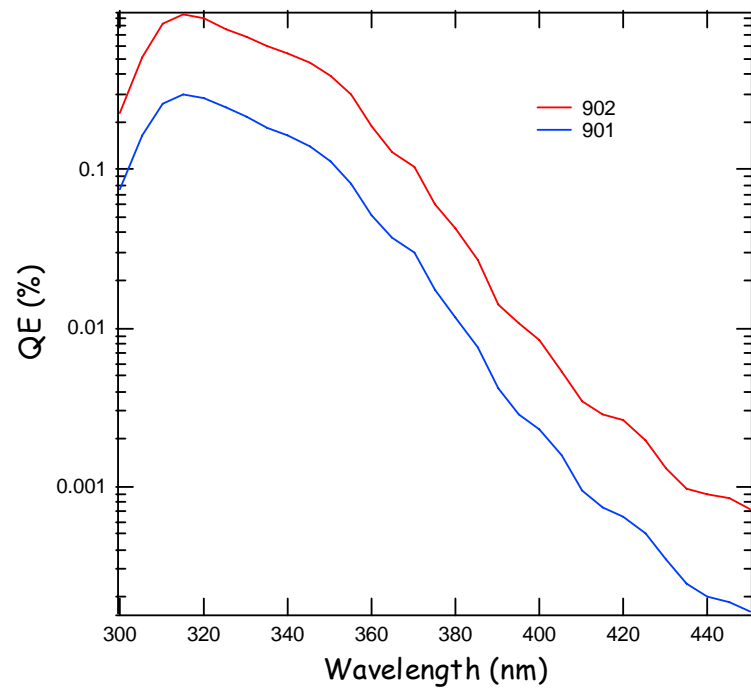


# SVT GaN SBIR Update

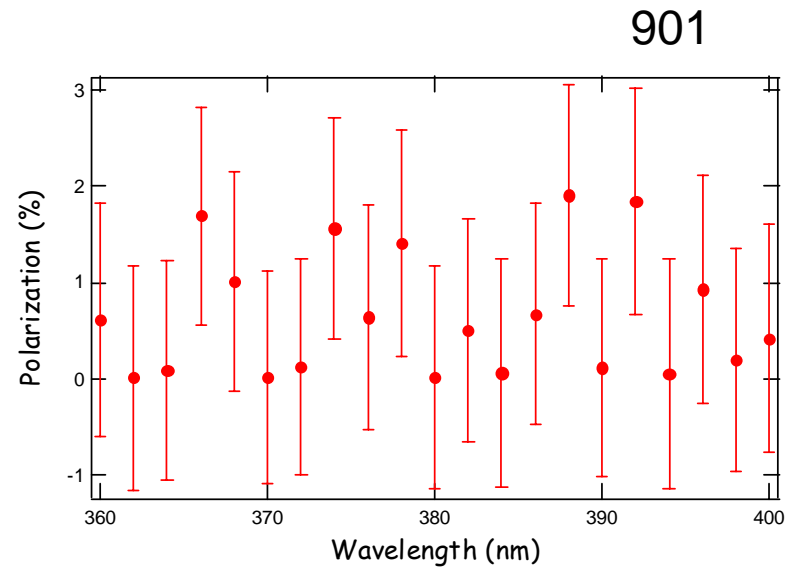
- Received four new wafers
  - 107020901: (no AlN cap)/ delta-doped GaN/ thick p-GaN/ sapphire (0001)
  - 107020902: 2nmAlN-cap/ delta-doped GaN/ thick p-GaN/ sapphire (0001)
  - 107020903: 2nmAlN-cap/ delta-doped GaN/ thick p-GaN/ sapphire (0001)
  - 107021201: 2nmAlN-cap/ delta-doped GaN/ thick p-GaN/ sapphire (0001)
  - SVT does not want to disclose the detail of “delta-doping”.
  - These wafers are not for polarization.
  - “Cs-free” photocathodes, ie NEA photocathodes without Cesium
    - Similar to Stanford Univ. Group’s CsBr/GaN

# QE and Polarization

QE after Cesium



No QE before Cesium.



