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Building 130, P.O. Box 5000
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Phone: 631 344-5658 Fax: 631 344-3654
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Scientists Devise Tiny Liquid Crystal Devices for Telecommunications



A liquid crystal polarization controller next to a sewing needle.

- A team of scientists from Brookhaven and Bell Labs have built tiny liquid crystal devices on the tips of optical fibers - the plastic or glass cables used to carry high-speed signals from television, computer, telephone, and radar - to correct signal distortions in high-speed optical communications.
- Optical communications form the backbone of the Internet and telephone networks and are envisioned to carry multimedia data in the future. The new device, which uses liquid crystals instead of the currently used lithium niobate, could make optical communications more affordable in the future.
- "Conventional wisdom suggested that liquid crystals could never achieve the necessary speeds," explains John Rogers, director of the Nanotechnology Research Department at Bell Laboratories in Murray Hill, New Jersey, and a coauthor of the study. "Our work shows not only that liquid crystals can be fast enough, but also that the devices themselves can be built right on the tip of an optical fiber, in a very compact and attractive geometry."

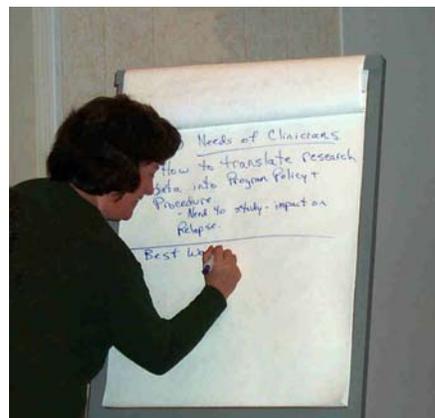
Brookhaven Lab Added Over \$31 Million to Long Island Economy in 2002

- Brookhaven National Laboratory purchased more than \$31 million worth of supplies and services from Long Island businesses in fiscal year 2002, a period from October 1, 2001 to September 30, 2002.
- Construction of new buildings, repair of the Laboratory's aging infrastructure, and environmental cleanup accounted for a large part of the local expenditures in fiscal year 2002.
- In addition to Brookhaven's buying goods and services from Long Island vendors, most of the Laboratory's approximately 2,900 employees live in Suffolk County and do most of their shopping on Long Island. All told, employee salaries, wages, and fringe benefits account for about 58 percent, or almost \$269 million, of the Lab's \$463 million budget.

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Increasing Dialogue Between Researchers and Practitioners

- In December, the Laboratory partnered with the Suffolk Coalition to Prevent Alcohol and Drug Dependencies, Inc., and the Quality Consortium of Suffolk County to host a seminar on addiction research with Dr. Joanna Fowler, one of Brookhaven Lab's principal scientist's in the field.
- The event fostered a greater dialogue between researchers and local substance abuse professionals interested in how they might use Brookhaven's research in their education, prevention, and treatment practices.
- Participants praised Dr. Fowler for her compassionate words and outstanding talent for communicating research. Many commented on the importance of supporting her team's research, and their hopes to help communicate this information to a wider audience, particularly to policy makers.



Kathleen Ayers-Lanzillotta, Program Administrator, Catholic Charities, and President, Quality Consortium of Suffolk County, facilitated a discussion on how the Lab's addiction research transfers into practice.

BioSurface Engineering Technologies, Inc., Licenses Brookhaven Lab's Novel Synthetic Growth Factor Technology

- BioSurface Engineering Technologies, Inc. (BioSET), of College Park, Maryland, has obtained an exclusive worldwide license to a novel growth factor technology developed by scientists at the U.S. Department of Energy's Brookhaven National Laboratory in collaboration with BioSET researchers.
- The Brookhaven-BioSET team made biologically active synthetic analogs of two growth factors, including basic fibroblast growth factor for use in wound healing and radiation protection, as well as other applications.
- Fibroblast growth factor refers to a family of proteins in the human body responsible for the proliferation, repair and survival of cells in many tissues, including the brain, vascular system, and muscle. Basic fibroblast growth factor is used clinically in Japan for the treatment of diabetic foot ulcers. It also has been evaluated in clinical trials in the U.S. for its ability to enhance neurological recovery after stroke and to minimize the effects of ischemia, or insufficient blood flow in the heart and circulatory system.

Open to the Public

Katjuma Piano Trio, Wednesday, January 29, Noon, Berkner Hall: Drawn from Stony Brook's doctoral program, Jubal Fulks (violin), Katie Schlaikjer (cello), and May Hartman (piano) will perform Franz Schubert's *Trio in E-flat*. Free.

Long Island Piano Duo, Wednesday, February 12, Noon, Berkner Hall: The husband and wife team of Yelena and Vladimir Polexhayev will delight their audience with a blend of musical excellence and technical brilliance. Free.

Konevets Quartet, Wednesday, March 5, Noon, Berkner Hall: The Konevets Quartet, founded in 1992 by graduates and students of the St. Petersburg Music Conservatory, is an unaccompanied chamber choir with its own distinctive harmonic sound. Free.

Due to heightened security, everyone 16 years of age and over entering the Laboratory must have a photo ID.