

PHOTONICS TODAY

Winter 2005

CAT Helping Small Business Get Federal Funds

The Center for Advanced Technology in Photonics Applications (CAT) at the City University of New York (CUNY) is pleased to announce a new program for small businesses in New York State. The CUNY Photonics Assistance for SBIR and STTR initiative, or CUNYPASS, concentrates on enhancing industry competitiveness for grants under the Federal government's Small Business Innovation Research (SBIR) and

Small Business Technology Transfer (STTR) programs. CUNYPASS assists New York State small businesses in preparing technical proposals for the Federal government's SBIR/STTR programs, in response to solicitations in photonics and photonics-related topic areas.

SBIR/STTR Programs

Federal law requires that research-funding agencies set aside a portion of their budget

for small businesses. Over \$2 billion in federal funds are available annually to support small companies through these highly competitive programs.

The mission of the SBIR/STTR programs is to support scientific excellence and technological innovation, building a strong economy through investment of federal funds in critical national priorities. The program focuses on supporting scientific and

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New Deputy Director, New Structure at CAT

The CAT is pleased to announce the arrival of Myron Wecker as our new Deputy Director for Administration. Myron brings to the CAT 35 years of leadership experience at IBM, where he held a variety of technical and business management positions. Most recently, he served as a management consultant for the Nassau County BioPartners Initiative, developing a plan for the establishment of a

laboratory training center and research business incubator in the life sciences.

Myron received his Ph.D. in Astronautics and Applied Physics from Polytechnic University, having performed research on radiative gas dynamics and hypersonic flow there and at Princeton University, Cornell University, NASA's Jet Propulsion Laboratory, General Applied Science Laboratories, and Grumman Aerospace Corporation.

Upon accepting this position, Myron said, "I am delighted to be joining the world-class Photonics team at the CUNY CAT, and I look forward to contributing to its continued success." CAT Director, Prof. Robert R. Alfano added, "Myron will add a new dimension to our leadership staff at the CAT, with his business and research experience." Please join us in welcoming him to the CAT.

We also wish to thank our previous Deputy Director, Masada Disenhouse for her four years of exemplary service in that position. Masada will be continuing as an advisor to the CAT, before moving on completely to new challenges and opportunities. We extend to her our sincerest hopes for great success in all her new endeavors.

In order to meet its goals and expand its activities, the CAT has recently been restructured, with the creation of a new position of Deputy Director for Business Development, to be held by Alan Doctor, formerly our Business Development Manager. This change enhances Alan's business development activities, as well as new directions in training and outreach activities. This change will enable him to strategize directly with the CAT Director on means of enhancing the CAT's service to companies throughout New York State.

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Dr. Myron Wecker



Any opinions, findings, conclusions or recommendations expressed are those of the author(s) and do not necessarily reflect the views of the New York State Office of Science, Technology and Academic Research

Quantronix Funding Development of New Laser

A new agreement has been signed with the **Quantronix Corporation**, a long-time CAT Partner Company, funding a project to develop a new high power disk laser.

The project's initial stage will include the design, assembly and test of a high-power, continuous-wave thin disk diode array-pumped solid-state laser prototype. This new device will be well-suited to

applications and markets where high power and small size are required, while external cooling is impractical. These include medical, communications and industrial uses.

Economic impact from this project is expected to be comparable to Quantronix's prior collaboration with the CAT, which resulted in the highly successful Titan Ti: Sapphire Optical Amplifier. To

date, this product has produced more than \$23M in added sales revenues, cost savings and capital improvements for Quantronix, as well as 75 new and retained jobs.

Quantronix Corporation is part of the Excel Technology group of companies and is headquartered in East Setauket, NY.

CAT Scientists Elect Executive Committee

The CAT held its first Scientists Meeting of the year on September 22, 2004. Twenty-one faculty members and senior researchers from five CUNY research campuses attended. Attendees received a report on the status of the CAT, including a description of CAT Scientists' roles and responsibilities, and the changes from the previous CAT, as well as a presentation on the SBIR/STTR program and other ongoing and planned CAT projects.

