



CONTENTS

**Proceedings of the 25th Symposium on Fusion Technology (SOFT-25)
Rostock, Germany, September 15th–19th, 2008**

Contributed Papers

- Calibrating a gas chromatograph to measure tritium using calorimetry, *Z. Köllö, D. Demange, B. Bornschein, L. Dörr, K. Günther and B. Kloppe* 1073
- Problems of lead nuclear data in fusion blanket design, *K. Kondo, I. Murata, A. Klix, K. Seidel and H. Freiesleben* 1076
- Corrosion characteristics of reduced activation ferritic steel, JLF-1 (8.92Cr–2W) in molten salts Flibe and Flinak, *M. Kondo, T. Nagasaka, Q. Xu, T. Muroga, A. Sagara, N. Noda, D. Ninomiya, M. Nagura, A. Suzuki, T. Terai and N. Fujii* 1081
- Thickness distribution of high-speed free-surface lithium flow simulating IFMIF target, *H. Kondo, T. Kanemura, H. Sugiura, N. Yamaoka, S. Miyamoto, M. Ida, H. Nakamura, I. Matsushita, T. Muroga and H. Horiike* 1086
- Maintenance implications of critical components in ITER CXRS upper port plug design, *J. Koning, R. Jaspers, J. Doornink, B. Ouwehand, F. Klinkhamer, B. Snijders, S. Sadakov and C. Heemskerk* 1091
- Detail analysis of fusion neutronics benchmark experiment for iron, *C. Konno, K. Ochiai, M. Wada, K. Takakura and S. Sato* 1095
- Manufacturing and assembly status of main components of the Wendelstein 7-X cryostat, *T. Koppe, A. Cardella, J. Reich, B. Missal, B. Hein, R. Krause, H. Jenzsch, D. Hermann, M. Schrader, P.v. Eeten, G. Di Bartolo, F. Leher, A. Binni, J. Segl, R. Camin, L. Giordano, B. Egloff, J. Ridzewski and G. Corniani* 1099
- Simulations of W7-X magnet system fault scenarios involving short circuits, *M. Köppen, J. Kießlinger, T. Rummel, T. Mönnich, F. Schauer and V. Bykov* 1104
- Molecular-sieving effect of zeolite 3A on adsorption of H₂, HD and D₂, *K. Kotoh, S. Takashima and Y. Nakamura* 1108
- Method for super Fresnel resolution in electromagnetic diagnostics of inhomogeneous plasma, *Y.A. Kravtsov, M.V. Tinin and A.V. Kulizhsky* 1113
- Thermal stability of hydrostatically extruded EUROFER 97 steel, *A.T. Krawczynska, M. Lewandowska and K.J. Kurzydowski* 1116
- Experimental and numerical investigation of a full-scale helium-cooled divertor finger mock-up, *R. Krüssmann, G. Messemer, K. Zinn, L. Crosatti, D.L. Sadowski and S.I. Abdel-Khalik* 1119
- Physics design requirements for the National Spherical Torus Experiment liquid lithium divertor, *H.W. Kugel, M. Bell, L. Berzak, A. Brooks, R. Ellis, S. Gerhardt, H. Harjes, R. Kaita, J. Kallman, R. Maingi, R. Majeski, D. Mansfield, J. Menard, R.E. Nygren, V. Soukhanovskii, D. Stotler, P. Wakeland and L.E. Zakharov* 1125
- Employing industrial standards in software engineering for W7X, *G. Kühner, T. Bluhm, P. Heimann, C. Hennig, H. Kroiss, A. Krüger, H. Laqua, M. Lewerentz, J. Maier, H. Riemann, J. Schacht, A. Spring, A. Werner and M. Zilker* 1130
- Characterisation of titanium beryllides with different microstructure, *P. Kurinskiy, V. Chakin, A. Moeslang, R. Rolli, A.A. Goraieb, H. Harsch, E. Alves and N. Franco* 1136
- Achievement of 1.9 MW for 300 s during the commissioning of the KSTAR ICRF transmitter, *J.-G. Kwak, S.J. Wang, J.S. Yoon, Y.D. Bae, S.K. Kim, C.K. Hwang, S. Kim and J. Sainz* 1140
- Structural analyses for equatorial and lower ports of the ITER vacuum vessel, *T.H. Kwon, Y.S. Hong, D.H. Kim, H.J. Ahn, J.W. Sa and B.C. Kim* 1144
- Design status of the ITER ECRH upper launcher mm-wave system, *J.-D. Landis, R. Chavan, R. Bertizzolo, A. Collazos, F. Dolizy, F. Felici, F. Sanchez and M. Henderson* 1151
- Single crystal CVD diamonds as neutron detectors at JET, *D. Lattanzi, M. Angelone, M. Pillon, S. Almaviva, M. Marinelli, E. Milani, G. Prestopino, A. Tucciarone, C. Verona, G. Verona-Rinati, S. Popovichev, R.M. Montereali, M.A. Vincenti, A. Murari, JET-EFDA contributors and JET-EFDA, Culham Science Centre, OX14 3DB, Abingdon, UK* 1156
- High heat flux test with HIP bonded Be/Cu/SS mock-ups for the ITER first wall, *D.W. Lee, Y.D. Bae, S.K. Kim, B.G. Hong, H.K. Jung, J.Y. Park, Y.H. Jeong and B.K. Choi* 1160

Fabrication and high heat flux test of the first wall mock-ups for the Korean He Cooled Test Blanket (KO HCML TBM), <i>D.W. Lee, S.K. Kim, Y.D. Bae, D.H. Chang and B.G. Hong</i>	1164	Development of remote handling technology of liquid lithium target and replaceable back plate with lip seal in JFMIF-EVEDA, <i>M. Miyashita, K. Furuya, M. Ida and H. Nakamura</i>	1333
