



Contents

Proceedings of the 9th International Conference on Fusion Reactor Materials (ICFRM-9)

Preface	viii	Ceramic breeder research and development: progress and focus, <i>J.G. van der Laan, H. Kawamura, N. Roux and D. Yamaki</i>	99
Committees/Sponsors	ix	Critical plasma-wall interaction issues for plasma-facing materials and components in near-term fusion devices, <i>G. Federici, J.P. Coad, A.A. Haasz, G. Janeschitz, N. Noda, V. Philipps, J. Roth, C.H. Skinner, R. Tivey and C.H. Wu</i>	110
Contents Parts A and B	xi	A cleavage toughness master curve model, <i>G.R. Odette and M.Y. He</i>	120
Part A		Critical issues and current status of SiC/SiC composites for fusion, <i>A. Hasegawa, A. Kohyama, R.H. Jones, L.L. Snead, B. Riccardi and P. Fenici</i>	128
Section 1: Materials for fusion technology		Neutron irradiation effects on plasma facing materials, <i>V. Barabash, G. Federici, M. Rödig, L.L. Snead and C.H. Wu</i>	138
Advances in fusion technology, <i>C.C. Baker</i>	1	Section 2. Fundamentals of radiation effects	
Assessment and selection of materials for ITER in-vessel components, <i>G. Kalinin, V. Barabash, A. Cardella, J. Dietz, K. Ioki, R. Matera, R.T. Santoro, R. Tivey and The ITER Home Teams</i>	10	Radiation-induced inter-granular segregation in first wall fusion reactor materials, <i>R.G. Faulkner, S. Song and P.E.J. Flewitt</i>	147
Interactions between fusion materials R&D and other technologies, <i>A. Kohyama, M. Seki, K. Abe, T. Muroga, H. Matsui, S. Jitsukawa and S. Matsuda</i>	20	Sink effect of grain boundary on radiation-induced segregation in austenitic stainless steel, <i>S. Watanabe, Y. Takamatsu, N. Sakaguchi and H. Takahashi</i>	152
The impact of materials selection on long-term activation in fusion power plants, <i>N.P. Taylor, C.B.A. Forty, D.A. Petti and K.A. McCarthy</i>	28	Influence of cold work to increase swelling of pure iron irradiated in the BR-10 reactor to ~6 and ~25 dpa at ~400°C, <i>A.M. Dvoriashin, S.I. Porollo, Yu.V. Konobelev and F.A. Garner</i>	157
Evaluation of hot isostatic pressing for joining of fusion reactor structural components, <i>A.D. Ivanov, S. Sato and G. Le Marois</i>	35	Synergistic effect of hydrogen and impurity segregations on the grain boundary embrittlement in Nb, <i>A.M. Ilyin, V.P. Shestakov and I.L. Tazhibaeva</i>	161
The status of beryllium technology for fusion, <i>F. Scalfidi-Argentina, G.R. Longhurst, V. Shestakov and H. Kawamura</i>	43	Compositional and temperature dependence of void swelling in model Fe-Cr base alloys irradiated in the EBR-II fast reactor, <i>B.H. Sencer and F.A. Garner</i>	164
Progress and critical issues of reduced activation ferritic/martensitic steel development, <i>B. van der Schaaf, D.S. Gelles, S. Jitsukawa, A. Kimura, R.L. Klueh, A. Möslang and G.R. Odette</i>	52	Effect of temperature gradients on void formation in modified 316 stainless steel cladding, <i>N. Akasaka, I. Yamagata and S. Ukai</i>	169
Impact of irradiation effects on design solutions for ITER diagnostics, <i>S. Yamamoto, T. Shikama, V. Belyakov, E. Farnum, E. Hodgson, T. Nishitani, D. Orlinski, S. Zinkle, S. Kasai, P. Stott, K. Young, V. Zaveriaev, A. Costley, L. deKock, C. Walker and G. Janeschitz</i>	60	Recovery of electrical resistivity of high-purity iron irradiated with 30 MeV electrons at 77 K, <i>H. Abe and E. Kuramoto</i>	174
Critical issues and current status of vanadium alloys for fusion energy applications, <i>R.J. Kurtz, K. Abe, V.M. Chernov, V.A. Kazakov, G.E. Lucas, H. Matsui, T. Muroga, G.R. Odette, D.L. Smith and S.J. Zinkle</i>	70	Correlation between defect structures and hardness in tantalum irradiated by heavy ions, <i>K. Yasunaga, H. Watanabe, N. Yoshida, T. Muroga and N. Noda</i>	179
International strategy for fusion materials development, <i>K. Ehrlich, E.E. Bloom and T. Kondo</i>	79		
Progress in modelling the microstructural evolution in metals under cascade damage conditions, <i>H. Trinkaus, B.N. Singh and S.I. Golubov</i>	89		

Study of He-bubble growth in α -particle implanted F82H-mod martensitic steel, <i>R. Coppola, M. Mag-nani, R.P. May, A. Möslang and M. Valli</i>	183
Modeling of microstructure evolution and mechanical property change of reduced-activation martensitic steel during varying-temperature irradiation, <i>R. Kasada and A. Kimura</i>	188
Influence of neutron irradiation on CuNiCrSi alloy pre-implanted with helium, <i>A.V. Kozlov, M.V. Chernetsov, S.A. Averin, V.Ya. Abramov, A.D. Ivanov, Yu.S. Strebkov and V.F. Reutov</i>	193
Effects of grain boundary misorientation on solute segregation in thermally sensitized and proton-irradiated 304 stainless steel, <i>T.S. Duh, J.J. Kai and F.R. Chen</i>	198
Correlation of simulated TEM images with irradiation induced damage, <i>R. Schäublin, P. de Almeida, A. Almazouzi and M. Victoria</i>	205
Formation and migration of helium bubbles in Fe-16Cr-17Ni austenitic alloy at high temperature, <i>K. Ono, K. Arakawa, M. Oohashi, H. Kurata, K. Hojou and N. Yoshida</i>	210
The effect of transmutation and displacement in irradiated copper for heat-sink materials, <i>S. Ishino, A. Kurui, S. Ichikawa, T. Inaba and T. Hasegawa</i>	215
Effects of dose rate on microstructural evolution and swelling in austenitic steels under irradiation, <i>T. Okita, T. Kamada and N. Sekimura</i>	220
Synergistic effects of hydrogen and helium on micro-structural evolution in vanadium alloys by triple ion beam irradiation, <i>N. Sekimura, T. Iwai, Y. Arai, S. Yonamine, A. Naito, Y. Miwa and S. Hamada</i>	224
The effect of alloying elements on the defect structural evolution in neutron irradiated Ni alloys, <i>T. Yoshiie, Q. Xu, Y. Satoh, H. Ohkubo and M. Kiritani</i>	229
Study of point defect behaviors in vanadium and its alloys by using HVEM, <i>T. Hayashi, K. Fukumoto and H. Matsui</i>	234
