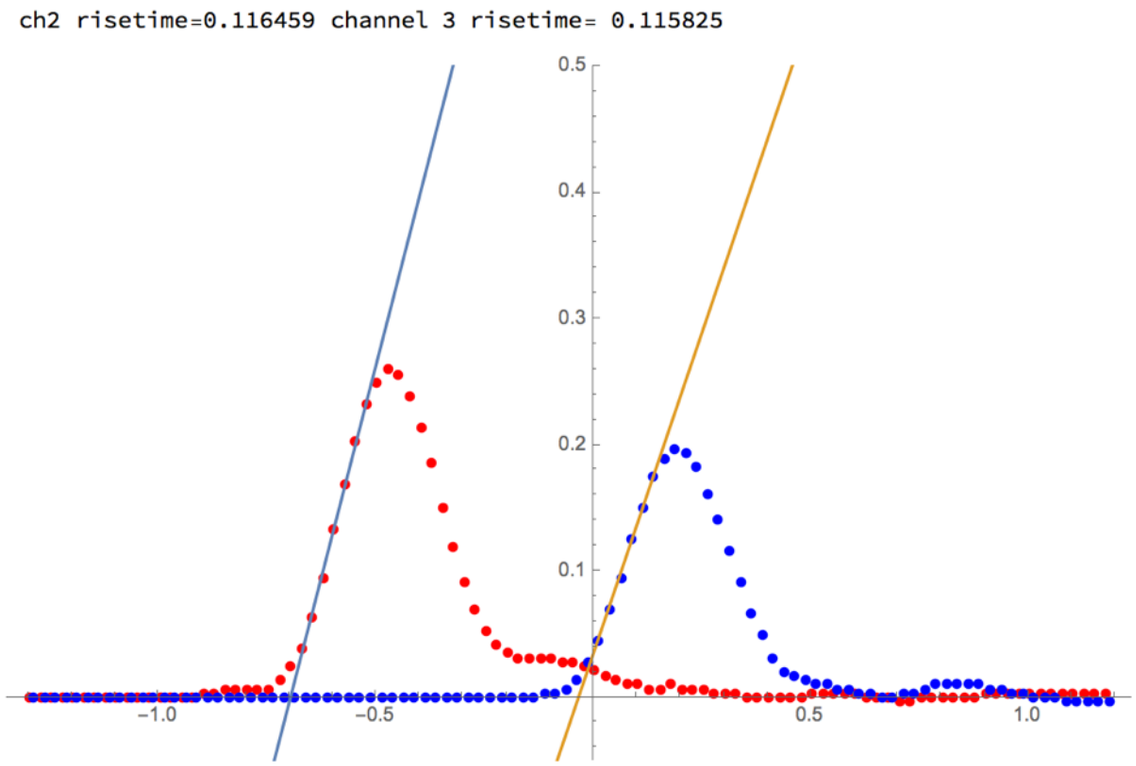
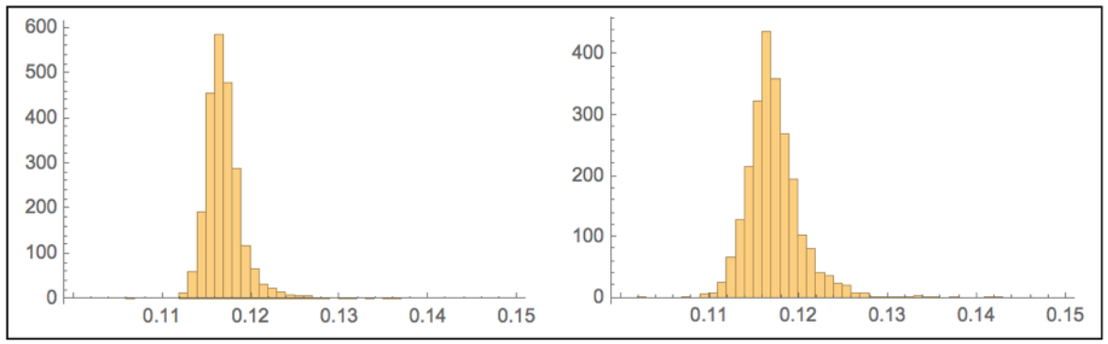
Next Steps-hardware (summary of Nov 23) S. White ,HFS mtg, Nov.3 30, 2016