Beryllium/ferritic martensitic steel joining for the fabrication of the ITER test blanket module first wall, <i>J.-S. Lee, J.-Y. Park, B.-K. Choi, D.-W. Lee, B.-G. Hong and Y.-H. Jeong</i>	1170	Drift-free magnetic equilibrium reconstruction using the response to plasma position modulation, <i>P. Moreau, F. Saint-Laurent and J.B. Lister</i>	1339
Neutron irradiation effects on optical absorption of KU1 and KS-4V quartz glasses and Infrasil 301, <i>M. León, P. Martín, R. Vila, J. Molla and A. Ibarra</i>	1174	Design and performance analysis of ITER ex-vessel magnetic diagnostics, <i>P. Moreau, A. Le-Luyer, P. Hertout, F. Saint-Laurent, W. Zwingmann, J.M. Moret and Y. Martin</i>	1344
First experiences with the new W7-X like control system at the WEGA stellarator, <i>M. Lewerentz, D. Afsmus, T. Bluhm, S. Heinrich, C. Hennig, U. Herbst, C. Meyer, E. Köster, I. Müller, H. Laqua, M. Otte, S. Pingel, J. Sachtleben, J. Schacht, A. Spring and A. Wölk</i>	1179	The ITER radial neutron camera: An updated neutronic analysis, <i>F. Moro, L. Petrizzi, G. Brolatti, B. Esposito, D. Marocco and R. Villari</i>	1351
Welding techniques development of CLAM steel for Test Blanket Module, <i>C. Li, Q. Huang, Q. Wu, S. Liu, Y. Lei, T. Muroga, T. Nagasaka, J. Zhang and J. Li</i>	1184	BA materials activities: Radiation induced electrical degradation of HP SiC, <i>A. Moróño, R. Vila, T. Hernandez, J. Manzano and E.R. Hodgson</i>	1357
Detailed design of the ITER central solenoid, <i>P. Libeyre, N. Mitchell, D. Bessette, Y. Gribov, C. Jong and C. Lyraud</i>	1188	Global transportation scenarios in the multi-regional EFDA-TIMES energy model, <i>P. Muehlich and T. Hamacher</i>	1361
Tribological performance of MoS ₂ coatings in liquid helium and at high loads, <i>J. Lingertat, T. Gradt, D. Hathiramani, P. Junghanns, M. Laux, K. Meine, F. Schauer and T. Schneider</i>	1192	Combined application of Product Lifecycle and Software Configuration Management systems for ITER remote handling, <i>A. Muhammad, S. Esque, L. Aha, J. Mattila, M. Siuko, M. Vilenius, J. Järvenpää, M. Irving, C. Damiani and L. Semeraro</i>	1367
Consistent integration in preparing the helium cooled lithium lead DEMO-2007 reactor, <i>A. Li-Puma, J. Bonnemason, L. Cachon, J.L. Duchateau and F. Gabriel</i>	1197	Recent developments in data mining and soft computing for JET with a view on ITER, <i>A. Murari, J. Vega, G. Vagliasindi, J.A. Alonso, D. Alves, R. Coelho, S. DeFiore, J. Farthing, C. Hidalgo, G.A. Rattá, JET-EFDA Contributors and JET-EFDA</i>	1372
Ripple effect and impact of test blanket module by using RAFM steels on the plasma of ITER, <i>S. Liu, Y. Liu, W. Wang, R. Lu, M. Jin and Q. Zeng</i>	1206	Direct neutron spectrum measurement to validate ^{nat} Zr(n,2n) reaction cross-section at 14 MeV, <i>I. Murata, K. Shiken, K. Kondo, M. Matsunaka, M. Ohta, H. Miyamaru, K. Ochiai, C. Konno and T. Nishitani</i>	1376
Influence of non-metal inclusions on mechanical properties of CLAM steel, <i>S. Liu, Q. Huang, C. Li and B. Huang</i>	1214	Liquid lithium divertor system for fusion reactor, <i>Y. Nagayama</i>	1380
ITER Hot Cell optimisation, <i>D. Locke, A. Rolfe, D. Francois and D. Roulet</i>	1219	LiErO ₂ formation on Er ₂ O ₃ in static and natural convection lithium, <i>M. Nagura, A. Suzuki, T. Muroga and T. Terai</i>	1384
Preliminary design of the control and data acquisition systems for the Neutral Beam Test Facility, <i>A. Luchetta, O. Barana, G. Manduchi and C. Talierno</i>	1227	DEMO divertor maintenance, <i>D. Nagy, J. Bonnemason, J.-P. Friconeau and Y. Perrot</i>	1388
Engineering studies for integration of the test blanket module (TBM) systems inside an ITER equatorial port plug, <i>S. Madeleine, A. Saille, J.-P. Martins, J.-F. Salavy, N. Jonquères, G. Rampal, O. Bede, H. Neuberger, L. Boccaccini and L. Doceul</i>	1233	Design progress of the ITER blanket remote handling equipment, <i>M. Nakahira, Y. Matsumoto, S. Kakudate, N. Takeda, K. Shibanuma and A. Tesini</i>	1394
Attachment concept for the “multi module segments” in a pulsed DEMO reactor, <i>E. Magnani, A. Abou-Sena, F. Cismondi, N. Scheel, D. Nagy, P. Pereslavtsev, R. Roccella and T. Ihli</i>	1238	Irradiation test of component for radiation-resistant small sized motor, <i>M. Nakamichi, E. Ishitsuka, S. Shimakawa and S. Kan</i>	1399
Electrical and optical surface degradation of silica due to superficial He implantation, <i>J. Manzano, A. Moróño and E.R. Hodgson</i>	1245	Characterization of industrial NbTi strands at variable field for JT-60SA toroidal field coils, <i>M. Nannini, H. Cloez, S. Girard, C. Roux, J.-P. Serries, M. Tena, L. Zani and E. Mossang</i>	1404
