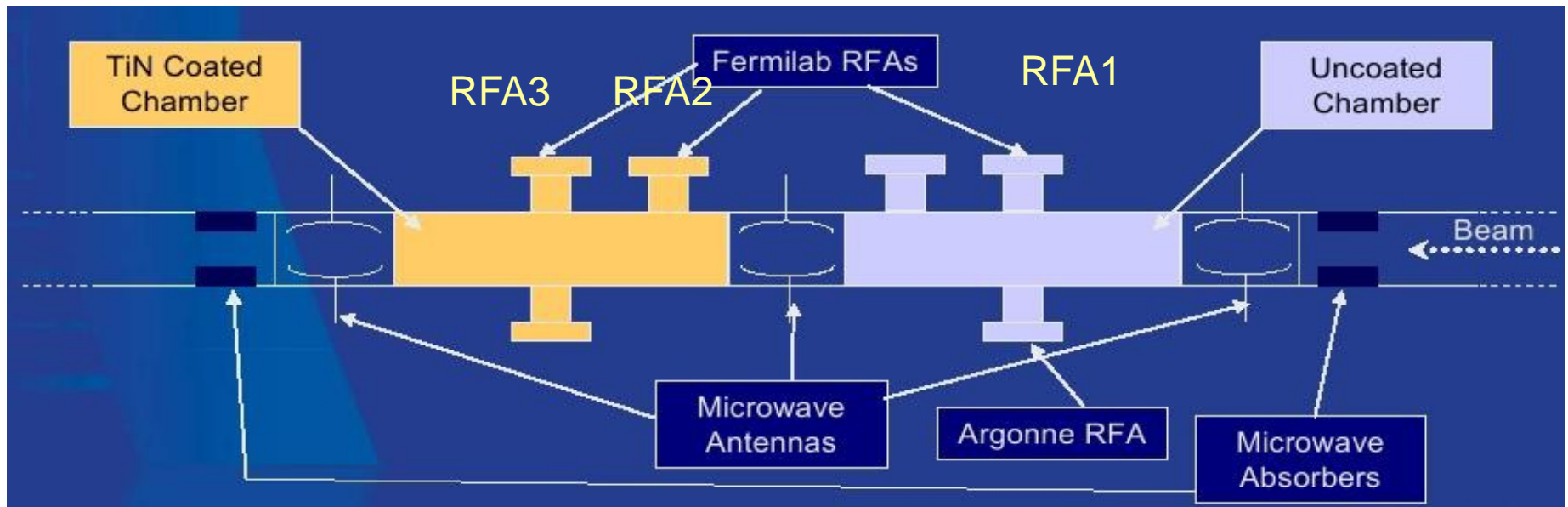# Ecloud Energy Distribution
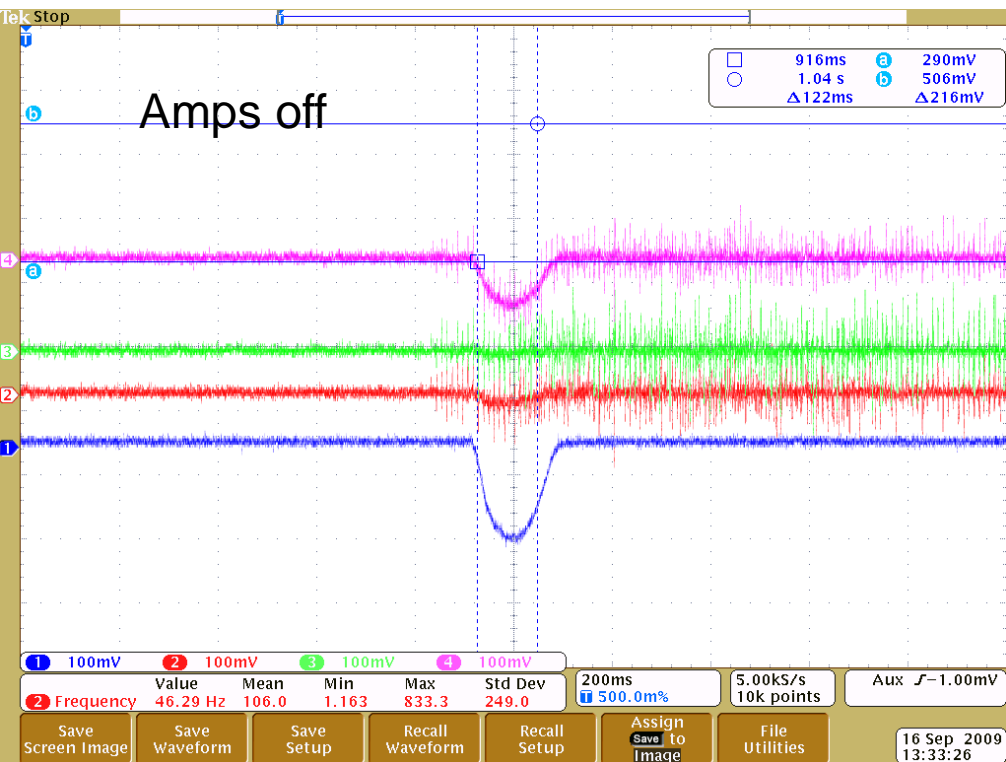
C.Y. Tan
24 Sep 2009

