



## CONTENTS

Abstract/Indexed in: Current Contents, ISI SciSearch, Engineered Materials Abstracts, Ei Compendex, Ei Engineering, Applied Mechanics Reviews, Chemical Abstract Services, INSPEC, Energy Science and Technology, Fuel and Energy Abstracts, Health and Safety Science Abstracts, METADEX, PASCAL, UnCover.

### **Proceedings of the Seventh International Symposium on Fusion Nuclear Technology Tokyo, Japan, May 22–27, 2005**

#### **Material Engineering for FNT**

- The IFMIF test facilities design, *A. Moeslang, V. Heinzl, H. Matsui and M. Sugimoto* 863
- IFMIF lithium loop activation and associated operator dose rates, *W.E. Han and P.J. Karditsas* 873
- IFMIF replaceable backplate: Remote handling activities, rescue procedures and evaluation of a prototype reliability, *G. Micciché, G. Collina, L. Muro and B. Riccardi* 879
- Feasibly study on cast-like IFMIF high flux test module, *S. Ebara, S. Nagata, H. Irisa, T. Yokomine and A. Shimizu* 887
- Structural materials development and databases, *B. van der Schaaf, E. Diegele, R. Laesser and A. Moeslang* 893
- Liquid metal compatibility issues for test blanket modules, *B.A. Pint, J.L. Moser and P.F. Tortorelli* 901
- Ferritic steel-blanket systems integration R&D—Compatibility assessment, *A. Kimura, R. Kasada, A. Kohyama, S. Konishi, M. Enoeda, M. Akiba, S. Jitsukawa, S. Ukai, T. Terai and A. Sagara* 909
- The European effort towards the development of a demo structural material: Irradiation behaviour of the European reference RAFM steel EUROFER, *E. Lucon, P. Benoit, P. Jacquet, E. Diegele, R. Lässer, A. Alamo, R. Coppola, F. Gillemot, P. Jung, A. Lind, S. Messoloras, P. Novosad, R. Lindau, D. Preininger, M. Klimiankou, C. Petersen, M. Rieth, E. Materna-Morris, H.-C. Schneider, J.-W. Rensman, B. van der Schaaf, B.K. Singh and P. Spaetig* 917
- Exposure of reduced activation ferritic steel F82H to TEXTOR plasma, *K. Tsuzuki, T. Hirai, Y. Kusama, V. Phillips, A. Pospieszcck, M. Sakamoto, Y. Sakawa, G. Sergienko, B. Schweer, T. Tanabe and Y. Ueda* 925
- Effect of a SiC whisker formation on the densification of Tyranno SA/SiC composites fabricated by the CVI process, *W.-J. Kim, S.M. Kang, J.Y. Park and W.-S. Ryu* 931
- Property tailorability for advanced CVI silicon carbide composites for fusion, *Y. Katoh, T. Nozawa, L.L. Snead, T. Hinoki and A. Kohyama* 937
- Mechanical properties of friction welds of RAFs (JLF-1) to SUS304 steels as measured by the acoustic emission technique, *H.-K. Yoon, Y.-S. Kong, S.-J. Kim and A. Kohyama* 945

