

One Stone: A Traditional Play on Einstein

“Truly, truly, as the Hermit Isseki said, time is slow for one who flies with the light, but it is fast for him who rests.” Isseki is Japanese for “one stone,” and the Hermit Isseki is, of course, Einstein in the Noh play in which these words are spoken by a messenger.

The *Hermit Isseki* is a new play written by immunologist Tomio Tada in the centuries-old Noh style of music and poetic drama. A group of physical societies commissioned a performance of the play this past summer in Tokyo, and, with a pre-show discussion panel and some corrections to the physics, made it into a World Year of Physics (WYP) event.

In the play a wise woman wanders across deserts and seas, over mountains, and through forests in search of Isseki and answers about the universe. As the drama unfolds, allusions are made to art and science of the East and West. Relativity, the warping of spacetime, the twin paradox, energy and mass, the Big Bang, the birth and death of stars, and the end of the world are among the scientific references that are woven into the play. (An English translation of *Hermit Isseki* is available at <http://www.physicstoday.org>.)

Toward the end of the play, Isseki warns against nuclear bombs. “Behold the power of the nucleus!” he says. “May this atomic power ne’er be used, for war, strife, or destruction.”

Hermit Isseki played to a packed house of 900 theatergoers. That’s almost double the usual attendance for a Noh play, says Kazuo Kitahara, chair of Japan’s WYP steering committee. To help the audience follow the play’s symbolism, Kitahara, along with another scientist, a seasoned Noh performer, and Japan’s representative to Pugwash, the international scientific organization dedicated to reducing armed conflict, made presentations beforehand. The play “was a great occasion,” says Kitahara. “It’s the 50th anniversary of Einstein’s passing, and the 60th anniversary of dropping atomic bombs on Nagasaki and Hiroshima.”

Among the other WYP events in Japan was a national physics competition for teenagers. That was just one in a flurry of firsts, Kitahara says, noting that the WYP kick-off in Paris last January marked the first time Japan had sent college students to an international scientific meeting, and that Japanese



Hermit Isseki (top), representing Einstein in a Japanese play, explains cosmological theories. In another scene (bottom), two nucleons dance vigorously, symbolizing nuclear fission. (Images courtesy of the Japan Committee on the World Year of Physics.)



high-school students will participate for the first time in the International Physics Olympiad next year in Singapore.

Hermit Isseki and other WYP events attracted interest in physics, Kitahara says. “The Noh contains thoughts of Einstein, peace, relativity, nuclear fission, nuclear power. These contents draw attention. I hope the general public feels familiar with the play and with Einstein.” A performance of the play is planned for next June at the United Nations headquarters in New York.

Toni Feder

US Ground-Based Telescopes Under the Microscope

NSF is conducting its first examination of spending across all wavelengths in ground-based astronomy. The so-called senior review aims to cut spending by \$30 million a year on existing facilities to bolster current top priorities and start paying for future ones.

A committee will “advise us on the balance of programs, and in particular how we might rebalance to make faster progress on new facilities without losing strength at existing ones,” says NSF astronomy division head Wayne Van Citters. He expects the committee to consider financial data and scientific justification from the optical-infrared, solar, and radio astronomy observatories, NSF schemes for cutting spending, various reviews, and input from the astronomy community. Chaired by Roger Blandford,

director of the Kavli Institute for Particle Astrophysics and Cosmology at Stanford University, the committee begins meeting this month and is supposed to give NSF its recommendations next spring. (For more information, including a schedule of town meetings, see http://www.nsf.gov/mps/ast/ast_senior_review.jsp.)

The NSF astronomy budget is about \$195 million. “Everything is under the gun,” Van Citters says, except the roughly \$30 million a year in grants to individual investigators. Adds Blandford, “It will be painful for all concerned. You are not looking at fat. You are looking at a choice between the very good and the excellent, and you have to sacrifice some of the very good to have a chance to fulfill some of the dreams spelled out in the [2000 astronomy and astro-

physics] decadal survey.”

Those dreams include an optical-infrared Giant Segmented Mirror Telescope (GSMT) and a large-aperture synoptic survey telescope—with two projects competing for each. Among the other priorities in the decadal survey are the Telescope System Instrumentation Program, the Advanced Technology Solar Telescope, an upgrade to the Very Large Array in New Mexico, operating the Atacama Large Millimeter Array, and studies of dark energy and the polarized cosmic microwave background. The total tab dwarfs what could be done with \$30 million a year. “We know we have tremendously exciting science,” says Van Citters. “If we have scrubbed our program as hard as we can, we will end up with a stronger case for getting future support.”

The senior review “is the right thing to do,” says Indiana University astronomer Caty Pilachowski. “The decadal survey outlined an extremely ambitious and expensive plan. At the time, we didn’t have these huge