

DOPED GLASS SMALL RPC STUDY

Analysis Method

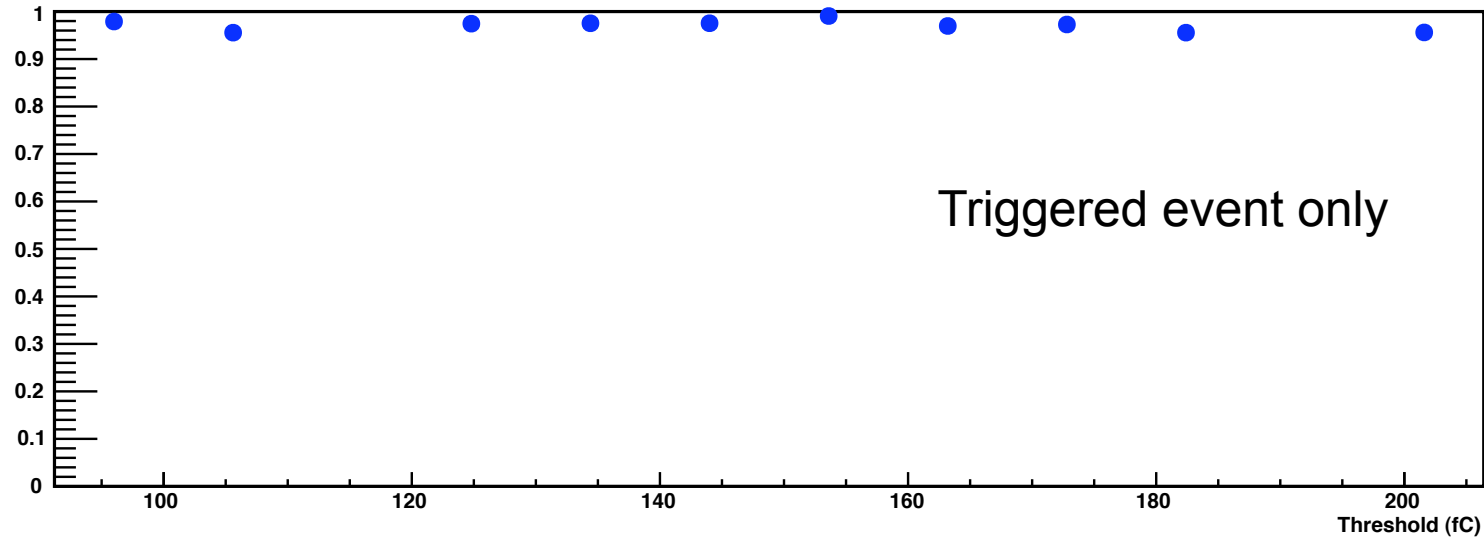
1. **Clustering** (for each hit pad find hits up to 2 cm away and add them to the cluster)
2. **Alignment pass** :
 1. fix one chamber
 2. offset the others by the difference of average x&y of clusters belonging to “Events”
(Event=synchronized set of frames with hits in at least 3 chambers)
3. **Tracking** (see next page)

Tracking & Efficiency

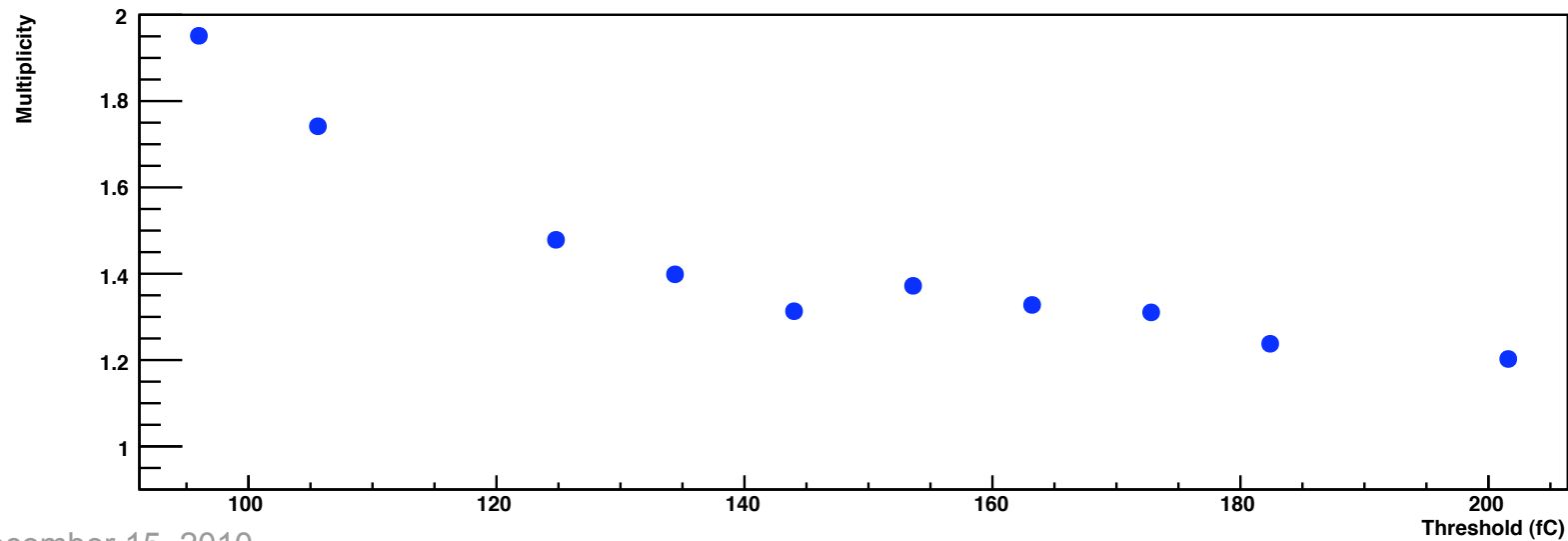
- For each pair of clusters in 2 chambers (but the one analyzed)
 1. Validate if a cluster < 2 cm from prediction in a 3rd chamber
 2. Work out new track parameters with 3 chambers
 3. When 5 chambers: check last cross-check chamber and work out new parameters if possible
 4. Check if cluster is present < 2 cm from prediction in studied chamber

