

**Volume 2****Section IV - Magnets and Power Supplies**

Status of the ITER magnet R&D program <i>K. Okuno, C.W. Bushnell, N. Mitchell, R.J. Thome, M. Huguet, A. Torossian, M. Spadoni, H. Tsuji, T. Ando, A.I. Kostenko, S.A. Egorov, D.B. Montgomery, J.V. Minervini</i>	845
Structural design of the superconducting toroidal field coils for ITER <i>F.M.G. Wong, C. Sborchia, R.J. Thome, A. Malkov, P.H. Titus</i>	849
ITER TF coils: Casing versus shear plates <i>C. Portafaix, B. Bertrand, A. Torossian</i>	853
Alternative conductor arrangements for ITER TF coil winding pack <i>A. Torossian, C. Portafaix, B. Bertrand</i>	857
Mechanical analysis of the central solenoid of ITER compact design <i>C. Portafaix, B. Bertrand, A. Torossian</i>	861
Design of the outer poloidal field coils for ITER <i>C. Sborchia, N. Mitchell, K. Yoshida</i>	865
The ITER poloidal field system: control and power supplies <i>P.L. Mondino, I. Benfatto, Y. Gribov, M. Matsukawa, K. Odajima, A. Portone, A. Roshal, B. Bareyt, E. Bertolini, J.M. Bottereau, M. Huart, A. Maschio, S. Bulgakov, V. Kuchinski</i>	869
Test results of subsized joints between Nb <sub>3</sub> Sn cables as a first step for a design of joints for NET/ITER coils <i>D. Ciazynski, P. Decool, P. Hertout, B. Jager</i>	873
New tests on the 40 kA Nb <sub>3</sub> Sn CEA conductor for ITER applications <i>J.L. Duchateau, D. Bessette, B. Blau, I. Rohleder, G. Vecsey, H. Katheder</i>	877
The ITER quench experiment on long length at the SULTAN facility <i>A. Anghel, C. Marinucci, G. Vecsey, Y. Takahashi, J. Schultz</i>	881
Conductor fabrication for ITER model coils. Status of the EU cabling and jacketing activities <i>A. della Corte, M.V. Ricci, M. Spadoni, D. Bessette, J.L. Duchateau, E. Salpietro, R. Garré, S. Rossi, R. Penco, A. Laurenti</i>	885
Design of a TF model coil for ITER <i>P. Libeyre, B. Bertrand, P. Decool, A. Torossian, B. Turck</i>	889

Insert designs for the ITER CS model coil <i>P. Libeyre, B. Bertrand, C. Portafaix, A. Torossian</i>	893
Layer-to-layer joints for the ITER superconducting coils <i>P. Bruzzone, F. Iida, N. Mitchell</i>	897
Soldered scarf joints for cabled superconductors <i>P. Bruzzone, L. Bottura, E. Salpietro</i>	901
A real-scale helical coil winding trial of the large helical device <i>T. Senba, T. Yamamoto, T. Tamaki, K. Asano, S. Suzuki, T. Yamauchi, K. Uchida, K. Nakanishi, T. Yamagiwa, S. Suzuki, R. Miyoshi, H. Sasa, S. Watanabe, M. Tatemura, N. Hatada, S. Yamaguchi, S. Imagawa, N. Yanagi, T. Satow, J. Yamamoto, O. Motojima, LHD Design Group</i>	905
Design and fabrication of forced-flow superconducting poloidal coils for the large helical device <i>K. Nakamoto, T. Yamamoto, S. Mizumaki, T. Yamakoshi, Y. Kanai, K. Yamamoto, Y. Wachi, M. Ushijima, T. Yoshida, T. Kai, K. Takahata, J. Yamamoto, T. Satow, O. Motojima</i>	909
Performance test results of R&D superconducting bus-line for LHD <i>S. Yamada, T. Mito, H. Chikaraishi, K. Takahata, N. Yanagi, A. Nishimura, A. Iwamoto, T. Uede, H. Hiue, Y. Yasukawa, I. Itoh, S. Tanahashi, S. Satoh, O. Motojima, J. Yamamoto</i>	913
Test of the POLO model coil - a superconducting poloidal field coil according to the specifications of the tokamak operation - in the KfK TOSKA facility <i>H. Bayer, M. Darweschsad, S. Förster, G. Friesinger, A. Götz, P.-H. Gruber, R. Heller, W. Herz, W. Heep, M. Irmisch, H. Kathol, R. Kaufmann, K.-H. Kleiber, P. Komarek, W. Maurer, G. Nöther, U. Padligur, K. Rietzschel, H.-P. Schittenhelm, G. Schleinkofer, C. Schmidt, L. Siewerdt, W. Ratajczak, Ch. Sihler, E. Specht, H.J. Spiegel, F. Süß, M. Süßer, D. Uhlich, A. Ulbricht, F. Wüchner, G. Würz, G. Zahn</i>	917
Manufacturing of a high precision coil system for the Spanish stellerator TJ-II <i>J. Alonso, M. Blaumoser, H.-E. Bieder, E. Theisen, A. Jeckle, M. Brandl, M. Mione</i>	921
Detailed design, installation and testing of the new coil protection system for JET <i>V. Marchese, E. De Marchi, N. Dolgetta, J.R. Last, C. Ryle, G. Sannazzaro, L. Scibile, J. Van Veen, L. Zannelli</i>	925
Thermal considerations and cooling system for the JET divertor coils <i>N. Dolgetta, E. Bertolini, P. Butcher, M. Cooke, J.R. Last, V. Marchese, P. Miele, G. Sannazzaro, A. Tesini</i>	929

