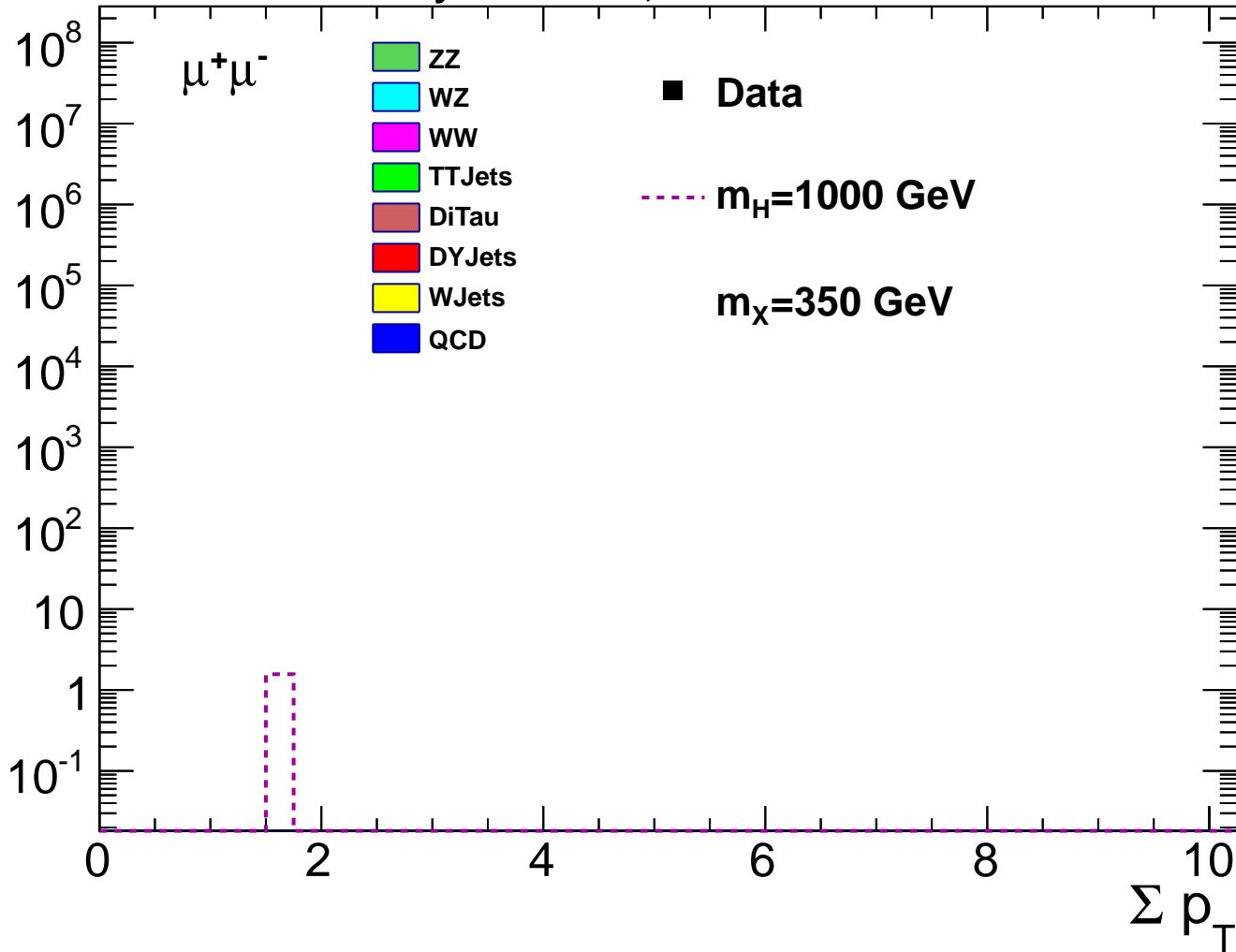
$\mu^+\mu^-$



■ Data

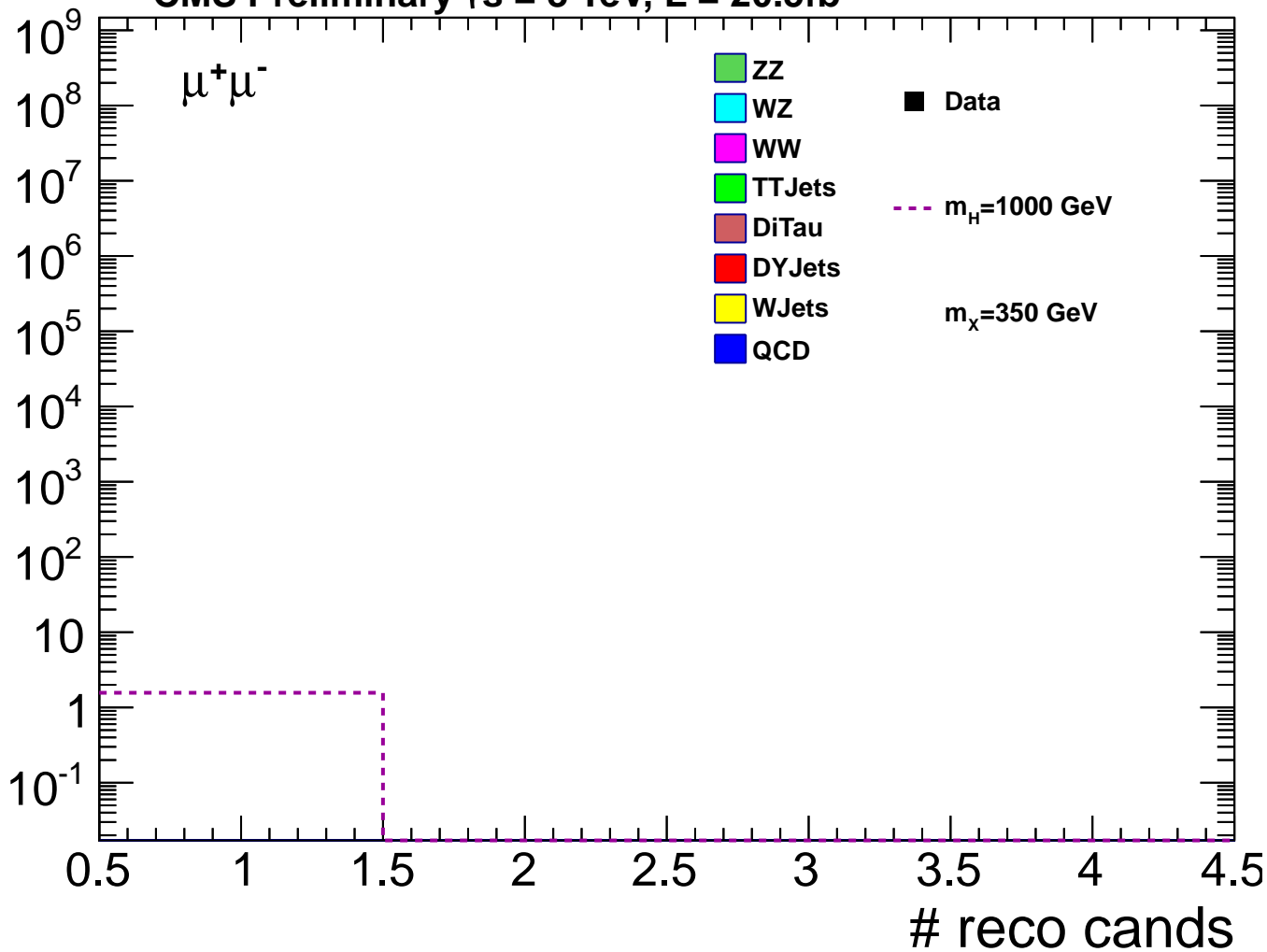
--- $m_H = 1000 \text{ GeV}$

