

TABLE OF CONTENTS

A. PLENARY SESSION  
 O. B. Morgan (ORNL)  
 (Tuesday Morning, October 25, 1977)

	Page
FUSION IN THE ENERGY FUTURE OF THE UNITED STATES, J. F. Clarke, Division of Magnetic Fusion Energy, Department of Energy, USA . . . . .	1
THE TECHNOLOGY OF MIRROR MACHINES - LLL FACILITIES FOR MAGNETIC MIRROR FUSION EXPERIMENTS, T. H. Batzer, Lawrence Livermore Laboratory, USA . . . . .	2
REVIEW OF TOKAMAK ENGINEERING AND TFTR TECHNOLOGY, P. J. Reardon, Princeton Plasma Physics Laboratory, USA . . . . .	13
TECHNOLOGICAL REQUIREMENTS FOR TOKAMAK POWER SYSTEMS, D. Steiner, Oak Ridge National Laboratory, USA . . . . .	14

B. COPPER MAGNETS AND COIL ENGINEERING  
 C. Bushnell (PPPL) and W. C. T. Stoddart (ORNL)  
 (Tuesday Afternoon, October 25, 1977)

TFTR TOROIDAL FIELD COIL DESIGN, G. E. Smith, Grumman Aerospace Corporation, USA and W. F. B. Punchard, Magnetic Corporation of America, USA . . . . .	15
TFTR COIL CASE DESIGN, J. Pusateri and G. Barnes, Grumman Aerospace Corporation, and J. Citrolo, Princeton Plasma Physics Laboratory, USA . . . . .	20
THE DESIGN OF THE TOROIDAL FIELD MAGNET OF TEXTOR, H. Conrads, B. Giesen, U. Schwarz, C. Stickelmann, and G. H. Wolf, Association Euratom-KFA, Federal Republic of Germany . . . . .	25
THE DESIGN AND MANUFACTURE OF THE JOINT EUROPEAN TORUS (JET) TOROIDAL FIELD COILS, M. Huguet, J. A. Booth, and R. Pohlchen, Culham Laboratory, England . . . . .	28
PDX, MECHANICAL DESIGN UPDATE AND ASSEMBLY, D. Knutson, S. Cavalluzzo, J. Davenport, E. Kaminsky, E. Perry, and J. Willard, Princeton Plasma Physics Laboratory, USA . . . . .	33
TECHNOLOGICAL ASPECTS OF THE HIGH FIELD FRASCATI TOKAMAK, R. Toschi, Associazione Euratom-CNEN, Italy . . . . .	38
MANUFACTURE, ASSEMBLY AND TEST OF THE TOROIDAL AND POLOIDAL MAGNETIC FIELD COILS OF ASDEX, E. Broser, J. Gernhardt, F. Hartz, M. Keilhacker, G. Klement, P. Krüger, Th. v. Larcher, H. Niedermeyer, M. Pillsticker, H. Wedler, F. Werner, and F. Wesner, Max-Planck-Institut für Plasmaphysik, Federal Republic of Germany . . . . .	39
DESIGN AND FABRICATION OF THE IMPURITY STUDY EXPERIMENT (ISX) COILS, D. C. Lousteau and R. O. Hussung, Union Carbide Corporation-Nuclear Division, USA . . . . .	44
DESIGN OF THE TEXT TOROIDAL AND POLOIDAL FIELD COILS, P. Wildi, G. L. Cardwell, and D. F. Brower, The University of Texas at Austin, USA . . . . .	48
THE ALCATOR C MAGNETIC COIL SYSTEMS, C. Weggel, W. Hamburger, B. Montgomery, and N. Pierce, Francis Bitter National Magnet Laboratory, USA . . . . .	54
STRESS AND DEFLECTION ANALYSIS OF THE PLT-COIL USING ANSYS COMPUTER CODE, P. Rogoff, Princeton Plasma Physics Laboratory, USA . . . . .	59

C. SYSTEMS ENGINEERING  
 E. Bertolini (Culham) and J. B. Joyce (PPPL)  
 (Tuesday Afternoon, October 25, 1977)

ESTABLISHMENT OF DESIGN AND PERFORMANCE REQUIREMENTS USING COST AND SYSTEMS ANALYSIS, L. M. Waganer, L. A. Carosella, and D. A. DeFreece, McDonnell-Douglas Astronautics, USA . . . . .	63
IMPACT OF CONFINEMENT PHYSICS ON REACTOR DESIGN AND ECONOMICS, D. A. DeFreece, R. B. Campbell, and L. M. Waganer, McDonnell-Douglas Astronautics, USA . . . . .	71
ENGINEERING PARAMETERS FOR FOUR IGNITION TNS TOKAMAK REACTOR SYSTEMS, T. C. Varljen, G. Gibson, J. W. French, and F. M. Heck, Westinghouse Fusion Power Systems, USA . . . . .	76
SMALL RADIUS START-UP FOR A TNS PLASMA, T. Uckan, Oak Ridge National Laboratory, USA . . . . .	81
A COMPUTER CODE FOR THE COSTING AND SIZING OF TNS TOKAMAKS, D. A. Sink and E. M. Iwinski, Westinghouse Fusion Power Systems, USA . . . . .	86

