



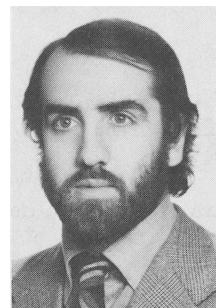
## AUTHORS — JULY 1977

### CRITICAL REVIEW

#### CRITICAL HEAT FLUX: A REVIEW OF RECENT PUBLICATIONS

*V. Marinelli*

Valerio Marinelli (doctor, nuclear engineering, Politecnico di Torino, 1967) worked at Comitato Nazionale per l'Energia Nucleare from 1969 to 1975 in the Plutonium Program and then in the Thermal Reactors Department, in the area of thermohydraulics of light water reactor cores, with special interest in problems of critical heat flux, pressure drop, turbulent mixing, computer codes, and safety. Since 1976 he has been Professor of Technical Physics and Thermotechnics at Calabria University in the faculty of engineering.

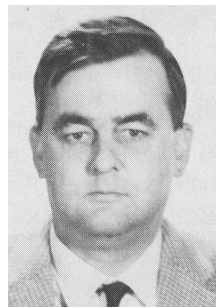


### REACTORS

#### GENERATOR OF REACTIVITY FUNCTIONS

*José Porto*

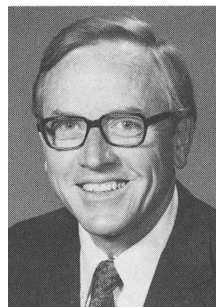
José Porto (MS, physics, University of Buenos Aires, 1964) had an early interest centered in nuclear magnetic resonance when he worked at North Wales University and Buenos Aires University. His first experience in reactors included reactor noise analysis for the detection of malfunctions, for both experimental and power reactors. At present, he is conducting research on reactor kinetics based on stimulated inputs to study reactor behavior and nuclear parameters at Comision Nacional de Energia Atomica in Buenos Aires, Argentina.



#### RECENT DEVELOPMENTS IN THE DESIGN OF CONCEPTUAL FUSION REACTORS

*F. L. Ribe*

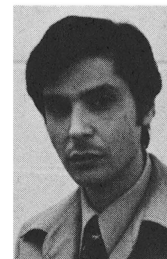
Fred L. Ribe (BS, electrical engineering, University of Texas; PhD, physics, University of Chicago, 1951) is head of the Controlled Thermonuclear Research Division at the Los Alamos Scientific Laboratory. His current interests include plasma physics related to pulsed, high-density fusion experiments, and the engineering and physics problems of conceptual fusion reactors.



## A BEST-JUDGMENT ANALYSIS OF EMERGENCY CORE COOLING SYSTEM PERFORMANCE

*Timothy C. Kessler  
Gary B. Fader*

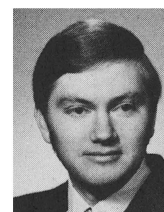
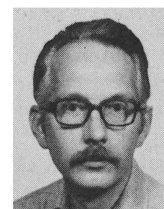
Timothy C. Kessler (top) (BS, nuclear engineering, 1973, and MEng, nuclear engineering, Rensselaer Polytechnic Institute, 1974) joined the Nuclear Safety Department, LOCA Analysis Section, of Combustion Engineering in 1974. His current position is principal investigator of Reflood Systems Model Development in the ECCS Development Section. Gary B. Fader (BS, mechanical engineering, University of Miami; MS, nuclear engineering, Pennsylvania State University) joined the Nuclear Safety Department of Combustion Engineering in 1970. He was promoted to lead engineer in 1973 and to supervisor, ECCS Performance, in 1977.



## FIRST WALL THERMAL-MECHANICAL ANALYSES OF THE REFERENCE THETA-PINCH REACTOR

*R. A. Krakowski  
R. L. Hagenson  
G. E. Cort*

Robert A. Krakowski (top) (PhD, nuclear engineering, University of California, Berkeley, 1967) worked at Berkeley in the area of high-temperature materials/chemistry. After working at the Ispra (Italy) Euratom Laboratory on the chemistry of advanced fission fuels, he taught nuclear engineering at Ohio State University until 1972. He then joined the staff of the Los Alamos Scientific Laboratory (LASL), where he first worked on materials problems associated with space nuclear power. His main interest is now with the variety of materials and engineering problems anticipated for fusion power. Randy L. Hagenson (center) is currently working toward a PhD degree in nuclear engineering at LASL under the auspices of an Associated Western Universities Fellowship administered through Iowa State University. His current areas of interest include plasma physics and engineering problems of fusion power devices. G. Edward Cort (bottom) (BSME, 1960; MSNE, 1961, Carnegie-Mellon University) is a staff member at LASL. His work has involved heat transfer analysis for gas, water, and liquid-metal-cooled reactors, as well as thermal and fluid performance predictions for Subterrene rock-melting penetrators and for the deuterium flow loop of a supersonic gas-target intense neutron source.