The in situ growth of Er <sub>2</sub> O <sub>3</sub> coatings on V–4Cr–4Ti in liquid lithium, <i>Z. Yao, A. Suzuki, T. Muroga, O. Yeliseyeva and T. Nagasaka</i>	951
Influence of blistering on deuterium retention in tungsten irradiated by high flux deuterium 10–100 eV plasmas, <i>G.-N. Luo, W.M. Shu and M. Nishi</i>	957
Fabrication of liquid phase sintered SiC materials and their characterization, <i>S.P. Lee, Y.S. Shin, D.S. Bae, B.H. Min, J.S. Park and A. Kohyama</i>	963
Effect of electron irradiation on microstructural damage in the welded portion of a SUS304 weldment, <i>D.S. Bae, S.K. Kim, S.P. Lee, H. Kinoshita, T. Shibayama and H. Takahashi</i>	969
Research and development of low activation V-based superconducting materials based on the requirement for an advanced fusion reactor application, <i>Y. Hishinuma, A. Kikuchi, Y. Iijima, Y. Yoshida, T. Takeuchi, A. Nishimura and K. Inoue</i>	975
Small specimen test technique for evaluating fracture toughness of blanket structural materials, <i>R. Kasada, H. Ono and A. Kimura</i>	981
Interaction between hydrogen isotopes and damaged structures produced by He <sup>+</sup> implantation in SiC, <i>Y. Oya, Y. Onishi, T. Takeda, H. Kimura, K. Okuno and S. Tanaka</i>	987
Surface reaction of titanium beryllide with water vapor, <i>K. Munakata, H. Kawamura and M. Uchida</i>	993
In-beam fatigue behavior of 20% cold-worked 316 stainless steel at 300 °C, <i>Y. Murase, J. Nagakawa and N. Yamamoto</i>	999
Fracture mechanics analysis including the butt joint geometry for the superconducting conductor conduit of the National Centralized Tokamak, <i>H. Takahashi, Y. Kudo, K. Tsuchiya, K. Kizu, T. Ando, M. Matsukawa, H. Tamai and Y. Miura</i>	1005
Microstructural evolution during creep of 9Cr-ODS steels, <i>H. Sakasegawa, S. Ohtsuka, S. Ukai, H. Tanigawa, M. Fujiwara, H. Ogiwara and A. Kohyama</i>	1013
MHD stabilities of liquid metal jet flows with gradient magnetic field, <i>W. Kang, Z. Xu and C. Pan</i>	1019
Comparison of electrical properties of ceramic insulators under gamma ray and ion irradiation, <i>T. Tanaka, R. Nagayasu, F. Sato, T. Muroga, T. Ikeda and T. Iida</i>	1027
Induced activity and damage of superconducting materials for a fusion reactor, <i>T. Noda, K. Maki, T. Takeuchi, H. Suzuki, H. Araki and W. Yang</i>	1033
Characterizations of Li <sub>2</sub> TiO <sub>3</sub> prepared by a solution combustion synthesis and fabrication of spherical particles by dry-rolling granulation process, <i>C.-H. Jung, J.-Y. Park, W.-J. Kim, W.-S. Ryu and S.-J. Lee</i>	1039
Helium cavity formation research on oxide dispersed strengthening (ODS) ferritic steels utilizing dual-ion irradiation facility, <i>H. Kishimoto, K. Yutani, R. Kasada and A. Kimura</i>	1045
Deformation behavior of reduced activation ferritic steel during tensile test, <i>K. Shiba and T. Hirose</i>	1051
General properties on compatibility between Be–Ti alloy and SS 316LN, <i>K. Tsuchiya, M. Uchida and H. Kawamura</i>	1057
Evaluation of contact strength of Li <sub>2</sub> TiO <sub>3</sub> pebbles with different diameters, <i>K. Tsuchiya, H. Kawamura and S. Tanaka</i>	1065
Improvement of compatibility of advanced ferritic steels with super critical pressurized water toward a higher thermally efficient water-cooled blanket system, <i>H.S. Cho, H. Ohkubo, N. Iwata, A. Kimura, S. Ukai and M. Fujiwara</i>	1071
Mechanical properties of small size specimens of F82H steel, <i>E. Wakai, H. Ohtsuka, S. Matsukawa, K. Furuya, H. Tanigawa, K. Oka, S. Ohnuki, T. Yamamoto, F. Takada and S. Jitsukawa</i>	1077
An evaluation of helium embrittlement resistance of reduced activation martensitic steels, <i>N. Yamamoto, Y. Murase and J. Nagakawa</i>	1085
Irradiation-induced hardening mechanism of ion irradiated JLF-1 to high fluences, <i>H. Ogiwara, A. Kohyama, H. Tanigawa and H. Sakasegawa</i>	1091
Microstructure and nano-hardness analyses of stress corrosion cracking, utilizing 316L core shroud of BWR power reactors, <i>Y. Sueishi, A. Kohyama, H. Kinoshita, M. Narui and K. Fukumoto</i>	1099

