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HOTLINE

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

Neumeyer Named U.S. ITER Electrical Task Leader

PPPL's Charles Neumeyer has come full circle with the ITER project. In the 1980s, he was a working member of the ITER Engineering Design Activities (EDA) Power Systems Team. This spring, he became the Task Leader for the Steady State Electric Power Network (SSEPN) for the U.S. ITER Project Office.

"I feel privileged to represent Princeton. It's a great challenge and opportunity, and I'm happy to participate again," said Neumeyer, an electrical power engineer with more than 20 years of experience in advanced technology engineering and project management.

PPPL Director Rob Goldston said of Neumeyer, "Charlie is a highly experienced and creative engineer, with an excellent perspective not only on his own specific responsibilities, but also on the broad picture. I am really happy that he will be contributing to the success of ITER."

ITER (Latin for "the way") is a large international fusion experiment aimed at demonstrating the scientific and technological feasibility of fusion energy. The U.S. is one of seven partners; the others are China, the European Union (EU), India, Japan, Russia, and South Korea.

PPPL engineer Charles Neumeyer with the PPPL substation in the background.

The U.S. and the EU are responsible for the design and procurement of the SSEPN for ITER. Neumeyer leads the U.S. team, which will manage 75 percent of the procurements and participate in the design of the system. The EU will manage the remaining 25 percent of the procurements and have primary responsibility for the design.

The SSEPN is one of two project pieces PPPL will oversee out of seven managed by the U.S. ITER Project Office. The other is diagnostics integration. Neumeyer will monitor the progress on the design activities by the EU team and lead the U.S. team when it is time to procure equipment such as transformers, switch gear, and circuit breakers. The procurement activities are expected to begin in a few years and the U.S. portion will go through PPPL and Lab subcontractors. The SSEPN is basically an AC power substation similar to that used in a conventional nuclear power plant.

The task leader makes monthly trips to the U.S. ITER Project Office at Oak Ridge National Laboratory (ORNL) in Tennessee and recently attended meetings at the experiment's site in Cadarache, France. There, he reconnected with many Italian electrical engineers he had worked with during the early days of ITER planning. "It's like joining up with old friends again," Neumeyer said, adding that he watched World Cup Soccer matches on television at a French restaurant with his Italian colleagues. "I worked on ITER early in my career, and many people I worked with then are still involved. Most of the electrical engineers in the EU working in the fusion field are from Italy," he said.

Neumeyer presently devotes half his time to ITER and the other half to NSTX. When the ITER procurements begin, his time on the project will increase.

Neumeyer began his fusion career at PPPL in 1976 on the Tokamak Fusion Test Reactor with the design, procurement, and commissioning of the AC/DC converter systems, and was

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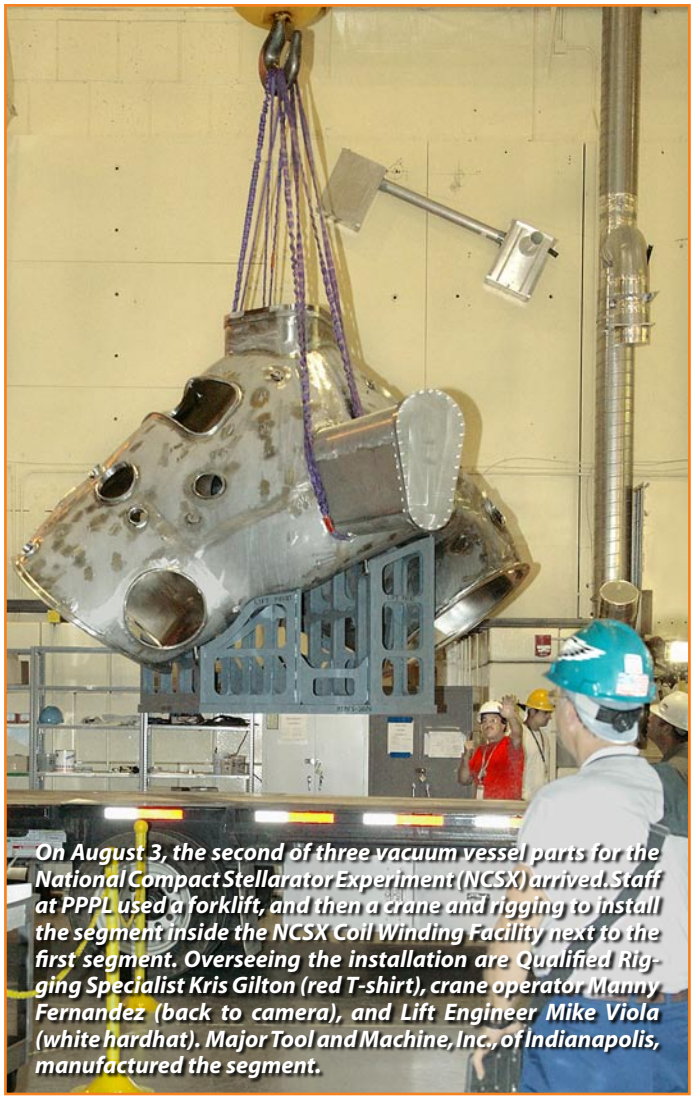
Second NCSX Vacuum Vessel Arrives at PPPL