- 7 2x2 mm detectors @ CERN Irradiated from 0->10^15neq
  - 7 “” additional not yet characterized
  - 2 bare 8x8 chips sent to CERN from RMD
  - 8(?) 8x8 mm at Princeton for packaging-> CERN
- one of “ will first be HV tested then tested w. Mitch’s amp
- we agreed with Mickel to have several (~6?) 8x8 chips sent to Bert for packaging
  ->overall aim is to ramp up testing and irradiating the actual HFS structure. There is also growing interest in testing (FNAL,LIP, Alberta/AFP..)
  there is also interest in other applications (ie test at CERN for X-ray timing)

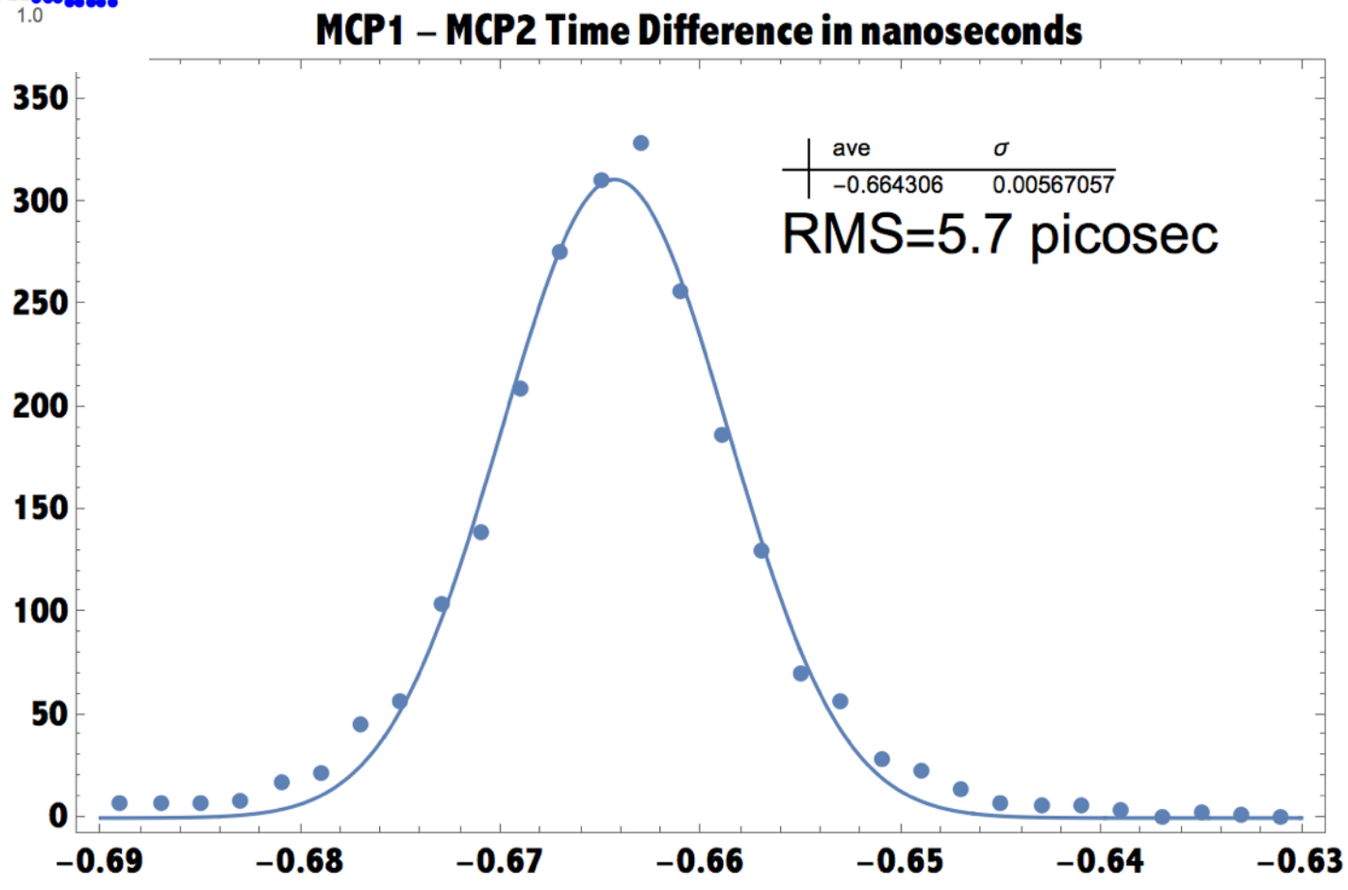
(nice result from our Oct. beam test)