Fatigue crack growth behavior and microstructure of reduced activation ferritic/martensitic steel (JLF-1), <i>S.W. Kim, A. Kohyama and H.K. Yoon</i>	1105
Application of imaging plate technique for separate detection of $^3\text{H}$ and $^{14}\text{C}$ , <i>K. Sugiyama, T. Tanabe, T. Saze and K. Nishizawa</i>	1111
<b>Vacuum Vessel</b>	
Structural analysis and manufacture for the vacuum vessel of experimental advanced superconducting tokamak (EAST) device, <i>Y.t. Song, D. Yao, S. Wu and P. Weng</i>	1117
<b>Nuclear System Design</b>	
DEMO and fusion power plant conceptual studies in Europe, <i>D. Maisonnier, I. Cook, S. Pierre, B. Lorenzo, D.P. Luigi, G. Luciano, N. Prachai, P. Aldo and DPCS Team</i>	1123
Physics and technology conditions for attaining tritium self-sufficiency for the DT fuel cycle, <i>M.E. Sawan and M.A. Abdou</i>	1131
Impact of plasma, magnet and wall performances on tokamak and helical reactor economics, <i>K. Yamazaki and T.J. Dolan</i>	1145
Design study of fusion DEMO plant at JAERI, <i>K. Tobita, S. Nishio, M. Enoda, M. Sato, T. Isono, S. Sakurai, H. Nakamura, S. Sato, S. Suzuki, M. Ando, K. Ezato, T. Hayashi, T. Hayashi, T. Hirose, T. Inoue, Y. Kawamura, N. Koizumi, Y. Kudo, R. Kurihara, T. Kuroda, M. Matsukawa, K. Mouri, Y. Nakamura, M. Nishi, Y. Nomoto, J. Ohmori, N. Oyama, K. Sakamoto, T. Suzuki, M. Takechi, H. Tanigawa, K. Tsuchiya and D. Tsuru</i>	1151
Major integration issues in evolving the configuration design space for the ARIES-CS compact stellarator power plant, <i>A.R. Raffray, S. Malang, L. El-Guebaly, T. Ihli, F. Najmabadi, X. Wang and ARIES Team</i>	1159
Neutronics design and supporting experimental activities in the EU, <i>P. Batistoni, U. Fischer, M. Angelone, P. Bem, I. Kodeli, P. Pereslavitsev, L. Petrizzi, M. Pillon, K. Seidel, S.P. Simakov and R. Villari</i>	1169
Progress in the blanket neutronics experiments at JAERI/FNS, <i>S. Sato, Y. Verzilov, K. Ochiai, M. Nakao, M. Wada, N. Kubota, K. Kondo, M. Yamauchi and T. Nishitani</i>	1183
Overview of recent progress in IFMIF neutronics, <i>U. Fischer, Y. Chen, S.P. Simakov, P.P.H. Wilson, P. Vladimirov and F. Wasastjerna</i>	1195
Blanket neutronics of Li/vanadium-alloy and Flibe/vanadium-alloy systems for FFHR, <i>T. Muroga, T. Tanaka and A. Sagara</i>	1203
Benchmark experiments to validate the nuclear data of tungsten, <i>K. Seidel, R. Eichin, U. Fischer, R.A. Forrest, H. Freiesleben, D. Leichtle, C. Negoita and S. Unholzer</i>	1211
Preliminary design for a China ITER test blanket module, <i>K.M. Feng, C.H. Pan, G.S. Zhang, D.L. Luo, Z.W. Zhou, Y.W. Yang, X.Y. Wang, G. Hu, T. Yuan, Z. Chen, H.Y. Wang, C.A. Chen, Z.X. Li, Z. Zhao and Z.Q. Li</i>	1219
The European Fusion Material properties database, <i>P.J. Karditsas, G. Lloyd, M. Walters and A. Peacock</i>	1225
Fusion power plant performance analysis using the HERCULES code, <i>R. Pampin and P.J. Karditsas</i>	1231
Neutronics analysis for a compact reversed shear tokamak CREST, <i>Q. Huang, S. Zheng, L. Lu, R. Hiwatari, Y. Asaoka, K. Okano and Y. Ogawa</i>	1239
Neutronics design of the low aspect ratio tokamak reactor, VECTOR, <i>T. Nishitani, M. Yamauchi, S. Nishio and M. Wada</i>	1245
Optimization of plasma performance for a helical fusion reactor, <i>T. Goto and Y. Ogawa</i>	1251
Design study of superconducting coils for the fusion DEMO plant at JAERI, <i>T. Isono, N. Koizumi, K. Okuno, R. Kurihara, S. Nishio and K. Tobita</i>	1257
Conceptual study of ECH/ECCD system for fusion DEMO plant, <i>K. Sakamoto, K. Takahashi, A. Kasugai, R. Minami, N. Kobayashi, S. Nishio, M. Sato and K. Tobita</i>	1263

