

CAL FHE Trigger Study

GLAST Beamtest 2006

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KTH/SLAC

Main idea

- To study the efficiency of the high energy CAL trigger
- Use SPS beamtest data (electrons)
- Plot efficiency and compare with the true CAL high trigger set for the run

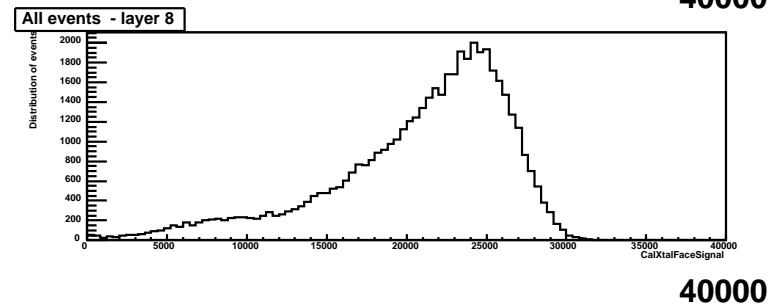
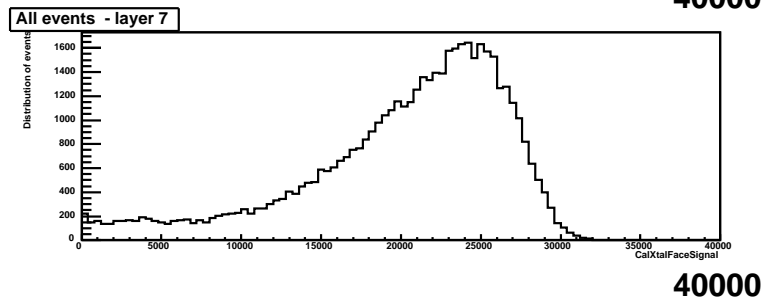
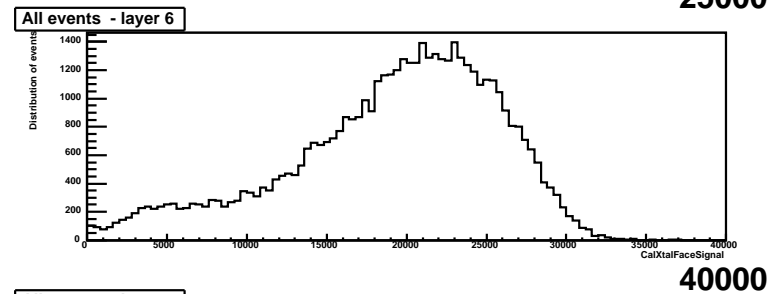
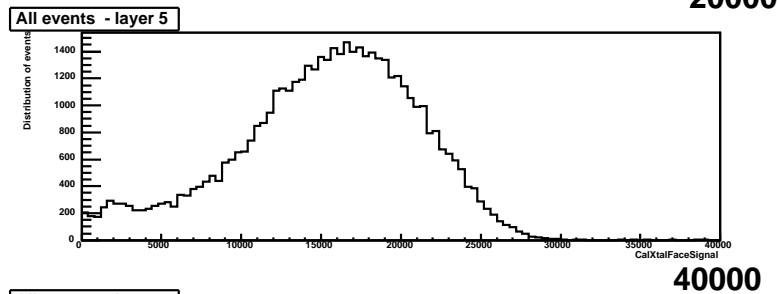
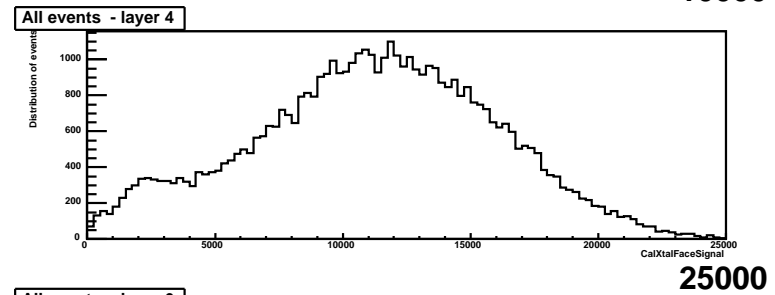
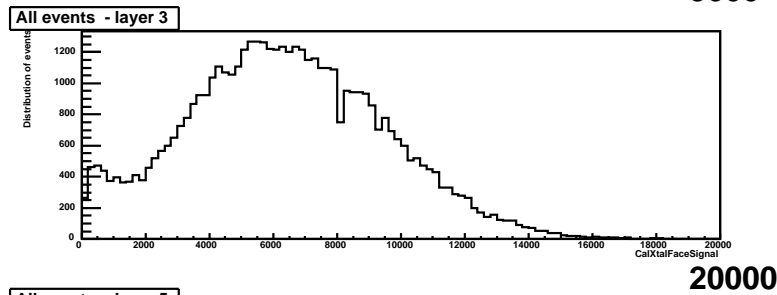
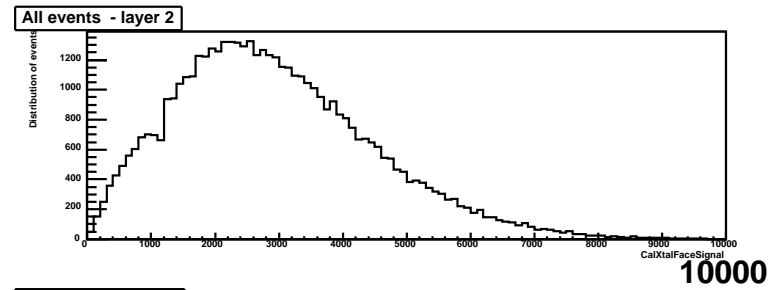
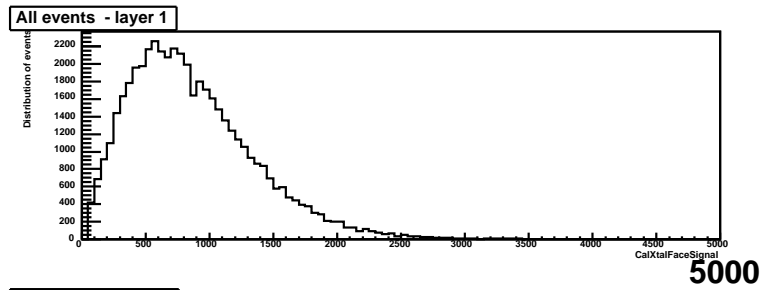
Variables

