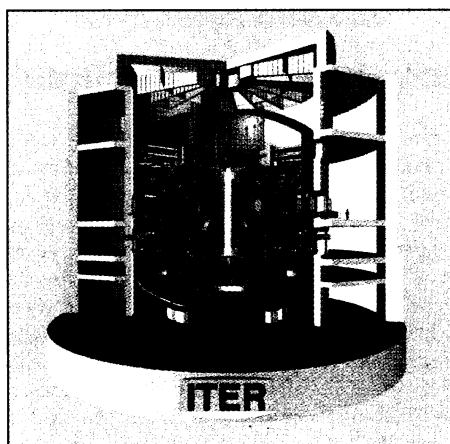


for cash to propose serving as host, its northern neighbor has emerged as a contender. A Canadian delegation that met informally at the Munich meeting with ITER officials discussed two sites—one very near to the source of tritium that ITER must use—neither of which is far from the U.S. border. While Canada lacks the financial resources to cover a large percentage of the facility's costs, its selection might be viewed as a welcome compromise between a Japanese and a European location, says one ITER official, as well as a geographic convenience for U.S. researchers.

Russia's absence from the siting competition should not be taken as a lack of interest in the project, say fusion scientists. "There is strong support for the program in Russia at all levels, from the president to the parliament," says Velikhov, although a quarter share of overall costs is beyond its means. As a sign of that commitment, he notes that Russia is helping to finance its stake in ITER design work with proceeds from the sale of enriched uranium to the United States. For construction, Velikhov says that Russia could contribute much in the way of theory and some materials.

Other countries relatively new to fusion could soon enter the field and fill the void left by Russia and the United States. China



Future fusion. A cutaway look inside the proposed international tokamak.

and Korea have made "informal inquiries" expressing interest in cooperation, says Aymar. And this winter a Korean official hopes to visit Naka to discuss the ITER project, according to Huguet. Korea already has big plans for a \$300 million machine with superconducting magnets that would confine burning plasma for relatively long periods. Officials hope the facility can be completed by 2002 and that its operation will

provide a stepping stone to ITER participation (*Science*, 22 December 1995, p. 1918).

One funding scenario, says Ronald Parker, the U.S. physicist in charge of the Garching team, is for Japan to contribute about half or more of the cost of building ITER in Japan, with the United States and an array of European and Asian nations kicking in much smaller percentages. There's also plenty of room for industry; next week, business leaders from the United States, Japan, and Europe are gathering in San Diego to discuss what role they could play in the project.

The growing Asian interest in ITER could produce a dramatic shift in fusion research, difficult to imagine a decade ago, away from the United States and Europe and toward the energy-hungry and high-growth economies of east Asia. Such an outcome would be particularly painful for U.S. researchers, who for so long have been among the leaders in fusion research. "There is a psychological side to this, and it will pose quite a challenge for the U.S.," says Aymar. But ITER won't wait very long for the United States to adjust to its new supporting role. "We need to [move ahead] now," he warns, "or the whole field could disappear."

—Andrew Lawler

MATHEMATICS

Does Rochester Without Math Add Up?

The math community has been up in arms over a plan by the University of Rochester to do away with its graduate program in mathematics. Observers are especially upset because Rochester's special strengths are said to be in the sciences and economics, fields that depend heavily on math. "It's beyond belief," says physicist Marvin Goldberger, dean of natural sciences at the University of California, San Diego (UCSD).

The university, for its part, is as yet "not dissuaded" from its position, Dean Richard Aslin told *Science*. Authorities will, however, canvass the other science departments at Rochester and see if they are willing to make sacrifices necessary to keep the math department intact.

The flap began on 16 November, when university officials outlined to the faculty details of the "Rochester Renaissance," a sweeping plan to economize and downsize without sacrificing quality. It includes reducing the student body from 4500 to 3600, cutting the faculty by 10%, and eliminating four graduate programs: chemical engineering, linguistics, comparative literature, and math.

In a memo to faculty members, Dean Aslin explained that Rochester's math program is only of "modest distinction," has been getting "dwindling numbers of math graduate students," has "less than optimal"

undergraduate instruction, and has "linkages with other departments and programs [that] are minimal." University officials have also cited graduate school rankings by the National Research Council (NRC), where Rochester's math department ranked 58.5, putting it in the 42nd percentile (*Science*, 22 September 1995, p. 1660). The number of tenured slots in the math department is therefore scheduled to shrink from 21 to 10, and four nontenured Ph.D.s will be hired to teach lower level math courses, says Aslin.

The math department has put out a detailed report defending the quality and quantity of its output. And it has been backed up by a storm of protests from mathematicians and other scientists around the country. The American Mathematical Society (AMS), which sent a "fact-finding committee" to Rochester last month, protested the plan in a 10 January resolution. (Details are at the AMS Web site: <http://www.ams.org/committee/profession/roch-ap1.html>.) The committee's chair, Salah Baouendi of UCSD, warns that Rochester may become the first "major institution with a physics graduate program that doesn't have a mathematics graduate program."

Goldberger, who headed the NRC panel that did the rankings, is also appalled by Rochester's decision. He points out that the department is small and specialized, factors

that militate against getting a top rating. "I take much more seriously [than the ranking] the things I hear from other mathematicians," he says. Harvard University's Arthur Jaffe, president-elect of the AMS, for example, says that in algebraic topology, the university has "one of the top departments in the country."

Jaffe says the university's critics see a possible solution in a proposal by Rochester economist emeritus Lionel McKenzie, who calls for small sacrifices by science and social science departments to sustain the math department in its current form. Aslin says the university isn't jumping at the idea but is willing to float it. "One of the primary contentions that has been made is that ... successes in other [quantitative] disciplines depend upon having a Ph.D. program in math," says Aslin. "That's a testable hypothesis ... [so] we're putting it back to the Rochester community" to see if they are willing to make the necessary sacrifices.

Meanwhile, the AMS has put together a task force of scientists and mathematicians, headed by Jaffe, that is composing a letter to Rochester trustees to persuade them that closing the graduate program would be folly. Says the AMS: It would be "a tragedy for American mathematics." Aslin's response: "Give me a break. ... This is being viewed by AMS as a test case, and it must be because they're fearful of it happening elsewhere."

—Constance Holden