

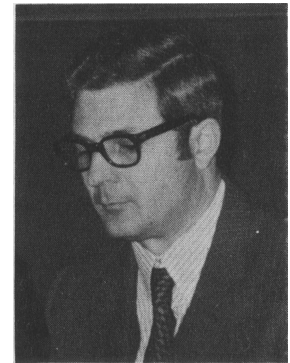
AUTHORS — NOVEMBER 1972

FUEL CYCLES

A REVIEW OF THE ITALIAN ACTIVITIES FOR THE THERMAL RECYCLING OF PLUTONIUM

G. Schileo

G. Schileo (Polytechnic Institute, Milan, 1955) is director of the Plutonium Program of Italy's CNEN. Formerly he was associated as project manager with B&W's Nuclear Fuel Laboratory in Lynchburg, Virginia. His interests cover the areas of nuclear fuel materials, design, and technology.

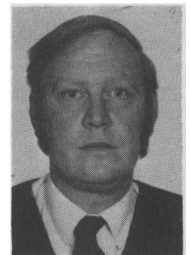
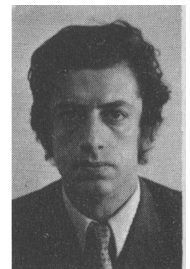
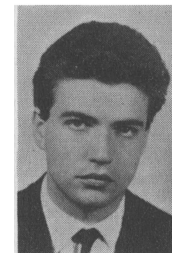


FUELS

EXPERIMENTAL INVESTIGATION OF IN-REACTOR MOLTEN FUEL PERFORMANCE

*C. Lepscky
G. M. Testa
H. Hougaard
K. W. Jones*

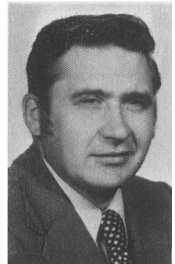
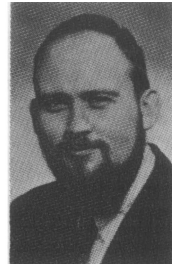
C. Lepscky (top left) is responsible for fuel element post-irradiation evaluation in the Hot Cells Laboratory at Casaccia Nuclear Research Center. G. M. Testa (top right) (PhD, University of Rome, 1961) is responsible for the reactor fuel element design and engineering testing and is presently engaged in LWR fuel design. H. Hougaard (bottom left) (ME, Danish Academy of Engineering, 1965) has been at the Danish Atomic Energy Commission, Research Establishment, Risø since 1965. Since September 1971 he has been attached to the HTRB Project, Kernforschungsanlage, Jülich, Federal Republic of Germany. His experiences are within the fields of UO₂ pellet pressing and manufacturing of Zircaloy-clad UO₂ fuel irradiation and postirradiation examination. K. W. Jones (bottom right) (BE, University of Liverpool) has been working in the field of postirradiation examinations of fast reactor, water reactor, and high temperature gas-cooled reactor fuels and cladding since 1958. His current interest is in the fission gas swelling of UO₂ in civil advanced gas-cooled reactors.



FLUIDIZED BED CALCINATION OF RADIOACTIVE WASTES USING IN-BED COMBUSTION HEATING

T. K. Thompson (top) (BS, chemical engineering, University of Minnesota, 1966) was a senior research engineer for Allied Chemical at the Idaho Chemical Processing Plant (ICPP). He has been associated with pilot-plant process development activities pertaining to waste management for the past six years. He is currently the chief engineer at Energy Incorporated, Process Development and Environmental Control. G. E. Lohse (center) (MS, chemical engineering, Montana State University) has over 19 years experience at ICPP in all phases of fuel reprocessing and waste management. He now supervises technical surveillance of the Waste Calcining Facility (WCF) operation, development activities for WCF processes, and other waste management programs for solid, liquid, and gaseous effluents. He is also a project manager for various construction projects. B. R. Wheeler (bottom) (MS, chemical engineering, Purdue University, 1955) is the manager of the Process Technology Branch of Allied Chemical at ICPP. Wheeler has over 15 years experience in all phases of nuclear fuels processing and waste management activities. In his present position, he is responsible for the technical direction of all work performed in support of the processing facilities at ICPP.

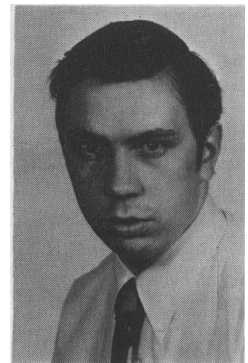
*T. K. Thompson
G. E. Lohse
B. R. Wheeler*



DIMENSIONAL STABILITY OF TANTALUM CONTROL RODS IN LMFBRs

John F. Bates (right) (BS, metallurgical engineering, Colorado School of Mines) has been active in the area of irradiation effects on reactor structural materials and is currently involved in the characterization of irradiation-induced swelling of core components. A. L. Pitner (see below) (BS, physics, Washington State University) joined the Hanford Works in 1964 and has been engaged in materials irradiation studies for the past six years. He is presently investigating the irradiation behavior of candidate LMFBR absorber materials.

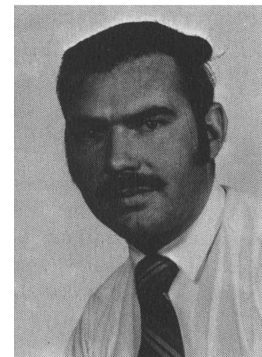
*J. F. Bates
A. L. Pitner*



FAST REACTOR IRRADIATION OF BORON CARBIDE POWDER

A. L. Pitner (BS, physics, Washington State University, 1964) has been active in materials irradiation programs at the Hanford Works for the past eight years. He is presently involved in characterizing the irradiation performance of boron carbide for fast reactor control rod applications.

