quate access to key documents related to the allegations and had not been given the opportunity to respond before the report was made public. He stated that he had not yet read the report but would defend himself "against any allegations." Mertelsmann could not be reached for further comment.

At a 1 March press conference, university rector Wolfgang Jäger said he has asked the state of Baden-Württemberg's Research Ministry to initiate a disciplinary proceeding "to clarify the extent of [Mertelsmann's] personal responsibility" for the questioned research. A spokesperson for the ministry, which is not obliged to launch such a proceeding, says a decision is expected in the next few weeks.

Meanwhile, the Freiburg medical center's supervisory board has asked Mertelsmann to withdraw voluntarily from clinical research for the duration of any disciplinary hearing. Jäger said no further actions are necessary, because the center and its faculty have taken steps—such as adopting stricter rules of conduct—to safeguard research integrity.

–ROBERT KOENIG

QUANTUM CHROMODYNAMICS

Quark Quirk Triggers Nuclear Shrinkage

If atoms had egos, a few lithium nuclei would be nursing bruises right now. By sticking an exotic type of quark where it doesn't belong, physicists have cut the nuclei down to four-fifths normal size. In the process, the scientists are edging toward a theory that can explain nuclear interactions of all varieties.

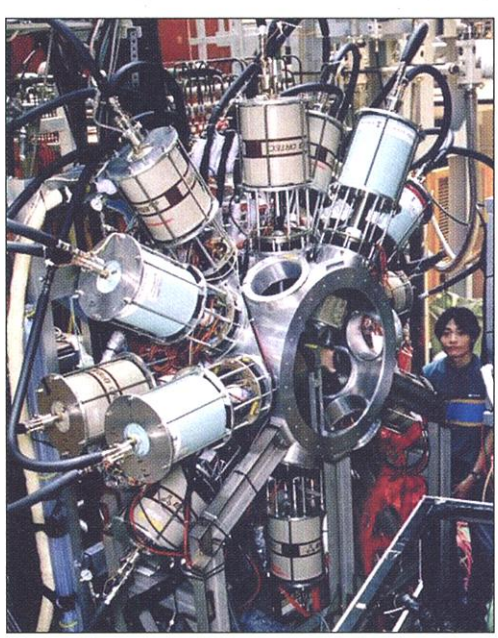
"Shrinkage of about 20% is very surprising," says Hirokazu Tamura, a physicist at Tohoku University in Sendai, Japan. "Nuclear physicists know that compressing the nucleus is very, very difficult."

So instead of trying to squeeze an atomic nucleus, Tamura and colleagues from Japan, China, Korea, and the United States set out to shrink it from within. In the 5 March *Physical Review Letters*, the physicists describe how they injected a little dose of strangeness into a lithium-7 nucleus. Through a handful of particle interactions, they substituted a strange quark for a down quark, turning one of the atom's neutrons into a particle called lambda, or Λ. "It's quite similar to the neutron, but somewhat heavier," says John Millener, a physicist at Brookhaven National Laboratory in Upton, New York. "A proton is two ups and a down, a neutron is two downs and an up, and a Λ is an up, a down, and a strange." The quark substitution turned lithium-7 into lithium-6-Λ, a so-called "hypernucleus" with subtly different properties from a garden-variety lithium nucleus.

The difference stems from the Pauli exclusion principle, the quantum-mechanical rule that forbids certain particles from having the same quantum state. Given the chance, a neutron in a nucleus will occupy the lowest possible energy level, or ground state. Two neutrons can inhabit that level, but only if they have different quantum states. For that to be true, one neutron must have spin +1/2, and the other must have spin –1/2. A third neutron, however, must take a higher energy position farther away from the center of the atom. The same exclusion rules apply, independently, to protons.

Lithium-6 has three protons and three neutrons; one proton and one neutron are in the higher energy state, loosely bound to the core. Enter the Λ. Because a Λ particle is distinct from both protons and neutrons, it is exempt from the Pauli exclusion principle that governs those particles. As a result, it sinks directly into its ground state, joining the low-energy protons and neutrons at the center of the nucleus. "You put the Λ in the system, and it makes everything more stable by interacting with the [protons and neutrons]," Tamura says. The extra Λ binds the particles more tightly together but, unlike an added proton or neutron, takes up no additional space. The stabilized nucleus shrinks.

