

On Tuesday, April 18, at 4 p.m. in Berkner Hall, BNL's RHIC benefactors, led by Renaissance Technologies' Jim Simons, will be feted at a Lab-wide celebration and reception, hosted by Lab Director Praveen Chaudhari. Speakers, in order of the agenda, will include Stony Brook University President Shirley Strum Kenny, Deputy Director of DOE's Office of Science James Decker, Nobel Prize-winning physicist Frank Wilczek, and U.S. Representative Tim Bishop. A reception will follow in Berkner Hall lobby. All are welcome.

Cerium Oxide Nanotubes Get Noticed

Chemists and materials scientists often study "nanotubes" — capsule-shaped molecules only a few billionths of a meter (nanometers) in width. In nanotube form, many materials take on useful, unique properties, such as physical strength and excellent conductivity. Carbon nanotubes are the most widely

Sciences within DOE's Office of Science, Han and his colleagues are in the midst of research into the structure and properties of cerium oxide nanotubes. As part of this, they have devised a method to synthesize cerium oxide nanotubes of high quality. First, they allow the compounds cerium nitrate and ammonia hydroxide to chemically react. Initially, this reaction forms "one-dimensional" nanostructures, such as rods and sheets, made of the intermediate product cerium hydroxide. The intermediate product is then quickly cooled to zero degrees Celsius, which freezes those structures into place. By letting the chemical reaction proceed over a long period of time, a process called "aging," the hydrogen is eventually removed from the intermediate product and a large quantity of the desired end product — cerium oxide nanotubes — is formed.

Han explained this synthesis method at the American Chemical Society National Meeting in Atlanta, Georgia, in late March. During his talk, he also discussed his group's recent study — how cerium oxide nanotubes release oxygen ions when immersed in a low-oxygen environment, a process that is critical to the nanotubes' effectiveness as catalysts. To do this, the researchers have used several techniques. These include "transmission electron microscopy," a very powerful imaging technique, and two x-ray techniques, which they performed at BNL's National Synchrotron Light Source.

"We're interested in studying oxygen-atom vacancies in cerium oxide nanotubes because, when combined with their other surface features, these vacancies may make them more functional and effective in the applications mentioned," Han said. — Laura Mgrdichian



investigated variety. Now, in pioneering research, scientists at BNL have created and investigated the properties of nanotubes made of a different, yet equally interesting material: cerium oxide.

"Cerium oxide nanotubes have potential applications as catalysts in vehicle emission-control systems and even fuel cells," says Wei-Qiang Han of BNL's Center for Functional Nanomaterials, the lead scientist involved in the work. "But until very recently, they haven't been studied."

Funded by the Office of Basic Energy

Roger Stoutenburgh D0200006

New Method for Identifying Microbes Genomic "tags" quickly catalog species, Distinguish pathogens from harmless relatives

Scientists at BNL's Biology Department have developed a new, high-throughput technique for identifying the many species of microorganisms living in an unknown "microbial community." The method, described in the March 2006 issue of *Applied Environmental Microbiology*, has many applications — from assessing the microbes present in environmental samples and identifying species useful for cleaning up contamination to identifying pathogens and distinguishing harmless bacteria from potential bioterror weapons. The research was funded by the Office of Biological & Environmental Research within DOE's Office of Science and by BNL's Laboratory Directed Research & Development funds.

"Microbial communities are enormously diverse and complex, with hundreds of species per milliliter of water or thousands per gram of soil," said Daniel (Niels) van der Lelie of Biology, lead author of the study. "Elucidating this complexity is essential if we want to fully understand the roles microbes play in global cycles, make use of their enormous metabolic capabilities, or easily identify potential threats to human health."

Growing cultures of microbes to identify species is slow and error-prone as the culture conditions often screen out important members of the community. Sequencing entire genomes, while highly specific and informative, would be too labor-intensive and costly. So scientists have been searching for ways to identify key segments of genetic code that are short enough to be sequenced rapidly and can readily distinguish among species.

The BNL team — van der Lelie, Celine Lesaulnier, Sean McCorkle, Safiyh Taghavi and John Dunn — has developed just such a technique, which they call "single point genome signature tagging." Using enzymes that recognize specific sequences in the genetic code, they chop the microbial genomes into small segments that contain identifier genes common to all microbial species, plus enough unique genetic information to tell the microbes apart.

