

Advanced Sensors Enable New Frontiers in Basic & Applied Research

Research Thrust

➤ Innovating Advanced Fiber Optic Sensor Systems

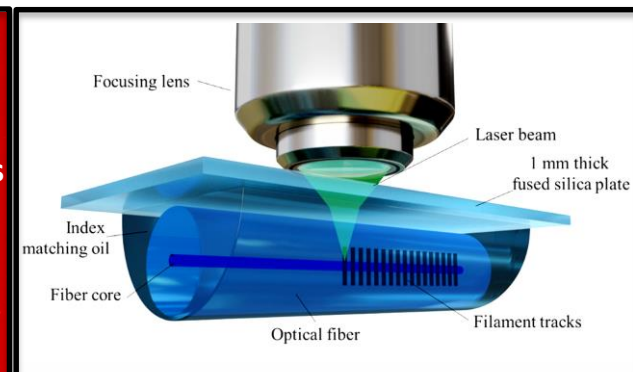
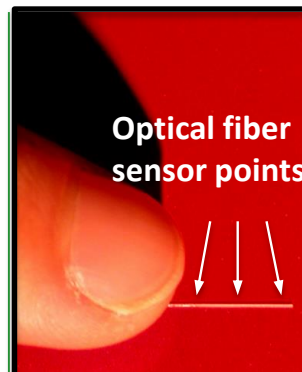
- Human hair-like sensors (small size, light-weight, immune to EMI)
- Spatially-distributed, high-speed sensing (multiple sensors per fiber)
- Diverse measurement capabilities (pressure, strain, temperature, inclination, chemical threats, flow, EM fields, etc.)

➤ Micromachining Novel Sensors and Devices

- Femtosecond laser micro-machining of photonic devices
- Lab-in-a-fiber
- Optical waveguide fabrication
- Optofluidics (microfluidics and optics)

➤ Applying Sensors with Ultrahigh Sensitivity and Resolution in Basic & Applied Research

- Fiber optic sensors in harsh environment (e.g., steel industry)
- Fiber optic sensors for military applications
- Fiber optic sensors for structural health monitoring applications
- Novel coaxial cable sensors for human health applications



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Recent Funding: (~\$8M) NSF, NIH, ARL, DOE, AFOSR, National labs, PSMRC, and select private companies.

Awards

- Faculty Excellence Award at Missouri S&T 2019
- Research Momentum Award at Missouri S&T 2019
- Economic Development Award at Missouri S&T 2019
- IEEE St. Louis Section Outstanding Researcher 2019

Keywords

- #Fiber optic sensors, #Femtosecond laser micro-machining, #Microwave photonics, #Measurement and instrumentation



Lightwave Technology Lab
Missouri S&T Blast Lab

