Event pre-selection study (3)

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- check pre-selection criteria of my proposal by MC
  - pre-selection criteria
    - good charged track selection
      Pt>=0.1GeV/c
      |dr|<1cm, |dz|<5cm
    - good ECL cluster selection
      E(cluster) > 0.1GeV
    - Tau pair pre-selection
      2 <= # of good track <= 8
      Σ Pcm < 10 GeV/c (mass is pion mass)
      Σ E(ECL good cluster) < 10 GeV
      Pt > 0.5 GeV/c for at least 1 track
      Event vertex |r|<0.5cm, |z|<3cm
      for 2 track events
        Σ Pcm < 9 GeV/c
        Σ E(ECL) < 9 GeV
        5 < θ _Pmiss < 175 degree

  - MC data sample
    generated by qq98,aafhb of b19990430
      tau pair, mu pair, bhabha, 2photon,
      BB generic, continuum each 100k events
    reconstructed by recs of b19990616

- Pre-selection efficiency

	efficiency	generated cross section	observed cross section
tau pair	72.7%	0.91nb	0.66nb (6.3%)
mu mu	5.45	0.94	0.05 (0.5%)
bhabha	0.45	1249	5.62 (53.4%)
eeee	1.68	40.88	0.68 (6.4%)
eemumu	2.26	18.80	0.42 (4.0%)
bb	57.3	1.05	0.60 (5.7%)
cont.	73.5	3.39	2.49 (23.7%)
			10.52nb (100%)

- No beam background
- Not included trigger effect

? Event vertex spot size is different.

σ_z ~ 4 mm for real data

~ 6.6 mm for MC

- Beam background subtraction
  - apply this cuts to real data
  - by event vertex of real data,

→ 40.6% for signal region

59.4% for beam background

→ Figures are here.

- Tau event search for real data

- "tau pair → e mu 4nu" reaction is good probe.
  - event selection
    # of good track = 2
    # of good gamma = 0
    net charge = 0
    Σ Pcm < 9 GeV/c
    - for all track
      Pcm < 5 GeV/c
      P_lab > 1.2 GeV/c
      -0.75 < cos θ _lab < 0.85
  - check by MC

efficiency for	e+mu-	e-mu+
tau pair	467/100k	467/100k
eemumu	6/100k	2/100k
others	0/100k	0/100k

Integrated luminosity:0.53pb-1
→ ~ 4.5 event from tau pair
~ 0.8 event from 2 photon(eemumu)

- check the real data
→ 6 events (e+mu-:3 , e-mu+:3)