

## AUTHORS — SEPTEMBER 1993

### TRITIUM SYSTEMS

#### A SYSTEMATIC APPROACH TO THE DESIGN OF A LARGE-SCALE DETRITIATION SYSTEM FOR CONTROLLED THERMONUCLEAR FUSION EXPERIMENTS / *Johann L. Hemmerich*

**Johann L. Hemmerich** (Dipl.-Ing., Technische Hochschule Munchen, Germany, 1964; Dr.-Ing., Technische Hochschule Aachen, Germany, 1968) joined the Joint European Torus (JET) Team in 1981. He is currently group leader of the vacuum systems group.



#### INFLUENCE OF THE TRITIUM IN TYPE 316L STAINLESS STEEL ON CORROSION / *G. Bellanger, J. J. Rameau*

**G. Bellanger** (right) has been responsible for research in the Tritium Department at Commissariat à l'Énergie Atomique for 10 years. His research includes materials electrochemistry, corrosion by tritiated water, and tritium diffusion in palladium cathode foil. **J. J. Rameau** (no photograph available) is a professor of electrochemistry at the University of Grenoble.



### EXPERIMENTAL DEVICES

#### NUMERICAL STUDY OF THE CALIBRATION FACTORS FOR THE NEUTRON COUNTERS IN USE AT THE JOINT EUROPEAN TORUS / *Brian J. Laundy, Owen N. Jarvis*

**Brian J. Laundy** (top) (BSc, chemistry, University of London, United Kingdom, 1954) joined the United Kingdom Atomic Energy Authority (UKAEA) Harwell Laboratory in 1954 and worked in the fields of powder technology and mineral analysis. He is now a member of the Joint European Torus (JET) neutron diagnostics group, where he is involved in the development and operation of fusion product diagnostics. **Owen N. Jarvis** (BSc, physics, 1957, and



PhD, nuclear sciences, 1960, University of Birmingham, United Kingdom) joined the UKAEA Harwell Laboratory in 1960 to work on the 140-MeV proton synchrocyclotron. He became involved in neutron diagnostic design work for JET in 1979 and is now leader of the JET neutron diagnostics group.

## NONELECTRICAL APPLICATIONS

### INCINERATION OF RADIOACTIVE FISSION PRODUCTS AND TRANSURANICS BY MUON-CATALYZED FUSION / *Hideo Harada, H. Takahashi, Arnold L. Aronson, Takeshi Kase, Kenji Konashi, Nobuyuki Sasao*

**Hideo Harada** (top right) (Dr., physics, Tokyo Institute of Technology, Japan, 1988) has worked in nuclear physics and nuclear waste transmutation. His recent interests include nuclear cross-section measurements for transmutation studies and analysis of accelerator-based transmutation systems. **H. Takahashi** (no photograph available) (PhD, electrical physics, Waseda University, Japan, 1959) has worked on the physics and mathematics of nuclear reactors at the Japan Atomic Energy Research Institute, the Euratom Research Center at Ispra, and Brookhaven National Laboratory (BNL). His current research interests at BNL are in accelerator reactors, the muon-catalyzed fusion reaction, and the production of coherent gamma rays using accelerated positronium. **Arnold L. Aronson** (top left) (BS, physics, Ohio University, 1953) has worked in reactor design and analysis since 1957. He is a member of the advanced reactor safety analysis group at BNL, and his interests include reactor physics, thermal hydraulics, and core transient analysis calculations. **Takeshi Kase** (center right) (MS, nuclear engineering, Tohoku University, Japan, 1989) works at the Power Reactor and Nuclear Fuel Development Corporation. He has been studying the transmutation of long-lived nuclides in high-level radioactive waste, especially the transmutation of fission products by a particle accelerator. **Kenji Konashi** (bottom left) (Dr., nuclear engineering, University of Tokyo, Japan) is a research associate in the Institute for Materials Research at Tohoku University. His current research interest is the transmutation of radioactive waste. **Nobuyuki Sasao** (bottom right) (BE, Kyushu University, Japan, 1960) is currently interested in the transmutation of nuclear waste.



## SHIELDING

### CROSS-SECTION SENSITIVITY STUDY FOR THE TOROIDAL FIELD COIL SHIELDING PARAMETERS IN THE ITER/OTR DESIGN / *Sergei Zimin*

**Sergei Zimin** (BS, 1980, and MS, 1982, Moscow Physical Engineering Institute; Dr. Eng., nuclear engineering, University of Tokyo, 1992) was a research associate in the neutron physics laboratory at the Kurchatov Institute of Atomic Energy from 1981 to 1991. He was involved in shielding analyses of thermonuclear reactors, and he was a member of the former USSR home team for the conceptual design of the International Thermonuclear Experimental Reactor (ITER). Since 1991, he has been employed in the ITER Project Department at the Japan Atomic Energy Research Institute. His research interests are in fusion technology, biological shielding, blanket neutronics, magnetic shielding, neutron transport theory, and nuclear cross-section data systems.



