# Calorimetry

## in particle physics experiments

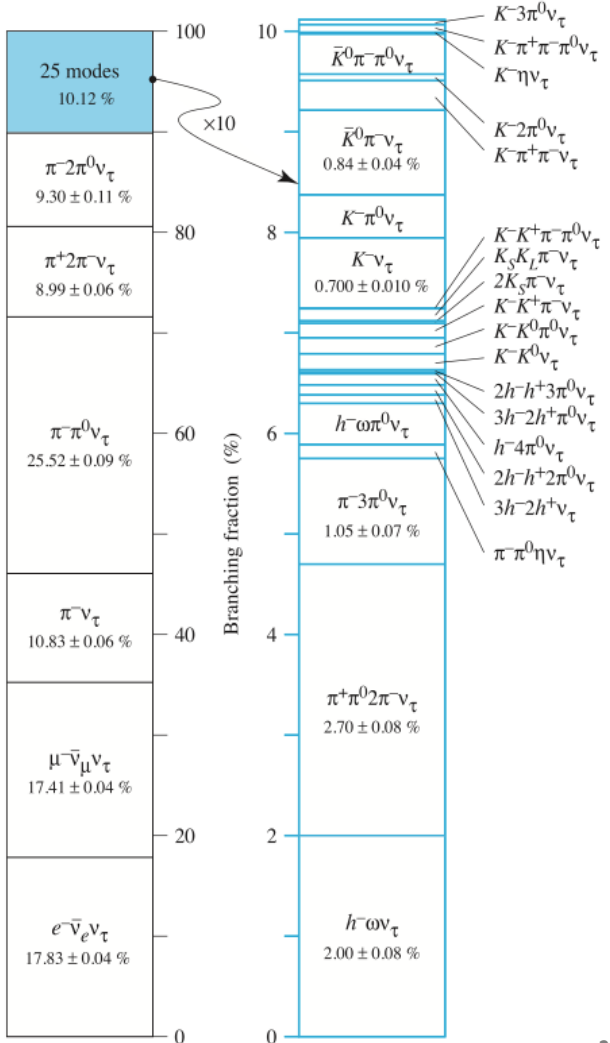
**1.b** Additional information after the discussion