Advanced MHD mode active control at RFX-mod, <i>G. Marchiori, A. Luchetta, G. Manduchi, L. Marrelli, A. Soppelsa, F. Villone and P. Zanca</i>	1249	Linux real-time framework for fusion devices, <i>A. Neto, F. Sartori, F. Piccolo, A. Barbalace, R. Vitelli, H. Fernandes and JET-EFDA</i>	1408
Detailed design of the RF source for the 1 MV neutral beam test facility, <i>D. Marcuzzi, M.D. Palma, M. Pavei, B. Heinemann, W. Kraus and R. Riedl</i>	1253	ITER CODAC interface for the visible and infra-red wide angle viewing cameras, <i>A. Neto, C. Silva, J. Sousa, H. Fernandes, C. Hidalgo, J.L. De Pablos, S. Salasca, J.-M. Travère and J.B. Lister</i>	1412
Commercial dielectric coated mirrors for ITER diagnostic applications, <i>P. Martin, T. Hernandez and E.R. Hodgson</i>	1259	The busbar system for Wendelstein 7-X prepared for assembly and operational loads, <i>O. Neubauer, A. Charl, G. Czymek, B. Giesen, M. Sauer, L. Scheibl, J. Schruoff, R. Schick, A. Panin, A. John, S. Jung, K. Rummel and L. Wegener</i>	1416
Ultrasonic techniques for quality assessment of ITER Divertor plasma facing component, <i>R. Martínez-Oña, M. García and M. Medrano</i>	1263	Water hydraulic manipulator for fail safe and fault tolerant remote handling operations at ITER, <i>P. Nieminen, S. Esque, A. Muhammad, J. Mattila, J. Väyrynen, M. Siuko and M. Vilenius</i>	1420
Study of ITER equatorial port plug handling system and vacuum sealing interface, <i>J.-P. Martins, L. Doceul, S. Marol, E. Delchié, J.-J. Cordier, B. Levesy, A. Tesini, E. Ciattaglia, R. Tivey, R. Gillier and C. Abbes</i>	1268	Neutron irradiation effects on superconducting wires and insulating materials, <i>A. Nishimura, T. Takeuchi, S. Nishijima, G. Nishijima, T. Shikama, K. Ochiai and N. Koizumi</i>	1425
European programme towards the 1 MeV ITER NB injector, <i>A. Masiello, G. Agarici, T. Bonicelli, M. Simon, V. Antoni, H. De Esch, A. De Lorenzi, M. Dremel, P. Franzen, R. Hemsworth, M. Liniers, D. Marcuzzi, D. Martin, R. Piovan, A. Simonin, P. Sonato, E. Surrey, L. Svensson, A. Tanga, V. Toigo, C. Waldon and P. Zaccaria</i>	1276	Current status of He-cooled divertor development for DEMO, <i>P. Norajitra, R. Giniyatulin, T. Hirai, W. Krauss, V. Kuznetsov, I. Mazul, I. Ovchinnikov, J. Reiser, G. Ritz, H.-J. Ritzhaupt-Kleissl and V. Widak</i>	1429
Speed-up of cross-section collapsing with weight-window for subcritical burnup calculation, <i>M. Matsunaka, M. Ohta, K. Kondo, H. Miyamaru and I. Murata</i>	1281	Thermal limitation of the mean power rating of coaxial transmission lines for ICRH, <i>K. Numssen, I. Zammuto, G. Friedsam, C. Hollwich and P. Mayer</i>	1434
A preliminary assessment of beryllium dust oxidation during a wet bypass accident in a fusion reactor, <i>B.J. Merrill, R.L. Moore and J.P. Sharpe</i>	1285	Thermal control of the liquid lithium divertor for NSTX, <i>R.E. Nygren, H.C. Harjes, P. Wakeland, R. Ellis, H.W. Kugel, R. Kaita, L. Berzak, L. Zakharov and B. Ehrhart</i>	1438
A bulk tungsten divertor row for the outer strike point in JET, <i>P. Mertens, H. Altmann, T. Hirai, M. Knaup, O. Neubauer, V. Philipps, J. Rapp, V. Riccardo, S. Sadakov, B. Schweer, A. Terra, I. Uytdenhouten and U. Samm</i>	1289	Upgrading the NIFS superconductor test facility for JT-60SA cable-in-conduit conductors, <i>T. Obana, K. Takahata, S. Hamaguchi, N. Yanagi, T. Mito, S. Imagawa, K. Kizu, K. Tsuchiya, R. Hoshi and K. Yoshida</i>	1442
Engineering activities on the ITER representative diagnostic equatorial port plug, <i>L. Meunier, L. Doceul, S. Salasca, J.-P. Martins, F. Jullien, C. Dechelle, P. Bidaud, V. Pilard, A. Terra, M. Ogéa, E. Ciattaglia and C. Walker</i>	1294	Preliminary spectrum shifter design for intermediate energy nuclear data benchmark experiments with DT neutrons, <i>M. Ohta, K. Kondo, M. Matsunaka, H. Miyamaru, I. Murata, T. Iida, K. Ochiai and C. Konno</i>	1446
Upgrade of the RFX energy transfer system for a reliable 35 kV, 50 kA DC-current interruption, <i>F. Milani</i>	1300	Mechanical testing of a FW panel attachment system for ITER, <i>V. Oliva, J. Václavík, A. Materna, P. Lorenzetto and A. Furmanek</i>	1450
Qualitative assessment of RANS models for Hypervapotron flow and heat transfer, <i>J. Milnes and D. Drikakis</i>	1305	Controlled magnetohydrodynamic mode sustainment in the reversed-field pinch: Theory, design and experiments, <i>E. Olofsson and P. Brunzell</i>	1455
The three RF additional heating systems for FAST, <i>F. Mirizzi, A. Bruschi, A. Cardinali, R. Cesario, G. Granucci, R. Maggiore, L. Panaccione, V.P. Ridolfini, G.L. Ravera and A.A. Tuccillo</i>	1313	Design of a cooling system for the ITER Ion Source and Neutral Beam test facilities, <i>M. Dalla Palma, S. Dal Bello, F. Fellin and P. Zaccaria</i>	1460