Consideration on blanket structure for fusion DEMO plant at JAERI, <i>S. Nishio, J. Ohmori, T. Kuroda, K. Tobita, M. Enoeda, D. Tsuru, T. Hirose, S. Sato, Y. Kawamura, H. Nakamura, M. Sato and Demo Plant Design Team</i>	1271
Concept of core and divertor plasma for fusion DEMO plant at JAERI, <i>M. Sato, S. Sakurai, S. Nishio, K. Tobita, T. Inoue, Y. Nakamura, K. Shinya and H. Fujieda</i>	1277
Neutronics assessment of advanced shield materials using metal hydride and borohydride for fusion reactors, <i>T. Hayashi, K. Tobita, S. Nishio, K. Ikeda, Y. Nakamori, S. Orimo and Demo Plant Design Team</i>	1285
Design study of a neutral beam injector for fusion DEMO plant at JAERI, <i>T. Inoue, M. Hanada, M. Kashiwagi, S. Nishio, K. Sakamoto, M. Sato, M. Taniguchi, K. Tobita, K. Watanabe and Demo Plant Design Team</i>	1291
Carbon tiles as spectral-shifter for long-life liquid blanket in LHD-type reactor FFHR, <i>A. Sagara, S. Imagawa, T. Tanaka, T. Muroga, Y. Kubota, T. Dolan, H. Hashizume, T. Kunugi, S. Fukada, A. Shimizu, T. Terai and O. Mitarai</i>	1299
Conceptual design of the fusion-driven subcritical system FDS-I, <i>Y. Wu, S. Zheng, X. Zhu, W. Wang, H. Wang, S. Liu, Y. Bai, H. Chen, L. Hu, M. Chen, Q. Huang, D. Huang, S. Zhang, J. Li, D. Chu, J. Jiang, Y. Song and FDS Team</i>	1305
<b>Safety Issue and Waste Management</b>	
Prevention of hydrogen and dust explosion in ITER, <i>V. Chuyanov and L. Topilski</i>	1313
Managing fusion high-level waste—A strategy for burning the long-lived products in fusion devices, <i>L.A. El-Guebaly</i>	1321
Potential coatings for Li/V system: Nuclear performance and design issues, <i>L.A. El-Guebaly</i>	1327
Activation properties of tungsten as a first wall protection in fusion power plants, <i>N.P. Taylor and R. Pampin</i>	1333
Case study on tritium inventory in the fusion DEMO plant at JAERI, <i>H. Nakamura, S. Sakurai, S. Suzuki, T. Hayashi, M. Enoeda and K. Tobita</i>	1339
