OAK RIDGE NATIONAL LABORATORY FACT SHEET
MANAGED BY UT-BATTELLE FOR THE DEPARTMENT OF ENERGY

ORNL Fiberoptic Sensor Suite of Skills

ORNL has developed and implemented a wide variety of fiberoptic sensor systems for many different types of applications.

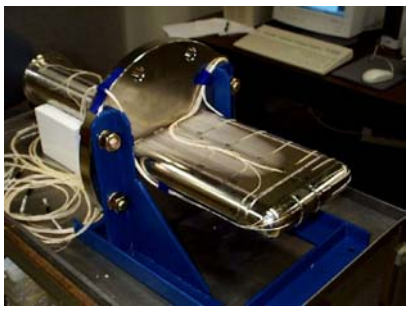
- Sensed parameters
  - Temperature
  - Pressure
  - Strain
  - Proximity
  - Vehicle Weigh-in-Motion
  - Bubbles
  - Refractive index
  - Various chemical compounds

- Selected Techniques
  - Interferometric
  - Optical Time Domain Reflectometry
  - Fluorescence-based
  - Composite-embedded fibers

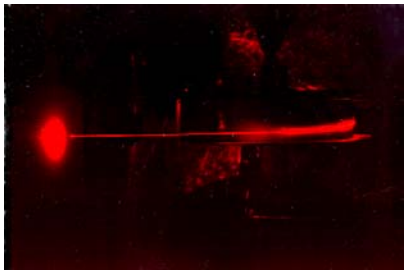
- Transient measurements
- Environments: combustion, turbine, high temperature
- Fiber Types
  - Standard fiber
  - Plastic fiber – up to 2 cm diameter
  - Liquid-core fiber
  - High NA fiber
  - Multicore fiber
  - Metal clad

Advanced Lasers and Optics Group http://www.ornl.gov/lod

Fabry Perot fiberoptic strain sensor.



Fiberoptic strain sensors attached to particle beam target.



High numerical aperature fiber for greater light collection.

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