	<u>Page</u>
AN APPROACH TO DECISION MODELING FOR AN IGNITION TEST REACTOR, H. R. Howland and T. C. Varljen, Westinghouse Fusion Power Systems, USA . . . . .	91
TRITIUM SYSTEMS PRELIMINARY DESIGN FOR TNS, H. J. Garber, Westinghouse Fusion Power Systems and J. S. Watson, Oak Ridge National Laboratory, USA . . . . .	95
THE HANDLING OF TRITIUM AT TFTR, C. W. Pierce and H. J. Howe, Princeton Plasma Physics Laboratory, and L. Yemin and K. Lind, Ebasco Services, USA . . . . .	101
PLASMA POSITION CONTROL FOR TFTR USING MODERN CONTROL THEORY, R. Gran, M. J. Rossi, and F. Sobierajski, Grumman Aerospace Corporation, USA . . . . .	104
CONTROL SYSTEM OF PLASMA POSITION AND CROSS-SECTIONAL SHAPE IN LARGE TOKAMAK DEVICE, Y. Suzuki, A. Ogata, and H. Ninomiya, Japan Atomic Energy Research Institute, and S. Nakagawa, N. Tsuzuki, and T. Yamagishi, Tokyo Shibaura Electric Co., Ltd., Japan . . . . .	112
THE EQUILIBRIUM FIELD COIL SYSTEM FOR THE ARGONNE EPR DESIGN, J. Brooks, K. Evans, Jr., H. Stevens, and L. Turner, Argonne National Laboratory, USA . . . . .	117
ENGINEERING FEATURES OF ISX-B, T. E. Smith, R. L. Dearstone, and P. L. Goranson, Union Carbide Corporation-Nuclear Division, USA . . . . .	121
DESIGN OF TEXT STRUCTURAL SYSTEM, J. E. Floyd, The University of Texas at Austin, USA . . . . .	125
ASSEMBLY OF ISX, N. W. Durfee, Oak Ridge National Laboratory, USA . . . . .	126
RFX FIELD SYSTEM DESIGN, J. Phillipott, M. K. Bevir, J. A. Dobbins, J. W. Gray, and M. F. Turner, Culham Laboratory, England . . . . .	129
TMX, A NEW FACILITY, S. R. Thomas, Jr., Lawrence Livermore Laboratory, USA . . . . .	134
DESIGN OF AN ELECTROSTATIC END-PLUGGED PLASMA-CONFINEMENT DEVICE, R. W. Moir, T. J. Dolan, and W. L. Barr, Lawrence Livermore Laboratory, USA . . . . .	138
A TOROIDAL HELICAL QUARTZ-FORMING MACHINE, K. W. Hanks and T. R. Cole, Los Alamos Scientific Laboratory, USA . . . . .	144
FINAL ANALYSIS OF THE ENGINEERING DATA ON THE SCYLLAC FEEDBACK STABILIZATION EXPERIMENT, K. J. Kutac, R. W. Kewish, Jr., G. Miller, R. F. Gribble, and E. L. Cantrell, Los Alamos Scientific Laboratory, USA . . . . .	147
A LOW-NOISE CONTROL VALVE - II, R. S. Christie, Princeton Plasma Physics Laboratory, USA . . . . .	152
D.P.F. CAPACITOR BANK SYSTEMS DESIGN, K. Aaland, Lawrence Livermore Laboratory, USA . . . . .	155
ENERGY DEPOSITION FROM MICROEXPLOSION PARTICLE DEBRIS IN THE FIRST WALL ON AN INERTIALLY-CONFINED FUSION REACTOR, J. Hovingh, Lawrence Livermore Laboratory and S. L. Thomson, Bechtel Corporation, USA . . . . .	162
PDX MANAGEMENT TECHNIQUES AND PROCEDURES, D. J. Kungl, Princeton Plasma Physics Laboratory, USA . . . . .	167

D. ENGINEERING PROBLEMS OF FUSION REACTORS  
G. H. Miley (Univ. of Illinois) and W. C. Young (Univ. of Wisconsin)  
(Tuesday Afternoon, October 25, 1977)

TOROIDAL FIELD RIPPLE EFFECTS IN TNS DESIGN, N. A. Uckan, J. D. Callen, K. T. Tsang, and J. R. Moore, Oak Ridge National Laboratory, USA . . . . .	169
ENGINEERING DESIGN SOLUTIONS OF FLUX SWING WITH STRUCTURAL REQUIREMENTS FOR OHMIC HEATING SOLENOIDS, R. A. Smith, Westinghouse Electric Corporation, USA . . . . .	173
A COMPACT POLOIDAL DIVERTOR REFERENCE DESIGN FOR TNS, T. F. Yang, A. Y. Lee, G. W. Ruck, and W. J. Lange, Westinghouse Fusion Power Systems, USA . . . . .	178
HYBRID EQUILIBRIUM FIELD COILS FOR THE ORNL TNS, Y-K. M. Peng, D. J. Strickler, and R. A. Dory, Oak Ridge National Laboratory, USA . . . . .	186
ALTERNATE OHMIC HEATING COIL ARRANGEMENTS FOR COMPACT TOKAMAK, J. W. Dawson, A. Moretti, H. C. Stevens, and K. Thompson, Argonne National Laboratory, USA . . . . .	193
ADVANTAGES OF IRON CORE IN A TOKAMAK, E. S. Bettis, J. K. Ballou, W. R. Becraft, Y-K. M. Peng, and H. L. Watts, Oak Ridge National Laboratory, USA . . . . .	198
DIRECT ENERGY CONVERSION OF EXHAUST FUSION PLASMA BY MAGNETIC DEFLECTION, K. Denno, New Jersey Institute of Technology, USA . . . . .	206