Setup

Picture is from Bob's talk at
Project-X Meeting
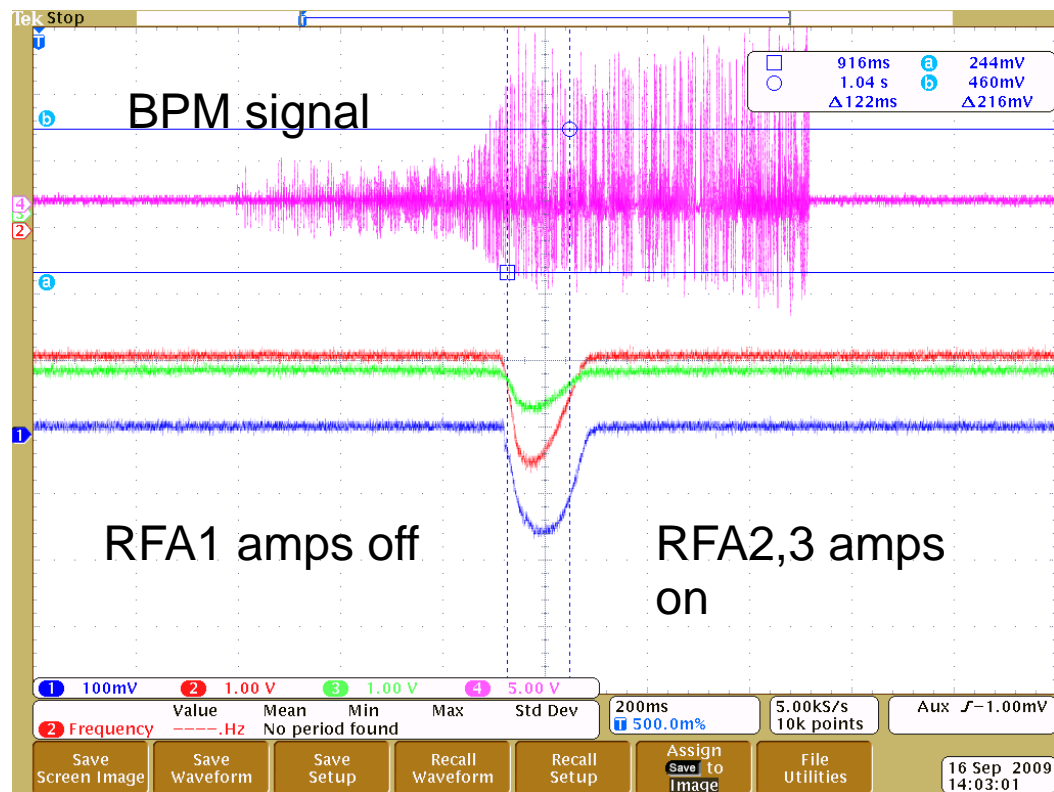
Data taken on 16 Sep

