

# With no end in sight for the war in Ukraine, CERN ceases cooperation with Russia

A nuclear-physics laboratory is the exception and the focus of both hope and controversy.

**C**ERN has ended collaborations with Russian institutes as of 30 November, when a five-year cooperation agreement expired. The CERN Council—a body made up of government representatives from the particle-physics laboratory's member states—decided in December 2023 not to renew the agreement “in light of the ongoing military invasion of Ukraine by the Russian Federation.”

The decision follows earlier measures by CERN: On 8 March 2022, two weeks after the 24 February invasion, CERN suspended Russia's status as an observer. In spring 2023, the CERN experimental teams decided not to include the names of Russian institutes in author lists on publications. And collaborations with Belarus were discontinued at the end of June 2024.

CERN's actions are on a par with those of many scientific institutions

across Europe and beyond. Some facilities and individual scientists took a harder line earlier, while others continue to work with colleagues affiliated with Russian institutes. Even aside from restrictive measures, collaborations have withered because of complications in moving money, goods, and people since the invasion and ensuing sanctions. (See *PHYSICS TODAY*, June 2022, page 22.)

The council's decision affects people, funding, and research. Opinions about the decision among CERN researchers are mixed, highlighting a tension between a desire to criticize Russia for its actions and a hope that science can serve as a bridge to maintain peaceful communication.

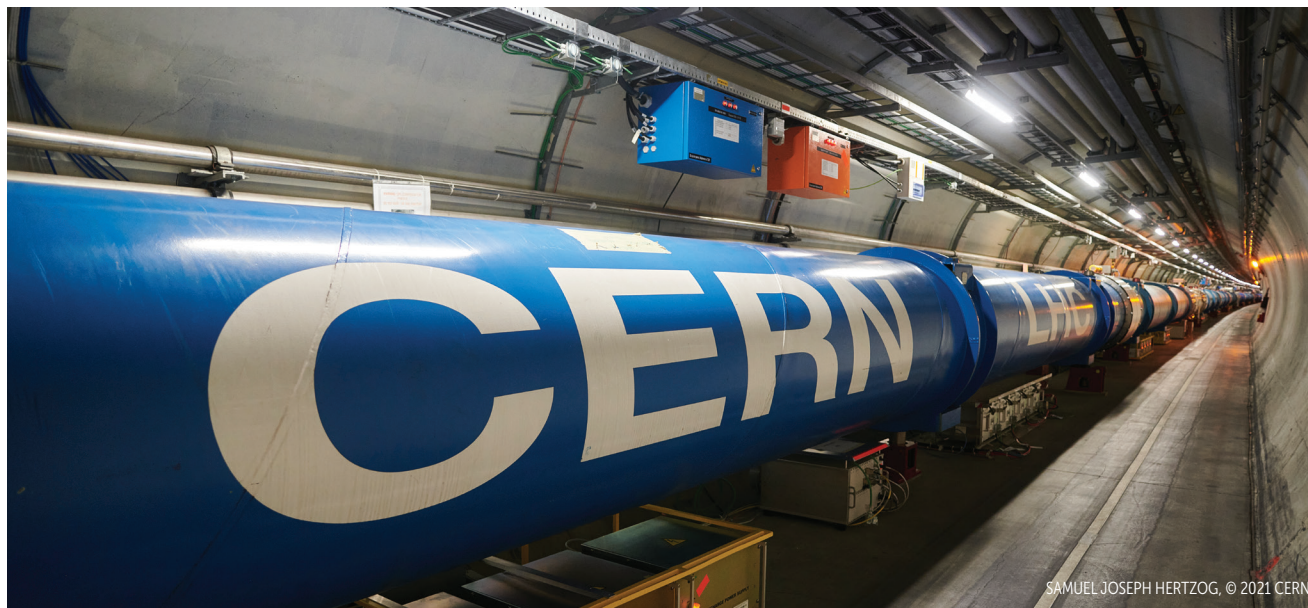
Before Russia invaded Ukraine, about 1000 scientists from a few dozen institutes in Russia worked at CERN. Several hundred of those scientists were affiliated with the Joint Institute for Nuclear Research (JINR) in Dubna, about 130 km north of Moscow. An international organization whose 16 member countries are mostly in eastern Europe and Asia, JINR

has a separate cooperation agreement with CERN that remains active.

### On the ground

The council's decision hits some Russian scientists and technicians hard. Many have been based at CERN for years, and without a CERN connection, they will lose their visas and have to leave. For the past two and a half years, ever since Russia invaded Ukraine, colleagues at the laboratory and on the experiments have been helping them find new affiliations.

