

CENTER FOR NANOSCALE PHOTONIC EMITTERS & SENSORS

AT THE CITY COLLEGE OF THE CITY UNIVERSITY OF NEW YORK

The Center for Nanoscale Photonic Emitters and Sensors at the City College (CCNY) of the City University of New York (CUNY) is a five-year, \$4 Million research center sponsored by the Department of Defense. The Center brings together research in two areas at the forefront of 21st-century science and technology – nanotechnology and photonics – and has a strong education program to recruit, train and mentor underrepresented minority students in the sciences and engineering. The Center operates as part of the Nano-Photonics Center at CUNY, which also includes the New York State-funded Enhanced-Center for Advanced Technology (E-CAT) in Nanoscale Photonic Emitters and Detectors.

Nanotechnology involves objects measured in nanometers (millionths of millimeter) and includes creation of nanomachines, capable of manufacturing other objects an atom at a time and processing information on a molecular scale. **Photonics** is the science of light. Using the basic particle of light, the photon, we can probe the structure of molecules, transmit data at incredible speeds, and remotely diagnose and repair living tissues.

The Center is developing new techniques and materials in three main areas of interest to the defense, aeronautics, biomedical and computer technology industries:

1. New glass ceramic materials for use in enhanced near-infrared lasers and amplifiers could revolutionize optical communications, remote sensing and biomedical imaging, including potential new techniques for detecting cancers and sensing biomedical contaminants in the environment.
2. Improved photodetectors and emitters that use multiple quantum well technology could make possible improved devices for use in space communications, corrosion and crack detection and missile plume detection, as well as optical storage recording, cancer detection, and air quality monitoring.
3. Organic and inorganic semiconductor materials could enable the Center to pioneer light emitters and optical storage and data processing devices that offer higher speeds and more compact storage than the electronic versions.

The Center's faculty provides hands-on experimental training and mentoring to undergraduate and Masters students, as well as interactive science education to students and teachers at local secondary schools. The education and outreach activities of the Center are integrated with and support existing education, recruitment and retention programs at CCNY, including the Louis Stokes Alliance for Minority Participation and the City College Academy for Professional Preparation.

FOR FURTHER INFORMATION, CONTACT CENTER DIRECTOR ROBERT R. ALFANO:
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