

Category	No.	Author	Affiliation	Country of Origin	Abstract Title
1a-Ferriitic Steels	1	Hoon Lee1*, Mark Warren2, Xiang Liu1, Zhengrong Lee2, Huan Yan1, Kuan-Che Lan1, Joshua Wright3, Meimei Li3, Jonathan Almer3, Jeff Terry2, James F. Stubbins1	1University of Illinois at Urbana-Champaign, Urbana, IL 61801, USA. 2Institute of Technology, Chicago, IL 60616, USA 3Argonne National Laboratory, Lemont, IL 60439, USA	US	In-situ Synchrotron X-ray Diffraction Study on Mechanical deformations of Neutron Irradiated Fe-Cr-C Alloys
1a-Ferriitic Steels	3	Young-Bum Chun1*, Dong-Won Lee2, Yi-Hyun Park3	1Advanced Materials Development Team, Korea Atomic Energy Research Institute, Daejeon, 34057 South Korea 2Nuclear Fusion Technology Development Division, Korea Atomic Energy Research Institute, Daejeon, 34057 South Korea 3ITER Team, National Fusion Research Institute, Daejeon, 34133 South Korea	South Korea	ENHANCED MECHANICAL PROPERTIES OF ARAA BY TYPE IIIa THERMO-MECHANICAL TREATMENTS
1a-Ferriitic Steels	4	Chang-Hoon Lee1*, Joonoh Moon1, Tae-Ho Lee1, Seong-Jun Park1, Hyun-Uk Hong2, Chansun Shin3, Dong-Chan Jang4, Myoung-Gyu Lee5, and Hyoung Chan Kim6	1Korea Institute of Materials Science, Changwon, 51508, Republic of Korea 2Changwon National University, Changwon, 51140, Republic of Korea 3Myoungji University, Yongin, 17058, Republic of Korea 4Korea Advanced Institute of Science and Technology, Daejeon, 34141, Republic of Korea 5Seoul National University, Seoul, 08826, Republic of Korea 6National Fusion Research Institute, Daejeon, 34133, Republic of Korea	South Korea	Ta and Ti added RAFM steel with enhanced mechanical properties and resistance to irradiation
1a-Ferriitic Steels	5	C. Cristallini*, L. Pilloni2, O. Tassa3, L. Bozzetto3	1 ENEA, Brasimone 40032, Camugnano (BO), Italy 2 ENEA, Casaccia, Via Anguillarese 301 00123 S. Maria di Galeria (Rome) 3 Rina Consulting - Centro Sviluppo Materiali S.p.A., Via di Castel Romano 100, 00128, Rome	Italy	Mechanical properties of several newly produced RAFM steels with Tungsten content in the range of 2 wt. %
1a-Ferriitic Steels	6	Qunying Huang*, FDS Team	Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China	China	DEVELOPMENT AND STRATEGY ON CLAM STEEL FOR ITS ENGINEERING APPLICATION
1a-Ferriitic Steels	7	Kevin G. Field1*, Arunodaya Bhattacharya1, Dalong Zhang1,2, Kun Wang1,3, David T. Hoelzer1, Josina W. Geringer1, Yutai Katoh1	1 Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA 2 Now at Pacific Northwest National Laboratory, Richland, WA, 99354 USA 3 Now at Alfred University, Alfred, NY 37831 USA	US	STRUCTURE-PROPERTY RELATIONSHIPS FOR 12-18%Cr ODS AND 9% Cr RAFM STEELS IRRADIATED TO HIGH DOSE (> 40 DPA) AT FUSION RELEVANT TEMPERATURES
1a-Ferriitic Steels	8	Anne A. Campbell1*, J. Wilna Geringer1, Yutai Katoh1, Masami Ando2, Dai Hamaguchi2	1Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA 2National Institutes for Quantum and Radiological Science and Technology, Japan	US, Japan	IRRADIATION CREEP OF F82H MEASURED USING PRESSURIZED TUBES IRRADIATED IN THE HFIR
1a-Ferriitic Steels	10	Sho Kano1, Huilong Yang1, John McGrady1, Dai Hamaguchi2, Masami Ando2, Hiroyasu Tanigawa2 and Hiroaki Abe1	1Nuclear Professional School, The University of Tokyo, Nakagun-tokaimura, 319-1188 Japan 2National Institutes for Quantum and Radiological Science and Technology, Kamikitagun-rokkasho, 039-3212 Japan	Japan	The amorphization of M23C6 in RAFM steel under ion accelerator irradiation
1a-Ferriitic Steels	11	Niyanth Sridharan1*, Kevin G. Field1	1 Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN 37830	US	A ROAD MAP TO DEVELOP AND PROCESS FERRITIC MARTENSITIC STEELS FOR FUSION REACTORS USING ADDITIVE MANUFACTURING
1a-Ferriitic Steels	12	R. Coppola1*, D. Mirabile Gattia2, T. Mueller3, L. Pilloni2, A. Radulescu3	1 ENEA-Casaccia, FSN-SICNUC, Via Anguillarese 301, 00123 Roma, Italy 2 ENEA-Casaccia, S5TP-PROMAS-MATPRO, Via Anguillarese 301, 00123 Roma, Italy	Italy	SANS AND NEUTRON DIFFRACTION STUDY OF EUROFER97/2 STEEL SUBMITTED TO THERMO-MECHANICAL TREATMENTS
1a-Ferriitic Steels	13	Gabriel Spartacus1*, Joel Malaplate1, Denis Sornin1, Frederic de Geuser2, Alexis Deschamps2	1Materials Department, CEA Saclay, 91191 Gif-sur-Yvette, France 2SIMAP, Grenoble INP – CNRS – UGA, Saint Martin d'Hères Cedex 38402, France	France	Evolution of precipitation kinetics and chemistry of oxide dispersion strengthened steels throughout thermal treatment representative of the fabrication process
1a-Ferriitic Steels	14	Mengtian Liang, Yanyun Zhao, Shaojun Liu* Yican Wu, Qunying Huang, FDS Team	Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, 230031, China	China	IMPROVEMENT OF LOW CYCLE FATIGUE PROPERTIES OF CLAM STEEL BY GENERATING A GRADIENT NANOGRAINED SURFACE LAYER
1a-Ferriitic Steels	16	Joonoh Moon1*, Chang-Hoon Lee1, Tae-Ho Lee1, Seong-Jun Park1, Hyoung Chan Kim2	1Korea Institute of Materials Science, Changwon, 51508, Republic of Korea 2National Fusion Research Institute, Daejeon, 34133, Republic of Korea	South Korea	Development of Ta-Ti containing RAFM steel and its weldability
1a-Ferriitic Steels	18	Lei Peng1*, Yao Xie1, Wangzi Zhang1, Hongbin Liao2, Jingyi Shi3	1University of Science and Technology of China, Hefei, 230027, China 2Southwestern Institute of Physics, Chengdu, China 3Shenzhen University, Shenzhen, 518060, China	China	Temperature impact on fracture toughness of CLF-1 steel
1a-Ferriitic Steels	20	Yoshitaka Matsukawa1,2*, Sho Kano3, Akira Oba2, Hisashi Serizawa4, Hiroaki Muta5, Hideo Sakasegawa6, Hiroyasu Tanigawa6, Hiroaki Abe3, Sadahiro Tsurekawa1	1Division of Materials Science, Faculty of Advanced Science and Technology, Kumamoto University, Kumamoto 860-8555, Japan. 2Institut for Materials Research, Tohoku University, Sendai 980-8577, Japan. 3School of Engineering, Nuclear Professional School, The University of Tokyo, Tokai 319-1188, Japan. 4Joining & Welding Research Institute, Osaka University, Ibaraki 567-0047, Japan. 5 Division of Sustainable Energy & Environmental Engineering, Osaka University, Suita 565-0871, Japan. 6National Institute for Quantum and Radiological Science and Technology, Rokkasho 039-3212, Japan.	Japan	CRYSTAL STRUCTURE ANALYSIS OF F82H FERRITIC/MARTENSITIC STEELS: FERRITE OR MARTENSITE?
