Preliminary results of DESY drift chambers efficiency test

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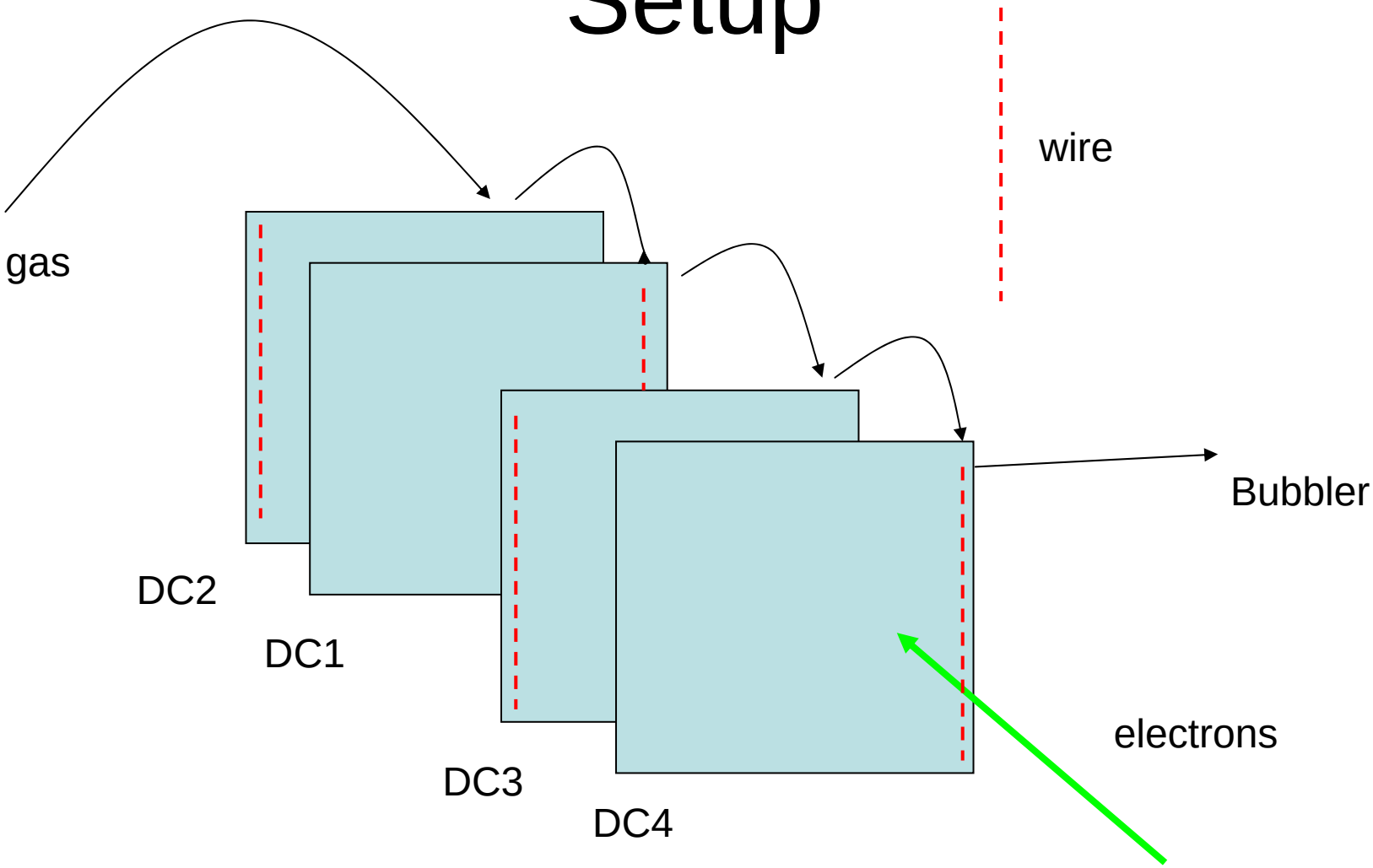
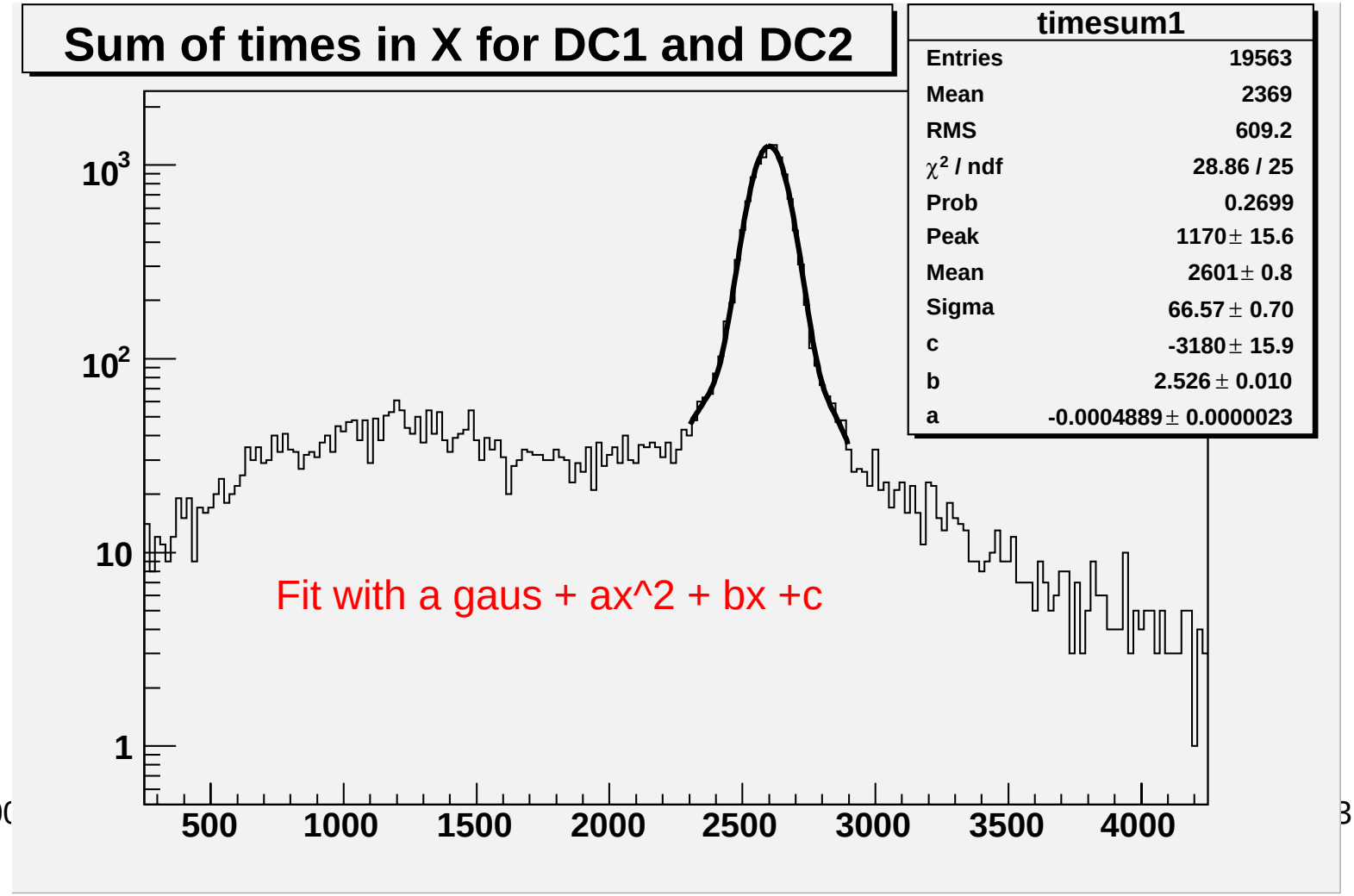
Setup