Upgraded acceptance criteria from transient thermography control for the W7-X divertor target elements, <i>M. Missirlian, J. Boscary, R. Guigon, J. Schlosser, A. Durocher and H. Greuner</i>	1317	Laser ablation of thin tungsten layers deposited on carbon substrate, <i>P. Paris, M. Aints, M. Laan, M. Kiisk, J. Likonen, J. Kolehmainen and S. Tervakangas</i>	1465
Influence of helium cooling channels on magnetohydrodynamic flows in the HCLL blanket, <i>C. Mistrangelo and L. Bühler</i>	1323	Fabrication of Be/CuCrZr/SS mock-ups for ITER first wall, <i>J.-Y. Park, B.-K. Choi, J.-S. Lee, D.W. Lee, B.G. Hong and Y.H. Jeong</i>	1468
Optimised plasma stabilisation at TEXTOR with an advanced, real-time digital control scheme, <i>M. Mitri, D. Nicolai, O. Neubauer, H.T. Lambertz, I. Schmidt, A. Khilchenko, B. Schweer, U. Maier and U. Samm</i>	1329	Optically transmissive window on ITER port cell door, <i>K. Patel, M. Walsh, G. Phillips, P. Parsons, N. Balshaw and S. Hank</i>	1472

Progress in the design and development of a test divertor (TDU) for the start of W7-X operation, <i>A. Peacock, H. Greuner, F. Hurd, J. Kijßlinger, R. König, B. Mendelevitch, R. Stadler, F. Schauer, R. Tivey, J. Tretter, C. von Sehren and M. Ye</i>	1475	Experiences from design and production of Wendelstein 7-X magnets, <i>K. Riße and for the W7-X team</i>	1619
Hydraulics and heat transfer in the IFMIF liquid lithium target: CFD calculations, <i>A. Peña, G.A. Esteban, J. Sancho, V. Kolesnik and A. Abánades</i>	1479	Post-examination of helium-cooled tungsten components exposed to DEMO specific cyclic thermal loads, <i>G. Ritz, T. Hirai, J. Linke, P. Norajitra, R. Giniyatulin and L. Singheiser</i>	1623
Extending the capabilities of the DIII-D Plasma Control System for worldwide fusion research collaborations, <i>B.G. Penaflor, J.R. Ferron, M.L. Walker, D.A. Humphreys, J.A. Leuer, D.A. Piglowski, R.D. Johnson, B.J. Xiao, S.H. Hahn and D.A. Gates</i>	1484	The use of virtual reality and intelligent database systems for procedure planning, visualisation, and real-time component tracking in remote handling operations, <i>E. Robbins, S. Sanders, A. Williams and P. Allan</i>	1628
Thermal and mechanical analysis of the ITER plasma-position reflectometry antennas, <i>G. Perez, T. Estrada, G. Vayakis and C. Walker</i>	1488	Residual magnetic stray field in ITER building and field perturbation on the plasma due to ferromagnetic iron components outside the vessel, <i>M. Roccella, A. Marin, F. Lucca, A. Pizzuto and G. Ramogida</i>	1633
Installation and commissioning of the JET-EP magnetic diagnostic system, <i>S. Peruzzo, R. Albanese, G. Artaserse, V. Coccoresse, S. Gerasimov, N. Lam, F. Maviglia, I. Pearson, P. Prior, A. Quercia, L. Zabeo, JET-EFDA Contributors and JET-EFDA</i>	1495	Development of an ultrasonic test method for the non-destructive examination of ITER divertor components, <i>S. Roccella, E. Cacciotti, F. Escourbiac, A. Pizzuto, B. Riccardi, A. Tatì, P. Varone and E. Visca</i>	1639
A new approach to passive protection against high energy and high current breakdowns in the ITER NBI accelerator, <i>A. Pesce, A. De Lorenzi and L. Grando</i>	1499	Finalization of the conceptual design of the remote steering ECH launcher for ITER, <i>D. Ronden, M. de Baar, M. van den Berg, W. Bongers, R. Chavan, M. Graswinckel, M. Hannink, M. Houkema and F. de Vreede</i>	1645
Neutronic analysis of iter cryopump system, <i>L. Petrizzi, M. Loughlin, A. Martin, F. Moro, R. Villari, M. Merola and R. Pearce</i>	1505	Stress relaxation testing of pre-compression ring mock-up for the ITER magnet system, <i>P. Rossi, C. Annino, W. Baker, L. Bettinali, J. Knaster, A. Lo Bue, G. Mazzone, C. Nardi, A. Pizzuto and L. Semeraro</i>	1649
Engineering of diagnostic equatorial port plugs for ITER, <i>G. Phillips, Y. Krivchenkov, S. Davis, K. Riddle, P. Parsons, V. Thompson, R. Pampin and N. Balshaw</i>	1510	Electro-magnetic modeling of the planned active in-vessel coils at ASDEX Upgrade, <i>M. Rott, U. Seidel, B. Streibl, W. Suttrop, T. Vierle and The ASDEX Upgrade Team</i>	1653
Feasibility study of the cut and weld operations by RH on the cooling pipes of ITER NB components, <i>O. Piñeiro, C. Fernández, M. Medrano, M. Liniers, J. Botija, J. Alonso, X. Sarasola and C. Damiani</i>	1515	Final tests of the power supply system for the W7-X superconducting magnet system, <i>T. Rummel, T. Mönnich, M. Köppen and E. Harmeyer</i>	1658