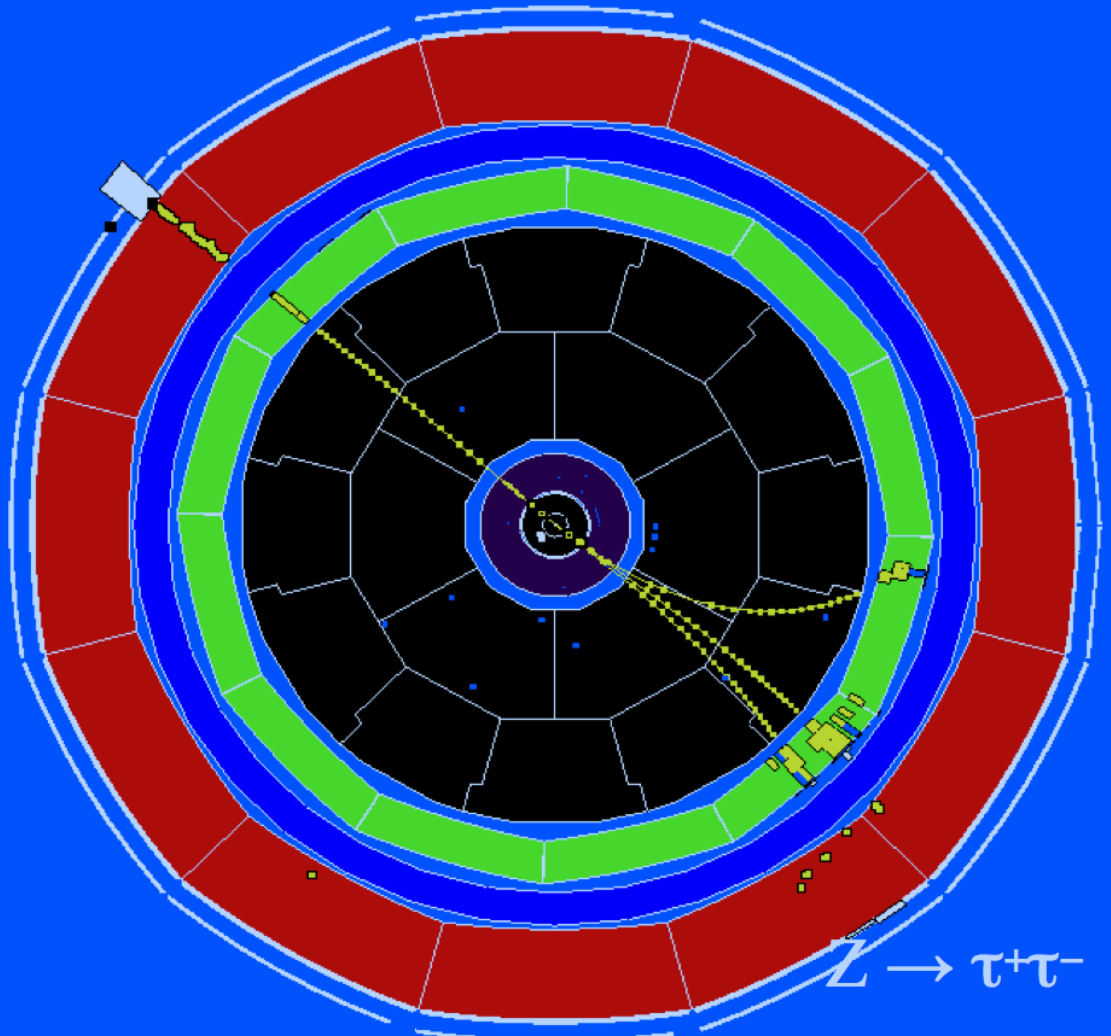
# Tau


- Tau heavy enough ($m_\tau$ = 1.777 GeV) that they can decay in several final states
  - ✓ Several of them with hadrons
  - ✓ Sometimes neutral hadrons

- Lifetime = 0.29 ps
  - ✓ 10 GeV tau flies ~ 0.5 mm
  - ✓ Typically too short to be directly seen in the detectors
  - ✓ But very accurate vertex detectors could detect that they do not come exactly from the interaction point

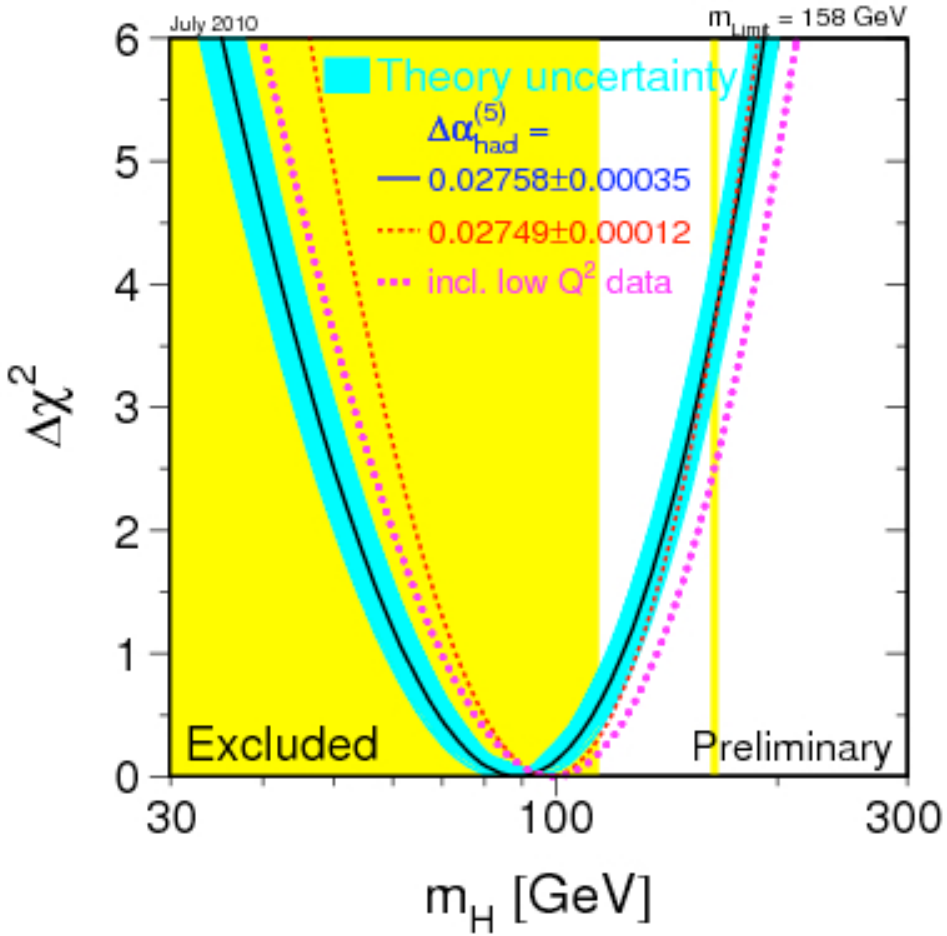
- Tau needs to be identified by their decay products