On August 3, the second of three vacuum vessel parts for the National Compact Stellarator Experiment (NCSX) arrived. Staff at PPPL used a forklift, and then a crane and rigging to install the segment inside the NCSX Coil Winding Facility next to the first segment. Overseeing the installation are Qualified Rigging Specialist Kris Gilton (red T-shirt), crane operator Manny Fernandez (back to camera), and Lift Engineer Mike Viola (white hardhat). Major Tool and Machine, Inc., of Indianapolis, manufactured the segment.

Photo ID Contest Answer

The orange table featured in the photo ID contest (June Hotline) was used to hold drinks at many PPPL parties in "the old days," including picnics and Coil Shop and Tech Shop holiday parties. The table is presently stored in the C-site MG basement. PPPL's Joe Carson, Garry Stevens, and Gretchen Zimmer guessed correctly and are entitled to PPPL T-shirts. Congratulations!

PPPL Hosts Teachers for Plasma Camp

In the foreground, from left, teachers Dan Noyes of Clearwater, Florida, and Kelvin Kibler of Houston discuss their presentation on fossil fuels during PPPL's ninth annual Plasma Camp in July. In the background, teachers Felice Farber (left) of Trenton and Dan Dorsey (right) of Redmond, Washington, discuss the plasma-based curricula they developed with Nick Guilbert, who led the workshop.

In July, PPPL hosted its ninth annual Plasma Camp for six teachers from across the nation. Teachers from Florida, New Jersey, Michigan, Pennsylvania, Texas, and Washington spent one week in PPPL's Science Education Laboratory working on plasma physics experiments and developing plasma-based curricula for their classrooms. They worked with plasma balls, half-coated fluorescent light bulbs, and DC glow discharge tubes. The teachers also created demos, lab exercises, computer-based constructivist learning activities, and in-class discussion questions on topics that ranged from creating a plasma ball in a microwave oven and states of matter, to the properties of atoms and plasma discharges as circuit elements.

For the first time, a middle school teacher and a high school teacher from the same school district — the Trenton Public Schools — collaborated on vertically integrating curricula from their physical science classes. Participants will return next year to further refine their curricula. The workshop was led by Nick Guilbert, Science Department Chair at The Peddie School, and PPPL Science Education Program Head Andrew Post-Zwicker, and administered by PPPL's James Morgan. ●

Hotline

Editor/Writer:	**Patti Wieser**	**Graphics:**	**Greg Czechowicz**
Photographer:	**Elle Starkman**	**Layout:**	**Patti Wieser and Greg Czechowicz**

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Out with the Old, In with the New

Energy-efficient Controls Installed in LSB Office Areas

To save energy, the Lab is upgrading all the heating, ventilating, and air conditioning controls in the office areas of the Lyman Spitzer Building (LSB). Variable Air Volume (VAV) Units are being upgraded to digital controls, which are connected to a Building Automation System (BAS).

"We are replacing 25-year-old air-pressure controls on the VAV Units with computerized digital controls," said PPPL Pollution Prevention Coordinator Thomas McGeachen. "PPPL expects to save $57,500 in electricity and natural gas costs per year because of these new controls."

The replacement project began in early June and is expected to conclude in mid-August. The new system should last two decades. The Lab's Facilities, Maintenance and Operations, and Materiel and Environmental Services, along with subcontractors, completed the project to install the 87 controllers that control 87 zones in the LSB. Most zones include multiple offices. A VAV unit supplies conditioned air to a zone, controlling the office temperature at the sensor for the zone. Mark Kijek, BAS Engineer, set up and worked on the controllers for all the zones. The computerized control and the installation of all new VAV units will result in better control at the local level.

During the cooling season, thermostats will be set at 73 to 74 degrees during business hours; during the heating season, 70 to 72 degrees.

A Building Automation System "is a programmed, computerized, 'intelligent' network of electronic devices that monitor and control the mechanical and lighting systems in a building. The intent is to create an intelligent building, and reduce energy and maintenance costs," according to Wikipedia. ●

Kevin Taylor of Master Fire Protection installs a damper for the Variable Air Volume Air Handling Unit upgrade in a Lyman Spitzer Building office. When the project is completed, 87 zones will have new units, leading to greater energy efficiency.

