This video-grab from Chinese television shows Shenzhou VII mission commander Zhai on his EVA. Videos of China's first spacewalk can be viewed at www.cctv.com/english/special/Shenzhou7/02/04/index.shtml.

CHINA'S FIRST SPACE WALK IS PICTURE PERFECT

On Sept. 27, at 4:43 Beijing time, Shenzhou VII mission commander Zhai Zhigang exited the orbital module of his spacecraft and successfully conducted a nearly 25-minute extravehicular activity, or space walk. The live television footage of the EVA was stunning, showing Zhai up-close in his white space suit against the blackness of space. He retrieved a sample of solid lubricant material from outside the spacecraft, which Chinese scientists will examine for the effects of its exposure to space.

Indicative of the caution with which the Chinese manned space program is carried out, Zhai wore the Chinese-made Feitian space suit, estimated to have cost $4 million to develop. A second astronaut, Liu Boming, donned a Russian-made Sokol suit, which has been used for many years, in case Zhai encountered any problems. Liu briefly exited the Shenzhou. The space walk went smoothly, and afterward Zhai spoke with President Hu Jintao, who had watched the activity live from Mission Control.

Before launch, NASA public affairs told *Xinhua* that the U.S. space agency wished China success and the safe return of its crew.

FDA OKAYS IRRADIATION TO KILL PATHOGENS IN LETTUCE AND SPINACH

The Food and Drug Administration announced a final rule Aug. 21 allowing the use of ionizing radiation to control food-borne pathogens in fresh iceberg lettuce and fresh spinach. This means that consumers can now choose to buy lettuce and spinach that are guaranteed to be *E. coli* free. Previous FDA regulations have allowed lettuce, spinach, and other fresh produce to be irradiated to kill insects or to slow spoilage. But the doses necessary to kill most disease-causing bacteria are slightly higher and required a new ruling.

More widespread use of food irradiation in the developing sector could increase the food supply, by protecting harvested food crops from insects, rodents, fungi, and harmful pathogens. Now, 25-50 percent or more of food is lost to spoilage, especially in places where food storage infrastructure is lacking. But the technology has been held back by the food cartels which want to use it only as it suits their sales strategy.

For more on food irradiation, see article, p. 42.

Petten High Flux Reactor/NRG

A shielded bottle containing molybdenum-99. Mo-99, with a half-life of 66 hours, decays into technetium-99, which has a half-life of 6 hours. Hospitals store the Mo-99 and separate out the Tc-99m, which is the most widely used isotope for medical diagnostics.

NEW ISOTOPE PRODUCTION SYSTEM CAN ASSURE DOMESTIC SUPPLIES

The Washington-based company Advanced Medical Isotopes Corp (AMIC) is partnering with the University of Missouri at Columbia to develop an innovative method of producing molybdenum-99, without a nuclear reactor. The University holds patents on a sub-critical system it created for fissioning U-235 into such products as Mo-99. Energetic gamma rays are directed into a tank of heavy water, producing neutrons, which then bombard the uranium nuclei with energies similar to those in nuclear reactors. Using targets other than uranium, other isotopes can be produced.

According to Robert Schenter, chief science officer of AMIC, the apparatus is room-size, and would allow such systems to be located in major cities, producing short-lived isotopes close to the point of use.

Mo-99 is used to generate technetium-99m, the very short-lived isotope used for more than 80 percent of radioisotope diagnostic procedures globally. The United States now imports 90 percent of its medical isotopes, mostly from Canada. Recent shortages caused by the shutdown of supplier reactors in Canada, Europe, and South Africa, forced the postponement of diagnostic and treatment procedures here and in other countries.

AMIC estimates that production could begin in about three years, and it expects to have a prototype built next year for testing and development of isotope extraction procedures.

