Closure Looms for Funder of US–FSU Scientific Collaborations

Cash is fast running out for the US Civilian Research and Development Foundation for the Independent States of the Former Soviet Union: It's down to its last million. To function effectively, the small, nonprofit foundation (known as the CRDF) that promotes and funds scientific cooperation between the US and FSU would need $15–20 million a year, reckons Gerson Sher, the foundation's executive director. Sher and his colleagues are scrambling for funds, but so far it's unclear how—or whether—the CRDF will manage to stay afloat.

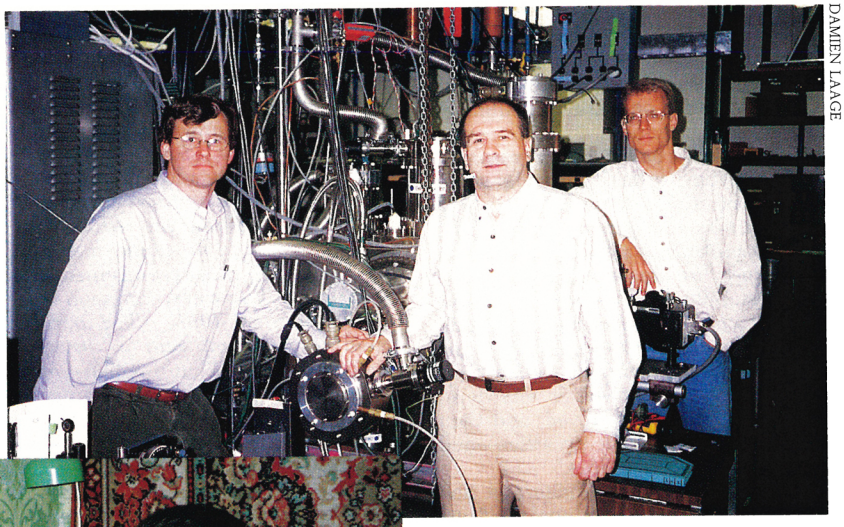
Authorized by Congress in 1995, the CRDF was launched by the National Science Foundation with $10 million from the Department of Defense (DOD) that, to be accessed, had to be matched by other sources; half of it was matched at the outset by philanthropist–financier George Soros.

The CRDF's mission is to help scientists and engineers in the FSU states succeed in the new free-market arena (see PHYSICS TODAY, January 1996, page 57), largely by assisting them in forging contacts with their American counterparts. Like other aid programs, such as the much larger International Science and Technology Center (ISTC), a nuclear nonproliferation program, the CRDF tries to provide former defense scientists in the FSU with alternatives to emigration—which could be a threat to global peace (if the scientists were driven by economic need to sell their expertise abroad) and would also generally weaken the technological infrastructure in FSU countries.

> Most of the organizations that have sprung up to support science in the former Soviet Union focus on applied research. One that funds basic science is the CRDF, but it will have to close shop if its coffers are not replenished soon.

It's the CRDF's strong emphasis on partnerships and its support for basic research that make the foundation special, according to Irving Lerch, the American Physical Society's director of international affairs. "If the CRDF goes out of business, then support for basic science will be seriously jeopardized, and FSU physics could be in serious trouble," Lerch warns. There are several other bodies that fund basic science in the FSU, but as Sher, who took a leave from NSF to head up the foundation, puts it, "applied [research] is seen as having a longer lasting effect, and as being a quicker fix."

The Cooperative Grants Program is the foundation's largest program to date: More than 270 grants ranging from $10 000 to $80 000 and totaling about $8.2 million have been awarded to US–FSU teams working in physics, chemistry, materials sciences, engineering, biology, medicine, mathematics and other areas; FSU governments have committed an additional $2.2 million. "There were over 3000 applica-



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RIGHT: OLEG VASYUTINSKII (center) of the A. F. Ioffe Physical-Technical Institute in St. Petersburg, Russia, visited Arthur Suits (left) at Lawrence Berkeley National Laboratory in May. They are using their CRDF cooperative grant to image and analyze atomic orbital polarization in chlorine and ozone molecules that are dissociated by laser light. At right is Allan Bracker, a graduate student who is also involved in the project.

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LEFT: BRET HESS of Brigham Young University (left) and Sergey Chekalin of the Russian Academy of Sciences's Institute of Spectroscopy in Troitsk, Russia, in Chekalin's home last February. They are using their CRDF grant to cooperate on studies of ultrafast phenomena in fullerenes: Hess is focusing on charge transport, and Chekalin is studying photo-induced broadband absorption of fullerenes. This fall, Chekalin will go to Hess's lab to help him set up the broadband technique there.

tions—we were deluged," says Sher. He adds that about 60% of the awards went to projects in basic research. The awards are all given to teams of scientists with members from both the US and FSU, but at least 80% of the funds go to the FSU side of the collaborations.