TPX magnet system status <i>R.H. Bulmer, M.R. Chaplin, D.D. Lang, T.G. O'Connor, D.S. Slack, R.L. Wong, J.P. Zbasnik, N. Diatchenko, L. Myatt, R.D. Pillsbury, J.H. Schultz, P.W. Wang, J.C. Citrolo</i>	933
Mechanical stresses of the W7-X coil set with reduced structural weight <i>N. Jaksic, J. Simon-Weidner, E. Harmeyer</i>	937
Demonstration cryostat sector for Wendelstein 7-X <i>F. Schauer, W. Bitter, R. Holzthüm, S. Huber, N. Jaksic, S. Kamm, F. Kerl, H. Münch, J. Simon-Weidner, B. Sombach, J. Tretter</i>	941
Manufacturing of a TF coil for Ignitor <i>S. Angius, P. Bogliolo, G. Dal Mut, A. Laurenti, A. Pizzuto, B. Riccardi</i>	945
The central solenoid of Ignitor: design and manufacturing of prototype coil <i>G. Galasso, L. Lanzavecchia, J. Rauch, M. Nassi, A. Pizzuto</i>	949
Centre column design for the MAST spherical tokamak <i>G.M. Voss, J.S. McKenzie, A.C. Darke</i>	953
Force-balanced coil concept applied to fusion tokamak reactors <i>Y. Miura, J. Kondoh, R. Shimada</i>	957
The analysis of current-carrying capability of the T-15 superconducting magnet <i>I.O. Anashkin, D.P. Ivanov, P.P. Khvostenko, I.A. Posadsky, A.N. Vertiporokh, I.A. Kukshinov</i>	961
Industrial development of internal Tin Nb <sub>3</sub> Sn strands for high field applications <i>R. Garrè, S. Conti, G. Donati, S. Rossi</i>	965
Summary of results on irradiation and testing at 4.5 K of epoxy-glass-fibre-steel samples <i>H.K. Katheder, H. Gerstenberg, E. Krähling, M. Söll</i>	969
Low temperature tensile and fracture mechanical strength in mode I and mode II of fiber reinforced plastics following various irradiation conditions <i>K. Humer, H.W. Weber, E.K. Tschegg, S. Egusa, R.C. Birtcher, H. Gerstenberg, B.N. Goshchitskii</i>	973
Irradiation effects on magnet components of the Joint European Torus <i>A. Tesini, E. Bertolini, J.R. Last, G. Sordon, G.P. Tartaglia</i>	977
Superconducting magnet coils protection schemes and apparatus <i>V. Kuchinski, S. Bulgakov, B. Larionov, N. Mikhailov, V. Silin</i>	981
Quench detection and protection of the ITER toroidal field coils <i>N. Mitchell, B. Bareyt, M. Shimada</i>	985

