NUCLEAR PHYSICS

DOE Picks Michigan State Lab for Rare-Isotope Accelerator

A relatively small university lab has beat out a much larger national lab in the competition to host a $550 million accelerator facility for nuclear physics. The U.S. Department of Energy (DOE) announced last week that it would build the Facility for Rare Isotope Beams (FRIB) at the National Superconducting Cyclotron Laboratory (NSCL) at Michigan State University (MSU) in East Lansing instead of at its own Argonne National Laboratory in Illinois. Many had expected Argonne's superior infrastructure and $530 million budget to give it a decisive edge.

The MSU proposal "started out as a long shot," admits C. Konrad Gelbke, director of NSCL, whose $20-million-a-year budget is provided by the U.S. National Science Foundation. "But I always felt very optimistic that if you presented the case in a very open and honest way, it would all level out in the end." Argonne officials said in a statement that they were "disappointed" and noted that "much of the science for FRIB was developed here at the laboratory."

FRIB will serve as a source of exotic and fleeting radioactive nuclei. The heart of the machine will consist of a 400-meter-long high-intensity linear accelerator that can accelerate a nucleus of any weight from hydrogen to uranium. Those nuclei will smash into and through targets to make beams of exotic isotopes, which will then be used to refine existing theories of nuclear structure, probe fundamental symmetries of nature, and help unravel the processes in stellar explosions that presumably produce half the elements heavier than iron. FRIB would pump out beams at least 1000 times more intense than those currently produced at NSCL.

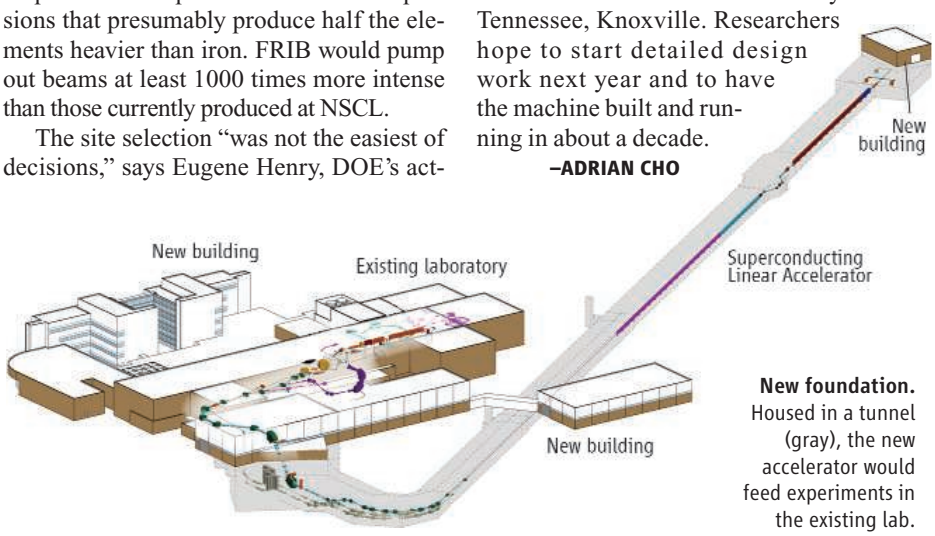
The site selection "was not the easiest of decisions," says Eugene Henry, DOE's acting associate director for nuclear physics. Henry declined to discuss the details of the two proposals but noted that MSU had offered to pay some of the construction costs. The university has committed to chipping in $94 million, says MSU spokesperson Terry Denbow. He did not say how the money would be raised.

DOE also had more confidence in MSU's spending plan, says Donald Levy, vice president for research and for national laboratories at the University of Chicago in Illinois, which contracts with DOE to run Argonne. "The budget part of their proposal was deemed to be more reliable than ours," Levy says, in part because MSU's budget included more "contingency" money to cover possible cost overruns.

Some observers have misgivings about building a large facility at such a small lab. "[T]he scale of the project was more appropriate for one of the existing DOE laboratories," says Burton Richter, a particle physicist and former director of DOE's SLAC National Accelerator Laboratory in Menlo Park, California. But Richard Casten, a nuclear physicist at Yale University, says he's sure that NSCL is up to the task: "I have no worries about that at all."

Many scientists are just glad that the project, originally proposed in the late 1990s, is making progress. "We are happy that the decision has been made and that the excellent team at Michigan State has been chosen," says Witold Nazarewicz, a nuclear theorist at the University of Tennessee, Knoxville. Researchers hope to start detailed design work next year and to have the machine built and running in about a decade.

–ADRIAN CHO



CREDIT: MICHIGAN STATE UNIVERSITY

New foundation. Housed in a tunnel (gray), the new accelerator would feed experiments in the existing lab.

The Road to Copenhagen Begins

International climate negotiators made few important decisions at talks that concluded last week in Poznań, Poland. But activists remain optimistic about reaching an agreement on a post-Kyoto plan next December in Copenhagen (see p. 1773). Attendees created an international fund to help poor nations adapt to changing climates, and a number of developing countries announced new commitments to reduce their emissions. Brazil promised a 70% decrease in deforestation, for example, and Mexico pledged to halve its emissions by 2050. Negotiators also left open the possibility of creating a system to award credits to efforts to curb deforestation.

–ELI KINTISCH

Aussie Schools Welcome Cash

Despite the current economic downturn, the Australian government has delivered on promised funds and provided $388 million to 11 universities to boost their ailing infrastructure. Recipients of the funding, set aside last year after a hefty surplus (*Science*, 18 May 2007, p. 968), include the University of Sydney, which received $64 million to establish the Centre for Obesity, Diabetes and Cardiovascular Disease; the University of Melbourne, which received $60 million to establish the Peter Doherty Institute for Infection and Immunity; and Monash University in Melbourne, which won $60 million to establish a New Horizons Centre devoted to collaborations between engineering and science.

–ELIZABETH FINKEL

Mouse Genome Bonanza

A $4.4 million project to sequence the DNA of 17 strains of mice will make these animals more useful for tracking down genes and assessing genetic risks for human diseases. Over the next 3 years, the Wellcome Trust Sanger Institute in Hinxton, U.K., will generate up to 3 trillion bases of mouse DNA, using new low-cost and high-speed sequencing methods, to compile fairly complete genomes of the most commonly used mouse strains. Those strains include those used to make knockout mice, the parent strains for lines used in studies of diseases such as diabetes, obesity, and asthma, and eight strains that are the starting points for the development of 1000 new inbred lines. Partners include the U.K. Medical Research Council, the Juvenile Diabetes Research Foundation, the Wellcome Trust and MRC genetics labs, the European Bioinformatics Institute, and the Jackson Laboratory.

–ELIZABETH PENNISI

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