



OPTRA Inc. Awarded Phase I U.S. Air Force SBIR Contract for Fiber Optic Snapshot Hyperspectral Tracker

Topsfield, MA (April 11, 2011) - OPTRA Inc. was awarded a \$100,000 Small Business Innovation Research (SBIR) Phase I research grant by the U.S. Air Force to develop a fiber optic snapshot hyperspectral tracker for airborne reconnaissance. The time-resolved spectral images produced by the snapshot hyperspectral imager will support enhanced discrimination capabilities of moving targets in a cluttered background.

OPTRA's fiber optic snapshot hyperspectral imager employs a fiber optic bundle and is based on a multiple entrance slit dispersive spectrometer. The system will operate over the visible to near infrared (VIS/NIR) spectral range with moderate spectral and spatial resolution. Unlike hyperspectral imagers based on tunable filters, pushbroom gratings, or Fourier transform spectrometers, the fiber optic snapshot hyperspectral imager acquires a full hyperspectral cube with each FPA frame. This system also does not require moving parts. Unlike snapshot hyperspectral imagers based on coded apertures or computed tomography, reconstruction of the fiber optic snapshot hyperspectral imager's spatial/spectral cubes is computationally very simple. Finally, the fiber optic snapshot hyperspectral imager optical design is radiometrically very efficient. The overall approach lends itself to a low cost, compact, lightweight, and high bandwidth hyperspectral imaging product ideal for airborne applications. This system also has application to other time resolved spectral imaging measurements including energetic event detection, process monitoring, and plume tracking.

The Phase I program will produce a trade study and a preliminary design for a prototype instrument which will be fully developed, built, and tested under a Phase II effort.

OPTRA has a long history of spectrometer development and is the sole supplier of IR spectrometer modules to the JSLSCAD program, a field rated chemical agent detection system. OPTRA provides laser detection and exposure sensors and laser beamsteering for optical communication, industrial processing, and collision avoidance. OPTRA is a supplier of ultra precision measurement solutions using state-of-the-art electro-optical technology. OPTRA markets the NanoGrid®, NanoScale®, and NanoGage® nanometer resolution grid and linear encoder products to the semiconductor, disk drive, and general research industries.

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