1a-Ferriitic Steels	21	Yanyun Zhao*, Mengtian Liang, Huang Bo, Shaojun Liu, Yican Wu, Qunying Huang, FDS Team	Institute of Nuclear Energy Safety Technology, Chinese Academy of Science, Hefei, Anhui, 230031, China	China	FATIGUE CHARACTERIZATION AND MODELING OF CLAM STEEL UNDER MULTI-AXIAL NON-PROPORTIONAL CYCLE LOADING
1a-Ferriitic Steels	23	Keiji Oishi1*, Shinichi Inoue1*, Kazuhiro Fudemae1*, Rika Ishioka1*, Takayuki Terai1*	1School of Engineering. The University of Tokyo, Yayoi, Tokyo, 113-0032, Japan	Japan	Compatibility between Fusion Reactor Blanket Structure Material F82H and Solid Breeder Lithium Meta-Titanates
1a-Ferriitic Steels	24	Hiroyasu Tanigawa1*, Masami Ando1, Yutai Katoh2, Naoyuki Hashimoto, Takuya Nagasaka4	1National Institutes for Quantum and Radiological Science and Technology (QST), Rokkasho, Aomori, 039-3212 Japan 2Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA 3Hokkaido University, Sapporo, Hokkaido, 060-0808 Japan 4National Institute for Fusion Science, Toki, Gifu, 509-5292 Japan	Japan, US	NEW INSIGHTS ON THE HARDENING MECHANISMS IN IRRADIATED RAFM STEELS
1a-Ferriitic Steels	25	Sergey Rogozhkin1,2*, Alexander Nikitin1,2, Artem Khomich1, Nasib Iskandarov1, Vasily Khoroshilov1, Anton Lukanichuk1, Oleg Raznitsyn1, Anton Shutov1, Petr Fedin1, Timur Kulevoy1, Alexander Vasiliev3, Michael Presniakov3, Komstantin Kravchuk4, Mariya Leontyeva-Smirnova5, Evgeny Mozhanov5, Rainer Lindau6, Anton Möslang6, Pavel Vladimirov6	1NRC«Kurchatov Institute» – ITEP, Moscow, 117218 Russia 2National Research Nuclear University "MEPhI", Moscow, 115409 Russia 3NRC «Kurchatov Institute», Moscow, 123182 Russia 4Technological Institute for Superhard and Novel Carbon Materials, Moscow, 108840 Russia 5Bochar High Technology Research Institute of Inorganic Materials, Moscow, 123098 Russia 6Karlsruhe Institute of Technology, Karlsruhe, 76344 Germany	Russia, Germany	EFFECT OF Fe ION IRRADIATION ON MICROSTRUCTURE AND NANOIDENTATION HARDNESS OF FERRITIC/MARTENSITIC STEELS AT LOW TEMPERATURES
1a-Ferriitic Steels	26	Lizhen Tan*, Jonathan D. Poplawsky, Arunodaya Bhattacharya	Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA	US	CHARACTERIZATION OF CASTABLE NANOSTRUCTURED ALLOYS USING APT AND TEM
1a-Ferriitic Steels	27	Lizhen Tan1*, Tim Graening2, Ying Yang1, Yutai Katoh1	1Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA 2Karlsruhe Institute of Technology, Karlsruhe, 76131 Germany	US, Germany	DEVELOPMENT OF CASTABLE NANOSTRUCTURED ALLOYS AS U.S. REDUCED-ACTIVATION FERRITIC-MARTENSITIC STEEL

1a-Ferriitic Steels	28	Tim Graening1*, Arunodaya Bhattacharya2, Xiang Chen2, Josina Wilna Geringer2, Michael Rieth1, Yutai Katoh2	1Karlsruhe Institute of Technology, Karlsruhe, 76131 Germany 2Oak Ridge National Laboratory, Oak Ridge, 37830, USA	Germany, US	Impact of the chemical composition of three EUROFER97 steel variants on the microstructure before and after neutron irradiation
1a-Ferriitic Steels	29	Yiyin Shan1*, Chao Liu1, Wei Yan1, Yanfen Li1	1Key Laboratory of Nuclear Materials and Safety Assessment, Institute of Metal Research, Chinese Academy of Sciences, Shenyang 110016, China	China	HOT DEFORMATION BEHAVIOR OF A NEW NUCLEAR USE REDUCED ACTIVATION FERRITIC/MARTENSITIC STEEL
1a-Ferriitic Steels	30	K. Wang1, 2*, K. G. Field1, C. M. Parish1, L. Tan1, Y. Katoh1, Hiroyasu Tanigawa3	1Oak Ridge National Laboratory, Oak Ridge, TN 37830, USA 2Now at Alfred University, Alfred, NY 14802, USA 3National Institute for Quantum and Radiological Science and Technology, Aomori, 039-3212, Japan	US, Japan	MICROSTRUCTURAL EVOLUTION OF REDUCED ACTIVATION FERRITIC/MARTENSITIC (RAFMs) STEELS AFTER NEUTRON-IRRADIATION UP TO 72 DPA
3d Testing (Move to 1a RAFM)	31	Sangeun Kim1, Hyung-Ha Jin2, Joonoh Moon3, Chang-Hoon Lee3, Chansun Shin1*	1Department of Materials Science and Engineering, Myongji University, Yongin, 17058, Republic of Korea 2Nuclear Materials Division, Korea Atomic Energy Research Institute, Daejeon, 34057, Republic of Korea 3Ferrous Alloy Department, Korea Institute of Materials Science, Changwon, 51508, Republic of Korea	South Korea	ION-IRRADIATION HARDENING AND SWELLING OF Ti/Ta-added RAFM STEEL
1a-Ferriitic Steels	32	Yasuhide Yano*, Takashi Tanno, Hiroshi Oka, Yoshihiro Sekio, Satoshi Ohtsuka, Takeji Kaito and Yoshiaki Tachi	Japan Atomic Energy Agency, 4002 Narita-cho, Oarai-machi, Ibaraki, 311-1393, Japan	Japan	Tensile properties on dissimilar welds between 11Cr-ferritic/martensitic steel and 316 stainless steel after thermal aging
1a-Ferriitic Steels	33	M. Ando1, H. Tanigawa1, T. Nozawa1, Y. Katoh2, H. Kurotaki1	1 National Institutes for Quantum and Radiological Science and Technology, 039-3212, Japan, 2Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA	Japan, US	THE μ -TENSILE DEFORMATION BEHAVIOR OF SINGLE BLOCK STRUCTURE OF F82H IRRADIATED AT 573K
1a-Ferriitic Steels	34	Simon Bonk1*, Heiko Neuberger2, Steffen Antusch1, Jan Hoffmann1, Jens Reiser1, Alexander Klein1, Dorit Nötzel1, Kilian Pursche1, Michael Rieth1	1Karlsruhe Institute of Technology, Institut für Applied Materials, Eggenstein-Leopoldshafen, 76344 Germany 2Karlsruhe Institute of Technology, Institute for Neutron Physics and Reactor Technology, Eggenstein-Leopoldshafen, 76344 Germany	Germany	Additive manufacturing technologies for EUROFER components