Safety analysis of ITER failures and consequences during maintenance, <i>T. Pinna and A. Natalizio</i>	1521	Industrial scale 10 µm W coating of CFC tiles for ITER-like Wall Project at JET, <i>C. Ruset, E. Grigore, I. Munteanu, H. Maier, H. Greuner, C. Hopf, V. Phylipps, G. Matthews, JET-EFDA Contributors and JET-EFDA</i>	1662
Mechanical and thermo-physical characterization of three-directional carbon fiber composites for W-7X and ITER, <i>G. Pintsuk, J. Compan, T. Koppitz, J. Linke, A.T. Peacock, D. Pitzer, M. Rödiger and S. Wikman</i>	1525	Optimized hardware design for the divertor remote handling control system, <i>H. Saarinen, J. Tiitinen, L. Aha, A. Muhammad, J. Mattila, M. Siuko, M. Vilenius, J. Järvenpää, M. Irving, C. Damiani and L. Semeraro</i>	1666
2D thermal analysis for heat transfer from casing to winding pack in JT-60SA TF coils, <i>G.M. Polli, L. Reccia, A. Cucchiaro, A. della Corte, A. Di Zenobio, L. Muzzi, A. Pizzuto, G. Ramogida, S. Turtú, R. Villari, M. Nannini, C. Portafaix, L. Zani and P. Barabaschi</i>	1531	Conceptual design of the ITER upper port plug for charge exchange diagnostic, <i>S. Sadakov, T. Baross, W. Biel, V. Borsuk, N. Hawkes, M. von Hellermann, P. Gille, G. Kiss, J. Koning, M. Knaup, F. Klinkhamer, Y. Krasikov, A. Litnovsky, O. Neubauer and A. Panin</i>	1671
Theory on dynamic matching with adjustable capacitors for the ICRF system of ASDEX Upgrade, <i>M. Precht, V. Bobkov, F. Braun, H. Faugel and J.-M. Noterdaeme</i>	1539	Measurement of ion cyclotron emissions by use of ICRF heating antennas in LHD, <i>K. Saito, H. Kasahara, T. Seki, R. Kumazawa, T. Mutoh, T. Watanabe, F. Shimpo, G. Nomura, M. Osakabe, M. Ichimura, H. Higaki, A. Komori and the LHD experimental group</i>	1676
Influence of various catalysts on the radiation resistance and the mechanical properties of cyanate ester/epoxy insulation systems, <i>R. Prokopec, K. Humer, R.K. Maix, H. Fillunger and H.W. Weber</i>	1544	Improvement of the real-time processor in JT-60 data processing system, <i>S. Sakata, K. Kiyono, M. Sato, T. Kominato, M. Sueoka, H. Hosoyama and Y. Kawamata</i>	1680
Proposal of an improved design of IFMIF Test Cell components for enhanced handling and reliability, <i>V. Queral, A. García, G. Miccichè, A. Ibarra, N. Casal, F. Mota and D. Rapisarda</i>	1548	Design and manufacturing of vacuum vessel for JT-60SA, <i>S. Sakurai, K. Masaki, Y.K. Shibama and A. Sakasai</i>	1684
Optimizing the overall configuration of a He-cooled W-alloy divertor for a power plant, <i>A.R. Raffray, S. Malang and X. Wang</i>	1553	Development of equatorial visible/infrared wide angle viewing system and radial neutron camera for ITER, <i>S. Salasca, B. Esposito, Y. Corre, M. Davi, C. Dechelle, F. Padeloup, R. Reichle, J.-M. Travère, G. Brolatti, D. Marocco, F. Moro, L. Petrizzi, T. Pinna, M. Riva, R. Villari, E. De La Cal, C. Hidalgo, A. Manzanares, J.L. De Pablos, R. Vila, G. Hordosy, D. Nagy, S. Recsei, S. Tulipan, A. Neto, C. Silva, L. Bertalot, C. Walker, C. Ingesson and Y. Kaschuck</i>	1689
Reverse engineering process of cryostat components of Wendelstein 7-X, <i>T. Rajna, F. Herold and C. Baylard</i>	1558	Observations on human–technology interaction aspects in remote handling for fusion, <i>K. Salminen</i>	1697
Plasma scenarios, equilibrium configurations and control in the design of FAST, <i>G. Ramogida, G. Calabro, V. Cocilovo, F. Crisanti, A. Cucchiaro, M. Marinucci, A. Pizzuto, C. Rita, F. Zonca, R. Albanese, G. Artaserse, F. Maviglia and M. Mattei</i>	1562	Design and manufacturing of the ITER ECRH upper launcher mirrors, <i>F. Sanchez, R. Bertizzolo, R. Chavan, A. Collazos, M. Henderson and J.D. Landis</i>	1702
Feasibility of fission chambers as a neutron diagnostic in the IFMIF–Test Cell, <i>D. Rapisarda, A. García, Ó. Cabellos, F. Mota, J.M. Gómez-Ros, Á. Ibarra, N. Casal, V. Queral and J. Sanz</i>	1570	Thermal structural analysis of SST-1 vacuum vessel and cryostat assembly using ANSYS, <i>P. Santra, V. Bedakihale and T. Ranganath</i>	1708
ASDEX Upgrade CODAC overview, <i>G. Raupp, K. Behler, H. Blank, A. Buhler, R. Drube, H. Eixenberger, K. Engelhardt, C. Fuchs, H. Kollotzek, A. Lohs, R. Merkel, G. Neu, G. Schramm, W. Treutterer, D. Zasche, T. Zehetbauer and ASDEX Upgrade Team</i>	1575	Engineering and maintenance studies of the ITER diagnostic upper port plug, <i>K. Sato, J. Ohmori, T. Kondoh, T. Hatae, S. Kajita, M. Ishikawa, Y. Neyatani, K. Ebisawa and Y. Kusama</i>	1713
