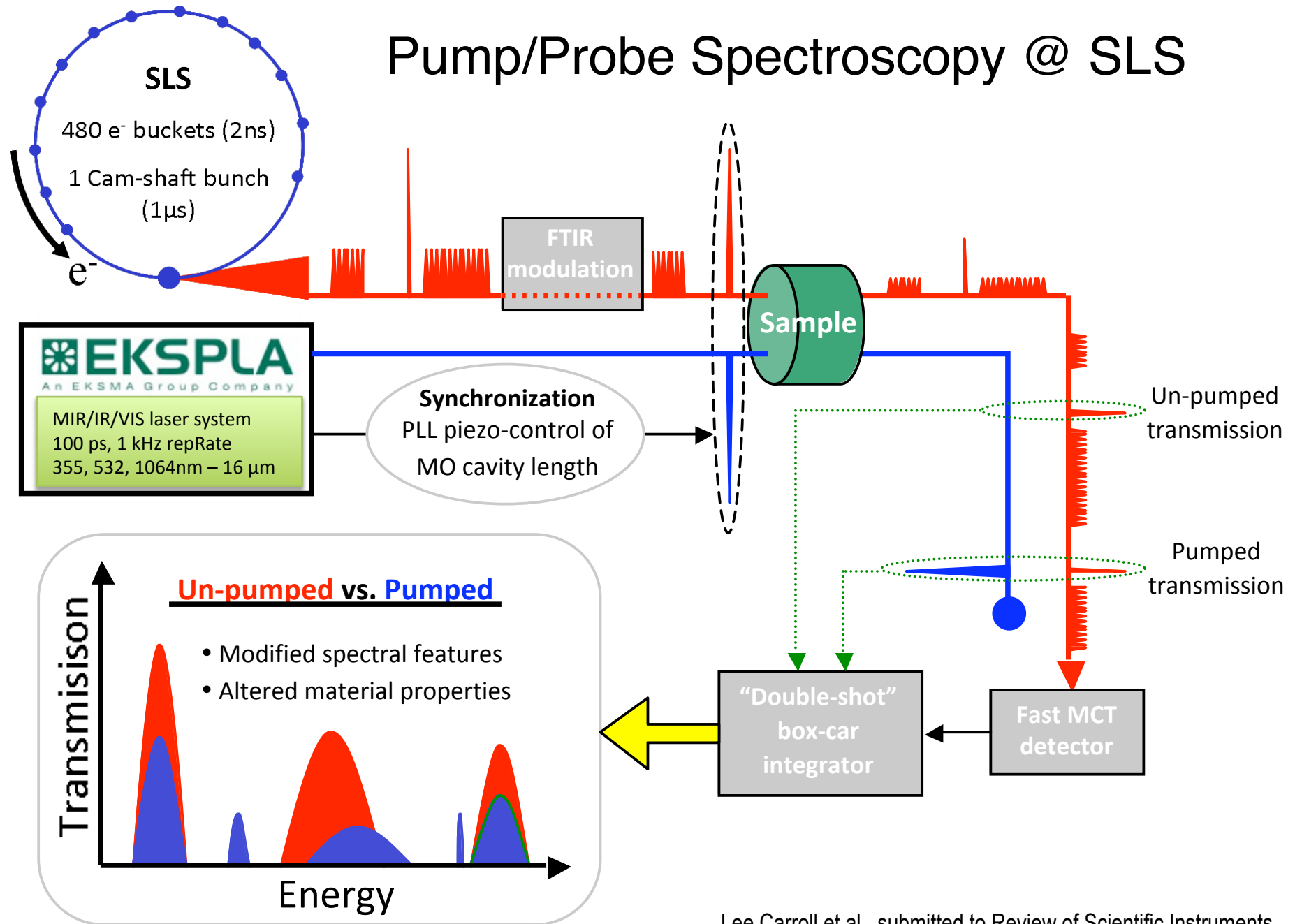
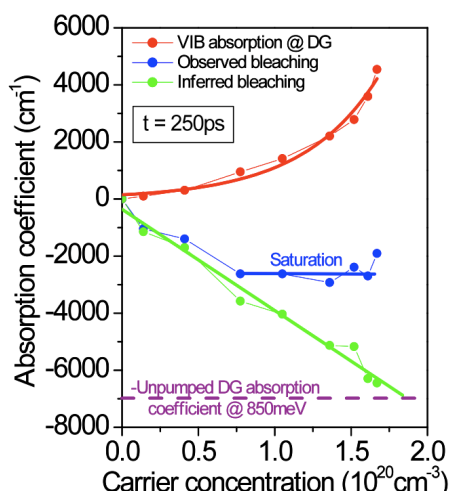
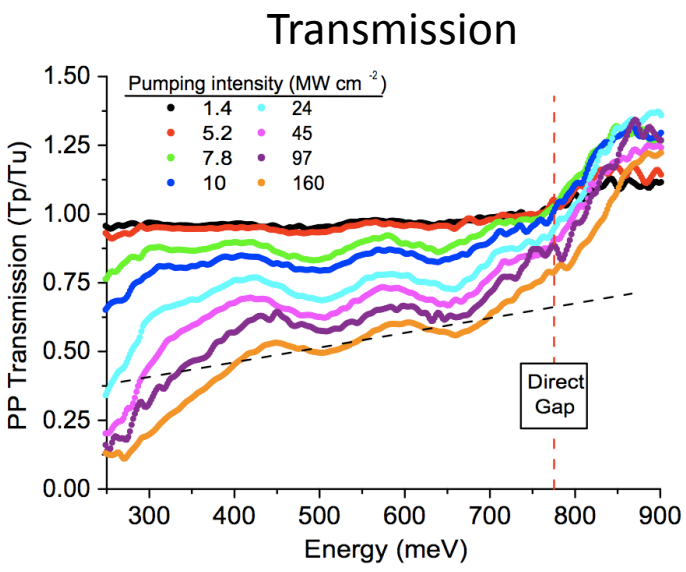
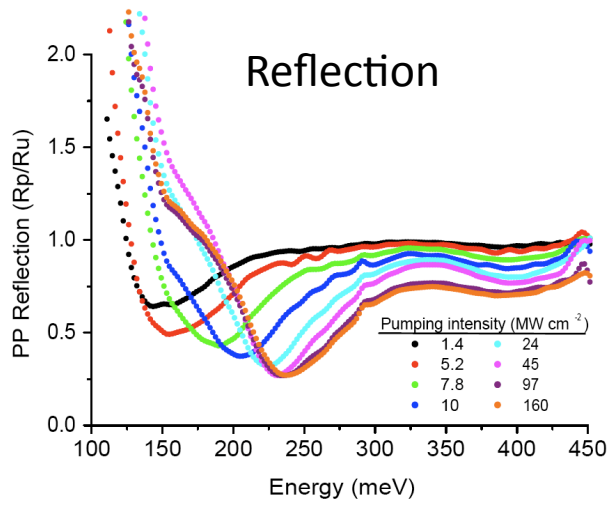


Pump/Probe Spectroscopy @ SLS



P/P on Ge laser material



A Germanium Laser on Silicon

$\epsilon = 0.2\%$, $N_d = 1 \times 10^{19} \text{cm}^{-3}$, H1

Emission Intensity

Wavelength (nm)

50 μJ

6.0 μJ

1.5 μJ

Range of optical gain in pump-probe measurement

Emission Intensity

Pump Energy/Pulse (μJ)

$\lambda = 1593.5 \text{ nm}$

MIT

MIT Photonics Institute

"A Ge-on-Si laser operating at room temperature", [Optics Letters 35, 679 \(2010\)](#)

- Broadband P/P reflection and transmission study reveal pump induced carrier concentration and material loss
- Investigated material (no MIT material) did not reach laser threshold due to dominant pump induced absorption (PIA)
- PIA could be assigned to inter valence band transition.