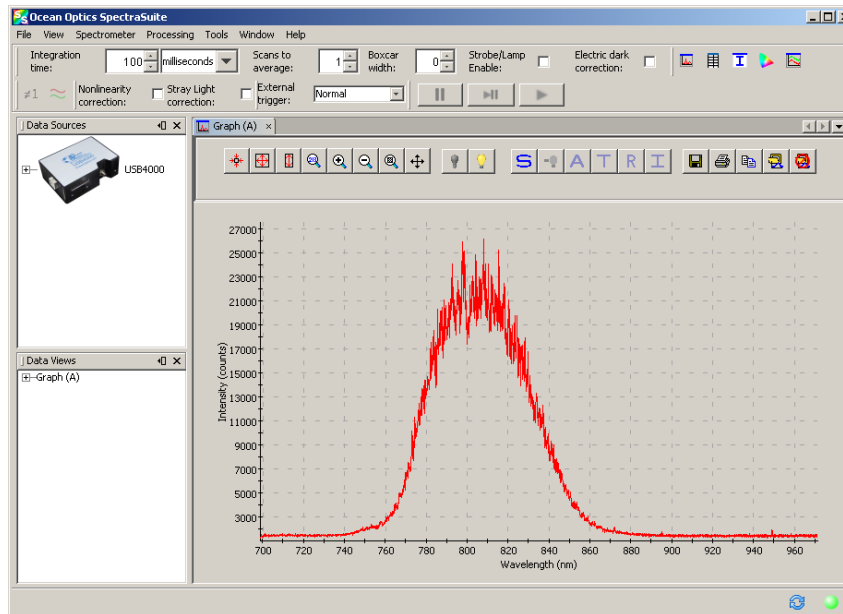
# KM Labs visit

- What is the problem?
  - It runs in two modes,
    - Mode lock with a positive dispersion
    - Self Q-switch mode
  - It does not run in true mode lock mode.
  - No discriminating power between CW and ML.
    - ML power should be ~100 mW higher than CW power.
  - It does not stay in mode lock for more than 5 min.
- Kevin Shea of KM Labs visited SLAC on Feb 23.
  - Found the cavity alignment tool was misaligned.
  - Clean all the optics and re-align the cavity from scratch.
- The laser runs in true mode lock mode.
- However, the laser does not stay in mode-lock for more than 5 min (longest ~25 min.)
  - Kevin suspects drop-outs in the pump laser.
  - Axel suggests the competing multi-lines are causing the drop-outs.
  - To convert multi-line mode to single mode, we need to purchase a 100% reflector with a built-in prism.

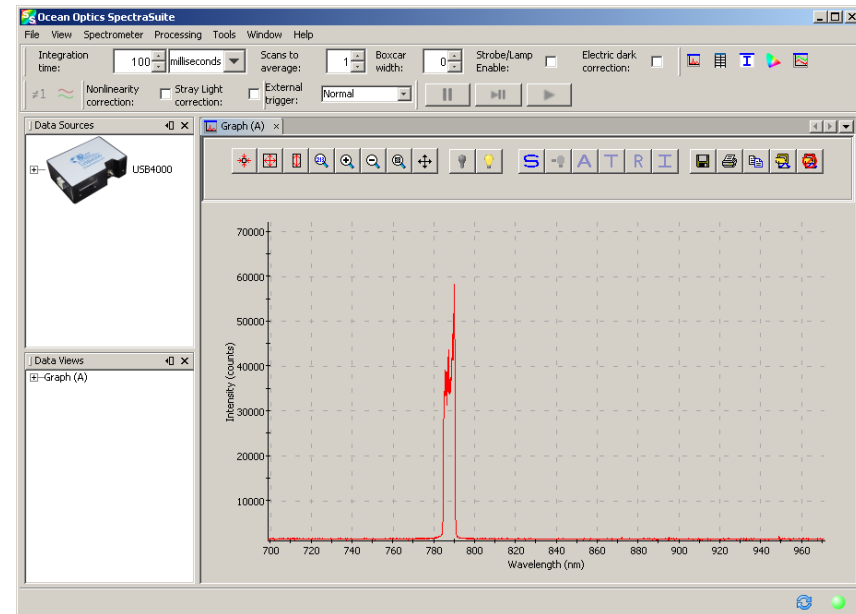
# Two mode-lock spectra

True Mode lock

Mode lock with positive dispersion



FWHM ~60 nm



FWHM ~10-50 nm