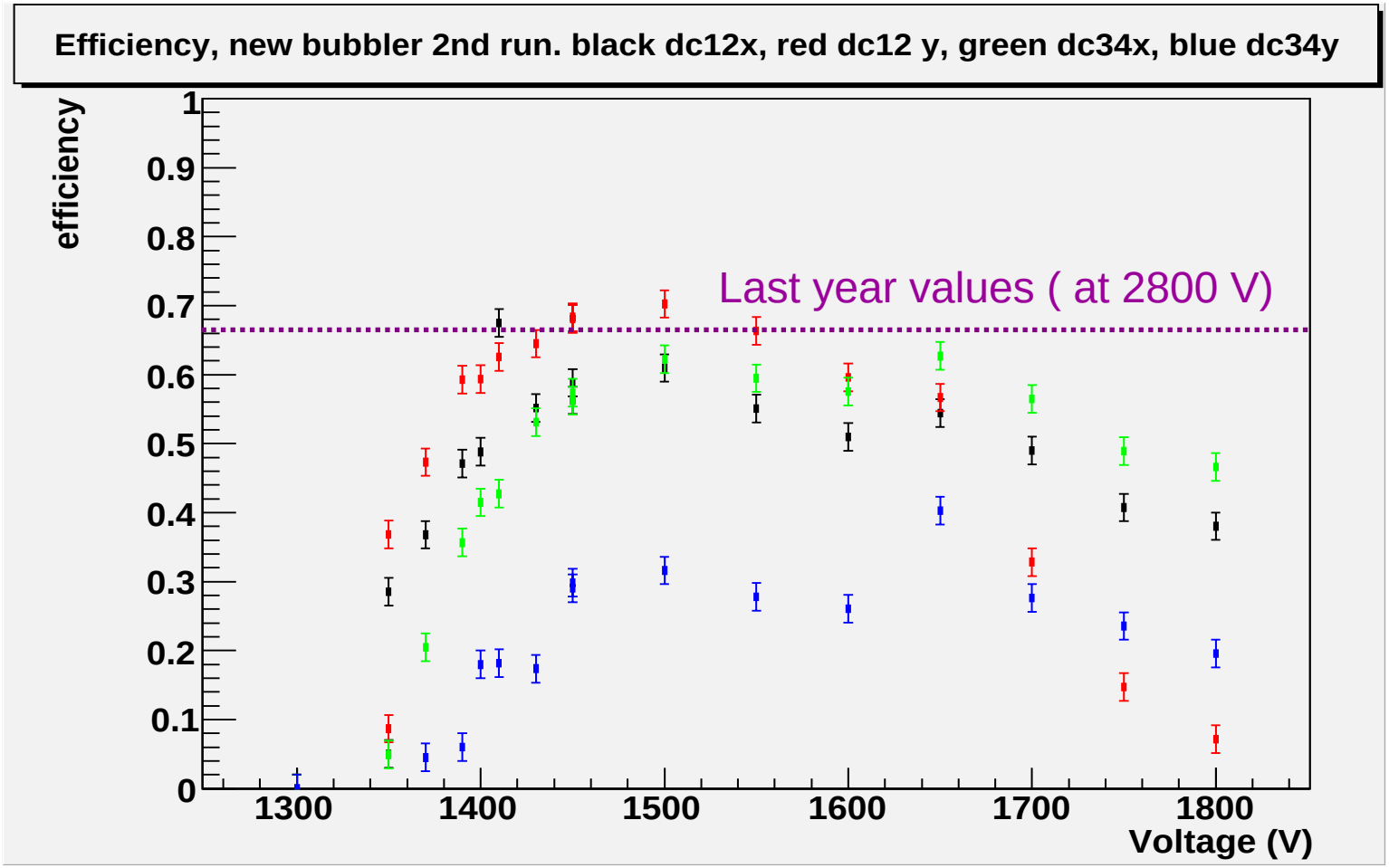
Efficiency method 1

- Sum of two parallel wire give this spectrum



