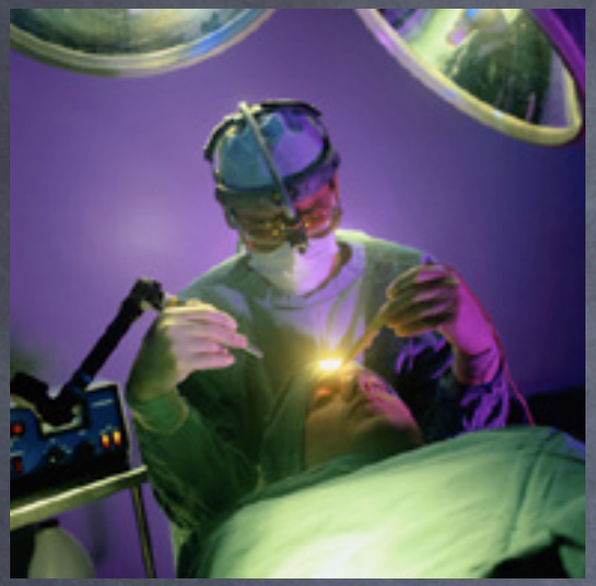
Trends in Optics and Lasers at Chico State

Anna Petrova-Mayor, Ph.D.
CSU Chico

Photonics enabled technologies

Medicine

- diagnostics, therapy, surgery

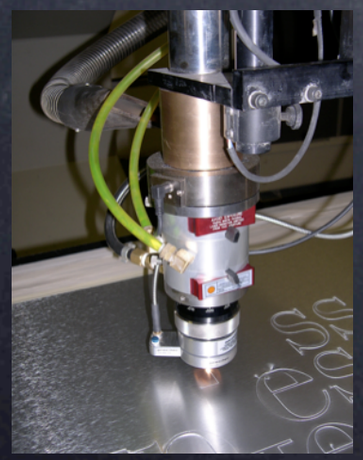


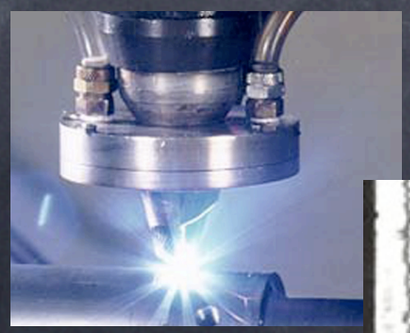
Environmental monitoring

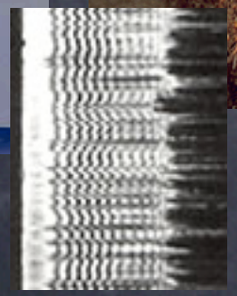
- remote sensing, spectroscopy

Manufacturing

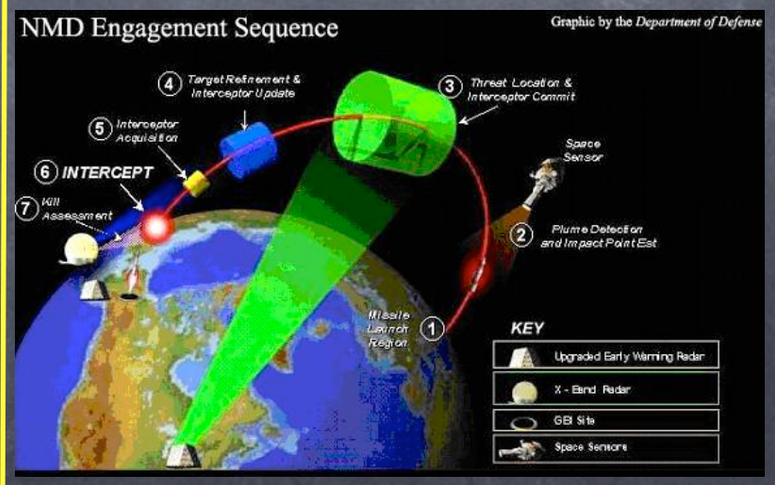
- welding, surface treating
- drilling, cutting, marking
- interferometric methods
- nondestructive testing







Defense



Our optics and lasers labs

Physics Department

Dr. Cheuk-Kin Chau

Former students working in industry

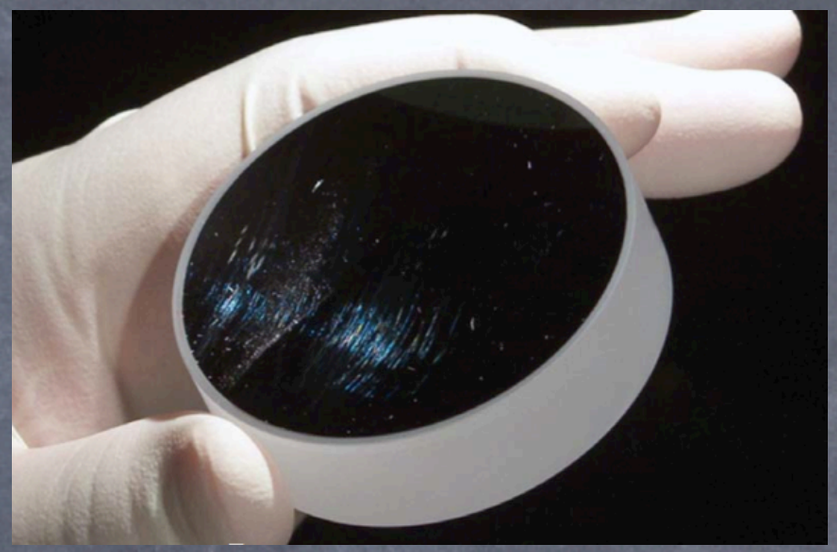
Sponsor - Brian Pierce, Advanced Light Technology

