

Table of Contents

SESSION 3P, WEDNESDAY, 7 DECEMBER 1983

VACUUM AND FIRST WALL TECHNOLOGY
QUALITY ASSURANCE
TRITIUM AND CHEMICAL SYSTEMS
MAGNETIC AND MECHANICAL ANALYSIS
HEALTH, SAFETY AND THE ENVIRONMENT

CO-CHAIRMEN- F.A.FERRARO (PPPL), J.GILL (MOUND),
C.W.PIERCE (PPPL) AND R.E.PRECHTER (PPPL)

ASSEMBLY OF THE TFTR VACUUM VESSEL BELLOW COVER PLATES M.A.PEREIRA E.L.KAMINSKY (PPPL)	961
INSTALLATION OF THE TFTR VACUUM VESSEL BELLOWS COVER PLATES E.L.KAMINSKY D.K.OWENS (PPPL) G.BARNES (GAC) R.A.JENSEN (B&R)	962
BUCKLING ANALYSIS OF BIG DEE VACUUM VESSEL S.S.LIGHTNER R.GALLIX (GA)	967
CONSTRUCTION OF THE JFT-2M TOKAMAK: 3) DEVELOPMENT OF SEMICONDUCTOR SHUNT RESISTOR M.YAMADA M.KASAI T.UCHIKAWA Y.KAWAI (MITSUBISHI)	973
CONSTRUCTION OF THE JFT-2M TOKAMAK: 2) DESIGN AND FABRICATION OF A VACUUM VESSEL T.UCHIKAWA S.KURI S.KURIBAYASHI M.YAMADA K.IOKI (MITSUBISHI)	978
COOLING AND HEATING SYSTEM FOR JT-60 VACUUM VESSEL S.KAJIURA K.SATO T.KODA M.HATA (HITACHI) T.SHIMIZU M.SHIMIZU H.NAKAMURA (JAERI)	983
CONTRIBUTIONS TO THE THERMAL POWER OF CONTINUOUSLY PROCESSED TMHR MOLTEN SALT BLANKETS F.A.PATTERSON-HINE J.W.DAVIDSON D.E.KLEIN (UNIV TEXAS)	988
DESIGN DESCRIPTION OF THE VACUUM VESSEL FOR THE ADVANCED TOROIDAL FACILITY K.K.CHIPLEY B.E.NELSON L.M.VINYARD D.E.WILLIAMSON (UC)	993
DESIGN FABRICATION, AND INSTALLATION OF THE TFTR PROTOTYPE SURFACE PUMPING SYSTEM J.J.SREDNIAWSKI J.MUELLER (GAC) J.L.CECCHI (PPPL)	996
DESIGN OF THE END CELL VACUUM VESSEL AND NUCLEAR SHIELDING INSTALLATION FOR THE MFTF-a+T J.KIRCHNER (ORNL)	997
DEVELOPMENT OF A LARGE LITHIUM COOLANT SYSTEM FOR OPERATION UNDER VACUUM R.KOLOWITH K.E.SCHWARTZ G.E.MEADOW J.D.BERG (HEDL)	1002
DISRUPTION HEAT LOAD SIMULATIONS USING ELECTRON BEAMS J.R.EASOZ R.BAJAJ R.E.GOLD (W)	1008
DOUBLET III LIMITER/ARMOR UPDATE E.JOHNSON T.MCKELVEY W.MORRILL R.PHELPS R.STAMBAUGH (GA)	1014
ELECTROMAGNETIC CHARACTERISTICS AND LOADINGS OF THE VARENNES TOKAMAK VACUUM VESSEL J.KALNAVARNS (MPB TECHNOLOGIES) H.VANANDEL G.LECLAIR (U MONTREAL)	1017
EVALUATION ON OPERATION REGION OF JT-60 FIRST WALL RELATED TO HIGH HEAT FLUX H.NAKAMURA M.SHIMIZU T.SHIMIZU M.MASUDA (JAERI)	1022