Novel quench detection methods for the superconducting magnets in ITER and TPX <i>J.H. Schultz, S. Pourrahimi, N. Diatchenko, W. Guss, E. Chaniotakis, R.D. Pillsbury Jr., S. Smith, P.W. Wang, J. Citrolo, M. Chaplin, J. Zbasnik</i>	989
Simple and compact protection system for superconducting magnets <i>J. Kondoh, Y. Miura, R. Shimada</i>	993
MAGS: A computer code system to analyse the 3D quench propagation in forced flow cooled superconducting magnet systems <i>G. Bönisch, W. Kuhn, R. Meyder</i>	997
A decade operational experience of JT-60 power supplies <i>Y. Matsuzaki, JT-60 Power Supplies Group</i>	1001
Ten year operational experience of the JET flywheel-generators <i>M. Huart, P.G. Doyle, E. Beedham</i>	1005
Power supply for the Spanish stellarator TJ-II <i>L. de Almoquera, M. Blaumoser, P. Méndez, I. Kirpichev</i>	1009
OH breaker of ASDEX Upgrade: closing switch without ignitrons <i>G. Klement, J. Engstler, D. Jacobi, B. Streibl</i>	1013
Varistors for the overvoltage protection of the magnetizing coils of TEXTOR <i>U. Braunsberger, B. Giesen, P. Hüttemann</i>	1017
Simulation studies of the power supply and the protection system for the Wendelstein 7-X stellarator <i>A. Wieczorek, J. Sapper</i>	1021
Voltage smoothing of chopper controlled power supplies <i>A. Verheul, M. van der Kaay, B. de Groot, J. Lok</i>	1025
Superconductors for fusion magnets tested under pulsed field in SULTAN <i>P. Bruzzone, L. Bottura, H. Katheder, B. Blau, I. Rohleder, G. Vecsey</i>	1029
Development of an ITER strand meeting the HP-1 specifications, using the internal-tin process <i>E. Gregory, E. Gulko, T. Pyon</i>	1033
<b>Section V - Fuel Cycle and Tritium Processing Systems</b>	
The tritium operations experience on TFTR <i>A. von Halle, J.L. Anderson, C. Gentile, L. Grisham, J. Hosea, J. Kamperschroer, P. LaMarche, M. Oldaker, A. Nagy, S. Raftopoulos, T. Stevenson, TFTR Group</i>	1039

Tritium contamination experience in an operational D-T fusion reactor <i>C.A. Gentile, J.L. Anderson, G. Ascione, R.H. Carnevale, S. Elwood, T. Feury, J. Grouss, P.H. LaMarche, R. Rossmassler, K. Rule, J. Schobert, J. Swanson, C. Tilson, J. Watazychyn, R.T. Walters, S. Williams</i>	1043
Status of design of the ITER tritium plant <i>R. Haange, H. Yoshida, O. Kveton, J. Koonce, H. Horikiri, R.-D. Penzhorn, S. Sood, K. Okuno, S. Konishi, T. Yamanishi, T. Hayashi, V.N. Tebous, V.K. Kapychev, A.N. Perevezentsev, J.L. Anderson, R.S. Willms, D.-K. Sze</i>	1047
Control system implementation for a complex low-inventory cryogenic distillation system for Princeton TFTR <i>A. Busigin, C.J. Busigin, F. Adamek, K.B. Woodall, J.R. Robins, D.G. Bellamy, C. Fong, K.M. Kalyanam, S.K. Sood</i>	1051
Progress on the inactive commissioning and upgrade of the JET cryogenic distillation system <i>P. Boucquey, C. Morfl, F. Delvart, J. Mart</i>	1055
Dynamic simulation of hydrogen isotope distillation unit <i>J.M. Le Lann, C. Latgé, X. Joulia, P. Séré-Peyrigain</i>	1059
An electrical pulse hydride injector (EPHI) for reactor fueling and tritium handling applications <i>E.A. Azizov, Yu.A. Kareev, A.N. Savotkin, V.V. Frunze, R.-D. Penzhorn, M. Glugla</i>	1063
Comparative study of Pd/Ag permeator concepts and their optimization for different applications in tritium facilities <i>J. Chabot, M. Glugla, R.D. Penzhorn, L. Boisset, C. Latgé, D. Leger</i>	1067
A reactor-permeator for the reduction of tritiated water on a regenerable iron reactant <i>G. Modica, R.A.H. Edwards, V. Forcina</i>	1071
Control of hydrogen permeation through metal membranes by varying surface contamination condition <i>M. Yamawaki, V. Bandurko, R. Satoh, K. Yamaguchi</i>	1075
Tritium accountancy <i>R. Avenhaus, G. Spannagel</i>	1079
Tritium accountancy techniques in ETHEL <i>U. Engelmann, M.I. Thornton, G. Vassallo</i>	1083
Isothermal calorimetry and tritium accountability <i>J.A. Mason, N. Bainbridge, J.R. Stencel</i>	1087