Void swelling and irradiation creep of two high-nickel steels after irradiation at 400–410°C to 84–91 dpa in the BN-350 fast reactor, <i>S.I. Porollo, A.M. Dvorishin, A.N. Vorobjev, Yu.V. Konobeev, V.M. Krigan, E.G. Mironova, N.I. Budylnkin and F.A. Garner</i>	239
Radiation-induced segregation in model alloys, <i>T. Ezawa, E. Wakai and R. Oshima</i>	244
Development of vacancy clusters in neutron-irradiated copper at high temperature, <i>Y. Shimomura and I. Mukouda</i>	249
Application of the internal friction method to studying microstructural effects in fusion materials, <i>S. Tähtinen, Y. Jagodzinski, O. Tarasenko, S. Smuk and H. Hänninen</i>	255
Section 3. Microstructures and irradiated materials	
Microstructural changes in a low-activation Fe–Cr–Mn alloy irradiated with 92 MeV Ar ions at 450°C, <i>C. Zhang, K. Chen, Y. Wang, J. Sun, B. Hu, Y. Jin, M. Hou, C. Liu, Y. Sun, J. Han and C. Chen</i>	259
Microstructural changes of austenitic steels caused by proton irradiation under various conditions, <i>T. Fukuda, M. Sagisaka, Y. Isobe, A. Hasegawa, M. Sato, K. Abe, Y. Nishida, T. Kamada and Y. Kaneshima</i>	263
Effect of dual-beam-irradiation by helium and carbon ions on microstructure development of SiC/SiC composites, <i>S. Nogami, A. Hasegawa, K. Abe, T. Taguchi and R. Yamada</i>	268
Microstructures in Ti–Al intermetallic compounds irradiated at 673 K in HFIR, <i>Y. Miwa, T. Sawai, K. Fukai, D.T. Hoelzer and A. Hishinuma</i>	273
Role of α_2/γ and γ/γ' phase boundaries in cavity formation in a TiAl intermetallic compound irradiated with He-ions, <i>K. Nakata, K. Fukai, A. Hishinuma and K. Ameyama</i>	278
Defect structures introduced in iron under varying temperature neutron irradiation, <i>M. Horiki, T. Yoshiie, Q. Xu, M. Iseki and M. Kiritani</i>	282
Microstructure of vanadium alloys during ion irradiation with stepwise change of temperature, <i>H. Watanabe, T. Arinaga, K. Ochiai, T. Muroga and N. Yoshida</i>	286
Effects of temperature change on the microstructural evolution of vanadium alloys under ion irradiation, <i>N. Nita, T. Iwai, K. Fukumoto and H. Matsui</i>	291
Computer simulations of the effects of temperature change on defect accumulation in copper during neutron irradiation, <i>Q. Xu, H.L. Heinisch and T. Yoshiie</i>	297
Microstructure in pure copper irradiated by simultaneous multi-ion beam of hydrogen, helium and self ions, <i>I. Mukouda, Y. Shimomura, T. Iiyama, Y. Harada, Y. Katano, T. Nakazawa, D. Yamaki and K. Noda</i>	302
Microstructure of Cu–Ni alloys neutron irradiated at 210°C and 420°C to 14 dpa, <i>S.J. Zinkle and B.N. Singh</i>	306
Simulating the influence of radiation temperature variations on microstructural evolution, <i>Y. Katoh, R.E. Stoller, A. Kohyama and T. Muroga</i>	313
Influence of variable temperatures irradiation on microstructural evolution in phosphorus doped Fe–Cr–Ni alloys, <i>D. Hamaguchi, H. Watanabe, T. Muroga and N. Yoshida</i>	319
Microstructural evolution of Alloy 718 at high helium and hydrogen generation rates during irradiation with 600–800 MeV protons, <i>B.H. Sencer, G.M. Bond, F.A. Garner, M.L. Hamilton, B.M. Oliver, L.E. Thomas, S.A. Maloy, W.F. Sommer, M.R. James and P.D. Ferguson</i>	324
Microstructural changes induced by post-irradiation annealing of neutron-irradiated austenitic stainless steels, <i>J.I. Cole and T.R. Allen</i>	329
Swelling of F82H irradiated at 673 K up to 51 dpa in HFIR, <i>Y. Miwa, E. Wakai, K. Shiba, N. Hashimoto, J.P. Robertson, A.F. Rowcliffe and A. Hishinuma</i>	334
Differences in the microstructure of the F82H ferritic/martensitic steel after proton and neutron irradiation, <i>R. Schäublin and M. Victoria</i>	339

Microstructural examination of V–(3–6%)Cr–(3–5%)Ti irradiated in the ATR-A1 experiment, <i>D.S. Gelles</i>	344
Section 4. Mechanical behavior of irradiated materials	
On the relationship between uniaxial yield strength and resolved shear stress in polycrystalline materials, <i>R.E. Stoller and S.J. Zinkle</i>	349
Mechanical behavior of reduced-activation and conventional martensitic steels after neutron irradiation in the range 250–450°C, <i>A. Alamo, M. Horsten, X. Averty, E.I. Materna-Morris, M. Rieth and J.C. Brachet</i>	353
Tensile behavior of F82H with and without spectral tailoring, <i>K. Shiba, R.L. Klueh, Y. Miwa, J.P. Robertson and A. Hishinuma</i>	358
Effects of low-temperature neutron irradiation on mechanical properties of vanadium-base alloys, <i>H. Tsai, T.S. Bray, H. Matsui, M.L. Grossbeck, K. Fukumoto, J. Gazda, M.C. Billone and D.L. Smith</i>	362
Improvement in post-irradiation ductility of neutron irradiated V–Ti–Cr–Si–Al–Y alloy and the role of interstitial impurities, <i>M. Satou, T. Chuto and K. Abe</i>	367
Irradiation creep of advanced silicon carbide fibers, <i>R. Scholz and G.E. Youngblood</i>	372
The effect of neutron-irradiation on the shear properties of SiC/SiC composites with varied interface, <i>T. Hinoki, L.L. Snead, Y. Katoh, A. Kohyama and R. Shinavski</i>	376
Swelling, irradiation creep and growth of pure rhenium irradiated with fast neutrons at 1030–1330°C, <i>F.A. Garner, M.B. Toloczko, L.R. Greenwood, C.R. Eichelzer, M.M. Paxton and R.J. Puigh</i>	380
In-pile and post-irradiation creep of type 304 stainless steel under different neutron spectra, <i>Y. Kurata, Y. Itabashi, H. Mimura, T. Kikuchi, H. Amezawa, S. Shimakawa, H. Tsuji and M. Shindo</i>	386
Irradiation creep at 60°C in SUS 316 and its impact on fatigue fracture, <i>J. Nagakawa, Y. Murase, N. Yamamoto and T. Fukuzawa</i>	391
Irradiation creep of 11Cr–0.5Mo–2W, V, Nb ferritic–martensitic, modified 316, and 15Cr–20Ni austenitic S.S. irradiated in FFTF to 103–206 dpa, <i>A. Uehira, S. Mizuta, S. Ukai and R.J. Puigh</i>	396
Effects of helium implantation on creep rupture properties of low activation ferritic steel F82H IEA heat, <i>N. Yamamoto, J. Nagakawa and K. Shiba</i>	400
Effect of neutron dose and irradiation temperature on the mechanical properties and structure of dispersion strengthened copper alloys, <i>A.S. Pokrovsky, S.A. Fabritsiev, D.J. Edwards, S.J. Zinkle and A.F. Rowcliffe</i>	404