PERFORMANCE AND FAILURE MODES OF GENERIC BEAM DUMP PANELS R.S.BLEWER J.B.WHITLEY (SNL)	1027
A STELLARATOR HELICAL VACUUM VESSEL E.J.YAVORNIK (LANL)	1031
FABRICATION OF JT-60 VACUUM VESSEL H.SATO S.KAJIURA K.OWADA M.KANAMORI N.KARASTU H.SASAJIMA (HITACHI) M.SHIMIZU M.YAMAMOTO M.OHTA (JAERI)	1034
FIRST WALL AND LIMITER LIFETIME IN PULSED TOKAMAK REACTORS D.A.EHST S.MAJUMDAR Y.CHA A.HASSANEIN (ANL)	1038
FINAL DESIGN AND FABRICATION OF THE MOVEABLE LIMITER FOR TFTR T.MCKELVEY E.JOHNSON P.W.TRESTER (GA)	1043
MECHANICAL STRENGTH EVALUATION OF THE WELDED BELLOWS FOR THE PORTS OF JT-60 VACUUM VESSEL H.TAKATSU M.YAMAMOTO M.SHIMIZU (JAERI)	1048
PRE-ASSEMBLY OF TFTR VACUUM VESSEL R.A.JENSEN (B&R) G.H.RAPPE D.H.MULLANEY (PPPL)	1053
RELIABILITY TESTS OF 40-CM ALL METAL GATE VALVE AND 54-CM ID CERAMIC BREAK FOR JT-60 N.OGIWARA T.ARAI M.SHIMIZU (JAERI) T.TAKIZAWA (HITACHI) H.KIMIJIMA (ULVAC)	1058
TANDEM MIRROR EXPERIMENT UPGRADE (TMX-U) VACUUM SYSTEM-A NEW CONFIGURATION AND OPERATING PARAMETERS D.D.LANG M.O.CALDERON A.L.HUNT W.E.NEXSEN W.L.PICKLES W.C.TURNER (LLNL)	1063
TEST RESULTS FOR A C+SiC ALLOY COATING ON LIMITER/ARMOR TILES IN DOUBLET III G.R.HOPKINS P.W.TRESTER J.L.KAAE (GA)	1068
TFTR BUMPER LIMITER DESIGN L.SEVIER M.F.HO (GA) J.CITROLO J.BIALEK D.WEISSENBURGER I.J.ZATZ (PPPL)	1072
TFTR MOVABLE LIMITER INSTALLATION J.FRANKENBERG (PPPL) R.A.JENSEN (B&R) J.MCDADE D.COLLINS (PPPL)	1077
TFTR VACUUM SYSTEMS PERFORMANCE R.B.KRAWCHUK W.R.BLANCHARD R.PERSONS H.F.DYLLA (PPPL) J.J.SREDNIAWSKI (GAC) C.WARD (GA)	1081
THREE-DIMENSIONAL ANALYSIS OF CONTACT CONDITIONS IN THE TFTR LIMITER TILES D.PELESSONE P.D.SMITH (GA)	1088
THERMAL AND STRUCTURAL NON-LINEAR ANALYSIS OF THE IGNITOR PLASMA CHAMBER R.A.TERRY I.J.NYDEN P.H.TITUS (S&W)	1093
THERMAL CONTACT CONDUCTANCE MEASUREMENTS ON DOUBLET III ARMOR TILE GRAPHITE D.W.DOLL E.REIS (GA)	1099
THERMAL CYCLING BEHAVIOR OF MATERIALS FOR FUSION DEVICE APPLICATIONS J.OHMORI M.SHIBUI Y.SAWADA S.IOKA K.KIMURA (TOSHIBA) O.KANEKO T.KURODA K.SAKURAI Y.OKA (IPP, NAGOYA U)	1103
THERMAL HYDRAULIC TESTING OF FUSION REACTOR FIRST WALL CONCEPTS J.R.EASOZ R.E.GOLD (W)	1107
THERMAL SHOCK CONSIDERATIONS FOR THE PPPL DCT-8 LIMITER AND FIRST WALL J.R.HAINES B.A.CRAMER G.M.FULLER (ORNL)	1113
VACUUM VESSEL INSTALLATION IN THE TFTR F.R.SPINOS (GAC)	1117
VERIFICATION OF THE HYDRAULIC DESIGN OF THE FMIT LIQUID LITHIUM TARGET R.R.MILES J.G.INGHAM D.R.DICKINSON (W)	1120
DEVELOPMENT OF PROCEDURES TO ENSURE QUALITY AND INTEGRITY IN TANDEM MIRROR EXPERIMENT UPGRADE (TMX-U) DIAGNOSTIC SYSTEMS G.W.COUTTS M.L.COON A.F.HINZ R.S.HORNADY D.D.LANG N.P.LUND (LLNL)	1124
METHODOLOGY FOR TECHNICAL RISK ASSESSMENT L.M.WAGANER D.S.ZUCKERMAN (MDAC)	1128
QUALITY ASSURANCE ASPECTS OF THE MAJOR PROCUREMENTS FOR THE LARGE COIL TEST FACILITY D.J.TAYLOR T.L.RYAN C.C.QUEEN-JR E.L.HALSTEAD J.L.MURPHY R.J.WOOD (UC)	1133
ACCIDENTAL TRITIUM RELEASE FROM SOLID BREEDING BLANKETS D.F.HOLLAND B.J.MERRILL (EG&G)	1138
DEVELOPMENT OF TARGET CAPSULES FOR MUON CATALYZED FUSION EXPERIMENTS K.D.WATTS S.E.JONES A.J.CAFFREY (EG&G)	1143
FUSION BLANKET DESIGN FUNDAMENTALS P.C.BERTONE T.M.KASTURIRANGAN (PRINCETON UNIV)	1148
ION BEAM SYSTEM FOR TRITIUM PERMEATION EXPERIMENTS R.A.ANDERL D.F.HOLLAND (EG&G)	1153
LARGE SCALE PRODUCTION OF LITHIUM OXIDE PELLETS AND BREEDER RODS FOR THE TFTR LITHIUM BLANKET MODULE D.W.GRAUMANN L.YANG J.R.LINDGREN (GA)	1158
MONTE CARLO SIMULATION OF AN MCF FUEL SYSTEM D.S.ZUCKERMAN L.M.WAGANER (MDAC)	1166
NEUTRONICS AND PHOTONICS OF A TRITIUM AND HE-3 BREEDING PELLETT M.RAGHEB D.W.HASELTINE (UNIV ILL)	1171
PERFORMANCE TESTS OF THE EMERGENCY ROOM AIR TRITIUM REMOVAL SYSTEM FOR THE TRITIUM SYSTEMS TEST ASSEMBLY R.V.CARLSON (LANL)	1179
SOLID BREEDER TEST BLANKET IN TASKA-M D.WEINBERG S.MALANG (Kfz KARLSRUHE, ITP)	1180
SUBSYSTEM COST DATA FOR THE TRITIUM SYSTEMS TEST ASSEMBLY J.R.BARTLIT J.L.ANDERSON V.G.REXROTH (LANL)	1186
TRITIUM SYSTEMS FOR THE TOKAMAK REACTOR DESIGN, TFCX P.A.FINN (ANL)	1193
TRITIUM SYSTEMS FOR THE MIRROR UPGRADE MFTF-a+T P.A.FINN (ANL)	1198
CONSTRUCTION TECHNIQUES FOR SHORT IRON-FREE DIPOLE MAGNETS A.R.HARVEY (LLNL)	1203
EDDY CURRENT LOSSES IN TOKAMAK COMPONENTS DEFINED BY SURFACES OF A CYLINDRICAL COORDINATE SYSTEM J.KALNAVARNS (MPB TECHNOLOGIES)	1207
EDDY CURRENTS AND FORCES ON THE RFX VACUUM VESSEL AFTER HARD DISRUPTIONS F.GNESOTTO P.SONATO G.RUBINACCI (IGI, EURATOM-CNR)	1208
FINITE DIFFERENCE PREDICTION OF SUPERCONDUCTOR MULTI-DIMENSIONAL QUENCH PROPAGATION AND WINDING TEMPERATURE RISE J.M.O'LOUGHLIN E.H.CHRISTENSEN (GD)	1213
INNER LEG MECHANICS AND CENTRAL SUPPORT CONCEPTS FOR LARGE SUPERCONDUCTING TOROIDAL FIELD COILS H.ZEHLIN U.JESKE (Kfz KARLSRUHE, ITP)	1218
MAGFOR: A MAGNETICS CODE TO CALCULATE FIELDS AND FORCES IN TWISTED HELICAL CONSTANT CROSS-SECTIONAL COILS W.D.CAIN (UC)	1223
MAGNETIC DESIGN OF THE AXISYMMETRIC THROTTLE COIL ADDITION TO THE TANDEM MIRROR EXPERIMENT UPGRADE (TMX-U) R.L.WONG (LLNL)	1228

EDDY CURRENT MODELING AND POLOIDAL FIELD PENETRATION IN TFTR D.I.BROWN M.G.BELL J.COONROD (PPPL)	1233
TFTR HARDWIRED INTERLOCK SYSTEM FOR PERSONNEL ACCESS CONTROL G.F.SCHOEBERT (PPPL)	1238
CALCULATION OF NEUTRON FLUXES, ACTIVITIES AND GAMMA DOSE-RATES IN THE D-D OPERATED FTU MACHINE E.PEDRETTI C.DINICOLA (ENEA, ROME)	1244
CRYOGENIC RETENTION SYSTEM FOR DE-ACTIVATION OF NITROGEN G.R.PINTER (GAC)	1255
FIRE/GAS PENETRATION SEALS FOR TFTR EXPERIMENTAL AREAS S.CAVALLUZZO (PPPL)	1257
ISOTOPICALLY TAILORED HT-9 STEEL FOR RADIOACTIVE WASTE MANAGEMENT J.D.GORDON J.J.THOMSON S.N.SUCHARD (TRW)	1260
ISSUES IN RADIOACTIVITY FOR FUSION ENERGY, REMOTE MAINTENANCE RATING FOR REACTORS AND REACTOR COMPONENTS D.W.DORN R.C.MANINGER (LLNL)	1267
PROMPT RADIATION ENVIRONMENT FOR THE TFTR Q=1 DEMONSTRATION J.G.KOLIBAL L.P.KU (PPPL)	1274
SAFETY COMPARISON OF D-D AND D-T FUELED FUSION REACTORS A.E.DABIRI H.GUROL (SAI)	1279
SAFETY ASSESSMENT OF THE MARS TANDEM MIRROR REACTOR H.GUROL A.E.DABIRI (SAI)	1283
SAFETY REVIEW AND APPROVAL PROCESS FOR THE TFTR J.D.LEVINE K.E.LIND-HOWE (ESI) H.J.HOWE-JR (PPPL)	1287
VAPORIZED WALL MATERIAL/PLASMA INTERACTION DURING PLASMA DISRUPTIONS B.J.MERRILL S.C.JARDIN M.C.CARROLL (EG&G)	1291