RFA3 signal ~10x
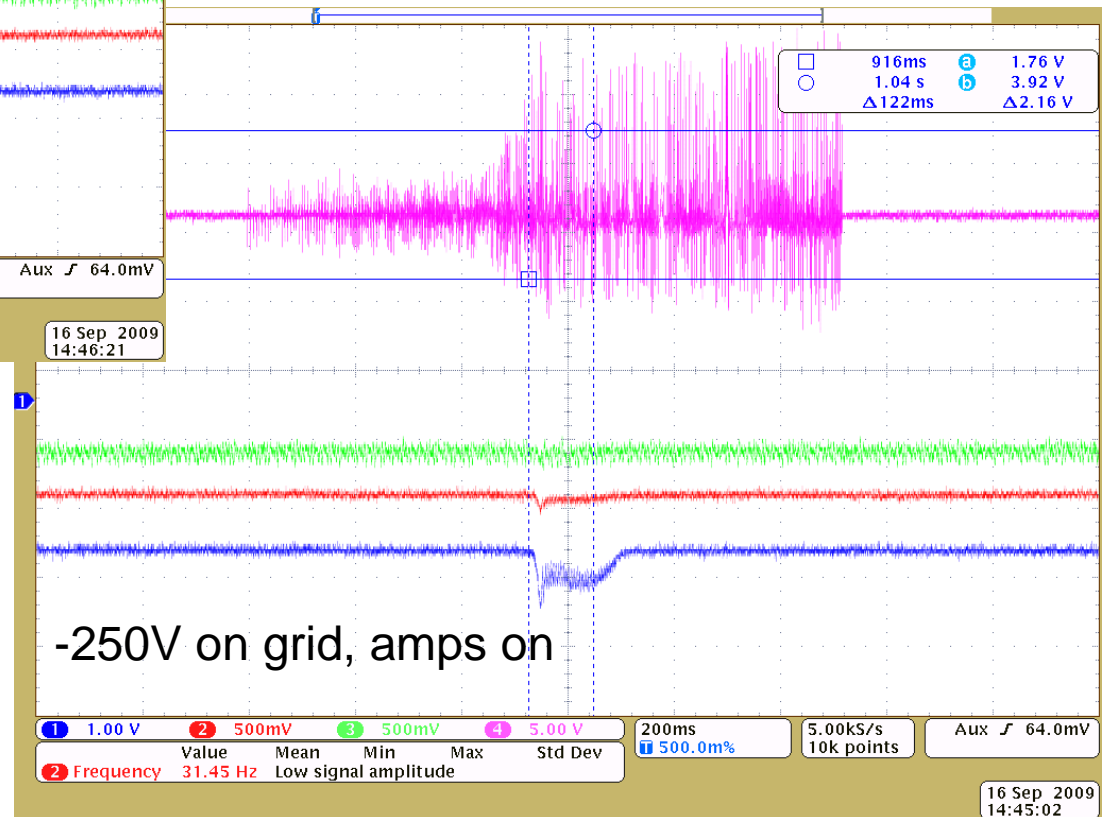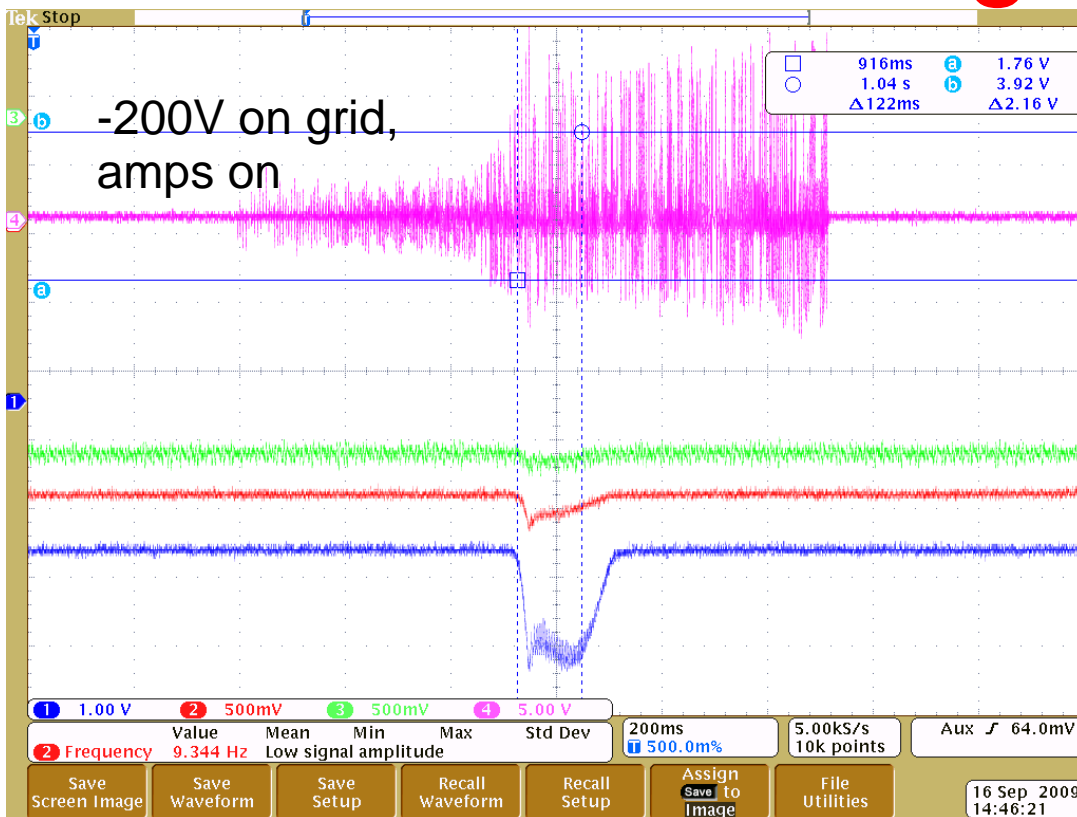smaller than RFA1.
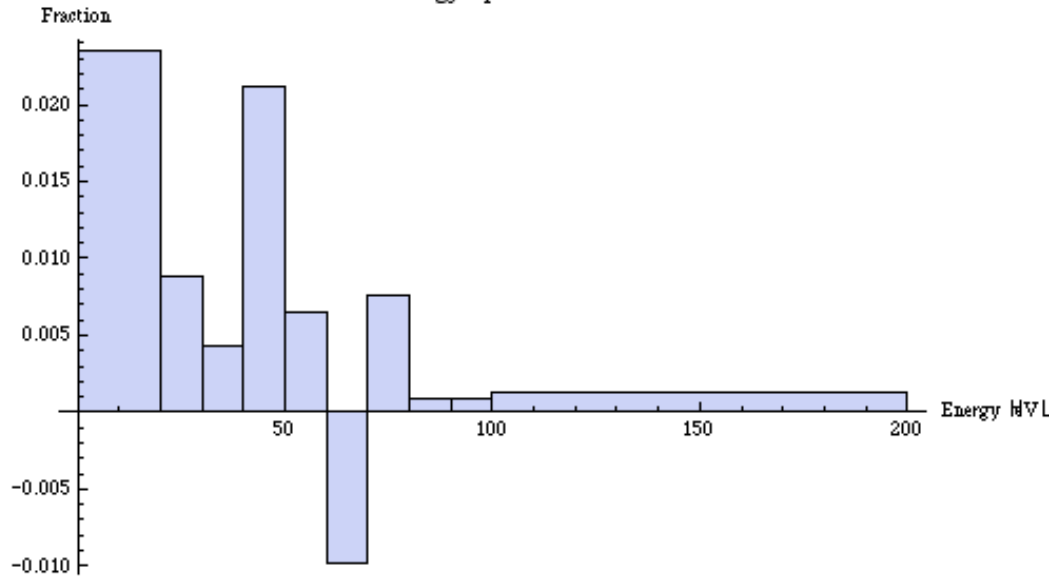Beam current is 12e12.

