

Search for a SM Higgs boson
in the decay channel $H \rightarrow ZZ^{(*)} \rightarrow 4l$
with the CMS experiment:

Results

Baseline Selection

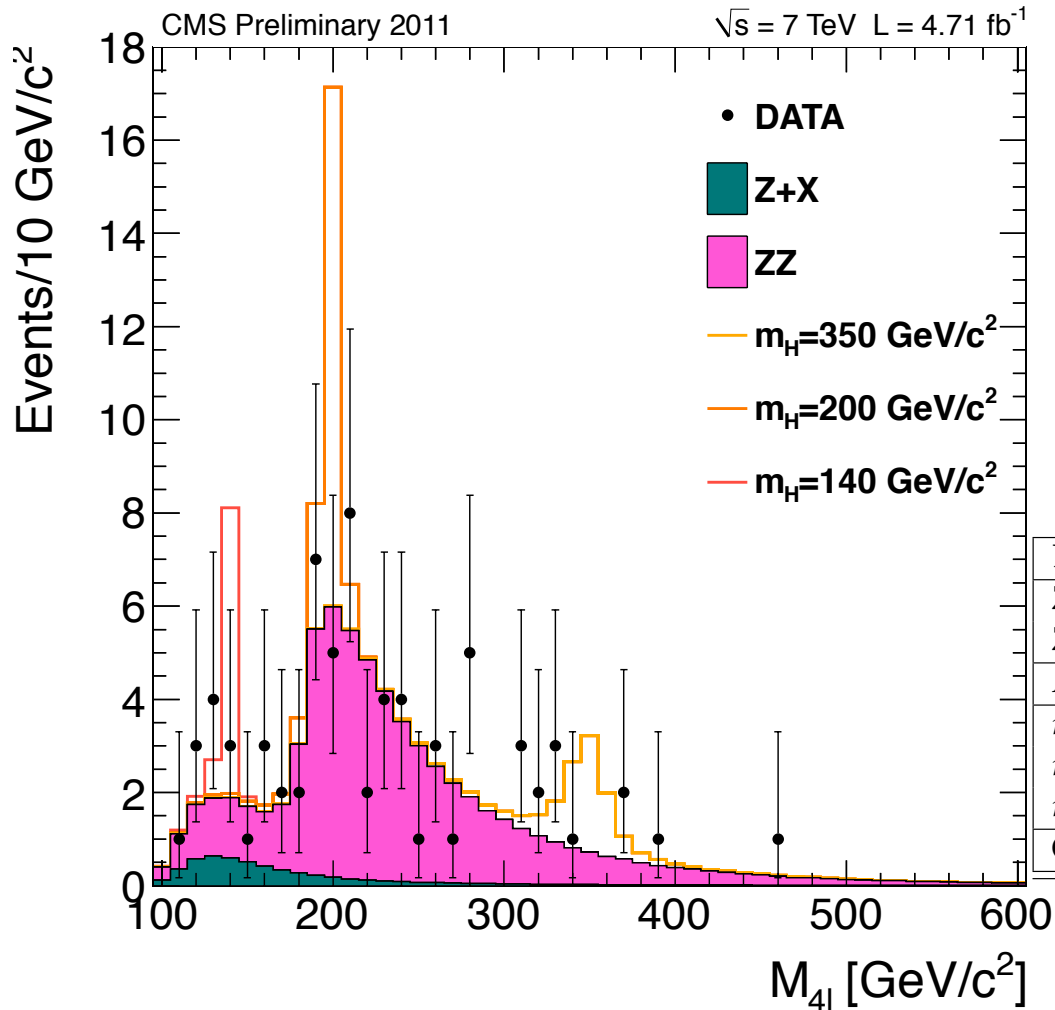
4.71 fb⁻¹

50 < m_{Z1} < 120 GeV/c²
12 < m_{Z2} < 120 GeV/c²

m_{4l} > 100 GeV/c²

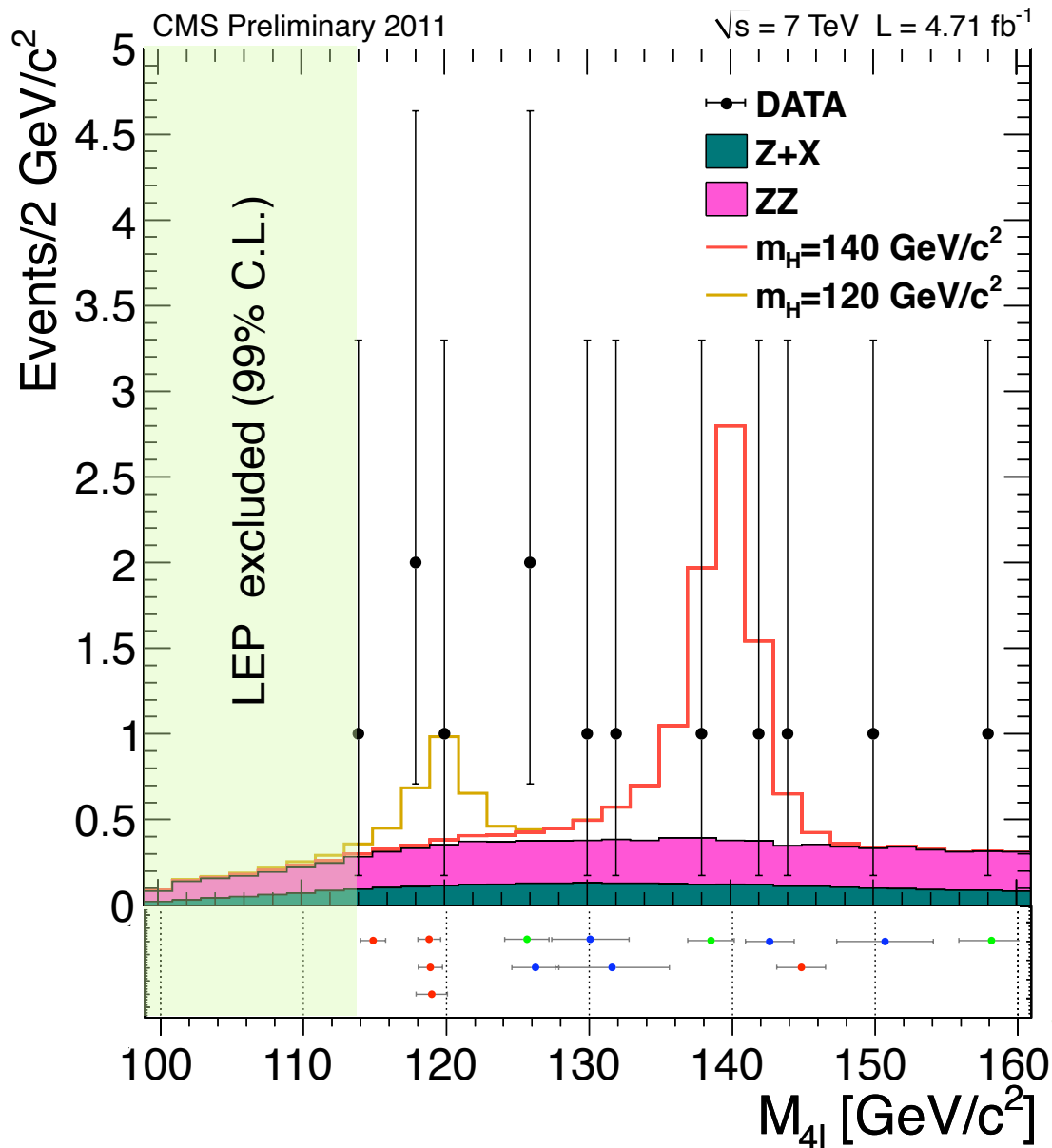
Observed events: 72

Expected events: 67.1 ± 6.0



Baseline	4e	4μ	2e2μ
ZZ	12.27 ± 1.16	19.11 ± 1.75	30.25 ± 2.78
Z+X	1.67 ± 0.55	1.13 ± 0.55	2.71 ± 0.96
All background	13.94 ± 1.28	20.24 ± 1.83	32.96 ± 2.94
m _H = 120 GeV/c ²	0.25	0.62	0.68
m _H = 140 GeV/c ²	1.32	2.48	3.37
m _H = 350 GeV/c ²	1.95	2.61	4.64
Observed	12	23	37