Over that time, says Joachim Mnich, CERN's director for research and computing, “we identified a few dozen scientists who could not return to Russia or didn't want to for personal reasons. In a few cases it would have been a personal tragedy.” Some scientists had signed statements against the Russian government, making returning dangerous for them. The laboratory also prioritized scientists who were essential to operating the accelerator or experiments. About 90 have found affiliations in Europe or



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**THE LARGE HADRON COLLIDER** and its experiments at CERN involve the work of scientists from 24 member countries and beyond. As of this month, individuals at Russian-affiliated institutes can no longer participate.

the US and can stay at CERN, according to a lab press officer, and a much smaller number are still looking for jobs outside Russia.

Scientists who return to Russian-affiliated institutes will be treated like anyone else who leaves a CERN collaboration “for whatever reason,” says Mnich. They will be included on publications for a year. The roughly 100 PhD students who had to leave will retain access to CERN data for a year to finish their theses. If they need longer, Mnich says, “we will see whether we can extend. We are trying, in particular, to mitigate the damage to young people.”

With ties formally cut, CERN and partners will have to cover for Russia’s planned contributions. That includes 2.3 million Swiss francs (\$2.7 million) a year for maintaining and operating experiments plus 50 million Swiss francs—spread over time—for in-kind contributions to upgrade the accelerator and experiments, according to Mnich.

Scientists from Russian institutes have contributed to data analysis and to the design, construction, and operation of the ATLAS detector at CERN, says spokesperson-elect Stéphane Willocq of the University of Massachusetts Amherst. ATLAS scientists have been working on transferring tasks and know-how to other institutions within the collaboration, he adds.

Researchers at other CERN experiments and at the Large Hadron Collider accelerator are similarly working to spread knowledge and mitigate the impact of imminent departures, says Mnich. “My personal feeling is that in most cases, we have achieved this,” he says. “There may be exceptions where science will suffer.”

## Hot and cold

Scientists at CERN and beyond who support the break in relations tend to see it as a no-brainer, given that Russian science institutes have expressed support for the war. Many of them say that CERN should also cease collaborations with JINR because of its close ties to Russia.

Tetiana Hryn’ova is a member of the ATLAS experiment who hails from Ukraine and is employed by the CNRS. The discussion at CERN, she says, “was focused on whether to continue to cooperate with Russian institutes and JINR while they support the war and work on military and dual-use proj-



**MORE THAN A MILLION BRASS SHELL CASINGS** from the World War II stash of the Soviet Navy were melted and machined into parts for a calorimeter for the CMS experiment at CERN. They were delivered in 2002 and 2003. As of this month, collaborations between CERN and Russian institutes, which were first formalized in 1967, are over. (Courtesy of peterginter.com.)

ects.” She notes that JINR collaborates with at least 78 Russian institutes that, based on the OpenSanctions database, are sanctioned by the US, the European Union, Japan, and other countries “for acquiring and attempting to acquire items in support of the Russian military.” And nearly 80% of JINR’s budget and 93% of its employees are from Russia, according to public records. Vladimir Putin visited JINR on 13 June for a meeting on defense and security in Russia, Hryn’ova says, further underscoring the institute’s connections to the Russian government.

“If Putin is talking with JINR and its scientists about how they can contribute to the war effort, I believe JINR should be boycotted,” says Gerson Sher, a retired NSF programs officer for Eastern Europe who devoted a half century to promoting US–Soviet and, later, US–Former Soviet Union scientific cooperations in basic research.

Although ongoing, CERN’s collaboration with JINR is constrained: Existing efforts can continue; but no new joint projects can be launched, and only scientists already involved with CERN can participate. That is particularly problematic for young scientists and PhD students, says Sasha Glazov, a particle physicist at DESY, the German Electron Synchrotron, in Hamburg.

Originally from Dubna, Glazov says that attending a joint CERN–JINR sum-

mer school as a student was inspiring for him. Absent such opportunities, young physicists will turn their sights elsewhere. Local experiments are possible in Russia, says Glazov, “but they are less interesting than at the Large Hadron Collider at CERN.” Young physicists may look to China or other countries in Asia that take a softer stance toward the war in Ukraine. Or, he says, they may put their skills to work in ways that support Russian military aims.

Scientists who are discouraged by the cessation of relations with Russia see continued collaboration with JINR as keeping the door open for the future. “It’s positive to maintain this channel of communication and collaboration,” says Hannes Jung, an emeritus particle physicist at DESY and a member of the CMS experiment at the Large Hadron Collider.

In spring 2022, after the invasion of Ukraine, Jung and other scientists created the Science4Peace Forum to promote science as a driver for peace. He and other critics see the decision to cut ties as flying in the face of CERN’s historic role of fostering collaborations across borders.

But Sher says that relationships will resume when the war ends. “I believe passionately in cooperation as a tool of diplomacy and a benefit for science,” he says. But the war in Ukraine is not the Cold War. “It’s a hot war.”

**Toni Feder**