Thick Doped Glass PCB D

Efficiency vs Threshold HV=7.4kV

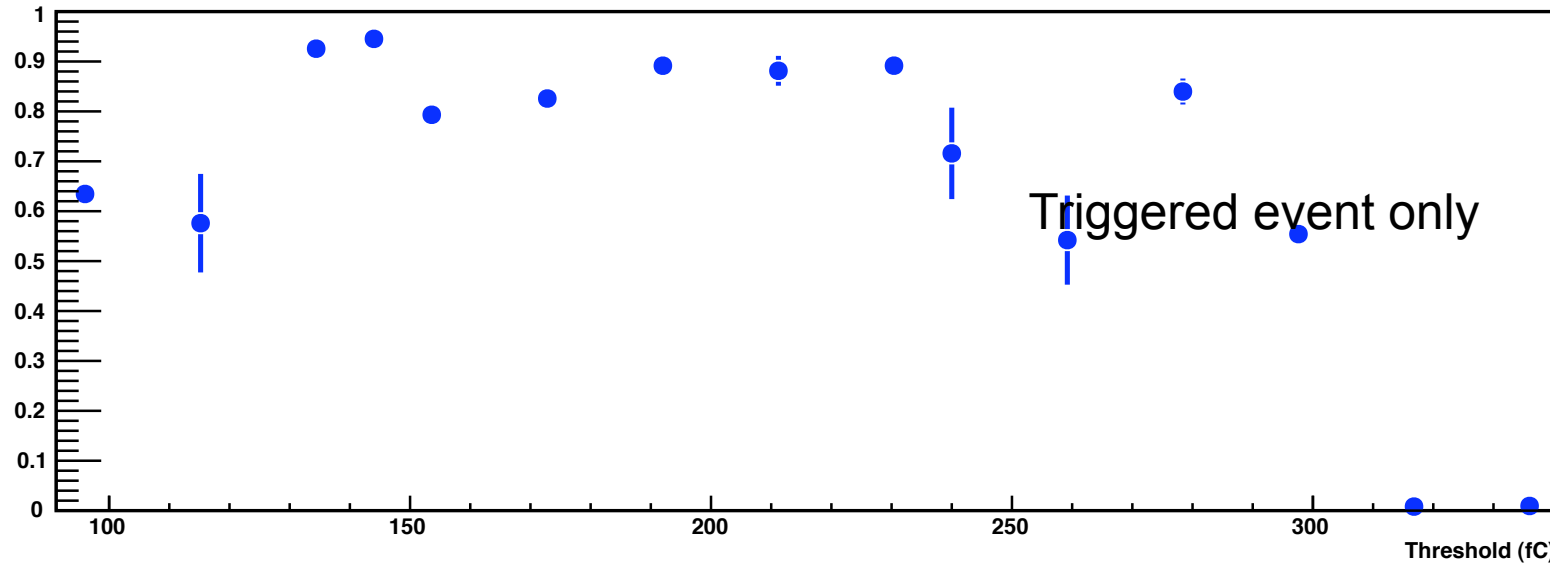


Multiplicity vs Threshold HV=7.4kV

