ECLOUD Simulations of Electron Cloud Buildup in Q48W Including Clearing Effect of a Witness Train

Jim Crittenden

Electron Cloud Meeting

6 November 2013
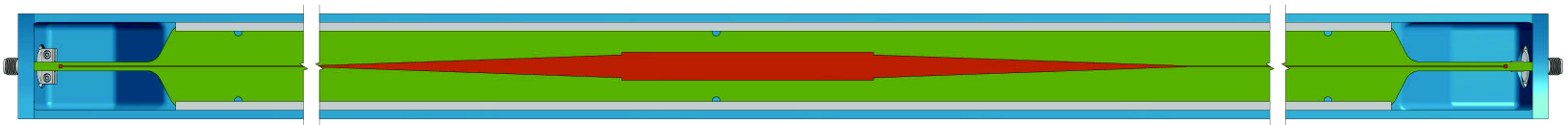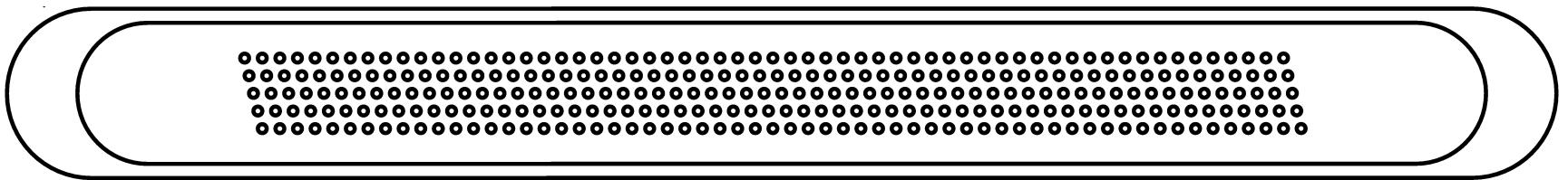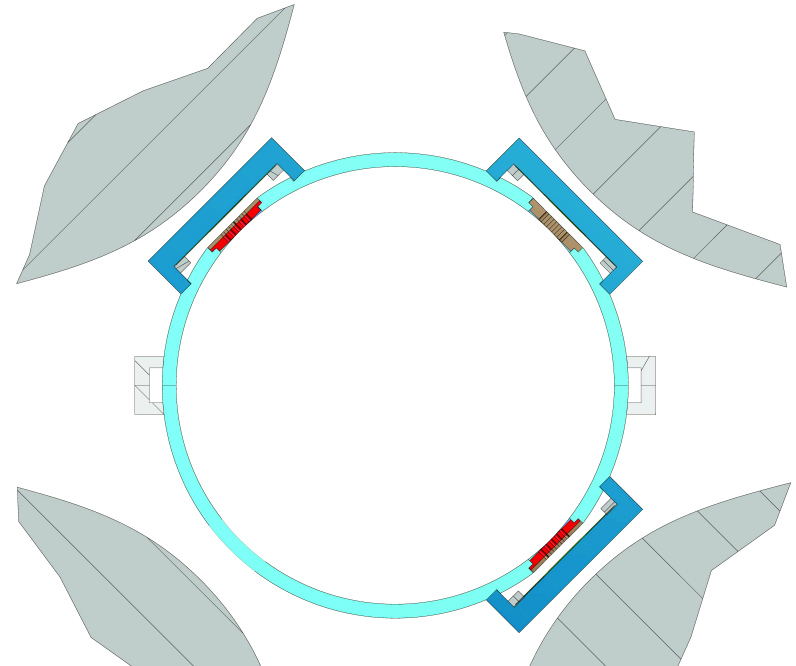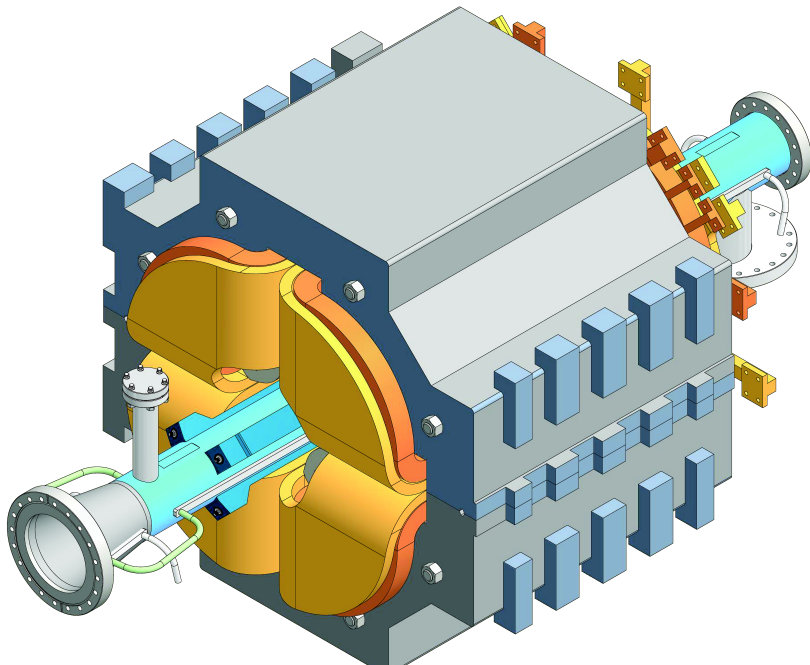