Tritium interactions with material surfaces in ambient room conditions <i>C. Housiadas, K. Douglas</i>	1091
Binder-free Na-Mordenite pellets for tritium processing <i>F. Toci, A. Viola, R.A.H. Edwards, T. Mencarelli, P. Brossa</i>	1095
Tritium removal technique for a self-cooled Pb-17Li blanket <i>J. Reimann, R. Kirchner, M. Pfeff, D. Rackel</i>	1099
Tritium recovery from a solid breeder DEMO blanket <i>H. Albrecht, E. Hutter</i>	1103
Transient adiabatic/isothermal calorimetry tests on JET uranium beds for tritium storage <i>L. Serio, J.L. Hemmerich, R. Lässer, P. Milverton</i>	1107
Pyrophoricity of tritium storage materials <i>A.N. Perevezentsev, R.-D. Penzhorn</i>	1111
Tritium technology: performance of oil-free pumps <i>R.-D. Penzhorn, U. Berndt, E. Kirste, M. Glugla, T. Le</i>	1115
A high-flow Holweck pump for fusion applications <i>M. Iseli, P.J. Dinner, D.K. Murdoch</i>	1119
A comparison of thick and thin sorbent layers for plasma exhaust cryopumping <i>I. Özdemir, D. Perinic</i>	1123
Mechanical pumping at low temperature <i>J.P. Périn, G. Claudet, F. Disdier</i>	1127
Proposal of a torus pumping and fuel recycling system for ITER <i>D. Perinic, A. Mack, G. Perinic, D. Murdoch</i>	1131
Advanced catalytic plasma exhaust clean-up process for ITER-EDA <i>M. Glugla, R.-D. Penzhorn, P. Hermann, H.J. Ache</i>	1135
Comparative analysis of possible solutions for primary vacuum system of the reactor tokamak <i>B.D. Ershov, G.L. Saksagansky, D.V. Serebrennikov</i>	1139
<b>Section VI - Blanket Technology/Materials</b>	
ITER tritium breeding blanket design <i>Y. Gohar, R. Parker, P.-H. Rebut, T. Hua, R. Mattas, D. Smith</i>	1145
Electromagnetic and structural analysis of the ITER shielding blanket <i>P. Barabaschi, P.H. Rebut, A. Cardella, Y. Gohar, R. Parker</i>	1149

