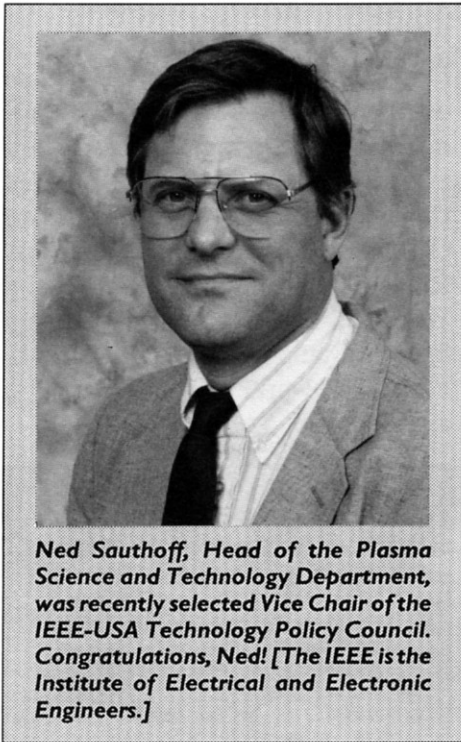


Hotline

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



Ned Sauthoff, Head of the Plasma Science and Technology Department, was recently selected Vice Chair of the IEEE-USA Technology Policy Council. Congratulations, Ned! [The IEEE is the Institute of Electrical and Electronic Engineers.]

Plasma Chemistry Comes to PPPL

by Anthony De Meo

Physicists at PPPL have entered a one-year Cooperative Research and Development Agreement (CRADA) to support the development of a novel technique for the conversion of toxic wastes and other materials to useful chemical products.

Working with Drexel University and Plasma Technology, Inc. (PTI), a small business in Santa Fe, New Mexico, PPPL researchers will apply their unique expertise in spec-

troscopic analysis of high-temperature plasmas to the emerging field of plasma chemistry. The CRADA will provide Princeton researchers with the opportunity to expand their present capabilities in the near ultraviolet and visible spectrum into the far infrared, a particularly useful frequency range for chemical analysis.

Technology Transfer Head Lewis Meixler said, "This collaboration with

Continued on page 4

DACW Plans Breakfast; Releases Survey Results

by Virginia Finley and Patti Wieser

Attention all PPPL women! You are invited to attend an informal breakfast meeting hosted by the Director's Advisory Committee on Women (DACW) on Thursday, February 22. The gathering, from 7:30-9 a.m. in the LOB Commons, gives female staffers a chance to become acquainted with their peers and the members of the DACW, as well as to express their concerns. The Council will join the group at 8:30 a.m.

The fare will include an informal breakfast, welcoming remarks from PPPL Director Ronald C. Davidson, and a short questionnaire.

At last year's DACW breakfast meeting, a survey was distributed to attendees to find out what issues are of concern to PPPL women. The survey was also e-mailed to all female employees. A total of 49 women responded. The responses are tabulated in the box on page 3. Not everyone who participated in the survey responded to all the questions.

Responses

Responses to the survey show that while the majority of respondents believe there is an increase in

overall career development training opportunities, they do not see an increase in career advancement and alternative career opportunities.

Survey responses also indicated a higher courtesy level at the Laboratory and an increase in networking and communications among women. In addition, the majority of those who responded to the question on sexual harassment behavior at the Lab believe it has decreased.

Besides the survey questions, many respondents offered additional

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DACW

Continued from page 1

comments, noting a need for respect and recognition of individuals, as well as for flexible work schedules that would include telecommuting.

As a result of the survey and the comments, the Laboratory began examining career development, employee recognition, and flexible work schedules. Steve Iverson, Head of the Office of Human Resources and Administration Department, addressed the issue of career development during a spring DACW meeting. Iverson outlined three activities presently in various stages of development. The first is a redesign of the secretarial and clerical position-ranking system. Iverson said he envisions the redesign to be the combined work of a group consisting of Human Resources staff, two members of the DACW, members of the Quality Improvement and Renewal Committee, Jim Graham, secretaries, and managers. The Laboratory hopes to move toward a job description and skill-based system as opposed to the system that ties secretaries to whom they report, said Iverson.

