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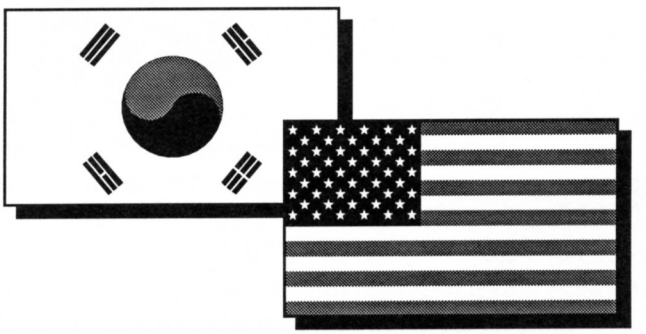
Hotline

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

PPPL Collaborates with Korea on Fusion Energy Research

Through a collaborative research agreement signed this month, PPPL is receiving $540,000 from the Korea Basic Science Institute (KBSI) to assist in the planning and design for the Korean Superconducting Tokamak Advanced Research (KSTAR) facility to be constructed in Korea.

"This collaboration combines the expertise of U.S. fusion researchers with Korea's quest for a world-class fusion research facility during the next decade," said PPPL Director Ronald C. Davidson.



Expanding Partnership

Officials from PPPL, Princeton University, and KBSI recently inked the pact, which falls under an umbrella agreement signed last month by U.S. Secretary of Energy Hazel O'Leary and Korean Minister of Science and Technology Dr. KunMo Chung. The umbrella agreement is for expanding a partnership in nuclear energy and fusion energy research between the U.S. Department of Energy and the Korean Ministry of Science and Technology.

Through the Princeton-KBSI collaboration, a team of Korean physicists and engineers from the KSTAR Project will come to PPPL to work closely with a U.S. team comprised of scientists who formerly developed the design for the canceled Tokamak Physics Experiment (TPX) Project. The KSTAR is a research program for the construction and operation of a tokamak with superconducting magnets. It is presently being organized by the KBSI in Taejeon sciencetown as part of a plan to become the leader in fusion science and technology in Korea.

The TPX Project was designed to be a superconducting advanced tokamak and had characteristics similar to those envisioned for the KSTAR. The TPX was a national research project funded by the Department of Energy that was to be sited at PPPL with participants from many of the U.S. plasma physics research laboratories, universities, and industrial firms. It was canceled last year due to a 32% cut in funding for magnetic fusion research in the United States.

Exchanges of Scientists

The U.S. team involved in the collaboration with Korea will include researchers from PPPL, the Lawrence Livermore National Laboratory and General Atomics Corporation in California, the Oak Ridge National Laboratory in Tennessee, and the Massachusetts Institute of Technology. Collaborative research activities on plasma physics and fusion science between the national team at PPPL and KBSI are expected to include exchanges of scientists and engineers, as well as of ideas and information. PPPL's contribution would be to provide the physics and engineering expertise and design information that was developed as part of the TPX design activity.

In July, four researchers from the Korean institute are scheduled to begin working with the U.S. national team at PPPL. The Princeton activity will complement design and research and development tasks being carried out as part of the project in Korea. Up to nine Korean researchers are ex-

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Collaboration

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pected to join the team at PPPL by the end of 1996. During the next six months, the collaborating group plans to advance the conceptual design of the Korean tokamak and to help develop Korean expertise in tokamak design and technology. The U.S. team will be based at PPPL under the direction of John Schmidt, Advanced Project Department Head and former TPX Project Director. The collaboration is expected to extend beyond 1996 as the project proceeds, and should continue into operation of the KSTAR tokamak.

Korea anticipates the KSTAR tokamak to produce its first plasma in 2002 — specifically on August 15 of that year — to coincide with Korea's Independence Day and with the year that the World Cup Soccer Match, co-hosted by Korea and Japan, is to be held for the first time in Asia. ●

Members of the former TPX team who will be working with Korean scientists on the KSTAR project are, from left (seated), James Sinnis and Wayne Reiersen and (standing) Robert Simmons and John Schmidt. Not pictured is G.H. Nielson.

PPPL Papers Selected for 1996 IAEA Conference

The Laboratory fared exceptionally well in the selection of papers by the International Atomic Energy Agency (IAEA) Technical Program Committee to be presented at the upcoming October 1996 Plasma Physics and Controlled Nuclear Fusion Conference in Montreal, Canada. The meeting is held every two years and is considered to be the most important international conference in this field.

