ECLOUD News

1) Bug in SEY model fixed

2) List of present activities

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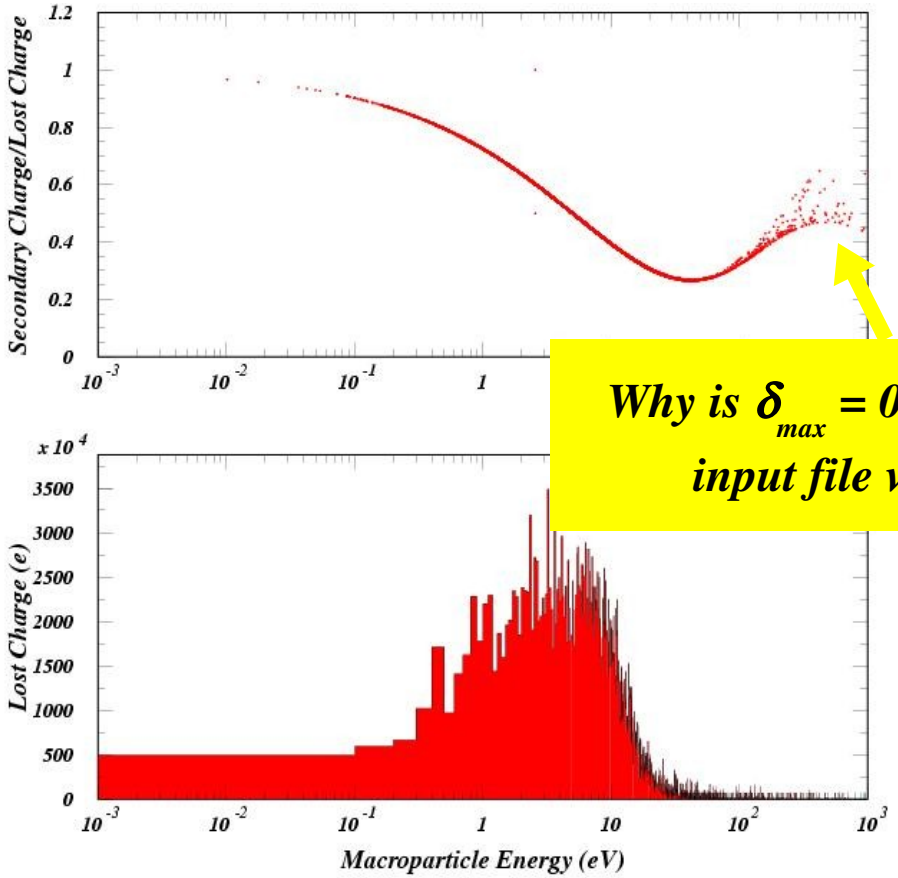
Electron Cloud Simulations Meeting

