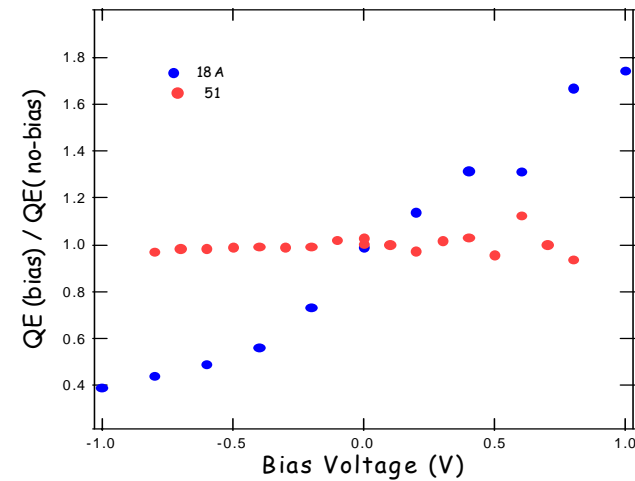
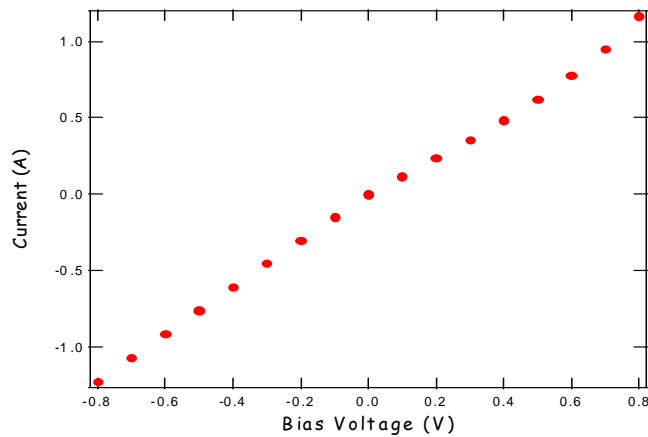
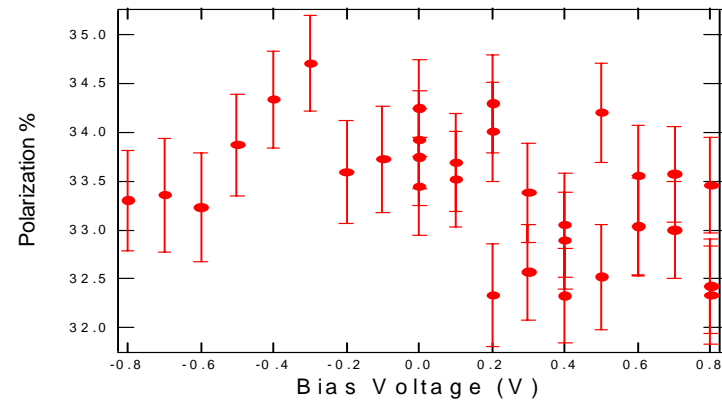


