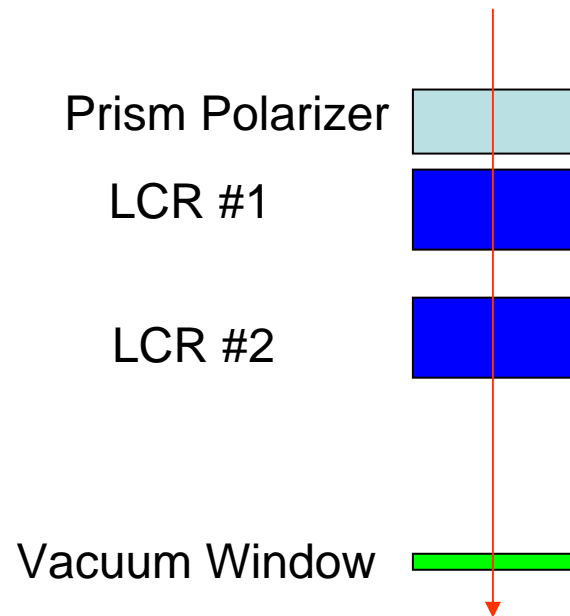


# Babinet-Soleil Compensator calibration and measurement capability at short wavelength

- CTS polarization capability is limited to between 650 nm and 900 nm.
- Circular polarization is generated by a Liquid-Crystal-Retarder (LCR). LCR cannot be used for wavelength shorter than 400 nm.
- Only way to extend the polarization capability to less than 400 nm is to use a Babinet-Soleil Compensator.
- Large band gap materials
  - InGaN 350 – 400 nm
  - GaN 350 nm
  - AlN 200 nm
  - Diamond ~200 nm

# Optics

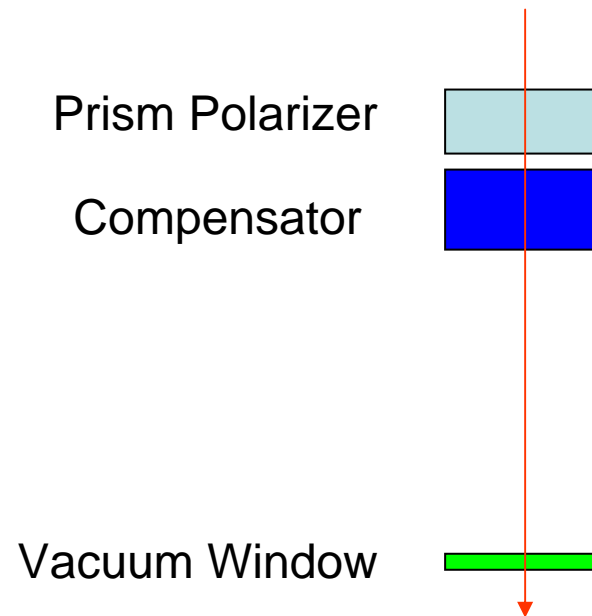
Current Optics



Prism Polarizer + LCR #1 generate circularly polarized light.

LCR #2 introduces a retardation to cancel the window retardation.