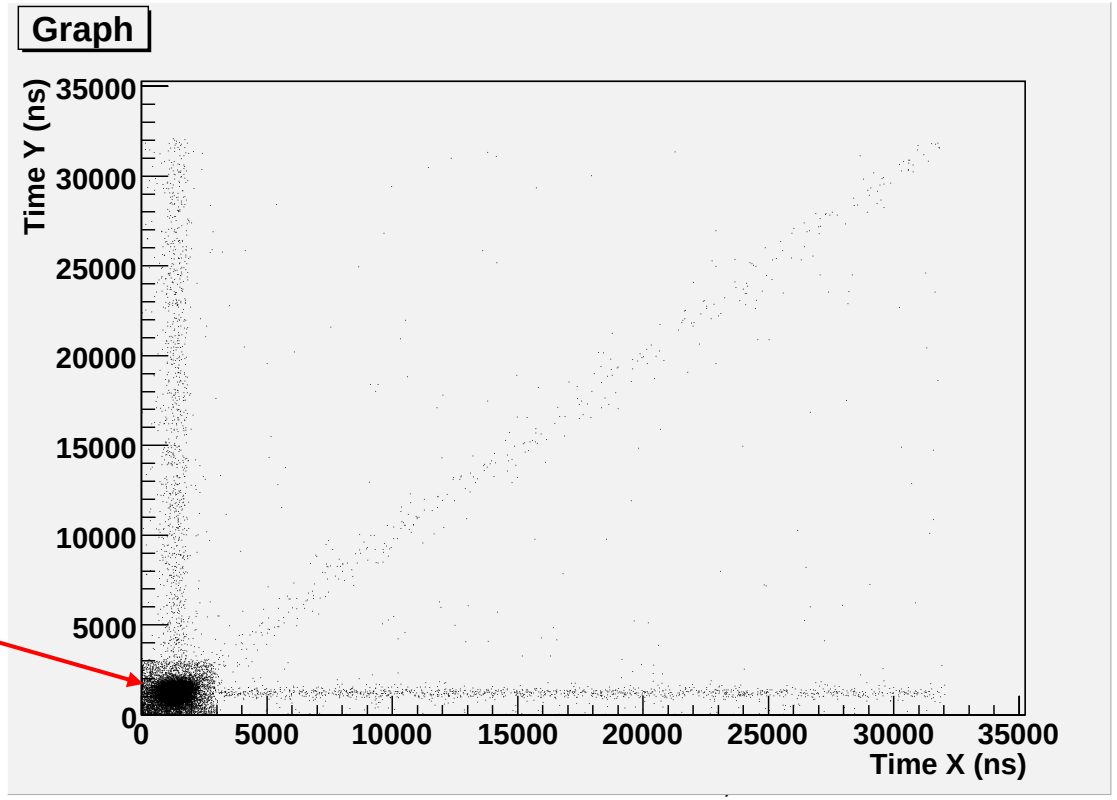
Efficiency method 1

- $\varepsilon_{Wire1}*\varepsilon_{Wire2}$ = (area of Gaussian)/(total events)



