

WE HEAR THAT

Pioneering Neutrino Astronomers to Share 2000 Wolf Prize in Physics

The Wolf Foundation has announced that **Raymond Davis Jr** and **Masatoshi Koshih**a will be the corecipients of the Wolf Prize in Physics for 2000. They are being cited “for their pioneering observations of astronomical phenomena by detection of neutrinos, thus creating the emerging field of neutrino astronomy.” The two researchers, who developed complementary methods for neutrino detection, will share the \$100 000 prize, which will be awarded in a ceremony in Israel in May.

The foundation, based in Herzliya, Israel, noted that “their observations of the elusive neutrinos of astrophysical origin have opened a new window of opportunity for the study of astronomical objects, such as the Sun and exploding stars, and the study of fundamental properties of matter.”

Currently a professor of astronomy at the University of Pennsylvania, Davis developed the first large-scale radiochemical neutrino detectors while at Brookhaven National Laboratory. He obtained the first measurement of the flux of neutrinos from the sun using a 400 000-liter tank of tetrachloroethylene in an abandoned gold mine in Homestead, South Dakota. A handful of incoming neutrinos were captured by chlorine atoms, which were transformed into argon atoms through inverse β decay. Davis developed the techniques of extracting the few argon atoms from the tank—critical to the experiment’s success. With the continuing theoretical sup-



MASATOSHI KOSHIHA

port of John Bahcall, the measurements were shown to provide a very stringent test for theories of the solar interior.

Koshih led the design and construction of the Kamiokande neutrino detector and its successor, Superkamiokande. The approach used in these detectors is to record the Čerenkov radiation given off by electrons, positrons, and muons created when neutrinos scatter in the detector’s large tanks of highly purified water. The detectors provided the first recording of the arrival time, energy, and direction of incoming neutrinos. These attributes allowed researchers to identify neutrinos from Supernova 1987a; to establish that low-energy neutrinos originate in the Sun; and to measure the fluxes of different flavors of neutrinos produced in the atmosphere by cosmic rays, thereby providing the first evidence that neutrinos have mass (see PHYSICS TODAY, August 1998, page 17). Koshih is a professor emeritus at the International Centre for Elementary Particle Physics at the University of Tokyo.

Franklin Institute to Present Awards

The Franklin Institute will honor 10 scientists and a business executive next month for their achievements in science and technology. Six of the laureates are being cited for physics-related research.

Eric Cornell, **Carl Wieman**, and **Wolfgang Ketterle** will receive the Benjamin Franklin Medal in Physics for, in the words of the citation, “their epoch-making experimental confirmation of the 1925 prediction by Satyendra Bose and Albert Einstein, who claimed on theoretical grounds that a dilute gas can condense into a large quantum-mechanical system and display properties that are usually found only on an atomic or molecular scale.” Cornell is a senior scientist at the National Institute of Standards and Technology in Boulder, Colorado, and a fellow of JILA and a professor adjoint at the University of Colorado at Boulder. Wieman is also a fellow of JILA and a distinguished professor of physics at the university. Ketterle is the John D. MacArthur Professor of Physics at MIT.

Antoine Labeyre will garner the Benjamin Franklin Medal in Engineering for “the invention of speckle interferometry, which permits large ground-based astronomical telescopes to achieve their full theoretical angular resolution, and for pioneering work in extending Michelson’s method for performing long-baseline multi-telescope interferometry to obtain angular resolutions on the order of 10^{-3} arc-seconds.”

The Benjamin Franklin Medal in Engineering will also be presented to **James Powell** and **Gordon Danby**, both formerly of Brookhaven National Laboratory, for their 1968 invention “of a novel repulsive magnetically levitated train system using superconducting magnets and subsequent work in the field.”

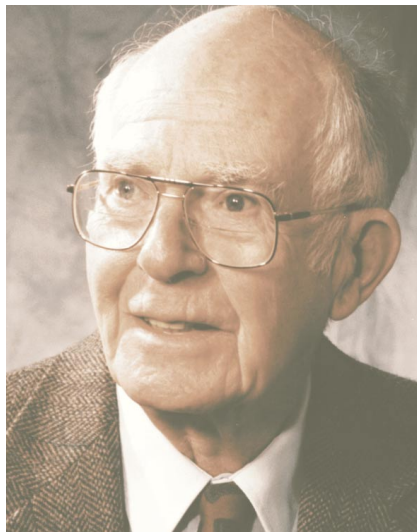
APS to Bestow Honors at California Meeting

The American Physical Society will present awards and prizes to several individuals at its April 2000 meeting in Long Beach, California next month.

The Hans A. Bethe Prize will go to **Igal Talmi**, a professor emeritus of particle physics at the Weizmann Institute of Science in Rehovot, Israel.

Talmi is being honored for his “pioneering work on the shell model of the nucleus that laid the foundation of much of what we know about nuclear structure,” according to the award citation.

Raymond G. Arnold, a research professor of physics at the University



RAYMOND DAVIS JR