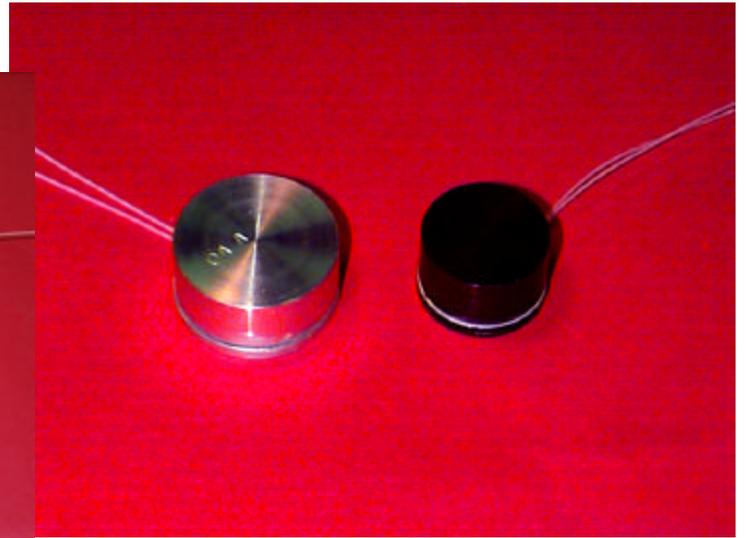


# FIBER OPTIC SEISMIC SENSORS



**Fiber Optic Hydrophone**



**Fiber Optic Accelerometers**

The Naval Research Laboratory has developed a family of compact, lightweight, all-optical sensors specifically suited for seismic measurements. These highly sensitive devices are based on an optical fiber interferometer that can be multiplexed readily to form sensor arrays for land-based, down-hole, or underwater applications. The fiber optic design allows performance characteristics to be tailored to specific requirements and signal transmission over distances of several kilometers without degradation. As part of various Navy projects, these sensors have undergone extensive field-testing.

Features and advantages include:

- Frequency range: 0.5 Hz → 20 kHz
- Dynamic pressure resolution (hydrophone):  $< 50 \mu\text{Pa}/\sqrt{\text{Hz}}$
- Acceleration resolution (accelerometer):  $< 0.1 \mu\text{g}/\sqrt{\text{Hz}}$
- Cross-axis sensitivity (accelerometer):  $< 1\%$  wrt axial
- Thermally stable to  $> 200^\circ\text{C}$
- Built-in telemetry
- Insensitive to electromagnetic fields

Licenses are available to companies interested in commercialization.

## *Points of Contact*

Naval Research Laboratory  
4555 Overlook Avenue, SW, Washington, DC 20375-5320

<http://techtransfer.nrl.navy.mil>

Jane F. Kuhl • Technology Transfer Office • (202) 767-3083 • [kuhl@utopia.nrl.navy.mil](mailto:kuhl@utopia.nrl.navy.mil)  
C. Kirkendall • Optical Sciences Division • (202) 767-1316 • [kirkendall@nrl.navy.mil](mailto:kirkendall@nrl.navy.mil)