Saxet SBIR

Sample 51 – Thin GaAs with 1 μm -thick W lines

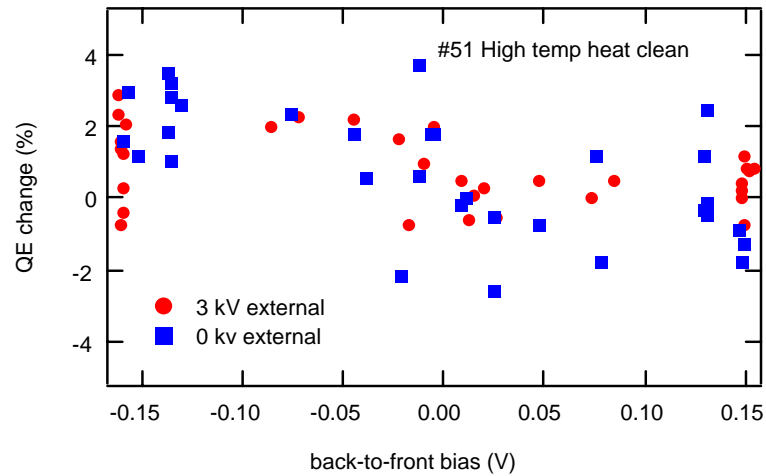
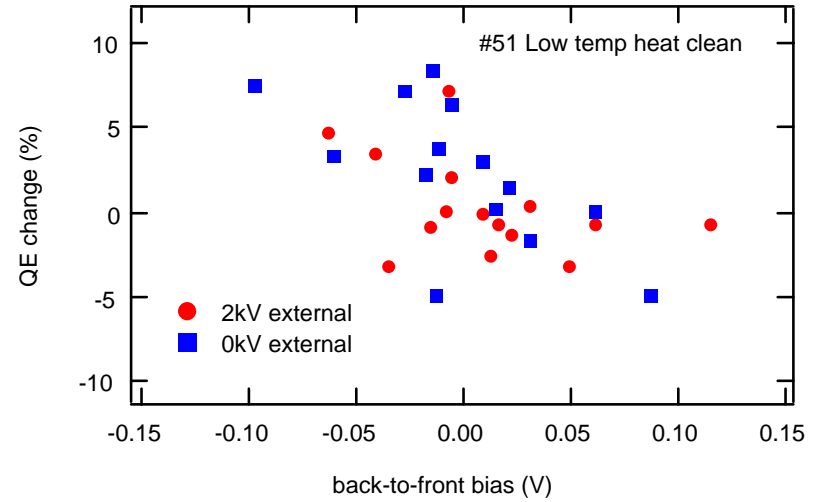
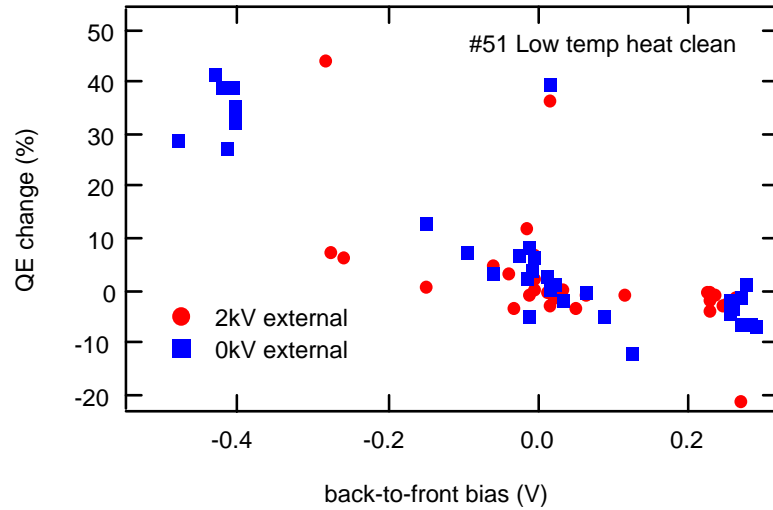


- One 570 C heat-cleaning
- W-GaAs contact is Ohmic
- No bias effect on QE
- No Bias effect on polarization