SESSION 4A, THURSDAY, 8 DECEMBER 1983

FUTURE AND UPGRADE FUSION REACTORS

CHAIRMAN- I.J.ZATZ (PPPL)

MFTF-a+T: AN UPGRADE TO THE MFTF-B W.D.NELSON (ORNL) J.N.DOGGETT (LLNL)	1297
FUSION TECHNOLOGY DEVELOPMENT: ROLE OF FUSION FACILITIES UPGRADES AND FISSION TEST REACTORS P.Y.HSU G.A.DEIS L.G.MILLER G.R.LONGHURST (EG&G)	1302
SOME TECHNICAL ISSUES ASSOCIATED WITH A RIGGATRON TOKAMAK PURE FUSION DEVICE T.J.SEED (INESCO)	1309
INVITED- ENGINEERING CONSIDERATIONS IN THE SELECTION OF THE TOKAMAK TO FOLLOW TFTR T.E.SHANNON (ORNL)	1310
MIRROR ADVANCED REACTOR STUDY (MARS) FINAL REPORT SUMMARY C.D.HENNING B.G.LOGAN G.A.CARLSON R.W.WERNER J.D.GORDON J.F.PARMER (LLNL) J.R.BILTON (ESI) J.E.GLANCY (SAI) G.L.KULCINSKI L.J.PERKINS (UNIV WISC) R.J.HERBERMANN (GAC) ET AL	1314
THE STATUS OF FMIT ACCELERATOR E.L.KEMP (LANL)	1321

SESSION 4B, THURSDAY, 8 DECEMBER 1983

SUPERCONDUCTOR DEVELOPMENT

CO-CHAIRMEN- P.KOMAREK (KFZ KARLSRUHE) AND G.VECSEY (SIN)

PROGRESS ON AXICELL MFTF-B SUPERCONDUCTING MAGNET SYSTEMS S.T.WANG T.A.KOZMAN R.BULMER C.L.HANSON R.E.HINKLE D.W.SHIMER J.H.VANSANT J.O.MYALL E.W.OWEN G.YAMAGUCHI B.JOHNSTON K.Z.TIPTON G.LATHROP R.PATRICK (LLNL)	1324
INVITED- SUPERCONDUCTING MAGNET REQUIREMENTS FOR CURRENT AND FUTURE MIRROR FUSION DEVICES C.D.HENNING (LLNL)	1329
INVITED- STATUS OF THE LARGE COIL TEST FACILITY P.N.HAUBENREICH R.E.BOCHANAN J.R.MAY H.E.MILLER (ORNL)	1337
ASSEMBLY AND INSTALLATION OF THE LARGE COIL TEST FACILITY TEST STAND C.C.QUEEN-JR (UC)	1342
12 T TEST MODULE COIL (TMC-11) IN THE CLUSTER TEST PROGRAM T.ANDO Y.TAKAHASHI M.NISHI E.TADA K.KOIZUMI K.OKUNO H.TSUJI S.SHIMAMOTO K.YASUKOCHI (JAERI)	1346
DEVELOPMENT OF SUPERCONDUCTING POLOIDAL FIELD COILS FOR MEDIUM AND LARGE SIZE TOKAMAKS H.KRAUTH H.G.DITTRICH S.FORSTER A.HOFMANN U.JESKE H.KATHEDER W.LEHMANN A.NYILAS C.SCHMIDT A.ULBRICHT (KFZ KARLSRUHE, ITP)	1350
DESIGN AND VERIFICATION TESTS FOR A 20-MJ POLOIDAL COIL S.SHIMAMOTO T.ANDO T.HIYAMA H.TSUJI Y.TAKAHASHI E.TADA M.NISHI K.YOSHIDA K.OKUNO K.KOIZUMI H.NAKAJIMA T.KATO O.TAKAHASHI M.OSHIKIRI K.KAWANO K.YASUKOCHI (JAERI)	1358

SESSION 4C, THURSDAY, 8 DECEMBER 1983

COMPUTERIZED CONTROL AND DATA SYSTEMS

CHAIRMAN- C.STALOFF (PPPL)

INVITED- ARCHITECTURE OF THE CONTROL AND DATA ACQUISITION SYSTEM OF THE JET EXPERIMENT F.BOMBI (JET)	1362
PRESENT STATUS OF THE DOUBLET III CONTROL, ACQUISITION, AND ARCHIVING COMPUTER SYSTEM D.D.DROBNIS G.W.SHEPHARD (GA)	1366
EMI FREE FIBER OPTIC STRAIN SENSOR SYSTEM FOR TFTR N.C.SZUCHY A.L.CASERTA R.W.SQUIRES J.J.SREDNIAWSKI A.A.FERRARA (GAC)	1370
A NOISE FILTERING ALOGRITHM FOR THE MFTF COMPUTER-BASED CONTROL SYSTEM E.G.MINOR (LLNL)	1375
CONTROL INSTRUMENTATION AND DATA HANDLING OF HEAVY CURRENT INDUCTIVE LOAD INTERRUPTER J.E.CALPIN R.J.RAVAS (W)	1380

SESSION 4D, THURSDAY, 8 DECEMBER 1983

INERTIAL CONFINEMENT FUSION DRIVER/TARGET TECHNOLOGY

CHAIRMAN- M.J.MONSLER (KMS FUSION)

NOVA LASER FACILITY FOR INERTIAL CONFINEMENT FUSION W.W.SIMMONS (LLNL)	1381
PBFA-II PROJECT STATUS D.L.COOK G.W.BARR (SNL) J.P.FURAU (SNL)	1386
OMEGA: A SHORT WAVELENGTH LASER FOR FUSION EXPERIMENTS J.SOURES (U ROCHESTER)	1392
UNIFORMITY ANALYSIS FOR A DIRECT DRIVE LASER FUSION REACTOR L.D.LUND S.SKUPSKY L.M.GOLDMAN (UNIV ROCHESTER)	1398
CONSTRUCTION AND PERFORMANCE OF THE NOVETTE LASER/TARGET INTERACTION SYSTEM K.R.MANES (LLNL)	1402
MECHANICAL CONSTRUCTION OF THE NOVA LASER FACILITY C.A.HURLEY F.FRICK H.PATTON G.BRADLEY A.MARTOS (LLNL)	1409

SESSION 4P, THURSDAY, 8 DECEMBER 1983

PLASMA HEATING SYSTEMS
EXPERIMENTAL/DIAGNOSTIC SYSTEMS
ENERGY STORAGE, SWITCHING AND SUPPLY
REMOTE HANDLING

CO-CHAIRMAN- R.ELLIS-III (PPPL), R.A.JENSEN (B&R),
D.J.O'NEILL (PPPL) AND A.SIVO (PPPL)

