

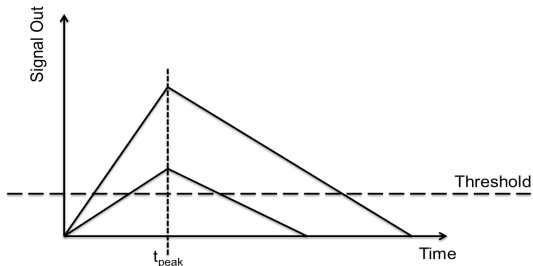
HVStripV1 Testing Status

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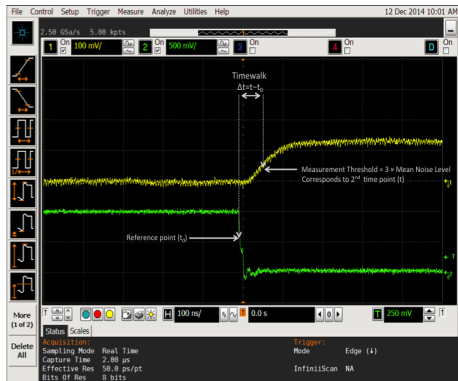
Timewalk (1)



- Due to charge sensitive amplifier circuit design the output pulse peaking time is independent of deposited charge
- The previous implies that low amplitude signals are detected later than the high ones for the same threshold (hence the timewalk effect)
- Timewalk measurements of HVStripV1 were done at 0.5V, 1.0V, 1.5V, 2.0V and 2.5V injection pulses for all pixel matrix

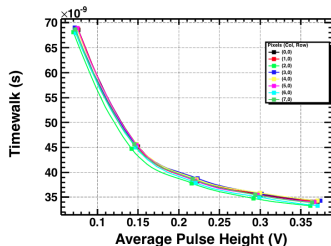
Timewalk (2)

- Labview VI was used to acquire data from the oscilloscope
- The threshold was set to $3 \times$ Average Noise Level (noise was measured in both cases: when the substrate bias was on and off)
- Acquired data consists of time-walk (average from 1000 samples) as a function of average output pulse height at each injection voltage

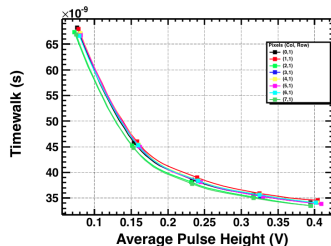


Results (1)

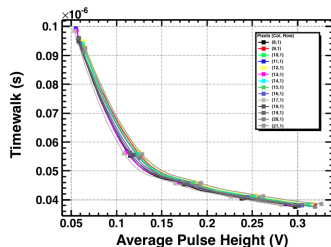
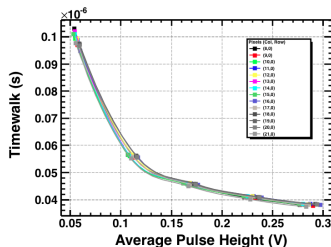
No Bias; TW Threshold: 43.6mV



Fri Dec 12 09:54:14 2014

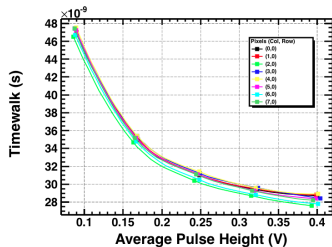


Fri Dec 12 09:55:43 2014

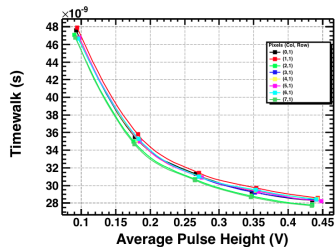


Results (2)

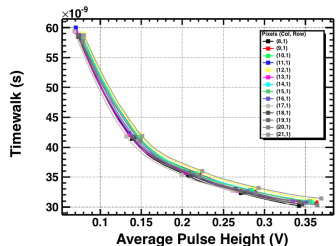
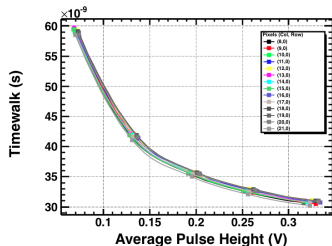
Bias: -60V; TW Threshold: 37.4mV



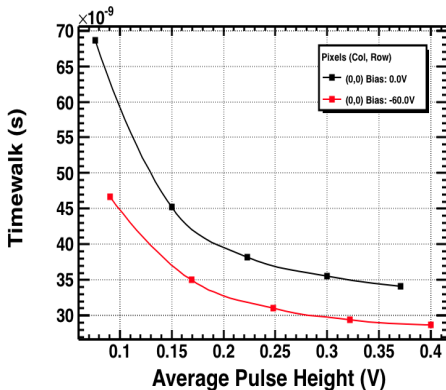
Mon Dec 15 23:59:23 2014



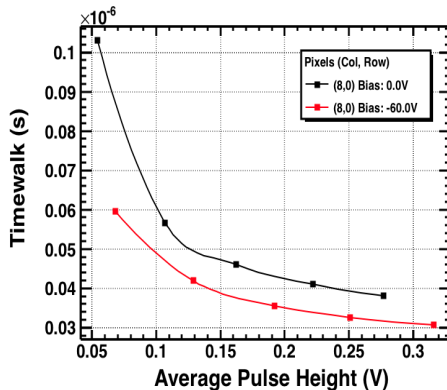
Tue Dec 16 00:02:22 2014



Results Comparison

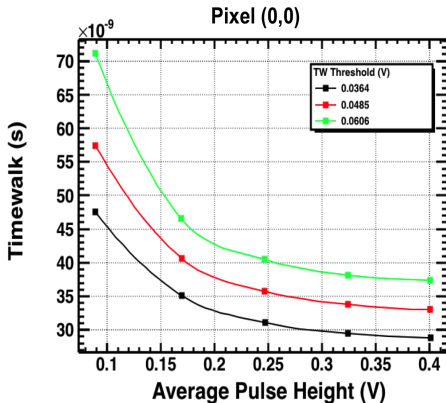


Tue Dec 16 00:41:50 2014

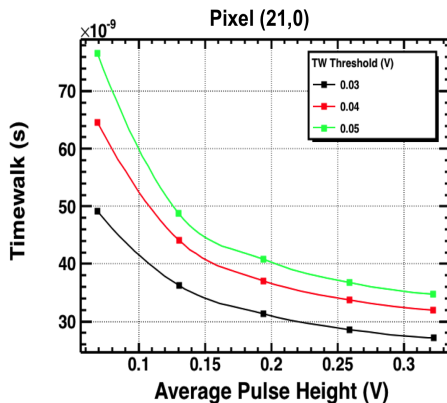


Tue Dec 16 00:44:18 2014

Threshold Sweep (Bias: -60V)



Tue Dec 16 16:50:09 2014



Tue Dec 16 16:52:39 2014

References

M. Kohler, MSc thesis "Studies of the Timing Behaviour of the ATLAS Pixel Detector"