

## Photonics for the 21st Century

The New York State Center for Advanced Technology in Ultrafast Photonics (CAT) at the City University of New York develops photonics technology to promote New York State economic development for the medical, biological, industrial and military sectors. Photonics is the science of light—its generation, propagation, and interaction with materials. It is expected that during the 21<sup>st</sup> century, photonic systems will replace their electronic predecessors, resulting in faster and more efficient operations, and higher performance at lower cost.

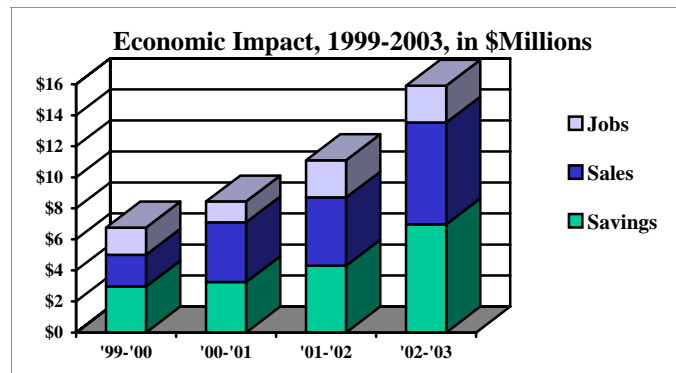
## Pioneering Technologies

The CAT at CUNY has advanced science and developed commercial devices in several important areas, including:

- **Bio-medical:** cancer detection and diagnosis; “photonic pill” (compact photonic explorer)
- **Industrial:** detection of cracks and corrosion; contactless semiconductor characterization; new lasers and laser materials
- **Homeland Defense:** remote bacteria and virus detection

## Company Collaborations

The CAT has worked with **over 60 New York State companies** to develop commercial applications for photonic technologies. By providing access to distinguished research staff and top-of-the-line facilities and equipment, the CAT enables companies to achieve significant cost savings and growth in revenues. Over the last ten years CAT efforts have resulted in **\$18.5M in direct cost savings** and **\$19.3M in new sales revenues**, as well as in the **creation and retention of 134 high-tech jobs** for our clients. Together with leveraged Federal research funding, we have generated a total net economic impact of over \$80M for New York State.



## Success Stories



### Big Sales for Quantronix

The “Titan” Ti:Sapphire optical amplifier was developed by the CAT, in collaboration with Quantronix, generating **over \$310K in net cost savings** for this small Long Island company (now a subsidiary of Excel Technologies).

Quantronix has realized **sales revenues of \$13.5M** through the Titan 1999-2003, and **46 jobs have been created or retained** in Quantronix’s engineering, sales and manufacturing, divisions.

Quantronix expects continued strong sales of the Titan. Altogether, this project has generated over \$18M of economic impact in New York State to date.

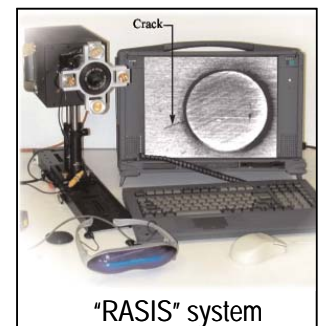


“Titan” optical amplifier

### Lockheed Martin “RASIS” System

Lockheed Martin’s Rapid Acquisition Surface Inspection System (RASIS) for detecting cracks and corrosion under paint on airplane surfaces was recently introduced, with extensive sales presentations to Boeing, Delta and NASA.

Developed through joint research efforts by CAT scientists and Lockheed engineers at Mitchel Field, NY, the device is expected to produce \$1.5M in new revenue and five new engineering jobs over the next few years. Lockheed estimates that collaboration with the CAT has resulted in **cost savings of over \$5.6M**.



“RASIS” system