The CRDF also runs several smaller programs. One provides FSU labs with experimental equipment (mostly nuclear magnetic resonance spectrometers). Another, run in conjunction with the ISTC, helps nuclear physicists who worked at the nuclear weapons centers Arzamas-16 and Chelyabinsk-70 to convert to civilian science. There is also a travel grant program—the only CRDF program for which new applications are currently being accepted—that funds visits to American laboratories by scientists and engineers from FSU countries (except Russia). In addition, the CRDF manages and distributes funds in the FSU for other agencies. For example, it's administering $1.5 million for the National Institutes of Health. Says Sher, "We can act as a grant-giving organization, or as a contractor, or both. We make sure that the money gets to the third party tax-free, and in a secure manner."

Financial lows

But the CRDF has nearly exhausted its money—the last $1.5 million of DOD's one-time-only $10 million appropriation must be matched by the end of this month, or the foundation will be left with only the $1 million it already has in hand.

The CRDF is not under any agency's aegis, so no agency has a particular stake in its continued existence. Sher and colleagues hope to get money from the State Department's assistance program, with which "we are holding ongoing discussions. But we are not in their budget request for 1998," says Sher. A State Department official says the CRDF "has been developing a good strong track record. But we don't know at what level our budget will be approved, and then we'll have to assess our priorities—and there are lots of claimants."

For now, the CRDF has—and has to have—contingency plans. "If we don't get the DOD money, we'll have to ramp our staff down from seven to two this fall," says Charles T. Owens, the CRDF's associate director. He adds that "if we hunkered down to last long enough to demonstrate that we are good—and hoped for more funding," the CRDF could last until about the spring of 1999 with existing funds.

The next step

But in April the foundation's advisory board decided to take a more aggressive approach: The CRDF will use its last $1 million to launch a new program, called Next Step to Market. Meanwhile, says Sher, "we think we are close to meeting the target of matching the remaining DOD money," most of which would also go to the new program.

As its name implies, the new program would support projects with market potential. "We will go back to some of our grantees [from the Cooperative Grants Program] and say, We want to help you take the next step," says Owens. "We'll try to select those with some potential—at least a gleam in someone's eye." Giving support to projects that have already gone through rigorous peer review, and to people who have already developed contacts, "should give us a good pipeline," says Sher. Adds Owens, "Hopefully, we'll be able through this kind of activity to attract more industry money to our programs, so that the CRDF, industry and the labs in the FSU benefit."

And, if all goes well, the Next Step to Market program could be a step toward the CRDF becoming self-sustaining: Backed business ventures that become profitable would eventually give money back to CRDF, which could then reinvest it. "The strength of this kind of a program is that it's very integrated, and we could support basic as well as applied research," says Sher. "Remaining independent and having money would be the best of all possible worlds." With $15–20 million a year, "we could hold a major competition every year or 18 months, as well as some smaller, more carefully targeted competitions," Sher says. But at the moment, "our main concern is to stay in business." **Toni Feder**

Swedish Research Faces Budget Cuts

In Sweden, as in many other countries, politicians and scientists are wrestling over proposed cuts in research funding.

Spread cuts across research organizations, says the commission charged with advising Sweden's Ministry of Science and Education on how to reduce annual spending on large-scale research facilities. If the commission's recommendations, which were submitted to the ministry at the end of April, are approved by Sweden's parliament this fall, nearly half of the required savings would come from paring down contributions to CERN and other international collaborations, as Carl Tham, Sweden's science and education minister, had called for. Some national research programs would also suffer.

The cuts are being sought as part of a broader campaign to reduce Sweden's budget deficit—made more urgent by the eligibility requirements for joining the European common currency union in 1999. The current round of proposed cuts in research funding, by 150 million Swedish crowns (about $19.5 million) beginning in 1998, would come on top of cuts to Sweden's national research councils this year averaging 14% (to save about SEK 240 million). Public spending on R&D in Sweden this year will total about SEK 19 billion.

Physics to bear the brunt

Many disciplines would suffer, but the bulk of the proposed cuts are in physics, "because that's where the largest projects are," says Torbjörn Fagerström, a theoretical ecologist at Lund University, who served as secretary and main science adviser to parliament member Susanne Eberstein, Tham's one-woman commission for seeking ways to make the required cuts.

The commission recommends reducing membership payments to CERN, the European Space Agency (ESA) and the Joint European Torus (JET) by a total of SEK 51 million, or about one-sixth of the ministry's total budget for international science, by 2002. The Swedish scientific community is relieved that the commission rejected the idea of wholesale withdrawal from these organizations, but many question how realistic it would be to chip away at their already tight budgets. (Until the recommendations came out, fears that Sweden might pull out of CERN were fueled by the close match of the total required savings and Sweden's CERN membership fee. Later, in a statement issued on 5 June, science and education minister Tham promised that Sweden wouldn't cancel its membership in CERN, but he again stressed that spending for it must go down.)

Since membership fees for CERN and other international organizations must be agreed upon by consensus of the member countries, implementing such cuts would be complicated. "I can imagine years of frustrating negotiations with the other member countries," says Örjan Skeppstedt, Sweden's scientific delegate to the CERN council and a member of the Swedish Natural Science Research Council. Referring to the hard-won agreement reached last December after Germany insisted on reducing its payments to CERN, Skeppstedt adds, "I don't think