

in the universe, and a host of other gripping and tantalizing subjects.

"I worried beforehand that things might go sour," said Harper. "There could have been some spoilers or people might have gone into eye-rolling mode. But honoring Wheeler, who is both profound and gracious, really forestalled any rudeness. The real question was, Could we get around people's initial suspicion of the foundation's role? In the end, the outcome was better than expected."

Adrian Melott, an astrophysicist at the University of Kansas, was initially suspicious. "While interested in the meeting topic," he said, "I also was on the lookout for a hidden agenda, which might be evangelism rather than science. The Templeton Foundation is certainly theistic, but that in no way colored the program. I ended up thinking about things that aren't normally part of my research, but in principle could be. It was fun and I'm glad I went."

The future belongs to the young

"The whole thing was a little offbeat, a little unusual," said Ken Ford, a theoretical physicist and collaborator on Wheeler's autobiography. "For me, the real highlight was the young researchers."

In developing the program, Harper knew he wanted scientists in their twenties involved. "In 1910, if we wanted to explore the future of physics and everyone who came was over 40, the people who mattered wouldn't be there." So he cooked up a Young Researchers Competition for the under-32 crowd to encourage short papers that were deep, innovative, persuasive, and relevant to Wheeler's RBQs. Of the 64 entrants, 15 finalists were chosen (see the photo on page 28). "It was especially nice to see the gender balance and international flavor of the finalists," said Ford. First prize was shared by Raphael Bousso and Fotini Markopoulou, who each took home \$7500. Six others shared second place and received \$5000 each.

The evening after the competitors' presentations, prominent historian and religious scholar Jaroslav Pelikan of Yale University's history department delivered the other plenary talk, entitled "The Heritage of Heraclitus: John Archibald Wheeler and the Itch to Speculate." Like Heraclitus, Wheeler has thought deeply about war and loss. Taking the podium for a few minutes the next day, Wheeler declared that he expected the world to see a devastating war "in the next 50 years," but was optimistic that

Polkinghorne Pockets Religion Prize

Physicist and priest John Polkinghorne is this year's winner of the Templeton Prize, first bestowed in 1973 on Mother Teresa. Founded by global investor John Templeton, the prize—rechristened this year as the Templeton Prize for Progress toward Research or Discoveries about Spiritual Realities—carries a £700 000 (about \$1 million) cash award, intentionally more than the Nobel Prizes.

Polkinghorne earned his PhD in quantum field theory at the University of Cambridge in 1955; his thesis adviser, Abdus Salam, and his postdoctoral adviser, Murray Gell-Mann at Caltech, would each later win the Nobel Prize in Physics. After nearly a quarter of a century in academia, Polkinghorne gave up his Cambridge professorship and entered the Church of England, which ordained him as a priest in 1982. "I had done my bit for physics," he says.

Since then, Polkinghorne has focused on bridging science and religion. "Both are concerned with the search for truth," he says. "Science asks how things happen, religion asks why. For example, in fundamental physics, we are deeply impressed by rational order and beautiful equations. I would ask if that's just our luck, or is there some divine mind behind it all?"

"When I give talks," he adds, "I feel just as much a missionary for science as for religion—particularly in North America, where skepticism about science is widespread." Polkinghorne returned to Cambridge as a chaplain in 1986 and later served as president of the university's Queens' College until he retired in 1996.

Polkinghorne's latest book on science and religion, due out this spring, is *The God of Hope and the End of the World* (Yale U. Press). Coming out at about the same time is his physics book for laypeople, *Quantum Theory: A Very Short Introduction* (Oxford U. Press).

Polkinghorne plans to use some of his winnings to establish postdoctoral fellowships in science and religion at Cambridge.



POLKINGHORNE

KAREN MARSHALL

humankind would survive and become stronger, especially when he looked at inspirational young people and deep thinkers such as those in attendance.

Wheeler added that, last year, he "had the good fortune to have a heart attack. I call it good fortune because it reminded me that time is limited. Philosophy is too important to leave to the philosophers, and I had better get busy on the most important question: How come existence?"

STEPHEN G. BENKA

JASON Courts New Sponsor after DARPA Cancels Contract

After three months of uncertainty following a contentious breakup with its long-time US Department of Defense sponsor, the independent science advisory group JASON was on the verge in mid-April of signing a contract with a new DOD sponsor. The contract, which would allow JASON to continue its activities with only minor interruptions, was being negotiated with the DOD office of the Director of Defense Research and

Engineering (DDR&E), which plans and oversees the entire DOD science and technology program.

"We are very close to the end of productive discussions with DDR&E, and I hope we are going to get a contract in place within a couple of weeks," said physicist Steven Koonin as PHYSICS TODAY went to press. Koonin, the chair of JASON and provost at Caltech, said the new contract would be for somewhat less than the \$1.5 million agreement JASON had with its previous sponsor, the Defense Advanced Research Projects Agency (DARPA). Once the new contract is in place, money from other federal agencies is expected to flow in and boost JASON's annual budget to about \$3.5 million.

If the new agreement proceeds as anticipated, it will end a dispute that has threatened to put JASON out of business. "It will let us continue, and our membership integrity remains intact, which was an issue with DARPA," Koonin said.