	Page
ALUMINUM BLANKET/SHIELD DESIGN FOR A HIGH FIELD IGNITION TEST REACTOR, J. A. Fillo, J. R. Powell, R. Benenati, and H. Makowitz, Brookhaven National Laboratory, USA . . . . .	211
STRUCTURAL DESIGN CONSIDERATIONS FOR A FREE STANDING ITR VACUUM VESSEL, J. A. Dalessandro, General Atomic Company, USA . . . . .	214
TNS VACUUM VESSEL DESIGN, C. A. Trachsel, McDonnell-Douglas Astronautics Company, USA . . . . .	219
ENGINEERING DESIGN OF THE LINUS-O PROTOTYPE LINER IMPLOSION SYSTEM, P. J. Turchi, D. J. Jenkins, W. L. Warnick, R. D. Ford, R. Lanham, A. L. Cooper, Naval Research Laboratory, USA, and R. L. Burton, Jaycor, Inc. . . . .	220
HYDRODYNAMIC MODEL EXPERIMENTS FOR STABILIZED LIQUID LINERS WITH ANNULAR PISTON DRIVE, R. L. Burton, Jaycor, Inc., P. J. Turchi, D. J. Jenkins, and A. L. Cooper, Naval Research Laboratory, USA . . . . .	225
PULSED HIGH PRESSURE GAS GENERATOR USING HIGH EXPLOSIVES FOR IMPLODING LINERS, R. Ford, D. Jenkins, P. J. Turchi, Naval Research Laboratory, and R. L. Burton, Jaycor, Inc., USA. . . . .	229
OVERHAUL PROCEDURE OF LARGE FUSION REACTOR, E. Toyota, T. Minakuchi, H. Saito, and N. Fukami, Sumitomo Heavy Industries Co., Ltd., and K. Sako, Japan Atomic Energy Research Institute, Japan . . . . .	233
FUSION PLANT ELECTRICAL OUTPUT POWER PROFILES AND THE UTILITY INTERFACE, G. M. Brennan, D. A. DeFreece, and L. M. Waganer, McDonnell-Douglas Astronautics Company, USA . . . . .	238
IMPURITY AND GAS THROUGHPUT CONTROL FOR TNS, E. W. Sucov, Westinghouse Research Laboratories and Westinghouse Fusion Power Systems, USA . . . . .	243
CONTRIBUTION TO AN OPTIMUM CONCEPTUAL TOKAMAK SCALING, A. F. Knobloch, Max-Planck-Institut für Plasmaphysik, Federal Republic of Germany . . . . .	250
TOKAMAK DIVERTOR IMPACT ON THE TOROIDAL FIELD MAGNET AND VACUUM SYSTEM, Y. Gohar, Argonne National Laboratory and C. W. Maynard, University of Wisconsin, USA . . . . .	255
THERMOSTRUCTURAL AND MECHANICAL ASPECTS OF THE TFTR PLASMA LIMITER DESIGN, R. Condolff and S. Fixler, Grumman Aerospace Corporation, USA . . . . .	260
HIGH POWER BEAM FOCUSING IN A DIODE AND TARGET IRRADIATION AT ANGARA-I ACCELERATOR, I. P. Afonin, M. V. Babykin, B. V. Baev, K. A. Bajgarin, A. V. Bartov, P. P. Gavrin, E. D. Korop, V. L. Mizhiritsky, A. M. Pasechnikov, and L. I. Rudakov, I. V. Kurchatov Institute of Atomic Energy, USSR . . . . .	269
E. ENERGETIC PLASMA AND PARTICLE SOURCES	
K. H. Berkner (LBL) and A. C. Smith (PG&E)	
(Tuesday Afternoon, October 25, 1977)	
ION SOURCE DEVELOPMENT FOR JT-60 NEUTRAL BEAM INJECTOR, Y. Ohara, Y. Arakawa, H. Horiike, U. Kondoh, S. Matsuda, T. Ohga, Y. Okumura, and H. Shirakata, Japan Atomic Energy Research Institute, Japan . . . . .	273
DUOPIGATRON ION SOURCES FOR PLT INJECTORS, C. C. Tsai, W. L. Stirling, H. H. Haselton, R. C. Davis, and D. E. Schechter, Oak Ridge National Laboratory, USA . . . . .	278
THEORETICAL STUDY OF THE ION COMPOSITION OF THE MODIFIED DUOPIGATRON ION SOURCE, L. Bromberg and L. D. Smullin, Massachusetts Institute of Technology, USA . . . . .	284
THE RECTANGULAR PERIPLASMATRON, AN ION SOURCE FOR MW-NEUTRAL BEAM INJECTION SYSTEMS, R. Becherer, M. Fumelli, and F. P. G. Valckx, Association Euratom-CEA, France . . . . .	287
RECTANGULARLY SHAPED LARGE AREA PLASMA SOURCE, K. W. Ehlers, Lawrence Berkeley Laboratory, USA . . . . .	291
A COMPACT 80-keV NEUTRAL-BEAM MODULE, A. W. Molvik, E. D. Baird, K. H. Berkner, W. S. Cooper, T. J. Duffy, K. W. Ehlers, J. Fink, D. Garner, and C. Wilder, Lawrence Livermore Laboratory, USA . . . . .	295
ACCELERATION OF ONE AMPERE NEGATIVE ION BEAMS TO ENERGIES UP TO 120 keV, C. Lam and Th. Sluyters, Brookhaven National Laboratory, USA . . . . .	300
NEGATIVE HYDROGEN ION SOURCES FOR NEUTRAL BEAM INJECTORS, K. Prelec, Brookhaven National Laboratory, USA . . . . .	303
ENGINEERING OF BEAM DIRECT CONVERSION FOR A 120-kV, 1-MW ION BEAM, W. L. Barr, J. N. Doggett, G. W. Hamilton, J. D. Kinney, and R. W. Moir, Lawrence Livermore Laboratory, USA . . . . .	308

	Page
A HOLLOW CATHODE HYDROGEN ION SOURCE, J. S. Sovey and M. J. Mirtich, NASA Lewis Research Center, USA . . . . .	315
<p>F. SUPERCONDUCTING MAGNETS  D. B. Montgomery (FBNML) and S. L. Wipf (LASL)  (Wednesday Morning, October 26, 1977)</p>	
PROGRESS ON SUPERCONDUCTING DEVELOPMENT WORK FOR MFTF, D. N. Cornish, A. R. Harvey, D. G. Hirzel, J. E. Johnston, R. L. Leber, R. L. Nelson, and J. P. Zbasnik, Lawrence Livermore Laboratory, USA . . . . .	322
TESTING OF A 0.8 m FREE BORE NbTi PROTOTYPE MAGNET, W. Amenda, P. Krüger, H. Lohnert, K. H. Schmitter, and M. Söll, Max-Planck-Institut für Plasmaphysik, Federal Republic of Germany . . . . .	323
A SUPERCONDUCTING 0.54 MJ PULSED ENERGY STORAGE COIL, E. Mullan, M. A. Janocko, and D. C. Litz, Westinghouse Research and Development Center, USA . . . . .	327
THE DEALS MAGNET CONCEPT AND ITS APPLICATIONS TO HIGH DENSITY, HIGH FIELD TOKAMAK SYSTEMS, S. Y. Hsieh, J. Powell, J. Lehner, P. Bezler, and C. Laverick, Brookhaven National Laboratory and M. Finkelman, T. Brown, and J. Bundy, Grumman Aerospace Corporation, USA . . . . .	334
TESPE, A SMALL SUPERCONDUCTING COMPACT TORUS C.-H. Dustmann, Institut für Technische Physik, Karlsruhe, Federal Republic of Germany . . . . .	339
S. C. MAGNET DESIGN FOR 10 MJ HOMOPOLAR MACHINE, D. C. Litz, P. W. Eckels, and H. Riemersma, Westinghouse Research and Development Center, USA . . . . .	344
LIMITS ON THE FIELD OF OHMIC HEATING SOLENOIDS, APPLIED TO A TOKAMAK TNS, L. R. Turner, Argonne National Laboratory, USA . . . . .	349
DESIGN OF A THREE-METER, 7.5-TESLA SUPERCONDUCTING SEGMENT TEST FACILITY, P. L. Walstrom, P. B. Burn, B. E. Nelson, T. L. Ryan, and R. B. Wysor, Oak Ridge National Laboratory, USA . . . . .	354
PARALLEL CONNECTED OHMIC HEATING COIL SYSTEM FOR A DOUBLET TOKAMAK FUSION REACTOR, W. E. Toffolo, W. Y. Chen, J. R. Purcell, and J. C. Wesley, General Atomic Company, USA . . . . .	360
A TOROIDAL FIELD MAGNET SYSTEM UTILIZING NORMAL METAL TRIMMING COILS, P. F. Michaelson, S. O. Hong, W. C. Young, I. N. Sviatoslavsky, and R. W. Conn, University of Wisconsin, USA . . . . .	365
<p>G. INSTRUMENTATION AND DATA HANDLING  S. Y. Hsieh (BNL) and R. W. Wilkins (LASL)  (Wednesday Morning, October 26, 1977)</p>	
SOME MECHANICAL ASPECTS OF THE MULTI-CHANNEL TV-THOMSON SCATTERING APPARATUS ON THE PLT MACHINE, V. S. Foote and R. S. Christie, Princeton Plasma Physics Laboratory, USA . . . . .	371
CALORIMETRIC AND OPTICAL BEAM DIAGNOSTICS ON THE LBL 120-keV NEUTRAL BEAM TEST FACILITY, C. F. Burrell, W. S. Cooper, W. F. Steele, and R. R. Smith, Lawrence Berkeley Laboratory, USA . . . . .	374
ELECTRONICS SYSTEM FOR THE 150 kV NEGATIVE ION TEST STAND AT BNL, R. A. Larson, Brookhaven National Laboratory, USA . . . . .	377
A NEW ISOLATION AND CONTROL CONCEPT FOR LARGE PULSE POWER SYSTEMS OR COMMON MODE PLUS, P. R. Rupert, W. L. Gagnon, L. W. Berkbigler, and D. G. Gritton, Lawrence Livermore Laboratory, USA . . . . .	382
MULTICHANNEL A/D SUBSYSTEM FOR TEXT DATA ACQUISITION, G. S. Caldwell, D. M. Patterson, and A. B. Macmahon, The University of Texas at Austin, USA . . . . .	387
A DATA ACQUISITION AND HANDLING SYSTEM FOR THE MEASUREMENT OF RADIAL PLASMA TRANSPORT RATES, W. M. Krawczonek and J. R. Roth, NASA Lewis Research Center, and C. E. Boyd, J. Y. Hong, and E. J. Powers, The University of Texas at Austin, USA . . . . .	392
AN ANALOG SAFETY DATA LINK, J. E. Lawson, Princeton Plasma Physics Laboratory, USA . . . . .	393
FIBER OPTIC TELEMETRY SYSTEM FOR LLL HIGH VOLTAGE TEST STAND, J. P. Richter, Lawrence Livermore Laboratory, USA . . . . .	397

