

March 23, 2009

## Lake Shore Far IR Band Pass Filters Specified for NASA's FORCAST Instrument on the SOFIA Airborne Telescope

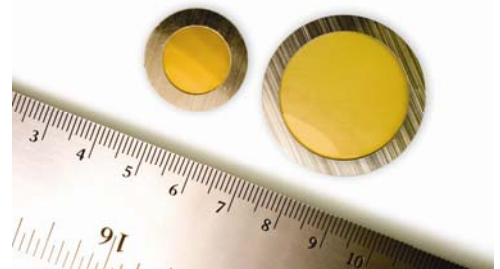
*Lake Shore Cryotronics, Inc.'s far-infrared, metal-mesh band pass filters have been successfully tested and approved for use on NASA's FORCAST instrument, part of the SOFIA science center. The filters employ frequency selective surface technology based on thin film, metal-mesh structures enabling excellent thermal and mechanical properties — even at cryogenic and elevated temperatures. They will not delaminate under harsh conditions, have peak transmission up to 85%, and are radiation hard.*

Westerville, OH, USA, March 23, 2009 — Lake Shore Cryotronics, Inc., a technology leader in sensors, scientific instruments and systems, and optical devices, today announced that researchers at Cornell University's Department of Space Science have successfully tested a series of metal-mesh, band pass filters and will fly them in the FORCAST instrument aboard the SOFIA science center.

Dr. Terry Herter is FORCAST's Principle Investigator and Dr. Joe Adams is the Project Scientist who has led the testing and evaluation of the filters. Dr. Adams commented, "After multiple thermal cycling down to 4 K, these far-infrared filters have met our requirements for transmission and image quality." Dr. Adams further added, "We utilize Lake Shore's filters on account of their high transmission and higher reliability during thermal cycling when compared to competing far-infrared filter technologies."



Employing frequency selective surface technology, the filters are designed with patterned, cross-shaped, and other resonant opening geometries that allow the transmission of light at specific wavelengths. Multiple 25 mm diameter filters have been supplied to Cornell with center wavelengths (CWLs) of 24.4, 33.4, and 38.8  $\mu\text{m}$ .



They have CWL transmissions up to 85%, CWL tolerance of  $\pm 0.1 \mu\text{m}$ , and out-of-band transmission down to 0.5%. The filters exhibit excellent thermal properties with stable and repeatable performance down to 4 K. Their 1 mm thickness enables entry into existing filter wheels, cryostats, and compact optical instruments.

FORCAST (**F**aint **O**bject **i**nfra**R**ed **C**AMERA for the **S**ofia **T**elescope) is a mid/far infrared camera for the SOFIA airborne observatory. It is a two-channel camera with selectable filters for imaging in the 4-8, 16–25, and 25-40  $\mu\text{m}$  regions and is intended to provide multicolor imaging of the galactic center, Vega-like dust clouds, and star formations in our galaxy, normal spiral galaxies and active galaxies. For more information on SOFIA, see [http://www.nasa.gov/mission\\_pages/SOFIA/](http://www.nasa.gov/mission_pages/SOFIA/)

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### About Lake Shore Cryotronics

Established in 1968, Lake Shore is the leading supplier of cryogenic temperature sensors and instrumentation, optical components, magnetic test equipment, metrology systems and probe stations for the characterization of magnetic and transport properties of materials. Lake Shore customers include leading university, government, NASA and commercial research institutions and are supported by a global network of sales and service offices.

[www.lakeshore.com](http://www.lakeshore.com)