Temperature Variation of 2x2 APDs on CV and IV characteristics

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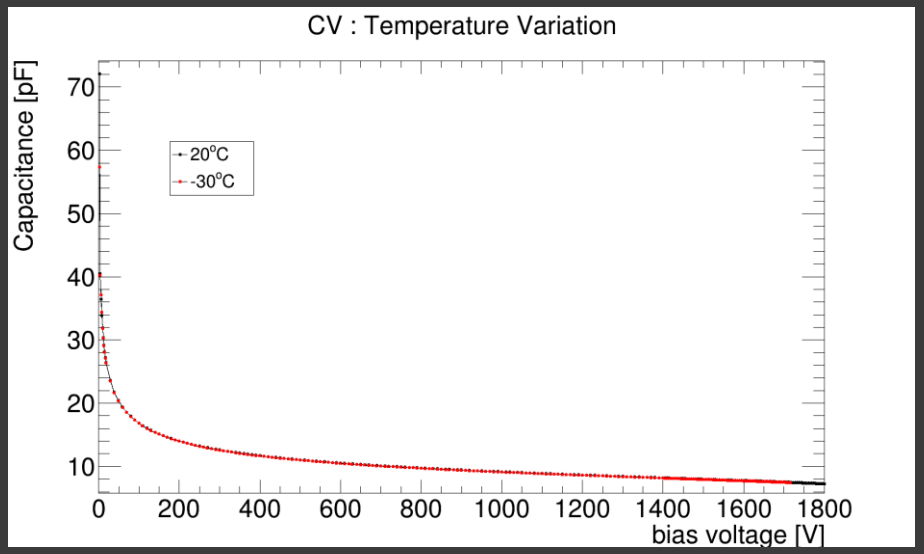
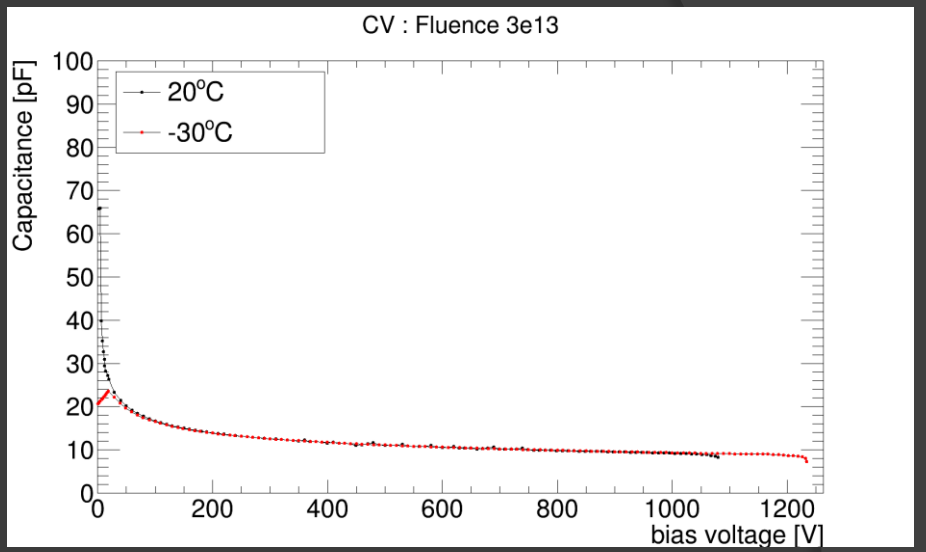
Outline of presentation:

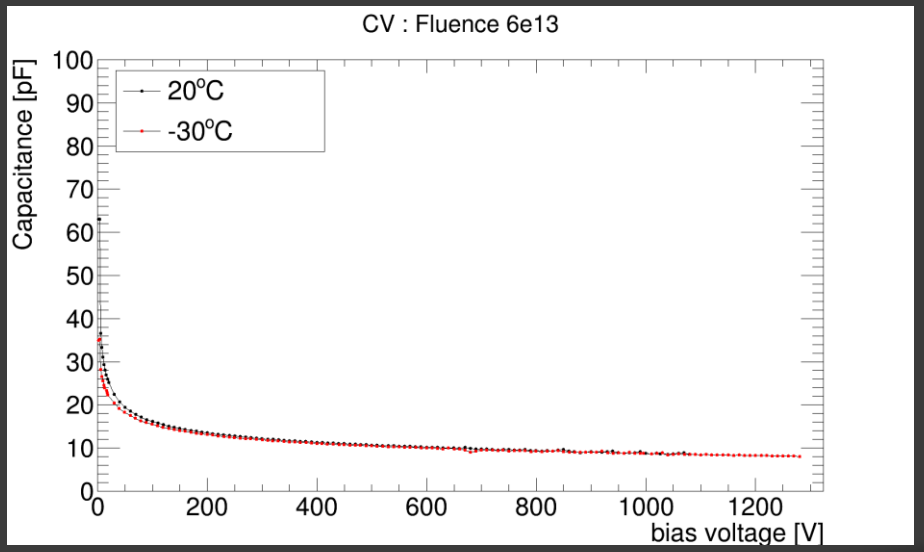
→ Temperature variation on 1 non-irradiated & 2 irradiated (3e13, 6e13 n/cm^2) APDs.
→ CV measured at 2 temp.s = 20^{o}C, - 30^{o}C.
→ IV measured from a temp. range of 20^{o}C to -30^{o}C, in steps of 5^{o}C.
→ Gain measurement going on…..

*2 APDs irradiated to 3e14 n/cm^2 exploded while going from 20^{o}C to -30^{o}C (?? Not sure)

