

Laser and Beta source tests

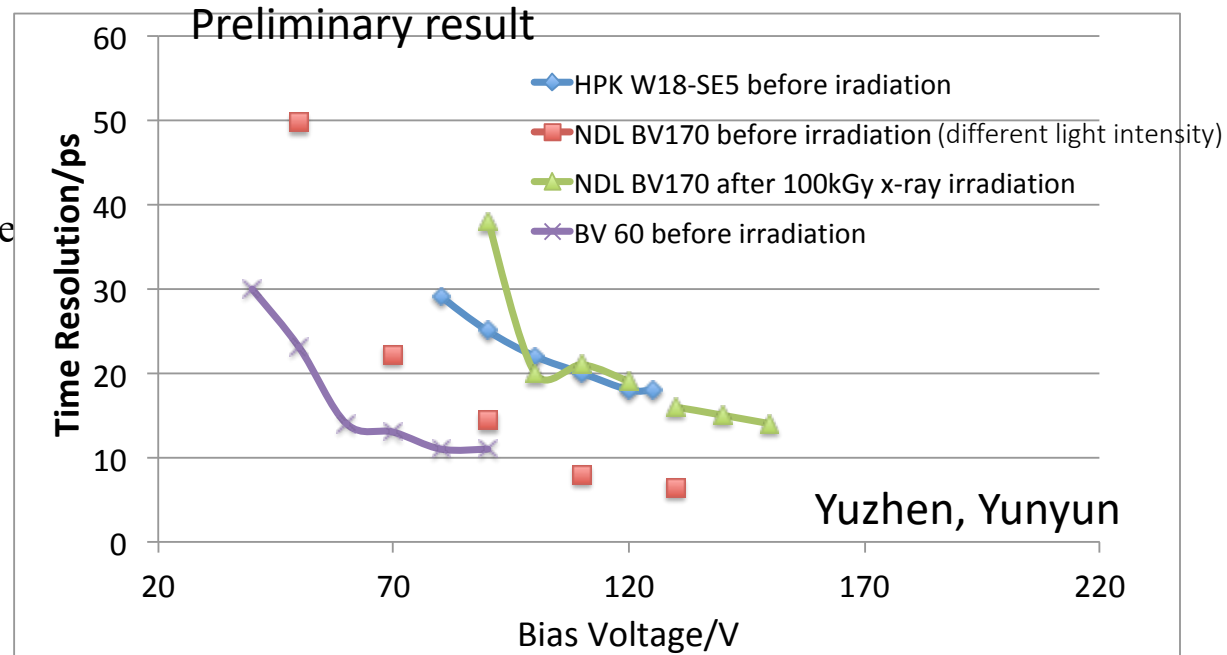
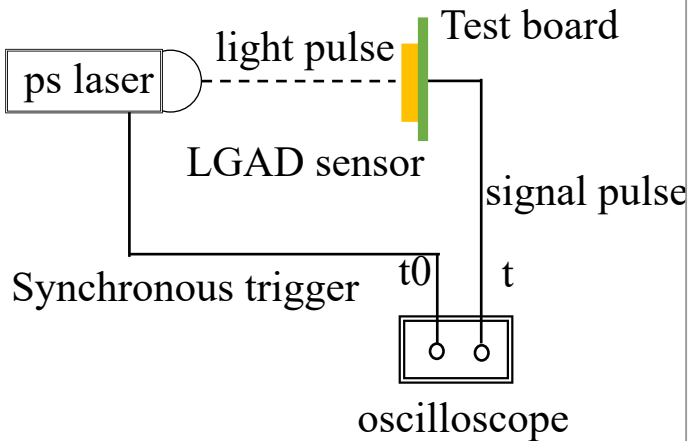
- Laser for timing measurement
- TCT scan to study internal structure
- Beta source to evaluate the MIP interaction

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2019.7.25

Laser for Timing Measurement

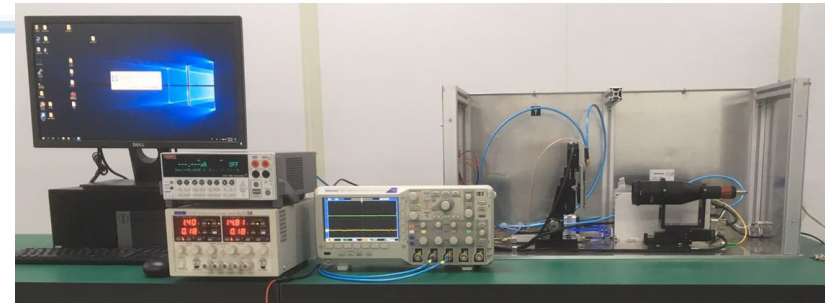
$$\sigma_t^2 = \sigma_{\text{TDC}}^2 + \sigma_{\text{Time walk}}^2 + \sigma_{\text{Jitter}}^2 + \sigma_{\text{Landau noise}}^2 + \sigma_{\text{Signal distortion}}^2$$



- Pico-second laser: 7.5 ps width pulse, 1064 nm wavelength
- Oscilloscope should be needed: 10 GHz sampling rate, 2.5 GHz band width.
- Plan:
 - MIP: decrease laser intensity, and add an amplifier for LGAD sensor
 - Test irradiated NDL sensor