Preliminary analysis of the external matching unit for the ICRH system for FAST, <i>G.L. Ravera, A. Cardinali, C. Castaldo, R. Cesario, R. Maggiora, F. Mirizzi and A.A. Tuccillo</i>	1580	Procurement of the ITER magnet components supplied by F4E, <i>C. Sborchia, A.B. Oliva, H. Rajainmäki and A. Vostner</i>	1716
Three-dimensional tolerance investigation on main ITER components, <i>J. Reich, S. Chioocchio, J.-J. Cordier, R. Gallix, O. Guerin and T. Halcrow</i>	1584	Overview and status of the prototype project for Wendelstein 7-X control system, <i>J. Schacht, T. Bluhm, U. Herbst, C. Hennig, S. Heinrich, G. Kühner, E. Köster, H. Laqua, M. Lewerentz, M. Marquardt, C. Meyer, I. Müller, S. Pingel, J. Sachtleben, A. Spring, A. Werner and A. Wölk</i>	1723
W7-X superconducting coils cooling at the CEA Saclay cryomagnetic test facility, <i>B. Renard, L. Genini, H. Viebke and J.-L. Duchateau</i>	1588	Remote control of a fusion facility, <i>D.P. Schissel, G. Abila, D.A. Humphreys, B.G. Penaflor, B.S. Sammulu and M.L. Walker</i>	1729
Data merging of infrared and ultrasonic images for plasma facing components inspection, <i>M. Richou, A. Durocher, M. Medrano, R. Martinez-Oña, J. Moysan and B. Riccardi</i>	1593	Past and future upgrades of the gyrotron high voltage cathode power supplies at the Forschungszentrum Karlsruhe, <i>M. Schmid, D. Hrabal, B. Piosczyk and M. Thumm</i>	1734
From a physics discharge program to device control—Linking the scientific and technical world at Wendelstein 7-X, <i>H. Riemann, T. Bluhm, P. Heimann, C. Hennig, G. Kühner, H. Kroiss, H. Laqua, M. Lewerentz, J. Maier, J. Schacht, A. Spring, A. Werner and M. Zilker</i>	1598	Design of the ECE diagnostic at Wendelstein 7-X, <i>S. Schmuck, H.-J. Hartfuss, M. Hirsch and T. Stange</i>	1739
Diffusion weld study for Test Blanket Module fabrication, <i>M. Rieth</i>	1602	Vertical supports of the PV Wendelstein 7-X, <i>M. Schrader, T. Koppe, A. Cardella, B. Missal, A. Capriccioli and P. Friedrich</i>	1744
Vessel design and interfaces development for the 1 MV ITER Neutral Beam Injector and Test Facility, <i>W. Rigato, S. Dal Bello, D. Marcuzzi and A. Rizzolo</i>	1606	Thermal conductivity measurement of HTS tapes and stacks for current lead applications, <i>M. Schwarz, K.-P. Weiss, R. Heller and W.H. Fietz</i>	1748
Thermal and hydraulic analysis of the cooling system for the ITER equatorial port plugs, <i>E. Rincón, J. Botija, A. García, M. Medrano, X. Sarasola, A. Soletto, E. Ciattaglia, C. Walker, L. Doceul, N. Balshaw and L. Petrizzi</i>	1611	Nuclear safety and waste management aspects of the EP ECRH upper launcher for ITER, <i>A. Serikov, U. Fischer, R. Heidinger, K. Kleefeldt, P. Spaeh and D. Strauss</i>	1751
		Design and engineering of optical diagnostics for COMPASS, <i>D. Šesták, V. Weinzettl, P. Bílková, P. Böhm, M. Aftanas, D.I. Naydenkova, J. Stöckel, I. Ďuran and M.J. Walsh</i>	1755
		Manufacturing issues for the production of beryllium clad prototype components for ITER, <i>P. Sherlock, P. Lorenzetto, N. Walton and S. Keil</i>	1759

- Hydriding/dehydriding characteristics on fast heat transfer response ZrCo bed for ITER, *M. Shim, H. Chung, H. Yoshida, H. Jin, J. Lee, K.-M. Song, M.H. Chang, H.-G. Kang, S.-H. Yun and S. Cho* 1763
- A Study of Pipe Joining Technology with Reference to ITER Requirements, *R. Shuff and S. Mills* 1767
- Impact of d-Li source and (n,x γ) reaction gammas on the nuclear responses in the IFMIF test modules, *S.P. Simakov, U. Fischer and P. Pereslavitsev* 1770
- Three-dimensional neutron source models for toroidal fusion energy systems, *R.N. Slaybaugh, P.P.H. Wilson, L.A. El-Guebaly and E.P. Marriott* 1774
- Analysis on tritium controlling of the dual-cooled lithium lead blanket for fusion power reactor FDS-II, *Y. Song, Q. Huang, Y. Wang and M. Ni* 1779
- Integrated identification of RFX-mod active control system from experimental data and finite element model, *A. Soppelsa, G. Marchiori, L. Marrelli and F. Villone* 1784
- Prototyping studies for the Blanket Shield Module of the ITER ECH Upper Port Plug, *P. Späh, R. Heidinger, K. Kleefeldt, A. Meier, T. Scherer and D. Strauss* 1789
- Experimental MHD – flow analyses in a mock-up of a test blanket module for ITER, *K. Starke, L. Bühler and S. Horanyi* 1794
- FEM analyses and prototype tests of the UPP structure for the ECRH in ITER, *D. Strauß, G. Gantenbein, R. Heidinger, K. Kleefeldt, W. Leonhardt, A. Meier, D. Mellein, T. Scherer, A. Serikov, P. Späh and A. Vaccaro* 1799