$m_\chi = 350 \text{ GeV}$



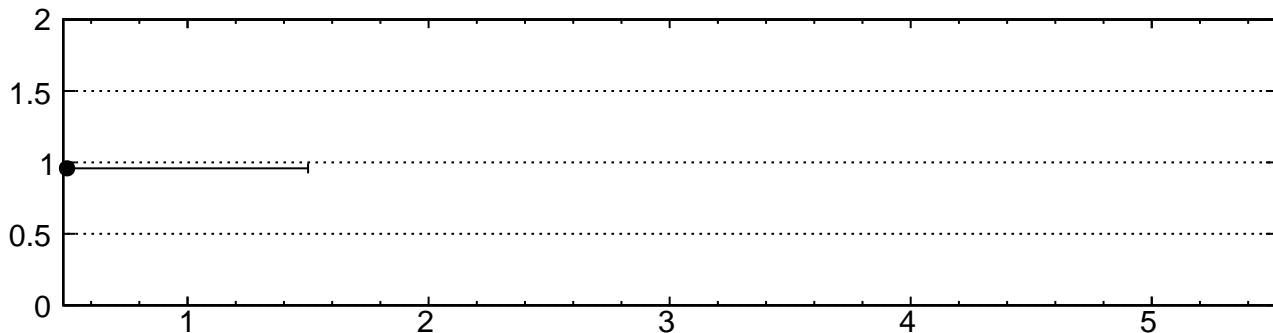
CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries



reco cands

MC/Data



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

$\mu^+\mu^-$

ZZ

WZ

WW

TTJets

DiTau

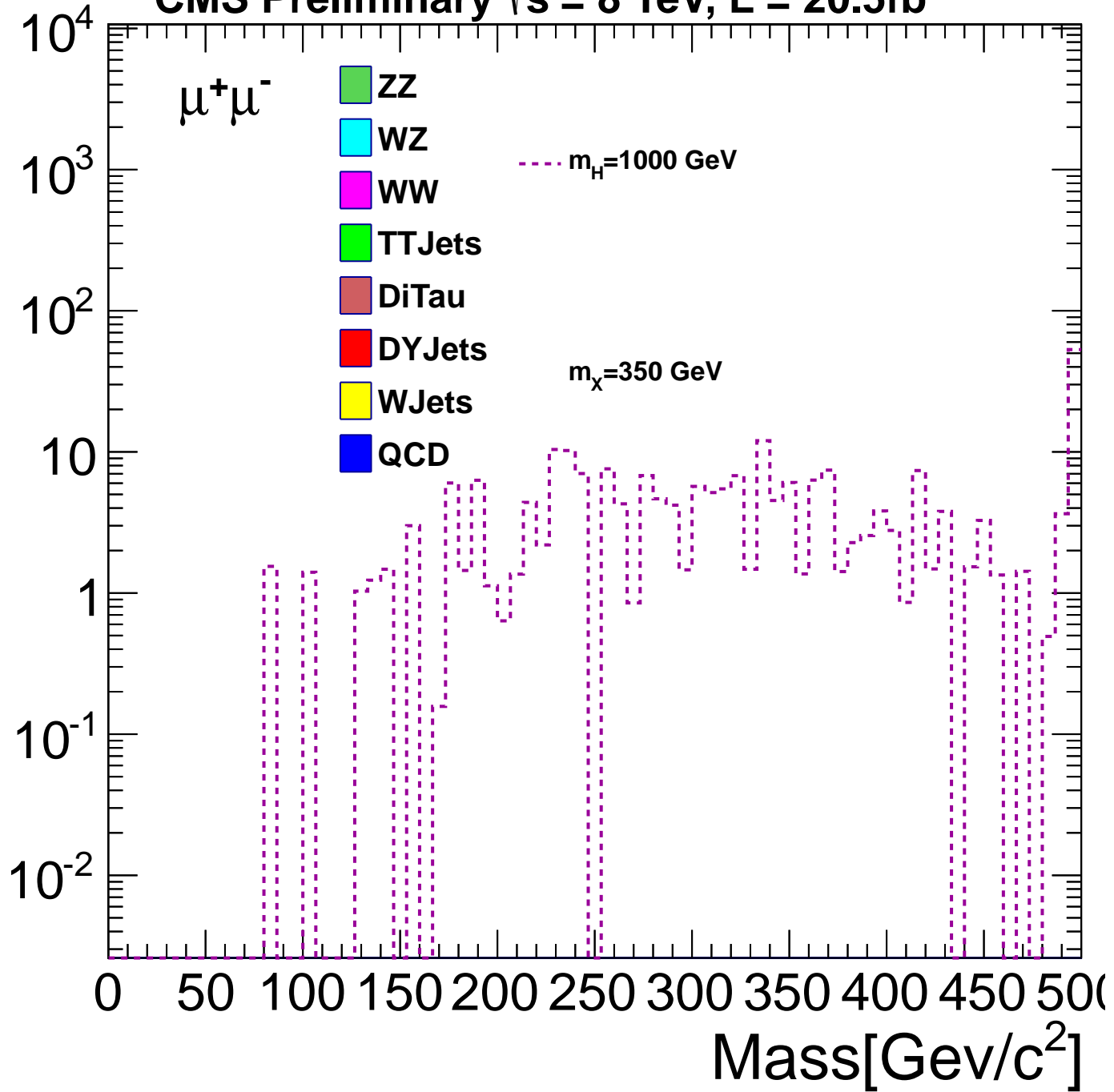
DYJets

WJets

QCD

$m_H = 1000 \text{ GeV}$

$m_X = 350 \text{ GeV}$



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

$\mu^+\mu^-$

ZZ