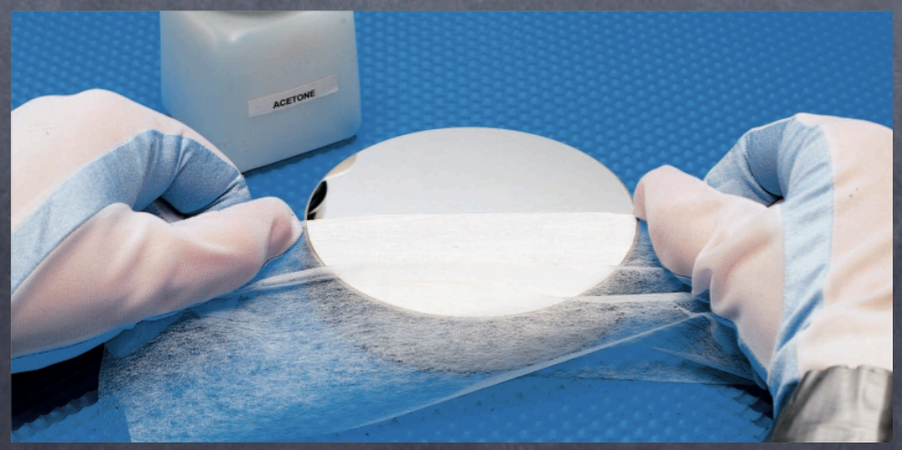
Existing experiments

Skills for working with optics and lasers

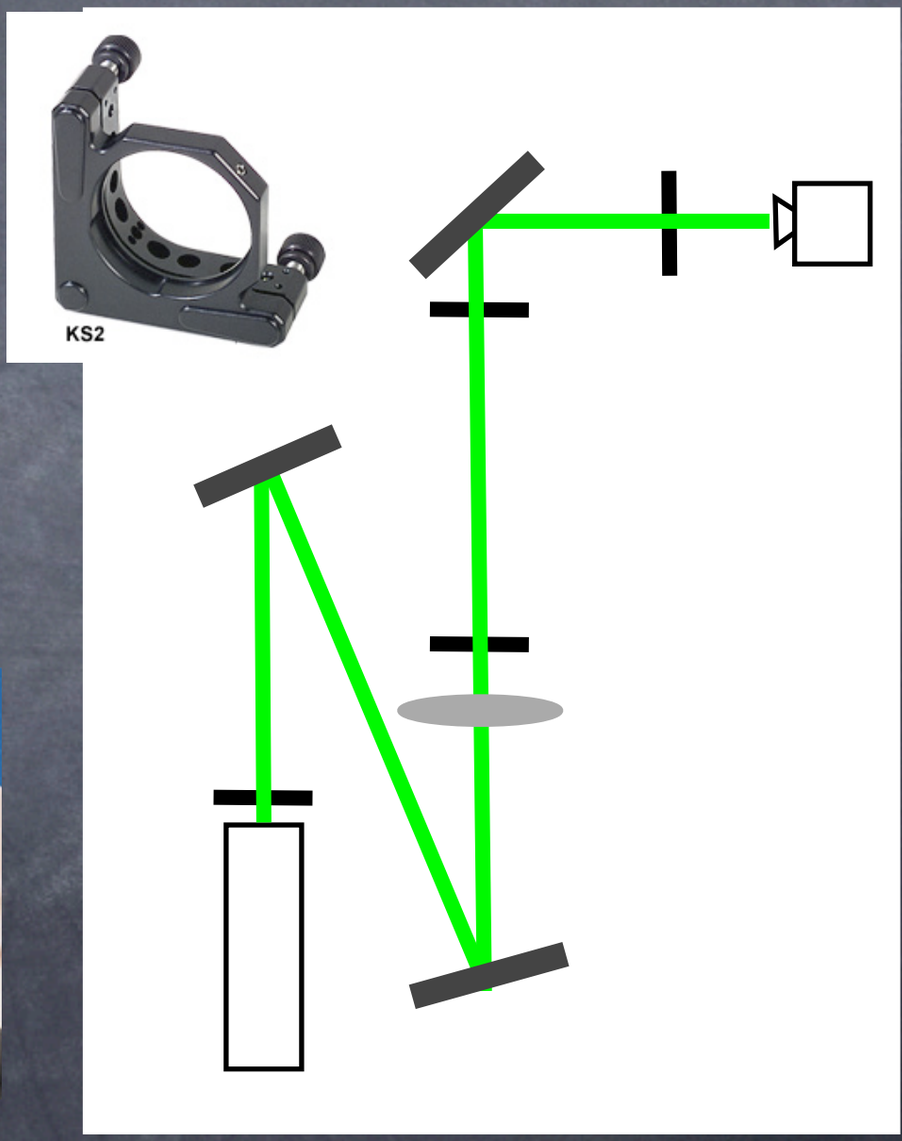
Safety practices

