



## TECHNOLOGY

# Continuously Graded Thin Films for Functionally Broadband Device Arrays

## OVERVIEW

Device array geometries, common in current microelectronic and optoelectronic applications, include multiple devices wherein each device in the array performs a function with a slightly different specification relative to its adjacent device in the array. For instance, arrays of devices as a whole can emit, detect and/or process signals at different wavelengths simultaneously. This technology assembles functionally changing device arrays from composition spread thin films.

Existing technology requires production of functionally varying devices separately, then physically integrating them to create the array. This new, more compact and elegant technology has varying physical properties pre-embedded in individual chips. Producing functionally different materials in parallel allows for error reduction and reduced noise in device performance. This technology also allows for production of property varying thin films without the damaging, limiting, and expensive ion implantation method system.

Developed by University of Maryland researchers, this technology provides compact monolithic chips where technologically relevant physical property parameters, such as the energy band gap, continuously change across the chip. Such chips provide novel means for constructing compact device arrays at reduced expense.

A single chip has been created where different wavelength light signals can be detected and distinguished. Such a detector has medical, environmental and military applications.

For more information, please contact the University of Maryland, Office of Technology Commercialization, 301 405-3947 or by e-mail at [otc@umd.edu](mailto:otc@umd.edu).

## CONTACT INFO

UM Ventures  
0134 Lee Building  
7809 Regents Drive  
College Park, MD 20742  
Email: [umdtechtransfer@umd.edu](mailto:umdtechtransfer@umd.edu)  
Phone: (301) 405-3947 | Fax: (301) 314-9502

## Additional Information

### INSTITUTION

University of Maryland, College Park

### PATENT STATUS

Issued

## **LICENSE STATUS**

Contact OTC for licensing information

## **CATEGORIES**

- Imaging devices
- Microelectronics

## **EXTERNAL RESOURCES**

- [US Patent 7,309,644](#)

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