

Office of Educational Programs

BROOKHAVEN
NATIONAL LABORATORY



Roger Stoulenburgh CNE-16-01

BNL's Office of Educational Programs (OEP) Manager Brian Murfin is seen outside the OEP building with most of his staff, many scientist mentors, and others who support OEP in helping fulfill a U.S. Department of Energy goal: to educate the nation's future scientists and science-literate citizens.

Science Educator Brian Murfin Is New Manager of OEP

Brian Murfin, formerly an assistant professor in New York University's science education program, has been serving as Manager of BNL's Office of Educational Programs (OEP) since July 15. He succeeds the late Karl Swyer. Kenneth White, Special Assistant to the Assistant Laboratory Director for Community Involvement, Education, Government, & Public Affairs, had acted as Interim OEP Manager for approximately one year.

Most of OEP's college programs are funded by the U. S. Department of Energy (DOE), with the goal of educating the nation's future scientists and science-literate citizens.

OEP provides educational services for college students and pre-service teachers through three core DOE programs: the Energy Research Undergraduate Fellowships, in which students take part in research directed by BNL scientists; the Community College Institute, which offers ten-week internships in biotech-

nology, computers, and environmental science; and the Pre-Service Teacher Program, in which teachers-in-training are paired with BNL scientist-mentors and attend master-teacher courses.

A variety of other programs are also offered, ranging from apprenticeships for minority high school students to science-based contests for students of all ages.

OEP staff — Renée Flack, Louise Hanson, and Cathy Osiecki — have now been joined by the six staffers of BNL's Museum Programs, previously managed by the Community Involvement Office. Museum Programs oversees the visits to BNL's on-site Science Museum by more than 15,000 elementary school students and teachers a year. It also offers science programs at local elementary schools, and, with OEP, it sponsors BNL's annual elementary school science fair.

As OEP Manager, Murfin plans to expand the science education program to match BNL's forefront research. "We have

unique, world-class science facilities at BNL, as well as the excellent staff," he said. "I want to see OEP, as a focal point of the science education community, serve as a 'think tank' where scientists and educators can de-

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Murfin hopes to benefit scientists as well as the community. "OEP can help BNL scientists, for example, by collaborating on grant applications," he said. "Often funding agencies require that research-grant applications have an educational component."

Murfin and his staff are receptive to suggestions on improv-

ing OEP services and to new ideas. He is enthusiastic, for example, about a new program suggested by Helio Takai, Physics Department to work with local teachers in building cosmic ray detectors for classroom use.

From 1977 to 1981, Murfin was a Peace Corps volunteer, teaching science classes for secondary students in Swaziland and Botswana. From 1981 to 1989, he was a science teacher and headed the science department at Tutume McConnel Community College in Botswana.

He then returned to the U.S. to earn his graduate degrees. His dissertation involved linking students, teachers and scientists via the Internet, and he worked with urban students in Ohio, linking them with researchers at Battelle.

In 1993, Murfin became an assistant professor at Queens College, teaching science-methods courses and various courses for student-teachers and teachers. In 1995, he joined New York University's School of Education, where he taught science education and computer-applications courses and supervised student teachers in New York City schools as an assistant professor until he came to BNL.

— Diane Greenberg



Roger Stoulenburgh CN10-2-01

The Physics Department's Helio Takai (front) and August Hoffman display a cosmic ray detector which they built as a prototype for an Office of Educational Programs initiative starting this fall. Takai, aided by Hoffman, will lead local high-school physics teachers in building similar detectors with design adjustments to suit classroom use.



Roger Stoulenburgh CN7-268-00

The National Science Foundation recently awarded a \$395,000 grant to Suffolk County Community College, which will award scholarships to students in computer sciences, engineering, or mathematics. These students will have unique opportunities to do mentored research at BNL through OEP's Community College Institute (CCI), as did the 2001 CCI students (left). DOE started the ten-week CCI program in 1999 with BNL as the lead laboratory because of the Lab's history of proactive links with community colleges.



Michael Herbert CNE-16-01

To help New York State teachers of grades K-6, the National Science Foundation funded a program to integrate mathematics, science and technology in the elementary school (MSTe). This five-year collaborative project involved BNL, Stony Brook University, and Hofstra University. This year, BNL hosted a two-day workshop for 60 teachers in 15 school districts from all over the state, some of whom are pictured at left.

