

Tower A/B Performance (Short) Review

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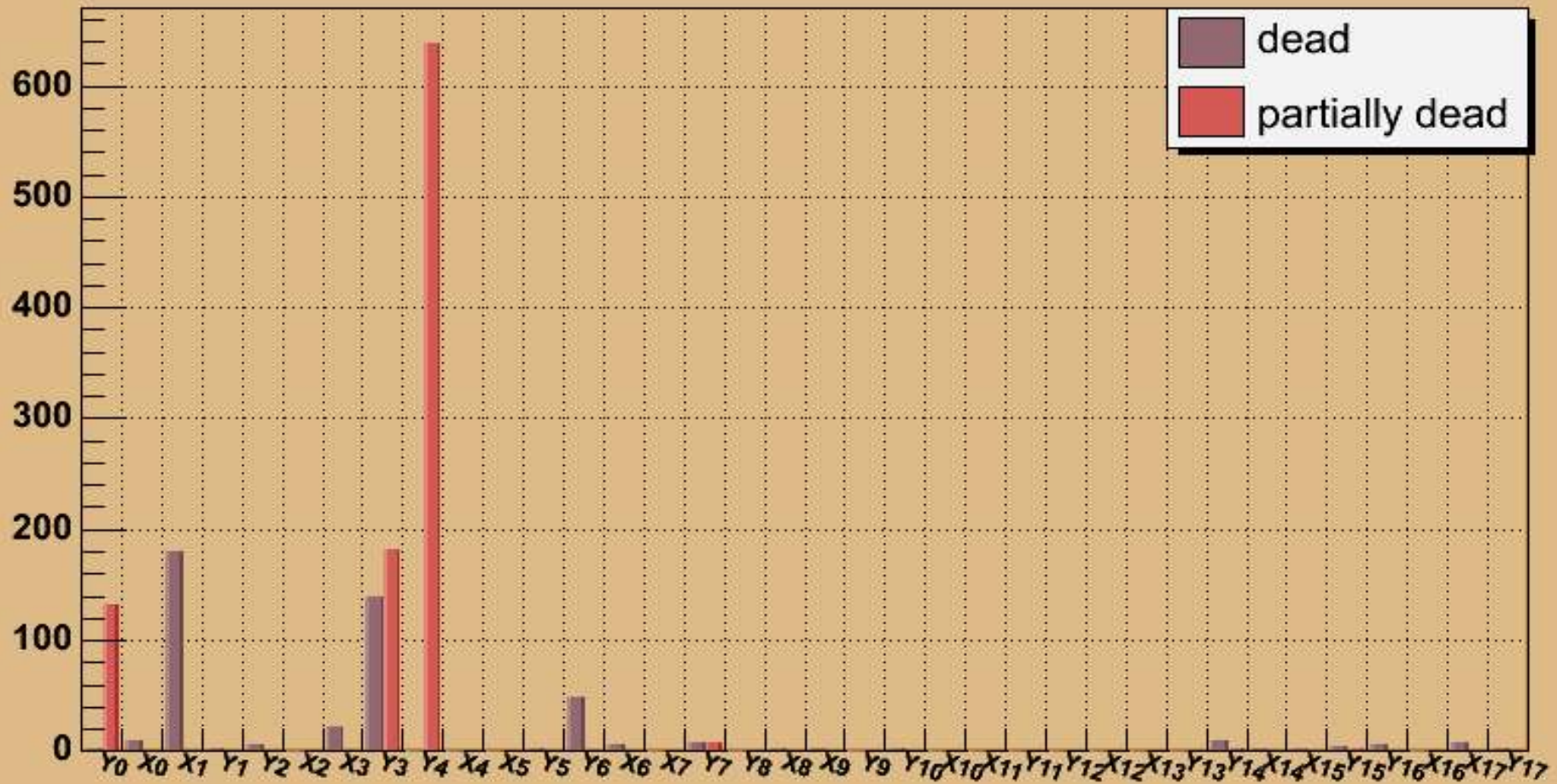
- Bad Channels/Noisy Channels
- Hit Efficiency
- Tracker Trigger Requests

Different types of Bad Channels

- **Dead Amplifier and Disconnected Channels** : not masked but used offline for reconstruction
- **Partial disconnection** :
 - Broken bond between wafer
 - **Not masked yet** : track finder will stop there
- **Intermittency and Partial Intermittency**:
 - most likely intermittent contact
 - **Not masked yet**
- **Work in Progress** to differentiate between these and correctly use the info in Recon

