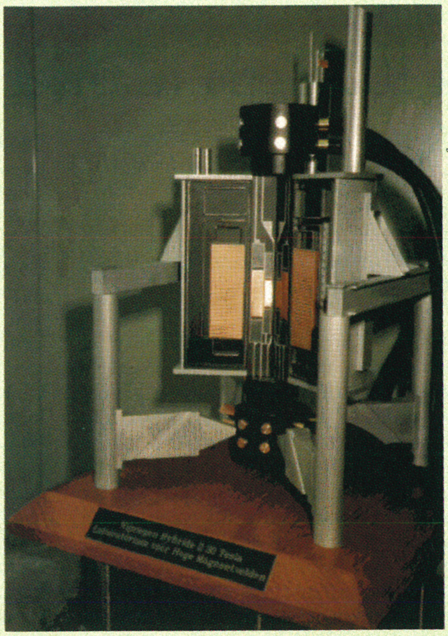
Dutch Magnet Lab to Get DC Upgrade, Pulsed Magnets

The Netherlands' High Field Magnet Laboratory at the University of Nijmegen is to get stronger steady-state magnets and also absorb the country's pulsed-magnetic-field research activities (now at the University of Amsterdam), according to a joint announcement issued in January by the University of Nijmegen and the Dutch Science Foundation, which will split the bill.

The upgrade, which will cost about 40 million guilders ($23 million) and is scheduled to be completed by 2001, will put the Nijmegen lab on a par with the world's top static magnet labs, located in Grenoble, France, where an upgrade is also under way; Tallahassee, Florida; and Tsukuba, Japan.



UNIVERSITY OF NIJMEGEN

NIJMEGEN'S 30-TESLA HYBRID MAGNET (above) will soon be replaced by one that produces more than 40 T.

The Nijmegen lab will get a new building, and its power supply will be upped from 5 MW to 20 MW. Lab boss Jan-Kees Maan says the facility will produce static magnetic fields up to 34 tesla by using resistive magnets (up from 20 T now), and greater than 40 T (up from 30 T) by using hybrid magnets, in which a resistive magnet is nested in a superconducting coil.

In addition, the Nijmegen lab will take over pulsed-magnetic-field research from the University of Amsterdam, which decided in November 1997 to stop funding such activities. Development and construction of pulsed magnets, however, will continue at the Amsterdam lab, which will soon start building a short-pulse (5 ms), high-field (80 T) magnet for Nijmegen.

Paul Frings, a University of Amsterdam physicist who had been overseeing the design and construction of a 60 T long-pulse magnet until the university dropped the plan, says given the alternative of closing, the merger "is probably the best solution. It makes sense for high-field activity to be located at one site. It will become much more visible, and researchers will be able to easily switch over from DC fields and do experiments with higher, pulsed fields." TONI FEDER

believe we can make a consortium of more than two or three countries—probably the best being a joint venture between Germany and France."

A 100 T contender

Frank Pobell, the director of the Rossendorf Research Center near Dresden, is among those who believe that a high-field magnet lab will more likely, and more quickly, be built if it's done on a national, rather than an international, scale. He should know: Pobell says he's aiming to submit a proposal this spring for DM 40 million ($25 million) to build a national magnet lab at Rossendorf by 2002.

If approved, the Rossendorf lab would start out with three magnets: a 100 T magnet, with a pulse length of 10–20 ms and a bore 20 mm in diameter (the space in which experiments can be performed); a 70 T magnet with a pulse length of 100–200 ms and a 24 mm bore; and a 60 T magnet with a pulse length of 1 s and a 50 mm bore.

Since 1992, following Germany's reunification, the Dresden area has been built up as a scientific center. And a key argument for siting a high-field magnet lab at Rossendorf is the prospect of using it together with a far-infrared free-electron laser that is scheduled to go on-line there next year. "The combination would be unique worldwide," says Pobell. "The radiation from our laser would match the magnetic excitations of many solids up to 100 T, so new high-field infrared spectroscopy experiments would become possible." The proposed magnet lab would be a joint undertaking of five local institutes: the Rossendorf Research Center, the city's two new Max Planck Institutes (for Physics of Complex Systems and for Chemical Physics of Solids), the Institute for Solid State Physics and Materials Research and the Technical University of Dresden.

The state government of Saxony has said it will pay half the cost of the magnet lab if the federal government will pony up the rest, says Pobell, adding that the chances for getting funding are "much better" under Germany's new Social Democratic–Green government, "because they promised more money for science and technology, particularly in the former East Germany."

Pobell sees Rossendorf someday becoming the European hub for pulsed magnetic fields. For that to happen, says Herlach, the German team "will have to work hard to acquire the necessary technology. But if their ambitious project is realized, they will certainly join the ELMF as a major partner." TONI FEDER

Dorfan Will Lead SLAC into Next Century

On 1 September, Jonathan Dorfan will take the reins at the Stanford Linear Accelerator Center. He will succeed Burton Richter, who this past November announced he would step down after 15 years (see PHYSICS TODAY, January, page 54).

A native of South Africa, Dorfan earned his bachelor's degree in applied mathematics and physics in 1969 at the University of Cape Town before coming to the US, where he earned his PhD in 1976 at the University of California, Irvine. He's been at SLAC ever since, and became an associate director, in charge of the B Factory, in 1994.

Indeed, Dorfan says, the B Factory, which is scheduled to go on-line in May, was one reason he chose to head SLAC, rather than accept an offer for the top job at Fermilab, where John Peoples will step down at the end of June. (A successor to Peoples was still being sought as PHYSICS TODAY went to press.) "It was an agonizing decision," says Dorfan. But after 10 years of working on the B Factory, he wanted to stay around and see it produce physics.

Scientists hope that the B Factory—which is named for the "bottom" quark—will shed light on the dominance of matter over antimatter. Says Dorfan, "We will collide electrons with positrons to produce very large numbers of bottom and anti–bottom quarks, and then watch for decays that violate the *CP* process. The idea is to understand the theoretical underpinnings of *CP* violation."