RFA1 signal about
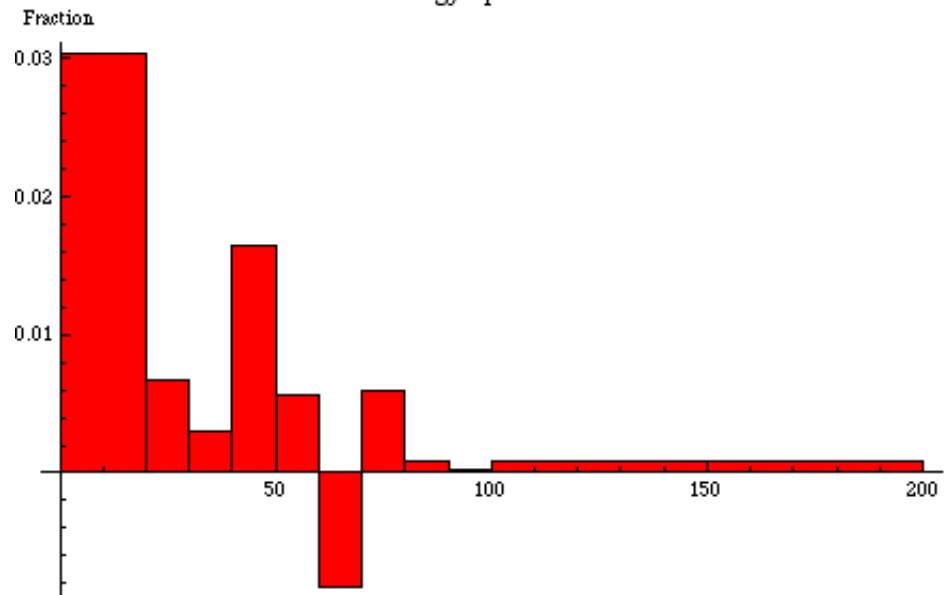-150mV peak

Interesting Structures

Energy Spectrum

RFA2,3 amplified.
Ignore 0-20eV?
Max energy around 40-50eV.