MAGNETIC SHIELDING DESIGN ANALYSIS J.KERNS A.DELAPAZ J.FABYAN (LLNL)	1416
MAGNETIC SHIELDING TESTS FOR MFTF-B NEUTRAL BEAMLINES J.KERNS J.FABYAN R.WOOD-SR R.KOGER (LLNL)	1421
MFTF-B ECRH SYSTEM CONSTRUCTION PROGRESS AND PRELIMINARY TEST RESULTS K.H.KRAUSE (LLNL)	1426
MICROWAVE MEASUREMENT TEST RESULTS OF CIRCULAR WAVEGUIDE COMPONENTS FOR ELECTRON CYCLOTRON RESONANT HEATING (ECRH) OF THE TANDEM MIRROR EXPERIMENT UPGRADE (TMX-U) R.R.RUBERT F.E.COFFIELD B.FELKER B.W.STALLARD J.TASKA C.W.WILLIAMS (LLNL)	1430
MONTE CARLO MODELING OF ICRF RING FORMATION IN EBT REACTORS D.E.DRIEMEYER R.J.KASHUBA (MDAC)	1436
NEUTRAL BEAM COMPOSITION AND PURIFICATION C.C.TSAI (ORNL)	1440
OPERATING EXPERIENCE WITH 80-KEV/80-A ION SOURCES IN USE FOR DOUBLET III NBI EXPERIMENTS J.KIM A.P.COLLELAINE J.A.FASOLO R.HONG J.H.KAMPERSCHROER D.B.MCCOLL H.L.PALMER R.L.SILAGI J.F.TOOKER (GA)	1446
OPTIMIZED BAFFLE AND APERTURE PLACEMENT IN NEUTRAL BEAMLINES R.R.STONE T.DUFFY (LLNL)	1451
ORGANIZATION AND PERFORMANCE OF THE NEUTRAL BEAM SYSTEM FOR THE TANDEM MIRROR EXPERIMENT UPGRADE (TMX-U) R.J.KANE S.M.HIBBS R.G.KERR P.POULSEN (LLNL)	1455
OVERMODDED WAVEGUIDE COMPONENTS FOR THE ECH SYSTEM ON PDX J.L.DOANE (PPPL)	1459
PERFORMANCE ANALYSIS OF 180 DEG. REFLECTION MAGNET IN DOUBLET III NEUTRAL BEAMLINE R.HONG A.P.COLLELAINE J.H.KAMPERSCHROER J.KIM J.R.TREGLIO (GA)	1465
POLARIZING HOLOGRAPHIC REFLECTOR FOR ELECTRON CYCLOTRON RESONANT HEATING (ECRH) ON THE TANDEM MIRROR EXPERIMENT UPGRADE (TMX-U) F.E.COFFIELD B.FELKER N.C.GALLAGHER-JR L.R.PEDROTTI B.W.STALLARD D.W.SWEENEY E.W.WYMAN (LLNL) T.E.CHRISTENSEN (TRW)	1469
PRELIMINARY DESIGN OF A 20 MW ICRF POWER SYSTEM FOR D-III D D.B.REMSEN (GA)	1473
R&D WORKS OF WAVEGUIDE LAUNCHERS FOR JT-60 RF HEATING SYSTEM T.FUJII T.IMAI K.SAKAMOTO M.SAIGUSA Y.IKEDA M.HONDA K.YOKOKURA M.HARA K.UEHARA T.NAGASHIMA (JAERI)	1476
STEADY STATE ION BEAM DUMP FOR TFTR NEUTRAL BEAM F.DAHLGREN (PPPL)	1480
TANDEM MIRROR EXPERIMENT UPGRADE (TMX-U) NEUTRAL BEAM TEST STAND: A POWERFUL TOOL FOR DEVELOPMENT AND QUALITY ASSURANCE S.M.HIBBS R.J.KANE R.G.KERR P.POULSEN (LLNL)	1484
THE NATIONAL RF TEST FACILITY AS A MULTIPURPOSE DEVELOPMENT TOOL T.J.MCMANAMY W.R.BECRAFT L.A.BERRY C.W.BLUE W.L.GARDNER H.H.HASELTON D.J.HOFFMAN C.M.LORING-JR J.A.MOELLER N.S.PONTE P.M.RYAN W.L.WRIGHT (ORNL)	1489
THE PERFORMANCE OF WATERCOOLED CRIDS FOR ASDEX LONG PULSE NEUTRAL INJECTION J.H.FEIST J.KOLOS P.MIKOLAJCZAK P.J.SCHNEIDER E.SPETH G.WULFF (MPI, GARCHING)	1494
THE 1.5 MW ICRH-GENERATORS FOR ASDEX AND W VII W.SCHMINKE (BBC) F.HOFMEISTER F.WESNER (MPI, GARCHING)	1498
5MW NEUTRAL BEAM TEST STAND IN IPP-NAGOYA O.KANEKO Y.OKA K.SAKURAI T.KURODA (IPP, NAGOYA U)	1502
A UNIVERSAL DIAGNOSTIC PROBE SYSTEM FOR TOKAMAK FUSION TEST REACTOR R.MASTRONARDI R.CABRAL (AMERICAN SCIENCE & ENG) D.MANOS (PPPL)	1507
ELECTRICAL DESIGN OF A HIGH CURRENT DENSITY AIR-CORE REVERSED-FIELD PINCH "ZT-P" W.A.REASS J.G.MELTON R.F.GRIBBLE (LANL)	1512
CONCEPTUAL DESIGN FOR AN AIR CORE 2 MEGAMPERE REVERSED FIELD EXPERIMENT C.F.HAMMER (LANL)	1516
DESIGN AND MOUNTING OF A MAGNETIC SHIELD IN A HIGH MAGNETIC FIELD B.LEFTHIS (GAC) A.D.HAY (PPPL)	1520
DESIGN, FABRICATION, AND OPERATION OF THE MECHANICAL SYSTEMS FOR THE NEUTRAL BEAM ENGINEERING TEST FACILITY J.A.PATERSON M.FONG G.W.KOEHLER W.LOW P.PURGALIS R.P.WELLS (LBL)	1526
DESCRIPTION OF A LIQUID METAL TEST BLANKET FOR TASKA M I.N.SVIATOSLAVSKY D.K.SZE M.E.SAWAN (FUSION POWER ASSOCIATES, MADISON)	1536
DIAGNOSTIC TECHNIQUES FOR MEASURING TEMPERATURE TRANSIENTS AND STRESS TRANSIENTS IN THE FIRST WALL OF AN ICF REACTOR N.T.MELAMED L.H.TAYLOR (W)	1541
DT BURNING TOKAMAK WITH LOW ACTIVATION MATERIALS Y.HAMADA Y.ABE T.AMANO J.FUJITA O.KANEKO K.KAWAHATA S.KITAGAWA T.KURODA K.MATSUOKA K.MATSUURA Y.MIDZUNO H.NAITOU N.NODA Y.OGAWA K.OHKUBO Y.OKA K.SAKURAI S.TANAHASHI K.TOI K.YAMAZAKI T.WATARI (IPP, NAGOYA U) K.SHIN T.KYODO (KYOTO UNIV) K.MIYA (UNIV OF TOKYO)	1550

