

## AUTHORS – JANUARY 1981

### TRENDS AND DEVELOPMENTS IN MAGNETIC CONFINEMENT FUSION REACTOR CONCEPTS

**Charles M. Baker** (top) (PhD, University of Wisconsin, 1972) has overall responsibility for directing the Argonne National Laboratory Fusion Power Program including activities in materials research, fusion reactor system and design studies, superconducting magnets and energy storage development, tritium technology, plasma engineering, atomic physics, and safety studies. He has been director of the program since 1977, and his responsibilities include long-range planning, program implementation, and budget administration. He serves on several advisory committees for the U.S. Department of Energy. He currently serves as manager of the STARFIRE Project, a design study of a commercial tokamak power reactor. **Gustav A. Carlson** (center) (BS, 1963, MS, 1964, and PhD, 1967, mechanical engineering, Carnegie-Mellon University) is presently associate program leader for the Advanced Mirror Systems Program of Magnetic Fusion Energy at Lawrence Livermore National Laboratory (LLNL). His area of responsibility is the evaluation of advanced mirror confinement concepts for application to fusion reactor design. Carlson has worked in Magnetic Fusion Energy at LLNL since 1969 and is a past chairman of the Controlled Nuclear Fusion Division of the American Nuclear Society. **Robert A. Krakowski** (bottom) (BS, chemical engineering, Ohio State University; PhD, nuclear engineering, University of California, 1967), after working on nuclear material problems at the Euratom Center of Research in Ispra, Italy, and teaching nuclear engineering at Ohio State University, joined the Los Alamos Scientific Laboratory (LASL) in 1972 to work on material problems associated with space nuclear power. He presently heads a Magnetic Fusion Systems Study Group at LASL responsible for alternative fusion concepts.

*Charles C. Baker  
Gustav A. Carlson  
Robert A. Krakowski*



### CONTRIBUTION OF ACTIVATION PRODUCTS TO FUSION ACCIDENT RISK: PART I. A PRELIMINARY INVESTIGATION

**John P. Holdren** (BS, 1965, and MS, 1966, aeronautics and astronautics, Massachusetts Institute of Technology; PhD, plasma physics, Stanford University, 1970) is professor of energy and resources at the University of California, Berkeley, and faculty consultant in the Magnetic Fusion Energy Division of the university's Lawrence Livermore National Laboratory. His research interests are in comparative analysis of environmental effects of long-term energy sources and in approaches to fusion energy technology that minimize environmental risks.

*John P. Holdren*



## PRELIMINARY SKYSHINE CALCULATIONS FOR THE POLOIDAL DIVERTER TOKAMAK EXPERIMENT

*David W. Nigg  
Floyd J. Wheeler*

**David W. Nigg** (top) (BS, engineering physics, University of Kansas, 1972; ME, nuclear engineering, Texas A&M University, 1973; PhD, University of Kansas, 1977) is currently a group leader with the Reactor Physics Branch of EG&G, Idaho, Inc. His recent technical interests have included fission reactor kinetics and fusion reactor blanket neutronics and shielding analysis. **Floyd J. Wheeler** (BS, University of Idaho, 1964; MS, nuclear engineering, University of Idaho, 1978) is head of the Technical Projects Section of the EG&G Physics Division at the Idaho National Engineering Laboratory. His background has been in core physics, computer-code development, shielding, and criticality, and he is presently responsible for development of methods and codes for EG&G Reactor Physics and for the analyses of the Criticality and Shielding Group. His earlier work was in core design and test design for thermal and fast reactors, and later emphasis has been on Monte Carlo code development and application. He has worked with the Cross Section Evaluation Working Group in data testing of the Evaluated Nuclear Data Files (ENDF/B). Most recently he has worked on code development for fusion-neutron and secondary-gamma transport.