The overview paper, "Physics of High-Performance Deuterium-Tritium Plasmas in TFTR," was chosen as the first technical paper to be presented at the conference — a position of honor and prominence accorded by the international fusion community to the TFTR project for the third time in the last four meetings. In addition, there were eight TFTR papers and two basic plasma experimental papers selected for oral presentation — a large number from a single institution. PPPL Theory Division had five oral papers (including two among the TFTR papers) chosen. This was the largest number by far of any institution in the world. ●

HOTLINE

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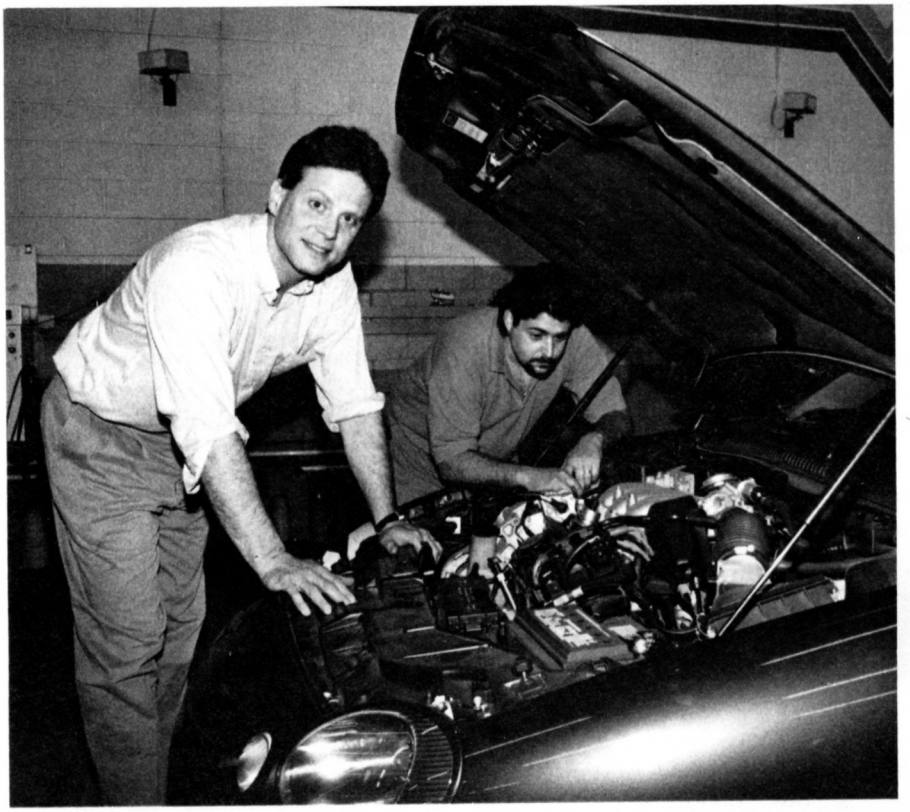
What's Happening at PPPL

Photo by Denise Applewhite



PPPL research physicist Stephen Paul recently developed an alternative fuel for motor vehicles that emits hydrocarbons and carbon monoxide at a level two to three times lower than conventional gasoline. The fuel is a blend of hydrocarbons but contains no petroleum products. The feedstocks consist of a combination of industrial, agricultural, municipal, and consumer waste products. Paul (left) conducts emissions tests on his car as it runs on the alternative fuel. Next to Paul is Robert DePalma of Compliance and Research Services, an Environmental Protection Agency-recognized emissions testing laboratory in Linden, NJ. Paul has used what he refers to as the "Princeton fuel" in a 1996 Ford Taurus flexible fuel vehicle, which is capable of running on both gasoline and ethanol-based fuels. He has put about 6,000 miles on the car since January and has just completed a seven-week program of emissions testing. On July 8, Paul and another PPPL employee, Jack Mount, will be conducting track tests at the Old Bridge Township race track. Princeton University, which has filed for a patent on the fuel, signed a licensing agreement with Pure Energy Corporation (PEC), of California, in May. The agreement names PEC as the exclusive, world-wide licensee to patents and/ or applications comprising the Patent Rights relating to the alternative fuel.

Farewell Wishes

Ginny Zelenak, of the Computer Division, is retiring. Her last full day at the Laboratory is July 23. If you would like to say goodbye and wish her well, please do so before the 23rd. Best of luck on your retirement, Ginny!

Engineering and Technology Development Department Head Michael Williams (left) congratulates Lewis Meixler on receiving a plaque from the Northeast Region of the Federal Laboratory Consortium. Meixler, PPPL's Technology Transfer Office Head, was cited for "significant contribution to the Region's Technology Transfer Effort."

Happy July 4th!