Dust mobilization by high-speed vapor flow under LOVA, <i>K. Matsuki, S. Suzuki, S. Ebara, T. Yokomine and A. Shimizu</i>	1347
Dust mobilization experiments in the context of the fusion plants—STARDUST facility, <i>M.T. Porfiri, N. Forgiione, S. Paci and A. Ruffoloni</i>	1353
Inhibiting effect of tea catechins on the lipid peroxidation induced in tritiated water, <i>M. Kubota, Y. Takeuchi, K. Okuno, H. Yoshioka and H. Yoshioka</i>	1359
Safety handling characteristics of high-level tritiated water, <i>T. Hayashi, T. Itoh, K. Kobayashi, K. Isobe and M. Nishi</i>	1365
Hydrogen enrichment by means of electrochemical hydrogen pump using proton-conducting ceramics for a tritium stack monitor, <i>M. Tanaka, Y. Asakura, T. Uda, K. Katahira, N. Tsuji and H. Iwahara</i>	1371
Sorption and desorption of tritiated water on four kinds of materials for ITER, <i>K. Kobayashi, T. Hayashi, M. Nishi, Y. Oya and K. Okuno</i>	1379
Developments of gaseous water, hydrogen and methane sampling system for environmental tritium monitoring, <i>T. Uda, T. Sugiyama, M. Tanaka, K. Munakata and N. Momoshima</i>	1385
Fusion component failure rate database (FCFR-DB), <i>T. Pinna, J. Izquierdo, M.T. Porfiri and J. Dies</i>	1391
Preliminary transient thermal analysis for safety of the dual-cooled waste transmutation blanket for the FDS-I, <i>Y. Bai, H. Chen, Y. Ke, W.H. Wang and S.L. Zheng</i>	1397
Probabilistic safety assessment of the dual-cooled waste transmutation blanket for the FDS-I, <i>L. Hu and Y. Wu</i>	1403
Dust mobilization studies in the TDMX facility, <i>J.P. Sharpe and P.W. Humrickhouse</i>	1409
Benchmarking of Monte Carlo based shutdown dose rate calculations applied in fusion technology: From the past experience a future proposal for JET 2005 operation, <i>L. Petrizzi, M. Angelone, P. Batistoni, U. Fischer, M. Loughlin and R. Villari</i>	1417
Neutronics safety analysis in severe transients of the dual-cooled waste transmutation blanket for the FDS-I, <i>S. Zheng and Y. Wu</i>	1425

