Laboratory of Precision Fiber Optic Devices (PFOD)

Research Areas

Sensors and spectroscopy
- Ultrafast single-shot spectroscopy in NIR and mid-IR
- Nanometer motion detection and pattern recognition
- Photoacoustic gas and chemical sensors
- Biosensors and biomedical imaging
- Ultrafast time-stretch LIDAR

Spatial Division Multiplexing
- Multimode fiber nonlinear phenomena
- Nonlinear fiber optics and entangled photon sources
- Multi-mode and multi-core fiber devices

Microwave Photonics
- Time-stretch fiber optic sensor of microwave signals

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Collaborative Interests
Mid-IR fiber optic devices, quantum entangled photon sources in O, C, and L bands, biomedical fiber optics, FBG and distributed fiber sensors, Photoacoustic imaging, particle trapping and optical tweezing

Recent Funding
- NSF
- Kummer IGNITION grant
- NIOSH

Motion phantom for biomedical imaging applications

Head phantom motion detection with fiber optic sensors