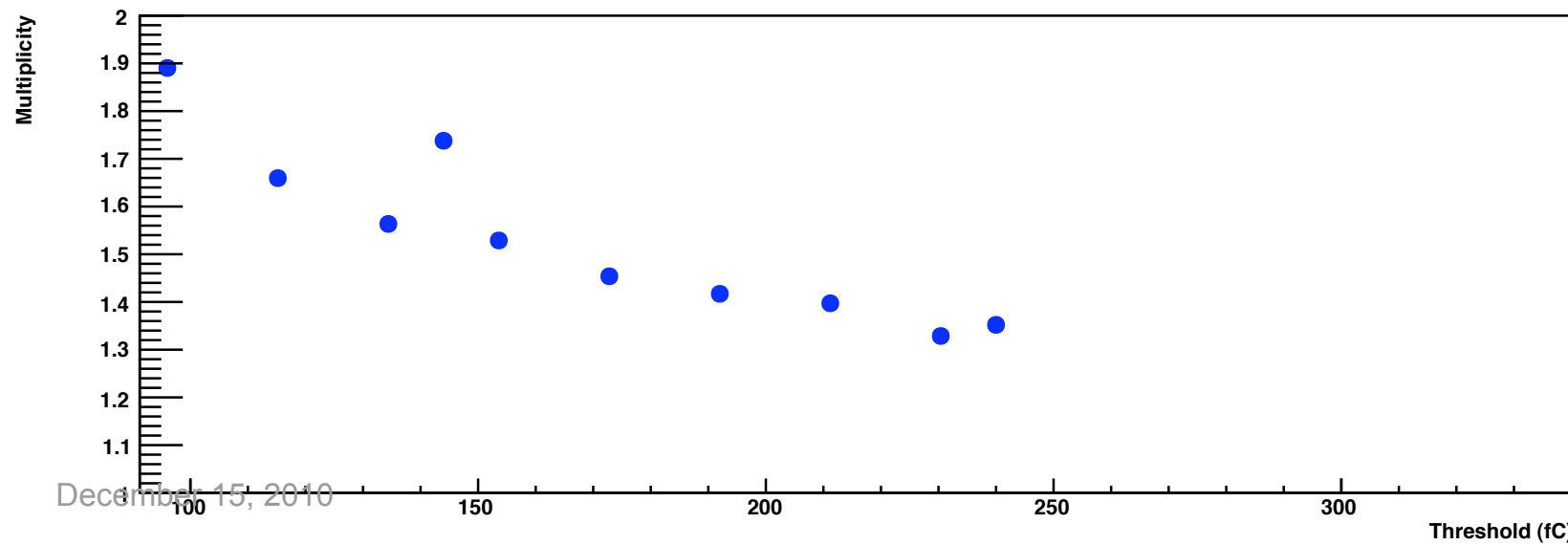


Graphite Float Glass PCB A

Efficiency vs Threshold HV=7.4kV

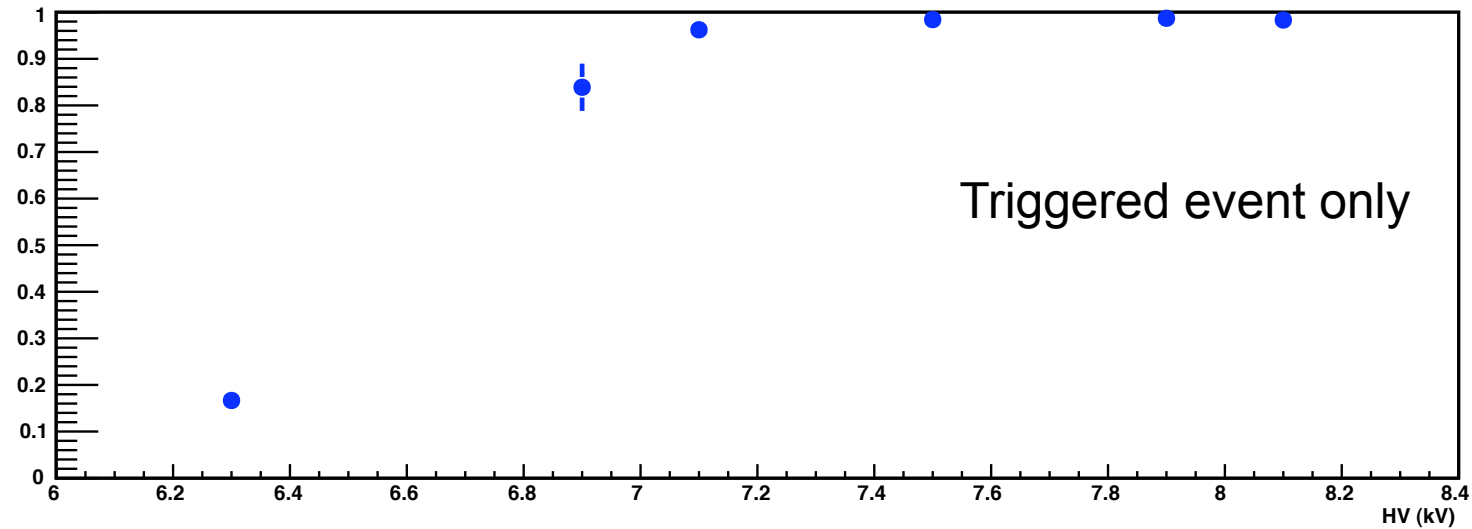