CV measurement – Temp. variation

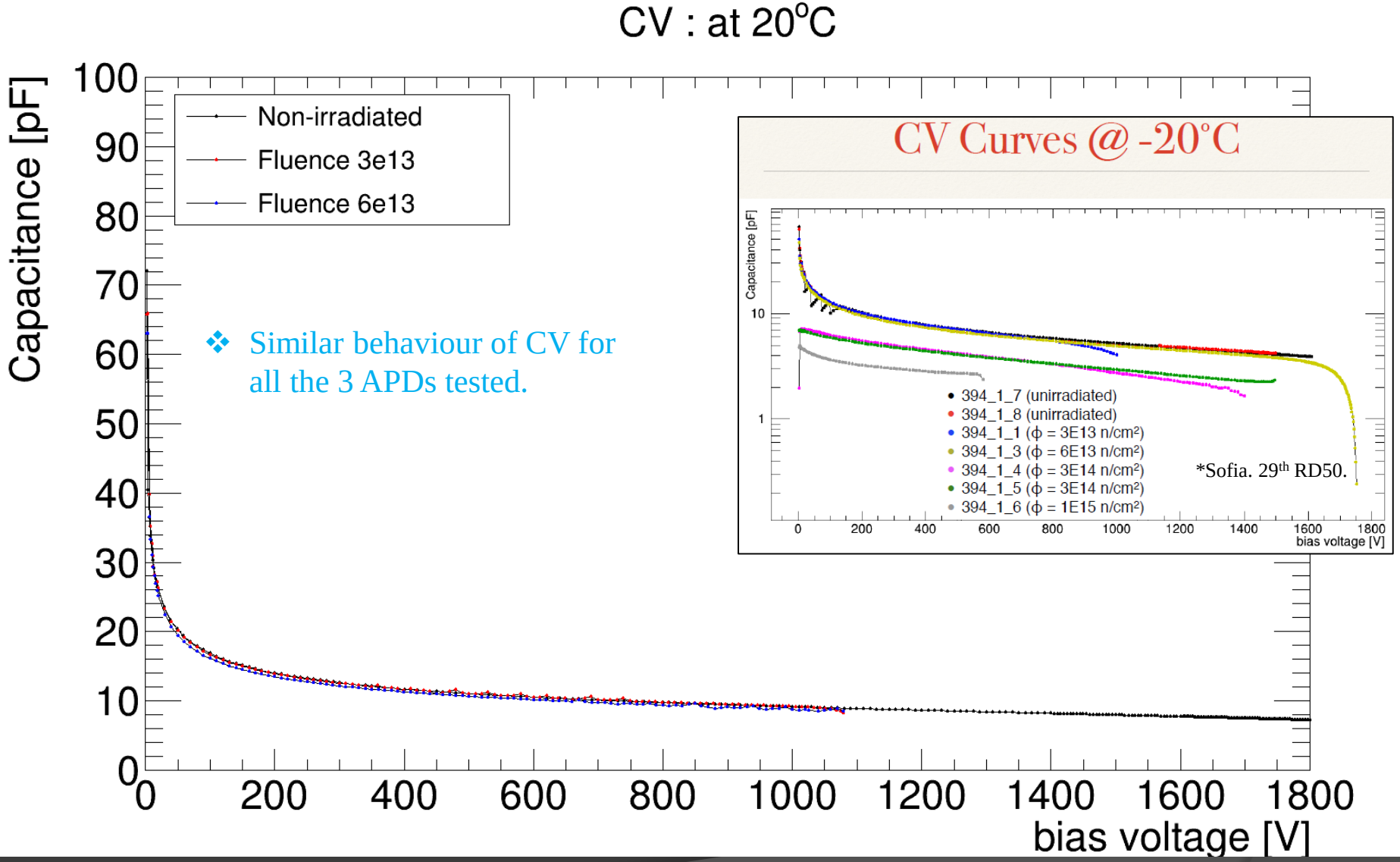




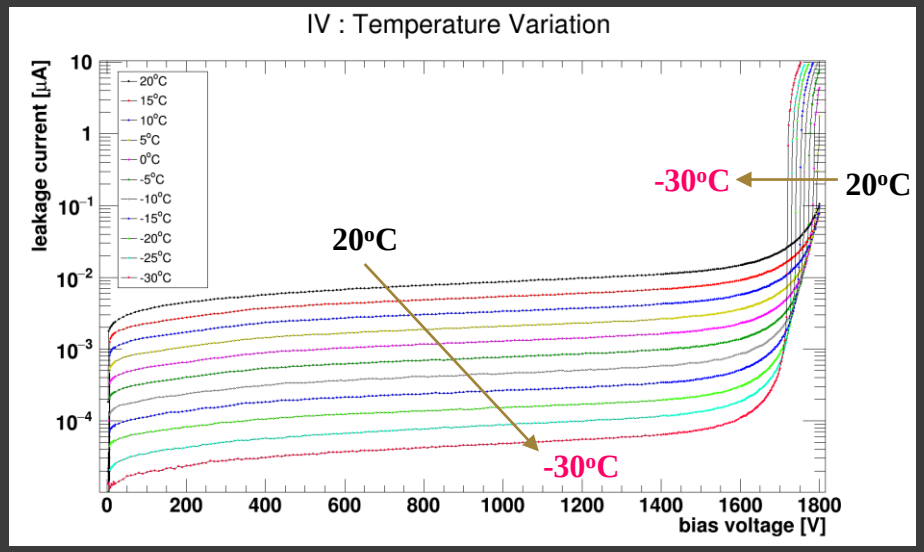


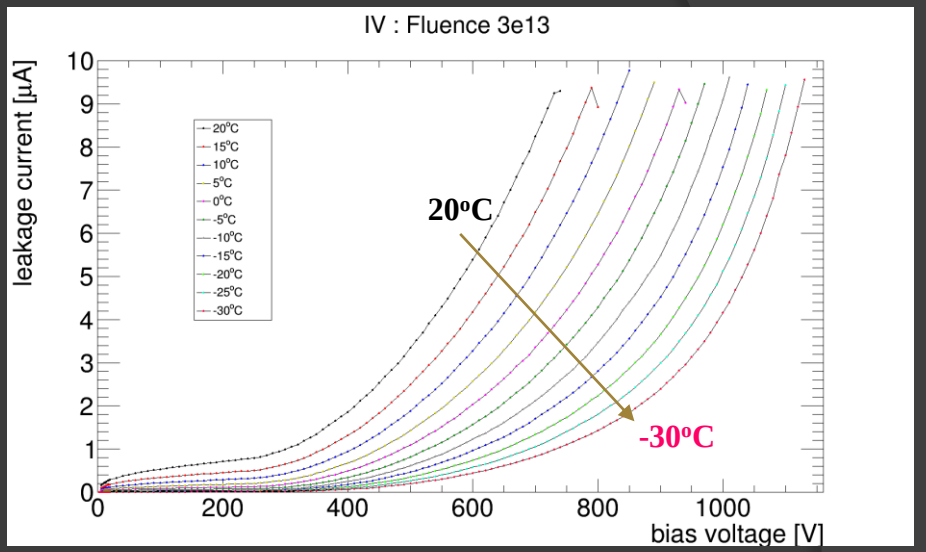
- Similar behaviour at 20°C and -30°C.
- For the non-irradiated, CV stops at -30°C earlier than 20°C due to compliance (also seen in I_{leak} plot – slide 4)
- For the irradiated, CV hits compliance earlier at high temp.

