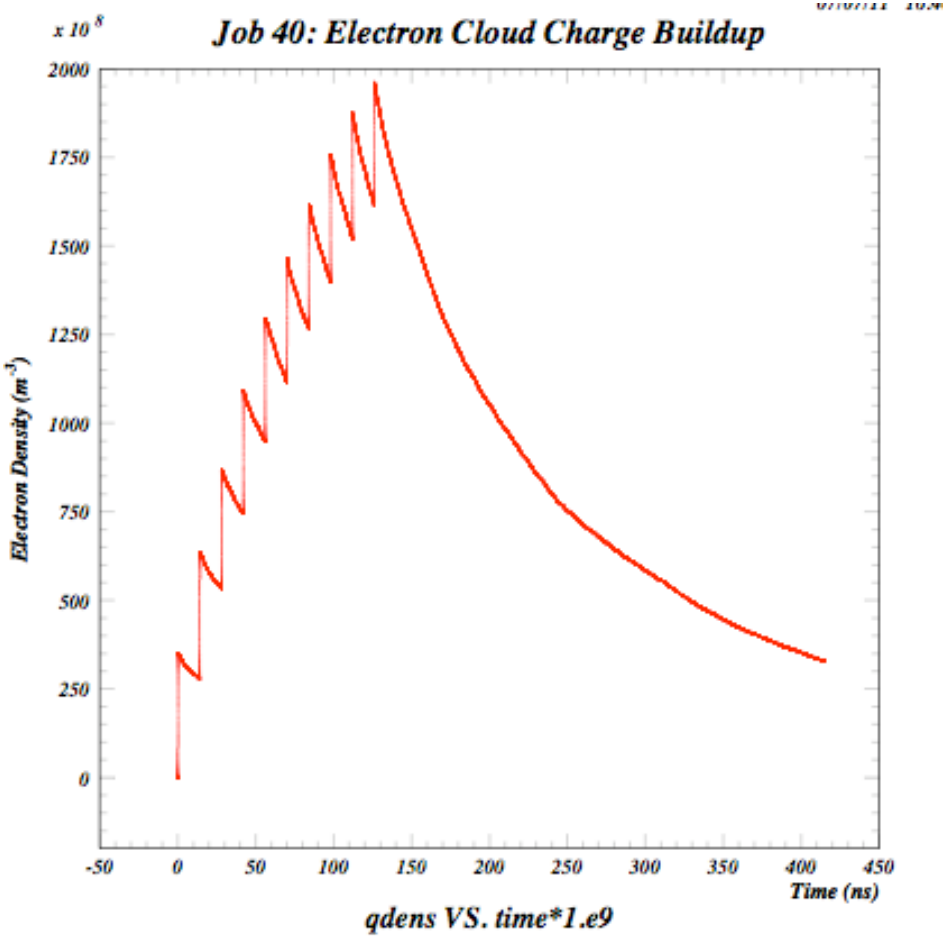
ECLOUD Modeling

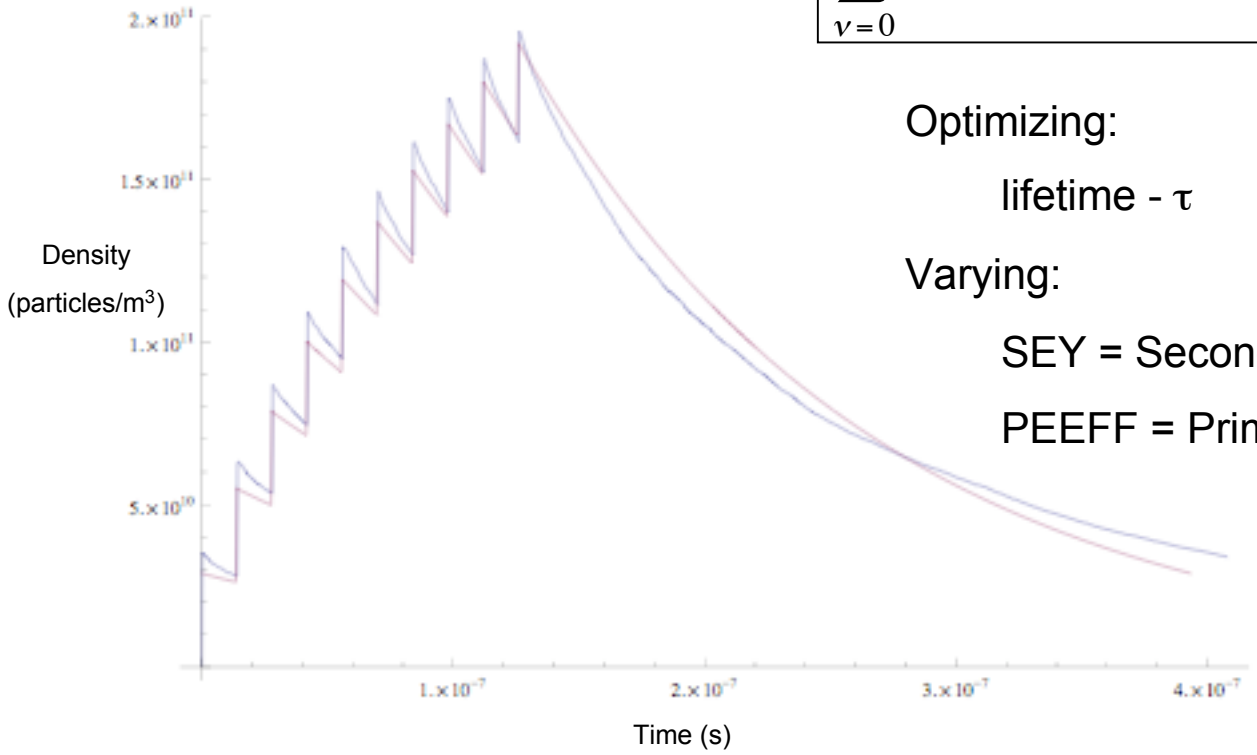


Parameters

- 10 bunches
- 14ns bunch spacing
- 2.085 GeV
- dipole magnetic field

