

HOTLINE

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

Fisch to Receive Maxwell Prize Next Month

PPPPL's Nathaniel Fisch has been named the 2005 recipient of the American Physical Society's James Clerk Maxwell Prize for Plasma Physics. The prize recognizes Fisch for his outstanding contributions to the field of plasma physics. It will be given at the APS-Division of Plasma Physics annual meeting in Denver this October. Fisch is cited "For theoretical development of efficient radio frequency-driven current in plasmas and for greatly expanding our ability to understand, to analyze, and to utilize wave-plasma interactions."



Nathaniel Fisch

"In many ways the research agenda of the last decade in fusion plasma physics has only been made possible by Nat's insights."

—Rob Goldston

decade in fusion plasma physics has only been made possible by Nat's insights."

Fisch is Professor of Astrophysical Sciences and Director of the Program in Plasma Physics at Princeton University. He also is an Associated Faculty in the Department of Mechanical and Aerospace Engineering. At PPPL, he is the Associate Director for Academic Affairs and the Head of the Laboratory's Hall Thruster Experiment. He studied electrical engineering and computer science at the Massachusetts Institute of Technology (MIT), where he was an MIT National Scholar. He received a B.S. degree in 1972, an M.S. degree in 1975, and a Ph.D. in 1978. He received an E.O. Lawrence Award in 2004, a Guggenheim Fellowship in 1985, the 1992 APS Award for Excellence in Plasma Physics, and a Department of Energy Bronze Medal for Outstanding Mentor 2002. Fisch is the author or co-author of more than 200 research papers and has been granted nine U.S. patents.

The James Clerk Maxwell Prize for Plasma Physics, presented annually, consists of \$5,000 and a certificate citing the contributions made by the recipient. It was established in 1975 by the Maxwell Technologies, Inc., in honor of Scottish physicist James Clerk Maxwell and is presently sponsored by General Atomics. The prize shall be for outstanding contributions to the advancement and diffusion of the knowledge of properties of highly ionized gases of natural or laboratory origin. The prize shall ordinarily be awarded to one person but a prize may be shared when all the recipients have contributed to the same accomplishments.

Past PPPL recipients of the Maxwell Prize include Russell Kulsrud in 1993, Harold Furth in 1983, Thomas Stix in 1980, and Lyman Spitzer in 1975. ●

New Ways to Drive Electric Current

He is being honored for his work in predicting new ways to drive electric current in hot, magnetized plasma by means of electromagnetic waves, and for his larger innovations in techniques to use radio frequency waves to interact with particles in plasmas. Plasma is a hot, ionized gas that serves as the fuel for nuclear fusion. The wave-induced currents predicted by Fisch can enable fusion reactors, called tokamaks, to operate continuously, which is necessary for an economical and practical fusion reactor. These currents are now being employed also to control the heat and particle transport in fusion devices around the world. In his recent research, Fisch is also exploring plasma-based methods of generating extreme laser intensities, plasma thrusters and related plasma devices, and new fusion concepts employing magnetically or inertially confined plasma.

PPPL Director Rob Goldston said, "Professor Fisch's work on radio frequency waves and their application to driving currents in plasmas has changed the face of international fusion research, making it possible to contemplate fusion systems that operate fully steadily, rather than in short pulses. In many ways the research agenda of the last

New Colloquium Committee Named at PPPL



The new PPPL Colloquium Committee members are, from left, Paul Henderson, Daren Stotler, and Eric Fredrickson.

The PPPL 2005-2006 Colloquium Committee includes Eric Fredrickson, Paul Henderson, and Daren Stotler. Please feel free to contact them either about possible speakers or topics for future colloquia. Fredrickson can be reached via e-mail at efredrickson@pppl.gov or by phone at ext. 2945, Henderson at phenderson@pppl.gov or ext. 2412, and Stotler at dstotler@pppl.gov or ext. 2063.

The colloquia are held on Wednesdays (unless otherwise noted) at 4:15 p.m. in the MBG Auditorium. Everyone is welcome. The first talk in this year's series, scheduled for September 14, is "Methane Hydrates: Energy Source for the Hydrogen Economy?" by Thomas Allen Gardner, Jr. (Tommy), Director of Science and Technology Advanced Programs at Raytheon Technical Services Company, LLC, in Reston, Virginia. ●



University League Nursery School to Hold Open House School Announces New "Blast preK" Science Program

University League Nursery School is hosting an Open House Wednesday, September 28, from 4 to 5 p.m. The school is at 171 Broadmead in Princeton. All interested families are invited to attend.