Multiplicity vs Threshold HV=7.4kV

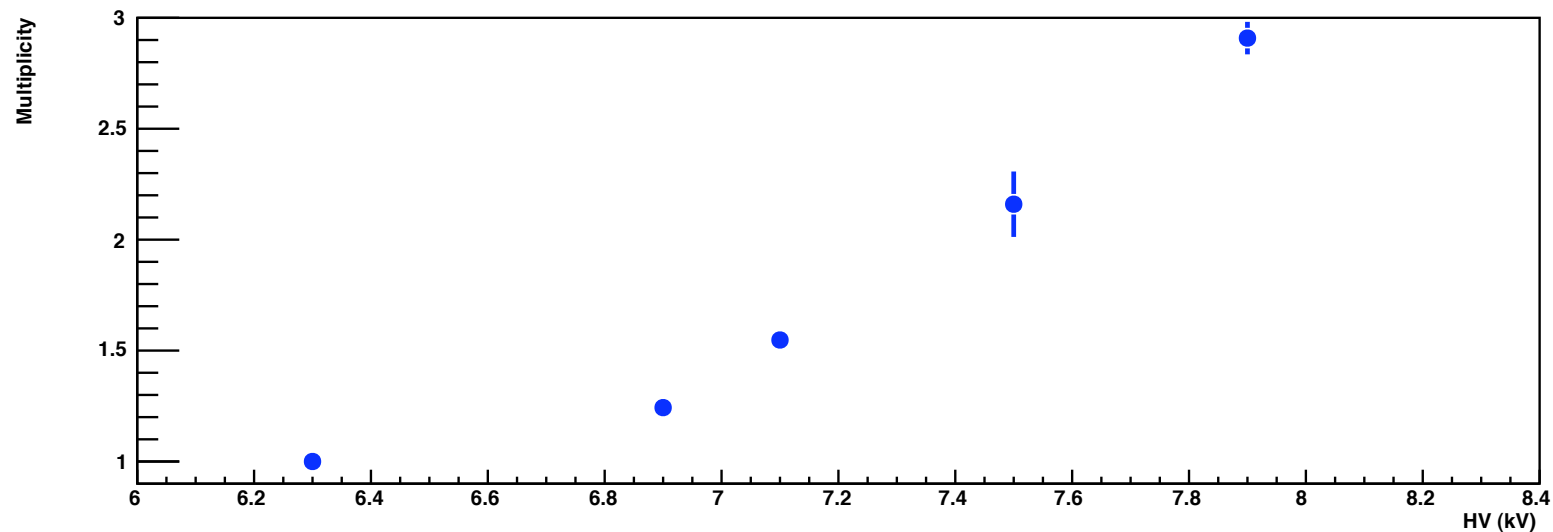


Thick Doped Glass Chamber

Efficiency vs HV

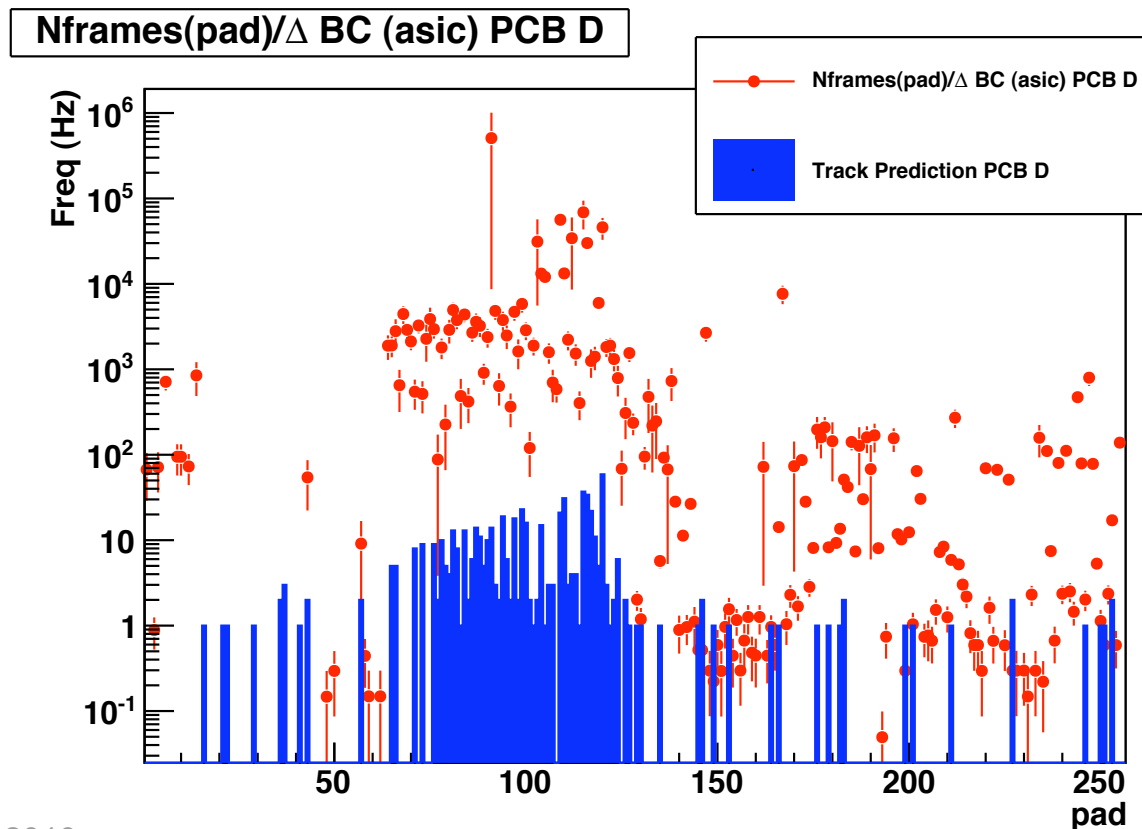


