



I. New Utility PESPECT for Optimizing Photoelectron Production Kinematics to Match Shielded Button Measurements

- Reads ECLLOUD output and shielded button measurements from multiple sim jobs & measurements
- Optimizes time bin weight function using CERN library MINUIT package
- Correlates weight function to photoelectron production kinetic energy

II. ECLLOUD/POSINST comparison for the March 2010 on-axis coherent tune shift measurements

All material for this talk, including full sets of the analysis plots, may be obtained at www.lepp.cornell.edu/~critten/cesrta/ecloud/12may10

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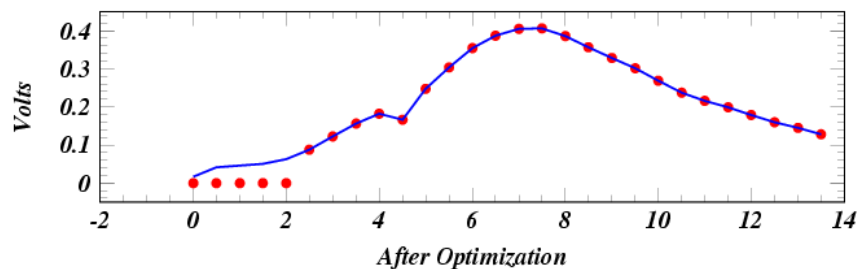
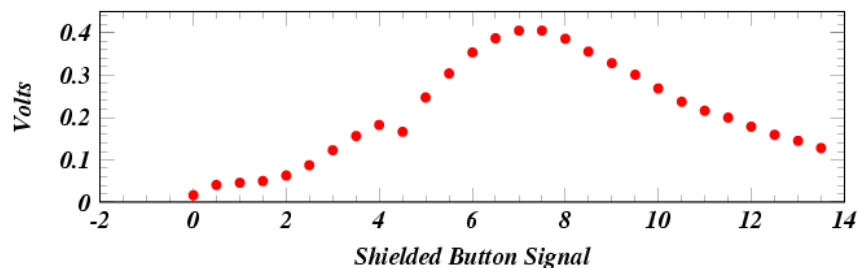
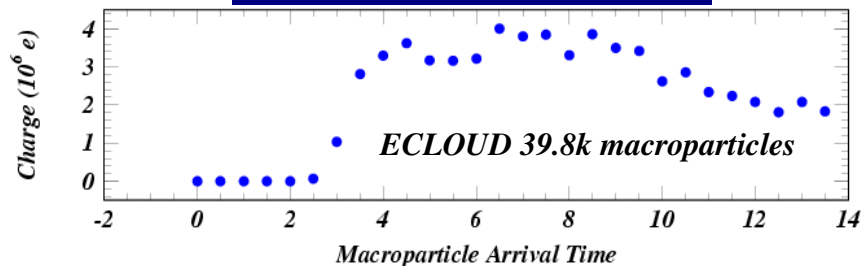
Electron Cloud Meeting

12 May 2010

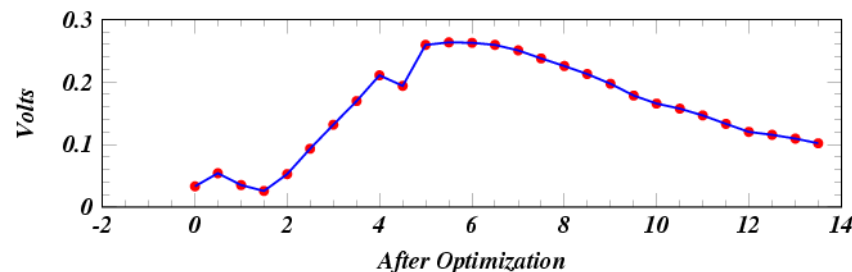
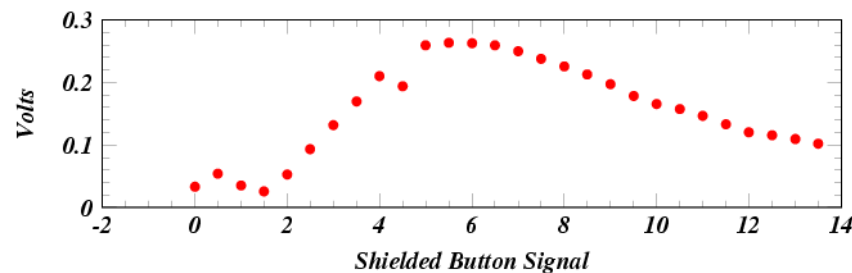
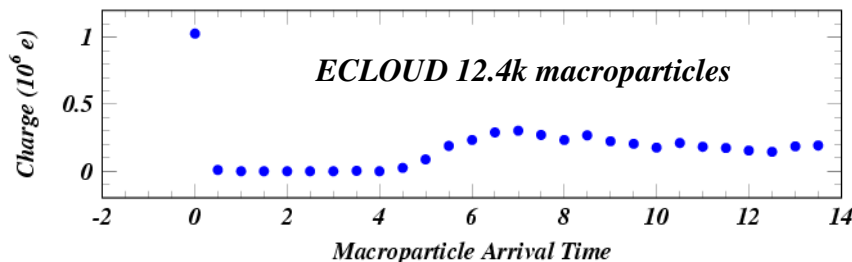




