

Kessel Cited for Fusion Engineering Work

Cited for his "outstanding technical accomplishment and leadership potential in the field of fusion engineering," Charles Kessel, Jr., a Project Scientist at PPPL, has received the 1994 Excellence in Fusion Engineering Award. The award, which recognizes recipients early in their careers, was given by Fusion Power Associates during the group's symposium on September 8, in La Jolla, California.

Kessel, who received a Ph.D. in Fusion Engineering and Applied Plasma Physics from the University of California at Los Angeles (UCLA) in 1987, is currently working on the design and computational analysis of the Tokamak Physics Experiment (TPX) at PPPL.



Charles Kessel, Jr.

Said PPPL Director Ronald Davidson, "Kessel's work on TPX is at the cutting edge of fusion engineering design. His well-deserved receipt of this prestigious award brings distinction to the TPX Project and PPPL."

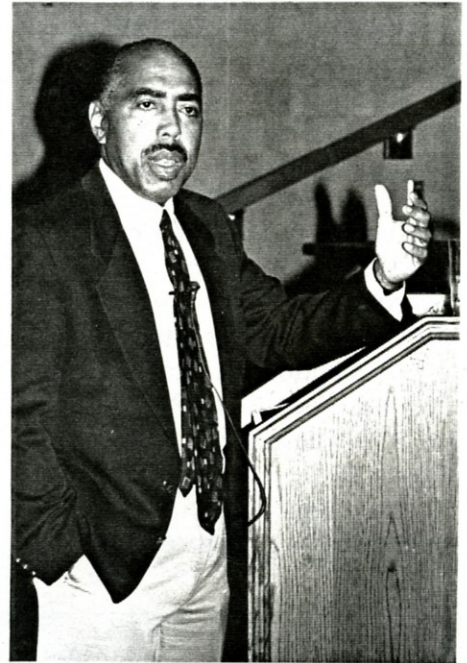
Benchmarks

In his nomination letter to the awards committee, PPPL Head of Engineering and Technology Development Michael Williams said, "Dr. Kessel's engineering analyses have rapidly become benchmarks for advanced tokamak design, especially in the areas of plasma equilibrium and stability ... We at PPPL are proud of Dr. Kessel's contributions to fusion engineering."

Kessel's main contributions to fusion have been in the area of application of theoretical codes to tokamak design, including key contributions to the Advanced Reactor Innovation Evaluation Study at UCLA, TPX, PULSAR (a study project for advanced fusion power reactors operating in "pulsed" modes), and Princeton Spherical Torus designs. He has also been involved in the ASDEX-U, an experiment at Garching in Germany.

Commenting on receiving the award, Kessel said, "I'm very happy to be given this award and to have

Continued on page 2



Walter Massey

Massey Gives Ellis Lecture

Despite "depressing" statistics on the numbers of African Americans earning PhDs in science, the gradual increase of African-American scientists during the past century signals hope, said University of California Provost Walter Massey. Massey addressed about 100 at the Lab on September 12 during the fifth Robert A. Ellis, Jr., Memorial Lecture.

"Progress is being made slowly but we are making advances in attracting underrepresented groups in science and engineering," said Massey, who is also Senior Vice

Continued on page 2

Kessel

Continued from page 1

co-workers recognize my work, which is the best honor of all. I especially attribute receiving the award to being able to work with outstanding scientists who make coming to the Lab everyday enjoyable."

Kessel, who was one of two to receive the award this year, was given a plaque and a check for \$500. He is the third PPPL employee to receive the award. The other two are Wayne Reiersen, who was awarded in 1990, and Michael Ulrickson, who was cited in 1988.

A reception in honor of Kessel, who has been at PPPL for seven years, was held at the Laboratory on Friday, September 16.

The "Excellence in Fusion Engineering" awards were established

in 1987 to honor the memory of Massachusetts Institute of Technology Professor David J. Rose. Their purpose is to recognize individuals

"Kessel's work on TPX is at the cutting edge of fusion engineering design. His well-deserved receipt of this prestigious award brings distinction to the TPX Project and PPPL."

—Ronald Davidson

early in their careers who have shown outstanding technical accomplishment, as well as leadership potential in the field of fusion engineering.●

Massey

Continued from page 1

President for Academic Affairs at the University of California.