- CalXtalFaceSignal[tow][lyr][log][end]
- CalReq[tow][lyr][end]
- efficiency = $h1/h2$
 - h1 is the distribution of triggering (i.e. CalReq=3) events
 - h2 is the all events distribution
- Take the maximum energy deposition in layer
- Apply a low energy cut at 50 MeV

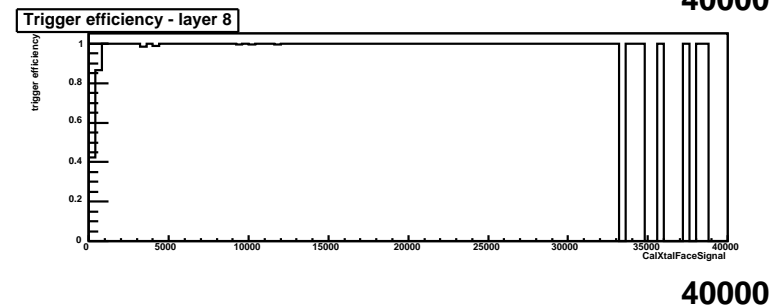
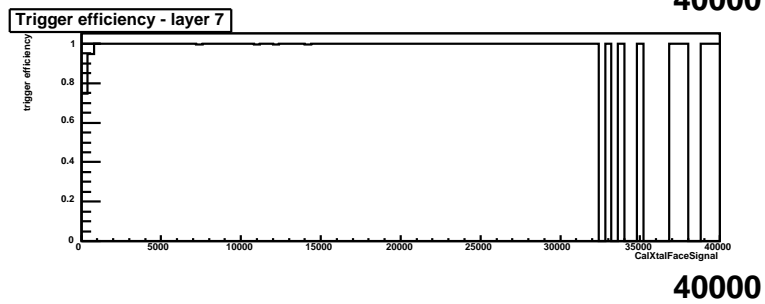
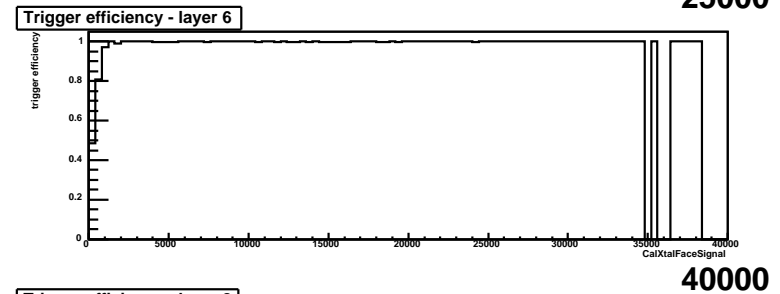
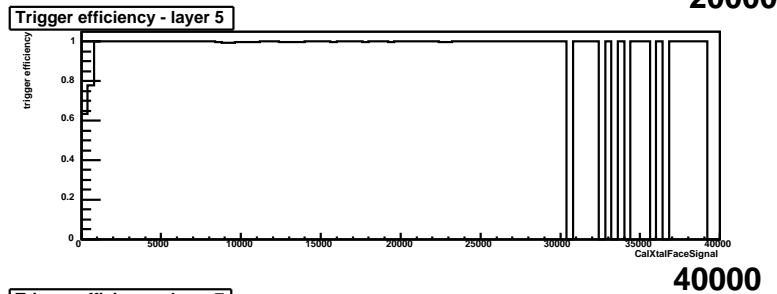
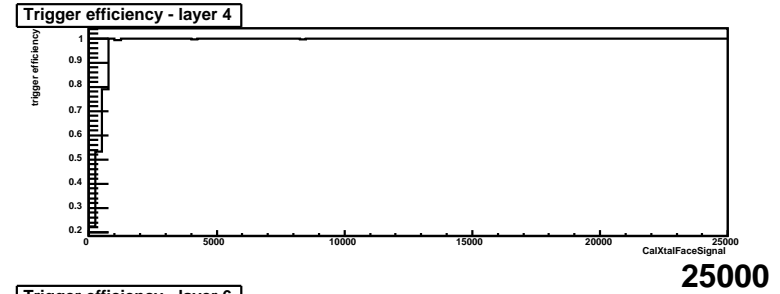
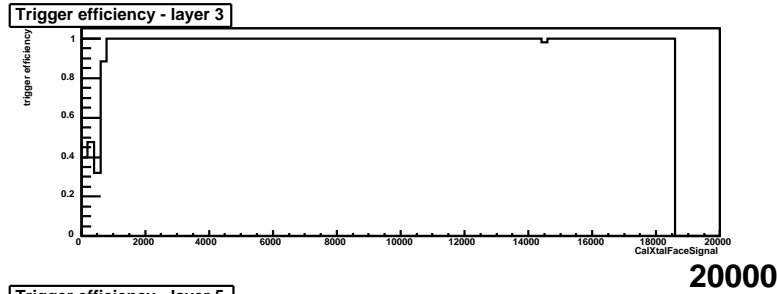
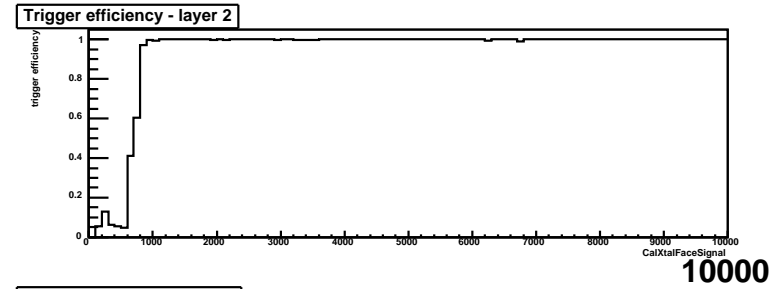
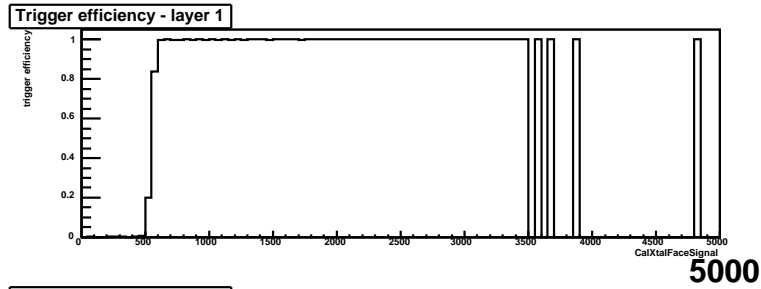
Runs 1952-1958