Handling optical components



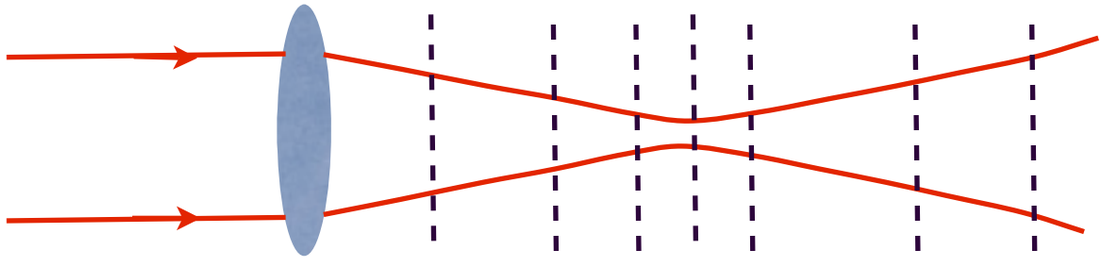


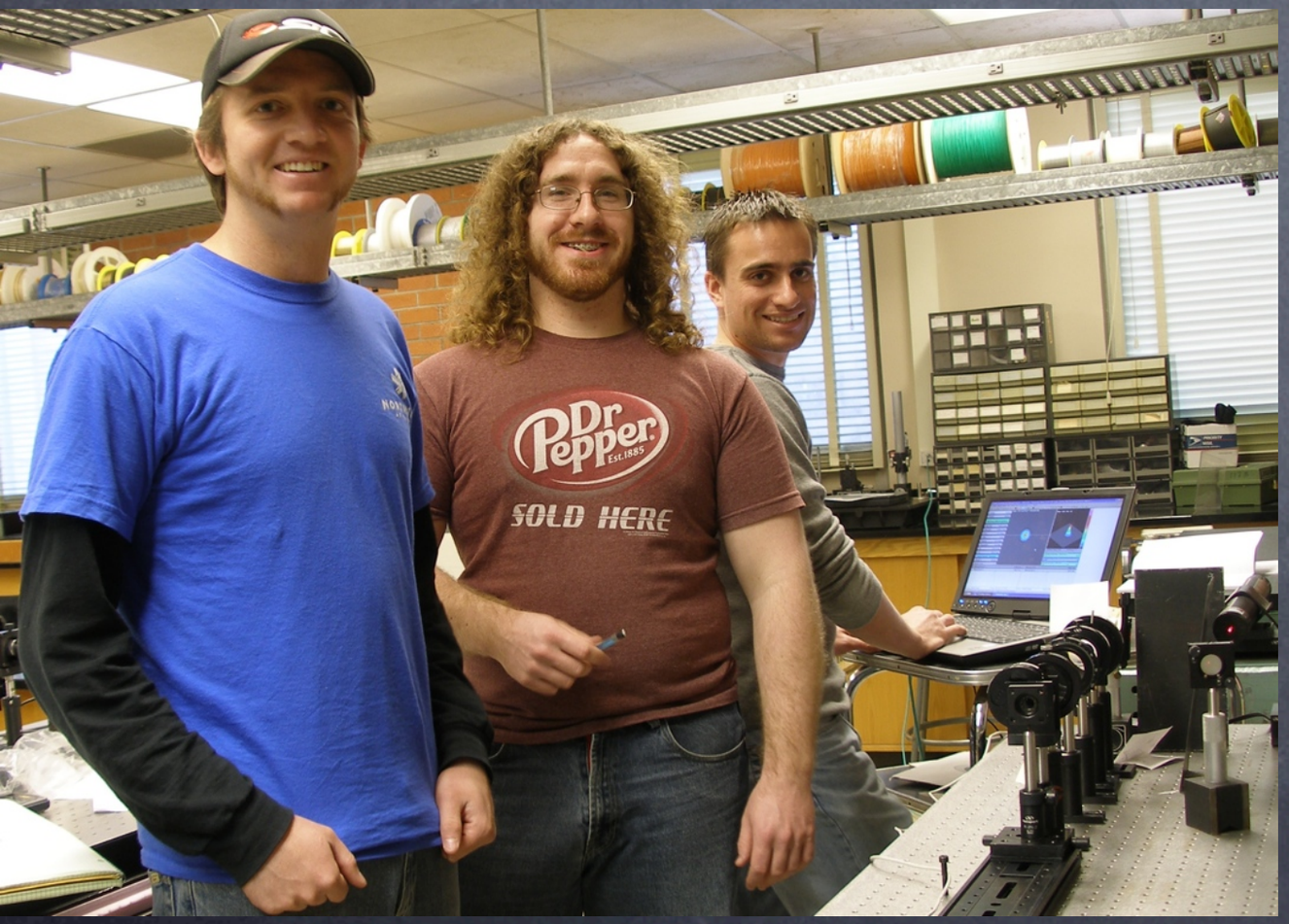
Alignment procedures

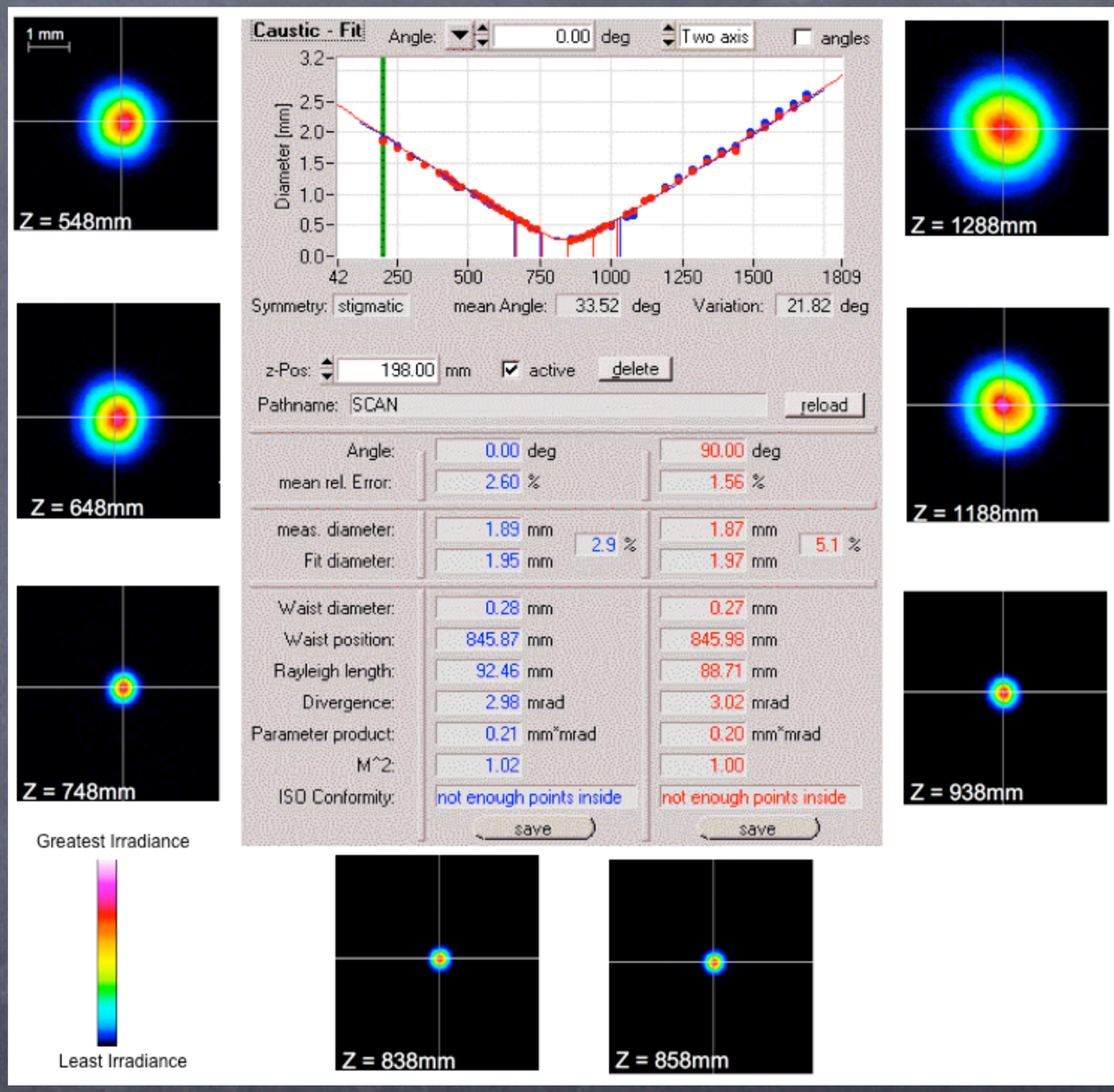