Cornell University
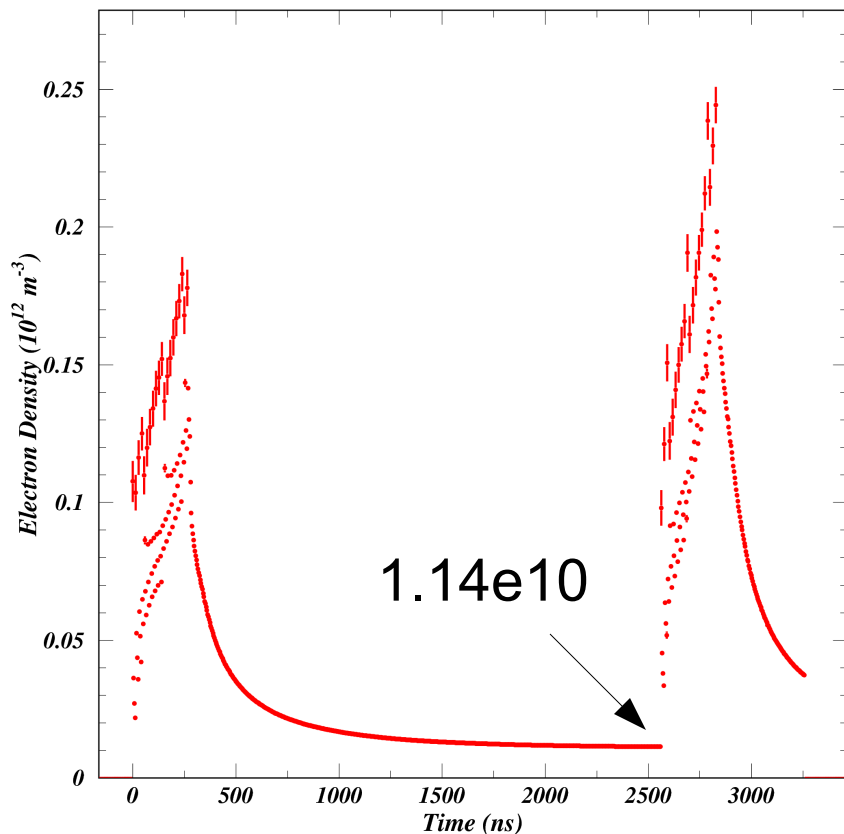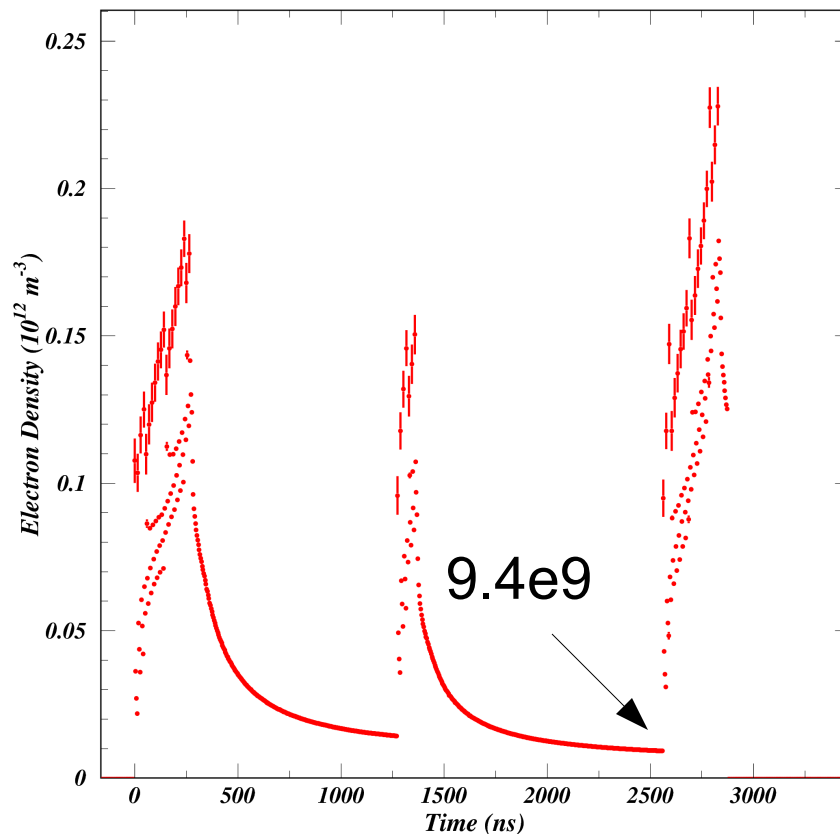Laboratory for Elementary-Particle Physics