Multiplicity vs HV



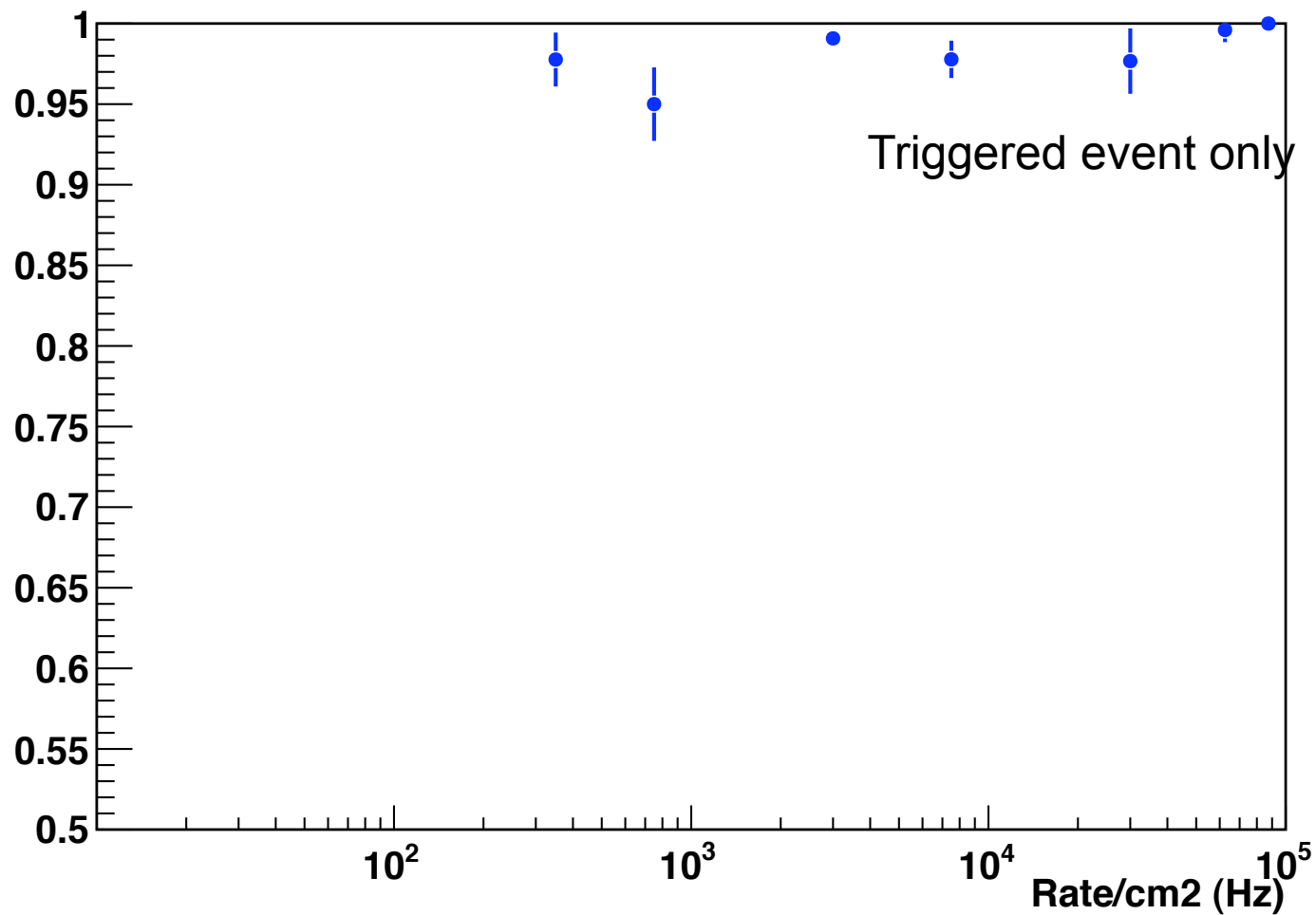
Rate calculation

- Rate/pad : rate from #frames/time in pads with predictions.



