

Emerging From the Shadow Of Abdus Salam

Once a scientific oasis during the Cold War, a unique center for theoretical physics and its scientific neighbors in Trieste want to update their missions for today's political climate

TRIESTE, ITALY—Arbab Ibrahim Arbab had reached a dead end. He'd earned a bachelor's degree at the University of Khartoum, Sudan, in the early 1990s but was unable to continue his studies in astrophysics. "There is hardly any money for research in Sudan," he explains. Then one of his former professors suggested that he apply for a new diploma course at the United Nations-backed Abdus Salam International Centre for Theoretical Physics (ICTP) in Trieste.

He got in but was in for a shock. "From the first moment, I had to do lots of very new stuff," Arbab says. Taking open-book exams and defending his views in seminars were a far cry from the rote learning in Khartoum. But Arbab considers his time in Trieste as a lucky break. "We had the best teachers from all over the world," he says, and the friends he made in this academic bastion in northeastern Italy helped him on his path to a faculty position in Saudi Arabia.

Arbab's experience resonates across the developing world. For the past 4 decades, ICTP has played host to more than 80,000 visits from Third World physicists who have immersed themselves in the center's intellectual melting pot. Its open-door policy made it one of the few venues for Soviet and U.S. physicists to meet during the Cold War. Nowadays, Indians and Pakistanis sip espressos together while Iranians and Libyans rub shoulders with Americans. This cosmopolitan spirit inspired the creation of other science centers in Trieste that have turned the city into a kind of scientific Shangri-la. Together, these institutions refer to themselves as the Trieste System.

But some fear that the missionary zeal that established and nourishes this utopia may be fading. Many of the leading lights of ICTP's early years are retiring, and the "new people don't have the same fervor," says Katepalli Sreenivasan, an Indian-born physicist who

took over as ICTP director last month and is cautiously exploring ways to reinvigorate it.

Einstein's dream

After World War II, several prominent physicists, including Albert Einstein, Robert Oppenheimer, and Niels Bohr, floated the idea of a physics institute under a U.N. flag where researchers from across the globe



Melting pot. New director Katepalli Sreenivasan wants ICTP to remain a refuge for researchers away from the divisions of world politics.

could work free of military interference. The idea went nowhere until the early 1960s, when celebrated Pakistani physicist Abdus Salam made a formal proposal to the International Atomic Energy Agency.

Salam mobilized developing countries to support the center concept, which at first was opposed by big U.N. players wary of losing top talent. After 3 years of wrangling, it was "a rare case of the poor winning against the rich," says Paolo Budinich, then head of physics at the University of Trieste. In 1964, at Budinich's suggestion, the center was sited in Trieste, which at the southern end of the Iron Curtain seemed symbolically ideal.

Embraced by the physics community, ICTP quickly established itself as a first-class research and training center where dozens of Nobel laureates came to teach. It received a further boost when founding director Salam shared a Nobel Prize in 1979 with Sheldon Glashow and Steven Weinberg for the unification of electromagnetism and the weak nuclear force. For 30 years, Salam's inspiring personality dominated ICTP, which was renamed in his

honor after his death in 1996. Salam remains a formidable presence. His former office is something of a shrine: Bookshelves are glassed in to keep the volumes as he left them, while other glass cases preserve his walking sticks, prayer mat, and scores of awards and honors from across the globe. "Salam became a demigod," says Sreenivasan. "He cared for what he was doing. But he has made it difficult for his successors."

Despite the U.N. badge, 85% of ICTP's \$22.5 million annual budget comes from the Italian government. Italy views the center as an important foreign policy tool and, in 1983, was happy to add the International Centre for Genetic Engineering and Biotechnology (ICGEB) and the Third World Academy of Sciences to the Trieste roster. The

International Centre for Science and High Technology was established in 1988 and, 3 years ago, the InterAcademy Panel, a network of 80 national science academies, took up residence.

A grander role

Some think that the Trieste System should capitalize on this drawing power and seek official status as a U.N. field office devoted to promoting science in the developing world. Budinich, in particular, is pushing hard for a grander U.N. role for the Trieste System, seeing it as the fulfillment of Salam's dream. Others are equivocal. "Recognition by the U.N. or the E.U. is something we strive for," says ICGEB director Arturo

Falaschi, "but we do not yet have the critical mass." Sreenivasan has other doubts. "It's a slippery slope. I don't know where we'd end up," he says. "I would like us to be lean and mean, not grow too much, and stay effective."

Sreenivasan, who was director of the Institute for Physical Science and Technology at the University of Maryland, College Park, before coming to Trieste, is feeling his way on how to achieve those goals. One possibility is to create affiliated centers in countries such as India, Brazil, and South Korea whose physicists profited greatly from the ICTP experience and could now support colleagues in poorer neighboring countries. He also hopes to tap such transitional countries for financial contributions that could build up a reserve for expansion or new programs.

The one thing that Sreenivasan does not want to see is an erosion of ICTP's unique role as a scientific crossroads, a meeting place for researchers separated by politics. "So many people think ICTP belongs to them. I don't want to fail them."

—DANIEL CLERY