- 282 GeV/c electrons
- Position: $x=201.17$, $y=40.0$, $z=-47.7$, $\theta=0.0$
(tower = 2)
- CAL_HE=
1952: 0.5 GeV; 1953: 2.0 GeV; 1954: 1.5 GeV
1957: 1.0 GeV; 1958: 0.75 GeV

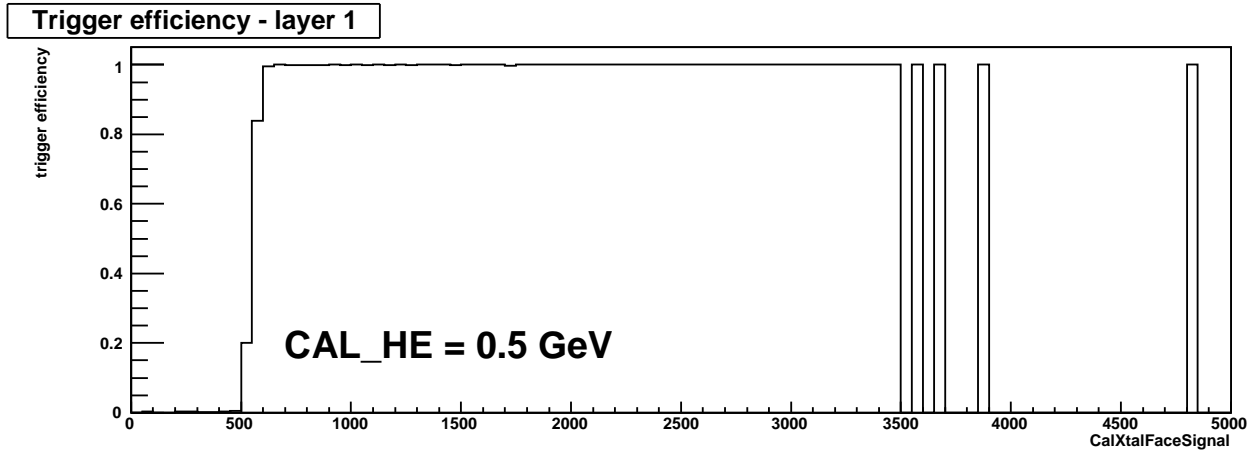
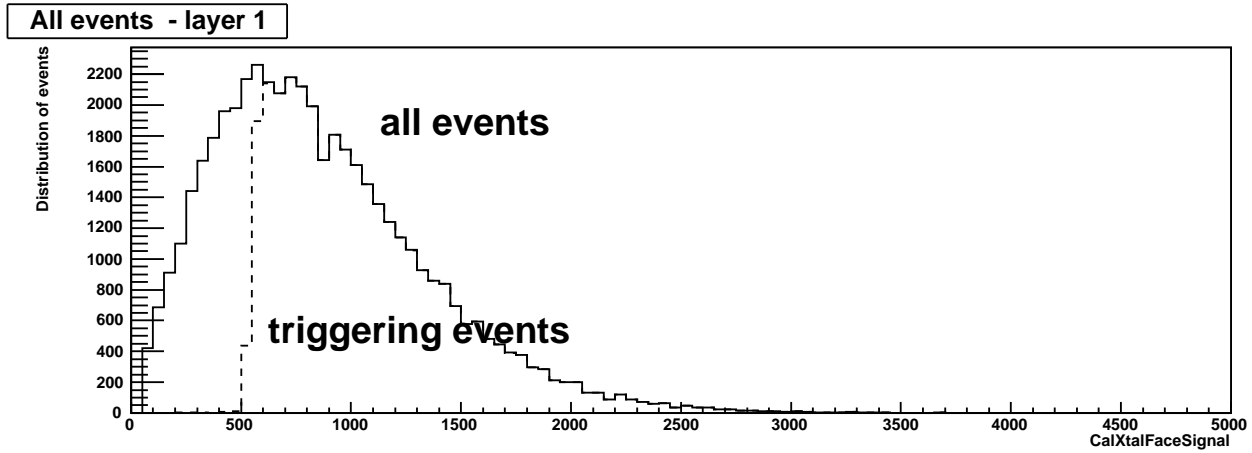
Run 1952 – all event dist.



