

# **Doubly Charged Higgs Search**

## **Status Report**

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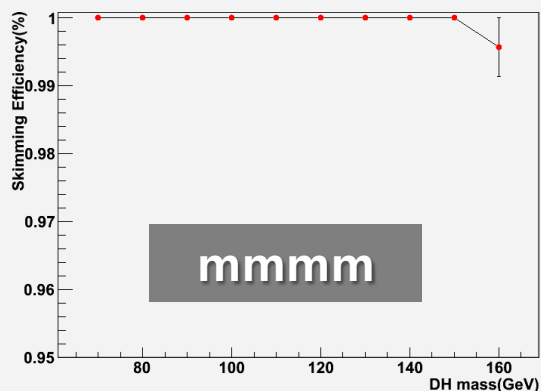
# Skimming Condition

- Skimming Condition  
Two leptons  $p_t > 10 \text{ GeV}/c$  and One lepton  $p_t > 5\text{GeV}$
- Signal Pat Sample Version is 3\_5\_6\_patch1.
- MC Collision Energy is 7TeV.

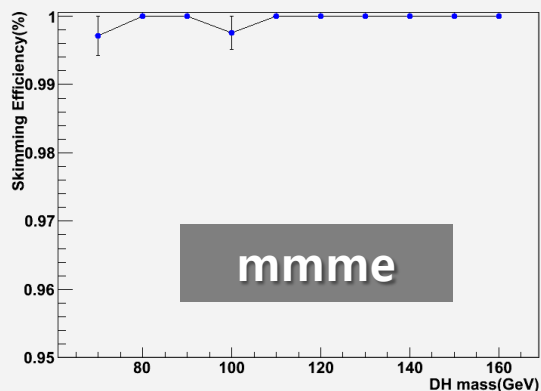
# 0 tau Channel

## Skimming Efficiencies vs DH Mass

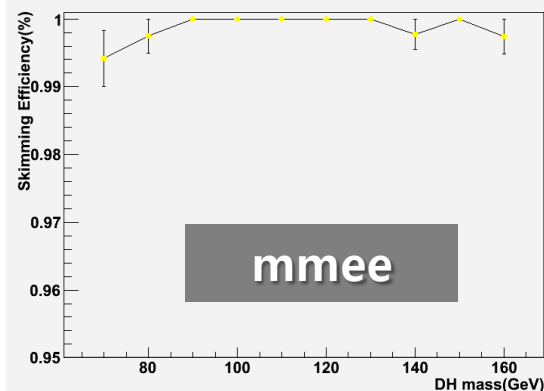
Skimming Efficiency of mmmm channel



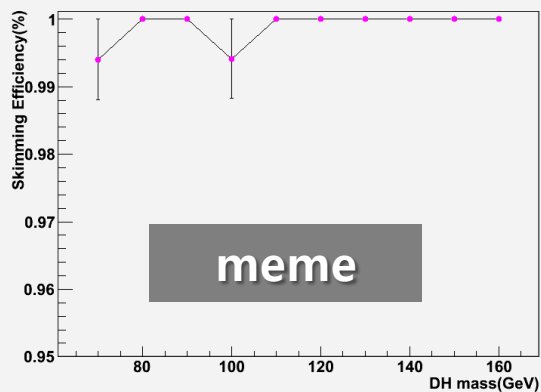
Skimming Efficiency of mmme channel



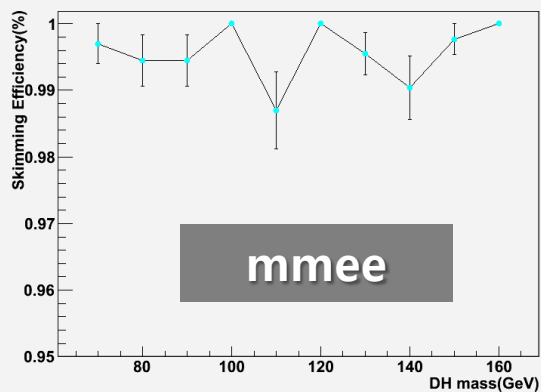
Skimming Efficiency of mmee channel



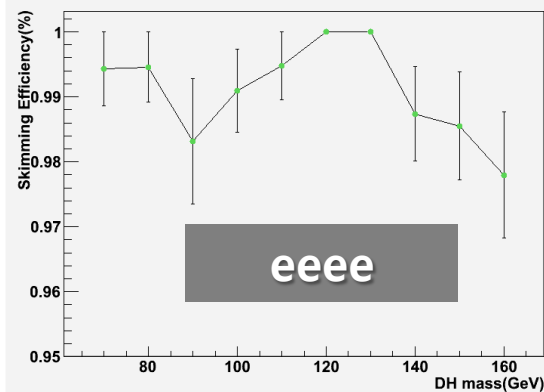
