News!

New Semiconductor IR Detector Combines Room-Temperature Operation With High Sensitivity and Low Cost

(Sent Aug. 8, 1997) A new semiconductor infrared detector provides an unprecedented combination of high sensitivity, uncooled room-temperature operation and low cost. Conventional mercury-cadmium-telluride detectors provide high sensitivity at high cost because they are difficult to fabricate and require cryogenic cooling. Now thin films of yttrium barium copper oxide may enable IR cameras below $1,000, opening a wide range of new markets such as inexpensive vehicular vision-assistance devices and security products for homes and businesses.

Focal-plane arrays of YBCO microbolometers measure resistance changes resulting from impinging infrared radiation. The semicrystalline or amorphous YBCO thin films detect wavelengths of 1-12 micrometer. YBCO arrays are compatible with silicon fabrication techniques and ideally suited for security cameras, robotics, fire detection, thermography, radiometry, biomedical imaging, medical instrumentation, satellite instrumentation, and imaging systems for aircraft and other transportation equipment.

"In 1998, nonmilitary application revenues are expected to reach $2.7 million, with a revenue growth rate of 800%," according to the Frost and Sullivan study U.S. Commercial and Military Infrared System Markets. "The significant increase in commercial microbolometer revenues is expected to result primarily from home and building security applications and environment monitoring."

Most growth in the commercial microbolometer market is projected to emerge during 1998û2001 due to price cuts from reduced system costs. Revenues are expected to reach $88.2 million in 2000 and $123.5 million in 2001, for a compound annual growth rate in this period of 248%.

Research Corporation Technologies in Tucson offers the detectors for licensing. RCT manages the technology for Southern Methodist University and the inventors, Drs. Donald Butler and Zeynep Celik-Butler. One patent has issued and several others are pending. Foreign rights are also available.

For licensing information, contact Dr. Eugene Cochran at RCT, 520-748-4461, rct2erc@aol.com, fax 520-748-0025; 101 N. Wilmot Rd., Suite 600; Tucson, AZ 85711.

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