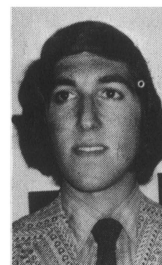
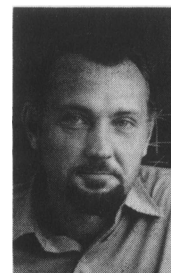
A. L. Pitner



A MATHEMATICAL MODEL FOR THE MEASUREMENT OF GAS PROPERTIES WITH ALPHA-PARTICLE GAUGES

R. P. Gardner (left) (PhD, Pennsylvania State University, 1961) is professor of nuclear and chemical engineering at North Carolina State University. His current research interests are the development and design of radioisotope tracing and gauging principles and techniques. K. Verghese (top right) (PhD, Iowa State University, 1963) is associate professor of nuclear engineering at North Carolina State University. His current research interests include radioisotope applications, radiation measurements, and diffusion in reactor materials. J. I. Cehn (bottom right) is a graduate assistant in the Nuclear Engineering Department at North Carolina State University. He recently completed the requirements for the MS degree and his dissertation served as the basis for the present paper. He is interested in the biological and medical applications of radioisotope techniques.

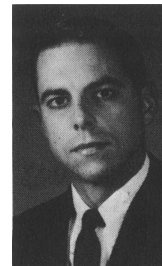
R. P. Gardner
K. Verghese
J. I. Cehn



REDUCTION OF TRITIUM FROM UNDERGROUND NUCLEAR EXPLOSIVES

Joseph B. Green, Jr. (left) (MS, nuclear engineering, University of California, Berkeley, 1966) has worked as a research associate at Lawrence Livermore Laboratory since 1969 and has been active in neutron activation calculations for Plowshare applications. R. M. Lessler (PhD, nuclear chemistry, University of California, Berkeley, 1959) is a senior chemist at Lawrence Livermore Laboratory. He has directed projects in neutron-induced activation, nuclear reactions, and nuclear explosive effects. His current interests include Plowshare applications.

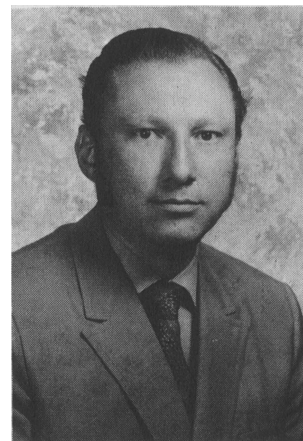
J. B. Green, Jr.
R. M. Lessler



GROUND MOTION PREDICTION METHOD FOR SIMULTANEOUSLY DETONATED MULTIPLE UNDERGROUND NUCLEAR EXPLOSIVES

Dean V. Power (MS, physics, San Jose State College, 1968) is a senior physicist with El Paso Natural Gas Company. He has been working in the Plowshare program since 1959 and is presently engaged in developing concepts and programs to utilize nuclear explosives to stimulate natural gas reservoirs. His special interests are strong shock phenomena, seismic motions, and structure effects.

Dean V. Power



A REVIEW OF THE GROUND MOTION PREDICTION PROBLEM FOR PLOWSHARE UNDERGROUND ENGINEERING APPLICATIONS

Walter W. Hays

Walter W. Hays (PhD, geophysics, Washington University, 1961) is technical director of the Environmental Research Corporation. This affiliate of Computer Sciences Corporation which is based in Las Vegas, Nevada, is engaged in Plowshare underground engineering, earthquake engineering, environmental engineering, and information sciences, and has also served as ground motion contractor to the Nevada Operations Office, U.S. Atomic Energy Commission for 11 years.

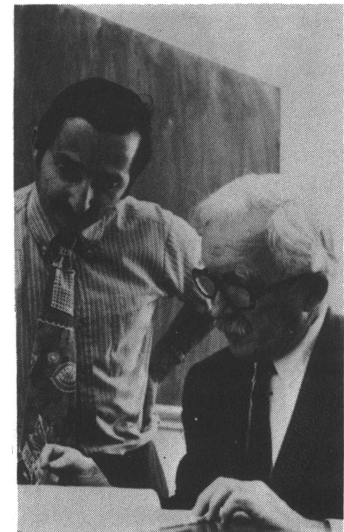


INSTRUMENTS

MEASUREMENT OF ANTISCATTER GRID EFFECTIVENESS IN THERMAL-NEUTRON RADIOGRAPHY OF HYDROGENOUS MATERIALS

*John A. Rau
William L. Parker*

John A. Rau (left) (MS, mechanical engineering, University of Michigan, 1967) has been active in research on medical applications of neutron radiography since joining the staffs of the Reed College Physics Department and the University of Oregon Dental School in 1969. His specific area of interest is the development of more efficient neutron image converters. William L. Parker (PhD, physics, University of Illinois, 1941) has been professor of physics at Reed College since 1948 and adjunct professor of physics at the University of Oregon Dental School since 1967. He has been interested in neutron radiography since 1968 and directs an ongoing research project on medical and dental applications of neutron radiography.



RADIOISOTOPES

A SIMPLIFIED APPARATUS FOR SHORT-TERM IRRADIATIONS AT 77°K

*P. R. Blankenhorn
D. E. Kline*

Paul R. Blankenhorn (left) (MS, nuclear engineering, Pennsylvania State University, 1968) and Donald E. Kline (PhD, physics, Pennsylvania State University, 1955) have been involved in irradiation studies and various phases of carbon and polymer research. Their current interests are in materials applications, polymer composites, wood utilization, and polymer engineering and applications.