Cornell University
Laboratory for Elementary-Particle Physics

Without 7-bunch witness train

With 7-bunch witness train

Total density at the end of the first turn is 18% lower.

Cornell University
Laboratory for Elementary-Particle Physics

Without 7-bunch witness train

With 7-bunch witness train

Excess signal from trapped electrons

Collector Signal (V)

6/19/13 Trace 46

6/19/13 Trace 4

ECLOUD job 35904 T_0=2562 ns

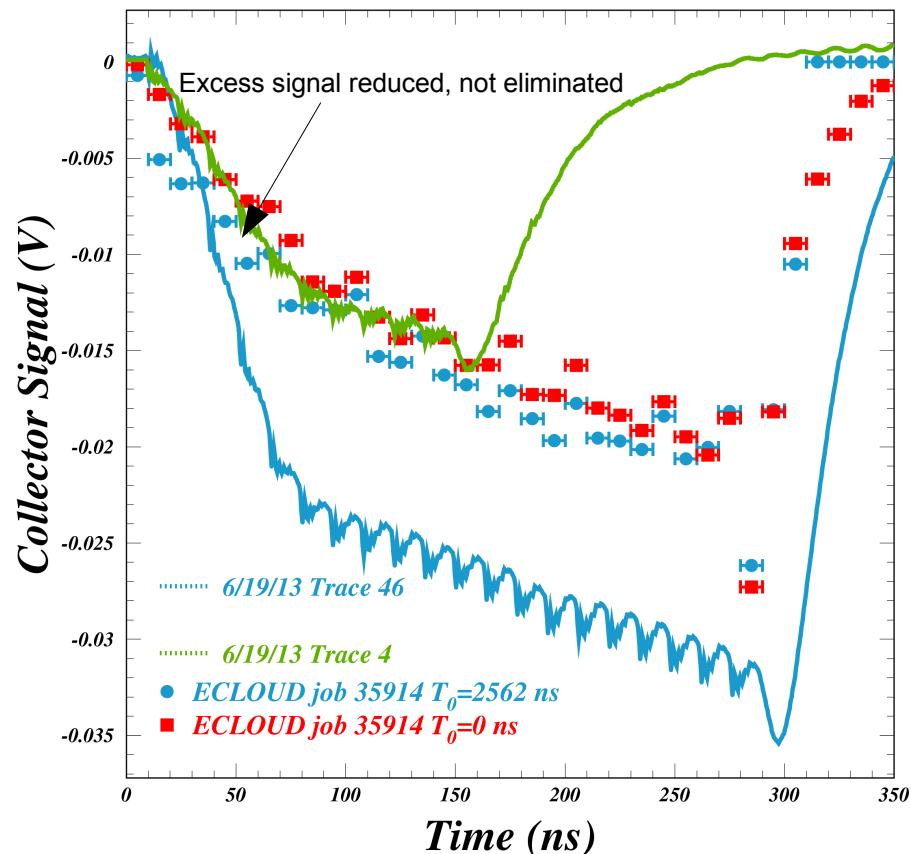ECLOUD job 35904 T_0=0 ns

Time (ns)

Excess signal reduced, not eliminated

Collector Signal (V)

6/19/13 Trace 46

6/19/13 Trace 4

ECLOUD job 35914 T_0=2562 ns

ECLOUD job 35914 T_0=0 ns

Time (ns)
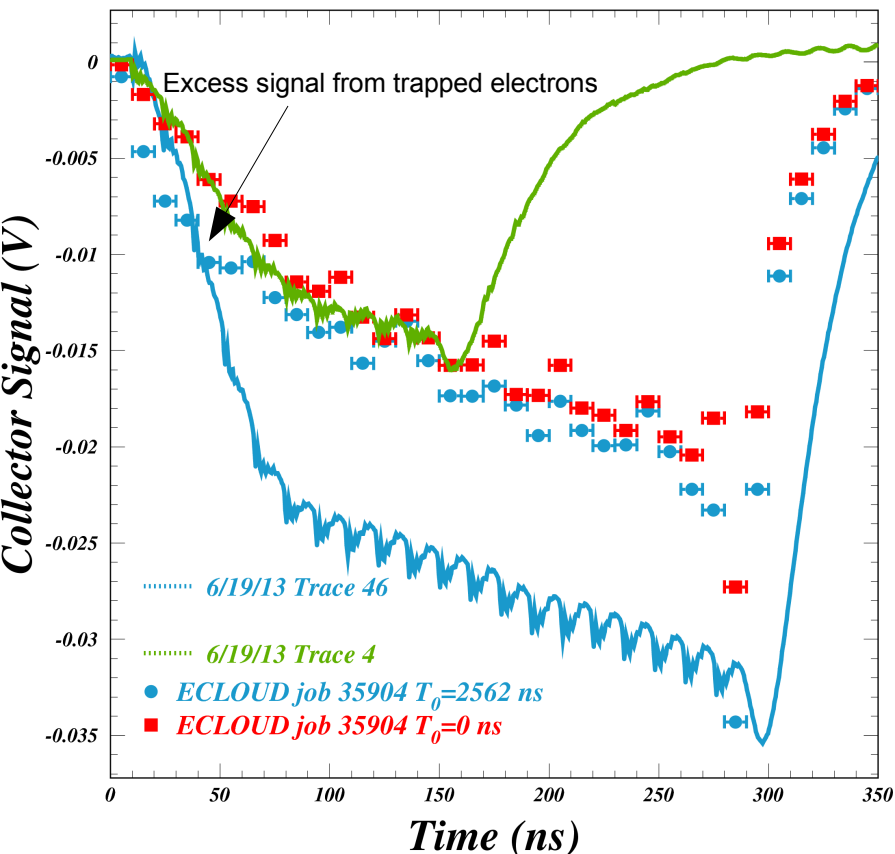
**Contribution from signal macroparticles with age > 1 μs reduced.
Model SEY needs tuning to increase cloud lifetime.**