Application of generalized deformation theory to irradiation creep of fcc and bcc stainless steels, <i>M.B. Toloczko, J.P. Hirth and F.A. Garner</i>	409
Proton irradiation creep of Inconel 718 at 300°C, <i>R. Scholz and R. Matera</i>	414
Shear punch and tensile measurements of mechanical property changes induced in various austenitic alloys by high-energy mixed proton and neutron irradiation at low temperatures, <i>M.L. Hamilton, F.A. Garner, M.B. Toloczko, S.A. Maloy, W.F. Sommer, M.R. James, P.D. Ferguson, J.P. Robertson, S. Jistukawa, T. Sawai and A. Hishinuma</i>	418
The contribution of various defects to irradiation-induced hardening in an austenitic model alloy, <i>M. Ando, Y. Katoh, H. Tanigawa, A. Kohyama and T. Iwai</i>	423
Tensile and low-cycle fatigue properties of solution annealed type 316L stainless steel plate and TIG-weld exposed to 5 dpa at low-temperature (42°C), <i>J.-L. Puzolante, M. Scibetta, R. Chaouadi and W. Vandermeulen</i>	428
Tensile properties and damage microstructures in ORR/HFIR-irradiated austenitic stainless steels, <i>E. Wakai, N. Hashimoto, J.P. Robertson, S. Jistukawa, T. Sawai and A. Hishinuma</i>	435
Effect of helium to dpa ratio on fatigue behavior of austenitic stainless steel irradiated to 2 dpa, <i>I. Ioka, M. Yonekawa, Y. Miwa, H. Mimura, H. Tsuji and T. Hoshiya</i>	440
The effects of irradiation and testing temperature on tensile behaviour of stainless steels, <i>C. Bailat, A. Almazouzi, N. Baluc, R. Schäublin, F. Gröschel and M. Victoria</i>	446
Mechanical properties of hot isostatic pressed type 316LN steel after irradiation, <i>A. Lind and U. Bergenlid</i>	451
Analysis of tensile and fracture toughness results on irradiated molybdenum alloys, TZM and Mo–5%Re, <i>M. Scibetta, R. Chaouadi and J.L. Puzolante</i>	455
Thermal fatigue crack nucleation in ferritic–martensitic steels before and after neutron irradiation, <i>L.A. Belyaeva, A.A. Zisman, C. Petersen, V.A. Potapova and V.V. Rybin</i>	461
Effect of heat treatment and irradiation temperature on mechanical properties and structure of reduced-activation Cr–W–V steels of bainitic, martensitic, and martensitic–ferritic classes, <i>I.V. Gorynin, V.V. Rybin, I.P. Kursevich, A.N. Lapin, E.V. Nesterova and E.Yu. Klepikov</i>	465
Effects of helium implantation on hardness of pure iron and a reduced activation ferritic–martensitic steel, <i>H. Tanigawa, S. Jitsukawa, A. Hishinuma, M. Ando, Y. Katoh, A. Kohyama and T. Iwai</i>	470
Low-temperature irradiation effects on tensile and Charpy properties of low-activation ferritic steels, <i>K. Shiba and A. Hishinuma</i>	474
Embrittlement of reduced-activation ferritic/martensitic steels irradiated in HFIR at 300°C and 400°C, <i>R.L. Klueh, M.A. Sokolov, K. Shiba, Y. Miwa and J.P. Robertson</i>	478
Tensile properties and microstructure of 590 MeV proton-irradiated pure Fe and a Fe–Cr alloy, <i>M.I. Luppó, C. Bailat, R. Schäublin and M. Victoria</i>	483
Effect of low temperature irradiation on the mechanical properties of ternary V–Cr–Ti alloys as determined by tensile tests and shear punch tests, <i>M.L. Hamilton and M.B. Toloczko</i>	488
Mechanical behavior and microstructural evolution of vanadium alloys irradiated in ATR-A1, <i>K.-i. Fukumoto, H. Matsui, H. Tsai and D.L. Smith</i>	492

V-alloy embrittlement by irradiation in a cooling gas environment, <i>H.D. Röhrig, M. Rieth, B. Dafferner and E. Materna-Morris</i>	498	Time-dependent failure mechanisms in silicon carbide composites for fusion energy applications, <i>C.A. Lewinsohn, G.E. Youngblood, C.H. Henager Jr., E.P. Simonen and R.H. Jones</i>	584
Defect microstructure and deformation behavior of V-Ti-Cr-Si-Al-Y alloy irradiated in ATR, <i>T. Chuto, M. Satou and K. Abe</i>	503	Neutron wall loading of Tokamak reactors, <i>C.P.C. Wong</i>	588
Effect of strain rate on the tensile properties of unirradiated and irradiated V-4Cr-4Ti, <i>A.F. Rowcliffe, S.J. Zinkle and D.T. Hoelzer</i>	508	Characterization of non-magnetic Mn-Cr steel as a low induced activation material for vacuum vessels, <i>S. Saito, K. Fukaya, S. Ishiyama, M. Eto, I. Sato, M. Kusuhashi, T. Hatakeyama, H. Takahashi and M. Kikuchi</i>	593
Mechanical properties and microstructure in low-activation martensitic steels F82H and Optimax after 800-MeV proton irradiation, <i>Y. Dai, S.A. Maloy, G.S. Bauer and W.F. Sommer</i>	513	Thermomechanical characteristics of the low activation materials chromium and Cr-5Fe-1Y ₂ O ₃ alloy, <i>H. Stamm, U. Holzwarth, F. Lakestani, R. Valiev, V. Provenzano and A. Volcan</i>	597
On the mechanisms and mechanics of fracture toughness of a V-4Cr-4Ti alloy, <i>E.G. Donahue, G.R. Odette and G.E. Lucas</i>	518	Tensile and fatigue properties of two titanium alloys as candidate materials for fusion reactors, <i>P. Marmy, T. Leguey, I. Belianov and M. Victoria</i>	602
Effect of high-dose neutron irradiation on the mechanical properties and structure of copper alloys and Cu/SS joints for ITER applications, <i>S.A. Fabritsiev, A.S. Pokrovsky, D.J. Edwards, S.J. Zinkle and A.F. Rowcliffe</i>	523	Uses of zirconium alloys in fusion applications, <i>C.B.A. Forty and P.J. Karditsas</i>	607
Deformation mechanisms in 316 stainless steel irradiated at 60°C and 330°C, <i>N. Hashimoto, S.J. Zinkle, A.F. Rowcliffe, J.P. Robertson and S. Jitsukawa</i>	528	Microstructure control to improve mechanical properties of vanadium alloys for fusion applications, <i>T. Kuwabara, H. Kurishita and M. Hasegawa</i>	611
		Solute interactions in pure vanadium and V-4Cr-4Ti alloy, <i>D.T. Hoelzer, M.K. West, S.J. Zinkle and A.F. Rowcliffe</i>	616
Section 5. Structural materials		Performance of V-4Cr-4Ti alloy exposed to the JFT-2M tokamak environment, <i>W.R. Johnson, P.W. Trester, S. Sengoku, S. Ishiyama, K. Fukaya, M. Eto, T. Oda, Y. Hirohata, T. Hino and H. Tsai</i>	622