For tag sequences that cannot be matched to an already sequenced bacterial genome (of which there are only a couple of hundred), the scientists can use the tag as a primer to sequence the entire attached ribosomal gene. This



Daniel (Niels) van der Lelie

Roger Stoutenburgh D0200006

414th Brookhaven Lecture Gender, Age in Recovery From Brain Injuries

If you are a young man driving your wife and her parents, be very careful. If you are involved in a serious car accident, you and your mother-in-law are most likely to survive.

This "warning" is one conclusion of Anat Biegon's upcoming 414th Brookhaven Lecture, entitled "Of Boys and Girls and Bumps on the Head." Joanna Fowler of the Chemistry Department, Director of BNL's Translational Neuroimaging Center, will introduce the lecturer.

Biegon, a senior medical scientist in the Medical Department, will detail how research has refined scientists' view of gender differences in the prevalence and outcome of diseases affecting the brain. Although it has been well documented that gender affects the prevalence of disorders such as depression and Attention deficit-hyperactivity

disorder, recent head injury trials suggest that both age and sex affect the likelihood and degree of recovery from injuries to the brain. While girls are more likely to die following a traumatic brain injury than boys, that result is reversed after the age of 50, when men die twice as often.

Everyone is welcome to join Biegon on April 19 at 4 p.m. in Berkner Hall to learn more about this exciting new field of research and what it has revealed about the roles of age and gender in repairing brain injuries. The lecture is free and open to the public. Visitors to the Lab of 16 and over must carry a photo I.D.

Anat Biegon joined BNL in April 2003. Previously, her research had been conducted at institutions that included Lawrence Berkeley National Laboratory, New York University,



Anat Biegon

Roger Stoutenburgh D0200006

and Rockefeller University. She had earned her Ph.D degree in neurobiology at the Weizmann Institute of Science in Israel. Her research focuses on using imaging tools to study the effect of hormonal environment on brain structure and func-

tion in health and disease.

Refreshments will be offered before and after the lecture. Those who wish to join the lecturer for dinner at a restaurant off site after the talk may contact Maria Apelskog, Ext. 3715.

— Kay Cordtz

gene is about 1,400 genetic-code-letters long, so this is a more time-consuming and expensive task. But since ribosomal genes have been sequenced and cataloged from more than 100,000 bacterial species, this "ribotyping" technique makes use of a vast database for comparison.

"If there's still no match," said van der Lelie, "then the tag probably identifies a brand new species, which is also very interesting!"

In a test with possible applications for identifying

(continued on page 2)

**NLSL/CFN
Users' Meeting
May 15-17**

See notice inside.

You're Invited! BREA Plans for Retirees' Get-Together Lunch, 6/6

A Get-Together Lunch Event is planned for BNL retirees and friends on Tuesday, June 6, from noon to 4 p.m., at the Bellport Country Club. The Brookhaven Retired Employees Association (BREA) Lunch Committee members are working to organize the event; they are: (seated, from left) Florence O'Brien, Committee Chair Renee Flack, and Harriet Martin; (standing, from left) Dave Cox and Carol Kramer. Not pictured are: Veronica Evans and Alyce Daly. The committee warmly invites all to join in an afternoon of reminiscence, food, fun, and live music from the Serenaders; \$30 per person includes entrée, dessert, coffee or tea, wine and soda (cash bar available). To reserve your place, send your name, address, phone number, e-mail, and names of guests you are bringing, with a check made out to BREA in the amount of \$30 per person, to: BREA, BNL, P.O. Box 5000, Bldg. 475, Upton, NY 11973-5000; also, see www.BREA.bnl.gov.



Roger Stoutenburgh 00830306

BNL Toastmasters Celebrate 15th Year, 4/18

All are welcome as the BNL Toastmasters Club, member of Toastmasters International and BERA, celebrates its 15th anniversary on Tuesday, April 18, at 5:30 p.m. in Bldg. 463, Room 160, where refreshments, coffee, and tea will be served. Guests and previous members are especially invited to attend this celebration. Established in 1991, the BNL Toastmasters Club is open to all adults both inside and outside the BNL community.

Toastmasters International has more than 8,000 chapters worldwide. The goal of this non-profit organization is to promote effective communication and leadership skills through public speaking. The mission of BNL's Toastmasters Club is to provide a mutually supportive and positive environment in which every member has the opportunity to develop communication and leadership skills, which in turn foster self-confidence and personal growth.