The CAT Scientists held an election for representatives to the CAT Executive Committee. Of the five nominees, the top three vote-getters were: Nan-Loh Yang, Professor of Chemistry at the College of Staten Island; Harry Gafney, Professor of Chemistry at Queens College; and David Crouse, Assistant Professor of Electrical Engineering at City College. These will serve a two-year term on the Executive Committee, alongside the

Director and the Deputy Directors for Administration and Business Development.

Upon the conclusion of the CAT Scientists Meeting, the newly elected Executive Committee held its first meeting. The Executive Committee will meet five times each year to advise the Director on the overall policies, long-term goals and strategies of the Center.

Corning Developing New Optical Materials

Corning Inc., a long-time partner of the CAT at CUNY, has strengthened its support for CAT research, funding two projects as part of its efforts in the front rank of fiber-optic equipment manufacturing.

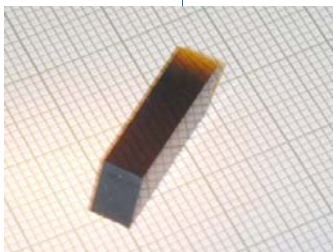
The first is a continuation of collaboration with researchers at the Institute for Ultrafast Spectroscopy and Lasers to produce new glass-ceramic materials. These materials, based on compounds such as forsterite doped with tetravalent chromium, allow for the production of emitters with a much wider tuning band than current erbium-based devices. To support the continued research, the company has provided testing samples of several unique glass-ceramic materials, developed through years of joint work between Corning and the

CAT, and funding for CAT efforts to characterize the materials and develop new optimizations. **Dr. Alexei B. Bykov**, Senior Research Associate at the CAT, is leading these characterization and materials development efforts, which have already resulted in several publications and provisional patent disclosures.

In a new project, functionalized carbon nanotube composites are an important material which Corning has developed, with potential applications in fiber optic communications and elsewhere.

Prof. Roger Dorsinville of the Electrical Engineering department at City College is using a variety of experimental methods to characterize the non-linear optical response of these materials. Through his expertise, several essential parameters for determining commercial applications for these materials will be measured and reported to Corning.

By developing the next generation of materials and devices for fiber-optic communications, Corning hopes to maintain a competitive advantage in the hunt for new ultra-broadband technologies. The CAT's strength and proven track record in developing and characterizing optical materials is essential to these efforts.



Glass-ceramic sample nucleated with Cr:Forsterite nanocrystallites, produced by Corning



City College Senior Anna Biney performs atomic force microscopy measurements on carbon nanotube composites in Prof. Roger Dorsinville's lab.

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technological innovation that has strong commercialization potential.

In recent years, New York State companies have received fewer SBIR and STTR awards than many smaller states. The objective of CUNYPASS is to enhance the competitiveness of New York State businesses, by securing funding for photonics-related research and development.

Who Is Eligible?

Participation is limited to those companies meeting Federal criteria to be defined as "Small Business". These must be organized, for-profit, U.S. companies which are at least 51% owned by individuals who are U.S. citizens or permanent residents, independently operated, and have fewer than 500 employees.

Participation in CUNYPASS is open to all companies matching these criteria located in New York State, with capabilities in photonics and photonics-enabled technologies.

What Is This Worth to My Business?

The SBIR program is organized into several phases. Phase I is the exploratory phase, in which awards can be up to \$100K for six months of early investigation for proof of concept of a company's new ideas. Phase II awards are made competitively to companies which have had a successful Phase I project. They provide funding up to \$750K for a two-year project, typically used for early engineering and prototype development.

What Are the Rules?

A Phase I SBIR may subcontract up to 33% of its funds for research support from a non-profit research institution. For Phase II the maximum subcontract amount is 50%. The award is made to the company, and the principal investigator must be a company employee

(at least 51%) at the time of award and during the conduct of the proposed research.