Bad Channels Results

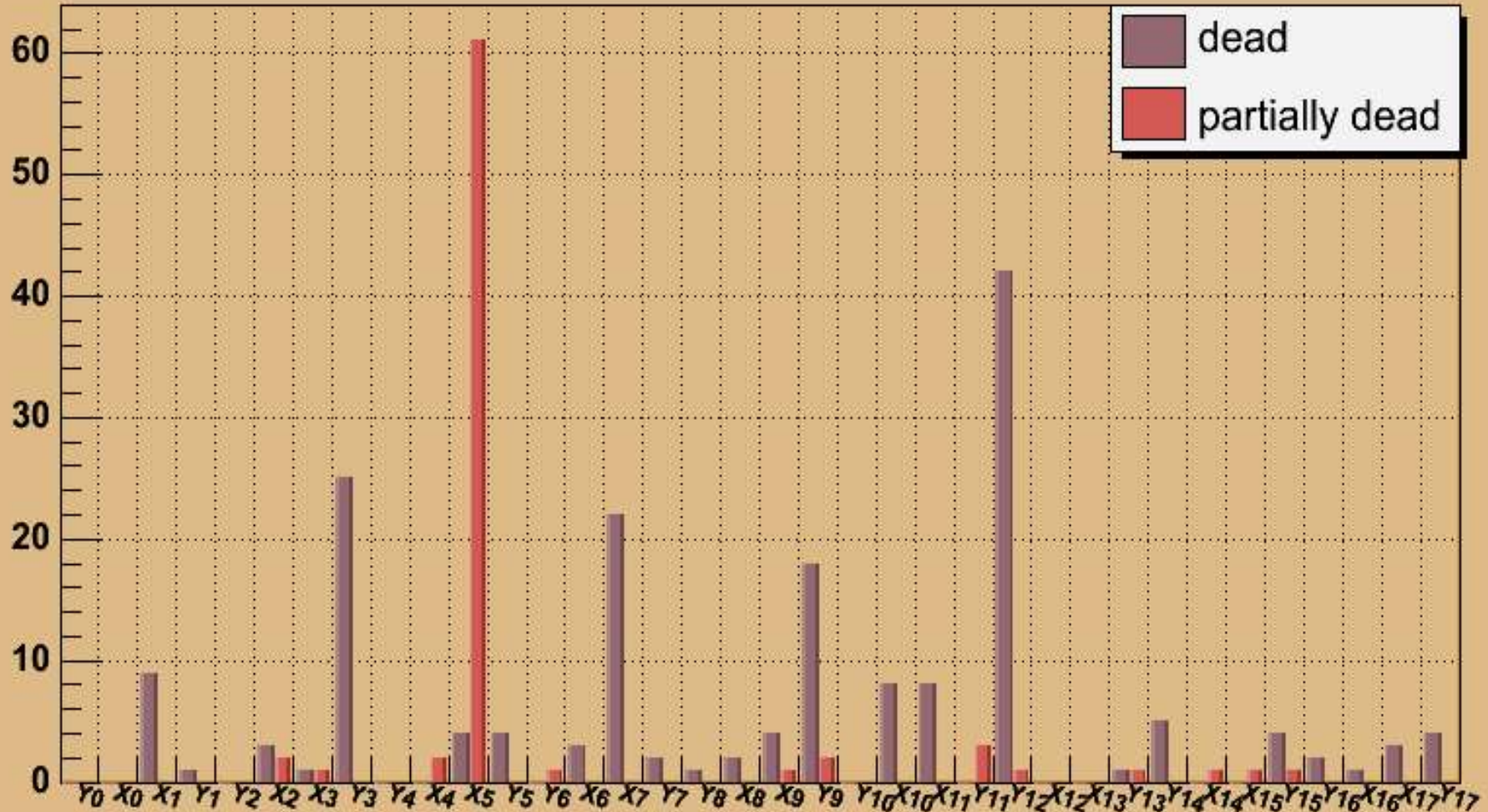
Dead Channels for tower A



- Y4 : 639 partially disconnected channels
- Y3 : 140 dead and 181 partially disconnected channels

Bad Channels Results

Dead Channels for tower B



- X5 : 61 partially disconnected channels
- Y12 : 42 dead channels

Noisy Channels

- Very few (~2/layer)
- Masked when taking data : TkrRecon can handle them (see Tracy/Leon/Bill talk)
- New noisy channels can show up :
 - Currently in place in [calibGenTKR](#) : look at channels whose occupancy is above 1% of the average for this layer
 - Maybe use random trigger in the future (as in online)
- **No worries / Let us know if you see some!**

Hit Efficiencies

- Code in [RootAnalysis/LeaningTower](#) :
 - 2D straight line fitting to the clusters, discarding plane under study
 - Check presence of hit within **1mm** of fit
 - Takes inactive area into account
- For next towers :
 - Removing events for which hit was necessary
 - Use more statistics