	Page
SCANNING DRIVE FOR VISIBLE SPECTRUM MONOCHROMATOR, A. H. Bohr and R. S. Christie, Princeton Plasma Physics Laboratory, USA . . . . .	402
FAST-SCAN, BEAM-PROFILE MONITOR, A. F. Waugh, Lawrence Livermore Laboratory, USA . . . . .	406
PLT ION TEMPERATURE SYSTEM DESIGN AND OPERATION, H. Murray and W. J. Heim, Princeton Plasma Physics Laboratory, USA . . . . .	410
AIR DRIVEN FIBER OPTIC COUPLED PULSER SYSTEM FOR ZT-40, W. C. Nunnally and A. T. Brousseau, Los Alamos Scientific Laboratory, USA . . . . .	415
NEUTRAL INJECTION BEAM POWER MONITOR, K. B. Silverman, Princeton Plasma Physics Laboratory, USA . . . . .	418
SOME RESULTS FROM THE PLT 3 COIL TEST, G. M. Brown and J. File, Princeton Plasma Physics Laboratory, USA . . . . .	422
IMPROVED TECHNIQUES FOR MECHANICAL MEASUREMENTS IN TIME-VARYING MAGNETIC FIELDS, G. M. Brown, Princeton Plasma Physics Laboratory, USA . . . . .	423
NICKEL-CHROMIUM STRAIN GAGES FOR CRYOGENIC STRESS ANALYSIS OF SUPERCONDUCTING STRUCTURES IN HIGH MAGNETIC FIELDS, H. S. Freynik, Jr., D. R. Roach, D. W. Deis, and D. G. Hirzel, Lawrence Livermore Laboratory, USA . . . . .	425
H. ENERGY STORAGE — HOMOPOLAR GENERATORS AND POWER SUPPLIES	
D. Beard (DMFE-DOE) and E. L. Kemp (LASL)	
(Wednesday Morning, October 26, 1977)	
APPLICATION OF HOMOPOLAR GENERATORS FOR HIGH VOLTAGE PLASMA EXPERIMENTS, W. H. Lupton, D. Conte, R. D. Ford, P. J. Turchi, and I. M. Vitkovitsky, Naval Research Laboratory, USA . . . . .	430
CURRENT COLLECTION SYSTEMS FOR PULSE POWER HOMOPOLAR MACHINES, R. A. Marshall, P. Reichner, and R. M. Slepian, Westinghouse Research and Development Center, USA . . . . .	434
DESIGN OF A 10 MJ FAST DISCHARGING HOMOPOLAR MACHINE, R. E. Stillwagon, Westinghouse Research and Development Center, and P. Thullen, Los Alamos Scientific Laboratory, USA . . . . .	439
CIRCUIT AND MAGNETIC ANALYSIS FOR A SYSTEM OF FARADAY ROTATOR COILS DRIVEN BY A TWO-SPOOL, FOUR-ROTOR HOMOPOLAR GENERATOR, D. J. Mayhall, K. M. Tolk, W. F. Weldon, H. G. Rylander, and H. H. Woodson, The University of Texas at Austin, USA . . . . .	443
DESIGN, FABRICATION AND TESTING OF A FAST DISCHARGE HOMOPOLAR MACHINE (FDX), J. H. Gully, M. D. Driga, B. Grant, H. G. Rylander, K. M. Tolk, W. F. Weldon, and H. H. Woodson, The University of Texas at Austin, USA . . . . .	446
ELECTROMAGNETIC TORQUES AND FORCES DUE TO MISALIGNMENT EFFECTS AND EDDY CURRENTS IN THE HOMOPOLAR GENERATOR, POWER SUPPLY FOR THE TEXAS EXPERIMENTAL TOKAMAK (TEXT), M. D. Driga, W. L. Bird, K. M. Tolk, W. F. Weldon, H. G. Rylander, and H. H. Woodson, The University of Texas at Austin, USA . . . . .	450
PLASMA DRIVING SYSTEM REQUIREMENTS FOR COMMERCIAL TOKAMAK FUSION REACTORS, J. N. Brooks, R. L. Kustom, and W. M. Stacey, Jr., Argonne National Laboratory, USA . . . . .	454
ENERGY STORAGE AND TRANSFER SYSTEM FOR EXPERIMENTAL POWER REACTOR, J. N. Brooks, R. E. Fuja, R. L. Kustom, and W. F. Praeg, Argonne National Laboratory, USA . . . . .	459
POLOIDAL FIELD POWER SUPPLIES AND THEIR PERFORMANCE ON THE PDX MACHINE, N. M. Turitzin and G. E. Oliaro, Princeton Plasma Physics Laboratory, USA . . . . .	464
TEXT POLOIDAL COIL SYSTEMS POWER SUPPLIES, S. H. Hutchins and D. F. Brower, The University of Texas at Austin, USA . . . . .	469
METHODS FOR PRODUCING THE PLASMA INITIATION PULSE IN OHMIC HEATING CIRCUITS IN TOKAMAK POWER REACTORS: RESISTIVE DISSIPATION, TRANSIENT INDUCTIVE STORAGE AND TRANSIENT CAPACITIVE STORAGE, M. D. Driga, D. J. Mayhall, W. F. Weldon, H. G. Rylander, and H. H. Woodson, The University of Texas at Austin, USA . . . . .	473
SLOW AND FAST FEEDBACK CIRCUITS FOR THE PLASMA EQUILIBRIUM IN THE T.F.R. 600 TOKAMAK. NUMERICAL SIMULATION OF THE MULTITRANSFORMER EQUATIONS, R. Dei-Cas, J. Blum, J. P. Morera, and P. Plinate, Association Euratom-CEA, France . . . . .	478
DESIGN AND TESTS OF A CONTROL SYSTEM FOR THYRISTORIZED POWER SUPPLIES FOR SUPERCONDUCTING COILS, H. J. Boenig, Los Alamos Scientific Laboratory, and W. S. Ranken, University of New Mexico, USA . . . . .	484