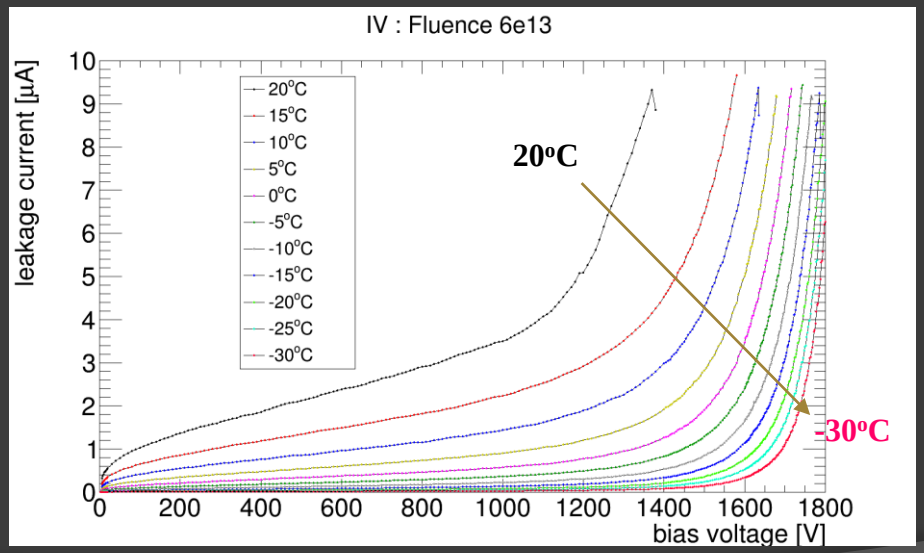
CV measurement @ 20°C



IV measurement – Temp. variation

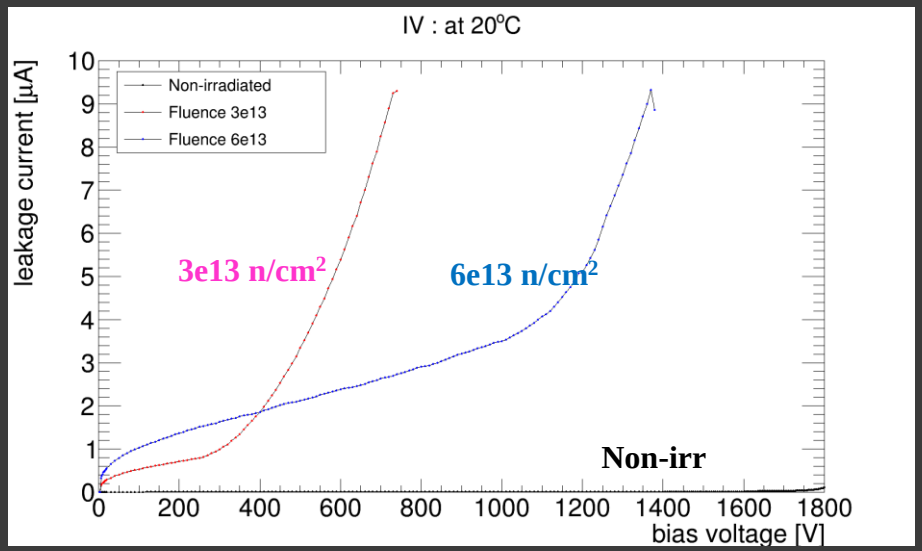


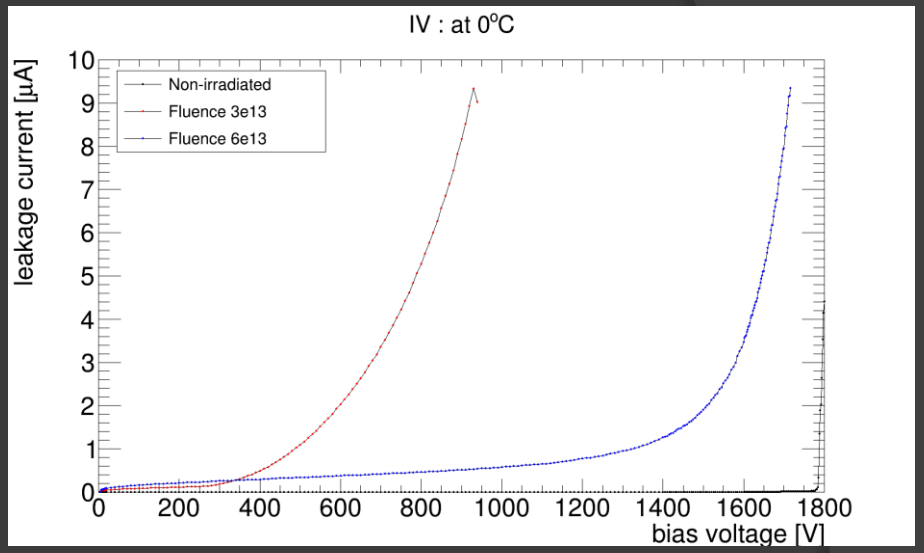


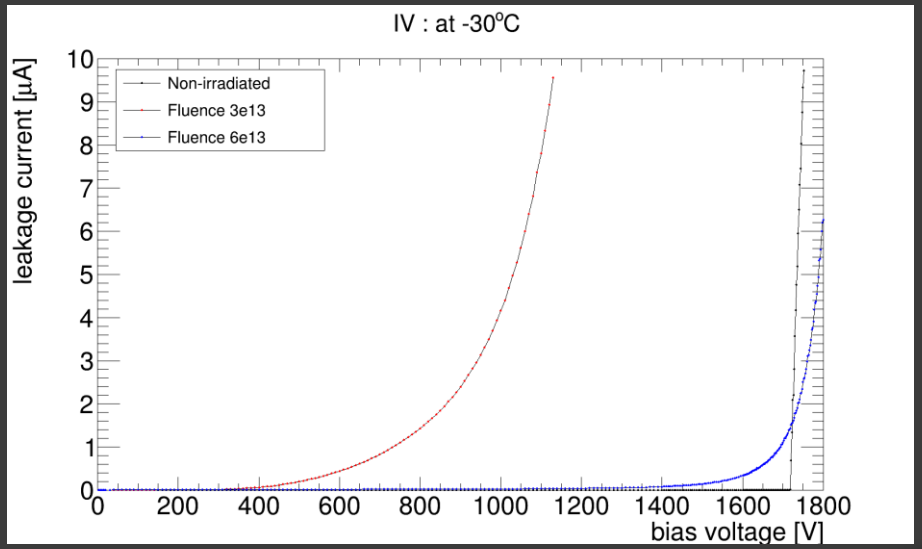


- High I_{leak} at 20°C compared to -30°C.
- For the non-irradiated, the rise in the I_{leak} is early for -30°C than 20°C - - due to more gain at low temp.
- On the contrary, for the irradiated, the rise in I_{leak} is faster for 20°C.

IV measurement – @ 20°C, 0°C, -30°C







IV Curves @ -20°C

*Sofia. 29th RD50.