Radiation-induced precipitation in V-(Cr,Fe)-Ti alloys irradiated at low temperature with low dose during neutron or ion irradiation, <i>K.-i. Fukumoto, H. Matsui, Y. Candra, K. Takahashi, H. Sasanuma, S. Nagata and K. Takahiro</i>	535	Biaxial thermal creep of V-4Cr-4Ti at 700°C and 800°C, <i>R.J. Kurtz and M.L. Hamilton</i>	628
Diffusion and permeation of hydrogen in low-activation martensitic stainless steel – effect of irradiation, <i>F. Schliefer, C. Liu and P. Jung</i>	540	Tensile and impact properties of V-4Cr-4Ti alloy heats 832665 and 832864, <i>T.S. Bray, H. Tsai, L.J. Nowicki, M.C. Billone, D.L. Smith, W.R. Johnson and P.W. Trester</i>	633
In situ thermal conductivity measurement of ceramics in a fast neutron environment, <i>L.L. Snead, R. Yamada, K. Noda, Y. Katoh, S.J. Zinkle, W.S. Eatherly and A.L. Qualls</i>	545	A physically based constitutive model for a V-4Cr-4Ti alloy, <i>E.G. Donahue, G.R. Odette and G.E. Lucas</i>	637
Evaluation of neutron irradiated near-stoichiometric silicon carbide fiber composites, <i>L.L. Snead, Y. Katoh, A. Kohyama, J.L. Bailey, N.L. Vaughn and R.A. Lowden</i>	551	Development of an oxide dispersion strengthened, reduced-activation steel for fusion energy, <i>G.R. Romanoski, L.L. Snead, R.L. Klueh and D.T. Hoelzer</i>	642
SYLRAMIC™ SiC fibers for CMC reinforcement, <i>R.E. Jones, D. Petrak, J. Rabe and A. Szweda</i>	556	Effect of mechanical alloying parameters on irradiation damage in oxide dispersion strengthened ferritic steels, <i>S. Yamashita, S. Watanabe, S. Ohnuki, H. Takahashi, N. Akasaka and S. Ukai</i>	647
Room and high-temperature mechanical and thermal properties of SiC fiber-reinforced SiC composite sintered under pressure, <i>K. Yoshida and T. Yano</i>	560	Material science and manufacturing of heat-resistant reduced-activation ferritic-martensitic steels for fusion, <i>A.G. Ioltukhovskiy, A.I. Blokhin, N.I. Budylnin, V.M. Chernov, M.V. Leont'eva-Smirnova, E.G. Mironova, E.A. Medvedeva, M.I. Solonin, S.I. Porollo and L.P. Zavyalsky</i>	652
High-performance SiC/SiC composites by improved PIP processing with new precursor polymers, <i>A. Kohyama, M. Kotani, Y. Katoh, T. Nakayasu, M. Sato, T. Yamamura and K. Okamura</i>	565	Microstructure of welded and thermal-aged low activation steel F82H IEA heat, <i>T. Sawai, K. Shiba and A. Hishinuma</i>	657
High thermal conductivity SiC/SiC composites for fusion applications, <i>W. Kowbel, C.A. Bruce, K.L. Tsou, K. Patel, J.C. Withers and G.E. Youngblood</i>	570	Chemical segregation behavior under thermal aging of the low-activation F82H-modified steel, <i>J. Lapeña, M. Garcia-Mazario, P. Fernández and A.M. Lancha</i>	662
Mechanical and thermal properties of 2D and 3D SiC/SiC composites, <i>R. Yamada, T. Taguchi and N. Iga-wa</i>	574	Mechanical properties of 8Cr-2WVTa steel aged for 30 000 h, <i>M. Tamura, K. Shinozuka, H. Esaka, S. Sugimoto, K. Ishizawa and K. Masamura</i>	667
New evaluation method of crack growth in SiC/SiC composites using interface elements, <i>H. Serizawa, M. Ando, C.A. Lewinsohn and H. Murakawa</i>	579	Effect of thermal aging on the microstructure and mechanical properties of 7–11 CrW steels, <i>Y. de Carlan, A. Alamo, M.H. Mathon, G. Geoffroy and A. Castaing</i>	672

Low cycle fatigue properties of a low activation ferritic steel (JLF-1) at room temperature, <i>A. Nishimura, T. Nagasaka, N. Inoue, T. Muroga and C. Namba</i>	677	Statistical analysis of a library of molecular dynamics cascade simulations in iron at 100 K, <i>R.E. Stoller and A.F. Calder</i>	746
Ripple reduction and surface coating tests with ferritic steel on JFT-2M, <i>K. Tsuzuki, M. Sato, H. Kawashima, Y. Miura, H. Kimura, T. Abe, K. Uehara, T. Ogawa, T. Akiyama, T. Shibata, M. Yamamoto and T. Koike</i>	681	A molecular dynamics simulation study of small cluster formation and migration in metals, <i>K. Morishita, T. Diaz de la Rubia, E. Alonso, N. Sekimura and N. Yoshida</i>	753
High heat flux test of a HIP-bonded first wall panel of reduced activation ferritic steel F-82H, <i>T. Hatano, S. Suzuki, K. Yokoyama, T. Kuroda and M. Enoeda</i>	685	Modeling of cascade damage interactions by Monte-Carlo method, <i>N. Sekimura, T. Morioka and K. Morishita</i>	758
Phenomenological aspects of fatigue cracking in as-received and hardened F82H modified steel exposed to lithiated water with dissolved hydrogen at 240°C, <i>M.-F. Maday</i>	689	Interstitial cluster motion in displacement cascades, <i>N.V. Doan</i>	763
Influence of combined thermomechanical treatment on impurity segregation in ferritic-martensitic and austenitic stainless steels, <i>A.M. Ilyin, V.S. Neustroev, V.K. Shamardin, V.P. Shestakov, I.L. Tazhibaeva and V.A. Krivchenkoa</i>	694	Comparative study of damage accumulation in iron under magnetic and inertial fusion conditions, <i>E. Alonso, M.J. Caturla, T. Diaz de la Rubia, N. Soneda, J. Marian, J.M. Perlado and R.E. Stoller</i>	768
A potential new ferritic/martensitic steel for fusion applications, <i>R.L. Klueh, N. Hashimoto, R.F. Buck and M.A. Sokolov</i>	697	Atomistic simulation of stacking fault tetrahedra formation in Cu, <i>B.D. Wirth, V. Bulatov and T. Diaz de la Rubia</i>	773
Tube manufacturing and characterization of oxide dispersion strengthened ferritic steels, <i>S. Ukai, S. Mizuta, T. Yoshitake, T. Okuda, M. Fujiwara, S. Hagi and T. Kobayashi</i>	702	Computer simulation of defects interacting with a dislocation in Fe and Ni, <i>E. Kuramoto, K. Ohsawa and T. Tsutsumi</i>	778
Tensile and impact behavior of the reduced-activation steels OPTIFER and F82H mod, <i>L. Schäfer</i>	707	Study of loop-loop and loop-edge dislocation interactions in bcc iron, <i>Yu.N. Osetsky, D.J. Bacon, F. Gao, A. Serra and B.N. Singh</i>	784
NIFS program for large ingot production of a V-Cr-Ti alloy, <i>T. Muroga, T. Nagasaka, A. Iiyoshi, A. Kawabata, S. Sakurai and M. Sakata</i>	711	Comparison of a microstructure evolution model with experiments on irradiated vanadium, <i>S. Sharafat and N.M. Ghoniem</i>	789
