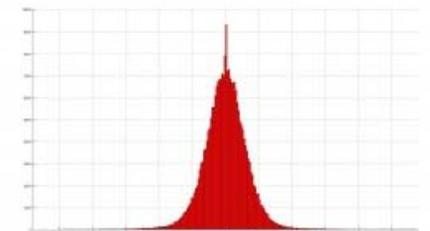
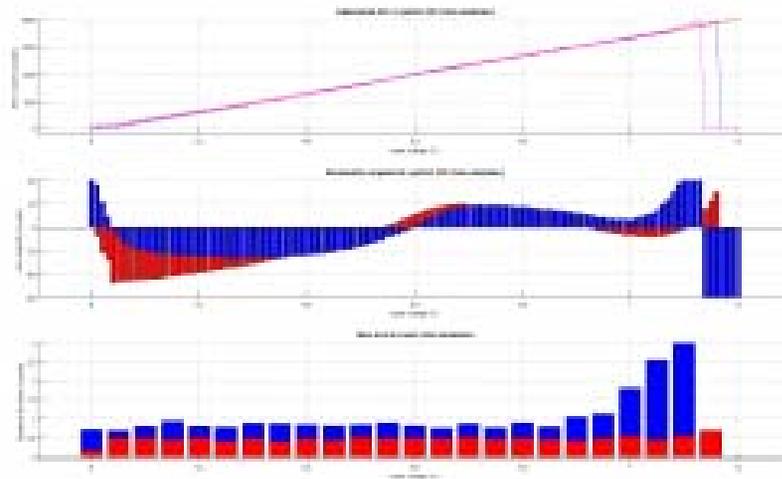
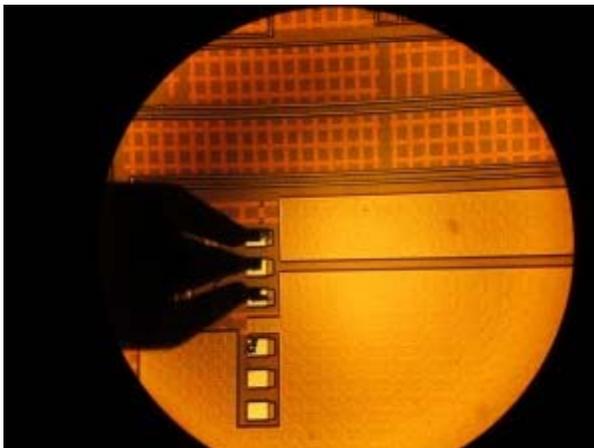


Summary and Plans

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for the LAPPD Electronics Group

Plans for Year 3

20-MAY-2011 Electronics GPC Review



Anon: highlights since last review

1. Further understanding of the processes that limit timing resolution
http://psec.uchicago.edu/workshops/fast_timing_conf_2011
2. A much more fundamental understanding of how to couple the charge signal into the readout anodes
3. Understanding how to make a electrically and mechanically viable readout
4. First and impressive test results with the PSEC3 and submission of PSEC4, to clean up a few, minor bugs
5. Expanded significantly expertise with the IBM 130nm process and tested future subcircuits on the CHAMP ASIC
6. Fabrication of ASIC evaluation boards, as well as the first tile/module scale readout boards
7. Exploration of options for large-scale/high-speed readout, with a number of viable solutions identified
8. Evaluation of calibration procedures, required constants, and data archiving

Looking forward -- goals

1. Further understanding of signal development on a full-sized detector
2. **Actual tests with a working tile**
3. Further characterization system PSEC3 tests, PSEC4 initial test results
4. Bringing IRS2/TARGET3 into the mix
5. Further development of test-beam scale readout (resource limited), especially firmware
6. Implementation of “at speed” Calibration and data logging
7. Integration of these efforts into other parts of the LAPPD project (resource limited)

The (obvious?) Questions

1. Do we have a complete model that will allow us to predict the single p.e. TTS as a function of tube configuration/operating parameters?
2. Is the noise (SNR), including pick-up and coupling efficiency of charge on the anode of a real tile assembly adequate?
3. Is PSEC4 sufficient for next-round needs?
4. Does the portfolio of available ASICs cover all project-specific/medium-term needs?
5. Can we field what we claim with available manpower?
6. We acknowledge there is interest amongst many collaborators to obtain “evaluation systems” – given limited manpower, how should we prioritize such requests?
7. What will we do if other components not ready?
8. How will the integration of these efforts into other parts of the LAPPD project be coordinated?

Summary

- **Steady progress, resource bounded**
- **Currently no show-stoppers**
- **Will learn much from first integrated readout tests**
- **Field-test experience of readout systems at ANL, Chicago and Hawai'i**
- **Building toward beam-test**