	<u>Page</u>
DESIGN OF THE POWER AMPLIFIER FOR THE HEGLF AT LASL, J. Jansen and V. L. Zeigner, Los Alamos Scientific Laboratory, USA . . . . .	489
ANALYSIS OF THREE-PHASE POWER-SUPPLY SYSTEMS USING COMPUTER-AIDED DESIGN PROGRAMS, E. F. Oberst, Lawrence Livermore Laboratory, USA . . . . .	494
PREDICTION OF THE PERFORMANCE OF SYNCHRONOUS-GENERATOR/BRIDGE-CONVERTER/OHMIC HEATING CIRCUIT INSTALLATIONS, J. B. Hicks, Culham Laboratory, England . . . . .	500
CIRCUIT AND PLASMA SIMULATION FOR THE DESIGN OF ZT-40, G. P. Boicourt, Los Alamos Scientific Laboratory, USA . . . . .	501
LARGE-APERTURE DISCHARGES IN E-BEAM-SUSTAINED CO <sub>2</sub> AMPLIFIERS, W. T. Leland, J. T. Ganley, M. Kircher, and G. W. York, Jr., Los Alamos Scientific Laboratory, USA . . . . .	506
A RELIABLE ELECTRIC POWER DISTRIBUTION SYSTEM FOR TFTR AUXILIARIES, P. A. Hanuscak, Giffels Associates, Inc., USA . . . . .	509
SELECTION OF POWER TRANSFORMERS FOR PULSED LOADS, R. D. Farley and D. E. Huttar, Princeton Plasma Physics Laboratory, USA . . . . .	513
AC DISTRIBUTION SYSTEM FOR TFTR PULSED LOADS, R. F. Carroll, S. Ramakrishnan, G. N. Lemmon, and W. I. Moo, Ebasco Services, Inc., USA . . . . .	517
TEST DATA ON ELECTRICAL CONTACTS AT HIGH SURFACE VELOCITIES AND HIGH CURRENT DENSITIES FOR HOMOPOLAR GENERATORS, M. Brennan, K. M. Tolk, W. F. Weldon, H. G. Rylander, and H. H. Woodson, The University of Texas at Austin, USA . . . . .	522
I. PLASMA HEATING SYSTEMS -- TOKAMAKS	
M. Kristiansen (Texas Tech Univ.) (Wednesday Morning, October 26, 1977)	
INJECTOR DESIGN FOR WENDELSTEIN VII A, J. H. Feist, J. Kolos, W. Ott, E. Speth, Max-Planck- Institut für Plasmaphysik, Federal Republic of Germany . . . . .	527
COMPONENT DESIGN DESCRIPTION OF THE NEUTRAL BEAM INJECTORS FOR PLT, R. L. Johnson, M. B. Baer, W. K. Dagenhart, H. H. Haselton, T. L. Mann, C. C. Queen, W. L. Stirling, and P. W. Whitfield, Union Carbide Corporation-Nuclear Division, USA . . . . .	530
DEVELOPMENT AND TESTING OF THE ORNL/PLT NEUTRAL BEAM LINES FOR THE PRINCETON LARGE TORUS, W. K. Dagenhart, W. L. Gardner, H. H. Haselton, M. M. Menon, D. E. Schechter, W. L. Stirling, and C. C. Tsai, Oak Ridge National Laboratory, USA . . . . .	533
THE NEW ORNL NEUTRAL BEAM TRANSPORT SYSTEM, W. L. Stirling, R. C. Davis, H. H. Haselton, D. E. Schechter, and C. C. Tsai, Oak Ridge National Laboratory, USA . . . . .	539
BEAM LINE STUDIES OF THE JT-60 NEUTRAL BEAM INJECTOR, T. Shibata, T. Itoh, M. Kawai, S. Matsuda, H. Morita, Y. Nakamura, J. Sakuraba, and S. Tanaka, Japan Atomic Energy Research Institute, Japan . . . . .	544
THE DOUBLET III NEUTRAL BEAM INJECTION SYSTEM, A. P. Colleraine, M. M. Holland, and J. H. Kamperschroer, General Atomic Company, and K. H. Berkner, Lawrence Berkeley Laboratory, USA . . . . .	549
A NEUTRAL BEAM INJECTION SYSTEM FOR THE TOKAMAK FUSION TEST REACTOR, L. C. Pittenger, R. R. Stone, L. E. Valby, and L. R. Pedrotti, Lawrence Livermore Laboratory, USA . . . . .	555
DESIGN STUDY OF A NEUTRAL INJECTION SYSTEM FOR THE JAERI EXPERIMENTAL FUSION REACTOR (JXFR), H. Yamato, K. Shinya, O. Morimiya, and A. Miura, Toshiba Research and Development Center, and Y. Murakami, S. Matsuda, and K. Sako, Japan Atomic Energy Research Institute, Japan . . . . .	560
A NEUTRAL BEAM SYSTEM FOR AN IGNITION TOKAMAK, J. Fasolo, R. Fuja, J. Jung, J. Moenich, J. Norem, W. Praeg, and H. Stevens, Argonne National Laboratory, USA . . . . .	568
J. ENGINEERING PROBLEMS OF FUTURE FUSION REACTORS -- TNS	
A. F. Knobloch (Max-Planck-Institut für Plasmaphysik) and D. G. McAlees (Exxon Nuclear Co.) (Wednesday Morning, October 26, 1977)	
ENGINEERING PROBLEMS OF FUTURE FUSION REACTORS IN THE LIGHT OF TFTR EXPERIENCE, J. Bilton, Ebasco Services Inc., and E. Stern, Grumman Aerospace Corporation, USA . . . . .	575
OAK RIDGE TNS PROGRAM 1976/1977 INTEGRATION OF ENGINEERING REALITY BRINGS US CLOSER TO REALIZABLE REACTOR, M. Roberts, Oak Ridge National Laboratory, USA . . . . .	580