- Development of velocity measurement on a liquid lithium flow for IFMIF, *H. Sugiura, H. Kondo, T. Kanemura, Y. Niwa, N. Yamaoka, S. Miyamoto, M. Ida, H. Nakamura, I. Matsushita, T. Muroga and H. Horiike* 1803
- Validation of Divertor Cassette locking system with a hydraulic jack tool, *V. Takalo, S. Esque, J. Mattila, M. Vilenius, J. Järvenpää, M. Siuko, L. Semeraro, M. Irving and C. Damiani* 1808
- Mock-up test on key components of ITER blanket remote handling system, *N. Takeda, S. Kakudate, M. Nakahira, Y. Matsumoto, K. Taguchi, H. Kozaka, K. Shibamura and A. Tesini* 1813
- Hydrogen and methane oxidation performances of hybrid honeycomb catalyst for a tritium removal system, *M. Tanaka, T. Uda, Y. Shinozaki and K. Munakata* 1818
- Developing the IFMIF RAM planning, *C. Tapia, J. Dies, A. Calvo, J.C. Rivas and Á. Ibarra* 1823
- Design of an overhead crane for the ITER NB cell remote handling maintenance operations, *G. Taubmann, L. Brochet, M. Liniers, M. Medrano, X. Sarasola, J. Botija, J. Alonso and C. Damiani* 1827
- FE simulation of the Wendelstein 7-X cryostat system, *A. Tereshchenko, V. Bykov, F. Schauer, M.Y. Ye, S. Weißflog and T. Andreeva* 1833
- Electro-dynamical analysis of the ITER blanket modules for enhanced vertical passive stabilization, *P. Testoni, A. Fanni and A. Portone* 1838
- Effects of external energetic factors on tritium release from the EXOTIC 8-3/13 neutron-irradiated beryllium pebbles, *J. Tiliš, A. Vitiš, G. Kizane, V. Tilika, E. Kolodinska, S. Kalēja and B. Leščinskis* 1842
- Assessment of X-ray tomography for irradiated IFMIF/HFTM RIG, *I. Tiseanu, T. Craciunescu and A. Möslang* 1847
- Data analysis of the strain gauges system of the W7-X superconducting coils, *V. Tomarchio, K. Risse and H. Viebke* 1852
- Solid-state high voltage modulator and its application to rf source high voltage power supplies, *J.F. Tooker, P. Huynh and R.W. Street* 1857
- In-vessel components imaging systems: From the present experience towards ITER safe operation, *J.-M. Travere and Tore Supra team* 1862
- Pulsed thermography of CFC monoblock divertor components, *H. Traxler, S. Gerzokovitz, L.S. Sigl, B. Harrer and J. Kastner* 1867
- Real-time diagnostic integration with the ASDEX upgrade control system, *W. Treutterer, L. Giannone, K. Lüddecke, G. Neu, G. Raupp, D. Zasche, T. Zehetbauer and ASDEX Upgrade Team* 1871
- Development of 1 MeV accelerator and HV bushing at JAEA toward ITER Neutral Beam system, *N. Umeda, M. Taniguchi, M. Kashiwagi, M. Dairaku, M. Hanada, H. Tobar, K. Watanabe, K. Sakamoto and T. Inoue* 1875
- The European Breeding Blanket Test Facility: An integrated device to test European helium cooled TBMs in view of ITER, *M. Utili, A. Tincani, A. Aiello, I. Ricapito and G. Coccoluto* 1881
- Design approach of the vacuum vessel and thermal shields towards assembly at the ITER-site, *Y. Utin, K. Ioki, C. Bachmann, W. Chung, N.I. Her, G. Johnson, L. Jones, C.H. Jun, B.C. Kim, E. Kuzmin, B. Macklin, G. Sannazzaro, R. Shaw, X. Wang and J. Yu* 1887
- Preliminary assessment of possible carbide formation on Be and T contaminated CFC tiles from JET, *I. Uytendhouwen, S.M. González de Vicente, J.P. Coad, W. Van Renterghem, S. Van den Berghe, G. Van Oost and V. Massaut* 1892
- Mechanical analysis of the EC upper launcher with respect to electromagnetic loads, *A. Vaccaro, K. Kleefeldt, P. Späh and D. Strauss* 1896
- An ATCA Embedded Data Acquisition and Control System for the Compass tokamak, *D.F. Valcárcel, A. Neto, J. Sousa, B.B. Carvalho, H. Fernandes, J.C. Fortunato, A.S. Gouveia, A.J.N. Batista, A.G. Fernandes, M. Correia, T. Pereira, I.S. Carvalho, A.S. Duarte, C.A.F. Varandas, M. Hron, F. Janky and J. Písačka* 1901
- R&D on support to ITER safety assessment, *J.P. Van Dorsselaere, D. Perrault, M. Barrachin, A. Bentaib, J. Bez, P. Cortès, C. Seropian, N. Trégourès and J. Vendel* 1905
- Simulation of the ITER Poloidal Field Coil Insert DC performance with a new model, *E.P.A. van Lanen and A. Nijhuis* 1912
- Overview of intelligent data retrieval methods for waveforms and images in massive fusion databases, *J. Vega, A. Murari, A. Pereira, A. Portas, G.A. Rattá, R. Castro and JET-EFDA Contributors* 1916
- Sintering and characterization of W–Y and W–Y₂O₃ materials, *L. Veleva, Z. Oksiuta, U. Vogt and N. Baluc* 1920
- Acceptance tests of W7-X coils, *H. Viebke, K. Hertel, J. Baldzuhn, G. Croari, L. Genini, B. Renard and L. Vieillard* 1925
- Design and stress analysis of in-vessel saddle coils for MHD control in ASDEX Upgrade, *T. Vierle, B. Streibl, M. Rott, U. Seidel, A. Herrmann, O. Neubauer, W. Suttrop and the ASDEX Upgrade Team* 1928