**Models and Experiments for FNT**

- Numerical and experimental research to solve MHD problem in liquid blanket system, *H. Hashizume* 1431
- JUPITER-II molten salt Flibe research: An update on tritium, mobilization and redox chemistry experiments, *D.A. Petti, G.R. Smolik, M.F. Simpson, J.P. Sharpe, R.A. Anderl, S. Fukada, Y. Hatano, M. Hara, Y. Oya, T. Terai, D.-K. Sze and S. Tanaka* 1439
- Numerical study of MHD effect on liquid metal free jet under complex magnetic fields, *X.-Y. Luo, A. Ying and M. Abdou* 1451
- Measurements of deuteron-induced activation cross sections for IFMIF accelerator structural materials in the energy range of 22–40 MeV, *K. Ochiai, M. Nakao, J. Hori, S. Sato, M. Yamauchi, N.S. Ishioka and T. Nishitani* 1459
- Influence of 2D and 3D convection–diffusion flow on tritium permeation in helium cooled solid breeder blanket units, *W. Guo, A. Ying, M.-J. Ni and M.A. Abdou* 1465
- Helium Loop Karlsruhe (HELOKA): A valuable tool for testing and qualifying ITER components and their He cooling circuits, *B.E. Ghidersa, M. Ionescu-Bujor and G. Janeschitz* 1471
- Development of a new fusion power monitor based on activation of flowing water, *Y. Verzilov, T. Nishitani, K. Ochiai, C. Kutsukake and Y. Abe* 1477
- Neutronics experiment for the validation of activation properties of DEMO materials using real DT neutron spectrum at JET, *M. Angelone, P. Batistoni, M. Laubenstein, L. Petrizzi and M. Pillon* 1485
- Butt jointing performance for remountable HTS magnet by improving contact surface condition, *S. Ito, H. Hashizume, K. Yuki, S. Takami and Y. Yamamoto* 1491
- Improved in situ calibration technique for ITER ex-vessel neutron yield monitor, *K. Asai, T. Iguchi, T. Nishitani, C.I. Walker, J. Kawarabayashi and K. Watanabe* 1497
- Co-deposited layer characterisation and removal control by optical emission spectroscopy coupled to nano-second laser ablation, *F. Le Guern, F. Brygo, P. Fichet, E. Gauthier, C. Hubert, C. Lascountuna, D. Menut, S. Mousset, A. Semerok, M. Tabarant and J.M. Weulersse* 1503
- Comprehensive handbook of activation data calculated using EASY-2003, *M.R. Gilbert and R.A. Forrest* 1511
- Fusion cross sections for fusion energy, *X.Z. Li, B. Liu, Q.M. Wei, S.X. Zheng and D.X. Cao* 1517
- Application of the level set method for multi-phase flow computation in fusion engineering, *X.-Y. Luo, M.-J. Ni, A. Ying and M. Abdou* 1521
- New approach to measure double-differential charged-particle emission cross sections of several materials for a fusion reactor, *K. Kondo, S. Takagi, I. Murata, H. Miyamaru, A. Takahashi, N. Kubota, K. Ochiai and T. Nishitani* 1527
- Validation strategies of HIMAG in interfacial flow computation for fusion applications, *M.-J. Ni, R. Munipalli, N.B. Morley and M.A. Abdou* 1535
- Exploring liquid metal plasma facing component (PFC) concepts—Liquid metal film flow behavior under fusion relevant magnetic fields, *M. Narula, M.A. Abdou, A. Ying, N.B. Morley, M. Ni, R. Miraghaie and J. Burris* 1543
- Integrated analysis of the electromagnetic, thermal, fluid flow fields in a Tokamak, *B. Xiao and P. Weng* 1549
- Analysis of turbulence models for thermohydraulic calculations of helium cooled fusion reactor components, *F. Arbeiter, S. Gordeev, V. Heinzl and V. Slobodtchouk* 1555
- Effect of activation cross-section uncertainties on the radiological assessment of the MFE/DEMO first wall, *O. Cabellos, S. Reyes, J. Sanz, A. Rodriguez, M. Youssef and M. Sawan* 1561
- Nuclear analyses for two “look-alike” helium-cooled pebble bed test blanket sub-modules proposed by the US for testing in ITER, *M.Z. Youssef, M.E. Sawan and A. Ying* 1567
- Analysis of sequential charged particle reaction experiments for fusion reactors, *M. Yamauchi, J. Hori, K. Ochiai, S. Sato, T. Nishitani and H. Kawasaki* 1577

**Repair and Maintenance**

- Fundamental experiment for inspection of cooling pipes in operation by using ultrasonic technique,  
*Y. Ohtsuka, M. Higashi and M. Nishikawa* 1583