FIELD INSTALLED BRAZED THERMOCOUPLE FEEDTHROUGHS FOR HIGH VACUUM EXPERIMENTS P.ANDERSON C.MESSICK (GA)	1555
MECHANICAL DESIGN HIGHLIGHTS OF TFTR X-RAY DIAGNOSTICS E.A.MOSHEY (PPPL)	1559
MECHANICAL DESIGN OF THE TFTR X-RAY CRYSTAL SPECTROMETER N.E.YOUNG (ESI) F.R.SPINOS G.R.PINTER (GAC)	1560
MECHANICAL INSTALLATION OF TFTR NEUTRAL BEAM LINES E.D.PERRY (PPPL)	1565
MODULAR DESIGN OF THE ADVANCED STELLARATOR W VII-AS, ENGINEERING DETAILS U.BROSSMANN J.SAPPER B.SOMBACH (MPI, GARCHING)	1569
TASKA-M AN OPTIMIZED TANDEM MIRROR DEVICE FOR FUSION TECHNOLOGY TESTS F.ARENDT (Kfz KARLSRUHE, ITP)	1573
TFTR MOVABLE LIMITER CONTROLS AND INSTRUMENTATION J.FRANKENBERG D.COLLINS D.KAUFMANN (PPPL) A.MAMOUN (ESI)	1579
TFTR TV THOMSON SCATTERING B.LEFTHERIS D.DIMOCK E.TOLNAS (PPPL)	1582
A COMPUTER MODEL OF THE MFTF SNBPSS ACCEL DC POWER SUPPLY J.H.WILSON (LLNL)	1595
AN ASSESSMENT OF THERMAL STORAGE SYSTEMS AND THERMO-MECHANICAL EFFECTS FOR PULSED REACTORS B.MISRA H.STEVENS S.MAJUMDAR D.A.EHST J.N.BROOKS (ANL)	1600
AN OVERCURRENT PROTECTION DEVICE FOR NEUTRAL BEAM SOURCES W.F.PRAEG (ANL)	1605
CONSTRUCTION OF THE JFT-2M TOKAMAK: 5) DESIGN AND FABRICATION OF POLOIDAL COIL POWER SUPPLY SYSTEM T.NARIKAWA A.KAMEARI I.OYABU E.KASHINO H.MASUI K.ISHIDA (MITSUBISHI)	1610
CROSSTALK MEASUREMENTS ON THE D-III NEUTRAL BEAM POWER SUPPLIES A.NEREM E.BOWLES R.W.CALLIS A.COLLERAINE G.COWLES R.FINIZIO D.MOORE J.F.TOOKER H.VARGA (GA)	1616
DESIGN OF A POWER TRANSMISSION LINE WITH INTEGRATED SPARK PROTECTION SYSTEM FOR THE NEUTRAL INJECTORS OF TEXTOR K.G.FRICKE U.BRAUNSDORFER (IHT, TU BRAUNSCHWEIG) U.SCHWARZ H.EURINGER C.N.MEIXNER (Kfz, JULICH)	1621
FAST BREAK-DOWN AND OHMIC HEATING CIRCUIT FOR THE TOROIDAL Z-PINCH EXTRAP T1 M.BURES (ROYAL INST OF TECH, STOCKHOLM)	1625
FABRICATION AND TESTING OF THE FLEXIBLE TRANSMISSION LINE TO THE TFTR NEUTRAL BEAM ION SOURCES J.M.HAUGHIAN K.LOU R.BYRNS E.FONG J.CARRIERI (LBL)	1629
INDUCTANCE CALCULATION OF MULTICONDUCTOR HIGH-CURRENT TRANSMISSION LINES FOR PULSED POWER SUPPLIES A.NUDELMAN N.FROMM (PPPL)	1634
ION SOURCE PROTECTION EQUIPMENT FOR TFTR R.C.SEGERS (PPPL)	1638
NEW POLOIDAL AND TOROIDAL CROWBAR SYSTEMS IN ETA BETA II R.PIOVAN M.GUARNIERI (IGI, EURATOM-CNR)	1644
PROGRESS IN DEVELOPING A VOLUME D(-) ION SOURCE M.BACAL H.HILLION (LPMI, ECOLE POLYTECHNIQUE)	1649
PROPOSED DESIGN CRITERIA FOR A FUSION FACILITY ELECTRICAL GROUND SYSTEM C.A.ARMELLINO (LLNL)	1654
SOME CONSIDERATIONS ON SILICONE OIL IN HIGH CURRENT AND ENERGY DISCONNECTING MECHANISMS H.F.VOGEL (LANL)	1658
SPARKING PROTECTION FOR MFTF-B NEUTRAL BEAM POWER SUPPLIES D.B.CUMMINGS (LLNL)	1659
STARTUP EXPERIENCE WITH THE MFTF ECRH 100 KV DC POWER SUPPLY S.R.BISHOP R.A.GOODMAN J.H.WILSON (LLNL)	1663
STEADY STATE ANALYSIS OF A MULTICONVERTER SUPPLY SYSTEM FOR FUSION EXPERIMENTS L.FELLIN I.BENFATTO (IGI, EURATOM-CNR)	1668
ELECTRICAL ENERGY AND COST FOR THE MIRROR FUSION TEST FACILITY G.PENCE (LLNL)	1673
A MAINTENANCE ASSESSMENT FOR TFTR NEAR-TERM REMOTE HANDLING OPERATIONS P.T.SPAMPINATO L.DEUTSCH J.RATHKE (GAC)	1679
REMOTE MAINTENANCE OF TANDEM MIRROR HYBRID COILS L.P.DIETZ (GAC)	1686
TECHNICIAN SUPPORT FOR OPERATION AND MAINTENANCE OF LARGE FUSION EXPERIMENTS: THE TANDEM MIRROR EXPERIMENT UPGRADE (TMX-U) APPROACH G.E.MATTSON (LLNL)	1690

SESSION 5A, THURSDAY, 8 DECEMBER 1983

PLASMA HEATING SYSTEMS

CHAIRMAN- W.E.BECRAFT (ORNL)

INVITED- DEVELOPMENT OF HIGH POWER RF AND SWITCHING TUBES T.YINGST M.SHRADER (VARIAN)	1692
DESIGN OF HIGH POWER FINAL STAGE AMPLIFIER OF THE HELIOTRONE FOR ICRH AT KYOTO UNIVERSITY C.KALFON G.SIRE P.GERLACH (THOMSON-CSF) T.ONODERA K.UEDA K.ASAI (MITSUBISHI) T.MUTOH A.IIYOSHI K.UO (KYOTO UNIV)	1701
JT-60 RADIO FREQUENCY HEATING SYSTEM AND TESTING OF 1 MW-10 SEC KLYSTRON T.NAGASHIMA T.FUJII M.HARA M.HONDA K.IIDA Y.IKEDA T.IMAI H.KIMURA T.MAKAMURA M.SAIGUSA K.SAKAMOTO M.SAWAHATA H.SHIRAKATA N.SUZUKI K.UEHARA (JAERI)	1705
INVITED- REVIEW OF NEGATIVE ION SOURCE TECHNOLOGY K.N.LEUNG (LBL)	1709
FUNDAMENTAL MODE RECTANGULAR WAVEGUIDE SYSTEM FOR ELECTRON CYCLOTRON RESONANT HEATING (ECRH) FOR TANDEM MIRROR EXPERIMENT UPGRADE (TMX-U) R.R.RUBERT B.FELKER B.W.STALLARD C.W.WILLIAMS (LLNL)	1714
CIRCULAR WAVEGUIDE SYSTEMS FOR ELECTRON CYCLOTRON RESONANT HEATING (ECRH) FOR TANDEM MIRROR EXPERIMENT UPGRADE (TMX-U) B.FELKER M.O.CALDERON A.K.CHARGIN F.E.COFFIELD N.C.GALLAGHER-JR D.D.LANG L.R.PEDROTTI R.R.RUBERT B.W.STALLARD D.W.SWEENEY (LLNL) T.E.GHRISTENSEN (TRW)	1718
2.45 GHZ SYSTEM FOR LOWER HYBRID CURRENT DRIVE ON THE PRINCETON LARGE TORUS O.N.BOWEN A.BOHR J.Q.LAWSON W.NEWMAN F.SCHNABL (PPPL)	1722

SESSION 5B, THURSDAY, 8 DECEMBER 1983

SUPERCONDUCTING DEVELOPMENT

CHAIRMAN- J.R.PURCELL (GA)