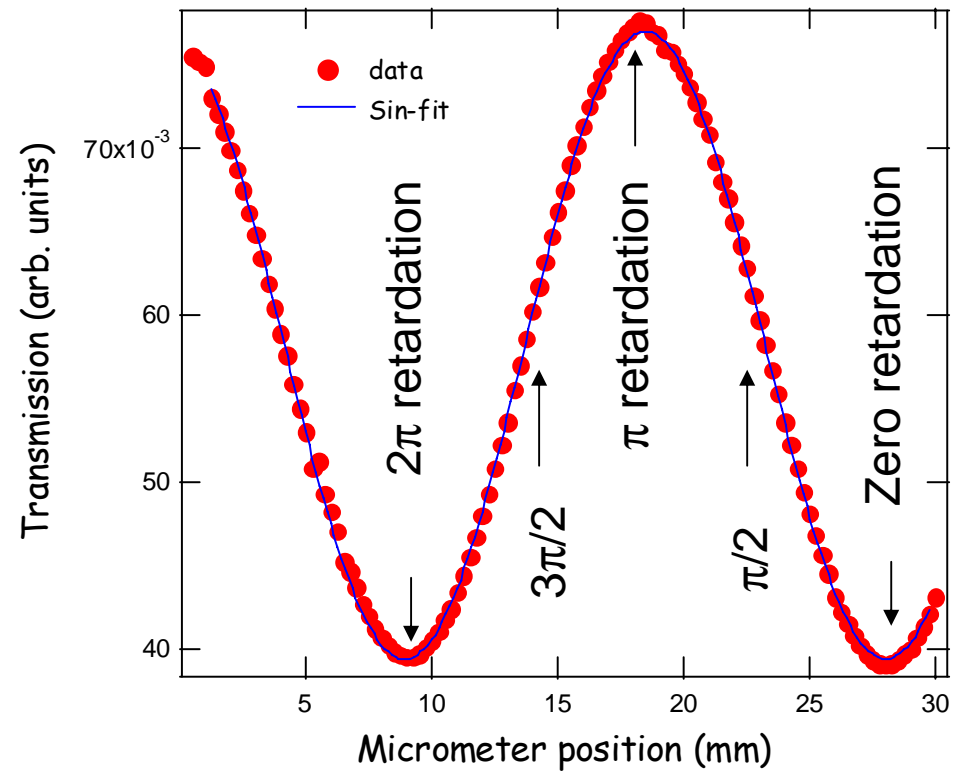
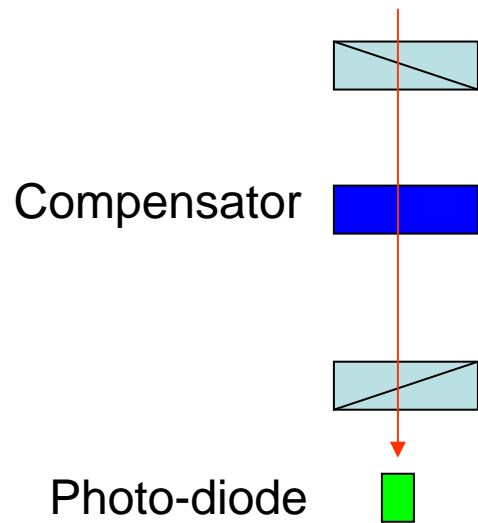
Compensator Optics



Prism polarizer + Compensator generate elliptically polarized light which becomes circular after the vacuum window.

