

## DOE Notes

### 22 Universities Receive Research Instrumentation Awards

Twenty-two universities in 19 states will receive awards totaling \$4.8 million to purchase "big ticket" state-of-the-art scientific instruments to help carry out DOE-sponsored, energy-related research. Awarded under the Department of Energy's University Research Instrumentation Program, the grants are part of an interagency effort to help alleviate a shortage of research equipment in universities.

Awards were made in the following categories: bioconversion, biomedical and environmental research, geosciences, nuclear physics, and photochemistry. A list of the universities receiving awards, the names of the principal investigators, types of instruments funded, and amounts of the awards is available from: U.S. Department of Energy, Office of the Press Secretary, Washington, DC 20585; (202) 586-5806.

### Six Contracts Added to Fuel Cell Program

DOE is awarding nearly \$2 million to six companies to research improvements to the fuel cell. The two-year contracts are intended to explore new techniques for using coal-based gases to run the battery-like devices, while also making them more reliable, cheaper to fabricate, and more durable. Contract recipients include: Westinghouse Electric, Pittsburgh, Pennsylvania (\$450,000); Ceramtec, Salt Lake City, Utah (\$440,000); Garrett Airesearch, Torrance, California (\$388,000); Institute of Gas Technology (IGT), Chicago, Illinois (\$200,000); Texas A&M Research Foundation, College Station, Texas (\$200,000); and Giner, Inc., Waltham, Massachusetts (\$200,000).

The contracts fall into three categories of research based on the type of electrolyte in the fuel cell. Giner, Inc. will work on the phosphoric acid fuel cell, which is closest to commercial reality. The company will concentrate primarily on making and testing a new anode material that can tolerate coal gas contaminants, such as carbon monoxide and sulfur.

Westinghouse, Ceramtec, and Garrett will focus on the solid oxide fuel cell, a higher temperature, longer range, ceramic-based concept. Westinghouse will investigate a technique to improve fabrication of the tubular version of the solid oxide fuel cell, in which the electrolyte and interconnecting materials are deposited by a plasma arc spray. Ceramtec will look at another fuel cell configuration in which the

individual cells are flat. Garrett will study a monolithic fuel cell configuration, in which many cells are linked in a manner resembling a stack of corrugated cardboard.

IGT and Texas A&M will look at more advanced concepts termed "solid-state, proton-conducting fuel cells." IGT will look at potentially less costly crystalline forms of proton-conducting electrolytes known as perovskites. Texas A&M will make and test solid electrolytes made of long chain polymers.

### 14 Universities Receive Nuclear Engineering Research Awards

As part of a new program to advance the state-of-the-art in nuclear and applied nuclear science, DOE awarded 17 nuclear engineering research grants to universities in 13 states. The award amounts totaled \$2.1 million and ranged in size from \$37,000 to \$244,000 each.

Sponsored by DOE's Office of Energy Research, the grants cover such fields as nuclear materials, nuclear reactor operations, neutronics, nuclear thermal hydraulics, real-time instrumentation, advanced reactor concepts, applied nuclear science, and nuclear thermal hydraulics. A list of the research recipients, schools, and project titles is available from the U.S. Department of Energy, Office of the Press Secretary, Washington, DC 20585; (202) 586-5806.

## NSF Notes

### Four New University Computer Research Facilities Funded

The National Science Foundation recently announced five-year awards to establish new computer research facilities at four universities: Brown University in Providence, Rhode Island; University of California in Berkeley, California; University of Illinois at Urbana, Illinois; and the University of North Carolina at Chapel Hill, North Carolina. The four NSF awards will total more than \$11,700,000 at the end of the five-year funding program. Funded through the NSF's Computer and Information Science and Engineering (CISE) Institutional Infrastructure program, the awards are intended to stimulate research in computers and computation; information, robotics, and intelligent systems; microelectronics and information processing systems; networks and communications; and advanced scientific computing.

Brown University will develop a coordinated set of software tools to simplify complex design problems, such as the development of future computing systems. Initial applications will be in the de-

velopment of VLSI circuits.

The University of California will conduct research in the development of computers that solve problems involving massive amounts of information, stored in both high-speed memory and slower magnetic and optical disk media. The facility will be used for research in artificial intelligence, text processing, programming systems, graphics, computer vision, and scientific processing.

The University of Illinois will develop a parallel-processing research laboratory where scientists can use computers in tandem for more powerful problem solving. Called "tapestry," this combined system will initially be applied in the areas of computer vision and graphics, and differential equations.

The University of North Carolina will develop a "portable" capability to build prototypes of complete computing systems, including computer chips, system architecture, operating systems, compilers, applications software, and user interfaces.

### 20 Awards Announced in New Chemistry Postdoctoral Fellowships Program

Twenty young chemists will receive the first awards through a new NSF program for Postdoctoral Research Fellowships in Chemistry. The program was created to attract outstanding young chemists to careers in research and teaching, enhance their education, and ease their entry into the field. The program encourages recent doctorates to broaden their expertise through further research in areas of contemporary chemistry unrelated to their doctoral studies.

The awards include: a \$26,000 annual stipend, a \$4,000 annual allowance for research-related expenses, and a \$2,000 institutional allowance. In addition, following the one- or two-year term of the fellowship, up to \$32,000 will be made available from NSF for one-year matching grants to those who accept tenure-track positions at U.S. colleges and universities. NSF will match university funds on a one-to-two basis.

This NSF program will continue in 1989, and it is anticipated that 30 new awards will be announced in March. Doctoral candidates completing their requirements between June 1, 1988 and September 30, 1989 are eligible. The application deadline is **December 15, 1988**.

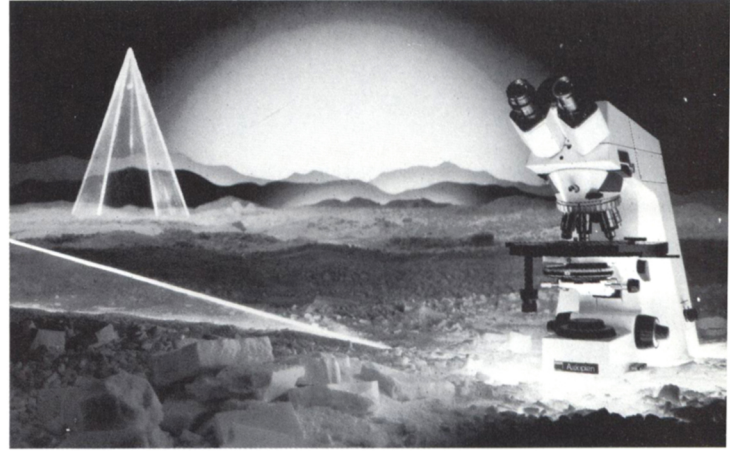
Applications are available from: Postdoctoral Fellowships in Chemistry, Chemistry Division, Room 340, National Science Foundation, Washington, DC 20550. □

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