



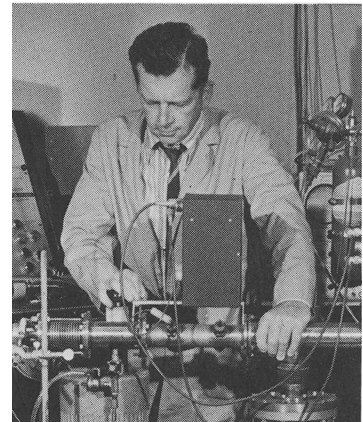
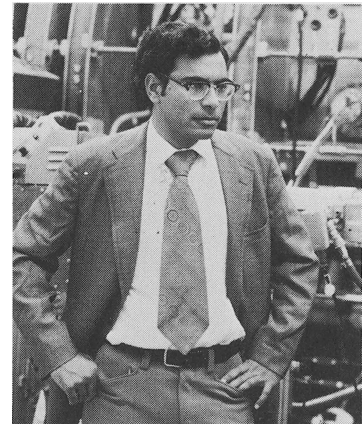
AUTHORS — FEBRUARY 1973

REACTORS

PRODUCTION AND RELEASE OF POSITRON EMITTERS FROM WATER-MODERATED POWER REACTORS

Mike Sohan Singh (top) (BS, physics, Fresno State College, 1970; MS, nuclear engineering, University of California, Berkeley, 1971) is a physicist at the Lawrence Livermore Laboratory, Hazards Control Division. His technical interests include radiation safety in high energy pulsed fields, and radiation measurements. Lawrence Ruby (PhD, physics, University of California, Los Angeles, 1951) is professor of nuclear engineering at the University of California, Berkeley. Reactor dynamics, nuclear spectroscopy, and accelerators are among his current interests.

*Mike Sohan Singh
Lawrence Ruby*

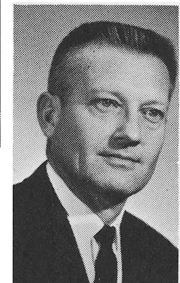


CHEMICAL PROCESSING

A MODEL FOR THE SAFE STORAGE OF FISSILE SOLUTIONS

Sidney J. Altschuler (left) (BChE, The Cooper Union for the Advancement of Science and Art, 1957) is a research physicist at Dow Chemical USA, Rocky Flats Division, working on computer calculations for nuclear criticality safety purposes. C. L. Schuske (MS, physics, University of Southern California) is director of the Nuclear Safety Group at Dow Chemical USA, Rocky Flats Division. His areas of interest are critical mass physics and process plant nuclear criticality safety.

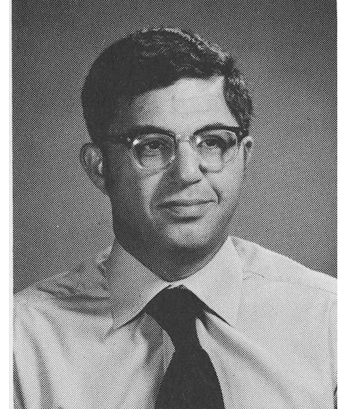
*S. J. Altschuler
C. L. Schuske*



COMPATIBILITY OF STRONTIUM COMPOUNDS WITH SUPERALLOYS AT 900 AND 1100°C

J. R. DiStefano

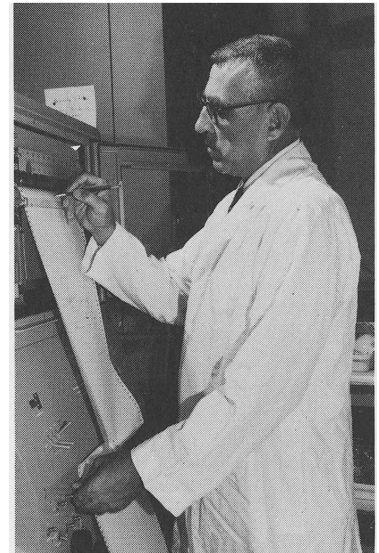
J. R. DiStefano (BS, University of Notre Dame, 1957; MS, University of Tennessee, 1964) has been a metallurgist in the Metals and Ceramics Division Materials Compatibility Group at Oak Ridge National Laboratory for 15 years. He has been involved in studies relating to materials for radioisotopic power generator applications for the past five years.



POST-ACCIDENT HYDROGEN GENERATION FROM PROTECTIVE COATINGS IN POWER REACTORS

H. E. Zittel

Bud Zittel (PhD, chemistry, Vanderbilt University, 1953), associated with Oak Ridge National Laboratory since 1958, is a project leader and senior research scientist. He is responsible for all radiation and thermal stability studies in the spray program and serves as a consultant to the USAEC Division of Reactor Licensing.



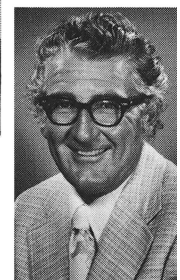
LINEAR THERMAL EXPANSION OF PLUTONIUM DIOXIDE

M. Tokar

A. W. Nutt

T. K. Keenan

M. Tokar (top) (PhD, ceramic science, Rutgers University, 1967) is engaged in determining the mechanical and physical properties of PuO_2 at high temperature and in fabricating PuO_2 cermets. A. W. Nutt (center) (PhD, ceramic engineering, University of Illinois, 1969) is presently engaged in research and development regarding nuclear weapons. T. K. Keenan (bottom) (PhD, University of New Mexico, 1954) is involved in research and development on the use of $^{238}\text{PuO}_2$ for use in radioactive isotopic power sources for space missions.