INVITED- FUNDAMENTALS OF He II AND ITS APPLICATION TO SUPERCONDUCTING MAGNET SYSTEMS S.W.VANSCIVER (U WISC)	1727
INVITED- THE APPLICATION OF He II TECHNOLOGY TO THE PRODUCTION OF ULTRA-HIGH FIELD SUPERCONDUCTING MAGNETS R.HOARD (LLNL)	1731
DCT-8 TOROIDAL FIELD COIL DESIGN USING A SUPERFLUID HELIUM-COOLED WINDING S.S.KALSI L.COFFMAN R.J.HOOPER (ORNL)	1736
DESIGN CONSIDERATIONS FOR FORCED-FLOW SUPERCONDUCTORS IN TOROIDAL FIELD COILS P.A.MATERNA (PPPL)	1741
STABILIZATION AND COOLING REQUIREMENTS FOR THE ALCATOR DCT SUPERCONDUCTING MAGNET SYSTEM J.H.SCHULTZ P.D.BRINDZA D.B.MONTGOMERY S.H.KIM (MIT)	1747
ADVANTAGES OF THE DISTRIBUTED STRUCTURE CONCEPT OF THE WESTINGHOUSE LCP COIL DESIGN S.K.SINGH P.C.GABERSON T.D.HORDUBAY J.L.YOUNG (W)	1752

SESSION 5C, THURSDAY, 8 DECEMBER 1983

ENERGY STORAGE, SWITCHING AND SUPPLY

CHAIRMAN- D.E.HUTTAR (PPPL)

INVITED- INSTALLATION, COMMISSIONING AND OPERATION OF THE INTEGRATED POWER SUPPLY SYSTEM FOR JET E.BERTOLINI (JET)	1756
CONTROL AND PROTECTION OF THYRISTOR CONVERTORS FOR JT-60 POLOIDAL FIELD COILS H.IKEDA (TOSHIBA) R.SHIMADA T.AOYAGI M.MATSUKAWA (JAERI) T.YAMAGISHI K.UJIE S.NAKAGAWA (TOSHIBA)	1764
DESIGN, ERECTION AND COMMISSIONING OF JET FLYWHEEL-GENERATOR AND CONVERTOR SYSTEMS M.HUART (JET)	1770
PROPOSED INVERTER TO LINK GENERATORS AT PPPL F.LAWN D.E.HUTTAR (PPPL)	1771
DOUBLET III AC POWER SYSTEM H.VARGA F.UNMACK G.COWLES T.OVERETT (GA)	1775
TFTR AC POWER SYSTEM D.J.O'NEILL R.D.FARLEY A.V.ILIC A.W.STEVENS (PPPL)	1780
THE FIRST MODEL OF A SHIELDED SUPERCONDUCTING ENERGY STORAGE AS A POWER SUPPLY FOR POLOIDAL COILS T.SHINTOMI M.MASUDA (NAT'L LAB HIGH ENERGY PHYSICS, JAPAN)	1785

SESSION 5D, THURSDAY, 8 DECEMBER 1983

REMOTE MAINTENANCE AND HANDLING

CHAIRMAN- G.H.RAPPE (PPPL)

MAINTENANCE AND AVAILABILITY CONSIDERATIONS FOR MFTF-B UPGRADE P.T.SPAMPINATO (ORNL)	1788
INVITED- CONCEPTS AND STATUS OF REMOTE HANDLING IN JET J.DEAN T.RAIMONDI (JET)	1793
MECHANICAL DESIGN CONSIDERATIONS FOR A PRECISION, ULTRA HIGH VACUUM MANIPULATOR R.ELLIS-III (PPPL)	1798
THE MOBILE REACTOR CONCEPT AS APPLIED TO TESTING OF COMPACT FUSION REACTORS L.S.MASSON K.D.WATTS (EG&G)	1803

EXPERIMENTAL/DIAGNOSTIC SYSTEMS

CHAIRMAN- S.GOLDFARB (PPPL)

INVITED- ENGINEERING ASPECTS OF THE RIGGATRON IGNITION DEVICE R.JACOBSEN (INESCO)	1808
TECHNICAL CONCEPT OF THE ASDEX UPGRADE DEVICE M.BLAUMOSER AND ASDEX UPGRADE DESIGN TEAM (MPI GARCHING)	1814

SESSION 5P, THURSDAY, 8 DECEMBER 1983

ENGINEERING PROBLEMS OF FUTURE REACTORS
CONTROLS, INSTRUMENTATION AND DATA HANDLING
LATE PAPERS

CO-CHAIRMAN- H.A.MURRAY (PPPL) AND R.B.KRAWCHUK (PPPL)

METHODS OF IMPLEMENTING NEUTRON ALBEDO CONTROL IN TOROIDAL FUSION REACTORS D.L.JASSBY B.J.MICKLICH (PPPL)	1819
MORE ON THE DEVELOPMENT OF AC-MHD SYNCHRONOUS SALIENT GENERATOR COUPLED TO THE TOKAMAK FUSION REACTOR K.DENNO (NJ INST OF TECH)	1820
REACTOR ASSESSMENTS OF ADVANCED BUMPY TORUS CONFIGURATIONS N.A.UCKAN (ORNL)	1824
OPTIMIZATION OF SHIELD TEMPERATURE(S) TO MAINTAIN CRYOGENIC SURFACES AT OR ABOUT 4K, WITH MINIMUM OPERATING COST G.R.PINTER (GAC)	1830
PULSE*STAR INERTIAL CONFINEMENT FUSION REACTOR HEAT TRANSFER LOOP AND BALANCE OF PLANT CONSIDERATIONS M.W.MCDOWELL K.A.CURLANDER (ENERGY TECHNOLOGY ENGG CENTER) J.A.BLINK (LLNL)	1833
SCALING OF SUPERCONDUCTING TOROIDAL FIELD COIL COSTS AND IMPLICATIONS FOR TOKAMAK REACTOR DESIGN P.I.H.COOKE (CULHAM)	1839
STRESS ANALYSIS OF NEUTRAL BEAM PIVOT POINT BELLOWS FOR TOKAMAK FUSION TEST REACTOR J.J.JOHNSON L.W.TIONG B.J.BENDA (STRUCTURAL MECH)	1844
STABILITY OF A HIGH SPEED FREE SURFACE LIQUID JET FLOWING ALONG A CURVED WALL J.A.HASSBERGER (W)	1849
STRUCTURAL DESIGN AND ANALYSIS ASPECTS OF HELIAC (HELICAL AXIS STELLARATOR) I.J.ZATZ L.M.LONTAI (PPPL)	1854