During his lecture titled, "From Bouchet to Ellis: 100 Years of Blacks in Physics," Massey unfolded details of Edward A. Bouchet's and Robert A. Ellis's lives. "Bouchet was the first black to receive a PhD from an American university. He received it in physics from Yale in 1876," said Massey. And 79 years later — in 1955 — Robert Ellis, Jr., received his PhD in physics.

"I do not have a figure on this point but I would bet that Bob Ellis was not the 79th black to be awarded a PhD in physics from an American university over those 79 years ... I'm fairly certain that the number of PhDs in physics received by blacks from 1876 to 1955 did not average one per year," the guest lecturer said.

Fascinating Man

Describing Bouchet as a "fascinating man" who received his degree just after the Civil War, Massey noted that Bouchet's professional career of 42 years spanned a time when American science was blossoming — a time when the prospects of an American scientist were probably at a high point in American history. Employment opportunities for scientists were in-

Continued on page 3

PPPL Recipients of Fusion Power Associates Awards

Leadership Awards

1982 Harold Furth
1986 Ronald Davidson

Distinguished Career Awards

1987 Melvin Gottlieb
Lyman Spitzer, Jr.
1989 Donald Grove

Excellence in Engineering Awards

1988 Michael Ulrickson
1990 Wayne Reiersen
1994 Charles Kessel, Jr.

Special Awards

1981 Edward Frieman

HOTLINE

Editor: Carol Phillips
Writer: Patti Wieser
Layout: Patti Wieser

Photography: Dietmar Krause
Reproduction: Teri Daynorowicz

The PPPL HOTLINE is issued by the Princeton University 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; fax 609-243-2751 or telephone 609-243-2754; Interoffice correspondence should be addressed to Room B366, LOB Bldg., C-Site.

Massey

Continued from page 2

creasing due to the growth in the number of colleges and universities, which totaled about 400. There were also more than 140 observatories in the U.S., and the federal government was increasing its investment in the funding of scientific endeavors.

"From this perspective, one might think that a young man with a PhD from Yale would have a number of employment opportunities, but it turned out not to be so," said Massey. "Bouchet was not able to obtain a teaching position at any university. He spent most of his career teaching at the high school level."

He added that Bouchet was unusual, not just in being black, but because he was one of the few scientists who did not come from the upper strata of society that was comprised almost entirely of white, Anglo-Saxon Protestants.

While noting that much has changed in the United States since Bouchet's time, particularly in phys-

Lecture in Memory of Robert Ellis, Jr.

The Robert A. Ellis, Jr., Memorial Lecture honors Bob Ellis, one of the pioneers of magnetic fusion research. In 1956, Ellis came to PPPL, then called Project Matterhorn, to begin work in plasma physics. He was head of the Experimental Projects Division at PPPL, a member of the Laboratory Council, and a Councilor-at-Large of the American Physical Society at the time of his death in 1989. During his career, Dr. Ellis served in many capacities related to fusion research, both nationally and internationally. Walter Massey was the fifth speaker for the annual lecture series at PPPL. Other speakers were William Happer, Roald Z. Sagdeev, Carl Spight, and James Van Allen.



Bob Ellis, Jr.

ics and science, some things have not changed as much as they should have, said Massey. He said the makeup of American scientists is now more varied than when Bouchet and Ellis received their PhDs.

"No longer are they only white, Anglo-Saxon Protestants. Now scientists in America come from all ethnic groups — Jewish, East-European, [and] increasingly Asian-American, Hispanic, and African-

American. In fact, the first three groups — Jewish, East-Europeans, and Asian-Americans — have done more than any other to make American science and especially physics as preeminent as it is today. Women have also become an increasingly important part of the scientific community," said Massey, who is a former director of the National Science Foundation.

Growth of Science

"What has not changed enough since Bouchet's time is the number of blacks practicing science at the PhD level," he continued. The period when Bob Ellis began his professional career marked the greatest growth of science in the history of civilization. According to estimates, half the people who have ever practiced science in the history of the world are now living. Yet African Americans still constitute just 3 percent of all working scientists and engineers in the United States at all degree levels, said Massey. Most PhDs earned by African-American scholars are in education and the social sciences.