EFFECT OF LONG-TIME EXPOSURE TO LIQUID SODIUM ON A WELDED AISI TYPE 304 STAINLESS-STEEL PIPE

G. A. Ratz

G. A. Ratz (BS, metallurgical engineering, University of Pittsburgh) is a senior research engineer at the Research Laboratory of United States Steel. He has been involved with metallographic evaluations and the development of new and improved stainless steels for 20 years. His current research includes studies on the ductility of carbon, alloy, and stainless steels at elevated temperatures.

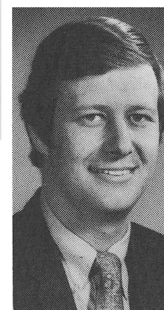


RADIOISOTOPES

PERFORMANCE EXPERIENCE WITH PROTOTYPE BETACEL NUCLEAR BATTERIES

M. Lewis
S. E. Seeman

Milton Lewis (left) (PhD, University of California, 1950) has 24 years of experience in the nuclear field, mostly associated with various parts of the Hanford operations. He joined Donald W. Douglas Laboratories in 1968, and is manager of the Betacel Nuclear Battery Program. For two academic years Lewis was a visiting professor in the UCLA Engineering Department. Stephen E. Seeman (MS, nuclear engineering, University of Wisconsin, 1966) has been working in the Direct Energy Conversion Research and Development Group of the Donald W. Douglas Laboratories since 1966. He is assistant manager of the Betacel Nuclear Battery Program. His main interests are in the areas of nuclear battery development and adaptation to manufacturing.

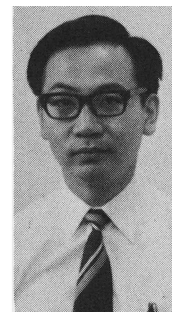


ISOTOPES SEPARATION

STOCHASTIC FLUCTUATION IN A URANIUM-ENRICHING CASCADE USING THE CENTRIFUGE PROCESS

Takashi Kiguchi
Hiroshi Motoda
Toshio Kawai

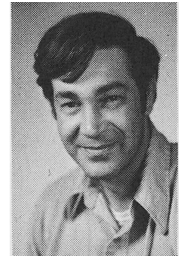
Takashi Kiguchi (top) (MS, nuclear engineering, Tokyo University, 1969) is a member of the Systems Analysis Section, Hitachi Atomic Energy Research Laboratory. He has been engaged in developing an energy model synthesis method for FBR calculations. His current research interests include the control of an isotope separation plant and the management information system of nuclear power stations. Hiroshi Motoda (center) (MS, nuclear engineering, Tokyo University, 1967) is a member of the same section of HAERL. He has been engaged in the in-core fuel management optimization of BWRs. His current research interests include the core management system and control of an isotope separation plant. Toshio Kawai (bottom) (BSc, physics, Tokyo University, 1955) is the leader of the same section of HAERL. His major current interest is in the methods of performance, safety monitoring, and operations research on isotope separation plants.



DETERMINATION BY NEUTRON RADIOGRAPHY OF THE LOCATION OF POLYMERIC RESINS INJECTED IN ROCK FISSURES

R. V. Subramanian
David Burkhart

R. V. Subramanian (left) (PhD, polymer chemistry, University of Madras, India, 1957), associate chemist, materials science and engineering, has been with Washington State University since 1969. His teaching and research experience has been mainly in polymer science. His current interests are in the mechanical behavior of polymers and polymer composites. David Burkhart (BS, physics, Washington State University, Pullman, 1971) is currently working for his MS in nuclear engineering.



A HIGH RESOLUTION THERMAL-NEUTRON RADIOGRAPHY FACILITY

D. M. Alger
S. R. Bull

Don M. Alger (left) (MS, nuclear engineering, University of Missouri, 1970) is reactor supervisor at the University of Missouri Research Reactor Facility. His main interest is in promoting use of university reactors to solve current technical problems. Stanley R. Bull (PhD, nuclear engineering, Stanford University) is an associate professor in the Nuclear Engineering Program at the University of Missouri-Columbia. His current research interests include neutron radiography development and the use of radiation in biomedical application.



Corrigenda

W. G. WOLFER, J. P. FOSTER, and F. A. GARNER, "The Interrelationship Between Swelling and Irradiation Creep," *Nucl. Technol.*, **16**, 55 (1972).

1. The last sentence of p. 59 was not continued on p. 60. See Corrigendum, *Nucl. Technol.*, **16**, 577 (1972).

2. On p. 60, (a) the right side of Eq. (24) should be divided by a factor of 10, and (b) the right side of Eq. (25) should be multiplied by a factor of 2. The corrected equations should read

$$\frac{\sigma \pi R_0^2 b}{kT} \cong 0.5 \times 10^{-4} \sigma(\text{psi}) \quad (24)$$

and

$$\frac{\dot{\epsilon}}{I_0 \pi R^2 b} = 0.4 \frac{\sigma \pi R_0^2 b}{kT} \quad (25)$$

3. On p. 61, because of the previous changes, the right side of Eq. (26) should be divided by a factor of 5. The corrected equation should read

$$\begin{aligned} \dot{\epsilon}(\text{hr}^{-1}) &= 0.4 \frac{I_0 \pi R^2 b t}{\phi t} [0.5 \times 10^{-4} \sigma(\text{psi})] 3600 \phi \\ &= B \sigma \phi \end{aligned} \quad (26)$$

4. On p. 62, similarly, all B values in Table III should be divided by a factor of 5.