Thick Doped Glass Chamber

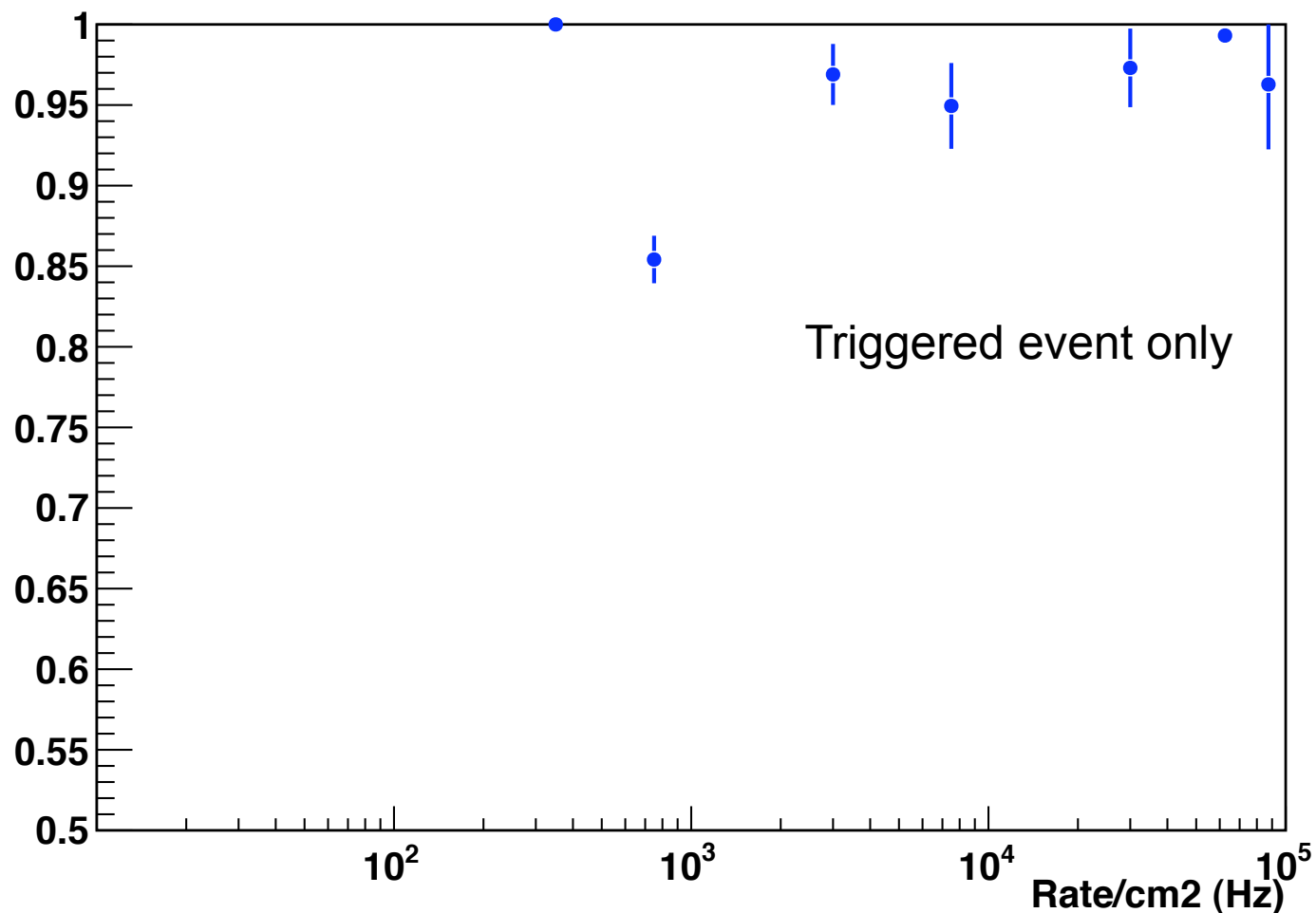
Efficiency vs Rate at 7.4kV, dac1=200



`Int_t run[]={1148,1189,1144,1142,1192,1194};`

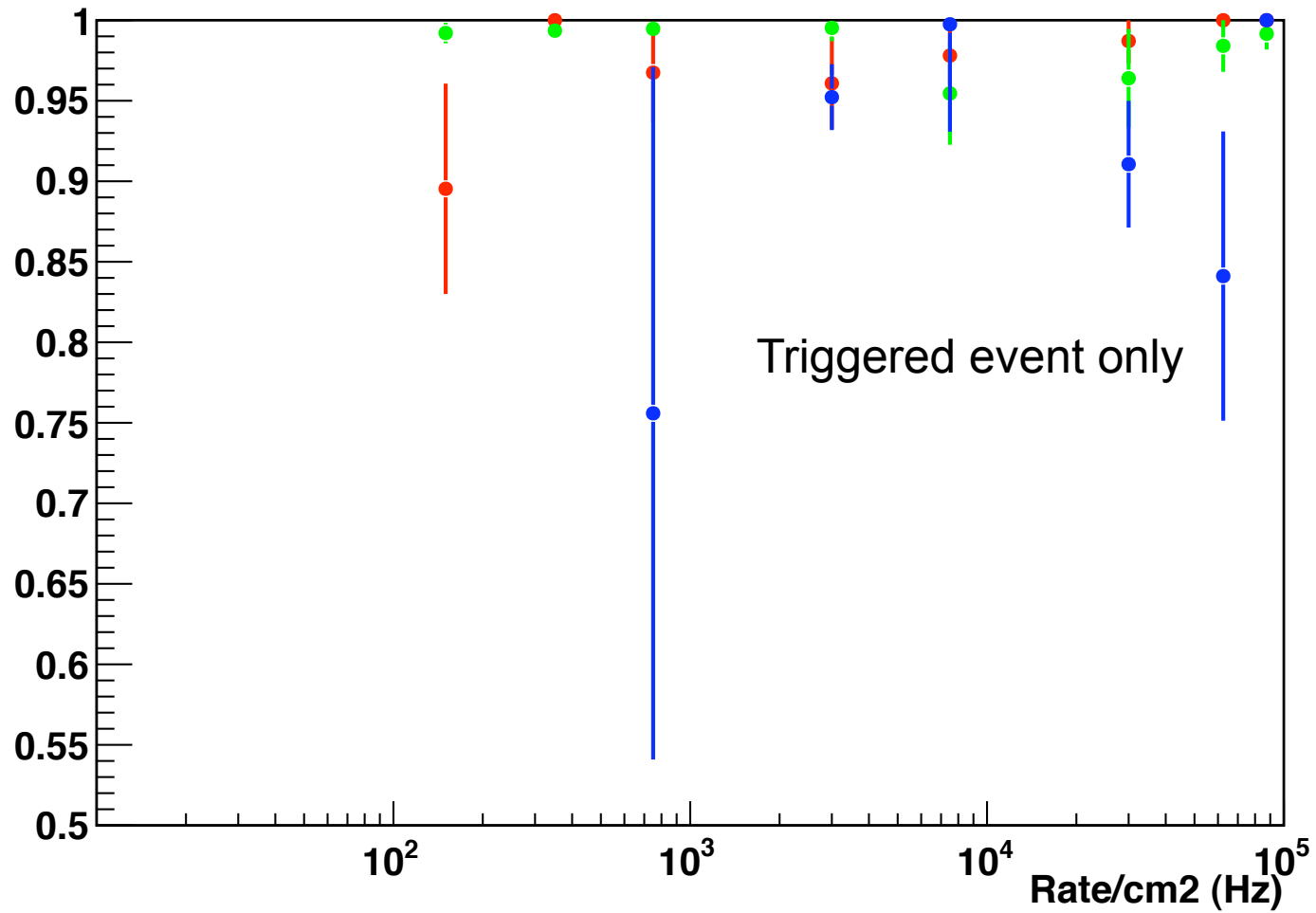
Thick Doped Glass Chamber

Efficiency vs Rate at 7.8kV dac1=200



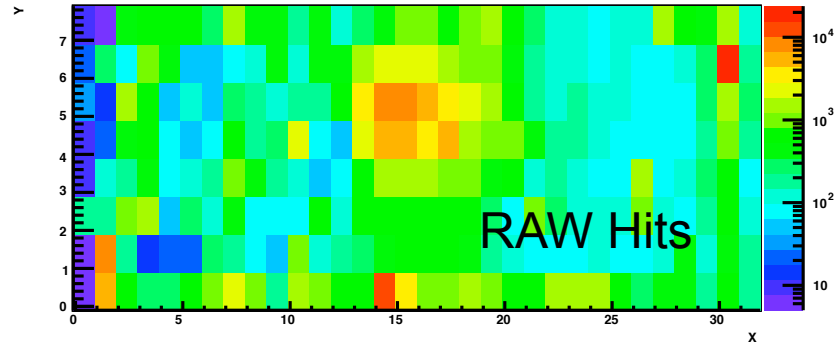