Low mass region



4.71 fb^{-1}

50 < m_{Z1} < 120 GeV/c^2
12 < m_{Z2} < 120 GeV/c^2

100 < m_{4l} < 160 GeV/c^2

Observed events: 13

Expected events: 9.5 ± 1.3

Central values

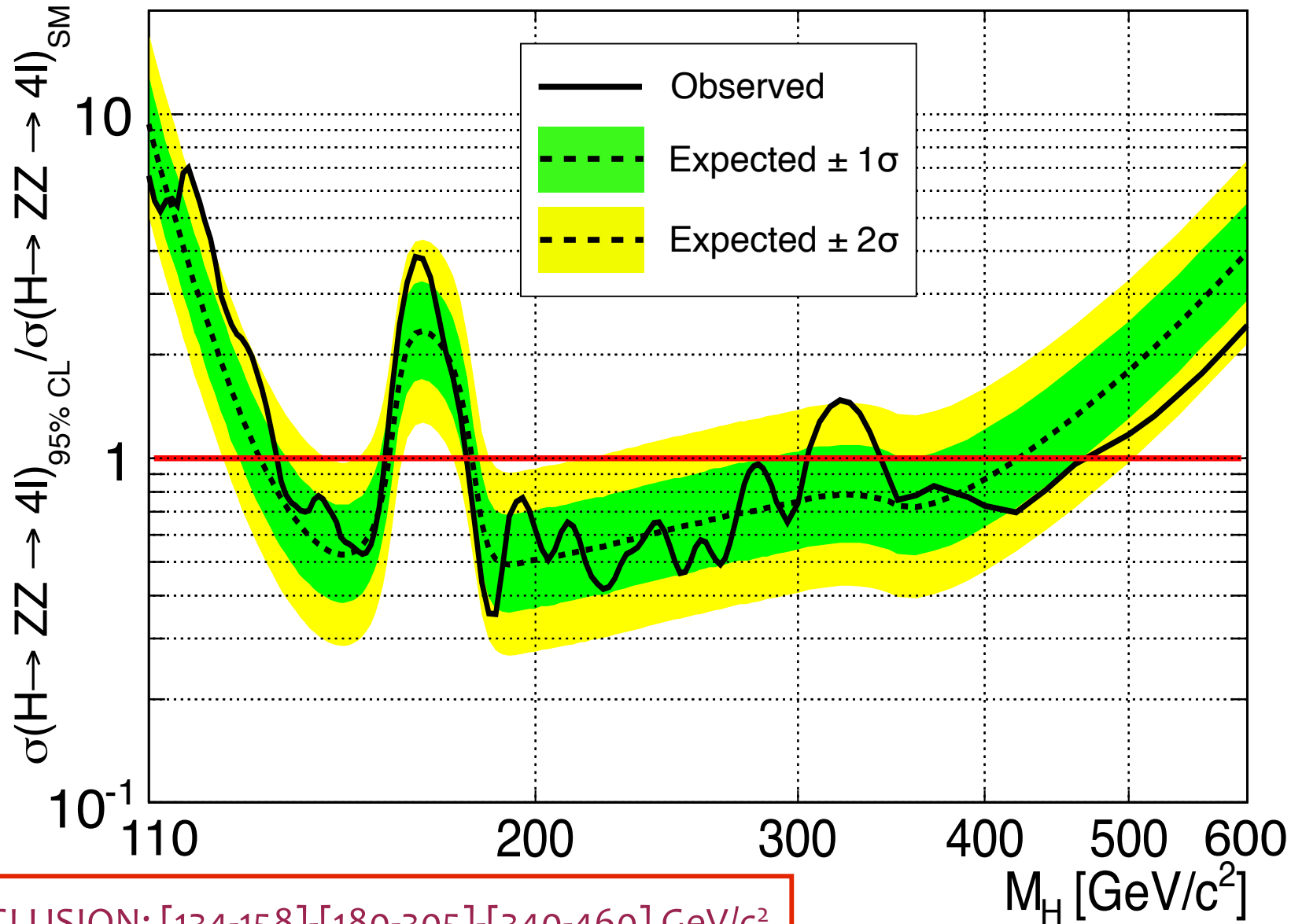
Event-by-event mass uncertainties

4e / 4 μ / 2e2 μ

Upper limit

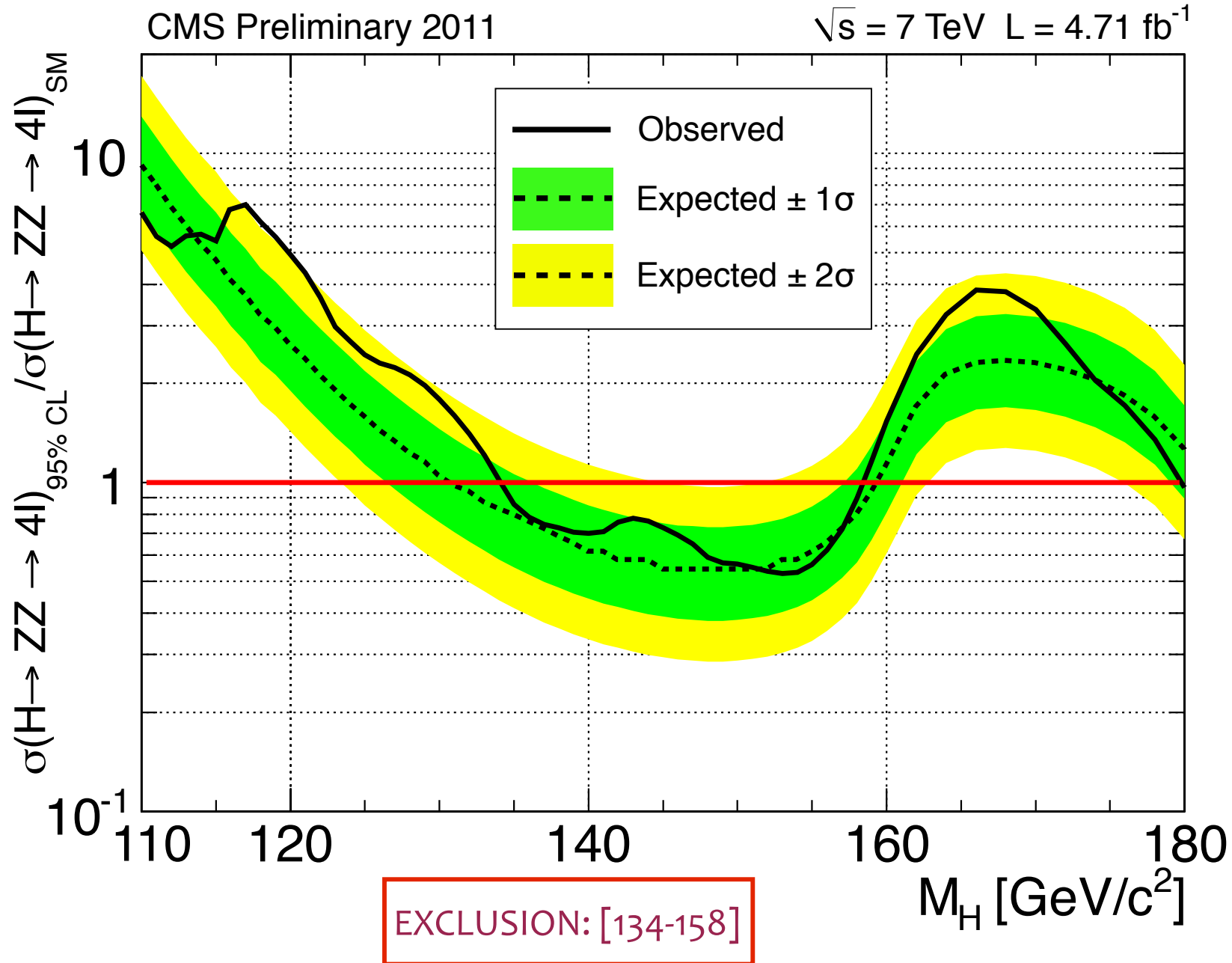
CMS Preliminary 2011