Neumeyer

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eventually responsible for the operation of all power systems. He was a member of the Compact Ignition Tokamak-Burning Plasma Experiment design team. He was manager of the power systems, neutral beams, and Central Instrumentation and Control Systems for the Tokamak Physics Experiment Project. Since 1997 he has served as the Project Engineer for NSTX.

In 2000, Neumeyer received the PPPL Distinguished Engineering Fellow Award and in 2001 the "Engineer of the Year" award from the New Jersey Society of Professional Engineers. Neumeyer received a B.S. degree in electrical engineering from the University of Virginia in 1975 and an M.S. degree in electrical engineering from the Polytechnic Institute of New York in 1987.

He described ITER as "a fabulous project," adding, "This is the culmination of my career." ●

ESU Operates Emergency Medical Services Display

As part of Emergency Medical Services Week this spring, PPPL's Emergency Services Unit (ESU) hosted an exhibit in the LSB Lobby. ESU staff Sean Donohue (middle) and Darren Thompson (right) show PPPL's James Morgan an Automatic External Defibrillator, which is used to shock the heart of someone who has gone into cardiac arrest.

PoP Garden Flourishes Off Lower Parking Lot

Schmidt and Nunes Use Green Thumbs to Nurture Plants

Off PPPL's lower parking lot, there's an oasis a few steps from the concrete desert — a patch of verdant with splashes of orange and purple. Left barren when a diseased pine was removed, the area was brought back to life this spring by *Physics of Plasmas* (PoP) journal staff Sandy Schmidt and Dianne Nunes. Now the 20-foot by 12-foot space attracts physicists, staff, and butterflies alike.

"We put in a dogwood tree and some shrubs in the fall, and added most of the plants in the spring," said Schmidt, PoP Assistant Editor. Among the fall plantings were holly and butterfly bushes.

Schmidt and Nunes drew up a plan for the PoP Garden Sanctuary, considering climate and sun exposure before selecting plants for installation. "We picked drought-resistant plants that really like the sun," Schmidt said.

The garden now boasts purple-flowered verbena, false indigo, Russian sage, pink fountain gaura, fanfare blanket flowers, Stella de Oro daylilies, and vibrant portulaca, among other offerings. The lavender-colored butterfly bush is a popular haunt for Eastern Tiger Swallowtail, Monarch, and Cabbage White butterflies. The bush has tripled in size since it was planted in February. "It just sprang up. The rain, the sun, and a little fertilizer was all it took," Schmidt said.

The space has become a community effort and hangout. The Facilities crew turned over the soil before the spring plantings and added topsoil and mulch, and PPPL's Tom McGeachen, Ken Tindall, and T.K. Chu have made floral and monetary contributions toward the garden. Nunes, the assistant to the PoP editor, dug and planted. Schmidt and her husband added a footpath and a birdbath — a hit with robins and brown-headed cowbirds out for an afternoon dip.

An Eastern Tiger Swallowtail butterfly drops by the garden to visit the butterfly bush blossoming with purple flowers.

Physics of Plasmas staff members Sandy Schmidt (left) and Dianne Nunes tend the garden.

Chu came up with the idea for the garden when the pine outside his office window was removed. "T.K. thought everyone could get together and put things into the garden, and that's how it evolved," said Schmidt.

Most of the plants are perennials, with a few annuals. Deer take drinks from the birdbath, but don't snack on the plants thanks to "Liquid Fence," an environmentally friendly spray that repulses them. "I've seen hoof prints in the garden. The deer come in and get a drink," Schmidt said.

She and Nunes planted the sanctuary over a few afternoons and a morning — on their own time. To maintain it, they weed, add plants, and water as needed. They selected plants and colors by what was available in the market and would flourish in bright sun. They wanted a variety of heights and colors to add interest and dimension.

Many staff members have thanked the two for their gardening efforts, which have transformed the sanctuary into a favorite break spot. "It makes it so much more pleasurable," Nunes said. Schmidt recalled a Saturday morning when a picnic table had been moved near the garden and filled with bagels and coffee for a break.

Nunes, noting a spot near the picnic area off the lower lot, said the garden could be replicated in other areas on site.

"It's nice coming into work everyday and passing the garden," said Nunes, who keeps an eye on the flowers from her office window. This fall, she and Schmidt plan to add mums to bring in a little autumn color, as well as bulbs such as deer-resistant daffodils and narcissus.

"It's been very rewarding watching it grow," Schmidt said. ●