Float Glass - Graphite

Efficiency vs Rate at 7.4kV, dac1=300

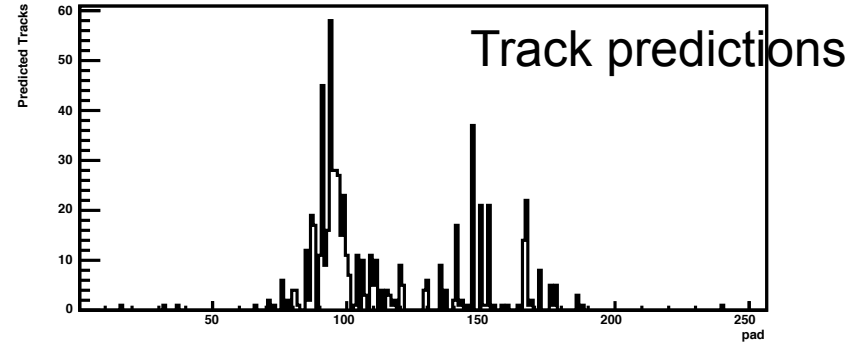


Noise Calculation

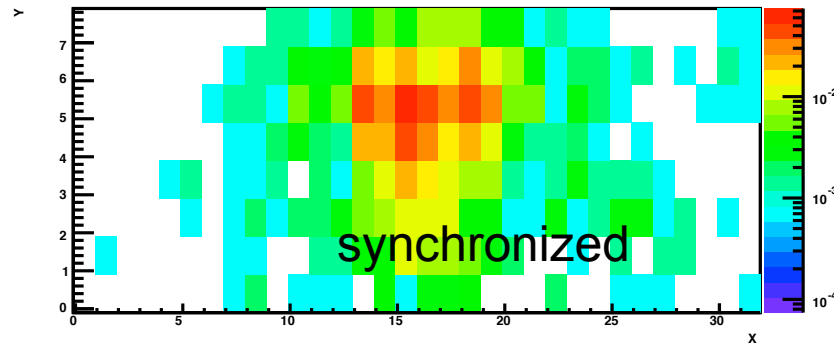
Raw Hits Distribution PCB D



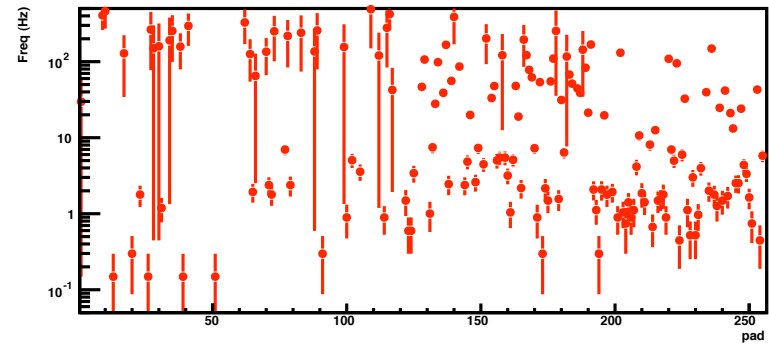
Track Prediction PCB D



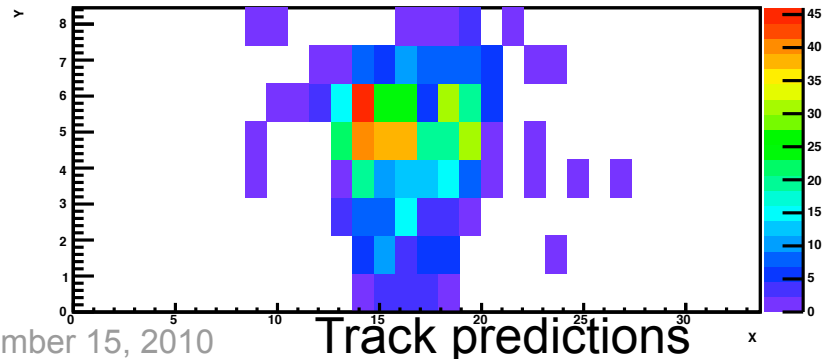