Laser beam characterization

$$\theta_M = M\theta_0 \ , \ \omega_M = M\omega_0$$



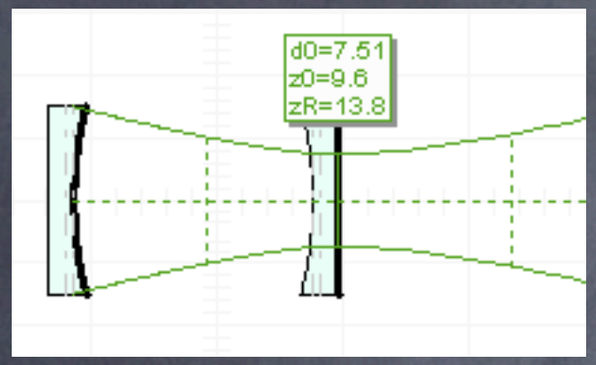


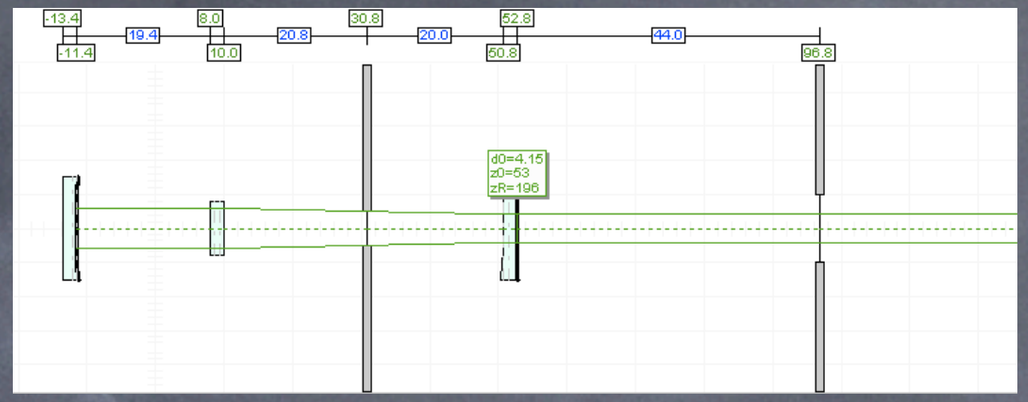


CCD beam profiler
Beam Analyzer program

Ferdinand-Braun-Institut
für Höchstfrequenztechnik

Laser resonator design with WinABCD