Model Succession Plan

The second activity is the development of a model succession plan for individuals in managerial positions, which has been completed. From this model, senior management and/or department heads develop

plans for individuals. Each individual's succession plan is a "how-to" guide to prepare that employee for a management position or to prepare a manager for greater responsibilities and possible promotion opportunities.

Potential Candidates

The third activity is the formation of a committee organized to identify minority and/or women employees as potential candidates for career opportunities at PPPL. The committee is a mixture of individuals, all who are long-time PPPL employees, and is limited to one member of the PPPL Council. The functions of the committee are to review candidates' backgrounds, including education, experience, and other credentials, and encourage them to apply for any posted position that matches their skills and the job requirements.

All these activities are tied to the funding climate at PPPL. In a "no growth" environment, the number of new positions is limited and career opportunities are less available. Nonetheless, changes to improve the career development program at PPPL are in progress.

The two remaining issues of concern—respect and/or recognition and flexible work schedules—are being addressed by the DACW. According to former DACW Chairperson Phyllis Schwarz, a DACW subcommittee worked with the Quality Im-

provement and Renewal Committee in the formation of the Employee Recognition Program, which was recently approved by Laboratory Director Ronald C. Davidson. The Lab plans to recognize several employees annually through the program. [An upcoming issue of **HOTLINE** will give details of the nascent program.]

Your comments, questions, and suggestions are welcome by the DACW and should be directed to one of the committee members. The committee includes Chairperson Sue Hill and members Dori Barnes, Virginia Finley, Sara Flohr, Suzanne Homer, Carol Phillips, Ellen Riscoe, Chris Ritter, Molly Tompkins, and Sharon Warkala. The ex officio members include Diane Carroll, Martha Redi, Phyllis Schwarz, Michael Williams, and Margaret Young. ●

Director's Advisory Committee on Women

Informal Breakfast

LOB Commons

Thursday, February 22

7:30-9 A.M.

All PPPL women invited

HOTLINE

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DACW Survey Results

1. Overall career development training opportunities have increased:

Strongly Agree	5
Agree	28
Disagree	8
Strongly Disagree	4
No Opinion	5

2. Supervisor support for overall career development training opportunities has increased:

Strongly Agree	6
Agree	22
Disagree	10
Strongly Disagree	4
No Opinion	7

3. Career development training opportunities related to your present position job skills have increased:

Strongly Agree	6
Agree	17
Disagree	17
Strongly Disagree	3
No Opinion	8

4. Supervisor support for training opportunities related to your present position job skill has increased:

Strongly Agree	9
Agree	19
Disagree	7
Strongly Disagree	4
No Opinion	9

5. Career advancement opportunities in your present position have increased:

Strongly Agree	2
Agree	10
Disagree	21
Strongly Disagree	14
No Opinion	5

6. Alternative career opportunities have increased:

Strongly Agree	1
Agree	9
Disagree	22
Strongly Disagree	12
No Opinion	6

7. Employee courtesy level at the Laboratory has improved:

Strongly Agree	0
Agree	23
Disagree	8
Strongly Disagree	5
No Opinion	13

8. Based on personal experience, sexual harassment behavior has decreased:

Strongly Agree	4
Agree	14
Disagree	3
Strongly Disagree	3
No Opinion	24

9. Supervisor approval for flexible work schedules has improved:

Strongly Agree	7
Agree	23
Disagree	6
Strongly Disagree	3
No Opinion	10

10. Networking opportunities for women have increased:

Strongly Agree	9
Agree	26
Disagree	3
Strongly Disagree	4
No Opinion	7

11. The 1994 Appraisal Form format is an improvement:

Strongly Agree	2
Agree	22
Disagree	4
Strongly Disagree	3
No Opinion	18

12. The Director's Advisory Committee on Women is adequately addressing the concerns of the women at the Laboratory:

Strongly Agree	3
Agree	13
Disagree	10
Strongly Disagree	2
No Opinion	13

13. Open information meetings are useful:

Strongly Agree	7
Agree	32
Disagree	0
Strongly Disagree	3
No Opinion	7

Lunch-hour career development forums:

Attended 2 or more	11
Attended 1	5
Plan to attend	21
Not interested	8
1/2 hr lunch (not enough time)	

I did not attend because:

Dislike discussion groups	1
Not interested in topics	11
Inconvenient time	17
Forgot	3
Not aware of forums	1

Chemistry

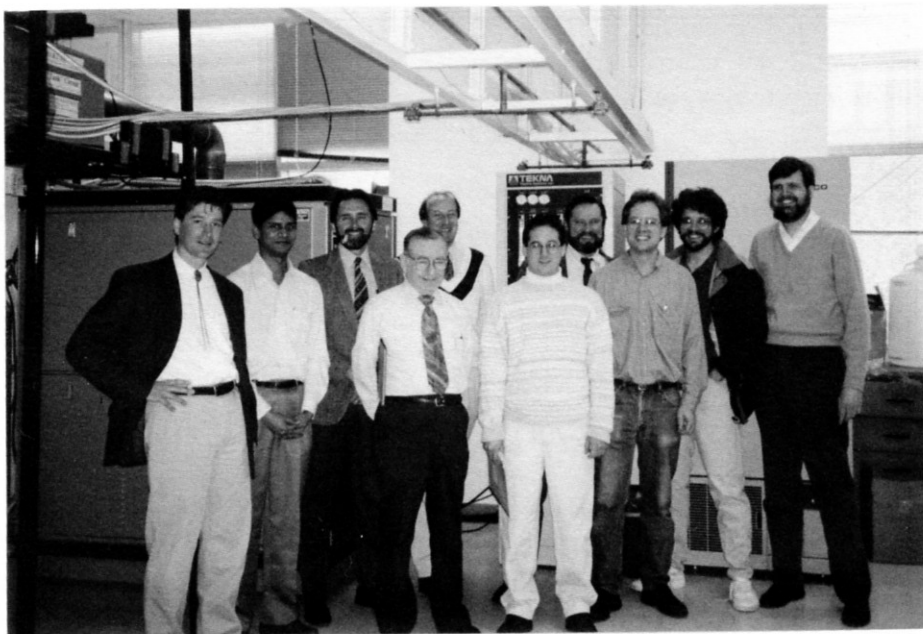
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Drexel University and Plasma Technology, Inc., has the potential to establish PPPL's credibility as a capable participant in the area of environmental monitoring and cleanup, as well as in the diagnostics of industrial plasmas. I hope these types of collaborations will be supported and extended so that PPPL can develop an array of capabilities in the non-fusion area, and thereby expand our scope of research and engineering opportunities."

Experimental work on the CRADA will be carried out at Drexel in Philadelphia using an off-the-shelf commercial torch from Tekna, a Canadian company. This device makes use of an induction-coupled plasma—one that is generated by the application of radio-frequency waves to a small volume of an inert gas such as argon. The gas is ionized and heated by an induced alternating current. The resulting plasma "torch" provides an excellent high-temperature medium in which complex molecules can be broken down into their constituent parts, including highly reactive free radicals. By selecting an appropriate working gas, an oxidizing or reducing environment can be created. This flexibility increases the variety and usefulness of the byproducts.

Useful Materials

This type of plasma reactor has been used to successfully demonstrate the conversion of hazardous complex wastes into useful materials such as "syngas," a mixture of carbon monoxide and hydrogen, and other materials that can be used either as fuels or precursors for chemical synthesis. Those studies were carried out using surrogate materials which are molecularly similar to the hazardous substances.



Members of the project team are, from left, Andreas Blutke, Sanjay Gupta, John Vavruska, El Grossmann, Rick Knight, Noel Silber, PPPL's Lewis Meixler, PPPL Project Co-Principal Investigator Brent Stratton, PPPL Post Doc Matt Goeckner, and PPPL Project Co-Principal Investigator David Mikkelsen.

In principle, specific chemical reactions will occur within the reactor depending upon the feed stock and temperature. The temperature of the plasma decreases gradually downstream away from the plasma source. By feeding materials into the reactor at different locations along the stream, researchers can select appropriate temperatures and cause desired reactions to predominate.