Performance limits for fusion first-wall structural materials, <i>D.L. Smith, S. Majumdar, M. Billone and R. Mattas</i>	716	Molecular dynamics simulation of defect production in irradiated β -SiC, <i>L. Malerba, J.M. Perlado, A. Sánchez-Rubio, I. Pastor, L. Colombo and T. Diaz de la Rubia</i>	794
Constitutive behavior and fracture toughness properties of the F82H ferritic/martensitic steel, <i>P. Spätig, G.R. Odette, E. Donahue and G.E. Lucas</i>	721	Section 7. Effects of gaseous species on structural materials	
Features of radiation damage of vanadium and its alloys at a temperature of 330–340°C, <i>V.A. Kazakov, Z. Ostrovsky, Yu. Goncharenko and V. Chakin</i>	727	Effect of helium production on swelling of F82H irradiated in HFIR, <i>E. Wakai, N. Hashimoto, Y. Miwa, J.P. Robertson, R.L. Klueh, K. Shiba and S. Jistukawa</i>	799
The mechanical properties and microstructure of the OPTIMAX series of low activation ferritic-martensitic steels, <i>N. Baluc, R. Schäublin, C. Bailat, F. Paschoud and M. Victoria</i>	731	A comparison of defects in helium implanted α - and β -SiC, <i>P. Jung, H. Klein and J. Chen</i>	806
Author index Parts A and B	xxi	Study of helium effects in SiC/SiC composites under fusion reactor environment, <i>A. Hasegawa, B.M. Oliver, S. Nogami, K. Abe and R.H. Jones</i>	811
Subject index Parts A and B	xliii	Recovery and recrystallization behavior of vanadium at various controlled nitrogen and oxygen levels, <i>T. Nagasaka, H. Takahashi, T. Muroga, T. Tanabe and H. Matsui</i>	816
Part B		Effect of oxygen on the crack growth behavior of V-4Cr-4Ti at 600°C, <i>R.J. Kurtz</i>	822
Section 6. Modeling radiation effects in materials		Annealing behavior of irradiation hardening and microstructure in helium-implanted reduced activation martensitic steel, <i>A. Kimura, R. Kasada, R. Sugano, A. Hasegawa and H. Matsui</i>	827
The effects of one-dimensional glide on the reaction kinetics of interstitial clusters, <i>H.L. Heinisch, B.N. Singh and S.I. Golubov</i>	737	Fatigue behavior and development of microcracks in F82H after helium implantation at 200°C, <i>J. Bertsch, S. Meyer and A. Möslang</i>	832
3D dislocation dynamics study of plastic instability in irradiated copper, <i>L.Z. Sun, N.M. Ghoniem, S.-H. Tong and B.N. Singh</i>	741	On quantification of helium embrittlement in ferritic/martensitic steels, <i>D.S. Gelles</i>	838

Effects of oxygen and hydrogen at low pressure on the mechanical properties of V–Cr–Ti alloys, <i>J.R. DiStefano, B.A. Pint, J.H. DeVan, H.D. Röhrig and L.D. Chitwood</i>	
Hydrogen-irradiated steel interaction during alternating hydrogenation and annealing, <i>E.A. Krasikov and A.D. Amajev</i>	841
The interaction of deuterium and tritium with radiation and other defects in austenitic steel and nickel, <i>V.L. Arbuzov, G.A. Raspopova, S.E. Danilov, A.P. Druzhkov and Yu.N. Zouev</i>	846
Heavy hydrogen isotopes penetration through austenitic and martensitic steels, <i>Yu. Dolinski, I. Lyasota, A. Shestakov, Yu. Repritsiev and Yu. Zouev</i>	849
Positron-lifetime study of electrically hydrogen charged Ni, austenitic stainless steel and Fe, <i>H. Ohkubo, S. Sugiyama, K. Fukuzato, M. Takenaka, N. Tsukuda and E. Kuramoto</i>	854
The effect of electrical hydrogen charging on the strength of 316 stainless steel, <i>S. Sugiyama, H. Ohkubo, M. Takenaka, K. Ohsawa, M.I. Ansari, N. Tsukuda and E. Kuramoto</i>	858
Permeation of hydrogen through vanadium under helium ion irradiation, <i>Y. Hatano, Y. Nanjo, R. Hayakawa and K. Watanabe</i>	863
Hydrogen permeation through vanadium alloy V–4Cr–4Ti ‘in situ’ of reactor irradiation, <i>T.V. Kulsartov, V.P. Shestakov, I.L. Tazhibaeva and E.A. Kenzhin</i>	868
Effect of hydrogen accumulation on mechanical property and microstructure of V–Cr–Ti alloys, <i>K. Aoyagi, E.P. Torres, T. Suda and S. Ohnuki</i>	872
Section 8. Ceramics and diagnostic materials	
An initial model for the RIED effect, <i>E.R. Hodgson and A. Moroño</i>	876
Significance of sample thickness and surface segregation on the electrical conductivity of Wesgo AL995 alumina under ITER environments, <i>M.M.R. Howlader, C. Kinoshita, K. Shiiyama, M. Kutsuwada and T. Higuchi</i>	880
KU1 quartz glass for remote handling and LIDAR diagnostic optical transmission systems, <i>M. García-Matos, A. Moroño and E.R. Hodgson</i>	885
Radiation effects on laser damage in KU1 quartz glass, <i>P. Martín, A. Moroño and E.R. Hodgson</i>	890
Study on the damaging process of silica by in-reactor luminescence, <i>T. Ii, T. Yoshida, T. Tanabe, T. Hara, M. Okada and K. Yamaguchi</i>	894
In-beam dielectric properties of alumina at low frequencies, <i>R. Vila and E.R. Hodgson</i>	898
Radiation-induced conductivity of doped silicon in response to photon, proton and neutron irradiation, <i>N. Kishimoto, H. Amekura, O.A. Plaksin and V.A. Stepanov</i>	903
Current–voltage characteristic of alumina and aluminum nitride with or without electron irradiation, <i>K. Shiiyama, M.M.R. Howlader, Y. Izumi, M. Kutsuwada, S. Matsumura and C. Kinoshita</i>	907
Temperature effect of electron-irradiation-induced structural modification in graphite, <i>S. Muto and T. Tanabe</i>	917
Positron lifetime calculation for defects and defect clusters in graphite, <i>T. Onitsuka, H. Ohkubo, M. Takenaka, N. Tsukuda and E. Kuramoto</i>	922
Neutron irradiation effects in magnesium-aluminate spinel doped with transition metals, <i>V.T. Gritsyna, I.V. Afanasyev-Charkin, V.A. Kobayakov and K.E. Sickafus</i>	927
Radiation-induced processes and their influence on the functional properties of dielectrics for different types of irradiation, <i>V.A. Stepanov and V.M. Chernov</i>	932
Thermal stability and kinetics of defects in magnesium aluminate spinel irradiated with fast neutrons, <i>K. Yasuda, C. Kinoshita, K. Fukuda and F.A. Garner</i>	937