Mathematica Fitting

$$\sum_{\nu=0}^{N_b-1} \Delta(\tau) \cdot h(t - T\nu) \cdot e^{-\frac{t-T\nu}{\tau}}$$



Optimizing:

lifetime - τ

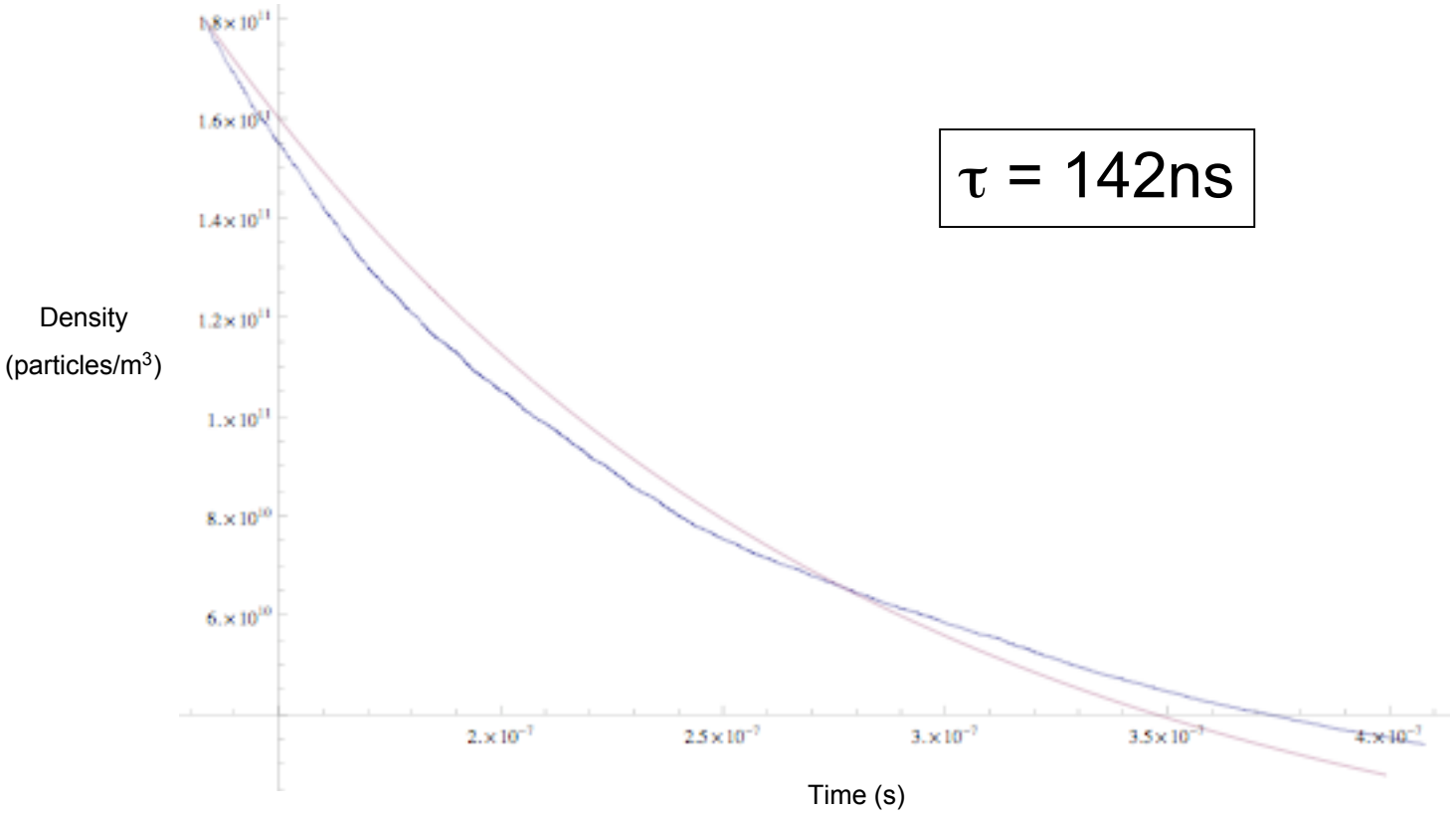
Varying:

SEY = Secondary Emission Yield

PEEFF = Primary Photoemission Yield

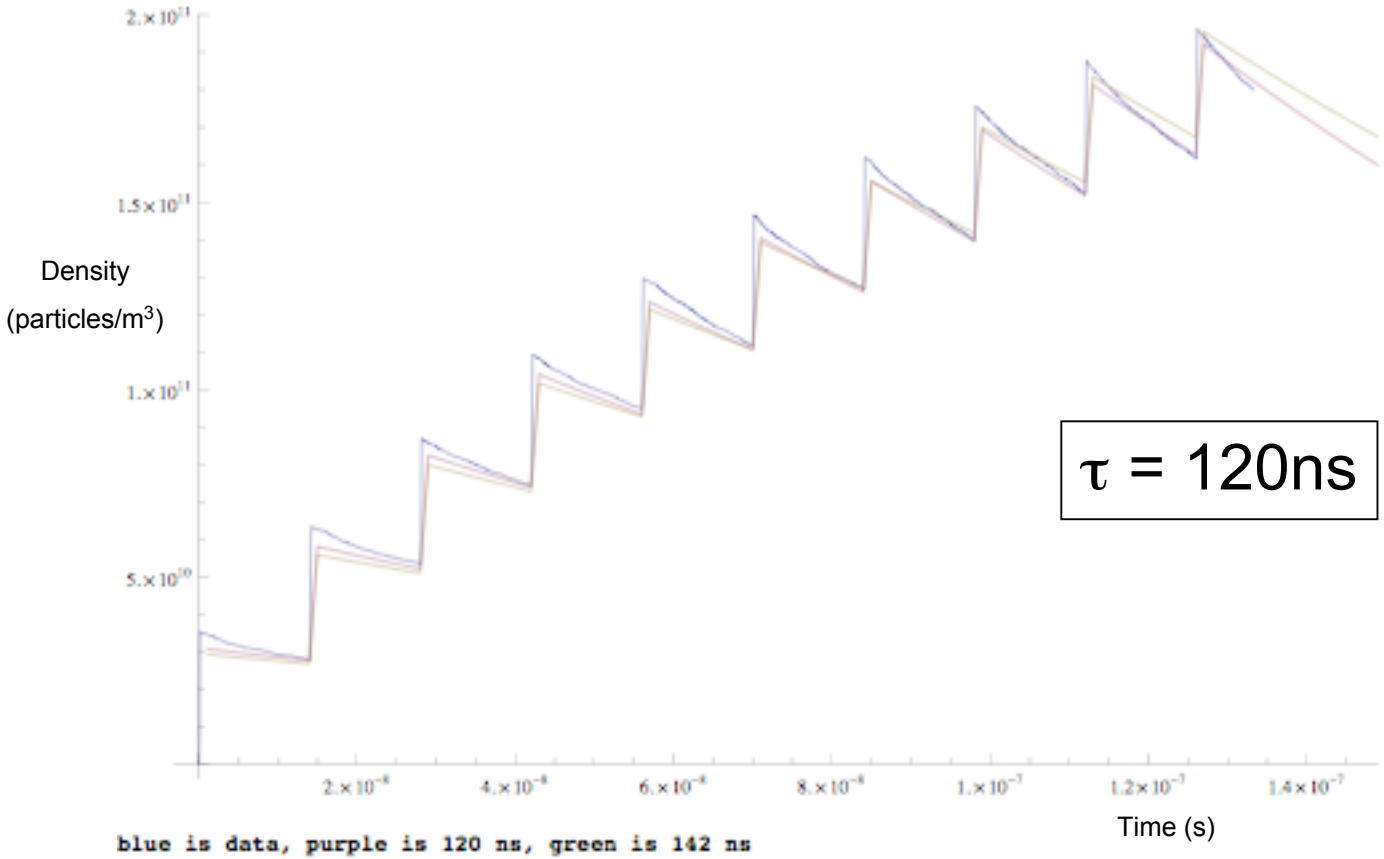
Job Name	Field (Gauss)	SEY	PEEFF	Lifetime (ns)	Δ	Rel Error	Max Density
job39	0	1.4	0.01	142	2.88E+10	0.452	1.96E+11
job40	500	1.4	0.01	142	2.88E+10	0.452	1.96E+11
job41	1000	1.4	0.01	142	2.88E+10	0.452	1.96E+11
job42	1500	1.4	0.01	142	2.88E+10	0.452	1.96E+11
job43	2000	1.4	0.01	142	2.88E+10	0.452	1.96E+11
job44	2000	1	0.01	105	2.73E+10	0.633	1.62E+11
job45	2000	1.8	0.01	239	3.16E+10	0.232	2.51E+11
job46	2000	2.2	0.01	x	x	x	x
job47	2000	1.4	1	35	2.37E+12	4.312	7.20E+12
job48	2000	0.8	0.01	93	2.73E+10	0.702	1.53E+11
job49	2000	2	0.01	397	3.68E+10	0.255	3.19E+11

Tail Fit



τ = 142ns

Head Fit



τ = 120ns