T-2 TORSATRON REACTOR DESIGN FEATURES R.E.POTOK D.R.COHN L.M.LIDSKY (MIT)	1859
THE CONCEPTUAL DESIGN OF TANDEM CUSP THERMONUCLEAR REACTOR R.W.JONES (UNIV OF SINGAPORE)	1864
THE EFFECT OF IRON BEAMS IN CONCRETE ON THE FAST NEUTRON FLUX PERTURBATION FOR FUSION REACTORS L.P.KU J.G.KOLIBAL (PPPL)	1869
THE FISSION-SUPPRESSED DIRECT-ENRICHMENT (FSDE) FUSION BREEDER CONCEPT E.T.CHENG K.R.SCHULTZ H.FENECH R.L.CREEDON R.BULLOCK I.MAYA M.SIMNAD C.P.C.WONG (GA)	1873
THE IMPACT OF KEY DESIGN PARAMETERS ON NEUTRON WALL LOAD IN AN IGNITED TOKAMAK W.T.REIERSEN (ORNL)	1878
THERMAL AND STRUCTURAL DESIGN OF A COMPACT CIRCULAR DIRECT CONVERTER FOR MARS T.E.LUZZI J.E.ERICKSON (GAC)	1883
THERMAL-HYDRAULIC DESIGN OF FUSION BREEDER BLANKETS C.P.C.WONG (GA)	1888
THE SCALING OF ECONOMIC AND PERFORMANCE PARAMETERS OF D-T AND ADVANCED FUEL FUSION REACTORS J.R.ROTH (UNIV TENN)	1894
THE TESTING OF THE RECTANGULAR PIVOT-POINT BELLOWS FOR THE PPPL TOKAMAK TEST REACTOR J.M.HAUGHIAN K.LOU R.BYRNS J.GREER M.FONG D.T.SCALISE (LBL)	1895
THE TWIN-FALL CONCEPT FOR AN ICF CHAMBER G.H.MILEY J.STUBBINS B.ADAMS M.RACHEB C.K.CHOI (UNIV ILL)	1901
TOKAMAK REACTOR STARTUP POWER D.M.WELDON (LANL) J.G.MURRAY (PPPL)	1906
THERMAL ANALYSIS OF NEUTRALIZER PLATE FOR PUMPING LIMITER S.DINKEVICH A.SHAABAN (ESI)	1911
IMPROVEMENT IN MFTF DATA BASE SYSTEM RESPONSE TIMES N.C.LANG B.C.NELSON (LLNL)	1912
INSTRUMENTATION SIGNAL CONDITIONING FOR THE LARGE COIL TEST FACILITY J.L.MURPHY (ORNL)	1915
INTER-SHOT PROCESSOR SYSTEM FOR JT-60 T.KAMBE O.MOCHIZUKI Y.YANAI (FUJITSU LTD) K.OHASA R.TOYOKAWA (JAERI)	1916
MECHANICAL DESIGN OF GLOW DISCHARGE CLEANING PROBES AND LANGMUIR PROBES FOR TFTR R.C.GROO (PPPL)	1919
MICROWAVE INTERFEROMETER USING 94-GHZ SOLID-STATE SOURCES F.E.COFFIELD S.R.THOMAS-JR D.D.LANG R.D.STEVER (LLNL)	1920
PROTECTION SYSTEMS FOR NEUTRAL BEAM GENERATORS ON THE NEUTRAL BEAM ENGINEERING TEST FACILITY G.J.DEVRIES K.L.CHESELEY H.M.OWREN (LBL)	1924
RETRIEVAL AND HANDLING OF ONLINE ACQUIRED DATA FROM THE TOKAMAK EXPERIMENT TEXTOR M.KORTEN (INSTITUT FUER PLASMAPHYSIK, JULICH)	1928
RELIABILITY ASPECTS IN THE JT-60 CENTRAL CONTROL SYSTEM DESIGN S.KAJIURA T.KOJIMA T.MATSUKI T.NAKAYAMA (HITACHI) I.KONDO T.KIMURA N.HOSOGANE R.YOSHINO K.KIRIHARA I.YONEKAWA (JAERI)	1933
REMOTE EROSION MEASUREMENTS IN CONTROLLED FUSION EXPERIMENTS AND REACTORS W.HALVERSON P.SIOSHANSI (SPIRE CORP)	1937
REVIEW OF THE TANDEM MIRROR EXPERIMENT UPGRADE (TMX-U) MACHINE PARAMETER INSTRUMENTATION SYSTEM G.W.COUTTS F.E.COFFIELD R.S.HORNADY R.J.KANE (LLNL)	1942
SCHEDULING AND CONTROL OF PROGRAMS IN THE CICADA COMPUTER SYSTEM FOR TFTR G.B.CHRISTIANSON W.STARK M.SHERRICK (PPPL)	1946
SOFTWARE DESIGN FOR THE EBT-P DATA ACQUISITION AND CONTROL SYSTEM B.A.BOYD (MDAC)	1947
STATUS OF THE TANDEM MIRROR EXPERIMENT UPGRADE (TMX-U) DIAGNOSTIC SYSTEM G.W.COUTTS R.S.HORNADY (LLNL)	1948
SYSTEM DESIGN FOR JT-60 FAILURE MODE ANALYSIS AND PREDICTION K.KURIHARA I.YONEKAWA T.KIMURA N.HOSOGANE R.YOSHINO K.ANNO M.TAKAHASHI I.KONDO (JAERI)	1954
TEXAS EXPERIMENTAL TOKAMAK IMPURITY INJECTION SYSTEM D.R.TERRY W.L.ROWAN W.J.CONNALLY W.K.LEUNG (UNIV TEXAS)	1959
TFTR CENTRALIZED TORUS INTERFACE VALVE CONTROL SYSTEM G.G.PEARSON D.H.OLSEN (PPPL)	1963
TFTR FACILITY CLOCK SYSTEM J.MONTAGUE (PPPL)	1965
PROGRAMMABLE CONTROLLER: A VERSATILE TOOL FOR NEUTRAL BEAM CONTROL J.S.HASKOVEC G.CAMPBELL C.D.MOORE (GA)	1970
TFTR GROUNDING SCHEME AND GROUND MONITOR SYSTEM M.VIOLA (PPPL)	1974
THE GAS BOX CONTROL SYSTEM FOR TANDEM MIRROR EXPERIMENT UPGRADE (TMX-U) H.H.BELL-JR C.A.CLOWER-JR A.L.HUNT (LLNL)	1977
THE MAGNET POWER CONTROL SYSTEM FOR TANDEM MIRROR EXPERIMENT (TMX-U) H.H.BELL-JR (LLNL)	1980
THE S-1 SPHEROMAK CONTROL SYSTEM P.MATHE R.MIKA G.OLIARO (PPPL)	1984
THE TANDEM MIRROR EXPERIMENT UPGRADE (TMX-U) DIAGNOSTICS DATA SYSTEM J.F.CLAUSER C.P.PARRISH (LLNL)	1989
TOKAMAK PLASMA POSITION DYNAMICS AND FEEDBACK CONTROL O.BURENKO (ORNL) J.M.BAILEY (UNIV TENN)	1990
UPGRADED WATERFLOW CALORIMETRY FOR DOUBLET III NEUTRAL BEAM SYSTEM J.R.GARCIA R.HONG J.R.TREGLIO (GA)	1995
USE OF ADVANCED PROGRAMMABLE CONTROLLERS IN LCTF L.R.BAYLOR D.H.THOMPSON W.M.FLETCHER (ORNL)	1999
MANUFACTURING OF THE SWISS LCT COIL R.K.MAIX (BBC, ZURICH) I.HORVATH B.JAKOB K.KWASNITZA C.MARINUCCI G.VECSEY P.WEYMUTH J.ZELLWSEGER J.A.ZICHY (SIN) H.BENZ I.HORVATH A.KOCH H.P.MARTI G.MEYER J.C.RAUCH T.ROMAN A.SEGESSEMANN (BBC, ZURICH)	2004
ANALYSIS OF THE UMBRELLA ROOF FOR LIFTING A.SHAABAN (ESI)	2008
MACRO AND MICRO SEISMIC ANALYSIS OF TFTR STRUCTURE A.SHAABAN (ESI)	2009
THE TARA CONTROL, DATA ACQUISITION AND ANALYSIS SYSTEM M.P.J.GAUDREAU J.D.SULLIVAN T.W.FREDIAN C.A.KARCHER E.E.SEVILLANO J.STILLERMAN P.THOMAS (MIT)	2010