**Burning Plasma Control and Operation**

- Blanket–plasma interaction in tokamaks. Implication from JT-60U, JFT-2M and reactor studies, *M. Kikuchi, S. Nishio, G. Kurita, K. Tsuzuki, M. Bakhtiari, H. Kawashima, H. Takenaga, Y. Kusama and K. Tobita* 1589
- Engineering design and control scenario for steady-state high-beta operation in National Centralized Tokamak, *K. Tsuchiya, M. Akiba, H. Azechi, T. Fujii, T. Fujita, M. Fujiwara, K. Hamamatsu, H. Hashizume, N. Hayashi, H. Horiike, N. Hosogane, M. Ichimura, K. Ida, Y. Ikeda, T. Imai, N. Inoue, S. Ishida, S. Itoh, Y. Kamada, H. Kawashima, M. Kikuchi, A. Kimura, K. Kizu, H. Kubo, Y. Kudo, K. Kurihara, G. Kurita, M. Kuriyama, K. Masaki, M. Matsukawa, M. Matsuoka, Y. Miura, Y.M. Miura, N. Miya, A. Morioka, K. Nakamura, H. Ninomiya, A. Nishimura, K. Okano, K. Okuno, A. Sagara, M. Sakamoto, S. Sakurai, K. Sato, R. Shimada, A. Shimizu, T. Suzuki, H. Takahashi, Y. Takase, M. Takechi, H. Tamai, S. Tanaka, H. Tsutsui, Y. Uesugi, K. Yatsu and N. Yoshida* 1599
- Magnetic sensorless control experiment without drift problem on HT-7, *K. Nakamura, J.R. Luo, H.Z. Wang, Z.S. Ji, H. Wang, F. Wang, N. Qi, K.N. Sato, K. Hanada, M. Sakamoto, H. Idei, M. Hasegawa, A. Iyomasa, S. Kawasaki, H. Nakashima and A. Higashijima* 1607
- Divertor modeling for the design of the National Centralized Tokamak with high beta steady-state plasmas, *H. Kawashima, S. Sakurai, K. Shimizu, T. Takizuka, H. Tamai, M. Matsukawa, T. Fujita and Y. Miura* 1613
- Continuous and real-time data acquisition system for superconducting tokamaks HT-7 and TRIAM-1M, *F. Wang, J.R. Luo, K. Nakamura, K.N. Sato, K. Hanada, M. Sakamoto, H. Idei, S. Kawasaki and H. Nakashima* 1621

**Inertial Confinement Fusion Studies and Technologies**

- Progress towards realization of a laser IFE solid wall chamber, *A.R. Raffray, J. Blanchard, J. Latkowski, F. Najmabadi, T. Renk, J. Sethian, S. Sharafat, L. Snead and HAPL Team* 1627
- Thermo-mechanical analysis of a micro-engineered tungsten-foam armored IFE FW, *M. Andersen, S. Sharafat and N. Ghoniem* 1639
- Cool-down performance of the apparatus for the cryogenic target of the FIREX project, *A. Iwamoto, R. Maekawa, T. Mito, M. Okamoto, O. Motojima, S. Sugito, K. Okada, M. Nakai, T. Norimatsu and K. Naga* 1647
- First wall ablations with high-flux pulsed proton beams and UV laser lights for IFE reactor design database, *K. Kasuya, Y. Kinoshita, T. Norimatsu, S. Nakai, W. Mroz and A. Prokopiuk* 1653
- Nuclear design considerations for Z-IFE chambers, *W.R. Meier, R.C. Schmitt, R.P. Abbott, J.F. Latkowski and S. Reyes* 1661

**FNT Contributions to Other Fields of Science and Technologies**

- Synergies between FNT developments and advanced nuclear fission technologies, *E. Bogusch, M. Ionescu-Bujor, A. Chevalier and B. Bielak* 1667
- Nuclear technology and potential ripple effect of superconducting magnets for fusion power plant, *A. Nishimura, T. Muroga, T. Takeuchi, T. Nishitani and A. Morioka* 1675
- Simulation study of carbon impurity dynamics on reduced-activation ferritic/martensitic steel material at elevated temperatures under hydrogen exposure, *R. Kawakami* 1683
- Performance analysis of experimental device of travelling wave direct energy converter, *M. Ishikawa, K. Horita, Y. Yasaka, T. Takeno and Y. Tomita* 1689
- Heat transport analysis for femtosecond laser ablation with molecular dynamics-two temperature model method, *Y. Yamashita, T. Yokomine, S. Ebara and A. Shimizu* 1695
- Confinement of ions in an inertial electrostatic confinement fusion (IECF) device and its influence on neutron production rate, *K. Noborio, Y. Yamamoto, Y. Ueno and S. Konishi* 1701