Hit Efficiency Results

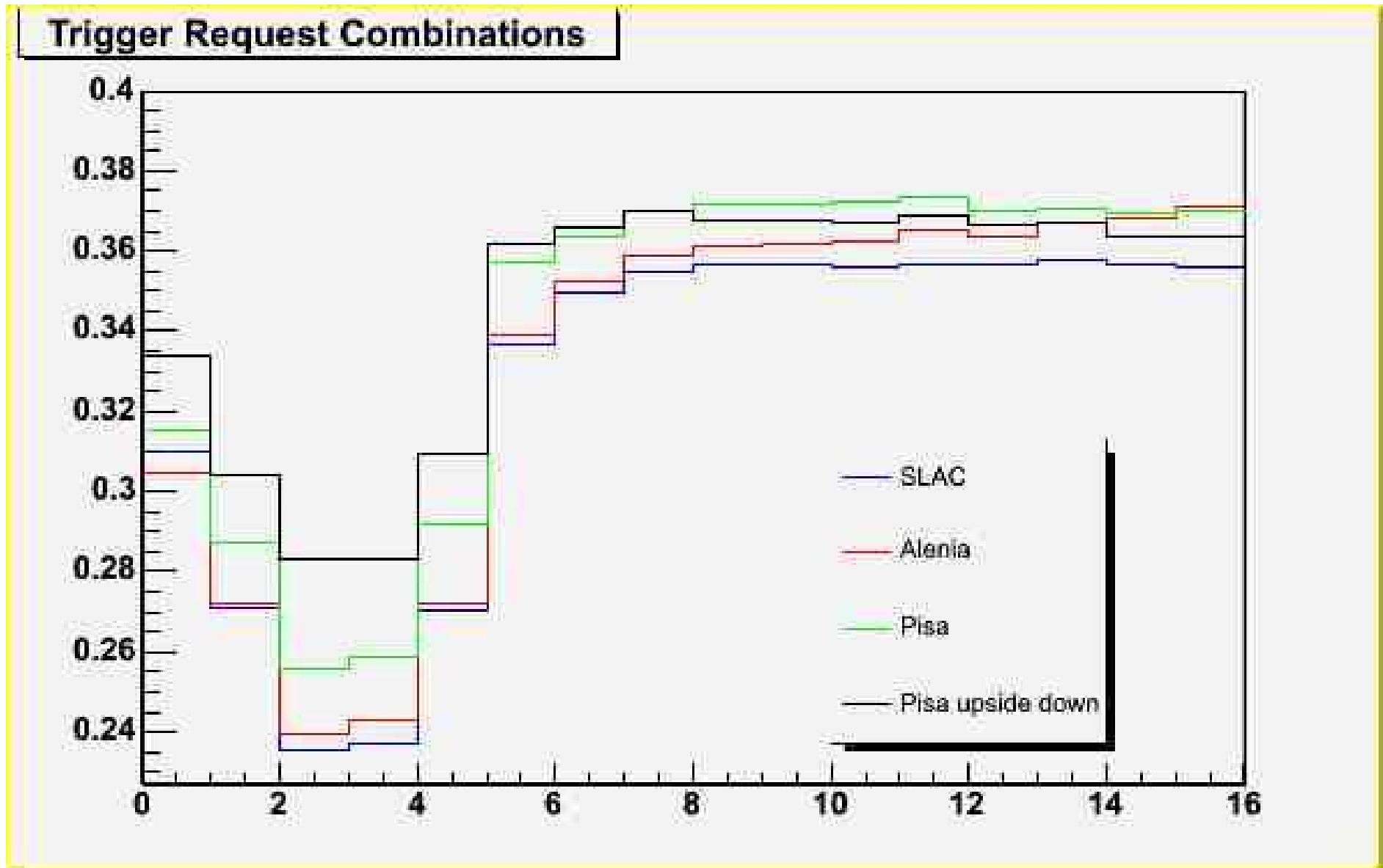


- Tower A has **Y4**, **Y3** and **X1** inefficient
- Tower B essentially OK

Tracker Trigger Requests

- Each layer sends a trigger request if a strip goes over threshold.
- The trigger logics looks for at least one of the 16 3-in-a-row combination of these requests.
- Distributions of 3-in-a-row combinations **not** readily interpretable:
 - Hit efficiency
 - Incident Energy
 - Thick layers at the bottom

3-In-Row Trigger Requests Distribution



Trigger Efficiencies

- For combination X, look at events for which this combination is not required to trigger, and compare occurrences of a trigger request and of an actual hit.
- Correct for hit efficiency
- This slightly underestimates the efficiency : trigger requests without hits counted as inefficient

Trigger Efficiencies : Results

	C0	C1	C2	C3	C4	C5	C6	C7
A	86.22	79.22	72.1	72.1	80.75	95.96	96.35	98.41
B	98.02	96.84	96.55	95.48	97.13	97.13	98.31	98.02
	C8	C9	C10	C11	C12	C13	C14	C15
A	98.71	98.61	98.91	99	98.51	98.31	98.31	97.72
B	98.12	97.92	97.62	97.82	97.72	98.51	98.71	97.92

- Tower A C0-C4 below specs (>90%)

Conclusion

- Data show very nice behavior of tower A, despite the number of bad channels.
- Tower B looks even better!
- To Do List :
 - Integrate the calibration database
 - Study ToT and partially disconnected and intermittant channels
 - Provide a way to distinguish between various types of bad channels