## CHEMICAL PROCESSING

## REACTIVITY ENHANCEMENT IN TRANSPORTATION AND STORAGE ARRAYS DUE TO FISSILE MATERIAL DENSITY REDUCTIONS

*B. L. Koponen*

Brian L. Koponen (BS, engineering physics, Michigan Technological University, 1961) has been with the Lawrence Livermore Laboratory since 1963. Presently he is working on computational studies for nuclear criticality safety and a computerized library of critical measurements.



**CANDU FUEL-POWER RAMP PERFORMANCE CRITERIA**

W. (Bill) J. Penn (top) (BSc, physics, University of Nottingham, 1955) is supervisor of fuel performance development and analytical studies at the Canadian General Electric Company in Peterborough, Ontario. His current interests include fuel modeling, fuel performance, transient studies, and future fuel cycles. R. K. Lo (center) (BASc, University of British Columbia, 1965) is a technical supervisor with Ontario Hydro, which he joined in 1967. His current interests are in nuclear fuel performance and interacting systems. J. Clive Wood (bottom) (MSc, physics of materials, University of Bristol, 1967) is associate research officer at Atomic Energy of Canada Limited's Chalk River Nuclear Laboratories. He is currently interested in the science and engineering of nuclear fuel design and performance.

*W. J. Penn  
R. K. Lo  
J. C. Wood*



**INVESTIGATION OF HIGH-TEMPERATURE REACTOR HEAT EXCHANGER MATERIALS**

Tavit Serpekian (top) (Dr.-Ing., mechanical engineering, Technische Hochschule Aachen, Germany, 1974) is a scientist at the Nuclear Research Center at Jülich (KFA-Jülich). He worked on high-temperature reactor (HTR) materials tests. His present field of activity is the development of high-temperature neutron detectors. Rudolf Hecker (Dr. rer. nat., University of Cologne, Germany, 1959) is a professor at Technische Hochschule Aachen and is director of the Institut für Reaktorentwicklung at KFA-Jülich. His field of activity is HTR technology and physics.

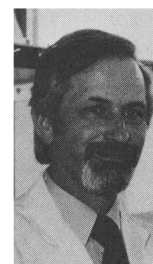
*T. Serpekian  
R. Hecker*



**CORROSION AND CREEP OF PRESSURIZED STAINLESS-STEEL TUBES IN LIQUID SODIUM AT 873 AND 973 K**

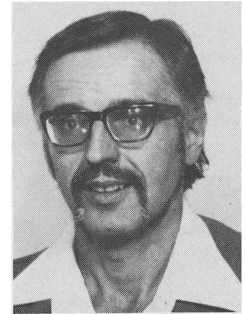
Hans U. Borgstedt (top) (Dr. rer. nat., chemistry, University of Karlsruhe, 1959) is a group leader at the Karlsruhe Nuclear Research Center. Since 1963 he has been engaged in sodium corrosion work. His current interests are in corrosion and carburization of reactor materials by sodium. Günther Frees (center) (Dipl.-Ing., mechanical engineering, University of Karlsruhe, 1956) is a senior scientist at the Karlsruhe Nuclear Research Center. In 1962 he created a group for construction and operation of sodium loops for metallurgical studies. His current interests are in sodium influence on mechanical properties of reactor materials. Helga Schneider (bottom) (Dr. phil., chemistry, University of Innsbruck, 1948) is senior scientist and group leader at the Karlsruhe Nuclear Research Center. She has worked in the field of chemical analyses of nuclear materials since 1962. Her current research interests are in surface and corrosion layer local analyses, including glow discharge optical spectroscopy and AUGER electron spectroscopy.

*Hans U. Borgstedt  
Günther Frees  
Helga Schneider*



**TRANSITION MATRIX APPROACH TO THE SOLUTION OF THE BATEMAN EQUATIONS***George R. Fegan*

George R. Fegan (MA, mathematics and English; PhD, mathematical statistics, Oregon State University, 1966) is an assistant professor of mathematics at the University of Portland and is a consulting statistician for Portland General Electric Company's Nuclear Engineering Branch. His research interests are stochastic processes with specialization in those utilizing the Erlang distribution. His current interest is in stochastic processes with applications in reliability.

**AN IMPROVED METHOD FOR OPERATING SODIUM SYSTEM COLD TRAPS***Leo E. Chulos*

Leo E. Chulos has been an engineering technical specialist in radioactivity control technology at Hanford Engineering Development Laboratory (HEDL), a chief reactor operator at the Sodium Reactor Experiment, Atomics International, and a chief of the boat of the Nuclear Submarine SARGO, with 18 years of experience in nuclear reactor operations research. He is currently chief of five sodium loops at HEDL.