	Page
DESIGN RELATED RD&D ASSESSMENT FOR TNS, T. C. Varljen and C. A. Flanagan, Westinghouse Fusion Power Systems, USA . . . . .	586
ENGINEERING FEATURES OF AN UPGRADABLE IGNITION TEST REACTOR, P. Sager, J. Alcorn, D. Doll, R. Field, D. Vrable, and T. Woods, General Atomic Company, USA . . . . .	590
ENGINEERING PROBLEMS AND DESIGN FEATURES OF AN IGNITION TEST REACTOR, D. Doll, General Atomic Company, USA . . . . .	597
A TECHNOLOGICAL REVIEW OF STABILIZED IMPLoding LINER FUSION SYSTEMS, P. J. Turchi, Naval Research Laboratory, USA . . . . .	604
FUSION REACTOR DEVELOPMENT SCENARIOS FOR THE LASER SOLENOID CONCEPT, P. H. Rose, L. C. Steinhauer, and R. T. Taussig, Mathematical Sciences Northwest, Inc., USA . . . . .	609
PHYSICS AND ENGINEERING ASPECTS OF THE EBT REACTOR, N. A. Uckan, E. S. Bettis, C. L. Hedrick, R. T. Santoro, H. L. Watts, and H. T. Yeh, Oak Ridge National Laboratory, USA . . . . .	614
ENERGY BALANCE STUDIES FOR A PULSED, DEMONSTRATION TOKAMAK-FUSION-REACTOR, S. Bobbio, University of Naples, Italy . . . . .	620
MAGNET CONCEPTUAL DESIGN FOR A HIGH FIELD TOKAMAK REACTOR, J. E. C. Williams and R. D. Hay, Francis Bitter National Magnet Laboratory and M. Okabayashi, Princeton Plasma Physics Laboratory, USA . . . . .	625

K. SYSTEMS ENGINEERING

G. A. Krist (Westinghouse) and R. W. Moir (LLL)  
(Wednesday Afternoon, October 26, 1977)

DESIGN REVIEW OF THE TEXT FUSION PLASMA RESEARCH FACILITY, K. Gentle, D. Brower, G. Caldwell, G. Cardwell, J. Floyd, W. Harris, S. Hutchins, D. Patterson, and P. Wildi, The University of Texas at Austin, USA . . . . .	630
PDX OVERVIEW AND STATUS REPORT, J. B. Joyce, Princeton Plasma Physics Laboratory, USA . . . . .	634
THE JET PROJECT: TECHNICAL DEVELOPMENTS, STATUS OF THE MANUFACTURING WORK IN INDUSTRY, ADMINISTRATIVE AND MANAGERIAL ASPECTS, E. Bertolini, Culham Laboratory, England . . . . .	638
SYSTEM DESIGN FOR THE NEW TMX MACHINE, A. K. Chargin, M. O. Calderon, L. J. Mooney, and G. E. Vogtlin, Lawrence Livermore Laboratory, USA . . . . .	644
DESIGN FOR THE MAGNETIC FIELD REQUIREMENTS OF THE TANDEM MIRROR EXPERIMENT, F. K. Chen and A. K. Chargin, Lawrence Livermore Laboratory, USA . . . . .	649
ENGINEERING DESCRIPTION OF THE LASL ZT-40 TOROIDAL Z-PINCH, C. F. Hammer, R. S. Dike, and W. C. Nunnally, Los Alamos Scientific Laboratory, USA . . . . .	655
CONSTRUCTION OF A LARGE LASER FUSION SYSTEM, C. A. Hurley, Lawrence Livermore Laboratory, USA . . . . .	659
PARAMETRIC INVESTIGATION OF TNS CONCEPTUAL DESIGNS, D. W. Graumann, General Atomic Company, USA . . . . .	664
TRADE STUDY ANALYSIS FOR TNS TOKAMAKS, D. L. Chapin, H. J. Garber, G. Gibson, and D. A. Sink, Westinghouse Fusion Power Systems, USA . . . . .	670
ECONOMICS OF TOKAMAK POWER SYSTEMS, R. L. Reid and D. Steiner, Oak Ridge National Laboratory, USA . . . . .	675
ECONOMIC ANALYSIS OF EBT REACTOR, J. T. Woo, Massachusetts Institute of Technology and Rensselaer Polytechnic Institute, N. A. Uckan, Oak Ridge National Laboratory, and L. M. Lidsky, Massachusetts Institute of Technology, USA . . . . .	681

L. SUPERCONDUCTING MAGNETS - CONDUCTOR STABILITY AND SYSTEMS

D. W. Deis (LLL) and M. S. Walker (IGC)  
(Wednesday Afternoon, October 26, 1977)

STABILITY ANALYSIS OF COMPOSITE SUPERCONDUCTORS BY THERMAL ANALYZER DIGITAL COMPUTER PROGRAM, R. P. Krause and E. H. Christensen, General Dynamics Convair, USA . . . . .	685
CRYOSTABILIZATION OF LARGE SUPERCONDUCTING MAGNETS USING POOL BOILED HELIUM II, S. W. Van Sciver, University of Wisconsin, USA . . . . .	690