NUCLEAR TRANSMUTATION A FOCUS AT COLD FUSION CONFERENCE

Despite catcalls and nose-thumbing from a largely brain-dead scientific establishment, a determined group of scientists has kept up the research on the anomalous production of heat and nuclear by-products, first observed by Drs. Fleischmann and Pons in a palladium cathode electrolytic cell, and reported at a March 23, 1989 press conference in Salt Lake City, Utah. The latest results of this ongoing scientific work were presented by researchers from four continents at ICCF-14, the 14th International Conference on Condensed Matter Nuclear Science, held in Washington, D.C. Aug. 10-14.

After initial attempts to verify the anomalous results of Pons-Fleischmann as a D-D (deuterium fusion) reaction, some researchers turned to the hypothesis that some new form of nuclear process was occurring. Beginning in the mid-1990s, reports began to come in of new elements from lithium to lead appearing on the surface, and also of a change in the isotopic composition of the palladium electrode, after operation of the cell. This and other evidence suggesting that nuclear reactions of a previously unknown type are occurring, has become a focus of many researchers in their attempt to pin down what new science is occurring here. Suggestions of a new type of fission, possibly of the palladium nucleus have been entertained, among other possibilities.

New evidence suggesting the appearance of a nuclear reaction in organic materials including cross-linked polyethylene (XLPE) sheets exposed to high currents and in the organic molecule phenanthrene, was also presented at the conference.

Abstracts of the conference presentations can be found at http://lenr-canr.org/Collections/ICCF14Abstracts.pdf. News of the subject and access to electronic copies of hundreds of scientific papers on the topic are to be found at http://lenr-canr.org/ .

Marjorie Mazel Hecht

Japanese scientist Yoshiaki Arata, Emeritus Professor at Osaka University, was honored at the ICCF-14 conference with an award and a conference session discussing his achievements.

NUCLEAR NEAR BOTTOM OF LIST FOR FEDERAL SUBSIDIES

A new report on Federal incentives for energy development shows that the main beneficiaries of the more than $700 billion of government energy incentives over the past five decades have been the oil and natural gas industries. Together, these two industries have received 60 percent of Federal incentives between 1950 and 2006, with about 46 percent going to the oil sector. The study was carried out by Management Information Services, Inc.

The study also shows that of the total incentives provided since 1950, coal has received 13 percent ($94 billion), hydroelectric energy sources, have received 11 percent ($80 billion), nuclear energy has received 9 percent ($65 billion), and renewable energy has received 6 percent ($45 billion). The report also indicates that since 1988, Federal spending on nuclear energy R&D has been less than spending on coal research and, since 1994, has been less than spending on renewable energy research.

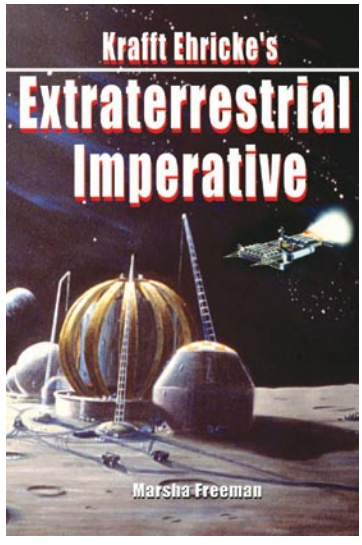
The report can be read in pdf format at www.nei.org.

NEW BIOGRAPHY OF SPACE VISIONARY KRAFFT EHRICKE TO BE RELEASED

The philosophical and technical contributions of German-American space visionary Krafft Ehricke, are the focus of the first biography ever written about this space pioneer. *Krafft Ehricke's Extraterrestrial Imperative*, written by *21st Century Science & Technology* Associate Editor Marsha Freeman, includes reprints of 20 of Ehricke's most important contributions to the field of astronautics. Published by Apogee Books, the book will be available in February 2009.

For ordering information, see www.apogeebooks.com later this year.

A few of Krafft Ehricke's writings are available in photocopy format from *21st Century*, https://www.21stcenturysciencetech.com/Merchant2/merchant.mv?Screen=CTGY&Store_Code=TTS&Category_Code=EHRK



Marsha Freeman's biography of Krafft Ehricke will be available in February 2009.