Definition of fraction:
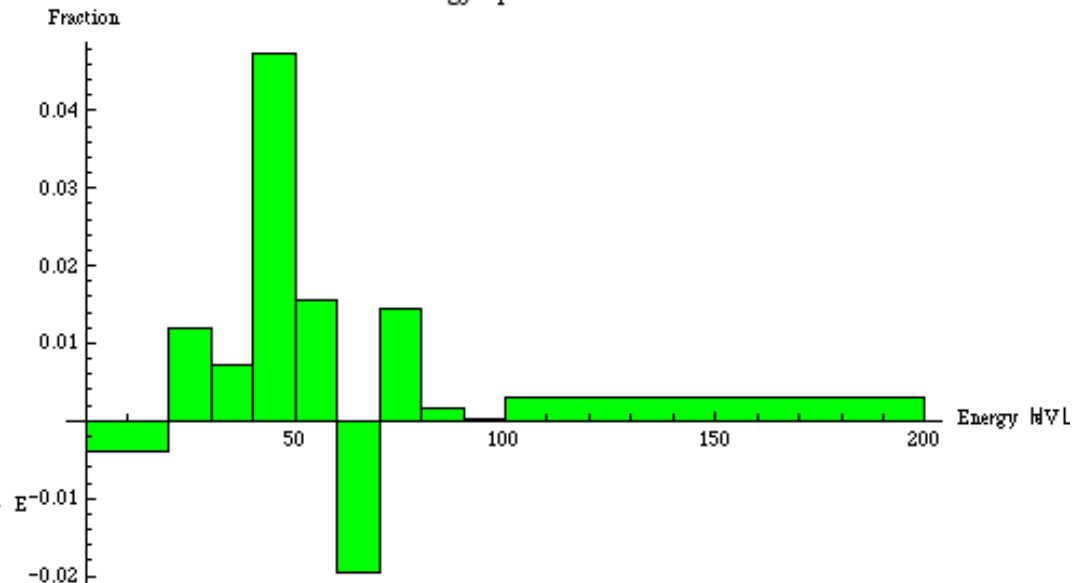Qtot = all the charge in the time slice 1 to 1.05 s at "0" volts

Fraction = total Q in energy slice (e.g. 20 to 30V) in time slice 1 to 1.05s /(Width of energy slice * Qtot).