Mechanical behaviour of the European B.O.T. blanket during electromagnetic off-normal transient conditions <i>L.V. Boccaccini, P. Ruatto</i>	1153
European DEMO BOT solid breeder blanket: The concept based on the use of cooling plates and beds of beryllium and $\text{Li}_4\text{SiO}_4$ pebbles <i>M. Dalle Donne, U. Fischer, P. Norajitra, G. Reimann, H. Reiser</i>	1157
Transient electromagnetic and dynamic structural analyses of a blanket structure with coupling effects <i>K. Koganezawa, M. Kushiyama, S. Niikura, F. Kudough, M. Onozuka, K. Koizumi</i>	1161
Probabilistic analysis of welded joints in blanket design <i>S. Zhang, H. Riesch-Oppermann</i>	1165
Revised analysis of thermal stresses of a blanket segment <i>E.N. Sinitsyn, D.N. Shmelyov</i>	1169
Lay-out and materials for in pile tritium transport testing of breeder-inside-tube pin assemblies <i>C. Alvani, J. Avon, S. Casadio, M.R. Mancini, C.A. Nannetti, G. Pruzzo, S. Ravel, N. Roux, A. Terlain, Terrosi, P. Zaghini, P. Zanardi, M. Zanotti</i>	1173
Ratcheting of bending type and its relevance for blanket design <i>St. Boehmer, R. Krieg, S. Raff</i>	1177
A computational procedure for coupled electromagnetic-structural dynamic problems and its application to a fusion reactor blanket <i>T. Jordan</i>	1181
Reference blanket model for SEAFP <i>W. Dänner, E. Salpietro, G. Symbolotti, L. Petrizzi, S. Tosti, V. Violante</i>	1185
The EU conceptual design proposal of a helium-cooled convertible blanket for ITER <i>J. Reimann, F. Dammel, U. Fischer, T. Jordan, S. Malang, P. Norajitra, G. Reimann, H. Reiser, K. Schleisiek</i>	1189
Thermal-hydraulic investigations on the CEA-ENEA DEMO relevant helium cooled poloidal blanket <i>G. Dell'Orco, G. Polazzi, F. Vallette, E. Proust, M. Eid</i>	1193
Considerations on techniques for improving tritium confinement in helium-cooled ceramic breeder blankets <i>M.A. Fütterer, D. Léger, X. Raepsaet, E. Proust</i>	1197
MHD heat transfer and pressure drop in electrically insulated channels at fusion relevant parameters <i>L. Barleon, K.J. Mack, R. Kirchner, M. Frank, R. Stieglitz</i>	1201

Conceptual design of a dual coolant liquid metal breeder blanket <i>S. Malang, L. Barleon, E. Bogusch, P. Norajitra, H. Reiser, J. Reimann, K. Schleisiek</i>	1205
MHD flows in partially decoupled parallel U-bends at high Hartmann numbers <i>R. Stieglitz, L. Barleon, J. Reimann, K.-J. Mack</i>	1209
Welding stresses in the first wall of a dual coolant liquid metal breeder blanket <i>L. Cizelj, H. Riesch-Oppermann</i>	1213
Trial fabrication and preliminary characterization of $Y_2O_3$ film as electrical insulator in liquid metal blanket <i>M. Nakamichi, H. Kawamura, K. Miyajima, Y. Harada, M. Saito</i>	1217
Liquid metal MHD heat transfer investigation <i>V.G. Sviridov, Yu.S. Shpanskij, N.G. Razuvanov</i>	1221
Three-dimensional heat transfer in laminar MHD flows in complex duct geometries <i>L. Bühler, U. Burr, S. Molokov</i>	1225
Thermal cycling tests on $Li_4SiO_4$ and beryllium pebbles <i>M. Dalle Donne, P. Norajitra, A. Weisenburger</i>	1229
Design and R&D activities on ceramic breeder blanket for fusion experimental reactors in JAERI <i>T. Kurasawa, H. Takatsu, S. Sato, M. Nakahira, K. Furuya, T. Hashimoto, H. Kawamura, T. Kuroda, T. Tsunematsu, M. Seki</i>	1233
Tritium release and gamma activity of various lithium ceramics irradiated by fast and thermal neutrons (COMPLIMENT experiment) <i>H. Werle, L. Dörr, D. Schild</i>	1237
Tritium release processes from lithium orthosilicate ceramics <i>J. Tiliks, A. Abramenkovs, G. Kizane, V. Grishmanov, H. Werle</i>	1241
Impact of sequential charged particle reactions on the activation behaviour of $Li_4SiO_4$ <i>H. Tsige-Tamirat</i>	1245
Approach to lithium burn-up effect in lithium ceramics <i>B. Rasneur</i>	1249
Radiolysis of neutron irradiated lithium solutions <i>A. Bruggeman</i>	1253
Eutectic mixture Pb-17Li - in-situ production and Li-adjustment <i>H. Feuerstein, D.A. Wirjantoro, L. Hörner, S. Horn</i>	1257