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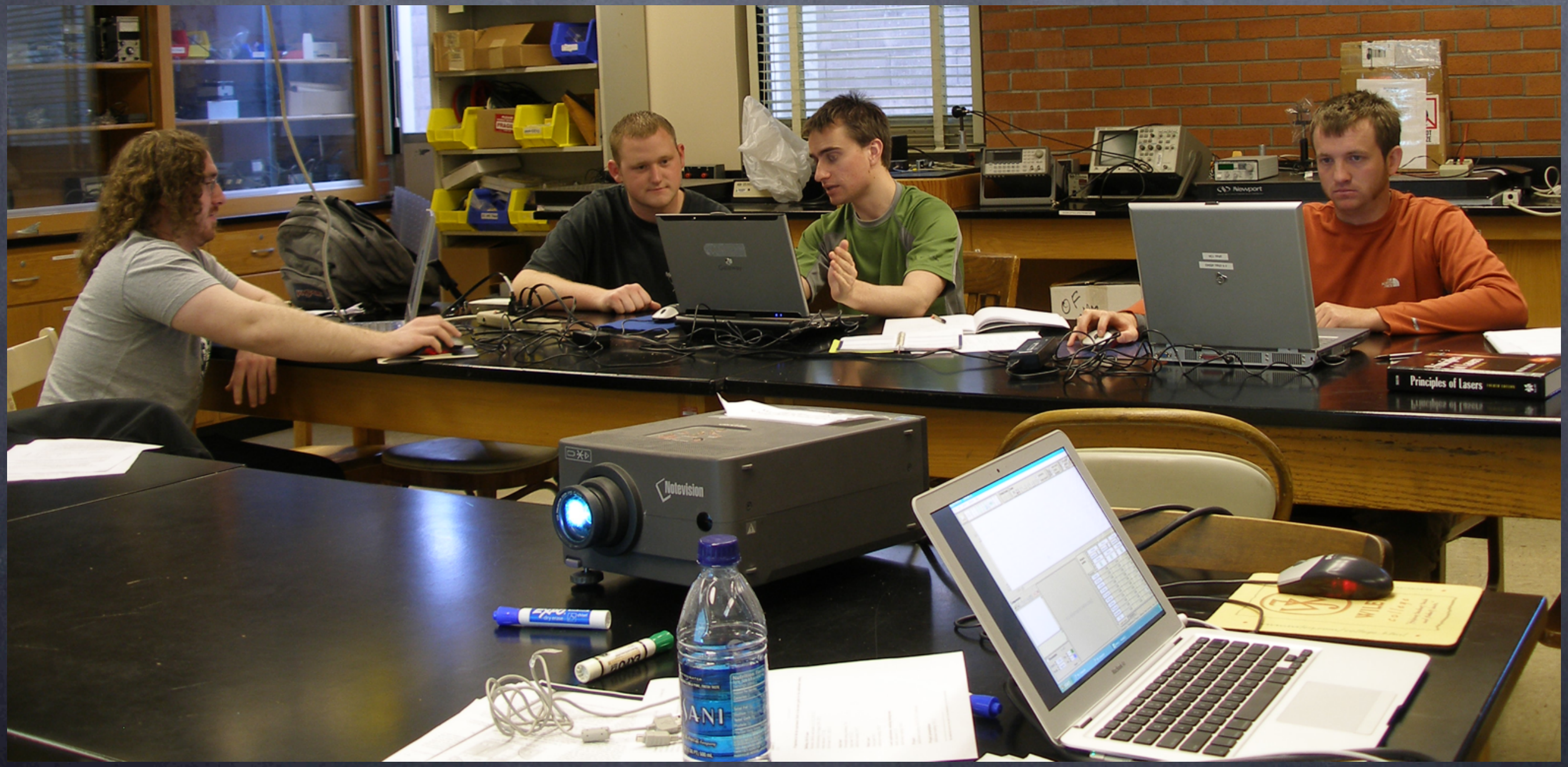
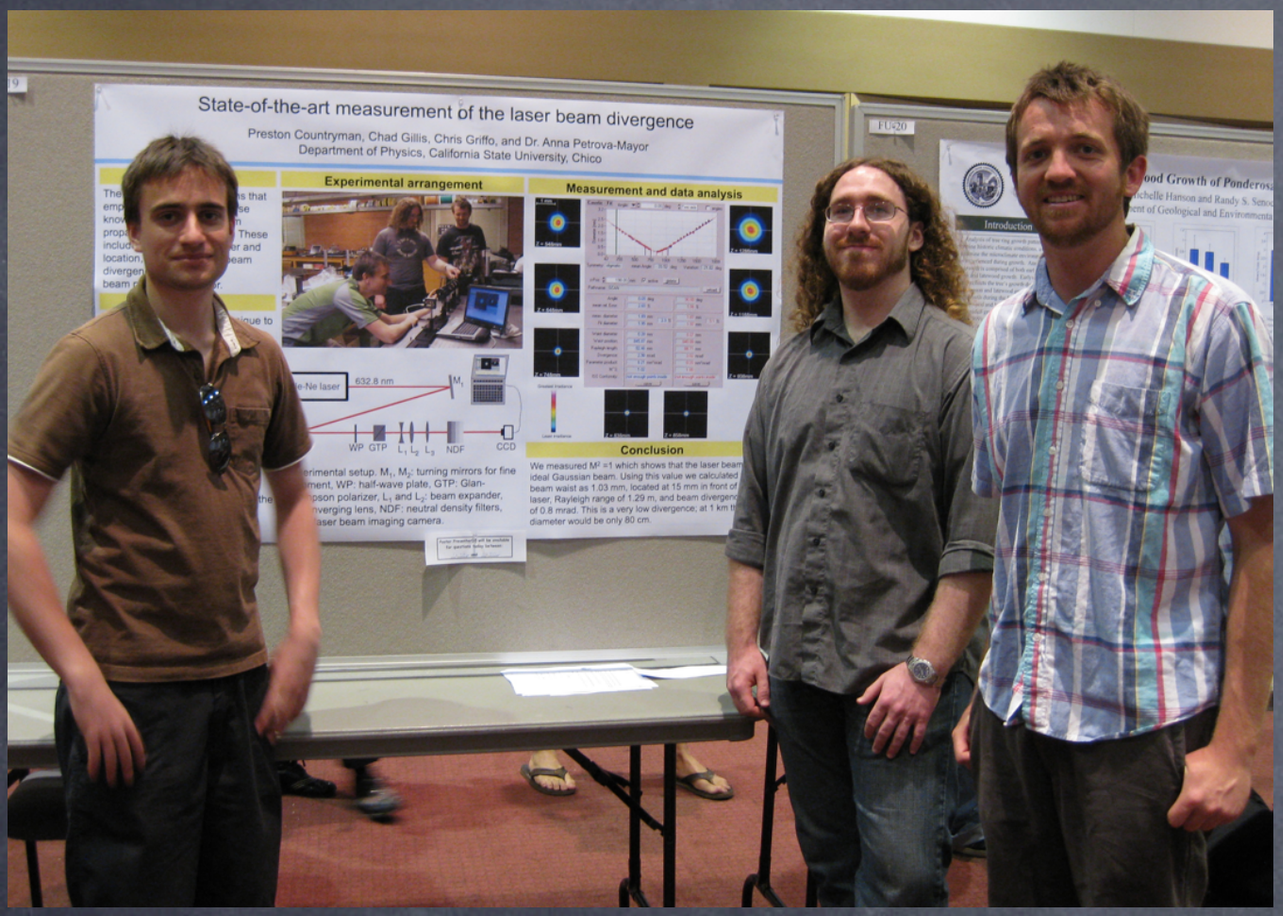
für Höchstfrequenztechnik