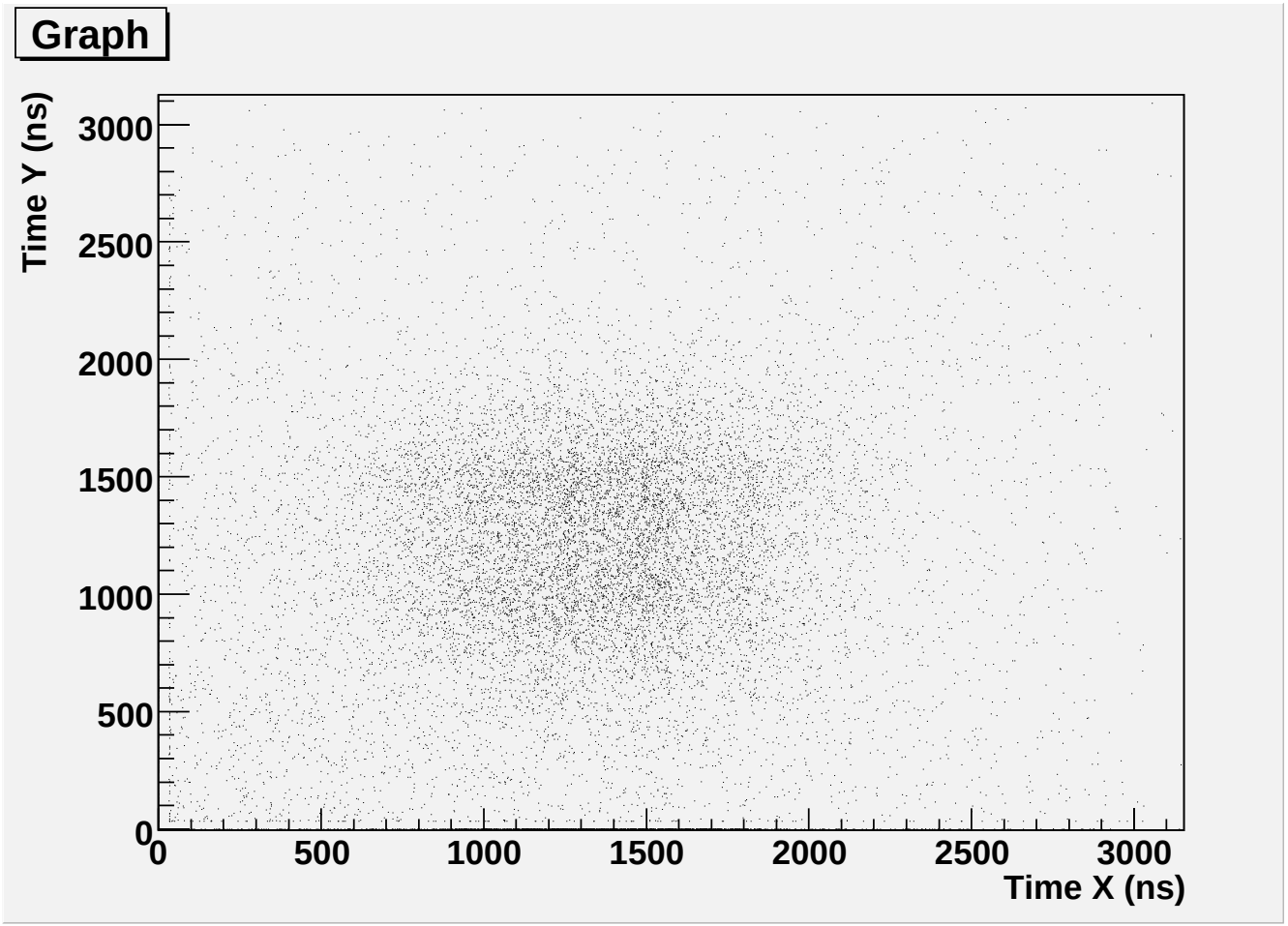
Efficiency method 2

- We can control only the voltages; so we developed a second method.
  - Define chamber profile by looking at the scatter plot of X vs Y times in the chambers.