Effects of co-implanted oxygen or aluminum atoms on hydrogen migration and damage structure in multiple-beam irradiated Al ₂ O ₃ , <i>Y. Katano, T. Aruga, S. Yamamoto, T. Nakazawa, D. Yamaki and K. Noda</i>	942
Neutron irradiation damage in aluminum oxide and nitride ceramics up to a fluence of 4.2×10^{26} n/m ² , <i>T. Yano, K. Ichikawa, M. Akiyoshi and Y. Tachi</i>	947
Cation disordering in magnesium aluminate spinel crystals induced by electron or ion irradiation, <i>T. Soeda, S. Matsumura, C. Kinoshita and N.J. Zaluzec</i>	952
Section 9. Materials for near term devices, facilities and test techniques	
Design and fabrication methods of FW/blanket, divertor and vacuum vessel for ITER, <i>K. Ioki, V. Barabash, A. Cardella, F. Elio, C. Ibbott, G. Jameschitz, G. Johnson, G. Kalinin, N. Miki, M. Onozuka, G. Sannazzaro, R. Tivey, Y. Utin and M. Yamada</i>	957
Status of international collaborative efforts on selected ITER materials, <i>V.A. Belyakov, S.A. Fabritsiev, I.V. Mazul and A.F. Rowcliffe</i>	962
Russian superconducting materials for magnet systems of fusion reactors, <i>A. Shikov, A. Nikulin, V. Panytsyrnyi, A. Vorobieva, G. Vedernikov, A. Silaev, E. Dergunova, S. Soudiev and I. Akimov</i>	968
Mechanical properties of the ITER central solenoid model coil insulation under static and dynamic load after reactor irradiation, <i>K. Humer, P. Rosenkranz, H.W. Weber, P.E. Fabian and J.A. Rice</i>	973
Fracture behavior of high-strength, high-conductivity copper alloys, <i>M. Li, J.K. Heuer, J.F. Stubbins and D.J. Edwards</i>	977
Evaluation of the deformation fields and bond integrity of Cu/SS joints, <i>J.F. Stubbins, J. Collins and J. Min</i>	982
Ductility correlations between shear punch and uniaxial tensile test data, <i>M.B. Toloczko, M.L. Hamilton and G.E. Lucas</i>	987
Confocal microscopy–fracture reconstruction and finite element modeling characterization of local cleavage toughness in a ferritic/martensitic steel in subsized Charpy V-notch impact tests, <i>T. Yamamoto, G.R. Odette, G.E. Lucas and H. Matsui</i>	992

Irradiation–coupling techniques using JMTR and another facility, <i>Y. Matsui, Y. Itahashi, M. Shimizu and H. Tsuji</i>	997
How to improve the irradiation conditions for the International Fusion Materials Irradiation Facility, <i>E. Daum</i>	1001
High-sensitivity quadrupole mass spectrometry system for the determination of hydrogen in irradiated materials, <i>B.M. Oliver, F.A. Garner, L.R. Greenwood and J.A. Abrefah</i>	1006
Neutron irradiation hardening of ODS alloy tested by miniature disk bend test method, <i>C.Q. Chen, J.G. Sun and Y.C. Xu</i>	1011
Specimen size effects on the tensile properties of JPCA and JFMS, <i>Y. Kohno, A. Kohyama, M.L. Hamilton, T. Hirose, Y. Katoh and F.A. Garner</i>	1014
Effect of specimen size on fatigue properties of reduced activation ferritic/martensitic steels, <i>T. Hirose, H. Sakasegawa, A. Kohyama, Y. Katoh and H. Tanigawa</i>	1018
Development of a small specimen test machine to evaluate irradiation embrittlement of fusion reactor materials, <i>T. Ishii, M. Ohmi, J. Saito, T. Hoshiya, N. Ooka, S. Jitsukawa and M. Eto</i>	1023
Damage mechanisms and fracture toughness of GlidCop® CuAl25 IG0 copper alloy, <i>S. Tähtinen, A. Laukkanen and B.N. Singh</i>	1028
Section 10. Plasma facing and high heat flux materials and components	
Hydrogen and deuterium transport and inventory parameters through W and W-alloys for fusion reactor applications, <i>G. Benamati, E. Serra and C.H. Wu</i>	1033
Deuterium retention in tungsten and molybdenum, <i>S. Nagata and K. Takahiro</i>	1038
Tritium permeation experiment using a tungsten armored divertor-simulating module, <i>H. Nakamura, S. O'hira, W. Shu, M. Nishi, T.J. Venhaus, R.A. Causey, D.R. Hyatt and R.S. Willms</i>	1043
Depth profile of tritium in plasma exposed CX-2002U, <i>T. Tadokoro, K. Isobe, S. O'hira, W. Shu and M. Nishi</i>	1048
Hydrogen absorption process into graphite and carbon materials, <i>H. Atsumi and M. Iseki</i>	1053
Removal of deuterium from co-deposited carbon–silicon layers, <i>M. Balden and M. Mayer</i>	1057
Effect of carbon pre-implantation on deuterium retention in tungsten, <i>M. Poon, J.W. Davis and A.A. Haasz</i>	1062
Manufacturing and testing of a prototypical divertor vertical target for ITER, <i>M. Merola, L. Plöchl, Ph. Chappuis, F. Escourbiac, M. Grattarola, I. Smid, R. Tivey and G. Vieider</i>	1068
Tungsten filament mock-ups for gas box liner, <i>C. Cazzola, J. Boscaro and R. Matera</i>	1073
The behavior of coatings and SiC _f /SiC composites under thermal shock, <i>J. Yu, Z. Yao, G. Yu, F. Chu, X. Tang, Y. Zeng and T. Noda</i>	1077
Infrared characterization and high heat flux testing of plasma sprayed layers, <i>Ph. Chappuis, F. Escourbiac, M. Chantant, M. Febvre, M. Grattarola, M. Bet, M. Merola and B. Riccardi</i>	1081
The removal of ion implanted deuterium from tungsten and stainless steel by transferred-arc cleaning, <i>K.J. Hollis, R.G. Castro, C.J. Maggiore and A. Ayala</i>	1085
Graphite–tungsten twin limiters in studies of material mixing processes on high heat flux components, <i>M. Rubel, T. Tanabe, V. Philipps, B. Emmoth, A. Kirschner, J. von Seggern and P. Wienhold</i>	1089
Codeposition of deuterium ions with beryllium oxide at elevated temperatures, <i>A.V. Markin, V.P. Dubkov, A.E. Gorodetsky, M.A. Negodaev, N.V. Rozhanskii, F. Scaffidi-Argentina, H. Werle, C.H. Wu, R.Kh. Zalavudinov and A.P. Zakharov</i>	1094
Sputtering studies of beryllium with helium and deuterium using molecular dynamics approach, <i>S. Ueda, T. Ohsaka and S. Kuwajima</i>	1100
Effects of plasma disruption events on ITER first wall materials, <i>A. Cardella, H. Gorenflo, A. Lodato, K. Ioki and R. Raffray</i>	1105
Erosion mechanisms and products in graphite targets under simulated disruption conditions, <i>F. Scaffidi-Argentina, V. Safronov, I. Arkhipov, N. Arkhipov, V. Bakhtin, V. Barsuk, S. Kurkin, E. Mironova, D. Toporkov, S. Vasenin, H. Werle, H. Würz and A. Zhitlukhin</i>	1111
