

HOTLINE

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

Engineers Make A World of Difference

Engineers use technology, mathematics, and scientific knowledge to solve practical problems. — WIKIPEDIA



At PPPL, engineers design, build, and operate experimental fusion devices and systems, as well as take care of the Laboratory's infrastructure. This work includes a broad spectrum of engineering talents in the fields of mechanical and electrical engineering, computer systems, and environmental management.

The Lab honored its engineers on February 20 with a pizza luncheon in the LSB Commons, followed by a special colloquium, "Engineering in the Modern World," by Princeton University Professor Michael Littman in the Auditorium. Special thanks to PPPL's Ray Camp and Rose Fuchs for organizing these events for National Engineers Week, celebrated February 17-23. At the luncheon, PPPL Engineering Head Mike Williams, who hosted the celebration, noted that the National Academy of Engineering recently identified 14 Engineering Grand Challenges. "Providing energy from fusion was second on the list," Williams said. Above are many of PPPL's engineers at the pizza party. ●

In Memory

PPPL engineer Ray Gernhardt — described by colleagues as an electrical whiz, a meticulous engineer, and a gentleman — died March 15. He was 60 and had spent two-thirds of his life at the Laboratory.

His PPPL friends remembered him as a dedicated and talented engineer full of youthful enthusiasm, a co-worker who was easy to work with, and a family man with a zest for hobbies ranging from raising orchids and designing autoharps to drumming and flying planes.

“Ray was a top-notch engineer who’s attention to detail was unsurpassed. He loved electronic gadgets and utilized them whenever he could. He even provided a spreadsheet and partial-tone tuning curve when he tuned my piano,” said PPPL Engineering Head Mike Williams.

PPPL engineer Bill Blanchard worked closely with Ray on the vacuum pumping and fueling systems for the National Spherical Torus Experiment (NSTX) during the past 10 years. “Ray was the electrical engineer for these systems on NSTX,” he said. “He was known for being meticulous and thorough, and he did a terrific job on the projects he worked on. Besides being an excellent engineer, he was a gentleman and an easy person to work with. For a lot of us here at the Lab, Ray will be missed not only as a colleague but as a friend.”

A Phillipsburg native who grew up in Everittstown, N.J., Gernhardt graduated from Delaware Valley High School and then Warren County Technical School in Washington before joining PPPL 40 years ago. PPPL engineer Bob Marsala said, “I knew Ray since I arrived at PPPL in 1978. From the start I knew that Ray was someone special. He loved his work and his hobbies, which were many. We shared the love of maps, traveling to a map store in Rocky Hill at lunchtime to browse. He bought almost every software map program sold. When GPS receivers became available, he was the first to have one.”

Several at the Lab noted Gernhardt’s dedication to his wife, Roberta, and daughter, Alison, and his enjoyment of many hobbies outside of work. He was a talented drummer, and a designer and craftsman of fine autoharps. He also liked tending orchids and tropical fish, as well as piloting small planes. During a Florida vacation, Gernhardt and his wife were able to catch a Blue Angels flight demonstration. “Since flying was a true love of his, he was thrilled to speak with some of the pilots and get an up-close view of the jet,” Mrs. Gernhardt recalled.

He also enjoyed bicycling on his Cannondale. “Over the last 15 years we rode as a family, mainly on the D&R Canal path,” Mrs. Gernhardt said. “But he got serious

about six or seven years ago and each spring or summer, he did long distances on his bike, even biking up to his parents’ house in Everittstown a few years ago (about 30 miles).”

Marsala noted that Gernhardt enjoyed his vacations. “He, Roberta, and the family often vacationed on Highland Lake near Bridgeton, Maine. Often Ray could be found in his wading tube with a glass of iced tea, reading a book. I can just picture him in that pose. I am lucky to have had Ray as a coworker, but more so as a friend,” he said.

PPPL engineer Hans Schneider worked with Gernhardt for several years. “I’d like to think I had a special friendship with Ray — he was 14 going on 61 and I’m 13 going on 45. Most people didn’t know that Ray had a youthful enthusiasm under his introspective, unassuming demeanor. Ray liked to joke around and it didn’t take much to get his squinty-eyed, ear-to-ear smirk and part laugh, part guffaw.”

In addition to lightheartedness, Gernhardt was able to more than competently juggle a myriad of duties both inside and outside of PPPL. Schneider noted that Gernhardt was involved in many undertakings — multiple NSTX projects, multiple National Compact Stellarator Experiment (NCSX) projects, and multiple projects at home. “Yet all those projects never stopped him from providing me detailed analysis,

opinions, and advice on anything I threw at him. Ray was ‘Google’ in flesh and blood,” Schneider said.