The STTR program is designed to foster cooperation between universities and small business. Its structure is almost identical to that of the SBIR program, with the difference that a cooperative agreement between the company and a non-profit research institution is required. Between 30% and 60% of funds must go to the institution, with the balance going to the company effort. Funding levels for Phase I and Phase II are similar to those for SBIRs.

How Do I Join CUNYPASS?

If you are interested, CAT Business Development staff will contact you to discuss the technology areas relevant to your company's business plan and technical capabilities. This will enable us to develop a set of "keywords" for your business, which we will input into a database we maintain. This database also contains keyword-searchable data on all solicitations, with other searchable information such as due dates, notice of intents and award dates. If there is a match between your company's interests and one or more solicitations, the CAT will then try to match you with expert CAT faculty members, who can help you to prepare proposals for these solicitations.

What Will This Cost?

Absolutely nothing. Participation in CUNYPASS is 100% **FREE** to eligible companies. The cost of faculty participation in writing a proposal is borne by the CAT program. In addition, the CAT will work to provide, as needed, administrative and outreach support for the proposal through its network of other non-profit partner organizations, including State RTDCs.

Helping small New York companies win federal grants also aids the CAT in fulfilling its mission of bringing economic

impact to the state. By enabling your small company to expand activity and compete for Federal funds, the CAT maximizes your proposal's chance of success.

What Happens After We Submit the Proposal?

The level of CAT scientist involvement in the project can vary from help in writing and structuring the proposal (SBIR), with all innovative science coming from the company, to situations where the CAT scientist provides some or all of the expertise (SBIR or STTR). In the former case, further involvement of the faculty after proposal submission depends on the company's desires. If you wish, the faculty will actively participate in the project through a subcontract, and intellectual property issues will be negotiated prior to submission. In all cases, both parties must sign a mutual non-disclosure agreement. When acting as a subcontractor, CAT scientists help the company meet the program objectives and stay on track for a successful Phase II proposal.

To enhance your business's access to Federal research funds, or for more information about the SBIR/STTR programs and CUNYPASS, please contact Alan Doctor at doctor@ee.cuny.cuny.edu or 212-650-8265.

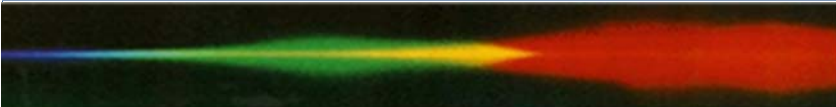
CUNYPASS:

- Proposals written by CUNY photonics experts
- All New York State small businesses eligible
- Apply for \$100K in Federal funds for Stage I
- **Absolutely FREE!**

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New York State Center for Advanced Technology in
Photonics Applications at the City University of New York



DO YOU HAVE A PROBLEM REQUIRING
APPLICATION OF PHOTONICS TECHNOLOGY?
LET THE CUNY-CAT HELP YOU
INVESTIGATE AND SOLVE IT!
FOR MORE INFORMATION, CONTACT:

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About the CUNY CAT...

"Photonics for real-world applications" is the central theme of the Center for Advanced Technology in Photonics Applications at the City University of New York (CUNY CAT). The CAT, designated in 1993 and re-designated in 2004, is one of 15 New York State Centers for Advanced Technology. The mission of the center is to develop and disseminate knowledge in photonics technology in order to promote New York economic development for the medical, biological, industrial and military sectors.

The CAT assists New York State companies to reduce expenses, increase productivity and efficiency, improve staff capabilities, and create and retain jobs. To accomplish this, the CAT conducts high-level research; establishes technology transfer mechanisms; provides the photonics industry with access to CUNY technology, research equipment, testing facilities and faculty expertise; trains workers for the photonics industry; works with other organizations to promote New York as an attractive home to photonics-based companies and their employees; and, assists companies to obtain grants and start-up funds.