Next Phase

The next phase of the work, involving PPPL, will concentrate on the use of the system for the synthesis of ozone and the conversion of polymeric materials such as polystyrene, which are difficult to eliminate from the environment. Ozone is used commercially as a sterilization or bleaching agent, and it is believed that polystyrene can be converted to methane, which can be used as a fuel.

PPPL will perform spectroscopic diagnosis with the goals of identifying the species and concentrations of the chemicals present. These measurements will be modeled using a chemical kinetics code to identify the

key reaction pathways and to suggest possible means of improving the efficiency of the conversion process—an important step toward commercialization. Two spectroscopic techniques will be used: optical emission spectroscopy of the torch-feed gas interaction in the visible and near ultraviolet region of the spectrum (300-750 nm), and Fourier Transform infrared spectroscopy of the reactor region in the 2.5-25 μm spectral region.

PPPL is developing a capability for chemical kinetics modeling to support research on applications of low-temperature plasmas. This includes high-temperature neutral chemistry, as well as reactions with electrons and ionized species present in plasma regions.

Benchmark

The diagnostic measurements of chemical concentrations in the reactor region and the effluent will be used to benchmark the model. In turn, the model can be used to identify

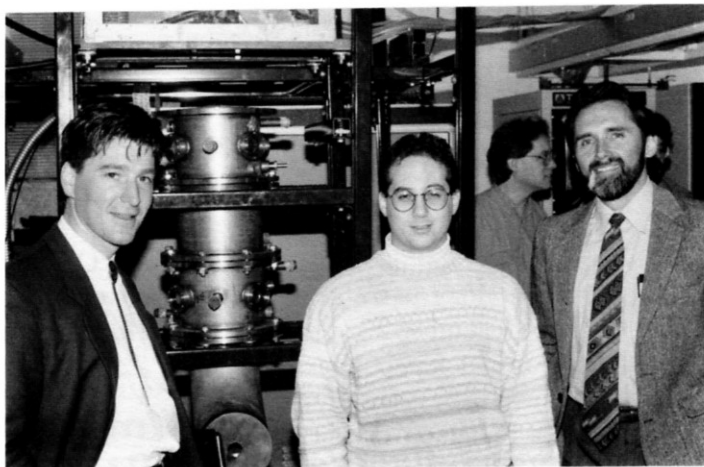
Continued on page 5

Chemistry

Continued from page 4

critical reaction mechanisms and select key species for observation. The ultimate goal of the modeling is to evaluate process modifications, e.g., altering the composition of the feed stock, which can move the chemical equilibrium away from undesirable byproducts and increase the yield of salable products. Overall, the project will also demonstrate the role that spectroscopic diagnostics and chemical kinetics modeling can play in understanding plasmas used for waste conversion and chemical synthesis.

David Mikkelsen, Co-Principal Investigator from PPPL on the project along with Brent Stratton, said, "We hope to use the experience gained on this project to win funding for plasma chemistry projects at PPPL in the future." ●



In front of the device at Drexel are Andreas Blutke, of Plasma Technology, Inc., Noel Silber, a graduate student at Drexel, and John Vavruska, of Plasma Technology, Inc.

Procurements and Quality Task Force

As indicated in an earlier Hotline, a cross-functional task force was created to review the quality program that supports procurements. The mission of the task force was to identify opportunities for improvement and to assure that the program supports the mission of the Laboratory. The task force consisted of Rich Borusovic, Jim Chrzanowski, Sally Connell, Ron Fredericks, Nevell Greenough, Henry Kugel, Judy Malsbury, Bob Simmons, Andy Vanisko, Mike Viola, and Sharon Warkala, with Frank Patrick of AT&T Quest as the facilitator. The Task Force recommended the following goals, which Quality Assurance is currently pursuing:

- 1. Assure quality issues are addressed in procurements through enhanced user understanding of those issues and providing resources to support them.*
- 2. Assure that supplier submittals and documentation adequately support the required quality of purchased products and services and provide a basis for historical reference by developing formal control systems for receipt, review and approval, and handling of deliverables and documents.*
- 3. Assure appropriate selection of and interaction with suppliers by establishing a system to maintain a history of supplier performance.*

A formal report was generated and is available for access on employees' WWW page within the Support Services, Quality Assurance area under the name "Procurements and Quality Task Force Report."

