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Science Highlight: Scientists at NSLS Create 'Light Tweezers' to Study the Electronic Properties of Solids

Contact: Joe Woicik (woicik@bnl.gov)

Many techniques are currently available to investigate electronic properties of solids, but for materials made up of different chemical elements, the contributions of the electronic properties of the atoms of each element are difficult to distinguish. Now, a team of scientists working at the NSLS has perfected a new technique that does just that. The scientists have been working on the technique, called site-specific x-ray photoelectron spectroscopy, for the past two years, and have recently used it to investigate the electronic properties of oxygen and titanium atoms in rutile, a mineral made of titanium dioxide usually with a little iron, and used to accelerate chemical reactions. The results of the study, reported in the August 12, 2002 issue of Physical Review Letters, represent the first experimental application of the technique to a metal oxide, thus paving the way to understanding the properties of more complex metal oxides used in the chemical and electronics industry. For more on this work, see:

<http://www.nsls.bnl.gov/newsroom/science/2002/10-Woicik.htm>

Brookhaven's Free Electron Laser Reaches New Milestone

Contact: Li-Hua Yu (lhyu@bnl.gov)

Last month, following three years of intense efforts to develop a new source of laser light called a deep ultra-violet free electron laser (DUV-FEL), Brookhaven scientists have generated very intense ultraviolet light by a process called high gain harmonic generation (HG). This process, which was uniquely developed at BNL under the direction of Li-Hua Yu, an NSLS physicist, will ultimately generate deep ultraviolet laser light with unsurpassed brightness. For details on this achievement, see:

<http://www.nsls.bnl.gov/newsroom/news/2002/duvfel.htm>

NSLS Launches New User-Friendly Website

Contact: Steve Giordano (giordano@bnl.gov)

The NSLS home page navigation has received a makeover. The new navigation has been designed to be more user-friendly, while also providing visitors to the site with the latest news and science highlights from the NSLS. Take a look:

<http://www.nsls.bnl.gov/>

LEES '02 Summary: Synchrotron Light for the Study of Electrodynamics in Solids

Contact: Larry Carr (carr@bnl.gov)

The 5th International Meeting on the Low Energy Electrodynamics in Solids (LEES) was held in Montauk, NY (USA) during the week of October 13-18, 2002. Nearly 100 scientists from the U.S., Canada, Europe and Asia traveled to the eastern end of Long Island to participate in the meeting. During the dozen years since the inception of the LEES meeting series, the use of infrared synchrotron radiation for spectroscopy has flourished. At the same time, the energy resolution for angle-resolved photoemission spectroscopy and x-ray inelastic scattering has increased to the point that they are now powerful tools for the study of low energy phenomena. Consequently, it was no surprise that 20% of the presentations directly involved the use of synchrotron facilities. For more information on the conference, refer to:

<http://www.nsls.bnl.gov/newsroom/news/2002/lees.htm>

Hands-On EXAFS Short Course is a Big Success

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A hands-on short course in EXAFS data collection and analysis was held at the NSLS from September 23-25. This workshop provided a broad introduction to the collection and analysis of EXAFS data and was aimed at new synchrotron users and young scientists. The three-day course included classroom lectures given by leading experts, hands-on data collection at NSLS beamlines, and instruction in the use of data analysis software. The lectures covered topics ranging from the basic physics of x-ray absorption, sample preparation and data collection, and basic principles of data analysis. Participants collected real data during the beamline practicals and learned to analyze that data during the computer training. For a summary of the workshop, see:

<http://www.nsls.bnl.gov/newsroom/news/2002/exafs.htm>

Learning from Light on "Take Our Sons to Work Day"

Contact: Marc Allaire (allaire@bnl.gov)

On October 14, over fifteen sons learned about work done at the NSLS, and even performed their own scientific experiments. The one-day visit was part of the national "Take our Sons to Work Day". For details and photos, see:

<http://www.nsls.bnl.gov/newsroom/news/2002/sons.htm>

DOE Nanoscale Science Research Centers Workshop

On February 26-28, 2003, the first national users meeting for DOE's Nanoscale Science Research Centers will take place in Washington, DC. It will provide a forum for communication on nanoscience among agencies, policymakers, and scientific community. It will also provide a forum for discussion of user policies and research opportunities in nanoscale science. For more information, please see the workshop website at:

www.ornl.gov/doe_nsrc_workshop/preliminary_program.htm

Australian Synchrotron Requests a Completion of Brief Questionnaire

Contact: John Bitcon (john.bitcon@chisholm.vic.edu.au)

The Australian Synchrotron is scheduled to commence operations in early 2007. As part of a joint survey by the Chisholm Institute and Monash University, a questionnaire has been prepared to identify the skill needs that will arise following the commissioning of the Australian Synchrotron. Current synchrotron users worldwide are asked to take 5 minutes to complete this brief questionnaire. All participation is greatly appreciated as it will help in the planning and delivery of synchrotron-related education and training for the Australian facility. To complete the online questionnaire, go to:

<http://www.nsls.bnl.gov/miscellaneous/ASQuestionnaire/>

The November NSLS Newsletter is now online

Contact: Nancye Wright (wrightl@bnl.gov)

The November 2002 issue of the NSLS Newsletter is now available online and in print. To receive a printed copy, please email Nancye Wright at wrightl@bnl.gov. To view and download the online version, go to:

<http://www.nsls.bnl.gov/newsroom/publications/newsletters/2002/02-nov.pdf>

Job Opportunities at the NSLS

A number of scientific and technical job opportunities are available now at the NSLS. See the NSLS web site for details:

<http://www.nsls.bnl.gov/organization/Admin/jobs.htm>

User Obligations and Reminders

Pre-Registration: All users must pre-register for each visit.
<http://www.nsls.bnl.gov/users/newusers/>

Foreign Nationals: All foreign nationals must submit Form BNL-473. Those without active appointments must arrive Monday-Friday by 3 p.m. (no weekends/holidays).

<http://www.nsls.bnl.gov/users/newusers/>

Training: All users who require training/retraining must arrive Monday-Friday by 3 p.m. (no weekends/holidays).

Publication References: Users (except proprietary) are obligated to submit references for all published work.

<http://www.nsls.bnl.gov/newsroom/publications/references/>

Abstracts: Users are obligated to submit abstracts.

<http://nslsweb.nsls.bnl.gov/nsls/pubs/abstracts/submit.asp>

End of Run Form: All users are asked to complete the End of Run survey at the end of each experimental run.

http://www.nsls.bnl.gov/users/procedures/end_of_run/end-of-run.asp

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<http://www.nsls.bnl.gov/newsroom/publications/listservers.htm#nsls-news>

If you would like to suggest a news item, please send a message to nslsinfo@bnl.gov.

The current and past issues of the NSLS e-News are available on the web at:

<http://www.nsls.bnl.gov/newsroom/publications/enews/>

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