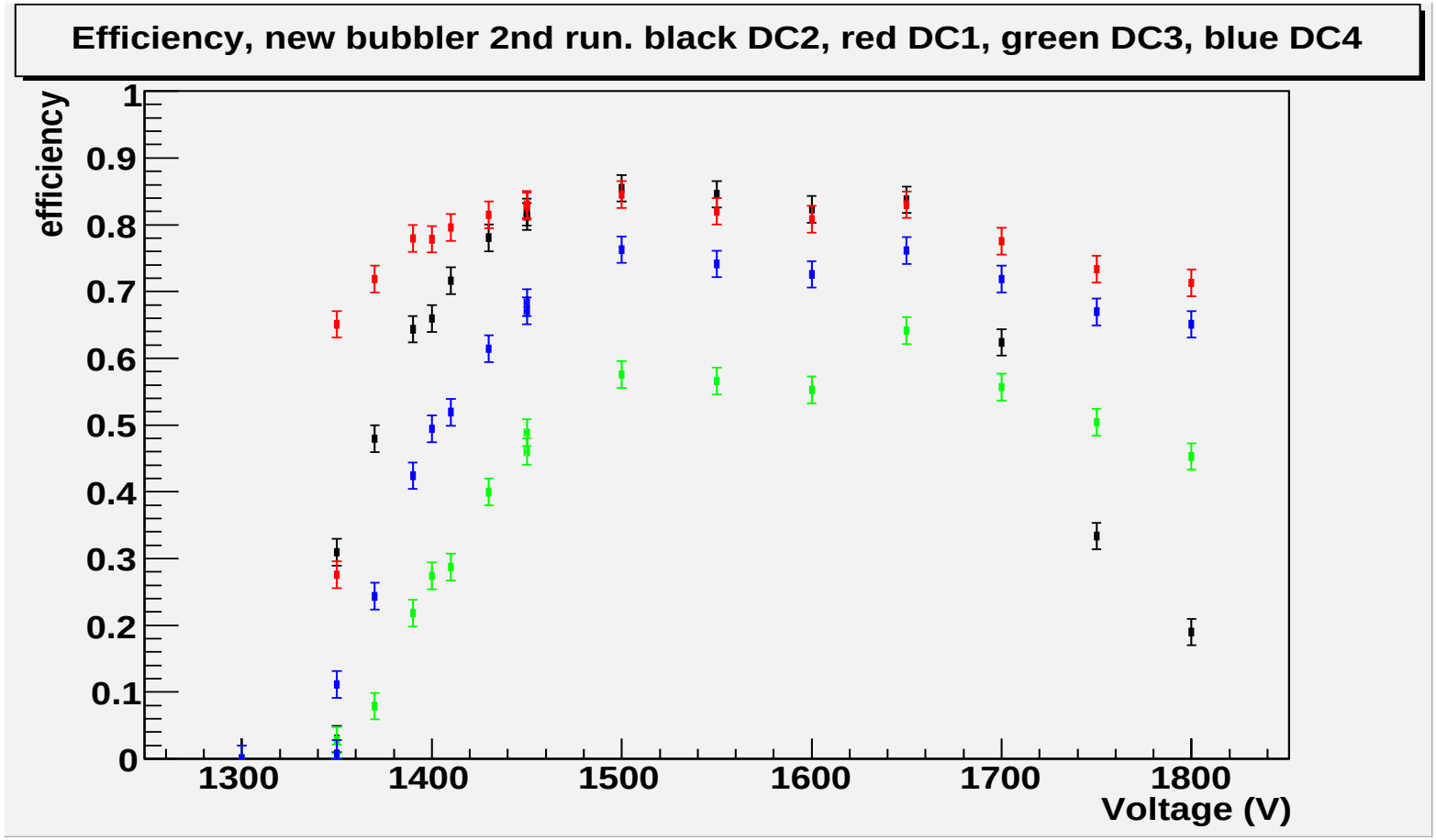
chamber profile

Beam profile



Efficiency method 2

- Efficiency = (events in the chamber)/ total



Problems

- Bubbler:
  - the old bubbler didn’t work, replaced after 2 days
  - with new bubbler we were much more confident with the gas flux
- “34”:
  - some time the TDC read a fake leading edge at 34 ns, to be understood.
- Wire Y of DC3 is not working:
  - readout electronics will be analyzed to see if the problem is there
- The triggered events read by the DAQ are ~1/5 of those really triggered:
  - this happens only at high rate (100 Hz).

Summary

- Still some problems to be solved…

  …but the chambers are working!
- The average efficiency is lower so we will need more time to collect enough data. This is a good tradeoff for not having night shift!
- To do: calculate the new drift velocity.

Mean vs Voltage