SESSION 6A, FRIDAY, 9 DECEMBER 1983

PLASMA HEATING SYSTEMS

CO-CHAIRMAN- M.M.MENON (ORNL) AND J.H.NOREM (ANL)

MATERIAL FAILURES OBSERVED IN THE DOUBLET III NEUTRAL BEAMLINES E.W.BAILEY A.COLLERAINE D.W.DOLL H.GRUNLOH J.KIM A.LANGHORN B.THURGOOD (GA)	2015
SUPERCONDUCTING MAGNETIC SHIELDS FOR NEUTRAL BEAM INJECTORS J.H.FINK (LLNL)	2018
BEAM EXTRACTION AT THE PROTOTYPE INJECTOR UNIT FOR JT-60 M.AKIBA M.ARAKI M.DAIRAKU H.HORIIKE T.ITOH M.KAWAI M.KURIYAMA S.KITAMURA S.MATSUDA M.MATSUOKA K.MIZUHASKI Y.OHARA Y.OGUCHI T.OHGA Y.OKUMURA K.SHIBANUMA T.SHIBATA H.SHIGEMATSU H.SHIRAKATA T.SUGAWARA S.TANAKA K.WANATABE (JAERI)	2021
NEUTRAL BEAM INJECTORS FOR THE BIG DEE VESSEL D.W.DOLL E.W.BAILEY T.COLLERAINE H.SANCHEZ A.PEURON R.HAGER J.A.FASOLO (GA)	2026
JT-60 NEUTRAL BEAM INJECTION SYSTEM H.SHIRAKATA M.AKIBA M.ARAKI M.DAIRAKU H.HORIIKE T.ITOH M.KAWAI M.KURIYAMA S.KITAMURA S.MATSUDA M.MATSUOKA K.MIZUHASHI Y.OHARA Y.OGUCHI T.OHGA Y.OKUMURA K.SHIBANUMA T.SHIBATA H.SHIGEMATSU T.SUGAWARA S.TANAKA K.WATANABE (JAERI)	2031

SESSION 6B, FRIDAY, 9 DECEMBER 1983

SUPERCONDUCTOR DEVELOPMENT

CO-CHAIRMAN- K.YASUKOCHI (NIHON UNIV) AND S.L.WIPF (LANL)

PERFORMANCE OF THE MFTF MAGNET CRYOGENIC POWER LEADS J.H.VANSANT (LLNL)	2036
GROWTH OF NORMAL ZONES IN CABLE-IN-CONDUIT SUPERCONDUCTORS L.DRESNER (ORNL)	2040
PULSED FIELD LOSSES AND INTENTIONAL QUENCHES OF SUPERCONDUCTING COILS S.H.KIM (ANL)	2044
RADIATION-INDUCED ELECTRICAL BREAKDOWN OF HELIUM IN FUSION REACTOR SUPERCONDUCTING MAGNET SYSTEMS L.J.PERKINS (UNIV WISC)	2045
A NEW QUENCH-VOLTAGE DETECTION TECHNIQUE FOR SUPERCONDUCTING COILS Y.IWASA T.ISHIGOHKA (MIT)	2050
ALTERNATIVE POWER SUPPLY AND DUMP RESISTOR CONNECTIONS FOR SIMILAR, MUTUALLY COUPLED, SUPERCONDUCTING COILS E.W.OWEN D.W.SHIMER S.T.WANG (LLNL)	2054
TF COIL PROTECTION USING MULTIPLE CIRCUITS R.J.THOME W.R.MANN R.D.PILLSBURY-JR W.G.LANGTON (MIT)	2059
DETECTION OF MINUTE STRESS CHANGES IN SUPERCONDUCTING WINDINGS WITH PIEZOELECTRIC SENSORS SA O.TSUKAMOTO T.ISHIGOHKA (MIT)	2064

SESSION 6C, FRIDAY, 9 DECEMBER 1983

ENERGY STORAGE, SWITCHING AND SUPPLY

CHAIRMAN- D.L.PEHRSON (LLNL)

INVITED- NOVA POWER SYSTEMS: STATUS AND OPERATING EXPERIENCE K.WHITHAM B.T.MERRITT D.G.GRITTON R.W.HOLLOWAY J.A.OICLES (LLNL)	2065
FABRICATION, INSTALLATION AND TESTING OF THE JET OHMIC HEATING CIRCUIT P.L.MONDINO T.ERIKSSON C.RAYMOND A.STELLA (JET)	2070
25 KILOJOULE ENERGY STORAGE CAPACITOR, A NEW LEVEL OF TECHNOLOGY R.A.COOPER D.K.HASKELL EVIGNY W.BAILEY (MAXWELL LAB)	2077

INSTRUMENTATION AND DATA HANDLING

CHAIRMAN- D.L.PEHRSON (LLNL)

VACUUM VESSEL AND FIRST WALL THERMOCOUPLE INSTRUMENTATION ON TFTR A.A.FERRARA J.J.SREDNIAWSKI J.L.CECCHI M.ULRICKSON (PPPL)	2078
THE LOCAL AREA NETWORK FOR THE PLASMA DIAGNOSTICS SYSTEM OF MFTF-B N.H.LAU E.G.MINOR (LLNL)	2079
CURRENT SENSING IN MAGNETIC FUSION EXPERIMENTS BY FARADY ROTATION IN SINGLE-MODE OPTICAL FIBERS G.I.CHANDLER F.C.JAHODA (LANL)	2084

SESSION 6D, FRIDAY, 9 DECEMBER 1983

DESIGN AND OPERATION OF LARGE FUSION REACTORS

CHAIRMAN- J.SHEFFIELD (ORNL)

MODULAR DESIGN OF THE ADVANCED STELLARATOR W VII-AS, OVERVIEW J.SAPPER U.BROSSMANN G.GRIEGER IG (MPI, GARCHING)	2091
COMMISSIONING & INITIAL OPERATION OF TFTR J.SINNIS (PPPL)	2096
INVITED- DESIGN DESCRIPTION OF THE ADVANCED TOROIDAL FACILITY, ATF-1 B.E.NELSON W.D.CAIN K.K.CHIPLEY M.J.COLE J.W.FORSEMAN W.R.HENDRICH T.C.JERNIGAN R.L.JOHNSON J.F.MONDAY P.B.THOMPSON L.M.VINYARD D.E.WILLIAMSON (UC)	2097
ALCATOR DCT CONCEPTUAL DESIGN D.B.MONTGOMERY J.H.SCHULTZ R.J.THOME B.LIPSCHULTS P.POLITZER FE (MIT)	2101
CONSTRUCTION OF THE JFT-2M TOKAMAK: 1) ENGINEERING DESIGN AND MANUFACTURING T.NARIKAWA T.YASUNO K.MUTA Y.IMAMURA M.YAMADA M.NISHIKAWA (MITSUBISHI)	2106
RECENT OPERATING HISTORY AND CURRENT AXISYMMETRIC COIL ADDITIONS TO TANDEM MIRROR EXPERIMENT UPGRADE (TMX-U) A.K.CHARGIN M.O.CALDERON T.L.MOORE (LLNL)	2113
ENGINEERING OF A COMPACT D-T BURNING EXPERIMENT B.COPPI (MIT) IGNITOR GROUP (SNS, PISA)	2114