Influence of manganese on the nickel concentration in solution in the Pb-17Li alloy <i>F. Barbier</i>	1261
Hydrogen extraction tests from liquid Pb-17Li using gas-liquid contactors <i>A. Terlain, T. Sample, M.A. Fütterer</i>	1265
Validation of phenomena relative to tritium transport in irradiated closed capsules filled with Pb-17Li through modelling tritium release in LIBRETTO-2 experiment <i>L.A. Sedano, L. Giancarli, E. Proust</i>	1269
On the use of double-walled tubes as a means to improve safety and availability of the EU DEMO water-cooled Pb-17Li blanket <i>M. Eid, C. Nardi, L. Giancarli, E. Proust</i>	1273
Thermo-hydraulics analyses and external circuits layout for the EU DEMO water-cooled Pb-17Li blanket concept <i>J.F. Salavy, Y. Severi, L. Baraer, A. Favre, L. Giancarli, H. Kerveadou, E. Proust, J. Quintric Bossy</i>	1277
Mechanical strength of a martensitic 10%-Cr-steel after low-dose irradiation in HFR <i>E. Marterna-Morris, O. Romer</i>	1281
Prediction of thermomechanical fatigue on MANET I <i>C. Petersen, F. Wolter</i>	1285
The adherence of aluminide coatings on MANET II stainless steel and their effect on its mechanical properties <i>T. Sample, P. Fenici, H. Kolbe, L. Orecchia</i>	1289
OPTIFER-IV, a martensitic 9 % Cr-steel with high impact toughness <i>L. Schäfer</i>	1293
Influence of INCONEL 625 composition on the activation characteristics of the vacuum vessel of experimental fusion tokamaks <i>G. Cambi, D.G. Ceperaga, S. Boeriu, I. Maganzani</i>	1297
Tensile properties and stress corrosion behaviour of irradiated martensitic steels <i>A.-C. Nystrand, A. Lind</i>	1301
Compatibility of SiC/SiC fibre composite with lithium oxide in fusion-relevant conditions: material characterisation <i>A. Donato, L.F. Moreschi, M.L. Apicella, S. Casadio, R. Coppola, A. Mignone, C.A. Nannetti, E. Scaf�</i>	1305
Neutron induced displacement damage in <sup>9</sup> Be <i>D. Hermanutz</i>	1309

Irradiation-induced electrical conductivity of AlN and Al <sub>2</sub> O <sub>3</sub> at 450°C <i>A. Möslang, E. Daum, R. Lindau</i>	1313
Low-activation structural ceramic composites for fusion power reactors: materials development & main design issues <i>A.S. Pérez, N. Le Bars, L. Giancarli, E. Proust, J.F. Salavy</i>	1317
Isothermal hold-time tests of structural materials for fusion reactors <i>R. Schmitt, W. Scheibe</i>	1321
Results of the post irradiation examination of the breeder pellets and pebbles of the irradiation experiments COMPLIMENT and ALICE 3 <i>P. Weimar, H. Steiner, H. Zimmermann, L. Dörr</i>	1325
Fabrication of Al <sub>2</sub> O <sub>3</sub> coating on austenitic stainless steel type-316 <i>T. Terai, T. Yoneoka, H. Tanaka, S. Tanaka</i>	1329
Nitride and carbide thin films as hydrogen permeation barrier on MANET steel <i>G. Benamati, R. Checchetto, M. Bonelli, L.M. Gratton, L. Guzman, A. Miotello, A. Terlain</i>	1333
Aluminium-rich coatings as tritium permeation barriers on MANET (1.4914) stainless steel <i>A. Terlain, E. De Vito</i>	1337
Tritium permeation barrier formation on DIN 1.4914 martensitic stainless steel (MANET) by detonation jet <i>G. Benamati, A. Perujo, M. Agostini, A. Serra, N. Antolotti</i>	1341
Effect of surface oxide layer on tritium release from beryllium pebbles <i>E. Ishitsuka, H. Kawamura, T. Terai</i>	1345
Test of Japanese evaluated beryllium nuclear data against the Karlsruhe neutron transmission experiment <i>K. Hayashi, U. von Möllendorff, T. Tsukiyama, F. Kappler, R. Tayama, H. Giese</i>	1349
The need of an accurate neutron spectra evaluation in neutronic calculations for fusion reactors <i>N. Cerullo, G. Curzio, G. Forasassi, N. Iannaccone</i>	1353
Neutron leakage spectra from iron spheres <i>D.B. Devkin, M.G. Kobozev, S.P. Simakov, V.V. Sinitsa, V.A. Talalaev, U. Fischer, U. von Möllendorff, E. Wiegner</i>	1357
Investigation of new methods for nuclear heating measurements <i>H. Freiesleben, K. Merla, D. Richter, K. Seidel, S. Unholzer</i>	1361