ch2,3 fit 20-80% T_rise(nsec)

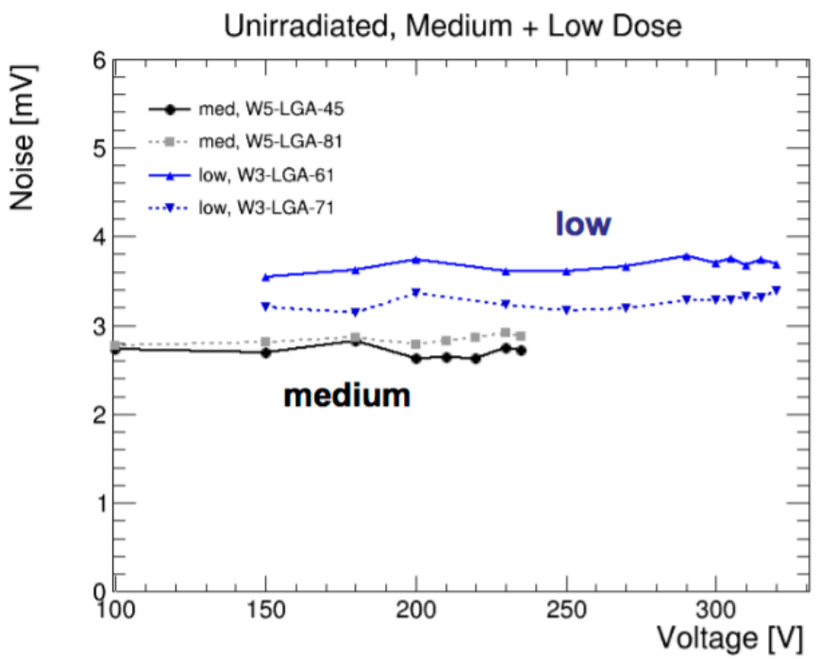


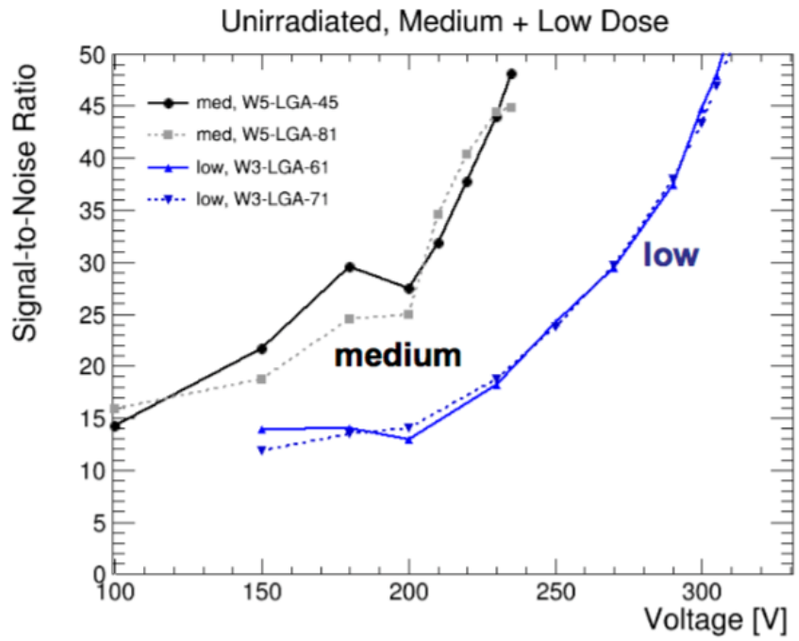
time difference-> distribution. of intercepts