Development of functionally graded plasma-facing materials, <i>C.-C. Ge, J.-T. Li, Z.-J. Zhou, W.-B. Cao, W.-P. Shen, M.-X. Wang, N.-M. Zhang, X. Liu and Z.-Y. Xu</i>	1116
Changes of composition and microstructure of joint interface of tungsten coated carbon by high heat flux, <i>K. Tokunaga, T. Matsubara, Y. Miyamoto, Y. Takao, N. Yoshida, N. Noda, Y. Kubota, T. Sogabe, T. Kato and L. Plöchl</i>	1121
Application of tungsten for plasma limiters in TEXTOR, <i>T. Tanabe, M. Wada, T. Ohgo, V. Philipps, M. Rubel, A. Huber, J. von Seggern, K. Ohya, A. Pospieszczyk, B. Schweer and TEXTOR team</i>	1128
Microstructure evolution in tungsten during low-energy helium ion irradiation, <i>H. Iwakiri, K. Yasunaga, K. Morishita and N. Yoshida</i>	1134
TEM study on deuterium-irradiation-induced defects in tungsten and molybdenum, <i>T. Matsui, S. Muto and T. Tanabe</i>	1139
Microstructural development of neutron irradiated W–Re alloys, <i>Y. Nemoto, A. Hasegawa, M. Satou and K. Abe</i>	1144
Effect of neutron irradiation on thermal diffusivity of tungsten–rhenium alloys, <i>M. Fujitsuka, B. Tsuchiya, I. Mutoh, T. Tanabe and T. Shikama</i>	1148
High heat flux simulation experiments with improved electron beam diagnostics, <i>J. Linke, H. Bolt, R. Duwe, W. Kühnlein, A. Lodato, M. Rödiger, K. Schöpflin and B. Wiechers</i>	1152
Erosion characteristics of neutron-irradiated carbon-based materials under simulated disruption heat loads, <i>K. Sato, E. Ishitsuka, M. Uda, H. Kawamura, S. Suzuki, M. Taniguchi, K. Ezato and M. Akiba</i>	1157
Neutron-irradiation effects on high heat flux components – examination of plasma-facing materials and their joints, <i>M. Rödiger, R. Conrad, H. Derz, R. Duwe,</i>	

J. Linke, A. Lodato, M. Merola, G. Pott, G. Vieider and B. Wiechers	1161	Effect of neutron irradiation on mechanical properties of Cu/SS joints after single and multiple HIP cycles, S. Tähtinen, B.N. Singh and P. Toft	1238
Effect of ITER components manufacturing cycle on the irradiation behaviour of 316L(N)-IG steel, B.S. Rodchenkov, V.I. Prokhorov, O.Yu. Makarov, V.K. Shamardin, G.M. Kalinin, Yu.S. Strebkov and O.A. Golosov	1166	High temperature residual strain measurements in a brazed sample for NET/ITER, R. Coppola, C. Nardi and B. Riccardi	1243
Hydrodynamic effects of eroded materials of plasma-facing component during a Tokamak disruption, A. Hassanein and I. Konkashbaev	1171	Armor and heat sink materials joining technologies development for ITER plasma facing components, V. Barabash, M. Akiba, A. Cardella, I. Mazul, B.C. Odegard Jr., L. Plöchl, R. Tivey and G. Vieider	1248
Structure of materials deposited on the plasma facing surface in TRIAM-1M tokamak and the effect on hydrogen recycling, T. Hirai, T. Fujiwara, K. Tokunaga, N. Yoshida, A. Komori, O. Motojima, S. Itoh and TRIAM group	1177	Refractory metal joining for first wall applications, C.H. Cadden and B.C. Odegard Jr.	1253
Simulation study of carbon and tungsten deposition on W/C twin test limiter in TEXTOR-94, K. Ohya, R. Kawakami, T. Tanabe, M. Wada, T. Ohgo, V. Philipps, A. Pospieszczyk, B. Schweer, A. Huber, M. Rubel, J. von Seggern and N. Noda	1182	Joining of silicon carbide composites for fusion energy applications, C.A. Lewinsohn, M. Singh, T. Shibayama, T. Hinoki, M. Ando, Y. Katoh and A. Kohyama	1258
Section 11. Joining, joints, coatings and corrosion		Microstructure and mechanical properties of low-activation glass-ceramic joining and coating for SiC/SiC composites, Y. Katoh, M. Kotani, A. Kohyama, M. Montorsi, M. Salvo and M. Ferraris	1262
Characterization of low-activation ferritic steel (JLF-1) weld joint by simulated heat-treatments, N. Inoue, T. Muroga, A. Nishimura, T. Nagasaka, O. Motojima, S. Uchida, H. Yabe, K. Oguri, Y. Nishi, Y. Katoh and A. Kohyama	1187	Magnetic field effect on deposition of corrosion products in liquid Pb-17Li, F. Barbier	1267
Effects of thermal aging on the mechanical behavior of F82H weldments, A. Alamo, A. Castaing, A. Fontes and P. Wident	1192	The hydrogen permeation behaviour of aluminised coated martensitic steels under gaseous hydrogen, liquid Pb-17Li/hydrogen and cyclic tensile load, T. Sample, A. Perujo, H. Kolbe and B. Mancinelli	1272
Diffusion welding parameters and mechanical properties of martensitic chromium steels, K. Schleisiek, T. Lechler, L. Schäfer and P. Weimar	1196	Development of electrically insulating coatings for service in a lithium environment, K. Natesan, M. Uz and S. Wieder	1277
Post-irradiation mechanical tests on F82H EB and TIG welds, J. Rensman, E.V. van Osch, M.G. Horsten and D.S. d'Hulst	1201	Corrosion of V-Ti-Cr alloys in liquid lithium: influence of alloy composition and concentration of nitrogen in lithium, O.I. Eliseeva, V.N. Fedirko, V.M. Chernov and L.P. Zaviatsky	1282
The effect of laser welding process parameters on the mechanical and microstructural properties of V-4Cr-4Ti structural materials, C.B. Reed, K. Natesan, Z. Xu and D.L. Smith	1206	The permeation of tritium through 316L stainless steel with multiple coatings, Z. Yao, J. Hao, C. Zhou, C. Shan and J. Yu	1287
Re-weldability tests of irradiated austenitic stainless steel by a TIG welding method, K. Tsuchiya, H. Kawamura and G. Kalinin	1210	The oxidation kinetics of Incoloy 800 and its deuterium permeation behavior, A. Perujo, J. Reimann, H. Feuerstein and B. Mancinelli	1292
Radiation resistance of weld joints of type 316 stainless steel containing about 10 appm He, S.A. Fabritsiev and A.S. Pokrovsky	1215	Effects of thin films on inventory, permeation and re-emission of energetic hydrogen, N. Ohyabu, Y. Nakamura, Y. Nakahara, A. Livshits, V. Alimov, A. Busnyuk, M. Notkin, A. Samartsev and A. Doroshin	1297
Effect of weld thermal cycle and restraint stress on helium bubble formation in stainless steels, S. Kawano, K. Fukuya, F. Kano, M. Satou, A. Hasegawa and K. Abe	1220	Scale structure of aluminised Manet steel after HIP treatment, H. Glasbrenner, K. Stein-Fechner and J. Konys	1302