Members of the Robert Ellis, Jr., family gathered at the Laboratory to attend the fifth lecture in the series honoring the late Dr. Ellis. From left are PPPL Director Ronald Davidson, Lisa King, PPPL physicist Robert Ellis, III, Victoria Ellis, the widow of Dr. Ellis, and speaker Dr. Walter Massey.

Continued on page 4

Massey

Continued from page 3

The speaker said that according to a recent newsletter issued by the National Association of State Colleges and State Universities and Land-grant Colleges, the number of African Americans earning PhDs in science and engineering between 1980 and 1990 dropped by more than 4 percent. Between 1991 and 1992, the number declined further, even though it increased for every other ethnic group. Quoting the newsletter that compiled the numbers, he said, "These statistics are depressing."

Eight per Year

Massey added that only 12 of the 1,300 physicists awarded PhDs in 1988 were black. From 1980 to 1988, seventy-two — an average of eight per year — black Americans were awarded PhDs in physics. Massey noted that two schools during that time were particularly successful in recruiting blacks in physics. Fourteen of the 72 PhDs came from Stanford and nine from the Massachusetts Institute of Technology (MIT). From 1987 to 1991, thirty-two PhDs were awarded to black physicists, including seven from Stanford, five from MIT, and five from all of the nine campuses of the University of California.

"What message should we draw?" asked Massey. "One that I draw from them is a positive one. Some schools have found a way to recruit, educate, and graduate blacks in the field of physics. Two that have been the most successful — Stanford and MIT — have two of the very best physics departments in the country."

The speaker estimated there are about 250-300 black physicists with PhDs in the U.S., twice as many with PhDs in chemistry, and at least

three times as many with PhDs in the biological sciences. "Although these numbers are still small in a relative sense, they are a firm indication that under the right circumstances, and [with] the right support and the right environment, institutions can produce black PhDs in scientific disciplines," said Massey. "The numbers are increasing slowly but the number of Hispanics, blacks, and women have increased."

"Individuals from all groups should be given the opportunity to participate in what is surely one of the most exciting human endeavors of our time — the understanding of the physical universe,"

—Dr. Walter Massey

He added that his optimism, however, is tempered by the difficult future facing the American research university. "Just when we may have learned how to bring these underrepresented groups into our fields, the opportunity for supporting them and the opportunity of employment may have decreased," said Massey, who was Director of the Argonne National Laboratory from 1979 to 1984.

Models

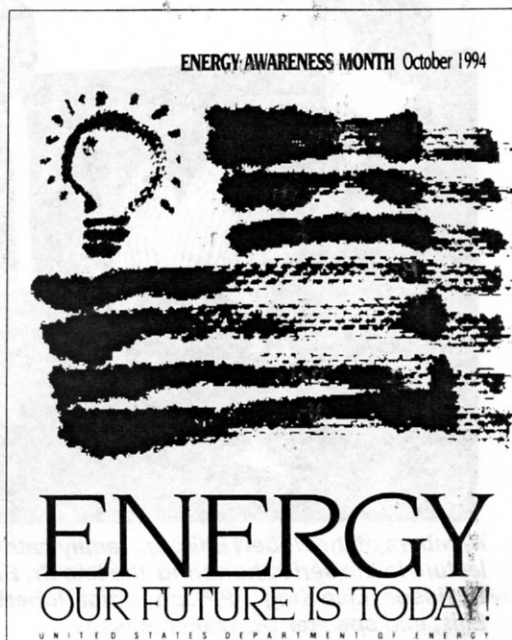
Even though American universities have been models for the rest of the world by integrating the functions of teaching, research, and service, many of the fundamental values that have led to their success are being called into question, he said. Federal agencies, scholars, and elected officials are asking whether there should be a new

model for the federal government to support research, Massey said. In addition, some people question whether there are too many research universities for the amount of federal funding available and too many researchers.

While he believes there are not too many research institutions or researchers, Massey conceded that universities have not brought enough underrepresented groups to the ranks of faculty, which should be a high priority.