Investigation of neutron and photon fluxes penetrating an iron shield assembly <i>H. Freiesleben, W. Hansen, D. Richter, K. Seidel, S. Unholzer</i>	1365
Neutronic analysis of the European reference design of the water-cooled lithium-lead blanket for a DEMONstration reactor <i>L. Petrizzi, L. Giancarli</i>	1369
Why self-shielding is needed in MCNP-calculations <i>A. Hogenbirk, H.Th. Klippel</i>	1373
<b>Section VII - Remote Handling</b>	
Testbed EDITH and first practical experience gained in the operation <i>A. Fiege, B. Haferkamp, H. Knüppel, K. Leinemann, A. Suppan, J. Woll, D. Maisonnier</i>	1379
Engineering design of a load-lock transfer system at TEXTOR <i>A. Cosler, S. Musso, R. Schick, B. Schweer</i>	1383
Key features of the new in-vessel inspection system at JET <i>T. Businaro, G. Dalle Carbonare, J.F. Junger, T. Raimondi</i>	1387
Remote handling experiments with the MASCOT IV servomanipulator at JET and prospects of enhancements <i>D. Hamilton, S. Colombi, L. Galbiati, B. Haist, S. Mills, T. Raimondi</i>	1391
Radiation- and temperature hardened components for in-vessel handling equipment <i>H.A. Rohrbacher, A. Rahn, A. Suppan, M. Decreton, F. Moons, D. Maisonnier, M. Englert</i>	1395
Materials engineering on candidate alloys to be used for remotely handled fasteners within nuclear fusion power plants <i>A. Colaiuda, F. Amelotti, L. Crippa, G. Merckling</i>	1399
Viewing systems in the fusion reactor vessel - radiation hardened glasses up to 300 MGy <i>M. Decréton</i>	1403
Shape memory effect Ni-Ti sleeves for remote handling connection of fusion reactor piping <i>N. Contrisciani, S. Ceresara, A. Tuissi</i>	1407
Mockup test of rail-mounted vehicle type maintenance system for fusion experimental reactor <i>S. Kakudate, E. Tada, K. Oka, S. Murakami, K. Taguchi, M. Horie, K. Obara, M. Kondoh, K. Shibanuma, M. Seki</i>	1411

Feasibility study of inside automatic welding system of cooling pipe of divertors for FER <i>S. Yoshizawa, J. Adachi, H. Morishita, S. Kakudate, H. Taguchi, E. Tada</i>	1415
<b>Section VIII - Safety and Environment, Reactor Studies</b>	
Radiation monitoring system developed for fusion site in Toki <i>H. Obayashi, J. Kodaira, Y. Sakuma, H. Yamanishi, H. Miyake</i>	1421
Short-term exposure of crop plants to atmospheric tritium. Experimental results and model development <i>S. Diabaté, J. Müller, W. Raskob, S. Strack</i>	1425
Cryostat pressurisation accident assessment using a computerised model (CONSEN) <i>L. Di Pace, T. Pinna, R. Meyder, G. Caruso</i>	1429
Studies on PFC oxidation in LOCIV and LOVA Accidents <i>H.-K. Hinssen, A.-K. Krüssenberg, R. Moormann, C.H. Wu</i>	1433
Modeling of solid particle transport in rarefied gases <i>I. Özdemir, D. Perinic, M. Weber, M.-Y. Dedegil, H. Pfortner</i>	1437
Control of accidental situations internal to the torus <i>L. Boisset, G.L. Fiorini, G. Marbach, C. Latgé, W. Gulden</i>	1441
Reliability analyses of the cooling systems of two DEMO breeder blanket concepts <i>H. Schnauder</i>	1445
Activation calculations for safety and environmental assessment of fusion power plants <i>M. Zucchetti, J.-C. Sublet</i>	1449
A comparison of individual annual doses for unit releases of activation products over a period of 50 years into brackish water and lake-river ecosystems <i>O. Edlund, K. Aquilonius</i>	1453
Accident analysis of water detritiation system in ITER <i>T. Palma, A. Pasculli</i>	1457
In-vessel safety in the ITER-EDA design <i>H.-W. Bartels, V. Chuyanov, D. Holland, A. Kashirski, S. Morozov, S. Piet, A. Poucet, G. Saji, L. Topilski</i>	1461
ITER LOCA sequences: Probabilistic safety assessment <i>M.T. Porfiri, R. Caporali, S. Ciattaglia, G. Cambi</i>	1465