## NEUTRONICS SHIELDING ANALYSIS OF THE LAST MIRROR-BEAM DUCT SYSTEM FOR A LASER FUSION POWER REACTOR

*Magdi M. H. Ragheb  
Andrew C. Klein  
Charles W. Maynard*

**Magdi M. H. Ragheb** (top) [BS and MS, nuclear engineering, University of Alexandria; MS and PhD, nuclear engineering, University of Wisconsin (UW), 1978] is an assistant professor of nuclear engineering at the University of Illinois (UI), Urbana-Champaign. He had a year of post-doctoral work with the UW Fusion Engineering Program. He worked as a faculty member of the Department of Nuclear Engineering, the University of Alexandria, Egypt, and has collaborated with the Department of Applied Science at Brookhaven National Laboratory and the Division of Engineering Physics at Oak Ridge National Laboratory. His theoretical interests are in the areas of reactor theory, statistical simulation, and variational and weighted residual methods. His current technical interests are in the neutronics and photonics of fusion and fusion-fission energy systems. **Andrew C. Klein** (center) (BS, nuclear engineering, Pennsylvania State University, 1977; MS, nuclear engineering, UW, 1979) is an engineer with Combustion Engineering, Inc. in Windsor, Connecticut. His current interests involve reactor safety analysis. **Charles W. Maynard** (bottom) (BS, electrical engineering, University of Maryland; PhD, applied physics, Harvard University, 1961) has worked at Bettis Atomic Power Laboratory, operated by Westinghouse Electric Company, in the Reactors Theory and Methods Section. He was appointed associate professor of nuclear engineering at UW in 1961 and became a professor in 1965. His research interests are centered on design and neutronics analysis of reactors.



## A SYSTEM FOR HANDLING DIVERTER ION AND ENERGY FLUX BASED ON A LITHIUM DROPLET CLOUD

*W. M. Wells*

**W. M. Wells** (BS, civil engineering, The Citadel, 1945; SM, 1948, and ScD, 1950, civil engineering, Massachusetts Institute of Technology) has been affiliated with Oak Ridge National Laboratory since 1975, involved principally in fusion reactor studies. Previously, he spent 15 years with Lawrence Livermore National Laboratory, dealing principally with materials aspects of ceramic reactors and fusion reactor studies.



## AN ECONOMICS METHOD FOR SYMBIOTIC FUSION-FISSION ELECTRICITY GENERATION SYSTEMS

*D. H. Berwald  
J. A. Maniscalco*

### PERFORMANCE AND ECONOMICS ANALYSIS OF SEVERAL LASER FUSION BREEDER FUELED ELECTRICITY GENERATION SYSTEMS

**David H. Berwald** (top) (PhD, nuclear engineering, University of Michigan, 1977) is the technical program manager for fusion-fission hybrids, TRW, Inc., Energy Systems Management Division. His research interests include nuclear design and shielding analysis, fusion technology, advanced fission reactor fuel cycles and applications, and high-level waste disposal. **J. A. Maniscalco** (PhD, nuclear engineering, Purdue University, 1973) is manager of the fusion business area at TRW, Inc., Applied Technology Division. He is responsible for research in inertial confinement fusion, advanced lasers, fusion reactor design, and fusion-fission hybrid feasibility studies. Previously he was group leader in charge of system studies for the Laser Fusion Program at Lawrence Livermore National Laboratory. He is the author of more than 25 publications in the areas of fusion reactor design fusion-fission hybrids and neutronics analysis.



## THE ATTENUATION OF 14-MeV NEUTRONS FROM A POINT SOURCE EMBEDDED IN CONCRETE SHIELDS

*J. M. Robson  
J. Kroon*

**John M. Robson** (top) (ScD, nuclear physics, Cambridge University, 1963) is a professor of physics at McGill University, Montreal. He worked in neutron physics, and in particular on the radioactive decay of the free neutron, at the Chalk River Nuclear Laboratories prior to becoming chairman of the Physics Department at the University of Ottawa. An interest in the use of neutrons to probe nuclear structure led to work on the inelastic scattering of 14-MeV neutrons. His present research interests at McGill concern the properties of ultra-cold neutrons. **John C. Kroon** (PhD, nuclear physics, University of Ottawa, 1972) is vice-president of applied research at Reuter-Stokes, Inc. in Cleveland, Ohio. He is currently engaged in the development and commercialization of radiation detection instrumentation. He spent two years in applied research at the Chalk River Nuclear Laboratories engaged in the development of self-powered detectors. His graduate work consisted of nuclear structure studies through single nucleon transfer reactions and neutron shielding of 14-MeV neutrons in concrete structures.