1a-Ferriitic Steels	35	Hongbin Liao1*, Xiaoyu Wang1, Xinghua Wu1, Zhiqiang Hu1, Guoping Yang1, Qin Chao1, Xueqing Wang1, Shikai Wu2, Liangying Xiong3	1 Southwestern Institute of Physics, Chengdu, 610041, China, 2Institute of Laser Engineering, Beijing University of Technology, Beijing 100124 China, 3Institute of Metals Chinese Academy of Sciences, Shenyang, 110016, China	China	The recent welding technologies research progress of CLF-1 steel
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1b-ODS	1	Sebastien Dryepondt1*, Caleb P. Massey2, Kinga A. Unocic1, Phil D. Edmonson1, Ying Yang1	1Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA 2University of Tennessee, Knoxville, TN 37996, USA	US	LONG-TERM CREEP RESISTANT ODS FeCrAlZr ALLOYS WITH IMPROVED Pb-Li COMPATIBILITY
1b-ODS	2	Pengfei Zheng1*, Jiming Chen1, Shouhua Sun2, Xiaoqiang Li3, Tielong Shen4, Yugang Wang5, Haiying Fu1, Ran Wei1, Liwen Zhang1, Xing Liu1, Engang Fu5, Yong Dai6	1Southwestern Institute of Physics, Chengdu, 610041 China, 2Nuclear Power Institute of China, Chengdu, 610041 China, 3Northwestern Polytechnical University, Xi'an, 710129 China, 4Institute of Modern Physics, Chinese Academy of Sciences, Lanzhou, 730000 China, 5School of Physics, Peking University, Beijing, 100871, China, 6Laboratory for Nuclear Materials, Paul Scherrer Institute, CH-5232 Villigen PSI, Switzerland,	China, Switzerland	SELECTION OF ADVANCED FUSION MATERIALS FOR COMPREHENSIVE NEUTRON IRRADIATION TESTS USING SMALL SAMPLES IN CHINA
1b-ODS	3	Bing Bai1*, Roger Brun2, Yong Dai2	1China Institute of Atomic Energy, Beijing, 102413 China 2Spallation Neutron Source Division, Paul Scherrer Institut, CH-5232 Villigen PSI, Switzerland	China, Switzerland	Positron annihilation spectroscopy of ODS Eurofer97 irradiated in spallation target at PSI
1b-ODS	4	Haoran Wang1*, Hao Yu1, Yuchen Liu1, Sosuke Kondo1, Ryuta Kasada1	1Institute for material research, Sendai, 980-8577, Japan	Japan	Development of Fe-Mn-Al-Cr-C type austenitic steels for fusion application
1b-ODS	5	Liangliang Song*, Xinyi Yang, Yanyun Zhao, Shaojun Liu, Xiaodong Mao, Qunying Huang, Yican Wu, FDS Team	Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, 230031, China	China	A Y-Si-O STRENGTHENED 9CR ODS STEEL DESIGNED FOR HIGH TEMPERATURE APPLICATION IN ADVANCED NUCLEAR REACTOR
1b-ODS	6	Hiroaki Abe1*, Sho Kano1, Huihong Yang1, John McGrady1, Sun-ryun Oh1, Feng Li2, Hidehiro Yasuda 3	1The University of Tokyo, Tokai, Ibaraki 319-1188 Japan 2Japan Atomic Energy Agency, Tokai, Ibaraki 319-1184 Japan 3Osaka University, Osaka 5670047, Japan	Japan	On the stability of oxide/carbide nm-scale particles in ODS and F82H steels under irradiation; a review of in-situ observation studies in HVEM
1b-ODS	8	R. Coppola1*, P. He2, M. Klimenkova3	1 ENEA-Casaccia, FSN-SiCNUC, Via Anguillarese 301, 00123 Roma, Italy 2China Academy of Engineering Physics, Institute of Materials, Mianyang 621908, Chin 3KIT-IAM, Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany	Italy, China, Germany	SMALL-ANGLE NEUTRON SCATTERING (SANS) CHARACTERIZATION OF 13.5 Cr OXIDE DISPERSION STRENGTHENED FERRITIC/MARTENSITIC STEEL FOR FUSION APPLICATIONS
1b-ODS	9	Hyosim Kim1*, Tianyao Wang1, Jonathan G. Gigax1, Shigeharu Ukai2, Frank A. Garner1, Lin Shao1,	1Texas A&M University, College Station, TX77843, USA 2Hokkaido University, Hokkaido 060-0808, Japan	USA, Japan	MICROSTRUCTURAL EVOLUTION IN HELIUM PRE-IMPLANTATED DUAL-PHASE 12CR OXIDE DISPERSION STRENGTHENED ALLOY DURING SELF-ION IRRADIATION TO 100 DPA
1b-ODS	10	Jingjie Shen 1*, Takuya Nagasaka 1, Masayuki Tokitani 1, Takeo Muroga 1, Huihong Yang 2, Sho Kano 2, Hiroaki Abe 2	1 National Institute for Fusion Science, Toki, Gifu, 509-5292, Japan 2 The University of Tokyo, Tokai, Ibaraki, 319-1188, Japan	Japan	Comparisons of microstructures and mechanical properties between as-fabricated and recrystallized 12Cr ODS steel
1b-ODS	11	T. D. Shen1*, C. C. Du1, S. B. Jin2, Y. Fang3, Jin Li4, Shenyang Hu5, T. T. Yang1, Y. Zhang1, J. Y. Huang1, G. Sha2, Y. G. Wang3, Z. X. Shang4, X. Zhang4, B. R. Sun1, S. W. Xin1	1 Clean Nano Energy Center, State Key Laboratory of Metastable Materials Technology and Science, Yanshan University, Qinhuangdao 066004, China 2 Department of Materials Science and Engineering, Nanjing University of Science and Technology, Nanjing 210094, China 3 State Key Laboratory of Nuclear Physics and Technology, Center for Applied Physics and Technology, Peking University, Beijing 100871, China 4 School of Materials Engineering, Purdue University, West Lafayette, IN 47907, USA 5 Pacific Northwest National Laboratory, P. O. Box 999, Richland, WA 99352, USA	China, US	STABLE NANOCRYSTALLINE AUSTENITIC STAINLESS STEELS UNDER HIGH TEMPERATURE AND INTENSE IRRADIATION
1b-ODS	12	J. Macías, V. de Castro, M. A. Auger, T. Leguey*	Departamento de Física, Universidad Carlos III de Madrid, Avenida Universidad 30, 28911 Leganés (Madrid), Spain	Spain	THERMAL STABILITY OF HOT CROSS ROLLED ODS FERRITIC STEELS
1b-ODS	13	Ty C Austin1*, Steven J Zinkle1	1University of Tennessee, Knoxville, 37916, USA	US	Additive Manufacturing of ODS FeCrAl via in situ Oxidation