Opportunity to Develop

"All individuals, especially in a democratic society, should have an opportunity to develop their intellectual potential to the fullest in all areas. Individuals from all groups should be given the opportunity to participate in what is surely one of the most exciting human endeavors of our time — the understanding of the physical universe," said Massey, adding that scientific enterprise has been increased by having a broader mix of individuals. "Certainly science would not be the same today if it were only practiced by white, male, Anglo-Saxon Protestants."●



Minority Business Breakfast at Lab Draws Crowd

About sixty-five representatives from small disadvantaged and women-owned businesses across the eastern seaboard attended a "procurement breakfast" at PPPL on Tuesday, September 13. The breakfast, which included presentations, networking meetings, and Laboratory tours, was jointly hosted by PPPL and the International Minority Business Corporation (IMBC). It was the Lab's first time to co-host such a breakfast.

The four-hour meeting gave small disadvantaged and women-owned businesses an introduction to PPPL and also provided Laboratory staff the opportunity to meet representatives of qualified businesses. Following presentations, which featured remarks by PPPL Deputy Director Dale Meade, Department of Energy Princeton Area Office Manager Milton Johnson, and Rodney Templon of PPPL's Procurement Division, business representatives met individually with Lab staff to discuss methods and opportunities for contracting work with PPPL.

Said Templon, "This breakfast meeting benefited the businesses that participated and the Laboratory. At PPPL, we are especially hopeful that it will increase our opportunities for doing business with small disadvantaged and women-owned businesses."

Added IMBC Executive Vice President Gregory Trent, "IMBC is very pleased by the turnout at the Laboratory and by the participation of PPPL and the Department of Energy in creating these opportunities for the minority and women-owned businesses that we represent. We hope to be working with the Laboratory in the future to expand on the process that was begun today."●



Richard Daugert (far left) leads a tour group during the breakfast meeting for small, disadvantaged and women-owned businesses.

In Memory

The Laboratory flag was flown at half-staff on September 14 in memory of the Department of Energy employees who died in the recent USAir crash in Pittsburgh. **Nine Fossil Energy employees** who had worked in the Pittsburgh and Morgantown Energy Technology Centers died. Both centers have established memorial funds. Contributions can be sent to the "METC Memorial Fund," c/o JoEllen Gibson, MS A-03, Morgantown Energy Technology Center, U.S. Department of Energy, 3610 Collins Ferry Road, P.O. Box 880, Morgantown, WV 26507-0880 or to the "PETC Memorial Fund," c/o John Ruether, MS 920-L, Pittsburgh Energy Technology Center, U.S. Department of Energy, P.O. Box 10940, Pittsburgh, PA 15236-0940.

Former PPPL employee **James A. Ives** died on September 13. Ives, a longtime Princeton University employee, was a member of PPPL's Health Physics staff from 1981 to 1984.

William T. Thomas, a consultant in PPPL's Environment, Safety and Health Division since 1988, died on September 5.

Thank You

Thank you very much for your tribute to the late Elinor Yoshikawa and the sympathy shown to her husband and her family. She was a great lady. She was helped by her friends and served her friends in return.

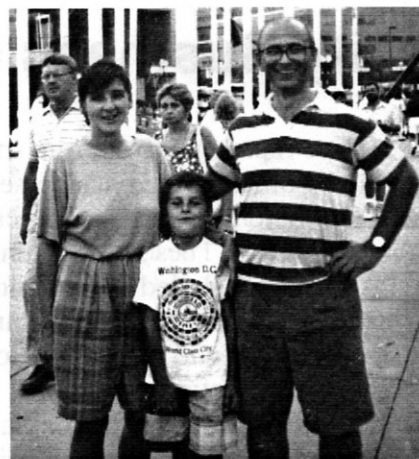
—Elinor Yoshikawa's Family

PPPL'ers Visit Baltimore

All photos courtesy of Angelo Candelori and Hank Moreau



Lab staffers, family, and friends who participated in the recent PPPL Bus Trip to the Baltimore Inner Harbor posed for a group photo outside the Baltimore Maritime Museum.



The Leonid Zakharov family.



From left are PPPL'ers Charlene Totaro and Joanne Bianco.



From left are Valentina and Hank Moreau, Frank Tulipano, and Richard and Marsha Bodinizzo next to "The Big Crab."



From left are John and Sandy Mazzella and Norma and Bob Biache.



From left are Betty Carey, Valentina Moreau, Marsha Bodinizzo, Dianne Intoccia, and Eleanor Schmitt.



From left are Hank and Valentina Moreau, Marsha and Richard Bodinizzo, and Frank and Vinnie Tulipano.