

At a time when the French are energetically modernizing and expanding their arsenal of warheads while commercial demand for plutonium is slight, arms control specialists naturally have wondered whether the French would be tempted to use plutonium from the Superphénix for military purposes. Such use would violate the spirit of the nonproliferation regime, which seeks to establish a clear and sharp division between civilian and military uses of plutonium, and it would set a bad example that near-nuclear countries might be tempted to follow—India, for example, or in the more distant future, Pakistan, Brazil, Argentina, Israel or South Africa, none of which are parties to the Nonproliferation Treaty.

The Superphénix is a joint French-German-Italian project, and each partner is entitled to plutonium recovered from the reactor and electricity produced by it in direct proportion to its investment in the design and construction of the reactor. The West German Green Party, which has made a major political issue of plutonium, raised the question in the German parliament of whether the French would have the right under EURATOM safeguards to divert plutonium from the Superphénix blanket to their military programs. The German government answered that the French would in fact have the right to make military use of their share of the plutonium if they wished to do so and that Germany would have no legal basis for challenging such a move.

The US State Department, according to Albright, asked the French for assurances that they would not make military use of the plutonium. Albright's understanding is that the French insisted on their right to do so but said they had no intention of doing so, and that the State Department is choosing to regard that statement of intent as binding.

Because the situation continues to cause concern, we made a point of inquiring into France's plans for the Superphénix plutonium. Conversations with Labat and Vendryès indicated that the issue is unsettled—but that there still is ample time for firmer agreements or understandings to be reached.

They said that because there is currently a surplus of plutonium, the spent fuel from the Superphénix will not be reprocessed at all for several years and probably not until the 1990s. A special reprocessing plant will be needed for the "driver" or core fuel (but perhaps not the blanket fuel, which is richer in Pu^{239}) and it remains to be decided where and when the new facility will be built.

Because the Superphénix proved

somewhat more costly to build than hoped, additional breeder reactors like the Superphénix are not expected by the French to be competitive with light-water reactors for decades, at least. Electricity produced by the Superphénix is about 2.2 times more expensive per kilowatt than electricity produced by French light-water reactors, Labat said, taking care to note that the French reactors produce electricity a good deal more cheaply and efficiently than the US reactors they are modeled on. Labat estimates that they would have to get the cost of breeder electricity down to about 1.2 or 1.3 times light-water electricity if breeders were to become competitive under any plausible economic scenarios.

The French have prepared a design for a second breeder the size of the Superphénix that would be, they believe, about 30% cheaper. Much of the saving would be achieved by means of a redesign of the containment based on experimental results indicating that violent reactions between molten fuel and sodium would not release as large amounts of energy as previously believed.

A less conservative design might conceivably be selected for a second breeder in France. But *Electricité de France* reportedly has no interest in building one any time in the foreseeable future, and it is scarcely imaginable in the wake of Chernobyl that such a design could be sold in West Germany, which regards itself as entitled to build the next full-scale breeder. The world outlook for breeders and closely related reprocessing technology will be the subject of a followup story.

—WILLIAM SWEET

Education

Application deadline nears for senior education fellowship

The American Institute of Physics has established a new position, Senior Staff Education Fellow (PHYSICS TODAY, June, page 85). The activities pursued by the fellow will depend on the fellow's background and interests and could include pre-college physics and other introductory physics programs.

Fellowships will be for one or two years, and fellows will be based at the new AIP office in Washington, DC. The search committee has established a special application procedure to be used by applicants and nominees. The committee especially encourages colleagues in the physics community to help identify the best person by submitting nominations to the committee chairman, Gerald F. Wheeler of Montana State University.

It is anticipated that the fellow

generally will be a person on sabbatical, leave of absence or retired. The Senior Staff Education Fellow will be paid a salary corresponding to the individual's regular pay.

The deadline for final submission of all materials is 31 October 1986. For information on procedures and instructions write to Gerald F. Wheeler, Department of Physics, Montana State University, Bozeman MT 59715.

AIP will start magazine—journal on computers and physics

The executive committee of the American Institute of Physics, acting at the recommendation of the publishing policy committee, approved a proposal in mid-June to establish a new journal on computers and physics. The new journal will start to appear in 1988 and will combine elements of an archival journal and a magazine.

In a memorandum to the executive committee, AIP Director of Publishing Robert H. Marks said that the new journal would resemble *PHYSICS TODAY* in some ways and the *Review of Scientific Instruments* in other ways. Marks mentioned the American Chemical Society's *Environmental Science and Technology* as an example of the type of journal-magazine that has been successfully published.

According to a proposal prepared for the AIP subcommittee on journals by a special task force headed by Howard G. Voss of Arizona State University, the journal on computers in physics could include regular columns on hardware and software as well as research and instructional materials, news reports from laboratories and supercomputer centers, reviews, editorials and letters to the editor, and a large section devoted to archival articles. The journal will be aimed at the upper-level undergraduate physicist and above, including graduate students and professors, and government-laboratory and industry physicists. Libraries also should be an important part of the market.

The exact design, content and character of the new journal are expected to depend heavily on the individual selected to be first editor-in-chief. Voss has been named chairman of the committee to propose an editor for the journal. The other members of the search committee are Enrico Clementi, Don R. Hamann, Scott Kirkpatrick, Robert H. Marks, Edward F. Redish, Larry L. Smarr and Donald C. Wells.

Nominations for the editor-in-chief should be addressed to Howard G. Voss, Department of Physics, Arizona State University, Tempe AZ 85287; telephone (602) 965-7147 or leave a message at (602) 965-3561. □