1b-ODS	14	Yanfen Li1*, Jingjie Shen3, Jiarong Zhang1, Guangquan Wang1,2, Feiyang Bao1,2, Wei Yan1, Quanqiang Shi1, Yiyin Shan1, Ke Yang1, Takuya Nagasaka3, Takeo Muroga3, Huihong Yang4, Sho Kano4, Hiroaki Abe4	1Institute for Materials Research Chinese Academy of Sciences, Shenyang, 110016, China 2University of Science and Technology of China, Hefei, 230026, China 3National Institute for Fusion Science, Toki, 509-5292, Japan 4School of Engineering, The University of Tokyo, Tokai, Ibaraki, 319-1188, Japan	China, Japan	THERMAL STABILITY BEHAVIOR FOR TWO MARTENSITIC AND FERRITIC ODS STEELS AT HIGH TEMPERATURE
1b-ODS	15	Huihong Yang1*, Sho Kano1, John McGrady1, Jingjie Shen2, Dongyue Chen1, Kenta Murakami3, Hiroaki Abe1	1The University of Tokyo, Tokaimura, 319-1188 Japan 2National Institute for Fusion Science, Toki, Gifu 509-5292, Japan 3Nagaoka University of Technology, Nagaoka-shi, Niigata, 940-2188 Japan	Japan	Effect of crystal orientation on hardness of Fe2+ ion irradiated 12Cr-ODS steel

1b-ODS	18	David Pazos1,2, Arturs Cintins3, Pilar Fernández4, Wilfredo García Vargas5, Andris Anspoks3, Jñigo Iturriza1,2, Nerea Ordás1,2*	1Ceit-ik4, 20018, Donostia-San Sebastián, Spain 2Universidad de Navarra, Tecnun, 20018, Donostia-San Sebastián, Spain 3Institute of Solid State Physics, University of Latvia, 1063 Riga, Latvia 4CIEMAT. National Fusion Laboratory. Technology Division. 28040. Madrid. Spain 5 TLS Technik GmbH & Co. Spezialpulver KG, 06749 Bitterfeld, Germany	Spain, Germany	EFFECT OF HOT ROLLING PARAMETERS ON THE MICROSTRUCTURE AND MECHANICAL PROPERTIES OF ODS FERRITIC STEELS PRODUCED WITH THE STARS ROUTE
1b-ODS	19	Caleb P. Massey1,2*, Sebastian N. Dryepont2, David T. Hoelzer2, Steven J. Zinkle1,2	1University of Tennessee, Knoxville, TN 37916, USA 2Oak Ridge National Laboratory, TN 37831, USA	US	PROCESSING-MICROSTRUCTURE-PROPERTIES RELATIONSHIPS: A COMPARISON BETWEEN FERRITIC ODS FeCr AND ODS FeCrAl ALLOYS
1b-ODS	21	G. D. Samolyuk*, Y. N. Osetsky	Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA	US	DFT MODELING OF THE EQUILIBRIUM DISTRIBUTION OF POINT DEFECTS IN SYSTEMS WITH PRECIPITATES USING Fe-Y-O AS A REPRESENTATIVE CASE
1b-ODS	22	Tim Graening1*, Rainer Ziegler1, Harald Leiste1, Michael Rieth1	1Karlsruhe Institute of Technology, Karlsruhe, 76131 Germany	Germany	Novel design approach to develop an austenitic dual precipitation strengthened steel
1b-ODS	23	Benjamin P Eftink1*, Tobias J Romero1, Matthew E Quintana1, David T Hoelzer2, Cheng Xu3, Tarik A Saleh1, Stuart A Maloy1	1Los Alamos National Laboratory, Los Alamos, 87545 USA 2Oak Ridge National Laboratory, Oak Ridge, 37830 USA 3TerraPower, Bellevue, 98008 USA	US	Shear Punch Testing of BOR60 Irradiated 14YWT and HT9
1b-ODS	24	Jean Henry1*, Pilar Fernandez2, Jan Hoffmann3, Nerea Ordas4, Luciano Pilloni5, Athina Puype6, Michael Rieth3, Dmitry Terentyev7	1DEN-SRMA, CEA, Université Paris-Saclay, 91191 Gif-sur-Yvette, France 2Association EURATOM-CIEMAT, Madrid 28040, Spain 3Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen 76344, Germany 4Ceit-ik4, San Sebastian 20018, Spain 5SENEA, Casaccia, Via Anguillarese 301 S. Maria di Galeria, Rome 00123, Italy 6OCAS, Technologiepark 903, B-9052 Zwijnaarde, Belgium 7 SCK CEN, Boeretang 200, B-2400 Mol, Belgium	France, Spain, Germany, Italy, Belgium	EUROPEAN DEVELOPMENT OF ADVANCED RAFM STEELS AND ODS ALLOYS FOR DEMO
1b-ODS	25	David T. Hoelzer*, Ian A. Stinson and Caleb P. Massey	Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA	US	INVESTIGATING THE BENEFIT OF 1%W ON THE MICROSTRUCTURE AND MECHANICAL PROPERTIES OF ODS Fe-10Cr ALLOYS
1b-ODS	26	A. Issaoui1,2, J. Ribis1, J. Malaplate1,, A. Legris2	1 DEN-Service de Recherches Métallurgiques Appliquées, CEA, Université Paris-Saclay, F-91191, Gif-sur- Yvette, France 2 UMET, CNRS UMR 8207, Univ. Lille 1, 59655 Villeneuve d'Ascq, France	France	Characterization of Microstructural Evolution of ODS STEELS after Long Thermal Aging and Ion Radiations
1b-ODS	27	Peng Song1*, Kiyohiro Yabuuchi1, Akihiko Kimura1	1Institute of Advanced Energy, Kyoto University, Gokasho, Uji, 611-0011, Japan	Japan	Phase stability under ion-irradiation in ODS ferritic steels strengthened by different sorts of oxides
1b-ODS	28	Zhangjian Zhou1*, Shuai Xu, Lingzhi Chen, Shuguang Cao, Haodong Jia	1University of Science and Technology Beijing, Beijing, 100083, China	China	SURVEY OF COMPOSITION DESIGN STRATEGIES OF ODS FERRITIC ALLOY FOR ENGINEERING APPLICATION IN FUSION REACTORS
1b-ODS	29	Yen-Jui HUANG1*, Kousuke KAWAKITA2, Mahiro NONO2, Hideo Nakagawa2, Akihiko KIMURA1	1 Institute of Advanced Energy, Kyoto University, Gokasho, Uji, Kyoto 611-0011, Japan 2 Graduate School of Energy Science, Kyoto University, Fushimi-ku, Kyoto 606-8501, Japan	Japan	Suppression of Stress Corrosion Cracking in Sensitized SUS304 and SUS316L in Fusion Relevant Environments
1b-ODS (Reviewed in 1a RAFM)	30	Naoko OONO-HORI1*, Shigeharu UKAI1, Kiyohiro YABUUCHI2, Okinobu HASHITOMI2, Akihiko KIMURA2	1Faculty of Engineering, Hokkaido University, Sapporo, 060-8628 Japan 2Institute of Advanced Energy, Kyoto University, 611-0011, Japan	Japan	STABILITY OF OXIDE PARTICLES IN ODS STEELS UNDER IRRADIATION