He described the level of detail Gernhardt could immerse himself in as astounding. “Ray wanted a bass guitar to play on a digital multi-track recording, which he was working on with a digital multi-track recorder he had just acquired, to accompany himself on an autoharp he had built. I told him, ‘Ray, borrow one of mine.’ No way. Ray had to take the journey of researching and selecting a bass for himself. While anyone would be extremely proud of diligently and wisely choosing just the right bass, Ray kept on going. Improvements — not just customization — were necessary. The journey continued with learning what pieces affected the tonal quality of a bass guitar and why. New parts were obtained, and, of course, Ray couldn’t resist modifying them. As he has done on every project at the Lab — it was all well documented with detailed drawings. I often wondered whether he ever slept,” Schneider said.

Funeral services were held on March 19. Memorial contributions may be made in Raymond’s name to the Alzheimer’s Association, Greater New Jersey Chapter, 400 Morris Ave., Suite 251, Denville, NJ 07834-1365. ●



And the Honors Go To ...

Science Bowl Volunteers Feibush and McGeachen



From left are Science Bowl honorees Eliot Feibush and Tom McGeachen with their plaques.

On a wintry Saturday morning every year, they trade snoozing in and lingering over coffee for simple addition and time-keeping, reading and ruling on complex questions, and welcoming teams.

These are the Lab's Science Bowl volunteers, numbering at least three dozen annually. They include PPPL employees, families, and friends, Princeton University staff and students, and others from local institutions who serve as scorekeepers, timekeepers, judges, moderators, and other helpers.

This year, the Lab recognized two extraordinary volunteers for their Science Bowl efforts—PPPL scientist Eliot Feibush and PPPL engineer Thomas McGeachen. The two received “Outstanding Volunteer” Awards for their continuing efforts during the February 23 opening of the U.S. DOE Regional Science Bowl hosted by PPPL. Feibush was noted for developing a clock program for Science Bowl that is computer portable and allows for better viewing, and McGeachen for his many years of service dedicated to the event.

Feibush remembers watching the College Bowl on TV with his father in the late '60s.

“Later, in high school, I moderated a Quiz Bowl between a student team and a faculty team. Naturally I was intrigued by the Science Bowl at PPPL. I've volunteered as a judge during the past four years,” he says.

He saw the clock running on some very old Apple computers that were maintained just for the event. “That's when I decided we would benefit from a technology upgrade. The weekend after the 2006 Science Bowl, I wrote a new clock program in Java so it would run on any contemporary laptop,” Feibush says. “Then my two Science Education summer interns spent a week adding enhancements based on user feedback from the timekeepers. This year we connected the laptops to projectors so everyone had a better view of the clock.”

Feibush called the Science Bowl “very worthwhile.” “I am glad to help with it. I continue to be amazed by the students who answer the challenging questions so quickly,” he adds.

McGeachen began volunteering as a timekeeper in 1996. “I like the time-keeping chore. It's pretty structured. I've got it down. I use the program Eliot did and also use my wrist watch when time runs out and for the five-second toss-up questions,” McGeachen says.

Why does he consistently give up a Saturday morning every year? “It's good for me to encourage younger people to become interested in science and engineering,” he says. “And part of the draw is watching the competitions.”

This year—the sixteenth for PPPL to host the bowl—30 teams from 19 area schools participated, with High Tech High School winning first place. And 40 volunteers were here to help with the day. Hats off to all the volunteers! ●

Calling All Science Bowl Volunteers

Science Bowl volunteers are needed for the New Jersey Middle School Competition of the National Science Bowl® on Saturday, April 12, at PPPL. If you are interested in serving as a judge, timekeeper, moderator, or scorekeeper, or could assist with the model hydrogen car race, please e-mail Chris Ritter at critter@pppl.gov. No experience necessary.

HOTLINE

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If You Show Them Science They Will Come



About 200 area female students, grades 7 through 12, came to PPPL March 14 for the Expand Your Horizons Young Women's Conference in Science, Math and Technology at PPPL.

The conference included talks by various women in the sciences, as well as exhibits and a lunchtime presentation by NASA Goddard Space Flight Center aerospace engineer Aprille Ericsson. In addition to NASA, other presenting and exhibiting organizations were the Fashion Institute of Technology, Bristol-Myers Squibb, the Delaware Valley Innovation Network, the Geophysical Fluid Dynamics Laboratory, Liberty Science Center, Princeton University, and PPPL. PPPL's Chris Ritter, Lena Scimeca, and Tiana Dodson organized the event, with many staff volunteers.

Above, Dodson (far left) talks about science and engineering to a group of young participants.

Below, PPPL environmental scientist Virginia Finley (far right) shows the girls water samples collected from the site. The samples include aquatic invertebrates, which are biological indicators of water quality. ●



Photo by Carol DeLooper

Chatting Up ITER

PPPL External Affairs Head John DeLooper (middle) helped operate the U.S. ITER exhibit February 15 through 17 at the American Association for the Advancement of Science meeting in Boston. At right is Carl Strawbridge, U.S. ITER Deputy Project Manager. ●

*** Transitions ***

Births



Nicholas was born May 24 to PPPL's Magdalena Liebnitz and her husband, Richard. ●



PPPL's Ewa Ciesla and her husband, Jerzy, welcomed son Adrian on December 20. ●