**FABRICATION AND TESTING OF A DOUBLE IONIZATION CHAMBER FOR ON-LINE TRITIUM PRODUCTION RATE MEASUREMENTS AND COMPARISON WITH THE STANDARD LIQUID-SCINTILLATION METHOD / Om Prakash Joneja, P. Scherrer, J.-P. Schneeberger**

**Om Prakash Joneja** (top) [MSc, Punjabi University, 1966; Bhabha Atomic Research Centre (BARC) Training School, 1967; PhD, physics, University of Bombay, India, 1976] was a scientific officer at BARC from 1967 to 1991. He is currently leader of the LOTUS fusion blanket program at Ecole Polytechnique Federale de Lausanne (EPFL). His interests include techniques for on-line tritium breeding and heat deposition rate measurements in prototype fusion blankets. He is currently engaged in theoretical and experimental investigations of fusion hybrid blankets. **P. Scherrer** (center) (EPFL, Switzerland, 1992) studied the development of the double ionization chamber as an on-line tritium breeding monitor as part of his diploma work. His current interest is the application of such a system for tritium breeding ratio measurements in experimental fusion blankets. **J.-P. Schneeberger** (bottom) (EPFL, Switzerland, 1950) is the director of the Institut de Genie Atomique at EPFL. He is responsible for the LOTUS blanket program and the CROCUS research reactor program. His interests include neutronic measurements and energy deposition studies in prototype fusion blankets.



**PARAMETER OPTIMIZATION OF THE INDUCTIVELY OPERATED DAY-LONG TOKAMAK REACTOR / Yuichi Ogawa, Nobuyuki Inoue, Zensho Yoshida, Kunihiko Okano**

**Yuichi Ogawa** (top left) (PhD, engineering, University of Tokyo, Japan, 1981) is an associate professor at the University of Tokyo. He has worked on plasma experiments and fusion reactor design. **Nobuyuki Inoue** (top right) (BS, nuclear physics, 1961, and PhD, 1971, Kyoto University, Japan) is a professor of nuclear engineering at the University of Tokyo. His area of interest is fusion reactor design and high-temperature plasma applications. **Zensho Yoshida** (bottom left) (BS, nuclear engineering, and PhD, 1985, University of Tokyo, Japan) is an associate professor of nuclear engineering at the University of Tokyo. His interest is mathematical physics, including nonlinear plasma dynamics. **Kunihiko Okano** (bottom right) (BS, aero/astronautic and nuclear engineering; PhD, University of Tokyo, Japan, 1984) is a research scientist at the Toshiba Research and Development Center. He has developed computational models of ion cyclotron resonance frequency and neutral beam current drive in tokamaks.



**SEPARATION FACTORS FOR HYDROGEN ISOTOPES ON PALLADIUM / Gary R. Boucher, Frank E. Collins, Rex L. Matlock**

**Gary R. Boucher** (left) (BS and MS, electronic engineering technology, Northwestern State University) is an instructor of physics and electronics at Louisiana State University (LSU)-Shreveport. **Frank E. Collins** (right) (BS, Northeast Louisiana University, 1961; MS, 1963, and PhD, 1965, LSU-Baton



Rouge) is a professor of chemistry at LSU-Shreveport. **Rex L. Matlock** (right) (BS, Northwestern State University; MS and PhD, LSU-Baton Rouge) is a professor of physics at LSU-Shreveport.



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## COLD FUSION

### COLD FUSION BY ELECTROLYSIS IN A LIGHT WATER-POTASSIUM CARBONATE SOLUTION WITH A NICKEL ELECTRODE / *Reiko Notoya*

**Reiko Notoya** (BSc, chemistry, 1961; MSc, electrochemistry, 1963; and DSc, electrochemical kinetics, 1970, Hokkaido University, Japan) is a research associate at the Hokkaido University Catalysis Research Center, working on fundamental electrochemistry and electrochemical energy conversion. Her interests include catalysis and physical chemistry.



### COLD FUSION BY SPARKING IN HYDROGEN ISOTOPES / *Jacques Dufour*

**Jacques Dufour** (chemical engineering, Ecole Nationale Supérieure des Mines de Paris, France, 1961) joined the Shell Company in 1961 and worked on oil production and technology, economics studies, and long-term planning. In 1982, he transferred to Shell Research, where he has been involved in research on novel processes. He is also university liaison officer of the Shell laboratory at Grand-Couronne.