Tamura's team observed the shrinkage by precisely measuring gamma rays that emanate from lithium-6-Λ hypernuclei. The gamma rays reflect the shifting of particles' spins within hypernuclei—information that can help scientists determine not only a hy-

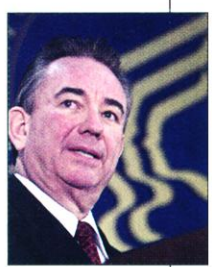


Squeeze play. Gamma rays entering the 14 spokelike detectors of Tohoku University's Hyperball instrument showed evidence of pint-sized lithium nuclei.

CREDITS: (LEFT TO RIGHT) DEPARTMENT OF PHYSICS, TOHOKU UNIVERSITY; U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

ScienceScope

Stem Cell Limbo Those hoping for clear signals about the status of U.S. government funding for human embryonic stem cell research were disappointed last week. Secretary of Health and Human Services (HHS) Tommy Thompson (below) told reporters and National Institutes of Health (NIH) staff gathered for a 1 March budget briefing that the legal questions surrounding the cells are still "a little murky, because Congress has passed a law" that forbids NIH from funding work that harms or destroys an embryo.



In 1999, an HHS lawyer reasoned that work could go forward because embryonic stem cells—valued because they can be coaxed to grow into a variety of cell types—are not themselves embryos. But that opinion "has been questioned by other lawyers," Thompson said, and the department is reviewing the matter. If the Administration decides it is legal to go ahead, the review won't hold up funds, he vowed. The next deadline for researchers to submit proposals for stem cell work is 15 March, but ethics and science reviews mean scientists won't receive awards before June, said NIH acting director Ruth Kirschstein.

Meanwhile, lobbying on the volatile issue continues. The American Association for the Advancement of Science (*Science*'s publisher) this week sent Thompson a letter urging him to let stem cell funding proceed.

Russelling Up Staff The Bush White House has made its first science-related job appointment. It's Richard Russell, a former House Science Committee senior staffer, who this week took up residence as the White House Office of Science and Technology Policy's (OSTP's) chief of staff.

Russell spent 6 years on the Science Committee, where he handled an array of issues, and also helped with the Bush Administration's transition efforts at the Department of Commerce and the National Science Foundation. Before going to OSTP, rumors had him in the running for a senior Commerce post overseeing the National Oceanic and Atmospheric Administration.

Russell's duties—and longevity—at OSTP are unclear. Researchers are still anxiously waiting for the White House to name a new science adviser, who also heads the office and could bring in his own team.

Contributors: Wayne Kondro, Jeffrey Mervis, Gretchen Vogel, David Malakoff

pernucleus's size, but also how its components interact with one another. "Nobody's been able to measure this with such high precision," says Millener, who hopes that understanding those interactions will shed light on so-far-obscure aspects of nuclear physics. "We don't really have a theory for these interactions." –CHARLES SEIFE

PHILANTHROPY

Russian Billionaires Launch Science Fund

MOSCOW—Two unlikely saviors have come to the rescue of Russia's impoverished scientists. Last month, a new foundation endowed with $1 million from a pair of young tycoons announced that more than 200 researchers will receive salary supplements of up to $10,000 this year—as much as 10 times their annual salary. While commending the so-called oligarchs for their generosity, some observers have complained about the secrecy of the selection process.

This is not the first time that a billionaire has bailed out Russian science. In the early 1990s, U.S. financier George Soros spent $120 million of his own fortune to endow the International Science Foundation (ISF), which doled out peer-reviewed grants to more than 30,000 scientists in the former Soviet Union. Then in 1995, one of the most notorious of Russia's oligarchs, Boris Berezovsky, gave $1.5 million to support travel grants for Russian scientists.