Data taken on 18Sep

Beam current 30e12, RFA3
only 2x smaller than RFA1

No amps,
grid -20V

No amps,
grid -280V
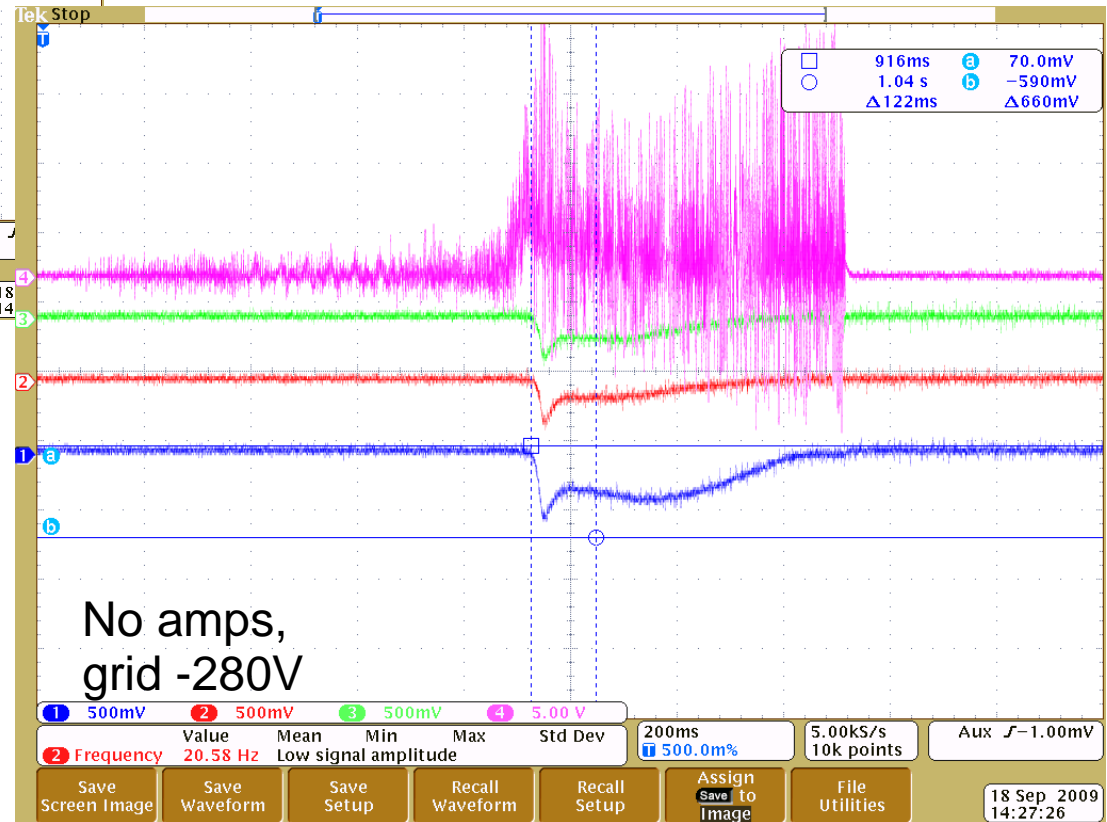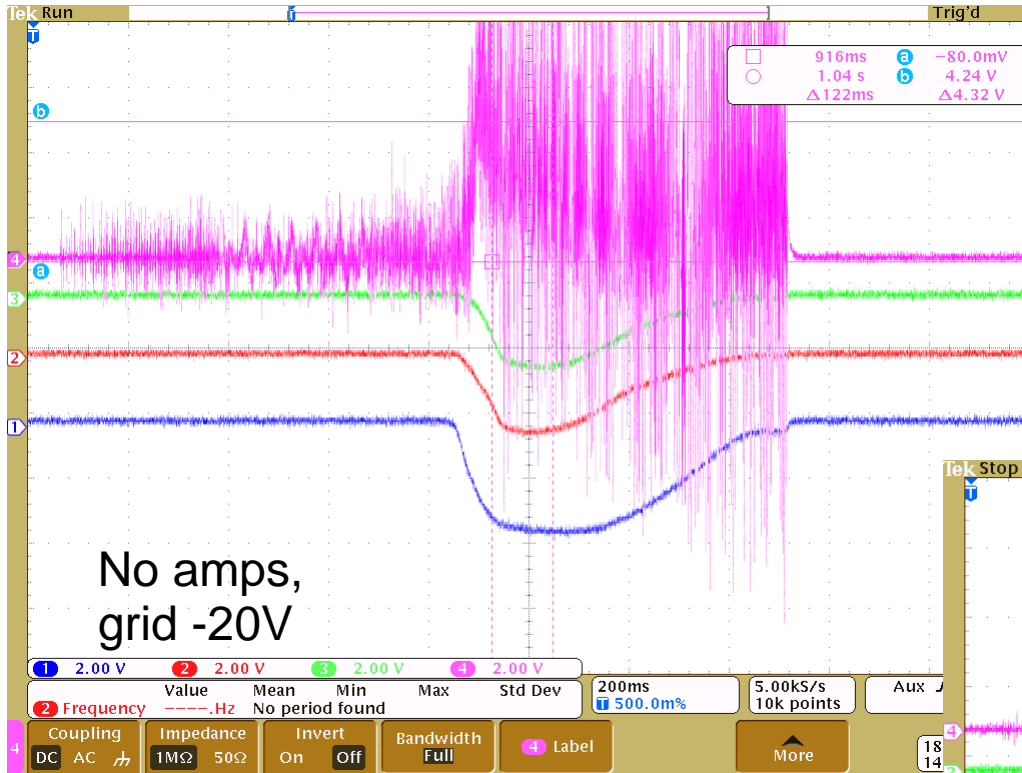
Zoomed in data
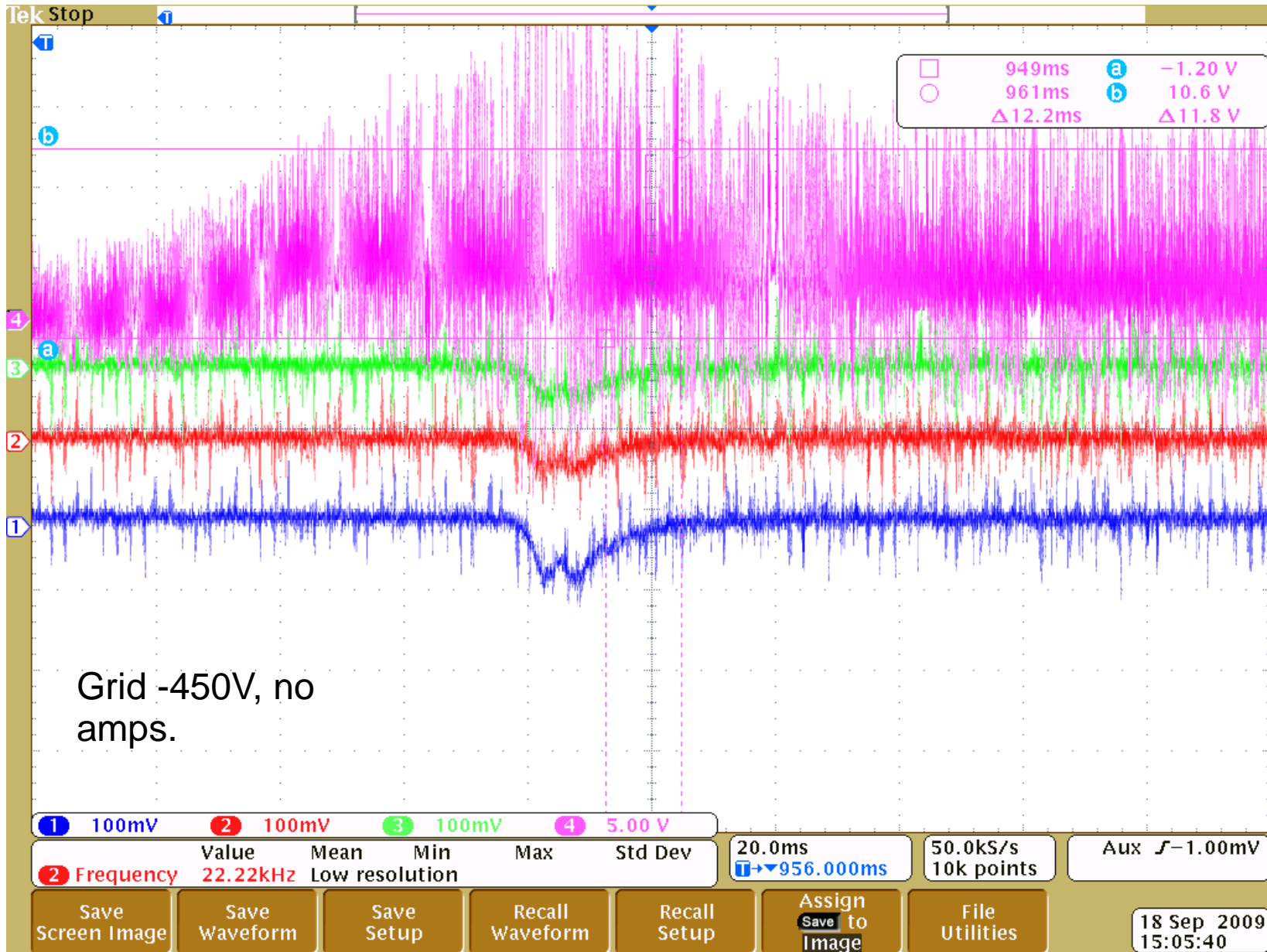
Ecloud Energy Spectrums

