

HOTLINE

The Princeton Plasma Physics Laboratory is a United States Department of Energy Facility

The NCSX Coils... A Technological Feat



The NCSX Coils Group at PPPL.

Fabrication of the National Compact Stellarator Experiment (NCSX) modular field coils is underway in the former Tokamak Fusion Test Reactor Test Cell at PPPL. A new PPPL Digest, "Advanced Technology Essential in NCSX Component Fabrication," describes the fabrication project in detail through an interview with Phil Heitzenroeder, Head of PPPL's Mechanical Engineering Division. Heitzenroeder describes the process of manufacturing the NCSX modular coils, the capabilities in coil fabrication, the project's status, the techniques used, and how the coils will be assembled on the NCSX vacuum vessel. To download a pdf of the 12-page digest, go to <http://www.pppl.gov/polDigests.cfm>, or stop by Information Services for a paper copy. Hats off to the engineers and technicians involved in the design and fabrication of these complex, innovative electromagnetic modular field coils! ●

Info Services Unveils New PPPL Web Site Design

PPPL's new web site is up and running. Check it out at www.pppl.gov. Princeton Online provided the design, working closely with PPPL Information Services Head Anthony DeMeo. Special thanks go to PPPL's Pamela Hampton, Cynthia Murphy, and Kenny Silber for their help installing the new site. Lab groups who would like to use the template for their department and division sites should contact Tony at ademeo@pppl.gov after April 3. ●



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Creating Innovations to make Fusion Power a Practical REALITY

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Princeton Plasma Physics Laboratory (PPPL) is a collaborative national center for plasma and fusion science. The Laboratory is managed by Princeton University and funded by the U.S. Department of Energy, Office of Science. An associated mission for PPPL is to provide the highest quality science education in fusion energy, plasma physics, and related technologies.



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Hotline

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PPPL Hosts Regional Science Bowl

Twenty-seven Teams Compete and Three Dozen Volunteers Make the Day a Success

More than 100 of the area's youngest scientists and engineers came to PPPL February 24 to "show what they know." The youngsters — students from area high schools — participated in the New Jersey and Eastern Pennsylvania Regional Competition of the National Science Bowl®.

Twenty-seven teams from 17 schools competed, with the first-place honors going to East Brunswick High School. This is the fourth consecutive year East Brunswick has taken home the top prize. The school has placed first six out of the last seven years. High Technology High School in Lincroft placed second, Princeton High School placed third, and West Windsor-Plainsboro High School South fourth.

This is the fifteenth year the Laboratory has hosted the Jeopardy!-like tournament in which all the categories are disciplines of science. Competing teams were quizzed on biology, chemistry, physics, astronomy, earth science, general science, and mathematics. Each team was made up of four students, a student alternate, and a teacher who served as an advisor and coach. Many Science Bowl participants have gone on to careers in scientific fields.

"I've been coordinating the high school Science Bowls at PPPL for the past 10 years and continue to be amazed by the dedication and knowledge of the students who participate and the adults who coach them. The teams are made up of excellent students who go through intense preparation before the bowls," said PPPL Science Bowl Coordinator James Morgan. "During the finals, the volunteers often stick around to see how the teams fare. The competition can be as exciting — and tense — to watch as a sporting event."

PPPL hosted one of 68 regional competitions, all of which are sponsored by the U.S. Department of Energy. The top winners of the regional competitions receive all-expense paid trips to the National Science Bowl® scheduled for April 26-30 in Washington, D.C.

PPPL staff, students, and friends volunteered as science judges, scorekeepers, timekeepers, moderators, and helpers at the regional competition.

"Our success would not have been possible without the volunteers. Thanks to everyone who helped," said Morgan. ●



At right, PPPL's Daren Stotler (green shirt), Rob Andre, and Barbara Sarfaty volunteer as moderator, science judge, and scorekeeper for a round at the Science Bowl.

Thank You, Science Bowl Volunteers!

