



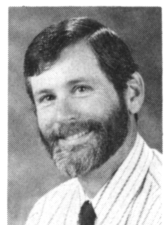
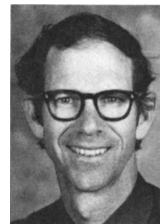
## AUTHORS — OCTOBER 1981



### RECENT PROGRESS IN FUSION-FISSION HYBRID REACTOR DESIGN STUDIES

**James A. Maniscalco** (top right) (PhD, nuclear engineering, Purdue University, 1973) is manager of the fusion business area at TRW, Inc. Research programs in the fusion business area include plasma supplemental heating systems, mirror fusion physics experiments, advanced lasers, reactor engineering, and fusion-fission hybrids. Previously, he was group leader in charge of system studies for the Laser Fusion Program at Lawrence Livermore National Laboratory (LLNL). He is the author of more than 25 publications in the areas of fusion reactor design, fusion-fission hybrids, and neutronics analysis. **David H. Berwald** (top left) (PhD, nuclear engineering, University of Michigan, 1977) is the technical program manager for fusion-fission hybrids at TRW, Inc. His research interests include nuclear design and shielding analysis, fusion technology, advanced fission reactor fuel cycles, applications of advanced isotope separation technologies, and high-level waste disposal. **Robert B. Campbell** (center right) (PhD, nuclear engineering, University of Michigan, 1980) is presently assisting in the development of codes to model tandem mirror plasmas at LLNL in support of both the hybrid and pure fusion efforts. His areas of expertise include plasma modeling of tandem mirrors and ion and electron heating physics. **Ralph W. Moir** (bottom left) (ScD, nuclear engineering, Massachusetts Institute of Technology, 1967) worked in 1967 and 1968 on the magnetic fusion project at Fontenay-aux-Roses, France (Centre d'Etude de l'Energie Nucléaire-Commissariat à l'Energie Atomique). In 1968, he joined the LLNL, where he has specialized in development of the direct conversion of fusion plasma energy to electrical energy and reactor design. At present, he is head of the fusion-fission hybrid reactor design study project and serves as associate program leader for advanced mirror systems. Moir is registered in the state of California as a professional nuclear engineer. **Joseph D. (J. D.) Lee** (bottom right) (BSEE, electrical engineering, Duke University, 1961; MS, nuclear engineering, University of New Mexico) is a member of the Mirror (Fusion) Reactor Studies staff at LLNL. He started investigating the potential of fusion/fission in 1969 and is one of its principal spokesmen. He joined LLNL full-time in 1966 to work on the SNAP 50 project after working two summers on LLNL's "Fran" and "Super Kukla" prompt burst reactors. He has been involved in LLNL's fusion program since 1968.

*J. A. Maniscalco  
D. H. Berwald  
R. B. Campbell  
R. W. Moir  
J. D. Lee*



## THE TEXAS EXPERIMENTAL TOKAMAK (TEXT) FACILITY

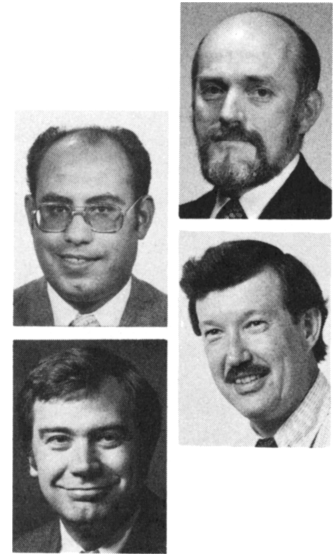
*K. W. Gentle*

Biography and photograph of the author not available at time of publication.

## U.S. CONCEPTUAL DESIGN CONTRIBUTION TO THE INTOR PHASE 1 WORKSHOP

**W. M. Stacey, Jr.** (top right) [BS, physics, 1959, and MS, nuclear science, 1963, Georgia Institute of Technology (GIT); PhD, nuclear engineering, Massachusetts Institute of Technology, 1966] is Callaway Professor of Nuclear Engineering at GIT and serves as senior U.S. participant to the International Atomic Energy Agency INTOR Workshop. **M. A. Abdou** (top left) (PhD, nuclear engineering, University of Wisconsin, 1973) is associate director of the Fusion Power Program at Argonne National Laboratory. He serves as the U.S. INTOR participant for nuclear systems. **J. A. Schmidt** (bottom right) (BS, physics, South Dakota State University, 1962; MS, 1964, and PhD, 1969, physics, University of Wisconsin) is head of the Applied Physics Division at Princeton University Plasma Physics Laboratory. He serves as the INTOR physics participant. **T. E. Shannon** (bottom left) (BS, 1960, and MS, 1962, engineering mechanics, Ohio University) is manager of systems engineering, Fusion Engineering Design Center, at the Oak Ridge National Laboratory. He serves as the U.S. INTOR design coordinator.