NSC 5th Annual Poster Session

Laser beam characterization

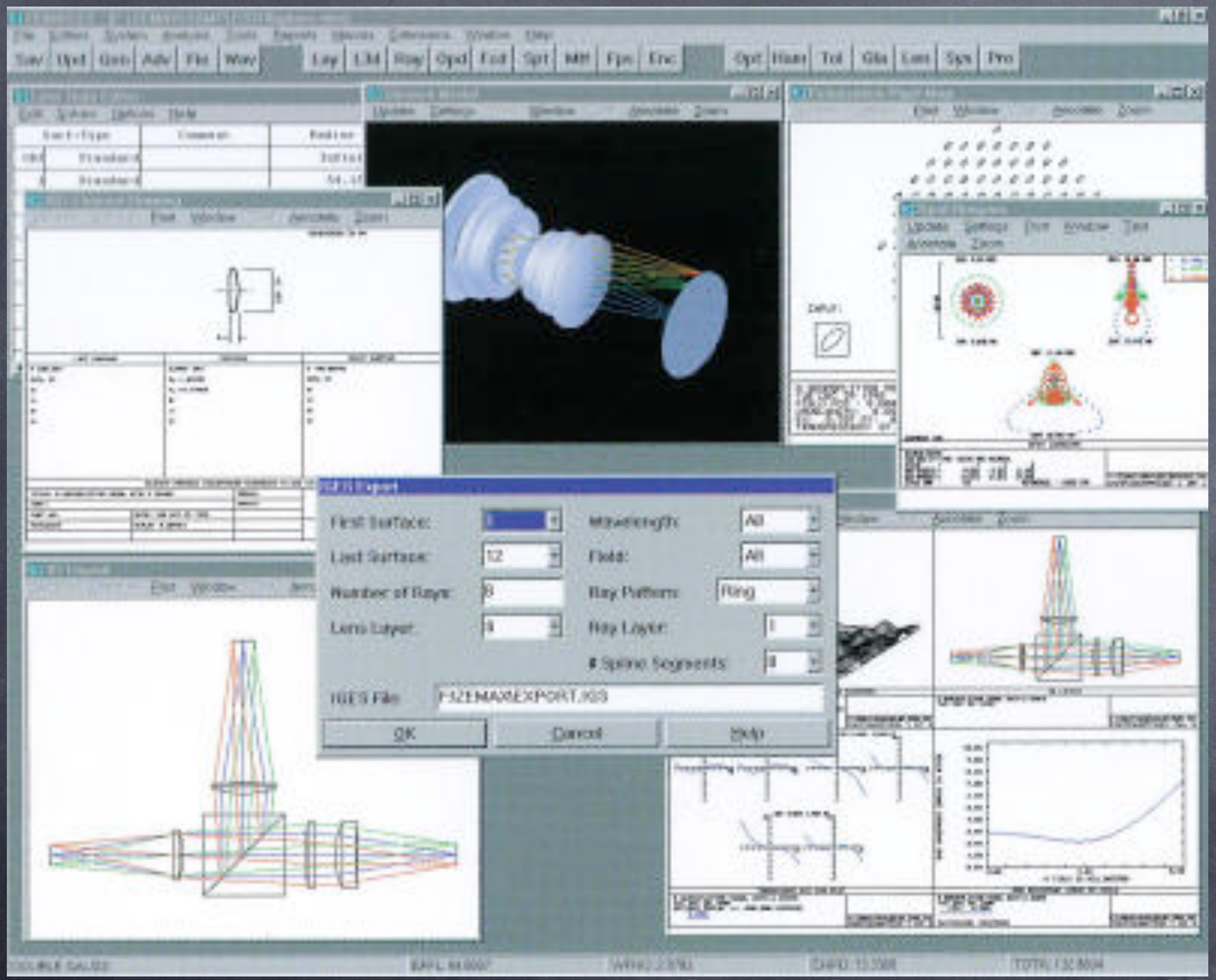


Preston Countryman, Chad Gillis, Chris Griffo

Rebuilding the REAL lidar

Dr. Shane Mayor, Terry McAfee, Chris Griffo

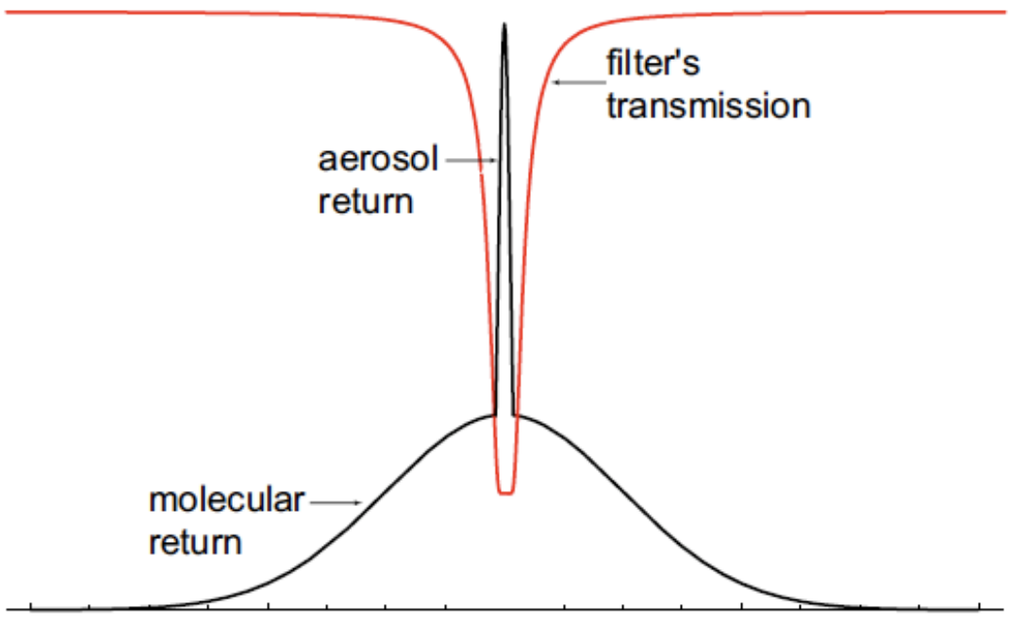
Ray tracing with ZEMAX



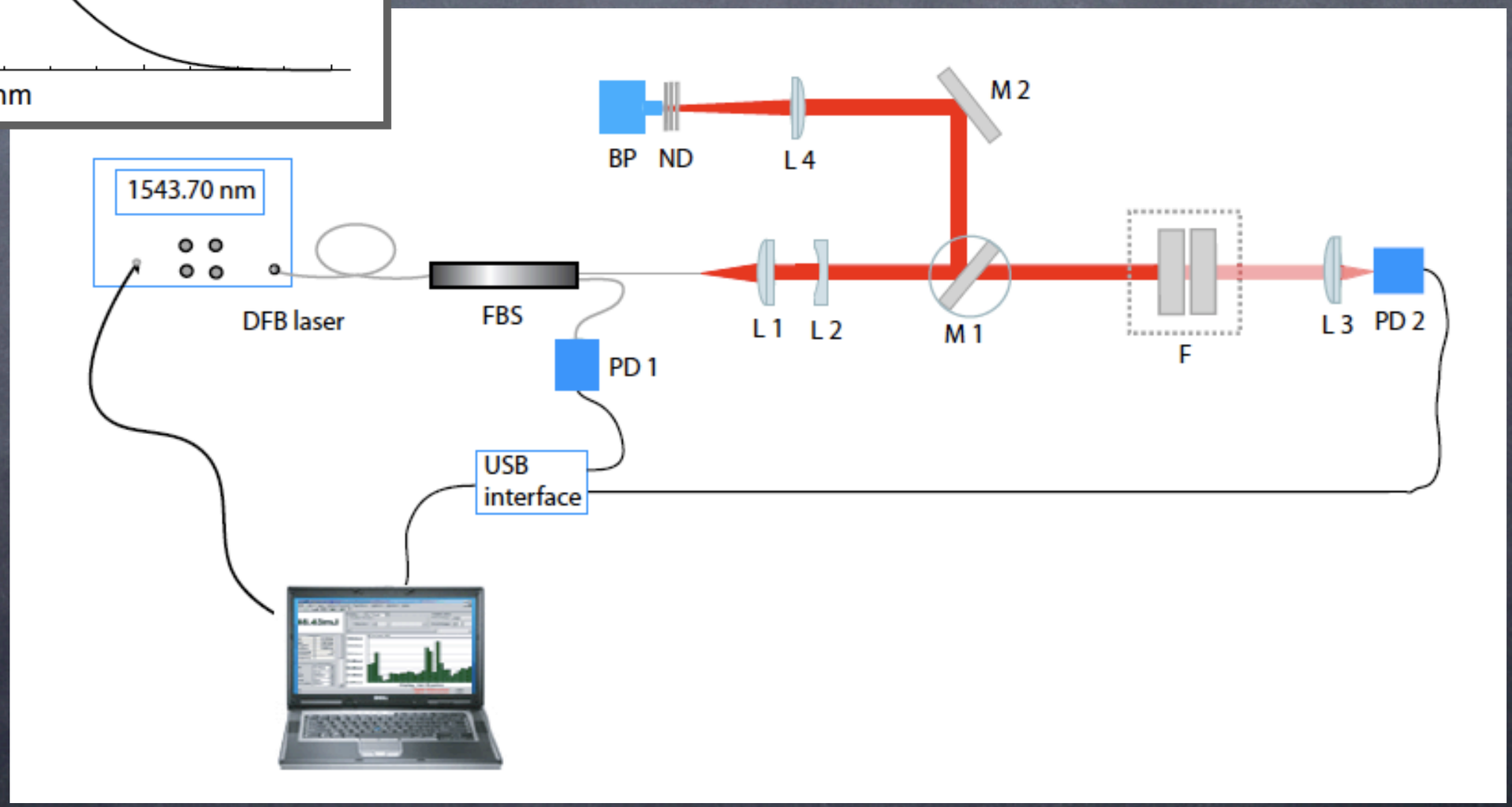
<u>Key capabilities</u>

- lens design
- laser beam propagation
- system optimization
- stray light
- fiber optics

Research



Spectral notch filter for 1543-nm eye-safe high spectral resolution lidar



Physics department faculty and staff

Physics major students from 450 | 499

Ray tracing with WinABCD