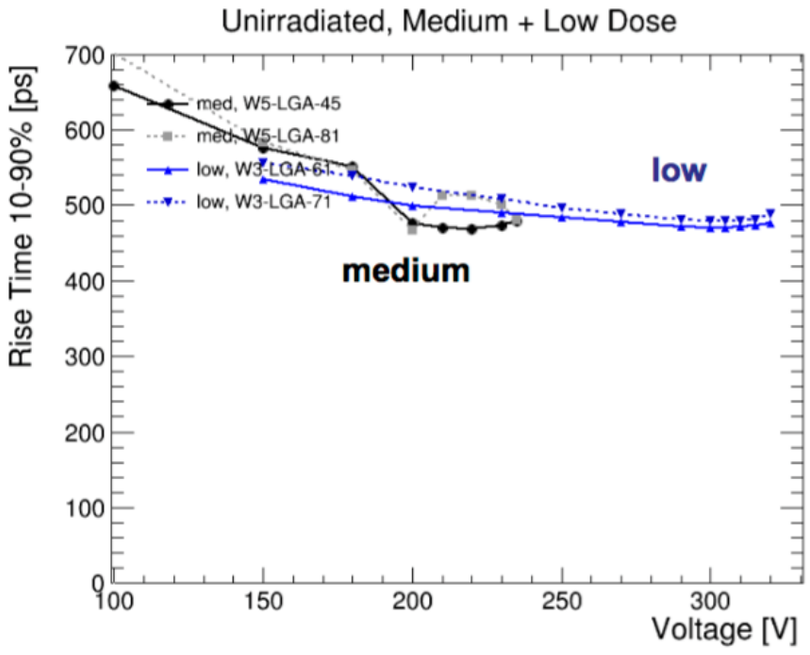
why is LGAD competitive?

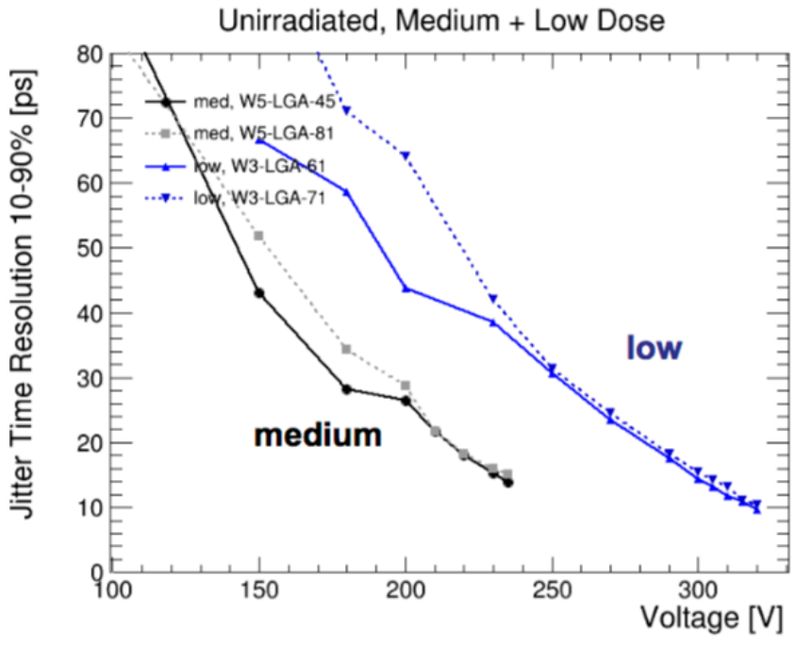
Noise, SNR, Rise Time, Jitter (unirr)





- Noise 2.8-3.8 mV, higher for low dose (but run-dependent!), constant!
- Similar SNRs achievable (at different V)





- Rise time ~500 ps, slowly decreasing with V
- Strong decrease of jitter=noise/slew rate, 10-15 ps achievable at high V