1b-ODS	31	Karen Kruska1*, Danny J Edwards1, Jing Wang1, Takuya Yamamoto2, Charles H Henager1, Richard J Kurtz1, G Robert Odette2	1 Energy and Environmental Directorate, Pacific Northwest National Laboratory, Richland, WA, USA, 2 Department of Chemical Engineering, University of California-Santa Barbara, Santa Barbara, CA, USA	US	Stability of Oxide Particles in 14YWT exposed to Neutron Irradiation at 500°C
1b-ODS	32	Hiroshi Oka*, Takashi Tanno, Yasuhide Yano, Satoshi Ohtsuka, Takeji Kaito, Yoshiaki Tachi	Japan Atomic Energy Agency, Ibaraki, 311-1393 Japan	Japan	Microstructural stability of ODS steel after long-time creep test
1b-ODS	33	Jian Feng1, Qingzhi Yan1*, Xiaoxin Zhang2*	1Institute of Nuclear Materials, University of Science & Technology Beijing, Beijing, 100083, China, 2Advanced Energy Research Center, Shenzhen University, 518060, China	China	THERMODYNAMIC MODEL OF MICROSTRUCTURE FOR ODS STEELS FABRICATED BY VACUUM INDUCTION MELTING & CASTING TECHNIQUE
1b-ODS	34	Yingxue Chen1*, Xiaoxin Zhang2 and Qingzhi Yan1	1Institute of Nuclear Materials, University of Science & Technology Beijing, Beijing, 100083, China, 2Advanced Energy Research Center, Shenzhen University, 518060, China	China	HIGH TEMPERATURE MECHANICAL PROPERTIES OF FERRITIC/MARTENSITIC CNS-1-ODS STEEL FABRICATED BY VACUUM MELTING AND CASTING METHOD
1b-ODS	35	Zhongwei Jin1, Yina Huang1*, Laima Luo1, Yucheng Wu1,2	1Hefei University of Technology, Hefei, 230001, China, 2Taiyuan University of Technology, Taiyuan, 030024, China	China	The effect of Cr in the nucleation and dispersion of Y2O3 in Fe-Cr ODS alloy
1b-ODS	36	P. Fernández(1)*, J. Hoffmann(2), M. Rieth(2), and A. Gómez-Herrero(3)	1CIEMAT. National Fusion Laboratory. Technology Division. Avda. Complutense, 40, 28040. Madrid. Spain, 2Karlsruhe Institute of Technology. Campus Nord, Institute for Applied Materials, P.O. Box 3640, 76021 Karlsruhe, Germany, 3 National Center of Electronic Microscopy. Av. Complutense s/n.28040 Madrid. Spain	Spain, Germany	Secondary phases characterization on 9%Cr Advanced Steels by STEM and EELS
1b-ODS	37	P. Fernández(1)*, A. Gómez-Herrero(2), N. Ordás(3,4), D. Pazos(3,4)	1CIEMAT. National Fusion Laboratory. Technology Division. Avda. Complutense, 40, 28040. Madrid. Spain, 2National Center of Electronic Microscopy. Av. Complutense s/n.28040 Madrid. Spain, 3Ceit-ik4, San Sebastian 20018, Spain, 4University of Navarra, Tecnun, San Sebastian 20018, Spain	Spain	TEM characterization on ODS produced by STARS route
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1c Ceramics	1	Arunodaya Bhattacharya1, Philip D. Edmondson1, Andrew R. Lupini1, Chad M. Parish1, Takaaki Koyanagi1, Gregory E. Hilmast2, William G. Fahrenholtz2, Steven J. Zinkle1,3 and Yutai Katoh1	1Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA 2Missouri University of Science and Technology, Rolla, MO 65409, USA 3The University of Tennessee, Knoxville, TN 37996, USA	US	IRRADIATION EFFECTS AND ADVANCED CHARACTERIZATION OF NEUTRON AND ION IRRADIATED TITANIUM DIBORIDE
1c Ceramics	2	M. Ferraris 1*, V. Casalegno 1, Tatsuya Hinoki 2, Sosuke Kondo3, Takaaki Koyanagi4, Yutai Katoh4	1Politecnico di Torino, Torino 10129, Italy 2Kyoto University, Uji 611-0011, Japan 3Tohoku University, Sendai 980-8577, Japan 4Oak Ridge National Laboratory, Oak Ridge 37831, USA	Italy, Japan, US	Irradiation stability of SiC-based joints for nuclear fusion applications
1c Ceramics	3	Matej Kocen1*, Petra Jenuš2, Anže Abram2, Saša Novak2	1Department for Nanostructured Materials, Jožef Stefan Institute, 1000 Ljubljana, Slovenia 2Jožef Stefan International Postgraduate School, 1000 Ljubljana, Slovenia	Slovenia	Development of binderless WC for DEMO divertor
1c Ceramics	4	Takeo Nishitani1*, Andrei Gusarov 2	1 National Institute for Fusion Science, National Institutes of Natural Sciences, Toki, 509-5292, Japan 2 SCK•CEN, Mol, 2400, Belgium	Japan, Belgium	Recent activities of Irradiation effects on diagnostics components under the IEA fusion material collaboration agreement
1c Ceramics	5	Takashi Nozawa1*, Takaaki Koyanagi2, Yutai Katoh2, Hiroyasu Tanigawa1	1National Institutes for Quantum and Radiological Science and Technology, Rokkasho, Aomori 039-3212 Japan 2Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA	Japan, US	FAILURE EVALUATION OF NEUTRON-IRRADIATED SiC/SiC COMPOSITES BY UNDERWATER ACOUSTIC EMISSION

1c Ceramics	6	Xiaoqiang Li, Litong Zhang, Laifei Cheng, Yahuan Zhao, Chuanxin Liu, Bo Chen, Shanshan XU, Hong Yang, Yongshen Liu	Science and Technology on Thermostructural Composite Materials Laboratory, Northwestern Polytechnical University, Xi'an, 710129 China Corresponding author: xiaoqiangli@nwpu.edu.cn	China	RESEARCH ACTIVITIES OF SiC/SiC COMPOSITES CANDIDATED FOR CHINA FUSION ENGINEERING TEST REACTOR
1c Ceramics	7	Zhihong Zhong*, Zhiquan Wang, Bowen Sun, Yucheng Wu	School of Materials Science and Engineering, Hefei University of Technology, Hefei 230009, China	China	Enhanced mechanical properties of SiC joint by forming carbides composite interlayer and zigzag joining interface
1c Ceramics	8	Yutai Katoh1*, Takaaki Koyanagi1, Mohamed Sawan2, Yong Dai3	1Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA 2University of Wisconsin, Madison, WI, USA (retired) 3Paul Scherrer Institut, Villigen, Switzerland	US, Switzerland	STIP V IRRADIATION OF SILICON CARBIDE CERAMICS AND COMPOSITES
