

Jülich lab sets new priorities, opens neutron guide hall

The decision by the West German government to cancel a large spallation neutron source planned for the Jülich Nuclear Research Facility left the laboratory somewhat disoriented about its mission (PHYSICS TODAY, December 1985, page 69). A new package of programs, which reflects the results of long discussion between the lab's management and its board of directors, provides an example of how a relatively old institution largely oriented to nuclear research can seek to adapt to current scientific interests and social concerns.

The Nuclear Research Facility has adopted three major new programs—in "materials development," "environmental chemical substances and ecosystems" and "basic research into information technologies."

The materials program is oriented to new, highly heat-resistant materials and ceramics and draws on expertise gained in the development of materials for the gas-cooled, high-temperature reactors designed at Jülich. With work on high-temperature reactor technology shifting to the private sector, laboratory staff will concentrate on materials for general application such as high-temperature ceramics, high-temperature parts for engines and turbines, and ceramic layers.

The environmental program will involve study of the course taken by chemical emissions and wastes, their chemical reactions and their ecological impact. The study will be managed by several laboratory institutes that specialize in atmospheric and applied chemistry, soil science and biotechnology. Laboratory staff also will study waste substances that are particularly hazardous, basing their work partly on experience gathered in developing procedures for processing spent nuclear fuels.

The program on information technology will concentrate on materials and structures to be used as components—for example, new magnetic materials designed for use in data storage, which laboratory staff connected with the institutes for solid-state, surface and vacuum physics have been studying for some time. Plans also call for establishment of a new institute for thin film and ion technology to support the effort in information technology, a step advocated by the laboratory's management in negotiations with the lab's board of directors.

The Nuclear Research Facility also has been renovating instruments connected with its heavy-water research reactor so as to remain in the forefront



New cold-neutron guide hall at the Jülich Nuclear Research Facility is seen here from the vantage point of the reactor building. In the upper right-hand corner of the photograph are two small-angle neutron scattering instruments, which are to be used in metal physics, polymer research and biology. To the left, two small neutron guides deliver neutrons to a triple-axis spectrometer and a nuclear spin resonance apparatus.

of work involving neutron scattering in the Federal Republic and Europe as a whole. This year the lab has been bringing into operation a new guide hall with a number of major instruments including a backscattering spectrometer with an expected resolution of $0.1\text{--}0.2\text{ }\mu\text{eV}$, two small-angle scattering instruments, an instrument for very high-resolution small-angle scattering ($10^{-5}\text{ }\text{\AA}^{-1}$), an instrument for diffuse scattering and a triple-axis spectrometer. The beam line is connected to the lab's 23-MW research reactor, which has a thermal flux at the end of the guide hall near the reactor core of about $2 \times 10^{14}\text{ cm}^{-2}\text{ sec}^{-1}$.

The Neutron Guide Laboratory was built under the scientific direction of Tasso Springer and Klaus Werner. In

addition to the instruments in the neutron guide hall, six instruments are located inside the reactor building and are designed for work with thermal neutrons: two diffractometers, two triple-axis spectrometers and two time-of-flight spectrometers.

The Nuclear Research Facility supports a staff of nearly 900 scientists and had a budget in 1986 of about a half billion German marks. It is supported primarily by the German government and secondarily by the state government of Nordrhein-Westfalen. Laboratory staff work closely with universities and industries in Nordrhein-Westfalen, and all heads of the lab's institutes hold university professorships in the region.

—WILLIAM SWEET

Rigden is new physics director at AIP

John Rigden of the University of Missouri, St. Louis, will join the staff of the American Institute of Physics at the end of this summer as director of its physics programs, formerly known as educational programs. Rigden replaces education director Lewis Slack, who is retiring this July after 20 years

at AIP. Slack worked previously at the National Academy of Sciences, George Washington University, the Naval Research Laboratory and Washington University in St. Louis. Slack earned his BA at Harvard in 1944 and his PhD at Washington University in 1950.

Rigden received his bachelor's degree