

Clinton Announces First Wave of Awards for Technology Reinvestment Project

In late October, President Clinton announced the first 41 recipients under the Technology Reinvestment Project (TRP). Final award amounts for each project remain subject to negotiation but account for a current total of about \$140 million. The TRP, a key part of the President's Defense Reinvestment and Conversion Initiative (see p. 12, May 1993 *MRS Bulletin*), is designed to stimulate a transition from defense to civilian industrial capabilities, especially through the development of technologies with both military and commercial applications.

In announcing the awards, Clinton said, "The reason why I believe so strongly in this project and the reason I believe that someday this will become an integral

part of our economic policy—not just a way of converting from a defense to a domestic economy—is because we have to find a way to create more new applications for more new technologies more quickly so that we can create more jobs."

The 41 selected projects were made on merit, said both Clinton and Vice President Gore, but they also went largely to areas with sizable defense-related technological bases affected by significant cutbacks, which were aggressively looking for alternatives. Clinton and Gore credited the efforts of Sen. Jeff Bingaman (D-New Mexico) as architect of the program and of Rep. Pat Schroeder (D-Colorado) for her support in the House of Representatives.

The largest project (\$54 million) is from a consortium led by Battelle Laboratories. The group plans to establish a computer network using existing NASA infrastructure to help small, defense-dependent companies access and apply federal technology to product development.

A group led by General Motors' Hughes Electronics division is proposing a \$40 million program to advance multiple chip module technology by improving manufacturing methods and lowering costs for U.S. manufacturers.

The third largest proposal (\$33.8 million) is from a team headed by TRW Space & Electronics Group. They plan to develop precision laser machine tools for drilling, cutting, welding, and heat treating mechanical and composite parts.

Clinton cited a project advanced by a group led by the University of California, San Diego. This group proposes a \$21 million program to adapt polymer matrix composite materials originally developed for high-performance military aircraft for use in bridge construction and rehabilitation. Clinton also mentioned retraining programs for scientists, engineers, and other defense workers across the U.S.

The remaining awards for FY 1993 were expected to be announced at the end of November, just after press time for this issue of the *MRS Bulletin*.

A complete list of award selections, proposed projects and their sizes is available by calling the Department of Defense at (703) 697-5737. The hotline for TRP program information is still operable: 1-800-DUAL-USE.

DOE Notes

SBIR Update. Small, high-technology firms (500 employees or less) with strong research capabilities in science and engineering in any of 45 technical topics are encouraged to apply for grants under the

DOE's Small Business Innovation Research program, now in its 12th year.

Among the topics are the following: engineering advances for photovoltaic systems, fuel cells for transportation, improved formability of magnesium alloys for automotive applications, measurement of mechanical properties in civilian nuclear reactor facilities, green car: scientific approaches to automotive innovations, design and applications of novel materials, and materials sciences instrumentation.

The next closing date for applications is **February 15, 1994**. For a copy of the solicitation, contact: SBIR Program Manager (ER-16), U.S. Department of Energy, Washington, DC 20585. Phone (301) 903-5707; fax (301) 903-5488.

SSC Termination. Energy Secretary Hazel R. O'Leary issued the following statement regarding the U.S. Congress' decision not to continue funding the superconducting super collider project: "The decision by Congress to terminate this project is a devastating blow to basic research and to the technological and economic benefits that always flow from that research...the outcome will be the loss of an important, long-term investment for the nation in fundamental science." DOE estimates that termination of activities will take several years.

Support for Aerospace Research and Education at Southern University.

Through an interagency agreement with NASA, the DOE will provide \$2.5 million over five years to help establish a Center for Aerospace Research and Education at the historically black Southern University, Baton Rouge, Louisiana. The Center will support undergraduate aerospace education/research and faculty research projects. Research will cover composite materials, wear and fatigue of materials, mechanical engineering and heat transfer, and fluid dynamics.

\$8 Million for Tech Transfer Projects.

In early October, DOE's Office of Defense Programs approved technology transfer projects totaling about \$8 million as its first selections for fiscal year 1994. The projects range from electron beam processing of manufacturing waste to intelligent control systems for combustion engines. The announcement was made in letters to Los Alamos, Lawrence Livermore, and Sandia National Laboratories. The projects were submitted and evaluated in FY 1993 but not funded due to budget restrictions. □

The TRP

The TRP consists of eight statutory programs established under the Defense Conversion, Reinvestment and Transition Assistance Act of 1992. Funded at \$472 in FY93, the ARPA-led multi-agency project will award matching federal funds on a competitive basis to three types of activities: technology development, technology deployment, and manufacturing education and training. Besides the Defense Department's Advanced Research Projects Agency, the project has been planned and executed by the Departments of Commerce, Energy and Transportation, NASA, and the NSF.