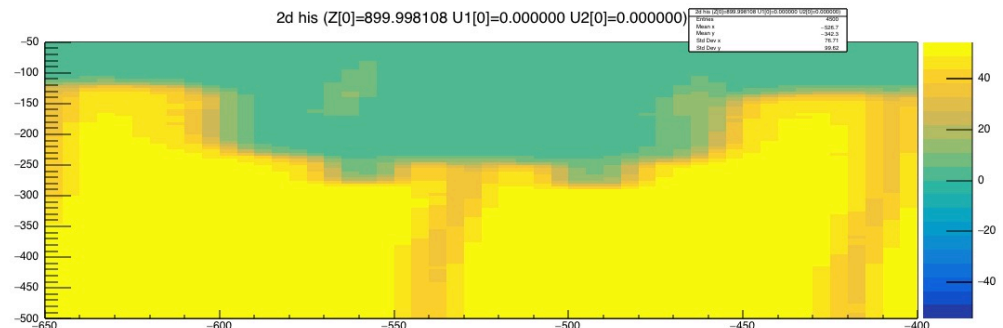
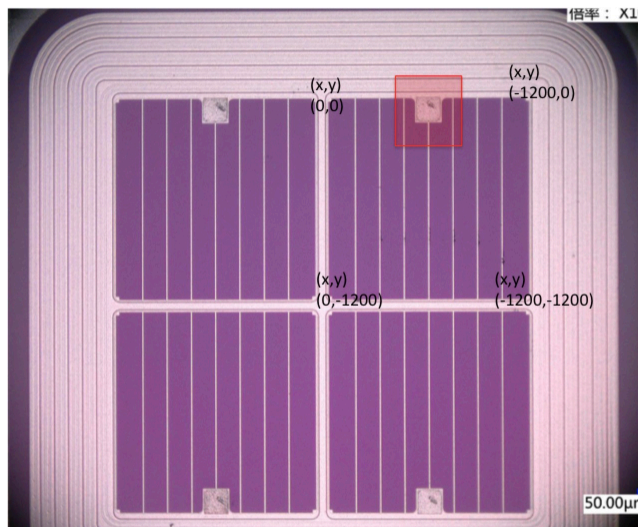
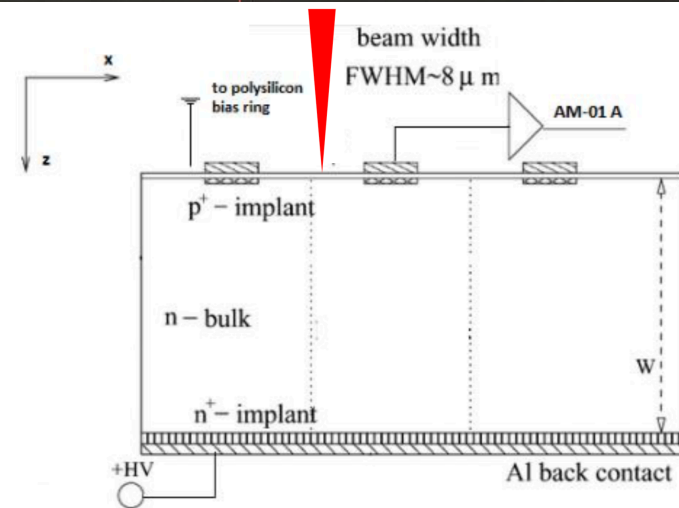
TCT scan to study internal structure

- TCT: transient current technique
- Working area: top TCT
- scan the x-y surface of NDL BV 60



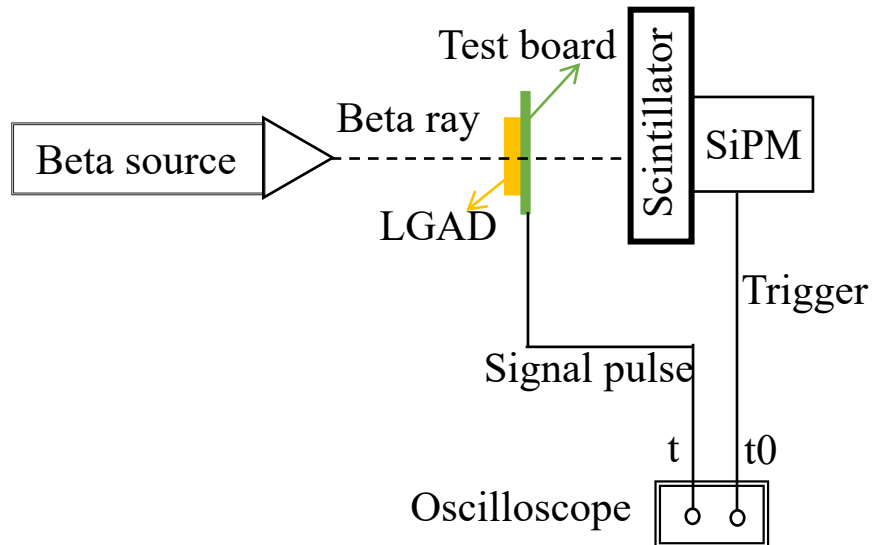
Next step:

- Top TCT:
 - time resolution scan
 - amplitude scan
- Edge TCT



Beta source to evaluate MIP interaction

- To study the minimum ionizing particle (MIP) interaction



- Beta source: Sr-90
- SiPM + scintillator
- Amplifier for LGAD sensor
- Next step:
 - Setup the test system
 - Test before and after irradiation