1c Ceramics	9	Thanataon Pornphatdetaudom1*, Katsumi Yoshida2, Tohru Suzuki3, Toyohiko Yano2	1Graduate Major in Nuclear Engineering, Department of Materials Science and Engineering, Tokyo Institute of Technology, Japan 2Laboratory for Advanced Nuclear Energy, Tokyo Institute of Technology, Japan 3National Institute of Materials Science, Japan	Japan	Particle Orientation Effect on Lattice Parameter Change by Neutron Irradiation and Recovery Behavior of Aluminum Nitride
1c Ceramics	10	Tatsuya Hinoki1*, Takaaki Koyanagi2, Takashi Nozawa3, Sosuke Kondo4, Ferraris Monica5, Weon-Ju Kim6, James Braun7, Kurt A. Terrani2, Charles H. Henager8, Yutai Katoh2, L.L. Snead9	1Kyoto University, Uji 611-0011, Japan 2Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA 3National Institutes for Quantum and Radiological Science and Technology, Rokkasho 039-3212, Japan 4Tohoku University, Sendai 980-8577, Japan 5Politecnico di Torino, Turin 10129, Italy 6Korea Atomic Energy Research Institute, Daejeon 34057, Republic of Korea 7CEA, Universite Paris-Saclay, F-91191 Gif-sur-Yvette, France 8Pacific Northwest National Laboratory, Richland 99354, USA 9Stony Brook University, Stony Brook, NY 11794, USA	US, Japan, Italy, South Korea, France	DEVELOPMENT AND CHARACTERIZATION OF ADVANCED SiC COMPOSITES FOR FUSION
1c Ceramics	11	Yutai Katoh1*, Takaaki Koyanagi1, Ying Yang1, Brian Jolly1, Rick Lowden1, Caen Ang2, Joey Kabel3, Peter Hosemann3, Takashi Nozawa4, Lance Snead5	1Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA 2University of Tennessee, Knoxville, TN, USA 3University of California, Berkeley, CA, USA 4National Institute for Quantum and Radiological Science and Technology, Rokkasho, Aomori, Japan 5Stony Brook University, Stony Brook, NY, USA	US, Japan	DESIGN AND STRATEGY FOR NEXT GENERATION SILICON CARBIDE COMPOSITES FOR FUSION ENERGY
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1d Tungsten	1	Monica Ferraris1, Sergio Perero1, Alice Scarpellini2, Simon Heuer 3	1Politecnico di Torino, Torino, Italy 2IIT-Genova, Italy 3Forschungszentrum Jülich, Germany	Italy, Germany	CO-SPUTTERED W/FE INTERLAYERS FOR JOINING TUNGSTEN TO STEEL
1d Tungsten	2	Masafumi Akiyoshi1, Lauren M. Garrison2, Josina W. Geringer2, Hsin Wang2, Akira Hasegawa3, Syuhei Nogami3 and Yutai Katoh2	1Osaka Prefecture University, Sakai, Osaka 599-8570 Japan 2Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA 3Tohoku University, Sendai, Miyagi 980-8579, Japan	Japan, US	THERMAL DIFFUSIVITY OF IRRADIATED TUNGSTEN AND TUNGSTEN-RHENIUM ALLOYS
1d Tungsten	4	Kang Wang1, Xiang Zan1,2*, Laima Luo1,2, Yucheng Wu1,2	1School of Materials Science and Engineering, Hefei University of Technology, Hefei, 230009 China 2National-Local Joint Engineering Research Centre of Nonferrous Metals and Processing Technology, Hefei, 230009 China	China	MICROSTRUCTURE AND PHYSICAL PROPERTY CHANGES DURING RECRYSTALLIZATION PROCESS OF 2%Y2O3 DISPERSED TUNGSTEN
1d Tungsten	5	Elena Tejada1*, Alexander Von Müller2,3, Rudolf Neu2,3, Georg Josef Schlick4 and José Ygnacio Pastor1	1Universidad Politécnica de Madrid, 28040, Madrid, Spain. 2Max-Planck-Institut für Plasmaphysik, 85748 Garching, Germany 3 Technische Universität München, 85748 Garching, Germany 4Fraunhofer IGCV, 86153 Augsburg, Germany	Spain, Germany	SELECTIVE LASER BEAM MELTING OF PURE TUNGSTEN: MICROSTRUCTURE AND MECHANICAL BEHAVIOR
1d Tungsten	7	T. Höschen1*, D. A. Terentyev2, H. Gietl1, J. Riesch1, J.W. Coenen3, R. Neu1,4	1Max-Planck-Institut für Plasmaphysik, 85748 Garching, Germany 2Belgian Nuclear Research Center, Mol, 2400, Belgium 3Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung, Partner of the Trilateral Euregio Cluster (TEC), 52425 Jülich, Germany 4Technische Universität München, 85748 Garching, Germany	Germany, Belgium	Pre-characterisation of Wf/W material for the EUROfusion irradiation campaign
1d Tungsten	8	Jiming Chen1*, Guang-Nan Luo2, Yugang Wang3, Xiang Liu1, Farong Wan4, Changan Chen5, Chi Zhang6, Qingzhi Yan4, Qunying Huang7, Hongguang Yang8, Pinghui Wang1, Pengfei Zheng1, Xiaoyu Wang1, Haishan Zhou2, Zheng Lu9, Yongqin Chang4, China FRM Team	1Southwestern Institute of Physics, Chengdu, 610041 China 2Institute of Plasma Physics, Chinese Academy of Sciences, Hefei 230031, China 3School of Physics, Peking University, Beijing, 100871, China 4University of Science and Technology Beijing, Beijing 100083, China 5China Academy of Engineering Physics, Mianyang 621900, China 6Tsinghua University, Beijing 100084, China 7Institute of Nuclear Energy Safety Technology, Hefei 230031, China 8China Institute of Atomic Energy, Beijing 102413, China 9Northeastern University, Shenyang 110819, China	China	MATERIAL CHALLENGES FOR CFETR AND R&D STRATEGIES
1d Tungsten	9	H. Noto1*, Y. Hishinuma1, T. Muroga1 H. Benoki2	1National Institute for Fusion Science, 509-5292 Gifu, Japan 2Nippon Tungsten Co., Ltd.	Japan	Effect of thermal changes of microstructure on mechanical properties of W-1.1wt%TiC
1d Tungsten	11	Kazutoshi Tokunaga1*, Satoru Matsuo1, Hiroaki Kurishita2, Takeshi Toyama3, Makoto Hasegawa1 and Kazuo Nakamura1	1Research Institute for Applied Mechanics, Kyushu University, Kasuga, Fukuoka 816-8580, Japan 2High Energy Accelerator Research Organization, Tokai-mura, Ibaraki 319-1106, Japan 3International Research Center for Nuclear Materials Science, IMR, Tohoku University Oarai, Ibaraki 311-1313, Japan	Japan	Fatigue pre-cracking and fracture toughness evaluations in an ITER-grade rolled tungsten plate