- Multiple discharge channels in a cascaded arc to produce large diameter plasma beams, *W.A.J. Vijvers, B. de Groot, R.S. Al, M.A. van den Berg, H.J.N. van Eck, W.J. Goedheer, A.W. Kleyn, W.R. Koppers, O.G. Kruijt, N.J. Lopes Cardozo, H.J. van der Meiden, M.J. van de Pol, P.R. Prins, J. Rapp, D.C. Schram, A.E. Shumack, P.H.M. Smeets, J. Westerhout, G.M. Wright and G.J. van Rooij* 1933
- A TIEMF model and some implications for ITER magnetic diagnostics, *R. Vila and E.R. Hodgson* 1937
- Quality assurance measures during tightening of various bolts at Wendelstein 7-X, *R. Vilbrandt, M. Schröder, H. Allemann and J.-H. Feist* 1941
- Neutronic analysis of the JT-60SA toroidal magnets, *R. Villari, P. Barabaschi, A. Cucchiari, A. delle Corte, A. Di Zenobio, N. Dolgetta, B. Lacroix, F. Moro, L. Muzzi, S. Nicolle, L. Petrizzi, A. Pizzuto, G.M. Polli, C. Portafaix, G. Ramogida, L. Reccia, S. Roccella, A. Sukegawa, S. Turtu, K. Yoshida and L. Zani* 1947
- Scattering-matrix arc detection on the JET ITER-like ICRH antenna, *M. Vrancken, A. Argouarch, T. Blackman, P. Dumortier, F. Durodié, M. Evrard, R.H. Goulding, M. Graham, S. Huygen, P. Jacquet, A. Kaye, E.A. Lerche, M.P.S. Nightingale, D. Van Eester, M. Vervier and JET-EFDA contributors* 1953
- Radiation effects in window materials for ITER diagnostics, *K.Y. Vukolov* 1961
- Accuracy analysis of hybrid parallel robot for the assembling of ITER, *Y. wang, P. Pessi, H. Wu and H. Handroos* 1964
- Construction and commissioning of an ITER sized Pd/Ag permeator for a water detritiation experiment, *S. Welte, G. Ana, I. Cristescu, L. Dörr, B. Kuntz, J. Konrad and R. Michling* 1969
- Optimization of He-cooled divertor cooling fingers using a CAD-FEM method, *V. Widak and P. Norajitra* 1973
- Calculation of transient electrical behaviour of ITER PF coils, *A. Winkler, S. Fink, W.H. Fietz and M. Noe* 1979
- Damage structure in divertor armor materials exposed to multiple ITER relevant ELM loads, *K. Wittlich, T. Hirai, J. Compan, N. Klimov, J. Linke, A. Loarte, M. Merola, G. Pintsuk, V. Podkovyrov, L. Singheiser and A. Zhitlukhin* 1982
- CAD-based interface programs for fusion neutron transport simulation, *Y. Wu and FDS Team* 1987
- In-situ observation of hydrogen hot trapping from molten lithium with yttrium, *J. Yagi, A. Suzuki, T. Terai, T. Muroga and S. Tanaka* 1993
- Study on hydrogen production from steam electrolysis in LHD-type power reactor FFHR, *S. Yamada, A. Sagara, S. Imagawa and O. Motojima* 1997
- Thermo-mechanical analysis of plasma facing components of diagnostics in the Wendelstein 7-X stellarator, *M.Y. Ye, M. Hirsch, R. König, M. Laux, H. Thomsen, A. Weller and A. Werner* 2002
- Thermal fatigue cycling of Be/Cu joining mock-ups, *D.L. Youchison, S.H. Goods, J.D. Puskar, W.A. DeLong, T.T. Martin, M. Narula, A. Ying, M.A. Ulrickson, T.J. Lutz and J.M. McDonald* 2008
- Nonlinear instabilities induced by the F coil power amplifier at FTU: Modeling and control, *L. Zaccarian, L. Boncagni, D. Cascone, C. Centioli, S. Cerino, F. Gravanti, F. Iannone, F. Mecocci, L. Pangione, S. Podda, V. Vitale and R. Vitelli* 2015
- Power supply system for the COMPASS tokamak re-installed at the IPP, Prague, *J. Zajac, R. Panek, F. Zacek, J. Vlcek, M. Hron, A. Krivska, R. Hauptmann, M. Danek, J. Simek and J. Prosek* 2020
- Electrical and thermal analyses for the radio-frequency circuit of ITER NBI ion source, *A. Zamengo, M. Recchia, W. Kraus, M. Bigi, C. Martens and V. Toigo* 2025
- ICRF antennas optimized for operation with a high-Z metallic wall in ASDEX Upgrade, *I. Zammuto, A. Krivska, V. Bobkov, F. Braun, R. Bilato, J.-M. Noterdaeme and the ASDEX Upgrade Team* 2031
- Assessment of performance of the acceleration grid power supply of the ITER neutral beam injector, *L. Zanotto, A. Ferro and V. Toigo* 2037
- Acoustic monitoring of superconducting magnet component test and shock simulation of coils, *C. Zauner, H. Langer, D. Hathiramani, J. Lingertat, P.v. Eeten, V. Bykov, F. Schauer, B. Heinemann and P. Junghanns* 2042
- Preliminary experiment on compatibility of SiC_f/SiC composites in static liquid LiPb at 700°C, *Z.Q. Zhu, Q.Y. Huang, S. Gao, X.G. Zhou, X.Z. Ling, Y.P. Chen, M.L. Zhang, Y. Song, Y.L. Wang, Z.F. Zhang, S. Zhao and M.G. Kong* 2048
- Design of the JET upgraded gamma-ray cameras, *V. Zoita, M. Anghel, T. Craciunescu, M. Curuia, T. Edlington, M. Gherendi, V. Kiptily, K. Kneupner, I. Lengar, A. Murari, A. Pantea, P. Prior, S. Soare, S. Sanders, B. Syme, I. Tiseanu and JET EFDA contributors* 2052