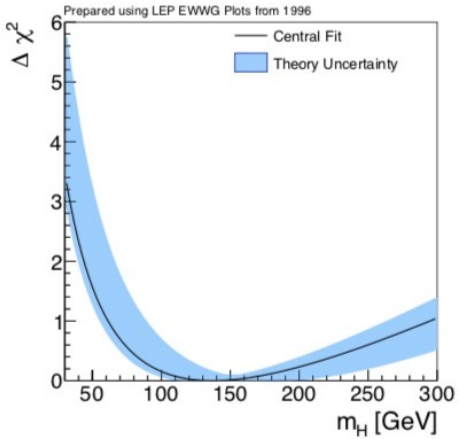


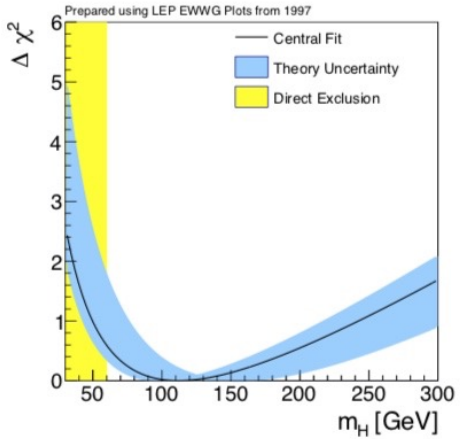
$Z \rightarrow \tau^+\tau^-$

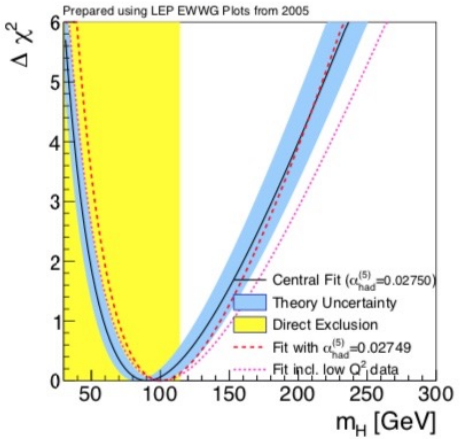
# Higgs mass limits from EW fit ~ July 2010

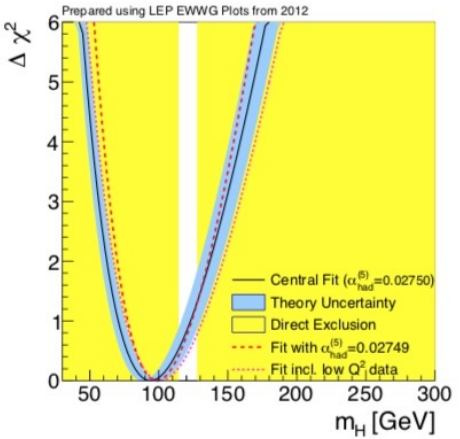


# Higgs mass limits from EW fit vs time



# $m_W$ vs $m_t$ vs $m_H$

https://project-gfitter.web.cern.ch/Standard_Model/