WZ

WW

TTJets

DiTau

DYJets

WJets

QCD

$m_H = 1000 \text{ GeV}$

$m_X = 350 \text{ GeV}$

10

1

10^{-1}

10^{-2}

0

10

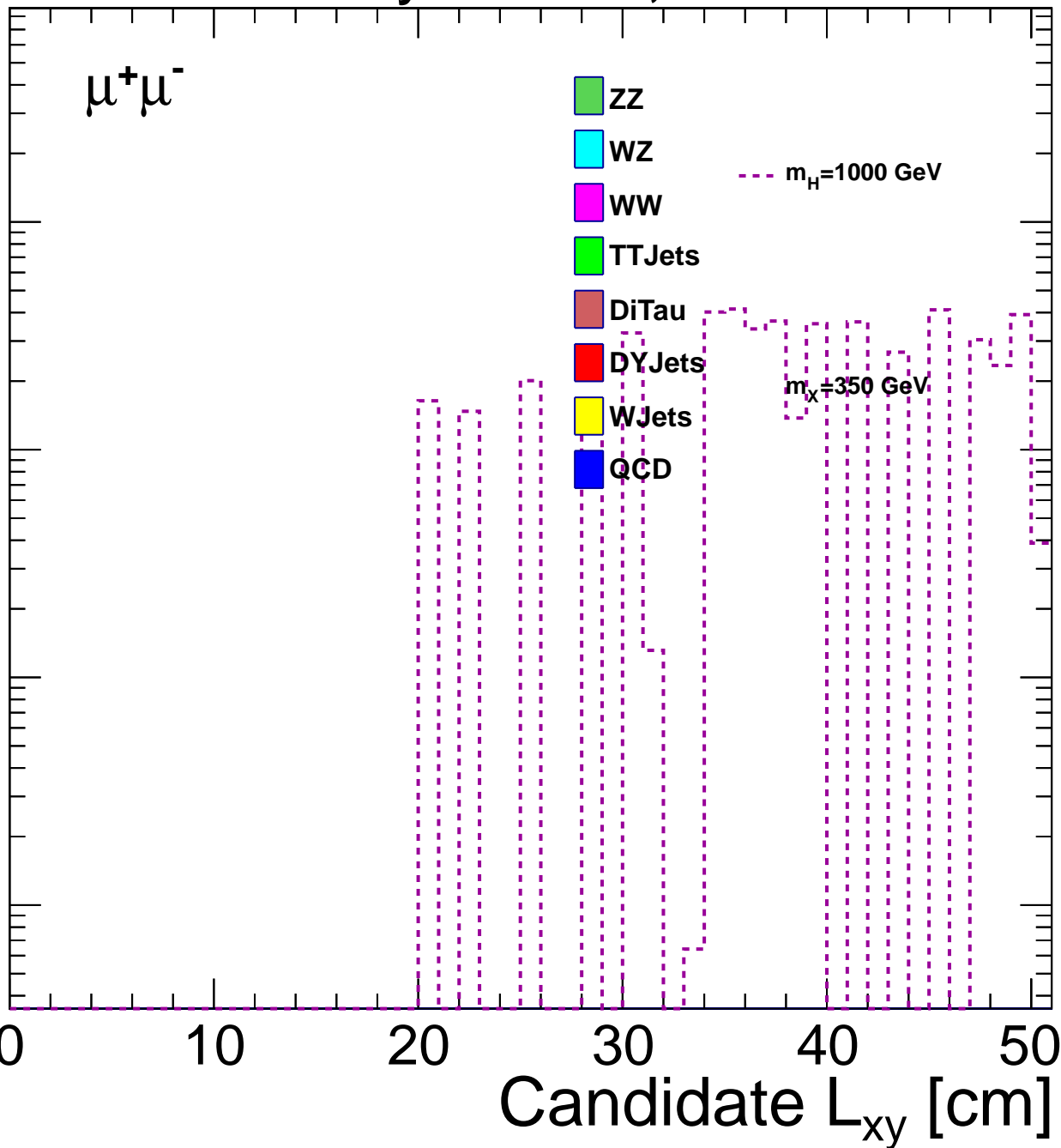
20

30

40

50

Candidate L_{xy} [cm]



CMS Preliminary $\sqrt{s} = 8 \text{ TeV}$, $L = 20.5 \text{ fb}^{-1}$

Entries

$\mu^+\mu^-$