Positron beam



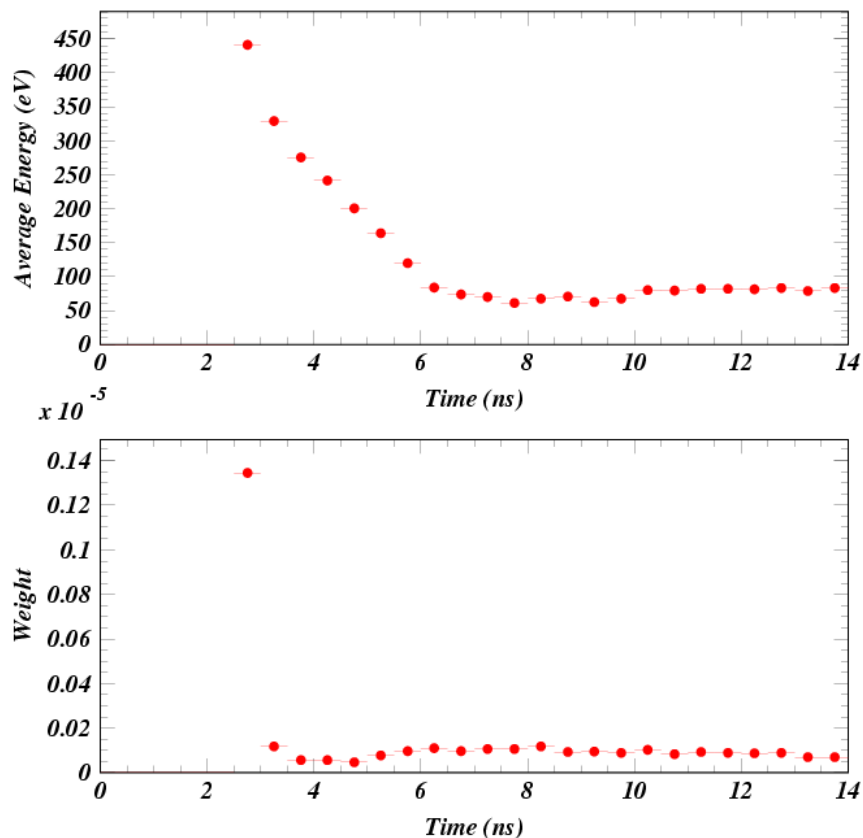
Electron beam



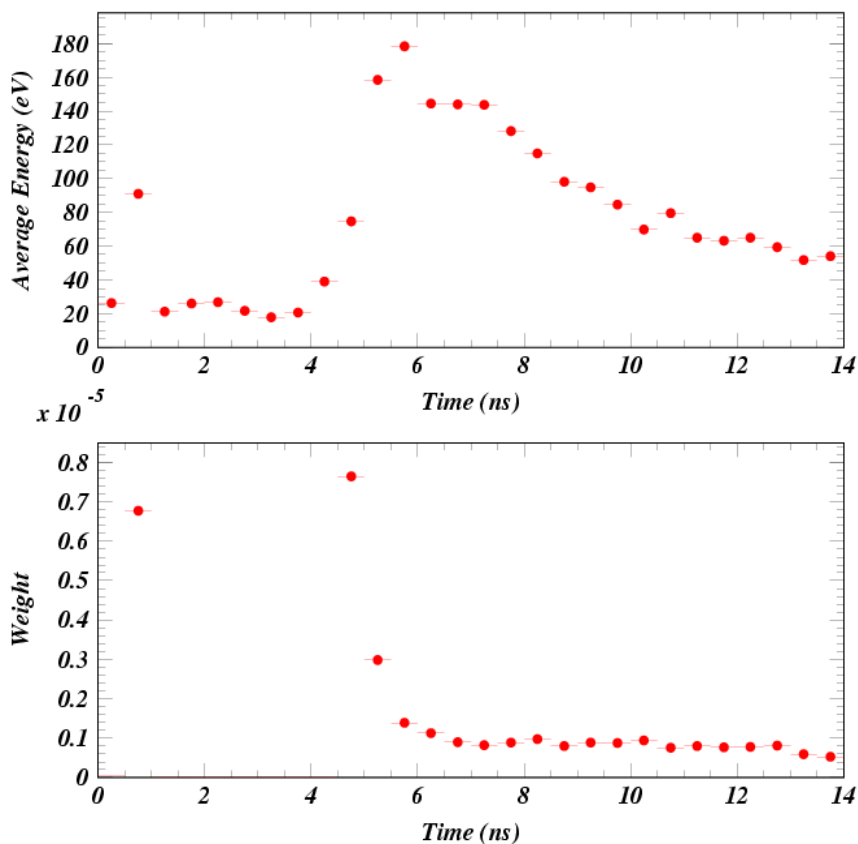
For simplicity, PESPECT analyzes the two data sets separately. No optimization, since there are 28 variables for 28 DOF.
The positron simulation provides no information for arrival times less than 2 ns (i.e. energies greater than 500 eV).
The prompt signal in the electron simulation indicates that there are too many photoelectrons of energy less than 50 eV.