Bias effect disappears after high-temp heat-cleaning

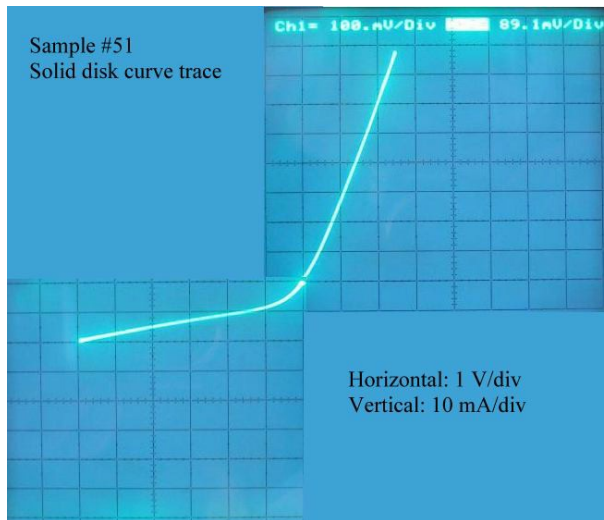
Saxet data



Low temp ~ 500 C

W-GaAs contact becomes Ohmic after high-temp heat-cleaning

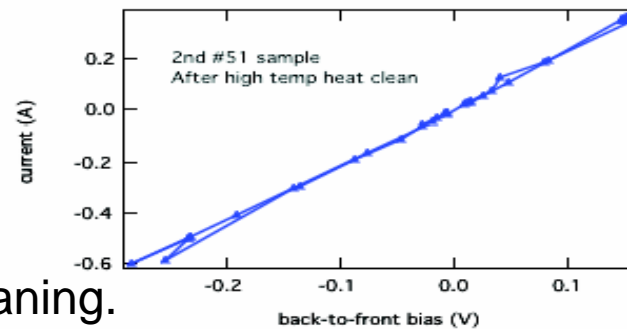
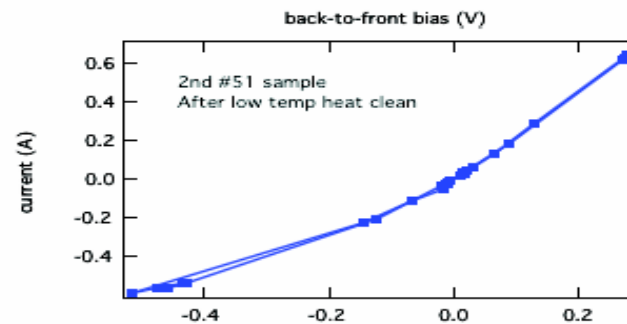
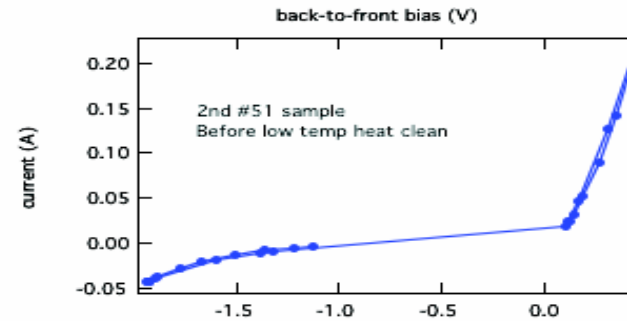
Before heat-cleaning



To see bias effect, W-GaAs contact must be non-Ohmic.

Non-Ohmic contact must survive heat-cleaning.

Will try low temp (450 – 500 C) heat-cleaning.



SVT SBIR Phase-I Wafers

I) Strained wells

- 1) 5 nm GaAs cap Be: 1×10^{19}
- 2) 4 nm $\text{In}(0.31)\text{Ga}(0.69)\text{P}$ Be: 1×10^{17}
- 3) 4 nm GaAs Be: 1×10^{17}

repeat 2) and 3) 12 times

- 4) 2.5 μm $\text{In}(0.31)\text{Ga}(0.69)\text{P}$ Be: 5×10^{18}
- 5) 2.5 μm $\text{In}(x)\text{Ga}(1-x)\text{P}$ $x=0.48 \rightarrow 0.31$ Be: 5×10^{18}
- 6) $\text{In}(0.48)\text{Ga}(0.52)\text{P}$ buffer lattice-matched to GaAs
- 7) GaAs substrate

Growth is in progress

II) Strained barrier

- 1) 5 nm GaAs cap Be: 1×10^{19}
- 2) 1.5 nm $\text{In}(0.65)\text{Ga}(0.35)\text{P}$ Be: 1×10^{17}
- 3) 4 nm GaAs Be: 1×10^{17}

repeat 2) and 3) 18 times

- 4) 1 μm $\text{Al}(0.3)\text{Ga}(0.7)\text{As}$ Be: 5×10^{18}
- 5) GaAs buffer
- 6) GaAs substrate

Wafer delivered on June 20

World premier of InGaP/GaAs superlattice photocathodes