JASON began in 1960 as an independent group of 40–50 distinguished scientists who would meet for six weeks each summer in La Jolla, California, to review the science and technology involved in specific problems brought to the group by DARPA and

other federal agencies. Over the past few years, JASON has played a significant advisory role in stockpile stewardship problems, infrared imaging, biowarfare concerns, and the potential of molecular electronics and other new technologies.

The dispute with DARPA began late last year when the agency, which has funded much of the JASON work for 42 years, insisted that two Silicon Valley executives and an engineer be accepted into JASON. The group has always selected its own members. In a series of discussions, JASON members concluded that DARPA's candidates did not meet the group's high standards and refused to admit them. DARPA abruptly canceled its contract with JASON, with an agency spokesperson saying the group was too heavily physics-oriented and unable to adjust its priorities to a post-cold-war world.

"That's nonsense," said JASON member and University of Texas at Austin physicist Roy Schwitters. JASON has actively expanded its membership over the years to include biologists, chemists, computer scientists, and engineers, he said. "But the standards are high and people have to be distinguished in their research. And they have to be able to get security clearances."

Schwitters, who has been a member since 1995, said that, because JASON brings together so much talent for an extended period to focus on specific issues, it is unlike any other science group in the country. "We work together for weeks on a problem and it becomes an interesting and creative process. You're getting to know each other as the problems are worked on. It's not like a review committee."

Although DARPA has declined to discuss the membership dispute, several JASON members have indicated that DARPA's demand to include three specific new members was an effort to gain some control over the group's agenda. "It was take it or leave," Schwitters said of the DARPA demand.

The reaction to DARPA's cancellation of the JASON contract was strong, Koonin said. "I was surprised by how many friends and people not directly connected with this organization came forward both to support us and also to support the stance we took vis-à-vis the membership issue." One of those friends was Representative Rush Holt (D-N.J.), who on 27 March sent a letter to the leaders of the House Armed Services Committee and the House Defense Appropriations

Subcommittee asking for funding to "reinstate" JASON. DARPA's attempt to select JASON members, he said, "would compromise the objectivity and independence of the group's advice." Congressional staff members familiar with science issues on Capitol Hill said the DARPA effort was widely viewed as politically motivated.

Koonin said the group was planning to conduct its usual three-day spring meeting in Washington, DC, to set the agenda for the summer session, even if a contract wasn't in place. Getting the contract signed was important, not just for the money that would come directly from DDR&E, but because that DOD agency would serve as the channel for significant funds from other agencies that use JASON, including the Department of Energy and some intelligence agencies.

JIM DAWSON

CERN Outlines Plan to Pay for LHC

CERN management has sketched a preliminary plan to pay the extra costs of the Large Hadron Collider, a 14-TeV proton collider being built in a tunnel under the French-Swiss border. Under the proposal, unveiled at a meeting of CERN's governing council in March, non-LHC science at the lab is cut to the bone. "The whole particle physics community is waiting for the LHC. We have to realize the project as fast as possible," says Roger Cashmore, the lab's director of research for collider programs.

Confidence in lab management—though not in the LHC—eroded last fall with the surprise revelation that the LHC's costs had grown 850 million Swiss francs (roughly \$511 million) above the original 2.6 billion Swiss francs (see PHYSICS TODAY, December 2001, page 21 and February 1997, page 58). Now the management estimates it can save about 500 million

Swiss francs over eight years by cutting the operating hours of the Super Proton Synchrotron, paring fellowship money for visiting scientists, slashing funding for accelerator R&D, cutting spending on industry contracts, and applying other austerity measures. Delays in the LHC's startup from 2005 to 2007—due to magnet production—will save on computing costs. And the balance of the overrun would be made up by pushing back the completion of payment from 2008 to 2010—or 2009, if CERN's 20 member states increase their contributions.

Such an increase appears unlikely, however. "We haven't bottomed out on what [the lab] could save," says Ian Halliday, who represents the UK on the CERN council. "The [management's] proposal is one-half to one-third of what they need to save if they were to do it on schedule." Adds Halliday, "To be brutal, I don't think CERN ever had the money and manpower" for the neutrino beam to Gran Sasso (see PHYSICS TODAY, February 2000, page 50). "A thing of lower priority got funded, and the highest priority—the LHC—is passing the bowl around."

Only Switzerland has yet offered to help financially, by advancing 90 million Swiss francs from future dues. The CERN council also freed up 20 million of the 53 million Swiss francs (5% of the total annual budget) it froze last fall after hearing about the LHC overruns.

For their part, the lab's staff are critical of CERN management and also say member states should help pay the extra price of the LHC. On 21 March, during the council meeting, some 1200 staffers took to the streets to air their views. "The first proposal on how to deal with the problem is very controversial," says CERN physicist Friedrich Dydak. "There should be a 10–15% admixture of non-LHC projects that are interesting and vital—this keeps the lab alive." The



STAFF AND USERS DEMONSTRATED outside CERN on 21 March against the management's approach to the current financial crisis.

CERN STAFF ASSOCIATION