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Researching Lyme Disease at Brookhaven Laboratory

A serious health concern in the northeastern U.S., Lyme disease infects mice and deer and is transmitted to humans via the bite of tiny blood-feeding deer ticks.

Between 1982 and 1996 more than 99,000 cases of Lyme disease were reported. Early symptoms of the disease include a bull's-eye rash and flu-like symptoms. If the disease is not promptly treated with antibiotics, more serious symptoms may develop, including joint and neurological complications.

Laboratory Continues to Probe the Secrets of Lyme Disease

- Lyme disease research has been conducted at Brookhaven since the early 1990's.
- In 1997, a Lyme disease protein, known as OspA, was deciphered by Laboratory researchers. This protein is a component in the first generation of vaccines.
- In March 2001, a collaborative effort among the Lab, Stony Brook University, the University of Rochester, and Rutgers led to the discovery of the three-dimensional structure of a key Lyme disease protein called OspC.
- Researcher John Dunn and collaborators won the prestigious DOE Energy 100 Award in January for pinpointing the protective region of the bacterium's surface protein, which is being engineered to make a more effective second-generation vaccine.
- In addition, Brookhaven research on other Lyme disease proteins has resulted in the development of a rapid, highly accurate diagnostic test for the disease. This test was recently granted FDA approval.
- The scientists conducted their research at Brookhaven's National Synchrotron Light Source using beams of x-rays at different energies and powerful computers to gain the vital information needed to create an image of the protein structure.
- See <http://www.bnl.gov/bnlweb/pubaf/pr/bnlpr022801.htm> for more details on this research.

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Congressman Grucci to Give Keynote Address at Brookhaven's Small Business Fair

- Representatives of small businesses are invited to attend a "Small and Small Disadvantaged Business Fair" at the Lab on Monday, April 9 from 8:30 a.m. to 3:30 p.m.
- At the conference, these companies will learn how to do business with the federal government.
- Congressman Felix Grucci Jr. will give a keynote speech at 9:30 a.m., followed by a workshop/seminar and opportunities to meet individually with buyers, contract specialists, and technical representatives from the Lab.
- The event is free and no pre-registration is required.

Lab Scientists Explore Electronic States in High-Temperature Superconductors

- Brookhaven's Tonica Valla is conducting research to help understand the underlying mechanism for superconductivity in copper-based (cuprate) materials that act as high-temperature superconductors. "These cuprate materials have properties that cannot be explained by conventional theories," said Valla.
- By understanding how the high-temperature superconductors work, it may be possible to make them more efficient so that they can take the place of more expensive type of magnets for accelerators, electronic circuits, or even more exotic applications such as superconducting railroads and motors.



Researcher Tonica Valla
Physics Department

Celebrate Earth Week 2001 at the Lab

- On Thursday, April 19, 4 p.m., Richard Wolfson, well-known author and educator, will speak on "Hot News on Global Warming." This is Wolfson's second speaking engagement at Brookhaven; his presentation last December was a huge success!
- On Sunday, April 22, there will be a 4-mile run, starting at 10 a.m., and a ½-mile fun run for kids under 12, beginning at 11 a.m. Check <http://www.bnl.gov/eday.htm> for details, or call Peter Pohlot at (631) 344-5660.

Upcoming Concerts Open to the Public

- *Gellev-Lando-Borisy Trio, April 11, noon, Berkner Hall:* Vesco Gellev (violin), Vadim Lando (clarinet), and Pippa Borisy (piano) return to Berkner Hall. Free.
- *Michael Schneider, April 25, noon, Berkner Hall:* In March 2000, Schneider was the featured guest artist for the 8th Annual Paderewski Festival, held in Paso Robles, California, where he was hailed as "a pianist of exceptional insight." Free.
- *Jenny Mitchell & Gili Sharett, May 9, noon, Berkner Hall:* This duo of Stony Brook doctoral students have extensive careers as soloists, playing throughout North America, Europe, and Israel. Free.