	<u>Page</u>
CRYOGENICALLY STABLE HOLLOW CONDUCTORS COOLED BY SUPERCRITICAL HELIUM, M. A. Hilal and R. W. Boom, University of Wisconsin, USA . . . . .	695
SUPERCONDUCTING MAGNETS FOR FUSION REACTORS: THE PROBLEM OF A RELIABLE AND EFFECTIVE COOLING SYSTEM: G. Pasotti and M. Spadoni, Laboratorio Superconduttività, Frascati, Italy . . . . .	700
DESIGN OF FORCE-COOLED CONDUCTORS FOR LARGE FUSION MAGNETS, L. Dresner and J. W. Lue, Oak Ridge National Laboratory, USA . . . . .	703
THERMAL DESIGN AND ANALYSIS OF SUPERCONDUCTORS FOR THE TOROIDAL FIELD COILS OF TNS, A. Y. Lee, Westinghouse Fusion Power Systems, USA . . . . .	710
HEAT TRANSFER AND FLOW CHARACTERISTICS OF LIQUID HELIUM IN NARROW CHANNELS, M. A. Hilal, S-T. Wang, J. W. Dawson, and J. D. Gonzy, Argonne National Laboratory, USA . . . . .	715
THE EFFECT OF A CONTINUOUS RESISTIVE TRANSITION ON SELF-FIELD INSTABILITY, L. Dresner, Oak Ridge National Laboratory, USA . . . . .	719
SUPERCONDUCTING COIL FABRICATION DEVELOPMENT AT OAK RIDGE NATIONAL LABORATORY, R. L. Brown, Oak Ridge National Laboratory, USA . . . . .	723
THE COIL WINDER FOR THE MAGNET OF THE MIRROR FUSION TEST FACILITY, R. C. Ling, Lawrence Livermore Laboratory, USA . . . . .	728
REEL SUPPORT FOR WINDING THE MAGNET OF THE MIRROR FUSION TEST FACILITY, R. C. Ling, Y. Chang, and L. D. Hunt, Lawrence Livermore Laboratory, USA . . . . .	733
THE HELIUM DISTRIBUTION SYSTEM FOR THE LARGE COIL TEST FACILITY (LCTF), C. G. Lawson, Oak Ridge National Laboratory, and J. R. May, Grumman Aerospace Corporation, USA . . . . .	737
POTENTIAL DAMAGE TO DC SUPERCONDUCTING MAGNETS DUE TO HIGH FREQUENCY ELECTROMAGNETIC WAVES, G. J. Gabriel, University of Notre Dame, and J. A. Burkhart, NASA Lewis Research Center, USA . . . . .	741
SUPERCONDUCTING MAGNET SYSTEMS FOR THE ANL EPR DESIGN, L. R. Turner, S-T. Wang, S. H. Kim, Y. C. Huang, and R. P. Smith, Argonne National Laboratory, USA . . . . .	746
STRUCTURAL ANALYSIS OF THE LARGE COIL SEGMENT TEST, W. D. Cain, W. H. Gray, W. R. Hendrich, B. E. Nelson, and W. C. T. Stoddart, Oak Ridge National Laboratory, USA . . . . .	751
A PRELIMINARY STRUCTURAL ANALYSIS OF THE TOROIDAL FIELD COILS FOR T-10M, W. H. Gray, W. C. T. Stoddart, and J. K. Ballou, Oak Ridge National Laboratory, USA, G. F. Churakov, Efremov Institute, and E. Y. Klimenko, Kurchatov Institute, USSR . . . . .	756
COMPUTATIONAL MODEL FOR SUPERCONDUCTING TOROIDAL-FIELD MAGNETS FOR A TOKAMAK REACTOR, L. R. Turner and M. A. Abdou, Argonne National Laboratory, USA . . . . .	762
AN APPROACH TO THE MODELLING OF THE TESPE COILS FOR FEM CALCULATIONS, F. Arendt, C.-H. Dustmann, and G. Friesinger, Institut für Technische Physik, Karlsruhe, Federal Republic of Germany, and D. Evans, Rutherford Laboratory, England . . . . .	767
MAGNETOELASTIC ENERGY CALCULATIONS FOR FINITE ELEMENT ANALYSIS OF SUPERCONDUCTORS, J. E. Akin, University of Tennessee, and W. C. T. Stoddart, Oak Ridge National Laboratory, USA . . . . .	772
INTERACTIONS BETWEEN CONDUCTOR STRAIN AND OTHER MAGNET SYSTEM DESIGN PARAMETERS, C. J. Long, Oak Ridge National Laboratory, USA . . . . .	776
CRYOSTABILITY EXPERIMENTS OF FORCE COOLED SUPERCONDUCTORS, M. O. Hoenig and A. G. Montgomery, Francis Bitter National Magnet Laboratory, USA . . . . .	780
<p>M. COPPER MAGNETS AND COIL ENGINEERING — TF, PF, NONTOKAMAK AND STRESS ANALYSIS  J. P. Heinrich (IGC) and N. E. Johnson (System Development Corp.)  (Wednesday Afternoon, October 26, 1977)</p>	
THE TOROIDAL FIELD COIL STRESS ANALYSIS — AS PLANNED AND EXECUTED FOR THE TFTR, S. J. Chen and J. Heifetz, Ebasco Services Inc., USA . . . . .	782
A 3-D SOLID FINITE ELEMENT FOR HETEROGENEOUS MATERIALS, H. Chang, N. S. Huang, and C. Y. Chiou, Ebasco Services Inc., USA . . . . .	791
MAGNETIC FORCES IN THE PDX TOROIDAL FIELD COILS, S. A. Dreskin, Princeton Plasma Physics Laboratory, USA . . . . .	797
STRESS ANALYSIS OF THE TEXT TF COIL, G. L. Cardwell, E. B. Becker, and D. N. Willis, The University of Texas at Austin, USA . . . . .	802