The school offers two, three and five-day morning programs on a cooperative basis for children two and a half years through four years old, as well as extended and full day non-cooperative care for children from three years through four years of age.

This year the school will incorporate the "Blast preK" program for early childhood science learning, recently developed and offered to pre-schools by Bristol-Myers Squibb. University League Nursery School Director Cindy Williams, extolling the program, says, "Children are natural

explorers and they come to us eager to learn more about their world. It is our job to facilitate their exploration and discovery." Teachers will apply "Blast preK" themes such as insects, the senses, and sound, to encourage young children's scientific learning through seeing, touching, and doing, while engaging the natural world around them.

University League Nursery School is accredited by the National Academy of Early Childhood Programs and is open from 8:30 a.m. to 6 p.m. Applications for the Fall of 2006 are taken from September 1st to January 15th. Oversubscription to programs is resolved by lottery. Later applications are taken by date of receipt. For more information, call (609) 924-3137. ●

Hotline

Editor/Writer:
Photographer:

Patti Wieser
Elle Starkman

Graphic Artist:
Layout:

Greg Czechowicz
Patti Wieser

The HOTLINE is issued by the Princeton Plasma Physics Laboratory, a research facility supported by the United States Department of Energy. It is primarily an internal publication. Correspondence and requests to reprint material should be directed to the Editor, PPPL HOTLINE, P.O. Box 451, Princeton, NJ 08543; Interoffice correspondence should be addressed to MS-38, LSB Bldg., C-Site; fax 609-243-2751; telephone 609-243-2757; e-mail pwieser@pppl.gov.

BLOOD DRIVE

SPONSORED BY
The American Red Cross & PPPL

DATE: Friday, October 7, 2005

HOURS: 8:00 AM to 2:00 PM

LOCATION: The American Red Cross Van will be parked in front of the LSB on the circular driveway.

For an appointment please call x3200.

BLOOD SUPPLY IS CRITICALLY LOW.

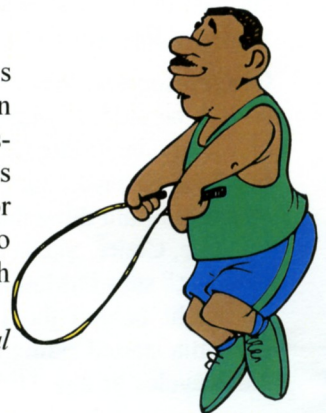
For more information please visit the American Red Cross website at:
<http://www.pleasegiveblood.org/>



Physical Fitness Expert to Speak at PPPL

If you want to enhance your athletic performance, focus on getting back into a fit lifestyle, or learn how to begin a fitness program, come to the MBG Auditorium on Thursday, September 15, at 11:30 a.m. Physical Therapist James McCracken is scheduled then to discuss goal setting for physical fitness, how to attain those goals, and what to do to get restarted if you hit a plateau. Take time out to refresh your physical fitness plan!

The talk is being presented by the Lab's Occupational Medicine Office. For more information call ext. 3200. ●





Name: Mike DiMattia

Position: Technician with responsibility for overseeing diagnostics building and maintenance, and the L-wing second floor machine shop.

Quote: The Lab's cool. I came here in 1977 right out of high school. I worked on PDX [Poloidal Divertor Experiment] first with Jim Sinnis and I also worked with Russ Apgar, who showed me about everything I know. Then I went to work on TFTR in Physics Operations with Rich Hawryluk. After that, I worked with Paul LaMarche in the vacuum prep lab. I spent most of my life at PPPL in operations until six years ago when I went to diagnostics, mostly for NSTX. [Sinnis is deceased; Apgar retired in 1984; Hawryluk is Deputy Director; and LaMarche is on main campus.]