Run 1952 – trigger eff.

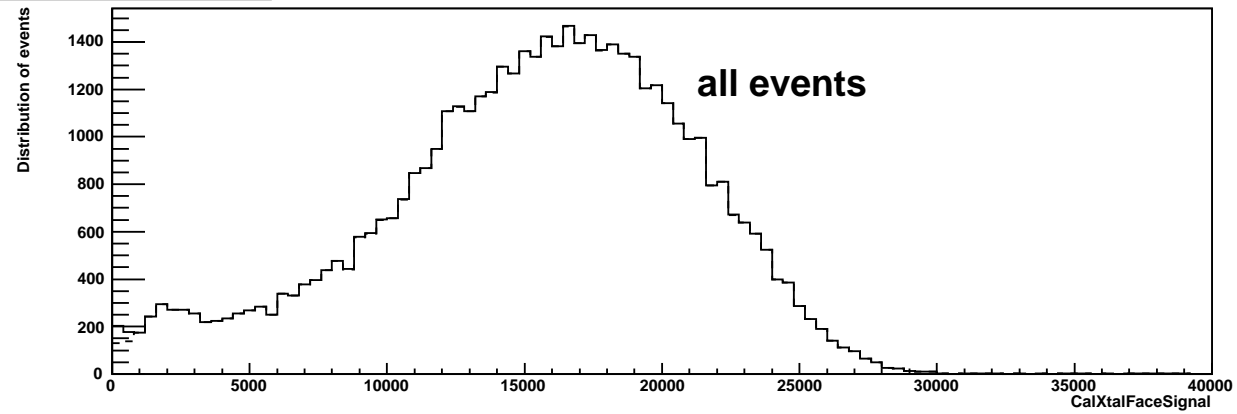


Run 1952 – layer 1

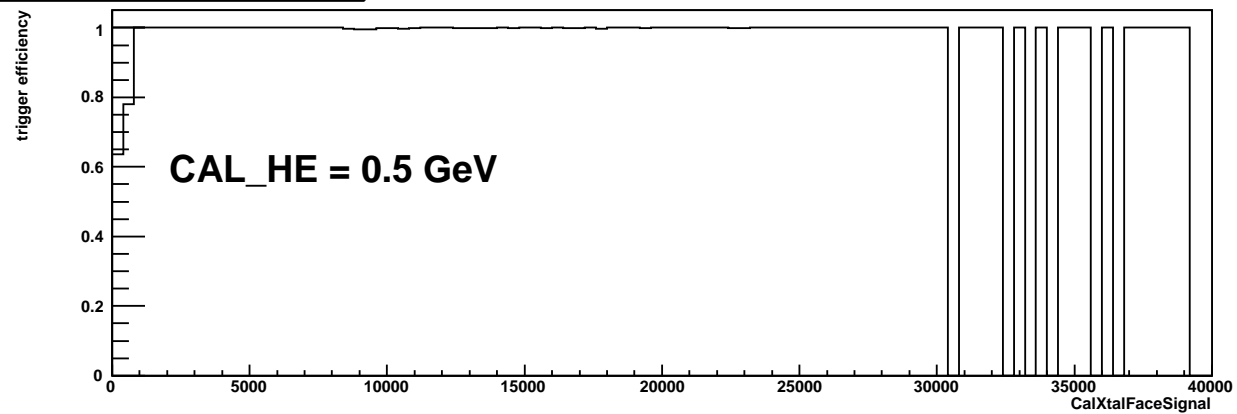


Run 1952 – layer 5

All events - layer 5



Trigger efficiency - layer 5



Runs 1964-1970

- 282 GeV/c electrons
- Position: $x=603$, $y=41$, $z=0$; $\theta=0$
(tower = 3)
- CAL_HE=
1964: 0.5 GeV; 1966: 1.0 GeV; 1967: 1.5 GeV
1970: 2.0 GeV;

Runs 2172-2176

- 20 GeV/c electrons
- Position: $x=201.17$, $y=40$, $z=-47.7$, $\theta=0$
(tower = 2)
- CAL_HE=(??)
2172: ? GeV; 2173: ? GeV; 2174: ? GeV
2175: ? GeV; 2176: ? GeV