Robert Andre, PPPL
Jessica Baumgaertel, Princeton University
Kristin Baumgartner, Bristol-Myers Squibb
Steve Baumgartner, PPPL
Bill Davis, PPPL
Bill Blanchard, PPPL
Michael Del Corso, Merck & Co., Inc.
Jessica Defreese, Bristol-Myers Squibb
John DeLooper, PPPL
Tiana Dodson, PPPL
Seth Dorfman, Princeton University
Eliot Feibush, PPPL
Geraldine Felicia, Bristol-Myers Squibb
Abe Fetterman, Princeton University
Erik Granstedt, Princeton University
Terry Greenberg, PPPL
Pamela Hampton, PPPL
Felix Huang, Princeton University
Dean Jens, Goldman Sachs
Josh Kallman, Princeton University
George Labik, PPPL
Jayson Peterson, Princeton University
Tom McGeachen, PPPL
Penny Neuman, PPPL
Sangita Patil, Bristol-Myers Squibb
Rohit Patil, South Brunswick High School
Mark Perri, Rutgers University
Carolyn Pommier, Bristol-Myers Squibb
Chris Ritter, PPPL
Barbara Sarfaty, PPPL
Barbara Sobel, PPPL
Rachel Speer, NIH
Daren Stotler, PPPL
Patti Wieser, PPPL
Irving Zatz, PPPL
Andrew Zwicker, PPPL

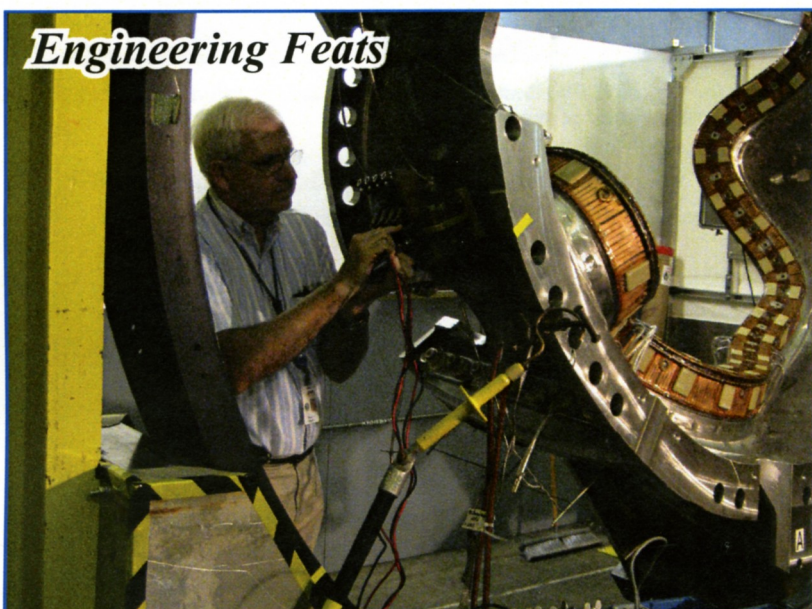
Hooray to PPPL's Engineers



Ray Camp and Paul Henderson enjoy the pizza party.



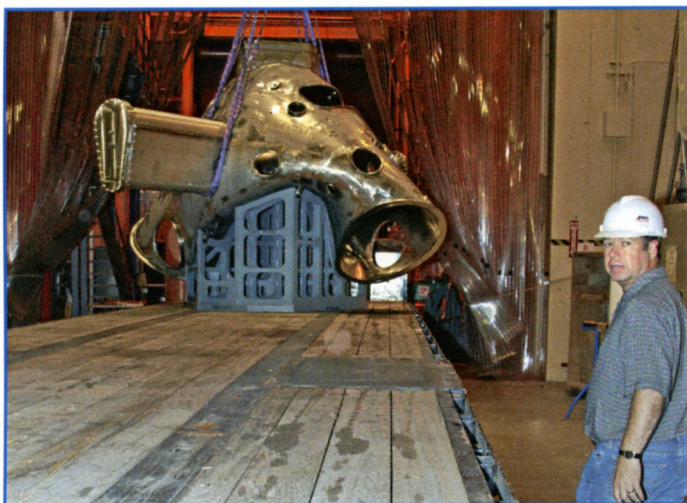
The PPPL engineers at the pizza party in their honor during Engineers Week.