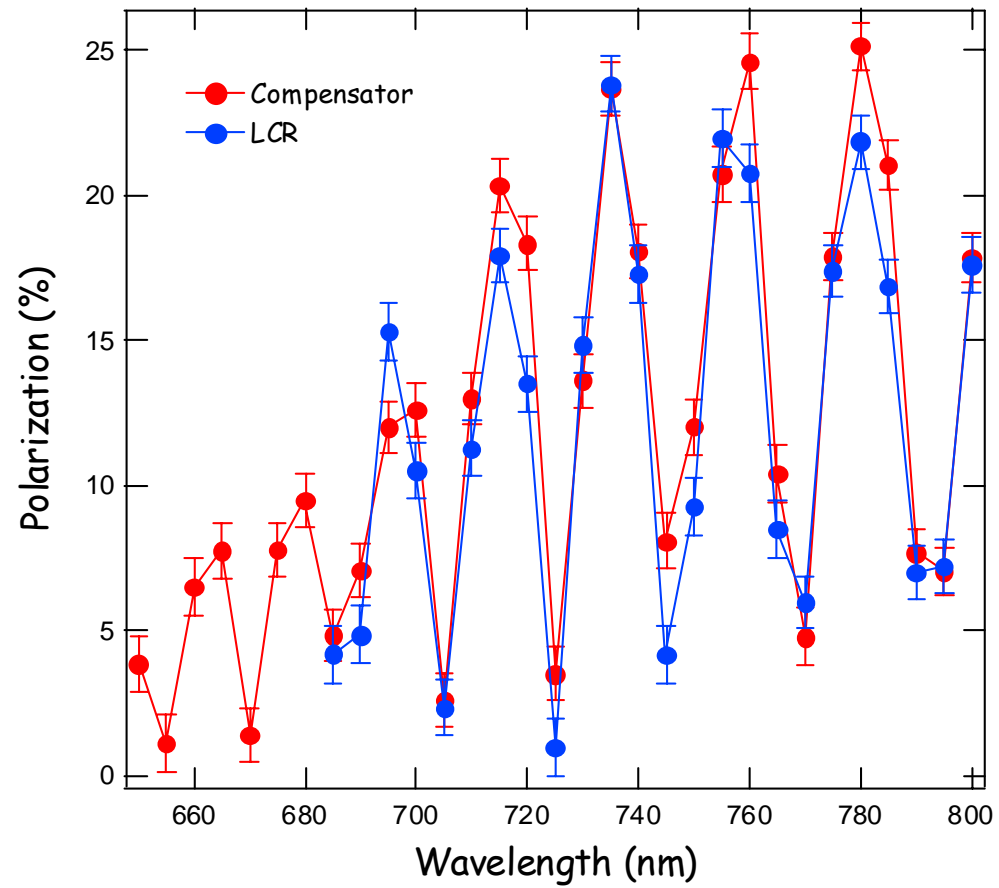
# Compensator Calibration

Cross Polarizer

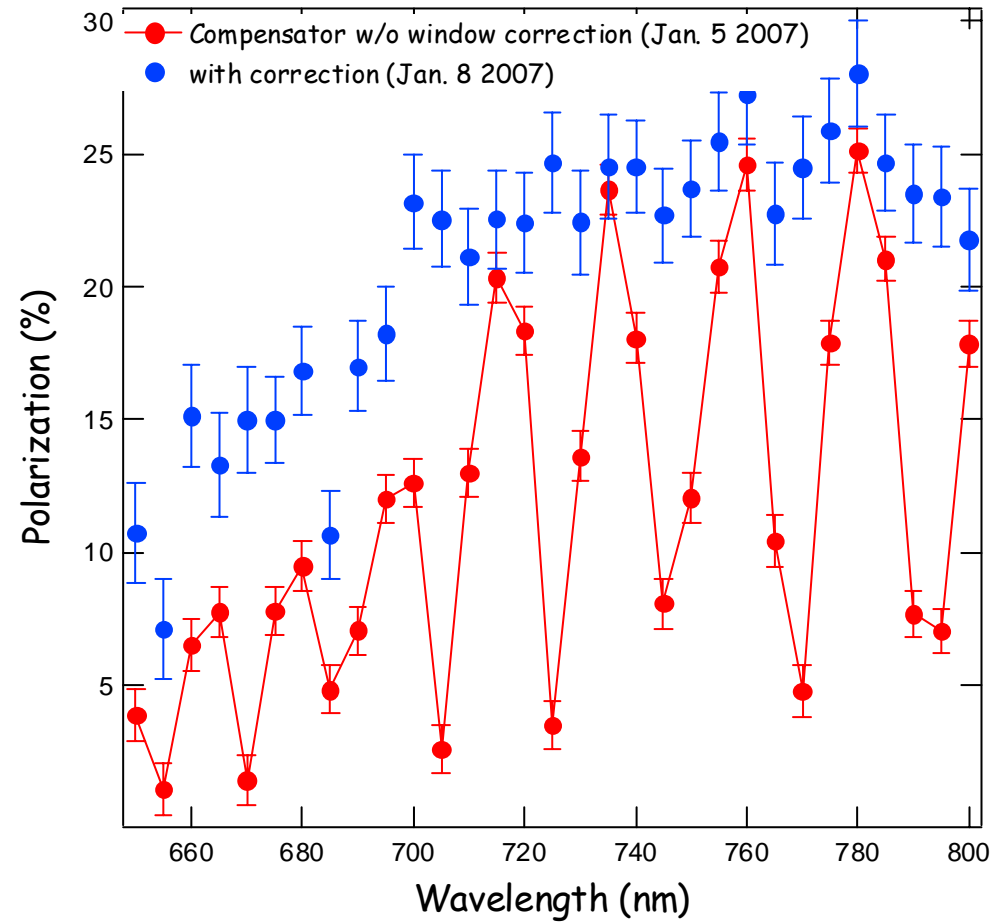


# Without Window Compensation

Bulk GaAs



# With Window Compensation



# Bulk GaAs polarization at < 650 nm