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Programs organized by
or closely linked with
the Office of
Educational Programs
include:

Bridge Building Contest

Brookhaven Semester

College Mini-Semester

Community College Institute
(CCI)

Community Summer Science
Program (CSSP)

Cosmic Ray Project

Elementary School
Science Fair

Energy Research
Undergraduate Laboratory
Fellowships (ERULF)

Inner City Outreach

Maglev Contest

Magnets to Go

Minority High School
Apprenticeship Program
(MHSAP)

Museum Programs

Pre-Service Teacher (PST)

Science & Society Essay
Contest

Suffolk County
Community College
Cooperative Experience

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the Bulletin

Students, Scientists Benefit From ERULF Program

More than 50 college students got hands-on laboratory experience this summer, working side by side with Brookhaven scientists. For many of the students, it was their first chance to do real scientific research.

The students were participating in the Energy Research Undergraduate Laboratory Fellowships (ERULF) program, an educational initiative managed by the U.S. Department of Energy (DOE) and offered at ten DOE labs nationwide.

BNL has a long-standing tradition of encouraging students to get experience doing research with Lab scientists. The Lab's original summer student program started in 1949 — just two years after BNL was established — and later evolved into DOE's ERULF.

The ERULF program is one of the most successful educational initiatives at the Lab, with many of its students continuing in science as a career. For example, Roald Hoffmann, recipient of the 1981 Nobel Prize in chemistry, was a 1957 summer student.

"Usually, students who drop out of science cannot see beyond the introductory courses," says ERULF Program Manager Louise Hanson of OEP. "But ERULF students get to experience the fun and satisfaction of being part of a scientific collaboration."

Not only the students but also their mentors get satisfaction from the program. One of the satisfied scientists who has supervised ERULF students is physicist Ady Hershcovitch.

During the past six years, he and his students developed a

"plasma window," a device invented by Hershcovitch that won an R&D 100 award from *R&D Magazine* in 1996.

A plasma window is a thin foil of plasma, a fluidic material that is 25,000 times less dense than a beryllium window, the lightest solid window. It can be used instead of beryllium in experiments at BNL's National Synchrotron Light Source and has several potential industrial and commercial applications.

"The competence of the ERULF students exceeded my ex-

pectations," Hershcovitch says. "Without them, I would not have been able to carry out this project."

When the plasma window was completed, all the students who had worked on the project co-authored scientific publications with Hershcovitch. Some of these students also presented papers on the topic at scientific conferences.

Another success story is that of Ryan Muller, a junior chemistry major who collaborated with BNL chemist Richard Ferri-

eri on developing a device to use in positron emission tomography studies of toluene abuse.

The collaboration was successful, and the device is now in use not only because Muller had the strong physical chemistry background necessary to do fundamental research, but also because he was handy.

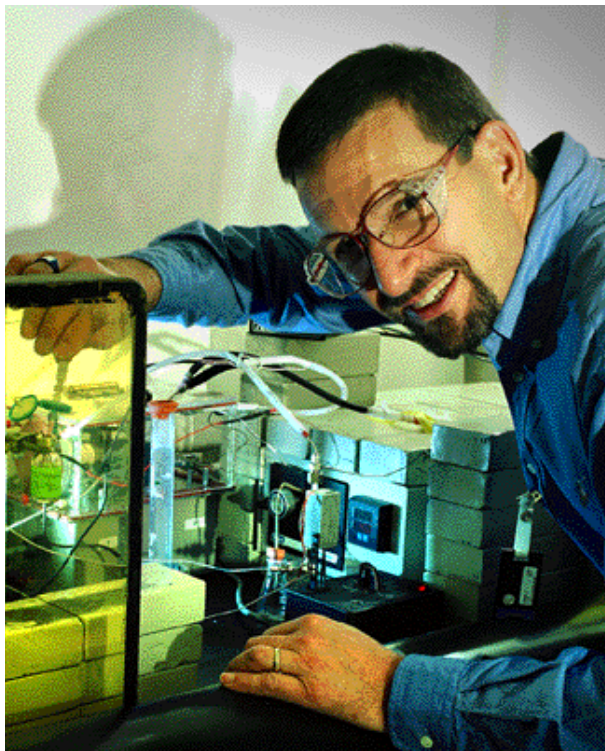
"When I choose an ERULF student, I don't look so much at the grades but at the personal essay," Ferrieri says. "Ryan caught my eye because he wrote about how, during the last several years, he had restored a 1948 Ford pick-up truck, and how, because of the lack of engine parts, he had to improvise."