1d Tungsten	12	Manuel J. Pfeifenberger1*, Vladica Nikolić1, Stanislav Žák1, Anton Hohenwarter2, Reinhard Pippan1	1Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, 8700 Leoben, Austria 2Department Materials Science, University of Leoben, 8700 Leoben, Austria	Austria	FRACTURE TOUGHNESS ANISOTROPY OF ULTRAFINE GRAINED TUNGSTEN MATERIALS
1d Tungsten	14	Magdalena Galatanu1*, Monica Enculescu1, Andrei Galatanu1, Jens Reiser2	1National Institute of Materials Physics, Magurele, 077125, Romania 2Institute for Applied Materials, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, 76344, Germany	Romania, Germany	W-W laminates processed by FAST
1d Tungsten	15	Thorsten Loewenhoff*, Daniel Dorow-Gerspach, Gerald Pintsuk, Marius Wirtz	Forschungszentrum Jülich, Institut für Energie und Klimaforschung, 52428 Jülich, Germany	Germany	Repair and regeneration of plasma-facing tungsten surfaces
1d Tungsten	16	Shunsuke Makimura1*, Hiroaki Kurishita1, Koichi Niikura2, Hun-Cheo Jung2, Masahiro Onoi2, Yutaka Nagasawa2, Tatsuaki Sakamoto3, Hiroaki Ohfuji3	1J-PARC Center, High Energy Accelerator Research Organization (KEK), Tokai, 319-1106 Japan 2Metal Technology Co. Ltd, Ebina, 243-0424 Japan 3Ehime University, Matsuyama, 790-8577 Japan	Japan	DEVELOPMENT OF TUNGSTEN ALLOY, TFRG W-1.1%TiC, AS ADVANCED TARGET MATERIAL FOR HIGH-POWER PROTON ACCELERATOR
1d Tungsten	17	Mingyue Zhao1*, Inas Issa1, Daniel Kiener1, Manuel Pfeifenberger2	1Department Materials Science, Montanuniversität Leoben, Leoben, Austria 2Erich Schmid Institute of Materials Science, Austrian Academy of Science, Leoben, Austria	Austria	NANOPOROUS TUNGSTEN FABRICATION FOR THE FIRST TIME BY REVERSE PHASE DISSOLUTION

1d Tungsten	18	Shuhei Nogami ^{1*} , Akira Hasegawa ¹ , Jens Reiser ² , Michael Rieth ² , Shotaro Watanabe ¹ , Hiroyuki Noto ³ , Takuya Nagasaka ³ , and Takeshi Miyazawa ¹	1Tohoku University, Sendai 980-8579, Japan 2Karlsruhe Institute of Technology, Karlsruhe 76344, Germany 3National Institute for Fusion Science, Toki 509-5292, Japan	Japan, Germany	DEVELOPMENT OF DISPERSION STRENGTHENED TUNGSTEN ALLOYS AND THEIR LAMINATED COMPOSITES
1d Tungsten	19	Kwangmo Park ^{1*} , Sangpill Lee ¹ , Jinkyung Lee ¹ , Moonhee Lee ² , Sungwon Kim ²	1Dept. of Mechanical Engineering, Dong-Eui University, Busan, 47340 Korea 2Dept. of Mechanical Engineering, Dong-Eui Institute of Technology, Busan, 47230 Korea	South Korea	Effect of sintering temperature and titanium content on the characterization of tungsten material
1d Tungsten	20	Sanghyun Jung ^{1*} , Sangpill Lee ¹ , Jinkyung Lee ¹ , Moonhee Lee ² , Seungkuk Hwang ³	1 Dept. of Mechanical Engineering, Dong-Eui University, Busan, Republic of Korea 2 Dept. of Mechanical Engineering, Dong-Eui Institute of Technology, Busan, Republic of Korea 3 Dept. of Machinery, Korea Polytechnic Changwon Campus, Changwon, Republic of Korea	South Korea	Solid State Sintering of W/W Composites and Their Characteristics
1d Tungsten	21	Daniel Schwalenberg ^{1,3*} , Jan W. Coenen ¹ , Johann Riesch ² , Leonard Raumann ¹ , Till Hoeschen ² , Alexis Terra ¹ , Yiran Mao ¹ , Hanns Gietl ² , Philipp Huber ⁴ , Rudolf Neu ^{2,3} , Christian Linsmeier ¹	1Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung, Jülich, 52428, Germany 2Max-Planck-Institut für Plasmaphysik, Garching, 85748, Germany 3Technische Universität München, Garching, 85748, Germany 4RWTH Aachen, Institut für Textiltechnik, Aachen, 52074, Germany	Germany	Upscaling of tungsten-fiber reinforced tungsten production via CVD
1d Tungsten	23	Takeshi Miyazawa ^{1*} , Lauren M. Garrison ² , Josina W. Geringer ² , Yutai Katoh ² , Tatsuya Hinoki ³ and Akira Hasegawa ¹	1Tohoku University, Sendai, 980-8579 Japan 2Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA 1Kyoto University, Uji, 611-0011 Japan	Japan, US	NEUTRON IRRADIATION EFFECTS ON MECHANICAL PROPERTIES OF TUNGSTEN ALLOYS
1d Tungsten	24	Zhuoming Xie ^{1*} , Tao Zhang ² , Rui Liu, Junfeng Yang ¹ , Xuebang Wu ¹ , Qianfeng Fang ¹ , Changsong Liu ¹	1Key Laboratory of Materials Physics, Institute of Solid State Physics, Chinese Academy of Sciences, Hefei, Anhui 230031, China 2School of Physics and Electronic Engineering, University of Guangzhou, Guangzhou, Guangdong 510405, China	China	Fabrication of high dense dual-nanostructured tungsten alloys with exceptional thermal stability
1d Tungsten	25	D. Dorow-Gerspach [*] , J.W. Coenen, Th. Loewenhoff, G. Pintsuk, A. Terra, M. Wirtz	Forschungszentrum Jülich, Institut für Energie- und Klimaforschung, 52425 Jülich, Germany	Germany	Realizing thermal shock proof micro-structured tungsten components
1d Tungsten	26	Jiří Matějček ^{1*} , Monika Vilémová ¹ , Dmitry Terentyev ² , Chao Yin ² , Andrii Dubinko ² , Jakub Veverka ^{1,3} , Hýnek Hadrabá	1Institute of Plasma Physics, Prague, 18200, Czechia 2Institute of Nuclear Materials Science, SCK•CEN, Mol, 2400, Belgium 3Czech Technical University in Prague, Prague, 11519, Czechia 4Institute of Physics of Materials, Brno, 61662, Czechia	Czechia, Belgium	IRRADIATION EFFECTS ON MECHANICAL PROPERTIES OF SPARK PLASMA SINTERED W-BASED MATERIALS