	<u>Page</u>
STRESS ANALYSIS OF ANISOTROPIC $B_T$ -COILS SLIDING INSIDE THEIR FRAME, H. J. Belitz, H. Conrads, B. Giesen, U. Schwarz, Euratom-KFA, Jülich and U. Schomburg, Institut für Technische Mechanik der RWTH, Federal Republic of Germany . . . . .	805
CONTACT PROBLEMS WITH CONSTRAINT FINITE ELEMENTS USED IN STRESS ANALYSIS FOR $B_T$ -COILS, U. Schomburg, Institut für Technische Mechanik der RWTH, Federal Republic of Germany . . . . .	808
TFTR POLOIDAL FIELD COILS DESIGN, H. G. Johnson, Princeton Plasma Physics Laboratory and G. E. Smith, Grumman Aerospace Corporation, USA . . . . .	813
PDX PF POWER TESTS, G. M. Brown and P. J. Heitzenroeder, Jr., Princeton Plasma Physics Laboratory, USA . . . . .	814
DESIGN, FABRICATION, AND MAGNETIC ALIGNMENT OF THE PDX CANNED POLOIDAL COILS, P. J. Heitzenroeder, Jr., and T. S. Haviland, Princeton Plasma Physics Laboratory, USA . . . . .	817
VOLTAGE OSCILLATIONS IN THE POLOIDAL FIELD COILS OF JT-60, R. Shimada, S. Tamura, M. Ohta, Japan Atomic Energy Research Institute, and O. Ohsaki and Y. Sawada, Tokyo Shibaura Electric Company, Ltd., Japan . . . . .	818
MECHANICAL DESIGN OF THE INNER POLOIDAL FIELD COILS OF THE JET TOKAMAK, A. Bond and J. R. Last, Culham Laboratory, England . . . . .	822
COIL DESIGN CONSIDERATIONS AND COST ANALYSIS FOR NEUTRAL BEAM MAGNETS, R. A. DeWitt, Lawrence Berkeley Laboratory, USA . . . . .	826
DESIGN AND FABRICATION OF A RADIALLY-FED IMPLOSION HEATING COIL, L. D. Hansborough, J. M. Dickinson, J. G. Melton, and W. C. Nunnally, Los Alamos Scientific Laboratory, USA . . . . .	830
DESIGN, FABRICATION, AND TESTING OF THE RFC-XX COIL SYSTEM, K. Adati, Y. Kubota, A. Miyahara, H. Obayashi, T. Sato, T. Watanabe, Nagoya University, and O. Ohsaki, E. Ishii, M. Watanabe, and S. Ito, Tokyo Shibaura Electric Company, Ltd., Japan . . . . .	834
DESIGN OF A 125 KILOGAUSS ONE METER MAGNET COIL, A. H. Bohr, F. W. Kloiber, and K. B. Silverman, Princeton Plasma Physics Laboratory, USA . . . . .	837
MAGNET AND COIL ENGINEERING OF TOROIDAL DEVICE WITH A NON-PLANAR MAGNETIC AXIS, S. Nagao, H. Watanabe, Y. Funato, I. Sakamoto, N. Sasaki, and K. Nukui, Tohoku University, Japan . . . . .	841
TMX MAGNETS: MECHANICAL DESIGN, R. E. Hinkle, A. R. Harvey, M. O. Calderon, A. K. Chargin, F. F. K. Chen, B. S. Denhoy, J. A. Horvath, J. R. Reed, and A. F. Waugh, Lawrence Livermore Laboratory, USA . . . . .	846
FINITE ELEMENT STRESS ANALYSIS OF ORTHOTROPIC SOLENOIDS, W. H. Gray, Oak Ridge National Laboratory and J. E. Akin, University of Tennessee, USA . . . . .	851
MULTILAYER COIL STRUCTURES ANALYZED BY LAMINATED BEAM THEORY, P. Rogoff, J. Bialek, and G. M. Brown, Princeton Plasma Physics Laboratory, USA . . . . .	854
BENDING FREE TOROIDAL SHELLS FOR TOKAMAK FUSION REACTORS, W. H. Gray, W. C. T. Stoddart, Oak Ridge National Laboratory, and J. E. Akin, University of Tennessee, USA . . . . .	855
LATERAL SUPPORT STRUCTURE FOR CONSTANT TENSION D-SHAPED COILS IN TOKAMAK FUSION DEVICES, R. Fernandes, Westinghouse Advanced Energy Systems Division, USA . . . . .	862
<p>N. ENERGY STORAGE AND SUPPLY - SYSTEMS  W. R. Becraft (ORNL) and J. D. Rogers (LASL)  (Wednesday Afternoon, October 26, 1977)</p>	
EXPERIMENTAL FUSION POWER REACTOR OHMIC HEATING ENERGY STORAGE, F. M. Heck, E. I. King, and R. E. Stillwagon, Westinghouse Fusion Power Systems, USA . . . . .	865
ELECTRAL DESIGN OF TNS, F. M. Heck, J. H. Schultz, and G. S. Smeltzer, Westinghouse Fusion Power Systems, USA . . . . .	870
DESIGN PHILOSOPHY OF THE 600 MW PULSED ENERGY CONVERTERS FOR THE TOROIDAL FIELD COIL OF TFTR AT PRINCETON, G. Karady, Ebasco Services, Inc., and R. Cassel, Princeton Plasma Physics Laboratory, USA . . . . .	874
A 25 MEGAJoule ENERGY STORAGE AND DELIVERY SYSTEM FOR THE SHIVA LASER, W. L. Gagnon, P. R. Rupert, L. Berkbigler, B. M. Carder, D. G. Gritton, R. W. Holloway, M. M. Howland, and K. Whitham, Lawrence Livermore Laboratory, USA . . . . .	880

	<u>Page</u>
SYSTEM ENGINEERING AND DESIGN OF A PULSED HOMOPOLAR GENERATOR POWER SUPPLY FOR THE TEXAS EXPERIMENTAL TOKAMAK, W. L. Bird, G. B. Grant, W. F. Weldon, H. G. Rylander, and H. H. Woodson, The University of Texas at Austin, USA . . . . .	886
OHMIC HEATING SYSTEM FOR THE TFTR TOKAMAK, F. Petree, Ebasco Services, Inc., and R. Cassel, Princeton Plasma Physics Laboratory, USA . . . . .	891
AC/DC PULSE POWER CONVERSION FROM HIGH VOLTAGE NETWORK TO JET LOADS, D. Ciscato, E. Coccoresse, and K. I. Selin, Culham Laboratory, England . . . . .	896
TFTR MOTOR GENERATOR, J. G. Murray, G. Bronner, Princeton Plasma Physics Laboratory, and M. Horton, General Electric Company, USA . . . . .	902
RECENT WORK ON NORMAL AND SUPERCONDUCTING INDUCTIVE ENERGY STORAGE AND SWITCHING AT THE EFREMOV INSTITUTE, LENINGRAD, U.S.S.R., M. D. Machalek, Los Alamos Scientific Laboratory, USA . . . . .	907
NEW APPLICATIONS OF INDUCTIVE STORAGE TECHNOLOGY, I. M. Vitkovitsky, Naval Research Laboratory, USA . . . . .	909
RESULTS OF INVESTIGATIONS OF HIGH SPECIFIC BREAKING POWER SUPERCONDUCTING SWITCHES, V. A. Glukhikh, A. I. Kostenko, N. A. Monoszon, V. A. Tishchenko, and G. V. Trokhachev, D. V. Efremov Scientific Research Institute, USSR . . . . .	912