RFA1 Ecloud Energy Spectrum from 1s to 1.05s

Distribution around 1 to 1.05s, near max dip.

RFA2 Ecloud Energy Spectrum from 1s to 1.05s

RFA3 Ecloud Energy Spectrum from 1s to 1.05s

Zoomed in Energy Spectrum (Dip1)
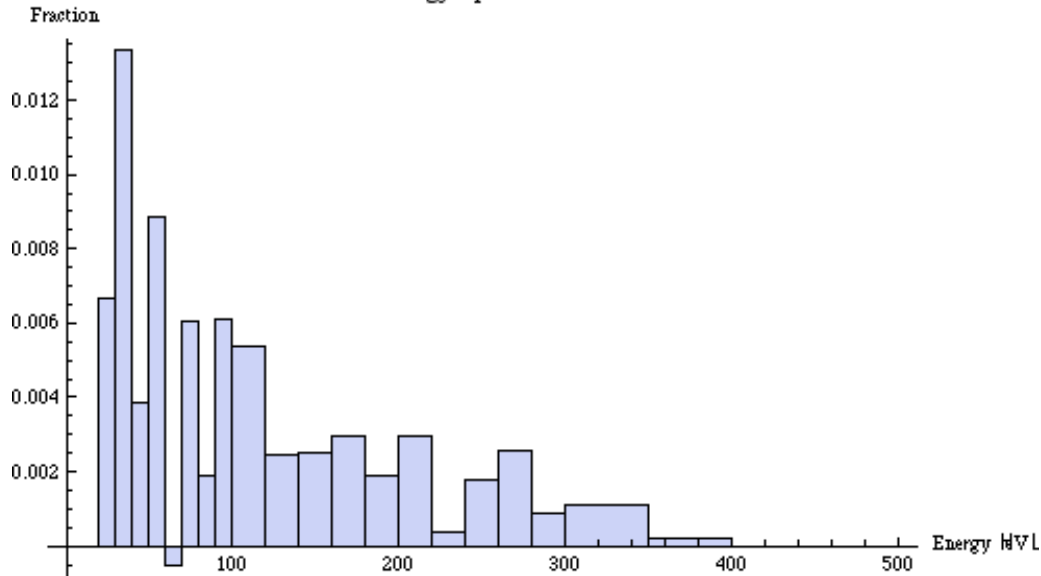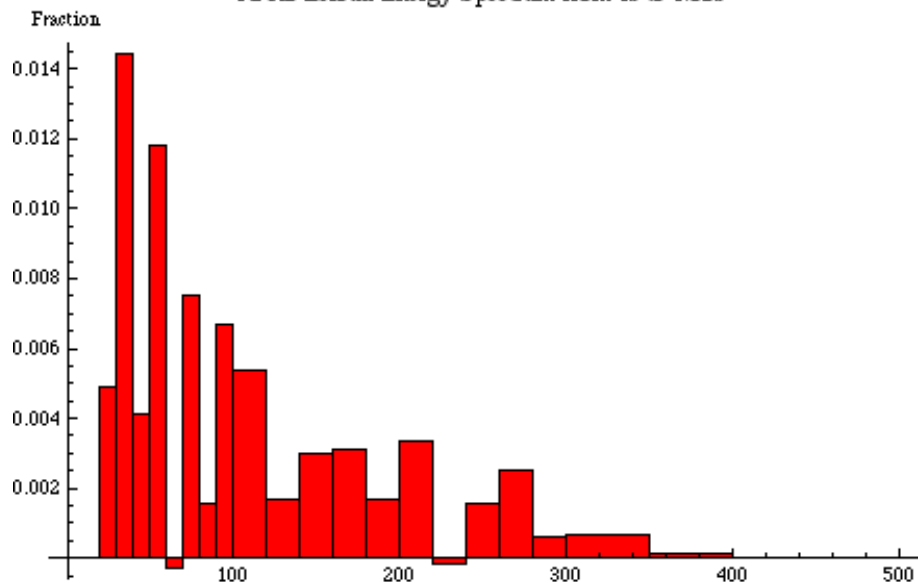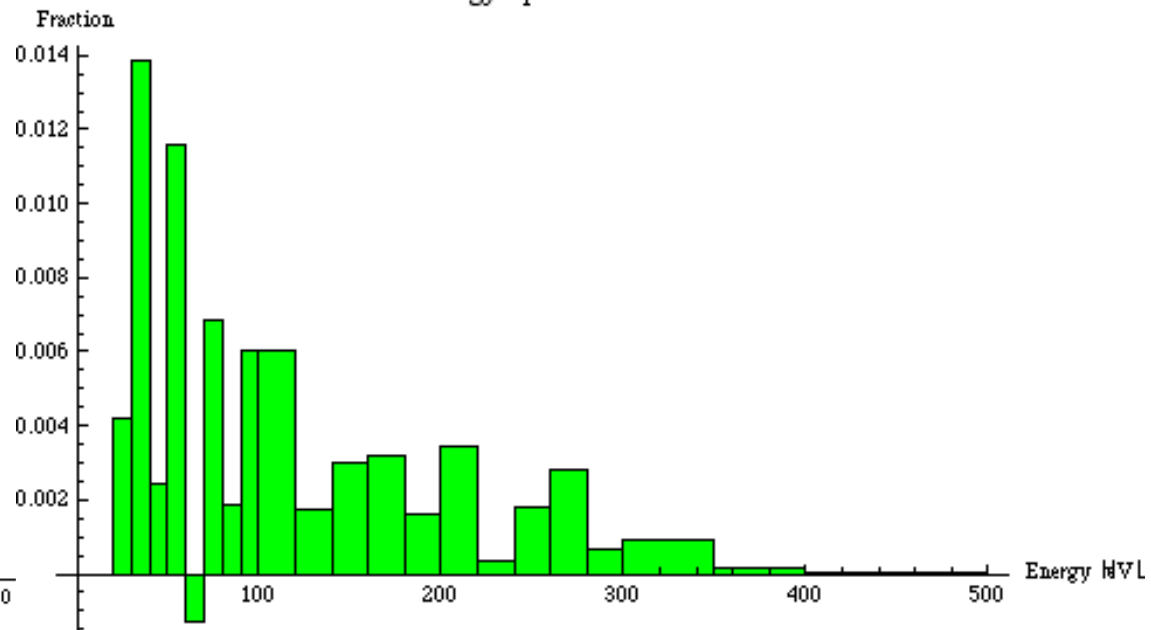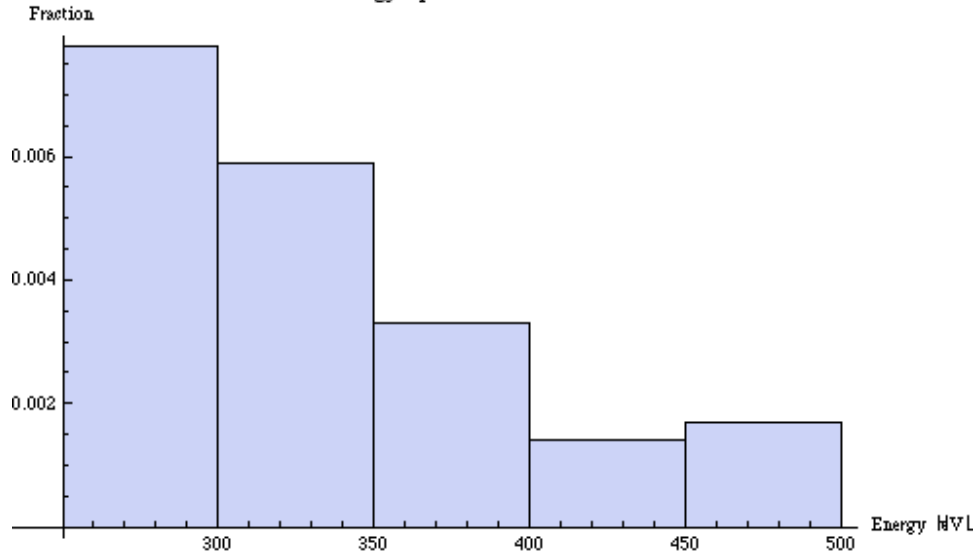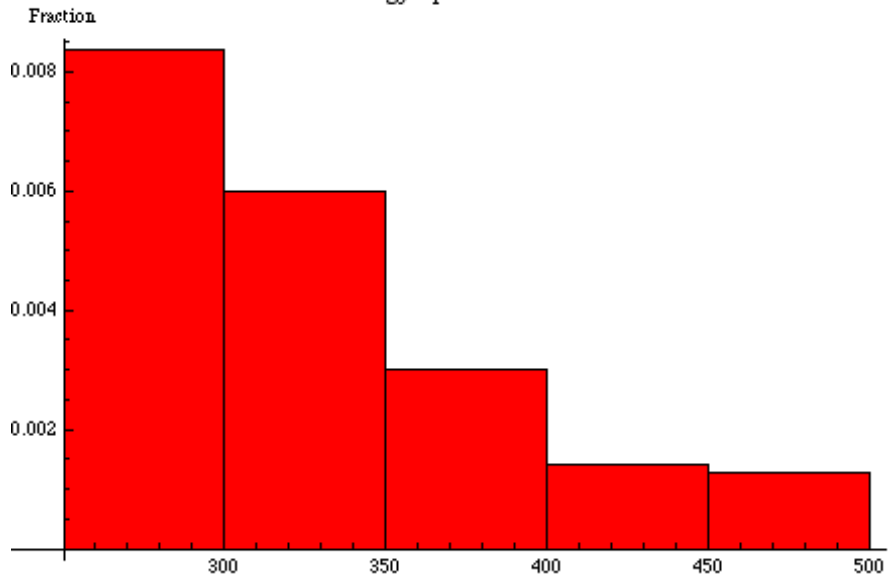