Positron beam



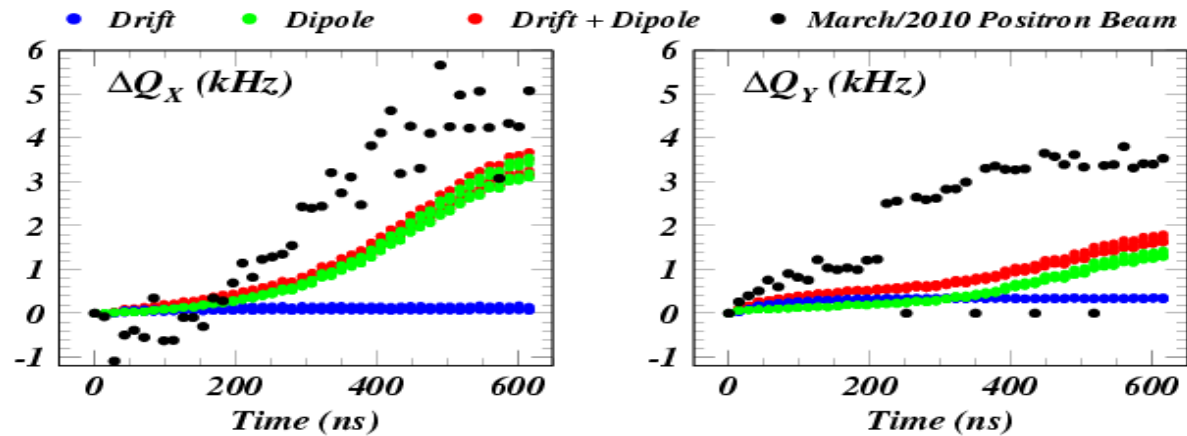
Electron beam



*The positron data shows a dearth of photoelectrons with more than 350 eV
The electron data requires more photoelectrons with more than 80 eV.*

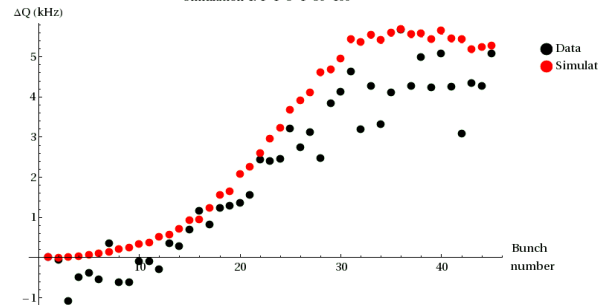


*ECLOUD
with
POSINST input parameters*

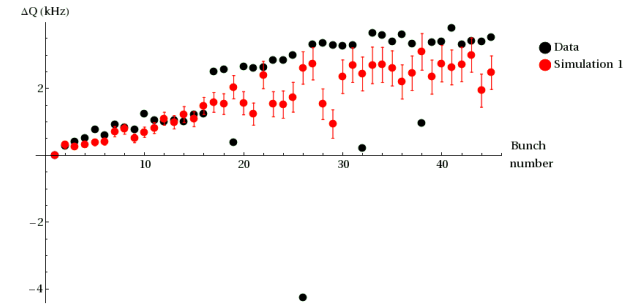


*POSINST
DLK Presentation 5 May 2010*

Horizontal Coherent tune shift vs. bunch number
field gradients
Data: 'Tune shift data 2.100 GeV 45 bunch train 1.30 mA/bunch positron 20100323 19:40:58 (RD-001174)'
Simulation 1: 1-1-5-1-50-100



Vertical Coherent tune shift vs. bunch number
field gradients
Data: 'Tune shift data 2.100 GeV 45 bunch train 1.30 mA/bunch positron 20100323 19:40:58 (RD-001174)'
Simulation 1: 1-1-5-1-50-100



*Modeled tune shifts derived from electric field gradients at the center of the vacuum chamber for on-axis positron beam.
ECLOUD calculates a time dependence similar to the on-axis gradients for 4-ns spacing, where ECLOUD and POSINST agree.
Understanding the present discrepancy may yield the physical reason for the apparent saturation effect.*