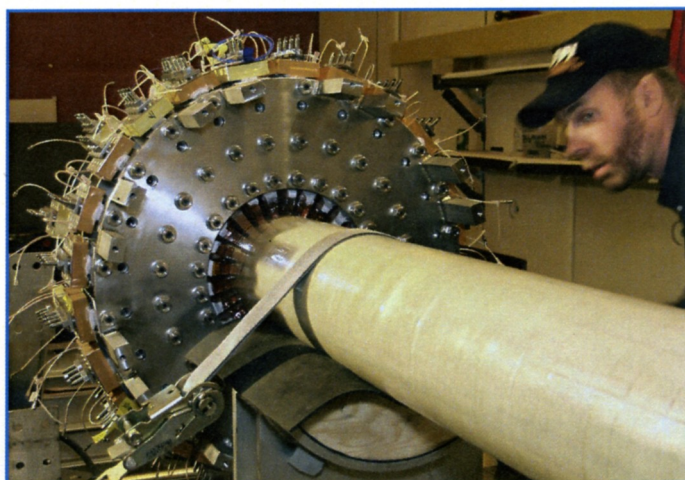
Tom Meighan electrically tests a finished modular coil at NCSX.



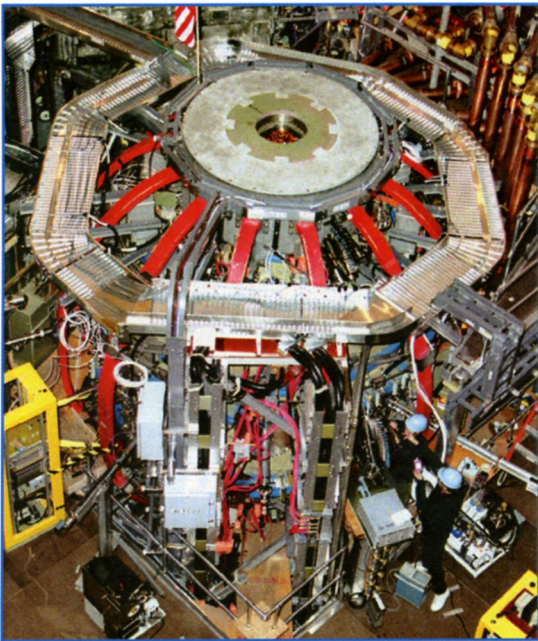
Steve Raftopoulos (facing laptop) with other staff members at the NCSX Coil Winding Facility during DOE Under Secretary for Science Ray Orbach's (far right) visit.



Mike Viola with a vacuum vessel segment for the National Compact Stellarator Experiment (NCSX).



Hans Schneider looks over the NSTX center stack.



The National Spherical Torus Experiment (NSTX).



Engineers Share Their Knowledge
Ronnie Hatcher gives youngsters from the Boys and Girls Club a lesson on fusion at the Stellarator sculpture at Quark Park in Princeton last fall.



John Lacenere (second from left) and Ray Camp (tan shirt) help West Windsor-Plainsboro High School North students design and build a robot for a competition.



Charlie Gentile presents a talk about the Miniature Nuclear Detection System (MINDS) research for the 2007 Science-on-Saturday lecture series.



Tiana Dodson addresses students at the Lab.



Henry Carnevale takes a group of teachers on a tour of the NCSX Coil Winding Facility.



Sustainable
ENERGY • AIR • WATER • EARTH



"In its most general sense, sustainability means using resources to meet the needs of the present generation without compromising the ability of future generations to meet their needs."

— World Commission on Environment and Development, 1986

Celebrate **EARTH DAY** every day



**TURN
IT
OFF**



**USE
IT
WISELY**



**CAREFULLY
CONTROL
IT**



**RECYCLE IT AND
BUY IT
RECYCLED**



**BUY
IT**



**PLANT
IT**

PPPL Earth Day Events April 18 and 19

Mark Your Calendars!

WEDNESDAY, APRIL 18

Earth Week Displays — Lobby — All Day

Presentation of Green Machine Awards by PPPL Director Rob Goldston

Auditorium — 2:30 p.m.

Special Earth Week Colloquium by NJDEP Commissioner Lisa P. Jackson

Auditorium — 4 p.m.

THURSDAY, APRIL 19

“An Inconvenient Truth Update”

Auditorium — Noon — Brown-bag Lunch

Everyone is welcome at all the events.

Take a look at PPPL's latest Sustainability Report and see why the Laboratory has a good reason to celebrate [Earth Day](#) in 2007!