For more information, contact Beth Lin, Ext. 3372, or visit the club's web site at www.bnl.gov/bera/activities/toastmstrs/.

Money Management Classes, 4/17, 6/19, 9/18

Teachers Federal Credit Union representatives will present a talk on how to use and manage checking accounts and general money management techniques on three Mondays: April 17, June 19, and September 18, at noon in the Recreation Hall.

For more information about TFCU's on-site services, go to www.bnl.gov/visitorinfo/onsite_services.asp.

Safety Glasses Office to Open Fridays Only

The BNL Safety Glasses Office, which previously has been open on Wednesdays, will open on Fridays instead, beginning on April 14. The place, Bldg. 211, and the hours, 9 a.m.-noon and 1-4:30 p.m., remain the same.

Wildlife, Humans — Sometimes They Just Don't Mix Turkeys Fly, Deer Leap: Vehicles Can Crash

A message from Timothy Green, BNL's Natural and Cultural Resources Manager:

It's spring time again and the animals just don't quite relate to human activities. So, it is important that we humans pay attention to what the animals are doing and try to avoid conflicts as much as possible.

The other day an employee was leaving the Lab traveling along the William Floyd Parkway. She noticed several turkeys on the edge of the road and assumed that they would either walk across or stay put. One turkey decided to fly across the road, struck her windshield and shattered it. A slight variation in the flight of the bird could have resulted in much more serious damage and possibly human injury.

This story reflects the unpredictable nature of wildlife. The deer, geese, turkeys, and other animals we see roaming the campus of the Lab provide a serene, soothing aspect that most of us seem to enjoy. However, we do need to remember that wildlife is wild, and in springtime the behavior of



Roger Stoutenburgh 00831205

animals may become more unpredictable, especially geese and turkeys. So, here are a few tips.

If you see wildlife on the edge of the road, assume that it will cross the road. Slow down a little and pay attention to the animals.

If one deer or turkey is crossing the road, you can expect several more to follow.

Geese are now nesting. They will defend their nests and, at the end of April when the goslings hatch, the parents will vigorously defend their offspring. So, give them plenty of room, do not try to approach.

Turkeys are now mating and they pay little attention to anything or anyone, except each other. The courtship display is awesome to watch, but watch from a distance or from a vehicle. Male turkeys may become aggressive if they feel you are a threat.

Finally, enjoy the wildlife, but be aware that they are not tame. Do not feed them, just enjoy them from a safe distance.

'Writing as Therapy: Journaling From The Heart,' 5/2

Join BNL's Employee Assistance Program Manager Nancy Lossino on Tuesday, May 2, from noon to 1 p.m. in Berkner Hall, Room B, where she will present "Writing as Therapy: Journaling From the Heart," a talk to include topics such as:

- Talking on paper through journaling
- Life stories & memoirs
- Dealing with the past & painful memories
- Working through procrastination & fear
- Honesty and honoring "Your Story"

Check your mailbox for registration forms. Return completed form to Linda DiPierro, Bldg. 490/OMC or dipierro@bnl.gov.

'When Things Get Small' — Nanoscience Film, 4/24

"When Things Get Small," an award-winning, 30-minute film about nanoscience, will be shown on Monday, April 24, at 4 p.m. in Berkner Hall. Laura H. Lewis, Deputy Director of BNL's Center for Functional Nanomaterials, will give a brief overview of the Lab's nanoscience activities and introduce one of the film's producers and stars, Ivan Schuller, University of California, San Diego (UCSD). Schuller will talk about the film and, after its showing, answer questions from the audience. This free event is open to the public; visitors age 16 and over must bring photo I.D.

Upcoming 'Rise & Shine' Program Events

- Friday, April 14, noon-1 p.m., Berkner Hall, Room A. Relaxation Response session. A practical session on an excellent technique for relaxing your body and mind.
- Monday, April 17, noon-1 p.m., Berkner Hall, Room C. Guided Imagery. An experiential session to explore the use of guided imagery for relaxation and personal growth.
- Thursday & Friday April 20 & 21. Free Tai Chi classes for beginners. To register, contact Michael Thorn, Ext. 8612.

One-on-One Retirement Counseling

A TIAA-CREF consultant will visit BNL on Tuesday, April 18; Tuesday, April 25; and Wednesday, April 26; to answer employees' questions about their financial matters.