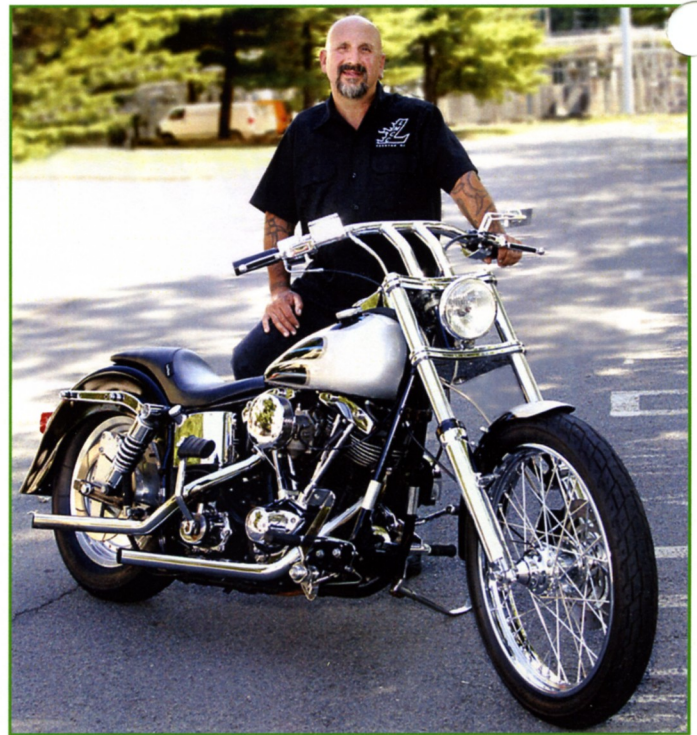
DiMattia works with physicists, engineers, postdocs, and summer students. With everyone, especially the students, he stresses safety and acts as a "watchdog" in the machine shop, where he enthusiastically chants the familiar mantra, "Safety first!"

DiMattia says he has watched many young researchers grow up here — "Rich Hawryluk was one of them." He remembers many of the directors, too, especially Mel Gottlieb, who told him he had once owned a Harley Davidson. "I like what I do here. I always have. I like what the Lab stands for. This science community is pretty cool. I've met people from all around the world and it's neat to hear about their lives and what they are doing."

A typical day for the technician is spent maintaining, modifying, and installing new diagnostics for NSTX, and keeping diagnostics running smoothly. DiMattia also works on projects around the Lab. He recently worked with PPPL physicist Stewart Zweben to build a small plasma lab for Goshen College. Now he is helping Andrew Post-Zwicker with Science Education Lab projects. "I started off in electrical, then moved to the machine shop, eventually picked up welding, and now am a technician. Early in my career here Jim Sinnis wrote my apprenticeship and I am a journeyman focusing on electronics and mechanical skills. I also came out with a two-year welding certificate from Mercer County Vo-Tech. Jim was like a father figure."

Other interests: While others might say he looks like he was born to be wild, DiMattia says at the top of his devotions is his family, including his wife, Claire, and daughter, Nicole, as well as parents, four brothers, and two sisters. "The single most important thing that ever happened to me was meeting my wife, Claire. She is my soul-mate and we do everything together," says DiMattia.

Right behind the family is his love of motorcycles. DiMattia started riding dirt bikes as a kid and graduated to motorcycles at age 11. Then he went through a period in



which he thought it was stupid to be a biker, "something I would never be." He came around in 1977 and now has six old school custom choppers, ranging from 1946 to 1996. (He is pictured above with his 1980 custom shovel-head bike.)

He's been fortunate to be able to combine both his passions — family and motorcycles — since his wife shares his enthusiasm for motorcycles and riding. The couple travels extensively around the country on a bike, including a yearly ride to Sturgis, South Dakota, for the annual motorcycle rally, and a trip to Alaska and across the Alaskan Highway where they ended up logging 9,800 miles round trip.

The DiMattias also enjoy their second home in Ocean City, Maryland, and being owners of a custom motorcycle building business, Little Mike Custom Cycle, Inc., in Hamilton. "Weekends are a trip. Many people come by and it's a social club," he says of his shop, where they do custom fabrication, performance, and maintenance of motorcycles. He and his wife, who works for the state, are at the shop on nights and weekends. Two other employees operate it during the week. "We've been successful, but it's tough having two full-time jobs."

The Hamilton Township native has always loved to build and dismantle things, at work and outside work. Says DiMattia, "I used to build model hot rods when I was a kid, and take them apart and put them back together."

At his shop, he and his staff can custom make things that have never been done before. "Thanks to the Lab, I've learned all about custom building. The Lab had a lot to do with pretty much all my successes. It gave me steady employment and education," said DiMattia. "Besides, it's cool. I'm pro-Lab. I like the joint." ●