Transient current technique (TCT)

Time resolution test system

Yuzhen, Matt

on behalf of IHEP ATLAS group

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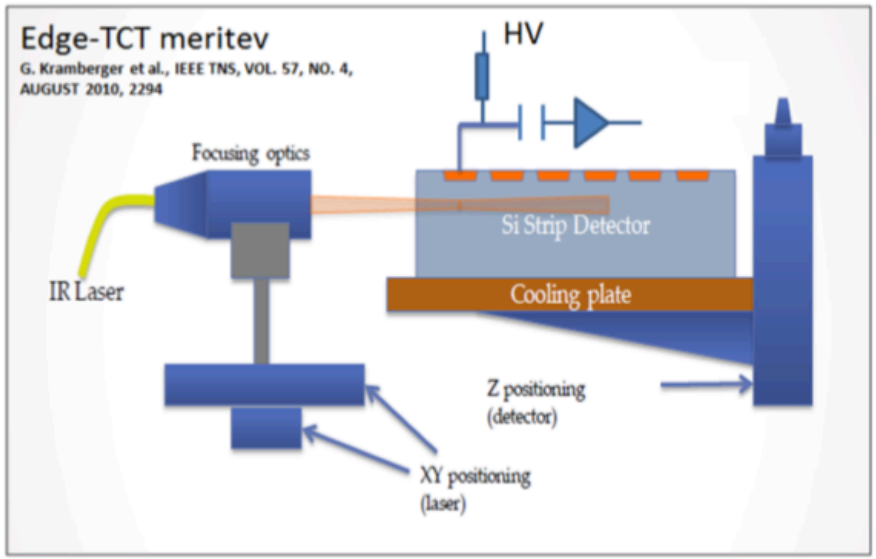
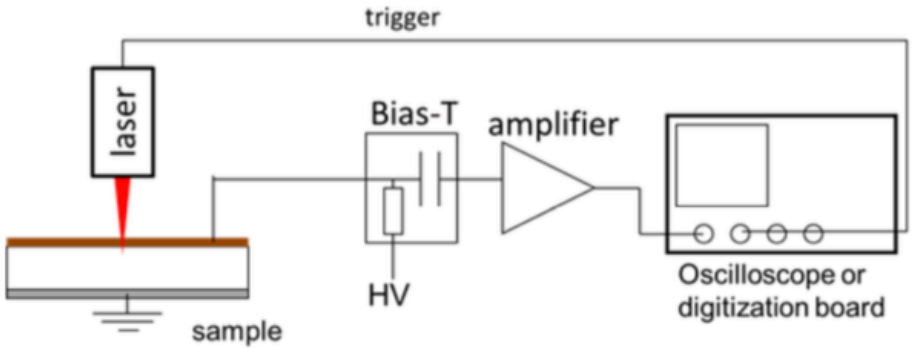
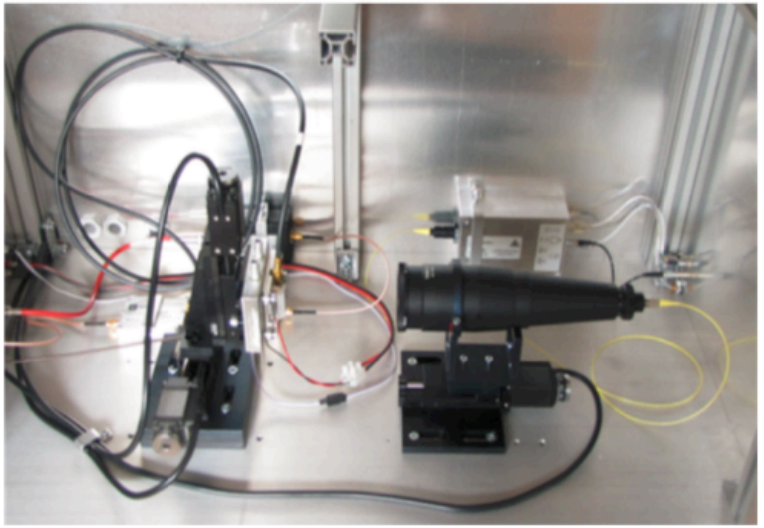
TCT laser test

- Major question: whether LGAD can reach 30~50ps after irradiation
- Timing and depleted zone measurement
  - Try to understand the irradiation effect by measuring depleted zone
  - Shooting two lasers on two sensors to measure the timing resolution

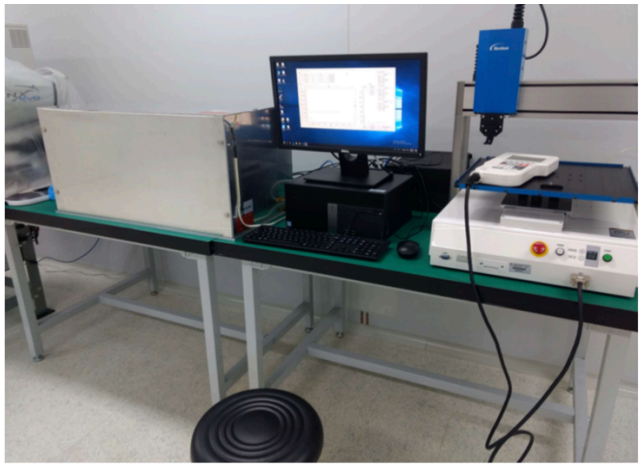


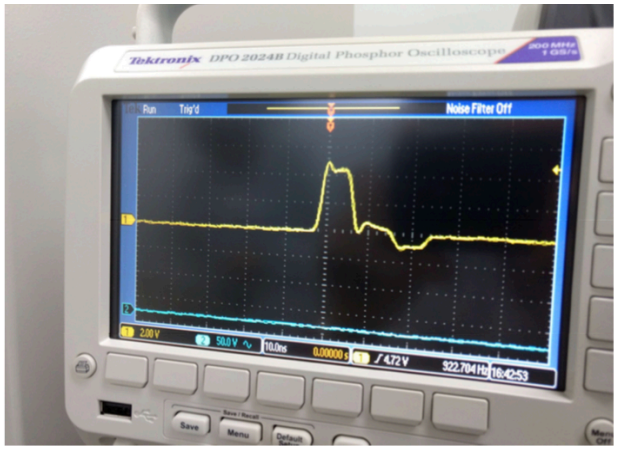




TCT

- TCT basic setup completed with the red laser on the strip detector
- The electron and hole double peak seen with a 10ns gap in the signal with a 2ns rise time
- When the new picosecond laser was used on the strip sensor it became saturated
- RF Amplifier adds a large amount of noise and test with the new laser will be used without it





Time resolution test system

❖ **pico-second laser: wavelength 1064.2nm, pulse width 7.5ps**

- It was successfully connected and the trigger is clearly seen.
- The laser was far too powerful with current pulse frequency
- There is no ability to adjust the power of laser, so we should get another stronger filter, or ask the laser company to add features of power adjustment

❖ **Next step:**

- adjust the power of laser
- wire bonding LGAD, try to setup