The consultant will help you to understand the importance of protecting your assets against inflation; find the right allocation mix for you; learn about TIAA-CREF retirement income flexibility; and compare lifetime income vs. cash withdrawal options.

For an appointment, call Arlene Lyons, (866) 842-2053, Ext. 4629. (Not the on-site Ext. 4629.)

Center Club Closed Tuesday Evening, 4/18

Due to a special event taking place in Bldg. 30, the Center Club will be closed for the evening on Tuesday, April 18. The Club will resume normal operation on Wednesday, April 19. For more information, contact Andrew Seelin, Ext. 3024.

Arrivals & Departures

- Arrivals —
- Nancy Boyle..... C-A
 - S. David Smith..... Medical
- Departures —
- Alexander Garnov.....Chemistry
 - Lin Jia.....C-A
 - Jennifer Kozak.....C-A
 - Peter Smith..... Medical

New York Bus Trip

The Hospitality Committee invites all visitors, guests, and their families, as well as employees, to join a bus trip to New York City on Saturday, May 6. The departure will be at 9 a.m. from the Recreation Hall in the apartment area, and the return from the city at 6 p.m. Reserve with Lisa Yang lisayang@optonline.net, or 878-3937. Pay on Tuesday, April 25, and Tuesday May 2, 11-noon at the Recreation Hall. Tickets are: adults, \$10; children 2-12, \$5.

CALENDAR (continued)

— THIS WEEKEND —

Saturday, 4/15

Hospitality's Easter Egg Hunt
11 a.m. Recreation Hall. The Hospitality Committee welcomes parents and children to the annual egg hunt. Participate in other games, arts, and a raffle. Bring a snack or dessert to share. Bagels, fruits, and drinks will be provided. Contact Petra Adams, 821-9238 or petra@adamsovi.com

— WEEK OF 4/17 —

Wednesday, 4/19

***BSA Noon Recital**
Noon. Berkner Hall. Preview, semi-staged, of Stony Brook Opera's performance of Mozart's *The Marriage of Figaro*. See page 4.

***414th Brookhaven Lecture**
4 p.m. Berkner Hall. Anat Biegone, Medical Department, who uses medical imaging for her research on brain injury from trauma and other causes, will talk on "Of Boys and Girls and Bumps on the Head." See page 1.

Thursday, 4/20

***Talk on Diabetic Nutrition, Part II**
Noon-1 p.m. Berkner Hall, Room B. Amy Shapiro talks on "Diabetic Nutrition: Essentials for Life." See notice at left.

Friday, 4/21

BSA Distinguished Lecture
4 p.m. Berkner Hall. Nobel Laureate Frank Wilczek will talk on "The Origin of Mass and the Feebleness of Gravity." All are welcome. All visitors to the Lab age 16 and over must bring a photo ID. For more information, see www.bnl.gov/bnlweb/pubaf/pr/PR_display.asp?prID=06-32

— WEEK OF 4/24 —

Monday, 4/24

***30-Minute Film on Nanoscience**
4 p.m. Berkner Hall. "When Things Get Small," a film on nanoscience, which will be introduced by Laura H. Lewis, Deputy Director of BNL's Center for Functional Nanomaterials. See above, left.

IBEW Meeting
6 p.m. Centereach Knights of Columbus Hall, 41 Horseblock Rd., Centereach. A meeting for shift workers will be held at 3 p.m. in the union office. The agenda includes regular business, committee reports, and the president's report.

— WEEK OF 5/1 —

Thursday, 5/4

BSA Distinguished Lecture
4 p.m. Berkner Hall. Horst Stormer, co-winner of the 1998 Nobel Prize in Physics, will talk on "When the Electron Falls Apart . . . and What to Do with the Pieces." Sponsored by BSA, the lecture is free, and open to the public. All visitors to the Lab age 16 and over must bring a photo ID.

— WEEK OF 5/22 —

Thursday, 5/25

***Elder Law Seminar**
Noon-1 p.m., Berkner Hall, Room B. Join Nancy Burner on "The New Deficit Reduction Act: Medicare Part D Prescription Drug, What Else Is New?" See notice on page 2.

Note: This calendar is updated continuously and will appear in the Bulletin whenever space permits. Submissions must be received by the preceding Friday at noon to appear in the following week's Bulletin. Enter information for each event in the order listed above (date, event name, description, and cost) and send it to bulletin@bnl.gov. Write "Bulletin Calendar" in the subject line.