$\sqrt{s} = 7 \text{ TeV}$ $L = 4.71 \text{ fb}^{-1}$

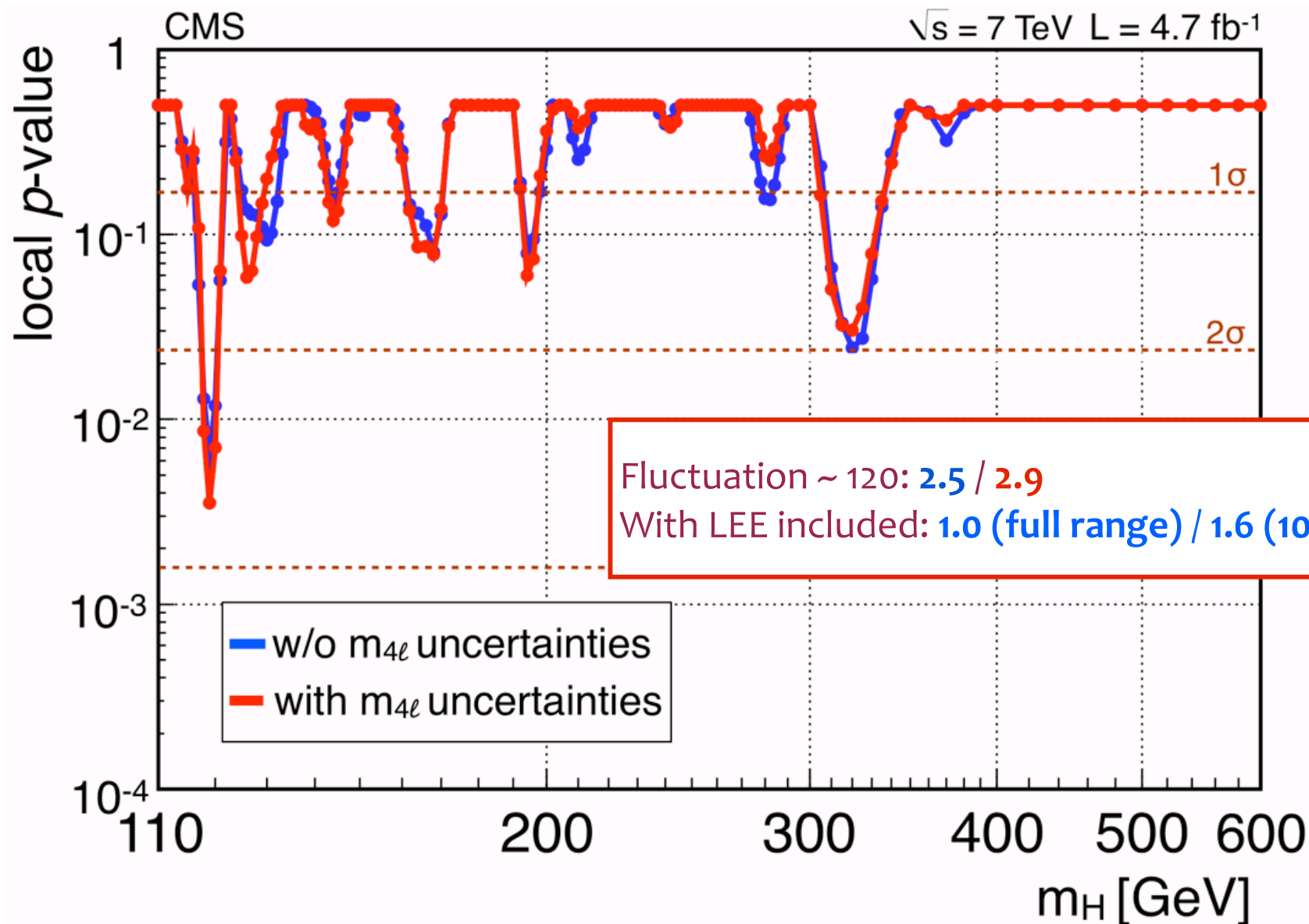


EXCLUSION: [134-158]-[180-305]-[340-460] GeV/c^2

Upper limit



p-value



p-value