—Judy Malsbury

Contino Wins United Way Grand Prize

by Patti Wieser

Sometimes the gift of giving yields a little extra surprise for those who have been generous.

PPPL Training Specialist Anthony Contino found such a surprise when he returned home from his wife's office holiday party in New York City on December 22.

Blinking on his telephone answering machine was a message from co-worker Sonja Patterson that he had won the United Way Grand Prize — a \$300 gift certificate for travel arrangements.

New Orleans

"I was excited and so was my wife," said Contino, who works in the Office of Certification and Training. "We're going to use the prize to go to New Orleans."

Contino said he and his wife, Jeannine, plan to take the trip either in the spring or fall and look forward to great restaurants, great jazz, and good shopping.

"We can't find any decent red beans and rice in New Jersey so we have to go to New Orleans," said the

winner, adding that they will also shop for Mardi Gras masks and paintings of French Quarter street scenes.

In addition, the Continos plan to hook up with friends Contino made in New Orleans when he was an Ebasco employee involved in the Waterford Nuclear Plant in Louisiana.

"I'm truly grateful for the prize, but the biggest prize of all is the opportunity to help people through the United Way."

—Anthony Contino

Contino said he and his wife had earlier made preliminary plans to head south for vacation. "This works well. We were planning to go to New Orleans this year anyway, funding permitting. This prize will certainly help out."

Contino was among about 200 PPPL'ers who contributed to the cam-



PPPL United Way Campaign Chairperson Mary Ann Brown congratulates Grand Prize winner Anthony Contino.

paign and were automatically entered in the Grand Prize Drawing. The Grand Prize was drawn on Friday, December 22, during the free holiday lunch.

Contino beamed over his luck, but noted he has received a "double prize."

"I'm truly grateful for the prize, but the biggest prize of all is the opportunity to help people through the United Way," he said. ●

United Way Campaign Succeeds



The United Way Campaign at the Laboratory raised \$18,078, with more than 200 employees contributing. At left, United Way Committee member Sara Flohr hands John Luckie a jar of candy, one of the door prizes at the United Way meetings in December. Hats off to PPPL's spirit of generosity!

New Wetlands Signs Posted

by Joanne Savino

Have you taken an occasional walk around the site and enjoyed the wooded view along the CAS and RESA building? Perhaps as you strolled you noticed a few new signs posted along the wooded areas. They are wetland's protection signs that are posted to identify the wetlands and transition area.

Colorful Signs

The new, bright, colorful signs, containing pictures of wildlife, water fowl, marine life, and vegetation, replace the old brown signs. The new signs are along the border of the wetlands and transition zone and denote activities which are prohibited by the New Jersey Department of Environmental Protection. The wetlands and

transition area is protected from the following activities:

- Destruction of plant life including soil removal or dredging.
- Disturbance of the water level or water table including drainage.
- Dumping, discharging or filling with any materials.
- Erecting structures, paving, or placing of any types of obstruction.

These signs are a reminder that the wetlands are an important part of the environment, and that only we can preserve them for future genera-



From left are Joanne Savino and Virginia Finley next to the new wetlands sign.

tions. For a copy of the site plan depicting the wetlands, please call Joanne Savino at ext. 2622. Any questions about the wetlands and transition area can be directed to Virginia Finley at ext. 2746. ●

What are Wetlands?

Wetlands are defined as areas that maintain a soil type and seasonal water level in order to support vegetation adapted to life in saturated soil conditions. Examples of wetlands include, but are not limited to, marshes, swamps, and bogs.

Across the U.S.

Wetlands are found across the United States in places such as the Dakotas, where prairie potholes measuring less than a quarter acre are found, to the east coast where expansive salt marshes line the coast for miles, and the Florida Everglades (one of the most well-known examples of wetlands). Until recently, most wetlands were not seen as a treasure worth preserving.