Furnace brazing type 304 stainless steel to vanadium alloy (V-5Cr-5Ti), R.V. Steward, M.L. Grossbeck, B.A. Chin, H.A. Aglan and Y. Gan	1224	A microstructural study of the oxide scale formation on ODS Fe-13Cr steel, D.T. Hoelzer, B.A. Pint and I.G. Wright	1306
Effects of heat treatments on microstructure changes in the interface of Cu/SS316L joint materials, Q. Xu, D.J. Edwards and T. Yoshiie	1229	Oxidation and hardness profile of V-Ti-Cr-Si-Al-Y alloys, M. Fujiwara, M. Satou, A. Hasegawa and K. Abe	1311
Low cycle fatigue strength of diffusion bonded joints of alumina dispersion-strengthened copper to stainless steel, H. Nishi and T. Araki	1234	Performance of V-Cr-Ti alloys in a hydrogen environment, K. Natesan and W.K. Soppet	1316
		Compatibility of AlN with liquid lithium, T. Terai, A. Suzuki, T. Yoneoka and T. Mitsuyama	1322
		Compatibility of structural candidate materials with LiF-BeF ₂ molten salt mixture, H. Nishimura, T. Terai, T. Yoneoka, S. Tanaka, A. Sagara and O. Motojima	1326

Corrosion of ferritic-martensitic steels in the eutectic Pb-17Li, H. Glasbrenner, J. Konys, H.D. Röhrig, K. Stein-Fechner and Z. Voss	1332	M.I. Solonin, Yu.E. Markushkin, V.A. Gorokhov, V.V. Gorlevsky and G.N. Nikolaev	1409
Liquid metal embrittlement (LME) susceptibility of the 8-9% Cr martensitic steels F82H-mod., OPTIFER IVb and their simulated welded structures in liquid Pb-17Li, T. Sample and H. Kolbe	1336	Improvement of the model for surface process of tritium release from lithium oxide, D. Yamaki, A. Iwamoto and S. Jitsukawa	1414
Water corrosion of F82H-modified in simulated irradiation conditions by heat treatment, J. Lapeña and F. Blázquez	1341	Tritium release from neutron-irradiated Li ₂ O sintered pellets: porosity dependence, T. Tanifuji, D. Yamaki, T. Takahashi and A. Iwamoto	1419
Copper corrosion and activation in water cooling loops under fusion irradiation conditions, P.J. Karditsas, S.M. Ali and D. Wan	1346	ITER structural design criteria and their extension to advanced reactor blankets, S. Majumdar and G. Kalinin	1424
In-pile tritium-permeation measurements on T91 tubes with double walls or a Fe-Al/Al ₂ O ₃ coating, R. Conrad, K. Bakker, C. Chabrol, M.A. Fütterer, J.G. van der Laan, E. Rigal and M.P. Stijkel	1351	Materials and fabrication technology of modules intended for irradiation tests of blanket tritium-breeding zones in Russian fusion reactor projects, V. Kapychev, D. Davydov, V. Gorokhov, A. Ioltukhovskiy, Yu. Kazennov, V. Tebus, V. Frolov, A. Shikov, N. Shishkov, V. Kovalenko, N. Shishkin and Yu. Strebkov	1429
Impurity effects on gas tungsten arc welds in V-Cr-Ti alloys, M.L. Grossbeck, J.F. King and D.T. Hoelzer	1356	Section 13. Safety, transmutation, activation and waste management issues	
Section 12. Blanket materials and engineering		Measurement and analysis of radioactivity induced in steels and a vanadium alloy by 14-MeV neutrons, D. Richter, R.A. Forrest, H. Freiesleben, Va.D. Kovalchuk, Vi.D. Kovalchuk, D.V. Markovskij, K. Seidel, V.I. Tereshkin and S. Unholzer	1434
Behaviour of Li ₂ ZrO ₃ and Li ₂ TiO ₃ pebbles relevant to their utilization as ceramic breeder for the HCPB blanket, J.D. Lulewicz, N. Roux, G. Piazza, J. Reimann and J. van der Laan	1361	Accelerated helium and hydrogen production in ⁵⁴ Fe doped alloys – measurements and calculations for the FIST experiment, L.R. Greenwood, B.M. Oliver, S. Ohnuki, K. Shiba, Y. Kohno, A. Kohyama, J.P. Robertson, J.W. Meadows and D.S. Gelles	1438
Study of the tritium behavior on the surface of Li ₂ O by means of work function measurement, T. Yokota, A. Suzuki, K. Yamaguchi, T. Terai and M. Yamawaki	1366	Compositional optimisation of silicon carbide for various fusion blanket designs, C.B.A. Forty	1443
Multiplier, moderator, and reflector materials for advanced lithium-vanadium fusion blankets, Y. Gohar and D.L. Smith	1370	Experimental study on beryllium-7 production via sequential reactions in lithium-containing compounds irradiated by 14 MeV neutrons, F. Maekawa, Y.M. Verzilov, D.L. Smith and Y. Ikeda	1448
On the use of tin-lithium alloys as breeder material for blankets of fusion power plants, M.A. Fütterer, G. Aiello, F. Barbier, L. Giancarli, Y. Poitevin, P. Sardain, J. Szczepanski, A. Li Puma, G. Ruvutuso and G. Vella	1375	Material composition and nuclear data libraries' influence on nickel-chromium alloys activation evaluation: a comparison with decay heat experiments, D.G. Ceperaga and G. Cambi	1453
Development of wet process with substitution reaction for the mass production of Li ₂ TiO ₃ pebbles, K. Tsuchiya and H. Kawamura	1380	Oxidation and volatilization of TZM alloy in air, G.R. Smolik, D.A. Petti and S.T. Schuetz	1458
Chemical reactivity of SiC fibre-reinforced SiC with beryllium and lithium ceramic breeder materials, H. Kleykamp	1385	Steam chemical reactivity of Be pebbles and Be powder, R.A. Anderl, F. Scaffidi-Argentina, D. Davydov, R.J. Pawelko and G.R. Smolik	1463
On the mechanisms associated with the chemical reactivity of Be in steam, D.A. Petti, G.R. Smolik and R.A. Anderl	1390	Present status and future prospect of the Russian program for fusion low-activation materials, M.I. Solonin, V.M. Chernov, V.A. Gorokhov, A.G. Ioltukhovskiy, A.K. Shikov and A.I. Blokhin	1468
Post-irradiation examinations of Li ₄ SiO ₄ pebbles irradiated in the EXOTIC-7 experiment, G. Piazza, F. Scaffidi-Argentina and H. Werle	1396	Waste management for different fusion reactor designs, P. Rocco and M. Zucchetti	1473
Effects of helium production and radiation damage on tritium release behavior of neutron-irradiated beryllium pebbles, E. Ishitsuka, H. Kawamura, T. Terai and S. Tanaka	1401	Author index Parts A and B	1479
XPS and UPS studies on electronic structure of Li ₂ O, S. Tanaka, M. Taniguchi and H. Tanigawa	1405	Subject index Parts A and B	1501
Development of materials and fabrication of porous and pebble bed beryllium multipliers, D.A. Davydov,			