Now comes the Public Charity Foundation for the Support of National Science, funded entirely by Oleg Deripaska, the 32-year-old head of the megacompany Russian Aluminum, and Roman Abramovich, a 34-year-old oil industry executive and governor of the Chukotka region across the Bering Strait from Alaska. In setting up the foundation without fanfare last year, the two billionaires "did exactly the same as Soros had done: They gave money and kept themselves in the background," says Pavel Arsenyev, former executive director of ISF's Moscow office.

The new foundation's executive director, Maxim Kagan, says candidates for grants were chosen from among past winners of three academic competitions run by the Russian Academy of Sciences (RAS) and the office of Russian President Vladimir Putin. From this list of names, Kagan says that experts selected winners based on factors such as the number of citations their papers had received. The 2001 grants went to 10 prominent academicians—including Yuri Kagan, Maxim's father—who each will receive $10,000 this year; 200 young Ph.D.s and doctors (the highest academic degree in Russia) each get $3000 and $5000 respectively. The RAS will administer the awards for the charity, which reserved $100,000 for overhead.

The selection process was conducted in secrecy—the foundation has even refused to name the experts that helped select winners—and this has prompted some grumbling. "The atmosphere of secrecy may cause suspicion," says Arsenyev, who wonders if there even were any expert advisers. He also complains that only RAS scientists appear to have been eligible for the prizes. "If Soros were to do this," he says, "he would have begun with the scientific community en masse." The former head of the ISF's scientific council, Vladimir Skulachev, argues that it would have been more transparent had the prize money been distributed by the Russian Foundation for Basic Research, the country's main natural sciences granting agency.

According to Kagan, even if the new foundation can raise money to continue beyond 2001, the selection procedure is unlikely to become more transparent. He says that RAS president Yuri Osipov views the foundation as a Russian version of the Nobel Committee, which also keeps its deliberations secret.

Pocket change. Roman Abramovich (right) has followed the lead of Boris Berezovsky (left) in supporting Russian scientists.

In unveiling the foundation, Abramovich and Deripaska said they were moved to act by the parlous state of Russian science. It's also great PR in the power struggles between the oligarchs and Putin over taxes and privatization of state assets, notes Skulachev. A few years ago, Skulachev says, Berezovsky tried a similar tactic when he persuaded six other businessmen to help him create a $150 million science fund modeled after ISF. But the scheme fell apart before it got off the ground, says Skulachev. "If they had created the foundation," he says, "it would have been more difficult for Putin to struggle with them."

Whatever the political benefits, Abramovich and Deripaska certainly have won the hearts of at least 210 scientists.

–VLADIMIR POKROVSKY, ANDREY ALLAKHVERDOV, AND MARINA ASTVATSATURYAN

Vladimir Pokrovsky, Andrey Allakhverdov, and Marina Astvatsaturyan are writers in Moscow.

CHINA

Academician to Lead Science Ministry

BEIJING—A remote-sensing expert who has been in charge of promoting high-tech enterprises has been chosen to head China's Ministry of Science and Technology (MOST). Xu Guanhua succeeds Zhu Lilan, who assumes a top legislative post within the National People's Congress.

New minister. Xu Guanhua has promoted venture capital markets.

Xu, who has been Zhu's deputy, will direct a rapidly growing science and technology budget that reached $6.5 billion in 1999. He oversees state-run scientific institutes, including the Chinese Academy of Sciences (CAS), as well as funding for key basic research projects, high-technology development, scientific infrastructure, and international collaborations.

A native of Shanghai, the 60-year-old Xu was trained as a forestry scientist and spent 30 years working for the Chinese Academy of Agricultural and Forestry Sciences before moving to CAS. Named an academician in 1992, Xu is credited with helping to develop the country's remote-sensing industry using domestically made global information system instruments, as well as improving the research environment within CAS and nurturing young talent. "He was quite strict," says Niu Zheng, Xu's first doctoral student, who is now a research professor within the Institute of Remote Sensing Application. "But no matter how busy he was, he would always find time to discuss a scientific issue."

As executive vice minister of science and technology in charge of high-tech industries in the mid-1990s, Xu argued in a speech for "active measures to promote the venture capital market," including listing more high-tech enterprises on the country's stock exchange. He also lobbied for the application

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