Other ERULF students participated this summer on PHOBOS, which is one of four experiments at BNL's Relativistic Heavy Ion Collider (RHIC), the world's largest heavy-ion accelerator.

Under the supervision of BNL's Mark Baker and Alan Carroll and Massachusetts Institute of Technology's Christof Roland, ERULF students Dale Hicks and Marc Rafelski wrote computer programs to detect problems in PHOBOS's small but sophisticated silicon detector. Meanwhile, ERULF's Joel Corbo studied radiation patterns to estimate possible damage to the PHOBOS silicon detector while in operation.

In recognition for their contributions, the three students were included as co-authors on the first scientific article published at RHIC this year.

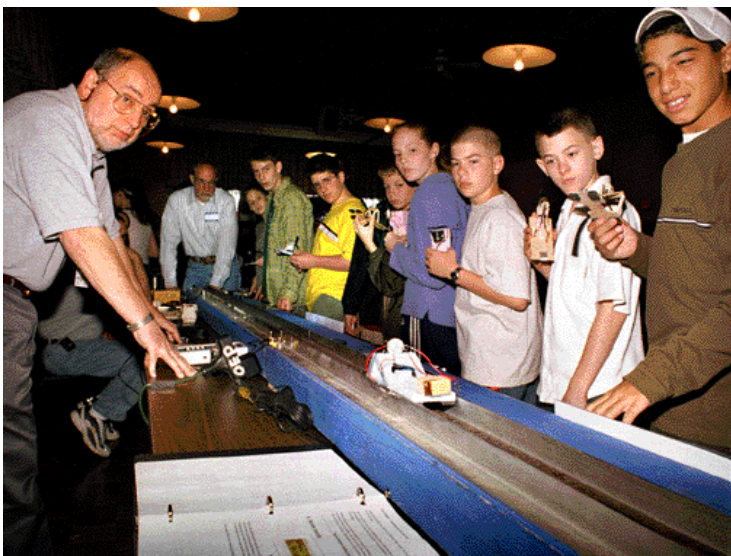
Students who wish to apply for the program at BNL can go to www.bnl.gov/scied/erulfdi.html. — Patrice Pages



Michael Herbert CNI0-14-01

As part of the Energy Research Undergraduate Laboratory Fellowship program, the Chemistry Department's Richard Ferrieri (above) mentored student Ryan Muller, College of William and Mary, Williamsburg, Virginia, in developing this device to purify a solvent for toluene injections used in clinical studies of toluene abuse.

Hands-on Science for Local School Kids



Michael Herbert CNA-29-01

Many of Long Island's middle school children learn principles of science and engineering by constructing and testing magnetically levitating model vehicles, built to certain size and weight specifications, for the annual Maglev contest sponsored by BNL and other Long Island educational institutions.

Science projects from more than 600 Suffolk County children are entered yearly in BNL's annual Elementary School Science Fair. BNL scientists team with local elementary school teachers to judge the projects based on scientific thought, creativity, thoroughness, and clarity.



Roger Stoutenburgh CNE-96-95



Roger Stoutenburgh CNA-161-00

Each year, several hundred Suffolk County school students start turning dreams of an engineering career into reality by participating in BNL's model bridge contest. Students design and build basswood model bridges that will be crushed in a stress tester. The goal is to build the lightest bridge that supports the heaviest weight.

Student Profile



Roger Stoutenburgh CNI0-158-00

In January 2000, Idayat Osho, a senior at York College of the City University of New York, joined BNL's week-long College Mini-Semester program run by the Office of Educational Programs (OEP).

Enjoying learning about BNL science, she applied and was chosen for a place in OEP's Energy Research Undergraduate Laboratory Fellowships (ERULF) program, funded by the U.S. Department of Energy (see story above).

Osho did research on tracer-gas technology in summer 2000 with a scientist mentor, Russell Dietz of the Environmental Sciences Department. This internship was so successful that BNL's Diversity Office arranged a professional associate position for her to continue this research.

Osho is now at Temple University, Pennsylvania, studying for her master's degree in pharmacology.