Historically, wetlands were seen as a nuisance and land owners were encouraged to drain or fill them in

order to yield more productive soil. The public's attitude toward wetlands has recently changed due to ecological studies, education, and public awareness.

Today, wetlands are recognized for the important role they play in the overall environment of humankind. Some of the benefits provided by wetlands are:

- Restoration of water quality by functioning as a filter for removing toxic wastes, sediments, and other pollutants (such as greenhouse gases).
- Prevention of flooding by storing water and then releasing it slowly downstream.
- Serving as a buffer for the shoreline against erosion.

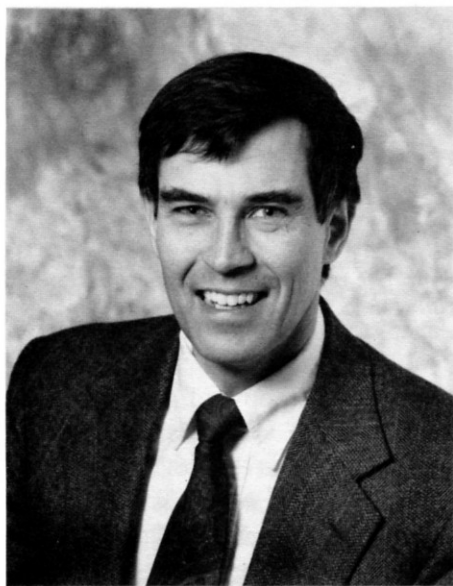
Three quarters of North America's bird species depend on wetlands for breeding, nesting, feeding, and escaping predators. The wetlands are also among the most biologically productive ecosystems. Two thirds of the commercial fish and shellfish harvest depend on wetlands during all or part of their life cycles.

Treasure of Gifts

Where else could you find such a treasure of gifts? The wetlands provide food, shelter, erosion and flood protection, clean air and water, along with beautiful wildlife and plant life to enjoy. Everyone benefits from preserving the wetlands. The wetlands must be protected so they may be enjoyed for generations to come.

—Joanne Savino

What's Happening at PPPL



PPPL Assistant Director Rush Holt is taking a leave of absence beginning this month to run for the seat in the 12th Congressional District, which includes parts of Monmouth, Middlesex, Mercer, Somerset, and Hunterdon Counties. PPPL'ers who wish to reach him can call (609) 737-2343 or write to him at P.O. Box 782, Pennington, NJ 08534.



Frank Malinowski and Judy Malsbury recently earned the Certified Quality Manager certification from the American Society for Quality Control. Malinowski and Malsbury were part of a group who took the first official test for the new ASQC certification package.

TRANSITIONS

Births

Congratulations to **Alan Bara** of the Facilities and Engineering Division, and his wife, Lisa, on the December 12 birth of their son, Shaun Michael.

Congratulations to **John Luckie** of the Warehouse/Materiel Control Division and his wife, Kathleen, on the November 29 birth of their daughter, Colleen Bridget.

Retirements

Ronald J. Alton, a principal engineer in the Engineering and Technology Development Department, retired on October 1 after 11 years of service.

Richard Salm, a technical assistant for the TFTR Project, retired on September 1. Salm had been at PPPL for 18 years.

Harry Smith, a mechanical engineer in the Engineering and Technology Development Department, retired on October 1. He had worked at PPPL for 35 years.



A group of PPPL'ers who are retiring to move on to new challenges were honored last month during a reception in the LOB Commons. The honorees, from left, are Al Malone, Dick Newman, Pat Newman, Mike Candelori, Nick Dereka, Frank Holloway, Russ Wester, John Timberlake, George Bronner, Bob Gulay, Mike Capone, Bill Perseley, Ken Quadland, Bob Hoch, and Tom Lupich. Combined, they represent 367 years of service at the Laboratory. Good luck in your new pursuits!

It's not too late to sign up as a volunteer at the New Jersey Regional Competition of the National Science Bowl®, which will be held at PPPL on Saturday, February 24. If you can help, call Pam Lucas at ext. 3049.