*W. M. Stacey, Jr.  
M. A. Abdou  
J. A. Schmidt  
T. E. Shannon*



## HYBRID REACTORS

## POWER DENSITY FLATTENING IN FUSION-FISSION HYBRID REACTORS

**Karl Erickson** (top) (MS, nuclear engineering, University of Washington, 1980) is a nuclear engineer at Puget Sound Naval Shipyard in Bremerton, Washington. Currently, he has responsibilities in the refueling and servicing of naval nuclear reactors. **N. J. McCormick** (center) (PhD, nuclear engineering, University of Michigan, 1965) is a professor of nuclear engineering at the University of Washington. His interests include reliability and risk analysis, fusion-fission hybrid reactors, neutron transport theory, and the gas tagging method for identifying failed nuclear fuel assemblies. **Gene L. Woodruff** (bottom) (PhD, Massachusetts Institute of Technology, 1966) is a professor of nuclear engineering at the University of Washington. His research mostly involves fusion and fusion/fission hybrid reactor neutronics and system analysis and neutron spectroscopy.

*Karl Erickson  
N. J. McCormick  
Gene L. Woodruff*



### ONE-DIMENSIONAL GAMMA-RAY AND PHOTONEUTRON SHIELDING CALCULATIONS FOR THE ELMO BUMPY TORUS PROOF OF PRINCIPLE DEVICE

**R. A. Lillie** (top right) (PhD, University of Tennessee, 1975) is a research staff member in the Engineering Physics Division at the Oak Ridge National Laboratory (ORNL). His work has been in the areas of fission reactor core physics and shielding analysis. His current interests focus on the application of radiation transport methods to fusion reactor neutronics problems. **T. A. Gabriel** (top left) (PhD, University of Tennessee, 1969) is a member of the Engineering Physics Division at ORNL. His interests are in neutron transport and neutron interactions with matter, related to electronuclear fuel production, nuclear instrument design, and fusion reactor engineering. A large part of his recent effort has been devoted to neutronic analysis of magnetically confined fusion reactors, in support of blanket design for a reactor conceptual design team, and to the ORNL Fusion Reactor Irradiation Effects Program. **B. L. Bishop** (bottom right) (BS, University of Tennessee, 1955) is a member of the Computer Sciences Division, assigned to the Engineering Physics Division at ORNL. A major part of her current effort is in calculations involved with radiation dosimetry. She is also assisting on the irradiation effects calculations in support of the ORNL magnetic fusion reactor programs. **V. C. Baker** (bottom left) (MS, University of Tennessee, 1976) is presently with Honeywell Training and Control Systems, where he is engaged in systems engineering and data processing software development. He previously participated in the neutronics analysis of the Tokamak Fusion Test Reactor. At the time this work was performed, he was employed in the Computer Sciences Division of ORNL, where his interests focused on radiation transport methods and cross-section data processing.

*R. A. Lillie  
T. A. Gabriel  
B. L. Bishop  
V. C. Baker*



### POTENTIAL FAILURES AND HAZARDS IN SUPERCONDUCTING MAGNET SYSTEMS FOR FUSION REACTORS

**Friedrich Arendt** (top) (Dipl, physiker, Freie Universität Berlin-West, 1966) has been at Kernforschungszentrum Karlsruhe (KfK) since 1966. While initially he was concerned with design and control of proton synchrotrons, he later became interested in superconducting magnets for various applications. He is presently involved in the study of fusion systems with emphasis on superconducting magnets. **Peter Komarek** (PhD, physics, University of Technology, Vienna, 1966) is a scientific member of the KfK staff. He is deputy head of the Institute for Technical Physics and responsible there for superconductivity projects. He is also a professor of applied superconductivity at the University of Technology, Graz, Austria.

*Friedrich Arendt  
Peter Komarek*