Fiscal Year 2006 Recycling Report:

Total Recycled — 1185.49 tons

Total Sent to Landfill — 211.53 tons

Total Recycling Rate — 86 percent (*The Recycling Rate for Fiscal Year 2005 — 63 percent.*)

Estimated Fiscal Year 2006 Savings = \$82,110

Reduction of CO² = 232.6 Tons

“House” Energy Report:

House Energy is the non-experimental energy consumed at PPPL, including lighting, equipment, HVAC, and computers. PPPL's Fiscal Year 2006 House Energy use was 18.5 percent lower than in Fiscal Year 2005.

Estimated Fiscal Year 2006 Savings = \$334,000

Reduction of CO² = 1,835 Tons

In Fiscal Year 2007, PPPL continues to reduce house energy use. For the first quarter of Fiscal Year 2007, the Laboratory decreased its “house” energy consumption by 22 percent, saved an estimated \$85,000, and reduced CO² emissions by 561 tons compared to the first quarter of Fiscal Year 2006.

MAKE EVERY DAY - EARTH DAY!

Spotlight

Name: Mark Swanek

Position: Waste Management Engineer with the Materiel & Environmental Services Group. Swanek is involved in the disposal of hazardous waste and packaging of radioactive waste. He deals with cleaning up spills at the Laboratory, prepares paperwork for the proper disposal of hazardous waste, and schedules shipments of hazardous waste for disposal off site. Swanek has a degree in chemistry from William Paterson State University and came to PPPL in the early 1980's as a contractor before becoming a staff member.

Quote: "One of the reasons I like it at PPPL is because safety and health come first. I also enjoy my job because every day is different. I'm always dealing with new challenges because each Laboratory project may have specific chemical disposal issues. We have to be able to respond to chemical spills at a moment's notice. We also react quickly to safety walk-through items that need to be addressed by our group. There is no typical day, which keeps me on my toes," Swanek says.

Other interests: Swanek took up the blues harp about 10 years ago and a few years later formed a band, "Smokin' Alternaters." (<http://www.angelfire.com/blues2/jerseyblues-depot>). The four-piece group performs blues and classic rock about one night a week at clubs and restaurants from Jamesburg to Hoboken to upstate New York. (The next gig is Saturday, May 19, at 10 p.m. at the Brunswick Grove, 327 Millstone Road, East Brunswick.)

"I enjoyed blues and decided to take up the harmonica," says Swanek, who names Little Walter, Kim Wilson, and Little Charlie and the Night Cats as his favorite blues artists. Since forming the band, he has taken on the responsibility of booking it. After work, he often makes rounds at various



spots in the area to drop off demo cds and talk to club managers about bookings. During free evenings and weekends, he enjoys jamming with other musicians in the area and attending blues events.

Swanek has performed at the Tampa Bay Blues Festival in Florida and at the Botany Village Blues Festival in Clinton, N.J. He takes advantage of his commuting time by playing along with recorded blues and rock music, and refining his skills.

Besides music, Swanek enjoys cycling and hiking, as well as cooking. A member of the Bicycle Touring Club of North Jersey, Swanek leads a 20 to 48-mile bike ride nearly every Sunday from spring through fall. During the winter, he organizes hikes in the area. When he needs to refuel, he gets busy in the kitchen. "Chemists make the best cooks — we know the importance of the right ingredients," he quips. ●

Williams Receives Thesis Honors

In February, physicist Kyron Williams received the Outstanding Ph.D. Thesis award from the National Society of Black Physicists (NSBP) while attending a joint meeting of the NSBP and National Society of Hispanic Physicists in

Boston. His thesis title is "Molecular Sensitivity of Transport Parameters in Turbulent Plasmas." Williams is a Postdoctoral Research Fellow through Oak Ridge National Laboratory, with a two-year appointment in PPPL's Experimental Physics Division. He received a Ph.D. in physics from Florida A&M University in 2004. Congratulations, Kyron! ●



Zwicker Heads APS Group



Andrew Zwicker was named Chair-Elect of the APS Forum on Physics and Society (FPS). Formed in 1972, the Forum concentrates on the interrelation of physics, physicists, and society. FPS publishes a quarterly newsletter, studies and books of particular problems at the interface of physics and society. FPS is the oldest of the APS Forums and the second largest unit of the APS, with 12 percent of the total membership belonging to the Forum in 2007. As Chair-Elect, Zwicker will be responsible for planning FPS-sponsored sessions at the 2008 March and April APS meetings. Congratulations, Andrew! ●