After the TRP was announced on March 11, 1993, ARPA received 35,000 calls, distributed 55,000 information kits, and held 17 regional briefings around the country, attended by more than 7,000 persons. The 2,850 proposals eventually received requested \$8.5 billion and came from teams consisting of more than 12,000 companies, universities, federal research laboratories, and state and local governments.

More than 300 technical experts from the TRP member agencies and other federal agencies evaluated the proposals.

The House has appropriated \$575 million of FY94 defense funds for the TRP; the Senate, \$475 million. A joint committee will make the final determination.

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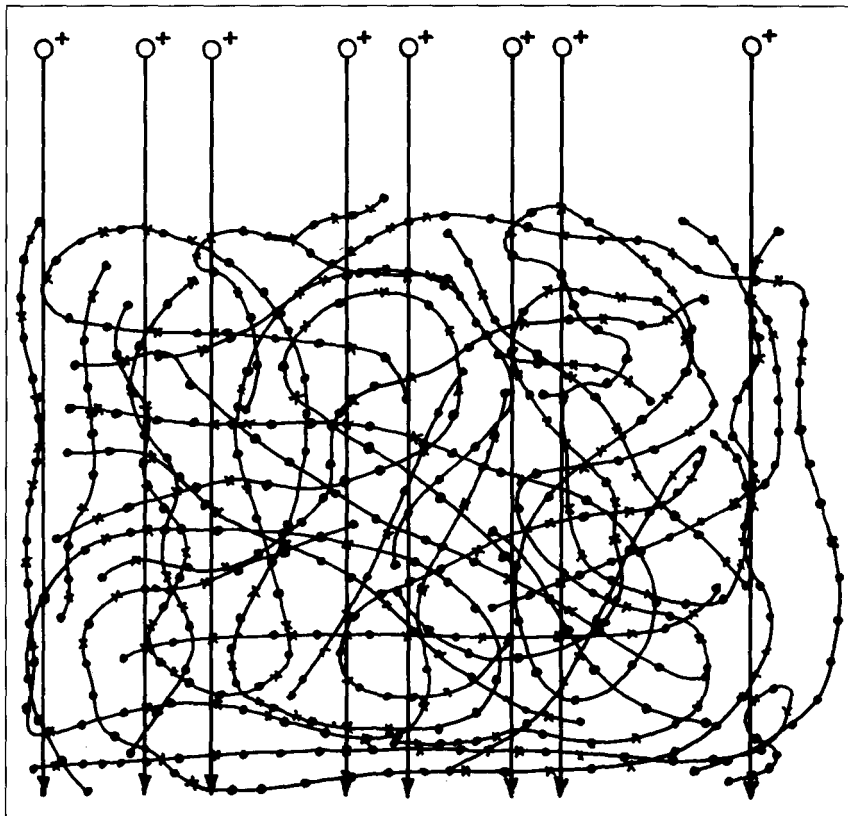
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How often have you worried about carbon depletion under irradiation? As carbon-based life, wouldn't you think that hazard should concern us? Well, not to worry. Unless your organic molecules are genetically predisposed to being highly crystalline and well oriented with respect to directions from which radiation is likely (we could not find the precise medical term for this condition), you are pretty safe. If you are still worried, may we refer you to an article by U.K. Chaturvedi, A. Patnaik, and A.K. Nigam that appeared in *Radiation Effects* 104 (1987) p. 43-50, where the depletion of carbon in ultrahigh molecular weight polyethylene as a result of radiolysis under a 340 keV beam of deuterons was studied. The authors found experimentally that much less carbon is lost than would be expected based on the number of carbon-carbon bond scissions that occur. Two reasons advanced are that (1) unless the scissions occur rapidly and repeatedly at the same site, recombinations are likely and (2) unless the scission points are close together along a molecular chain, fragments of low enough molecular weight to leave the material quickly are not formed as often. The figure reproduced in this month's EDITOR'S CHOICE, which looks more like a barbed wire barrier than polyethylene, is how these authors schematically illustrate the random occurrence of scissions (x) between the carbon atoms (•) of amorphously disposed molecular chains as deuterons (O+) penetrate (→) the material. Hence the maxim, "Oh, what a tangled web we weave, when bending bonds ions would cleave."