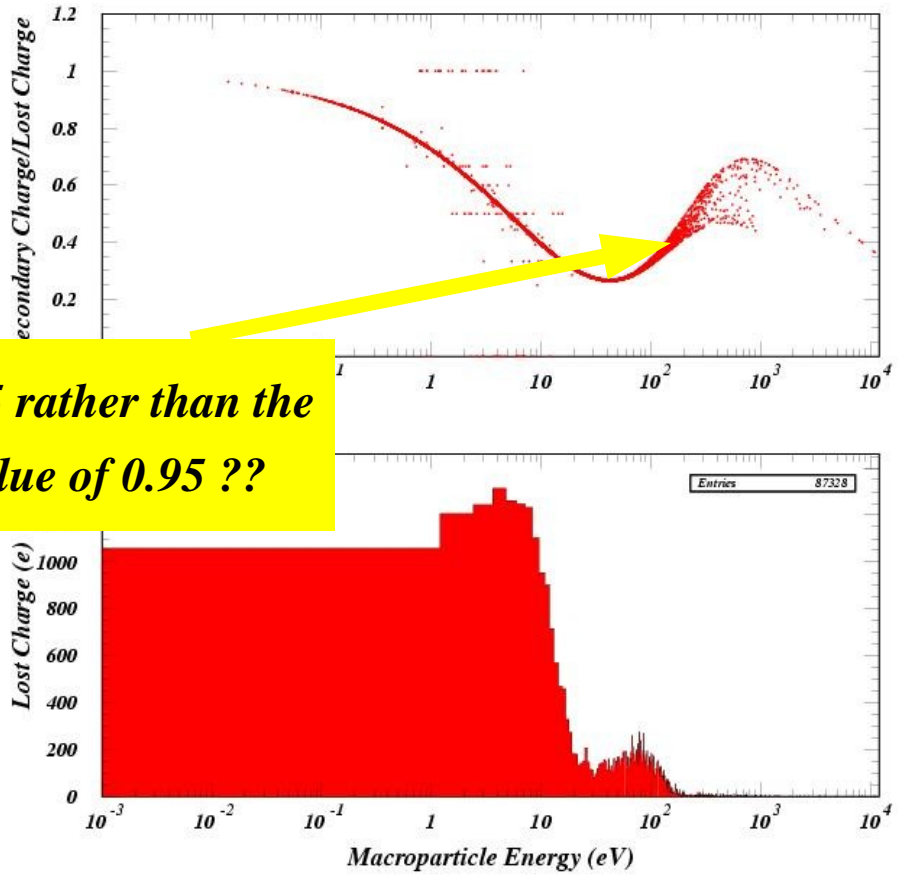
8 July 2009

CTA09 Talk Slide 11: ECLOUD Secondary Yield Distribution for TiN

Off resonance



On resonance



Why is δ_{max} = 0.5 rather than the input file value of 0.95 ??

The SEY curve for TiN results in a low yield region being populated by the resonant energy enhancement.

ECLOUD Routine Seiler

```
      if (inel.eq.1.or.inel.eq.2) then
        enem=yemax
          if(enem.le.300) then
            qtelast = frac1(enem)/(1-frac1(enem))
          else
            qtelast = frac2(enem)/(1-frac2(enem))
          endif
        if (inel.eq.2) then
          ene0=0.1d0
          qtene0 = yield(ene0,costheta0,yim,yemax)
          qtelast = dexp(-enem/4.d0)*(1.-qtene0*
     &          frac1(ene0)/(1-frac1(ene0)))+qtelast
        endif
      else if (inel.eq.3) then
          qtelast = ((sqrt(enem)-sqrt(enem+150))**2/(sqrt(enem)+
     &          sqrt(enem+150))**2)
      endif
c
c     rescale delta_max only for inel=2,3, not for inel=1,
c     to be consistent with Noel's fitting
c
      if (inel.eq.2.or.inel.eq.3) then
      yim=yim*yim/(yim+qtelast)
      endif
```

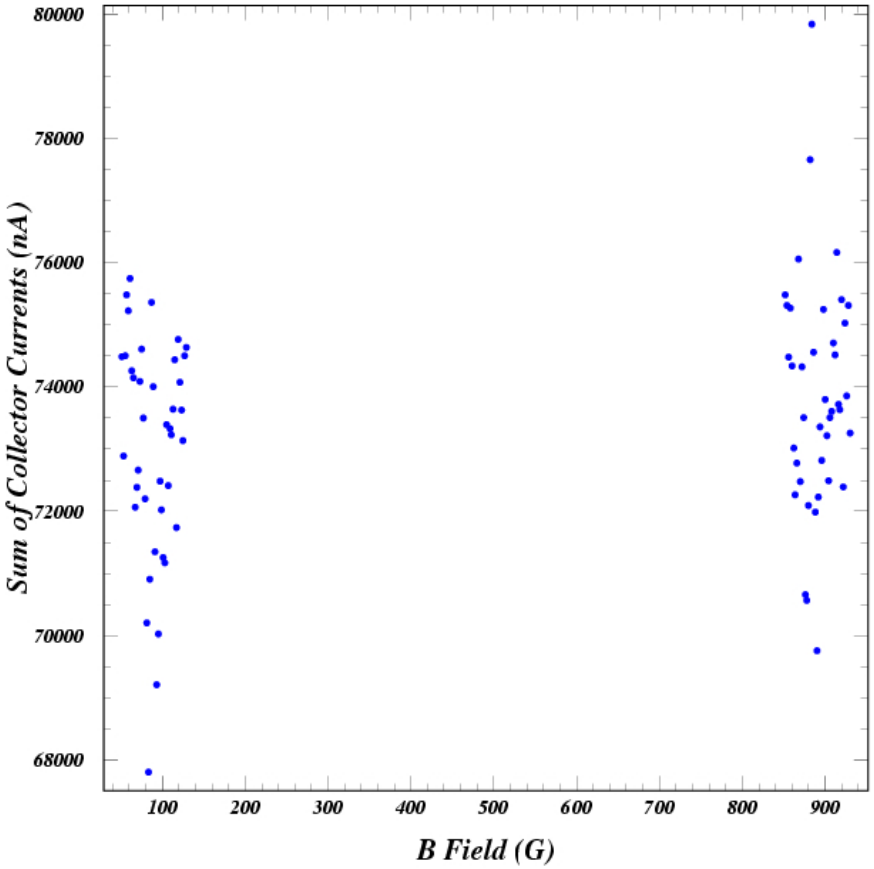
Variable enem not initialized for inel = 3, but used to rescale δ_{max}