Hits Distribution PCB D



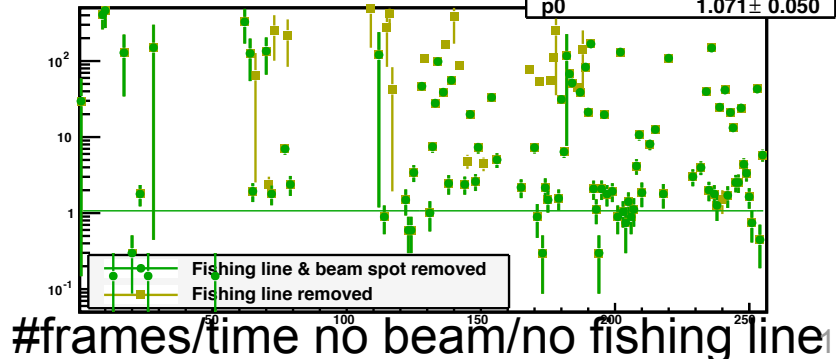
Nframes(pad)/Δ BC (asic) PCB D



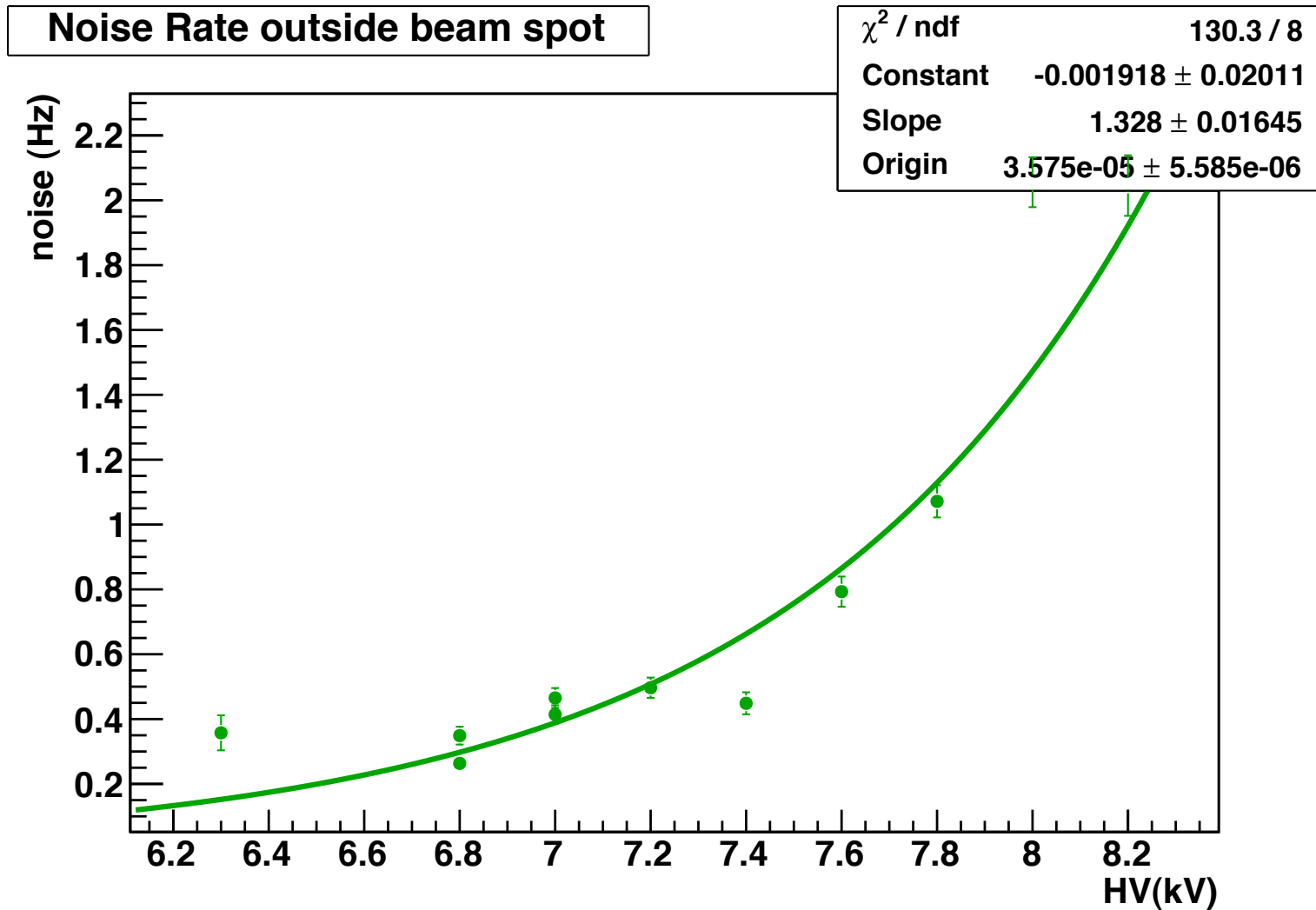
Track Prediction PCB D



Fishing line & beam spot removed



Noise Doped Glass



Int_t runs[]={1110,1112,1115,1117,1118,1119,1120,1121,1122,1123,1124};