0.934 to 0.941 s

Zoomed in Energy Spectrum (Dip2)
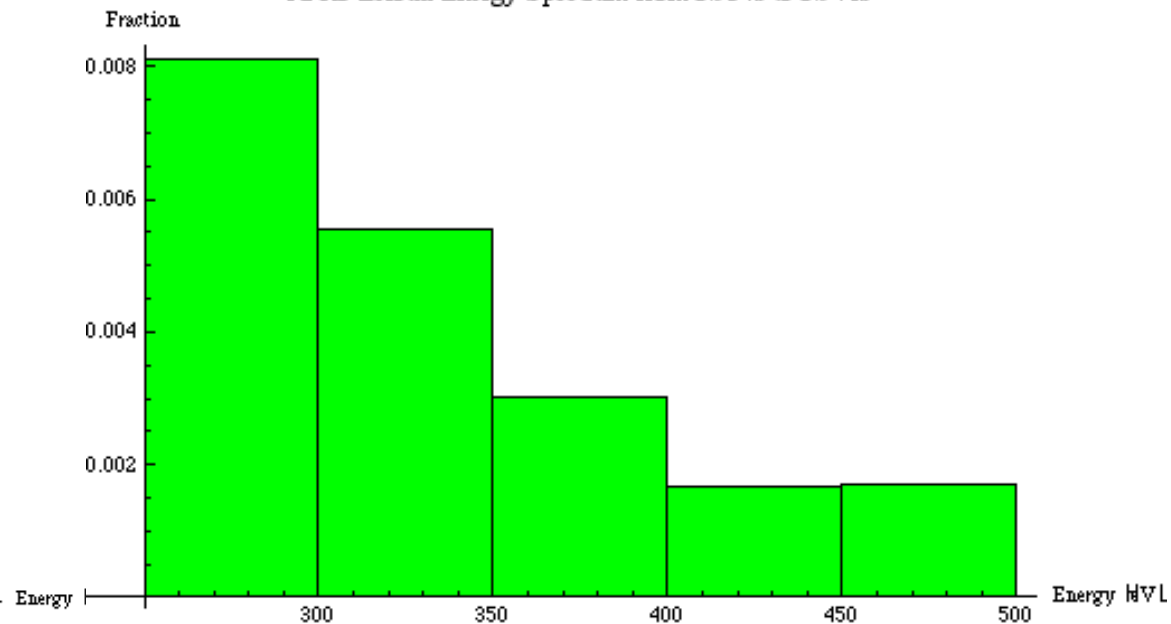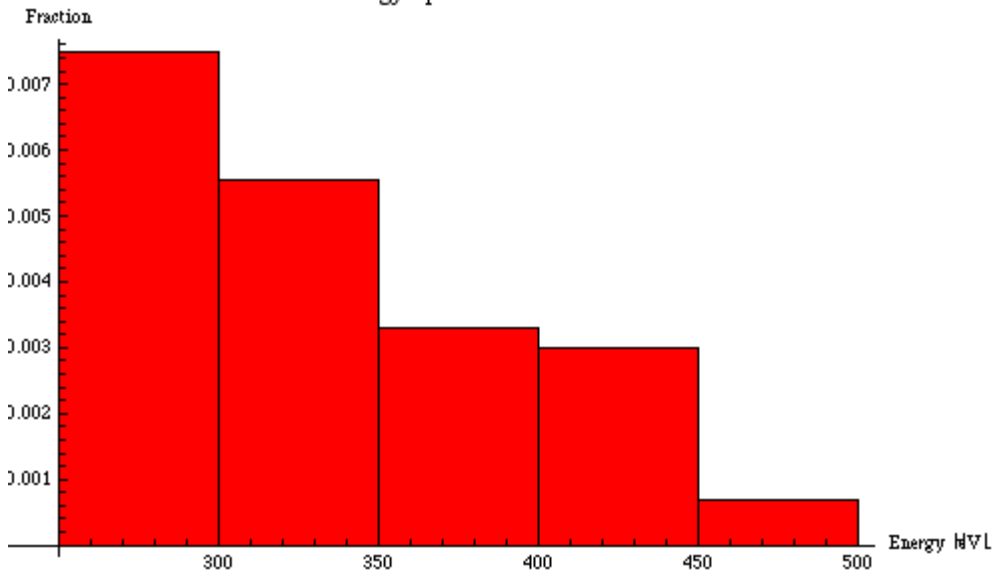

0.941 to 0.948 s
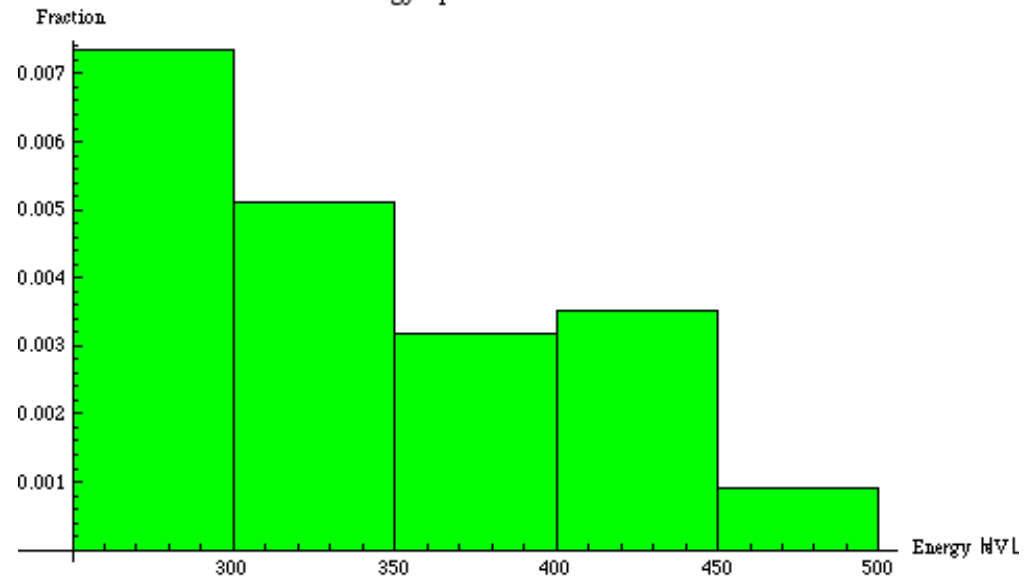
Conclusion

- Electron energy spectrum is independent of coating.

  - Electrons which get off the surface will be accelerated the same way by the beam.

- If I believe the measurement then the distributions show that

  - Coating does not change the work function!

  - Coating only reduces the number of electrons coming off the surface.

  - Unless there is a longitudinal redistribution of the electrons!