ITER environmental source terms evaluated with the European multi-code approach: activated corrosion products contribution <i>G. Cambi, D.G. Cepraga, S. Ciattaglia, L. Di Pace, G. Cavallone</i>	1469
Dose assessment for releases of tritium and activation products into the atmosphere performed in the frame of two fusion related studies: ITER-EDA and SEAFP <i>W. Raskob</i>	1473
Activation of the helium cooling circuit of the SEAFP reference plant model <i>C.B.A. Forty, P.J. Karditsas</i>	1477
Chemical reactions inside the plasma chamber of the SEAFP reactor plant models <i>J.-M. Gay, E. Ebert, F. Mazille</i>	1481
Loss-of-coolant and loss-of-flow accidents in the SEAFP first wall/blanket cooling system <i>E.M.J. Komen, H. Koning</i>	1485
Confinement barriers for loss of coolant accidents in the SEAFP reactor plant models <i>R. Blomquist, E. Ebert, J.-M. Gay, F. Mazille, A. Natalizio, S. Rolandsson, W.E. Ross, K. Shen, A. Sjöberg</i>	1489
Calculations of temperature and mobilisation evolution for postulated accidents in SEAFP plant models <i>W.E. Han, N.P. Taylor</i>	1493
A safety assessment of the SEAFP fuel cycle systems <i>A. Natalizio, K. Kalyanam, S. Ciattaglia, L. Di Pace</i>	1497
An air detritiation system for the SEAFP reactor <i>A. Natalizio, D. Lee, K. Kalyanam</i>	1501
A fusion power plant blanket and thermal energy conversion model <i>P.J. Karditsas</i>	1505
A comparison of steady-state and pulsed tokamak power plants <i>C.G. Bathke, ARIES Research Team</i>	1509
Behavior of a fusion power plant driven by a non-continuously operating helium cooled tokamak reactor <i>W. D'haeseleer, E. Stubbe, J. Mathonet, J. Deuse, A. Van Ranst</i>	1513
Passive decay heat removal for the SEAFP reactor - water-cooled option <i>A. Natalizio, W.E. Ross</i>	1517

Compact D- <sup>3</sup> He fueled fusion reactor based on a pulsatory plasma field reversed configuration <i>V.M. Kozhevin, M.V. Krivosheev, V.N. Litunovsky</i>	1521
Treatment and disposal of radioactive waste from a fusion power reactor <i>K. Brodén, G. Olsson, P. Rocco, M. Zucchetti</i>	1525
Cobalt release from PCA steel during possible fusion reactor accidents <i>G.R. Smolik, K.A. McCarthy, D.L. Hagrman, E.B. McNew</i>	1529
Evaluation of minimum performance and maximum cost values for a "commercial" inertial confinement fusion power plant <i>N. Cerullo, S. Lanza, E. Manfredi, M. Vezzani</i>	1533
Neutron activation and safety analysis for the Ignitor machine <i>M. Zucchetti, A. Carpignano, P. Batistoni, S. Ciattaglia, P. Corsaro, G. Franzoni, M. Nassi, M.T. Porfiri, S. Rollet</i>	1537
The operation of the JET beryllium analysis laboratory <i>D.C. Campling, R.A. Litchfield, R.M. Russ</i>	1541
The applications of waste management systems in support of the JET divertor shutdown <i>D. Collins, G. Atkins, S.J. Booth, A.D. Haigh, C. May, G. Newbert</i>	1545
Low level tritium assessment in JET solid waste materials <i>P. Pacenti, G. Atkins, F. Campi, G. Newbert, S. Terrani</i>	1549
Author index	A1