Skimming Efficiency of meme channel



Skimming Efficiency of meee channel



Skimming Efficiency of eeee channel



# HLT Path

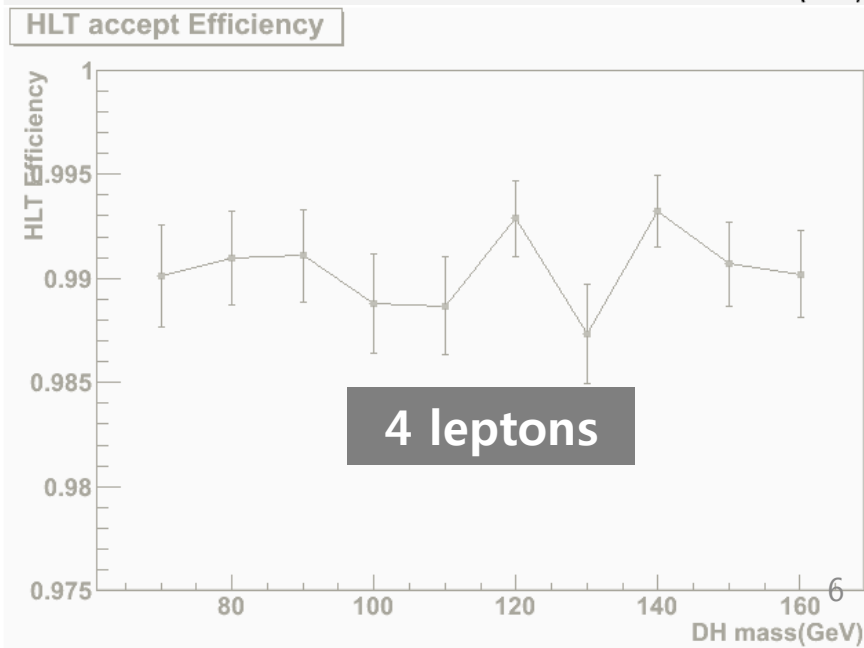
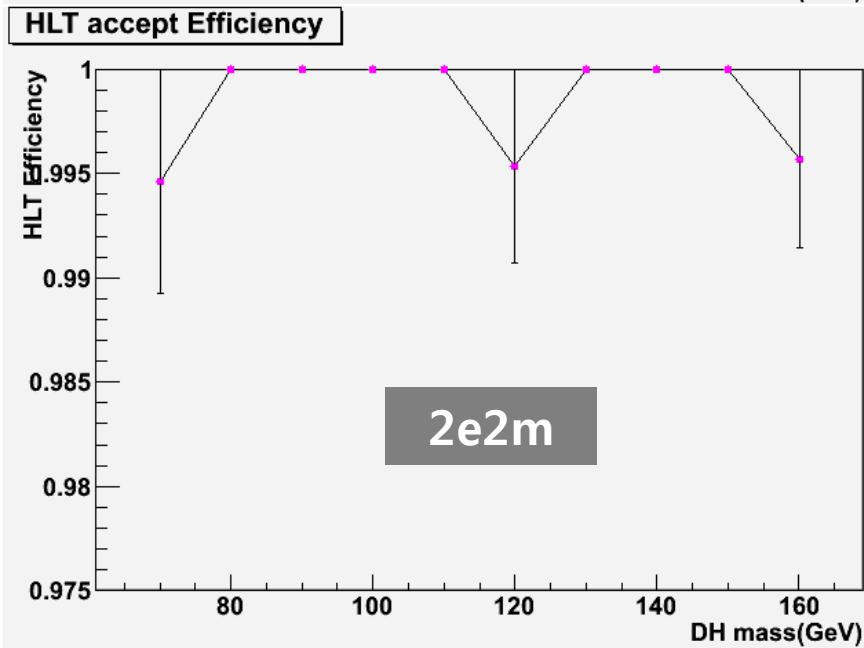
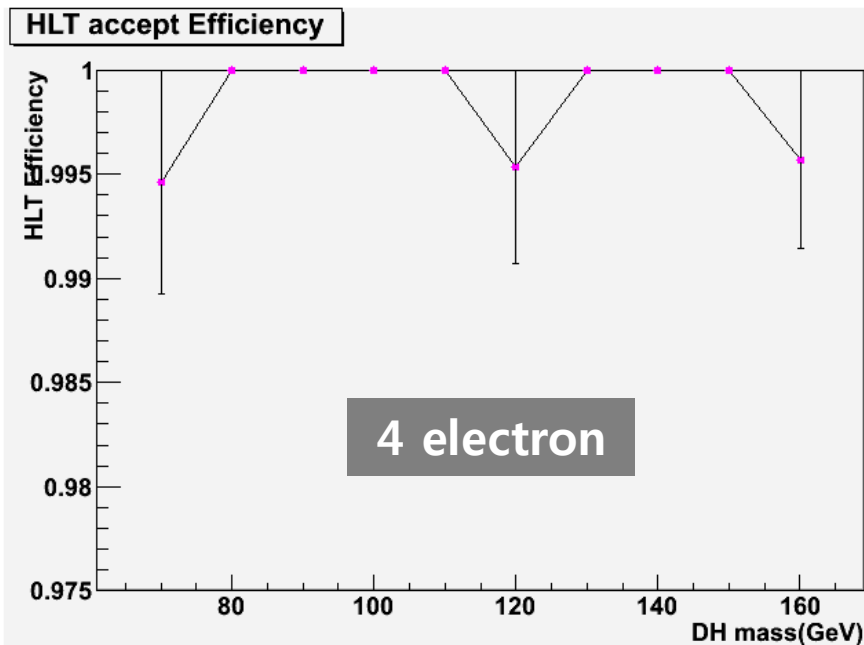
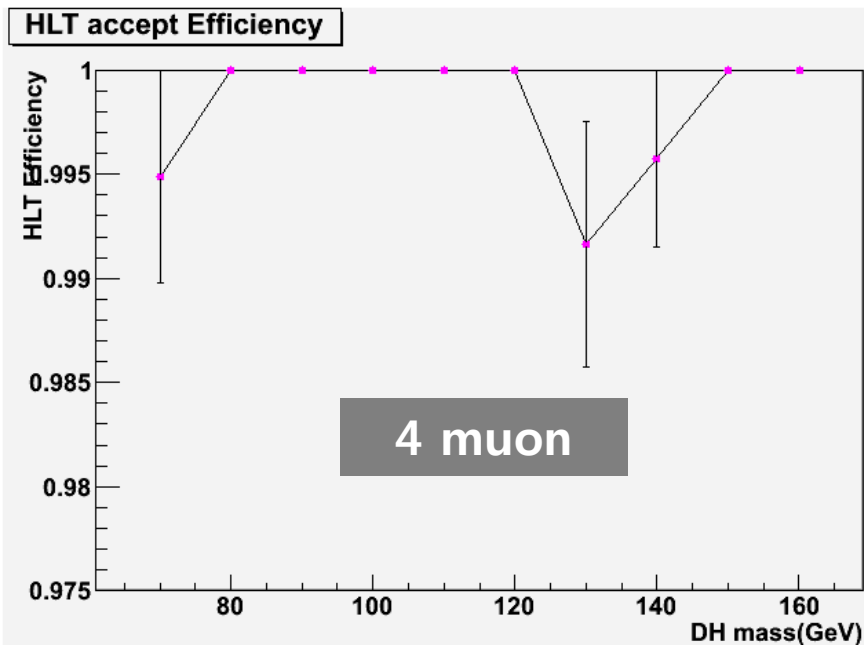
- HLT paths
  - HLT\_DoubleMu3
  - HLT\_Mu9
  - HLT\_IsoMu11 (empty)
  - HLT\_Mu15
  - HLT\_Ele15\_SW\_EleId\_L1R
  - HLT\_IsoEle15\_L1I (empty)
  - HLT\_IsoEle18\_L1R (empty)
  - HLT\_DoubleIsoEle10\_L1I (empty)
  - HLT\_DoubleIsoEle12\_L1R (empty)
  - HLT\_MinBiasBSC (empty)

# HLT Efficiencies at Each Mass

## 4 muon channel

Doubly Charged Higgs		HLT Mu15		HLT Mu9		HLT Double3		HLT Ele15_SW_EleId_L1R	
Mass (GeV)	Events bef.	Events aft.	Efficiency	Events aft.	Efficiency	Events aft.	Efficiency	Event aft.	Efficiency
70	195	194	99.49%	194	99.49%	193	98.97%	189	0.03%
80	184	183	99.46%	184	99.46%	183	99.46%	179	2.72%
90	213	213	100%	213	100%	212	99.53%	201	5.63%
100	223	223	100%	223	100%	219	98.21%	217	2.69%
110	233	233	100%	233	100%	229	98.28%	216	7.30%
120	226	225	99.56%	225	99.56%	223	98.67%	211	6.64%
130	239	237	99.16%	237	99.16%	233	97.49%	226	5.44%
140	236	235	99.58%	235	99.58%	231	97.88%	220	6.78%
150	252	251	99.60%	251	99.60%	250	99.21%	236	6.35%
160	245	245	100%	245	100%	245	100%	226	7.76%

# HLT Efficiency after Skimming



# The Next Task

- To do the preselection
- To adapt to the framework of DH

**Thank you**