Consequence: δ_{max} indeterminate

The bug affects only the results using the SEY elastic option 3 (CTA09).

Kanazawa suggestion: Scan δ_{max} and Epeak (after bug fix)

$\delta_{peak} = 0.8 \quad E_{peak} = 500\ eV$



ECLOUD can produce resonant suppression, but only for lower δ_{max} than we expect for TiN

List of ECLOUD Activities

1. Repeat modelling of CesrTA chicane data

(Improve input parameters with local lattice info)

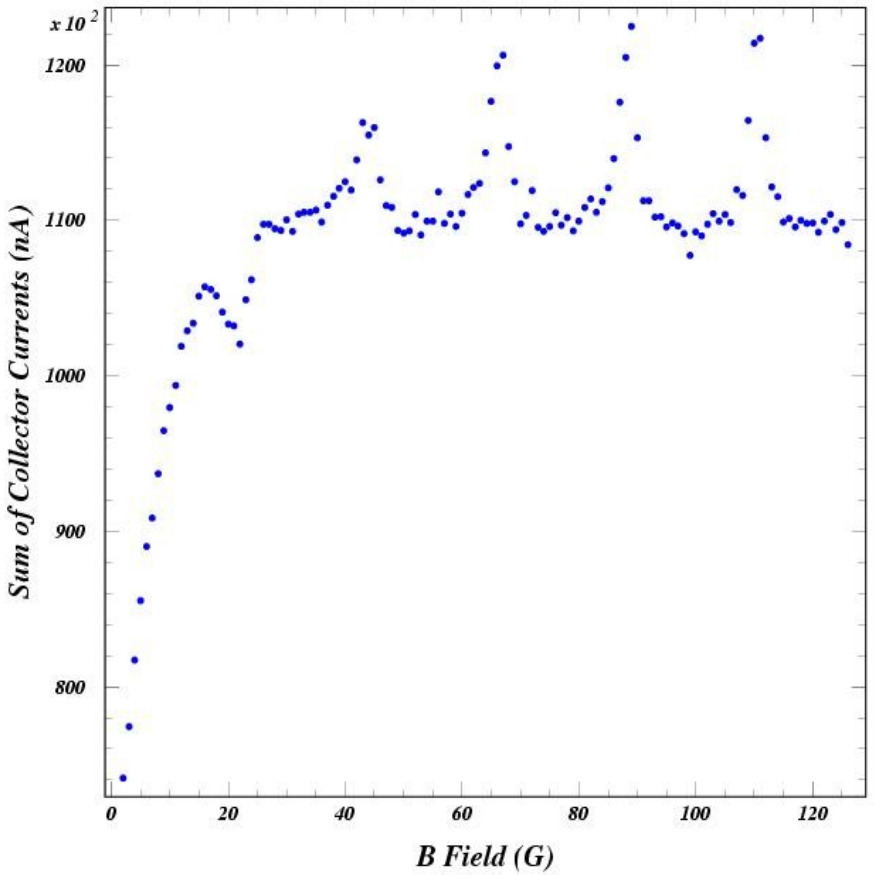
2. Collaboration with Mauro Pivi on comparing POSINST and ECLOUD results for both CesrTA and PEP-II data

3. Develop predictions for electron beam data in the chicane

(Eric Wilkinson)

Modelling Electron Beam in Chicane

$\delta_{peak} = 1.3 \quad E_{peak} = 310\ eV$



ECLOUD can find resonant maxima and minima in the same chicane scan

Caveat: ECLOUD bug still here. δ_{max} was rescaled from 2.0 to 1.3.