1d Tungsten	27	Feng Fan ^{1*} , Lian Youyun ¹ , Liu Xiang ¹ , Wang Jianbao ¹ , Song Jiupeng ²	1Southwestern institute of physics, Chengdu, China 2China national R&D center for tungsten technology, Xiamen, China	China	Mechanical property and microstructure of W-Ta alloy processed by high energy rate forging
1d Tungsten	28	Sosuke Kondo ^{1*} , Takaaki Koyanagi ² , Tatsuya Hinoki ³ , Yutai Katoh ²	1Tohoku University, Sendai 980-8577, Japan 2Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA 1Kyoto University, Uji 611-0011, Japan	Japan, US	SHEAR STRENGTH OF IRRADIATED W/SiC INTERPHASES
1d Tungsten	29	G. D. Samolyuk [*] , Y. N. Osetsky	Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA	US	STABILITY OF PHASES IN THE W-Re-Os SYSTEM UNDER IRRADIATION
1d Tungsten	30	Saša Novak ¹ , Petra Jenuš ¹ , Matej Kocen ^{1,2} , Anže Abram ¹ , Andreja Šestan Zavašnik ^{2,3} , Sabina Markelj ⁴ , Mitja Kelemen ⁴ , Andrej Galatnauš, Elena Tejadó ⁶ , Jose Ygnacio Pastor ⁶ , G. Pintsuk ⁷	1Dept. for Nanostructured Materials, Jožef Stefan Institute, Ljubljana, Slovenia 2Jožef Stefan International Postgraduate School, Ljubljana, Slovenia 3Center for Electron Microscopy, Jožef Stefan Institute, Ljubljana, Slovenia 4Dept. of Low and Medium Energy Physics, Jožef Stefan Institute, Ljubljana, Slovenia 5National Institute of Materials Physics, Magurele, Romania 6Dpto. de Ciencia de Materiales-CIME, Universidad Politécnica de Madrid, Spain 7Institute for Energy and Climate Research – Plasmaphysics, Forschungszentrum Juelich GmbH, Juelich, Germany	Slovenia, Romania, Spain, Germany	WC as reinforcement for tungsten or matrix material for DEMO divertor
1d Tungsten	31	J.R. Trelewicz ^{1*} , W.S Cunningham ¹ , W. Wang ¹ , N.C. Olynik ¹ , D.J. Sprouster ¹ , K. Hattar ²	1Stony Brook University, Stony Brook, NY, 11794, USA 2Sandia National Laboratories, Albuquerque, NM, 87185, USA	US	CONTROLLING STABILITY AND RADIATION TOLERANCE OF TUNGSTEN THROUGH NANOSCALE GRAIN BOUNDARY ENGINEERING
1d Tungsten	32	Tomohito Tsuru ^{1,2*} , Tomoaki Suzudo ³ , Mitsuhiro Itakura ³ , Masato Wakeda ⁴ , Shigenobu Ogata ^{5,2}	1 Nuclear Science and Engineering Center, Japan Atomic Energy Agency, 2-4 Shirakata, Tokai-mura, Ibaraki 319-1195, Japan 2 Elements Strategy Initiative for Structural Materials (ESISM), Kyoto University, Yoshida, Honmachi, Sakyo-ku, Kyoto 606-8501, Japan 3 Center for Computational Science and e-Systems, Japan Atomic Energy Agency, 2-4 Shirakata, Tokai-mura, Ibaraki 319-1195, Japan 4 Research Center for Structural Materials, National Institute for Materials Science, 1-2-1 Sengen, Tsukuba, Ibaraki, 305-0047, Japan 5 Graduate School of Engineering Science, Osaka University, 1-3 Machikaneyama, Toyonaka, Osaka 560-8531, Japan	Japan	A numerical description of the motion of screw dislocation around solutes in tungsten alloys
1d Tungsten	33	Kailun Li ^{1*} , Jinhan Chen ¹ , Wanqi Chen ¹ , Long Cheng ² , Yue Yuan ² , Xiang Liu ³ , Wei Liu ¹ , Zhijian Shen ¹	1 School of Materials Science and Engineering, Tsinghua University, Beijing, 100084, China 2 School of Physics and Nuclear Energy Engineering, Beihang University, Beijing 100091, China 3Southwestern Institute of Physics, Chengdu 610041, China	China	Challenges and Achievements on Additive Manufacturing of Tungsten
1d Tungsten	34	Elizabeth A.I. Ellis ^{1*} , Michael M. Kirka ¹ , Chase B. Joslin ¹ , Lauren M. Garrison ¹ , Christopher Ledford ² , Sullivan Figursky ² , Chris Rock ² , Timothy Horn ² , Yutai Katoh ¹ , and Ryan R. Dehoff ¹	1Oak Ridge National Laboratory, Oak Ridge, TN 37830, USA 2North Carolina State University, Raleigh, NC 27695, USA	US	ADDITIVE MANUFACTURING OF MODEL TUNGSTEN FUSION COMPONENTS
1d Tungsten	35	M. E. Alam [*] , G. R. Odette	University of California Santa Barbara, Santa Barbara, CA USA	US	ON THE REMARKABLE FRACTURE TOUGHNESS OF W-Ni-Fe TUNGSTEN HEAVY ALLOYS: CHARACTERIZING AND EXPLOITING NEW PROCESS ZONE DUCTILIZING TOUGHENING MECHANISMS
1d Tungsten	36	C.-L. Chen [*] and Sutrinsa	Department of Materials Science and Engineering, National Dong Hwa University, Hualien 97401, Taiwan	Taiwan	Effects of Ti, V and Ta on characteristics and synthesis of mechanically alloyed W-based ODS alloys
1d Tungsten	37	Zhisheng Yan ¹ , Yina Huang ^{1*} , Laima Luo ¹ , Yucheng Wu ^{1,2}	1Hefei University of Technology, Hefei, 230001, China, 2Taiyuan University of Technology, Taiyuan, 030024, China	China	Microstructural comparison of effect of Y2O3 and TiC additions in tungsten
1d Tungsten	38	Carsten Bonnekoh ^{1*} , Harald Leiste ¹ , Jan Hoffmann ¹ , Andreas Hoffmann ² , Jens Reiser ¹	1Karlsruhe Institute of Technology, Institute for Applied Materials – Applied Materials Physics, 76344 Eggenstein-Leopoldshafen, Germany, 2Plansee SE, 6600 Reutte, Austria	Germany, Austria	KEY FACTORS FOR ROOM TEMPERATURE DUCTILITY OF MONOLITHIC TUNGSTEN SHEETS
1d Tungsten	39	A. v. Müller ^{1,2*} , G. Schlick ³ , R. Neu ^{1,2} , C. Anstätt ³ , B. Buschmann ^{2,3} , B. Curzadd ^{1,2} , D. Dorow-Gerspach ⁴	1Max-Planck-Institut für Plasmaphysik, 85748 Garching, Germany, 2Technische Universität München, 85748 Garching, Germany, 3Fraunhofer IGCV, 86159 Augsburg, Germany, 4Forschungszentrum Jülich, 52425 Jülich, Germany	Germany	Additive manufacturing of pure tungsten by means of selective laser beam melting

1d Tungsten	40	Philipp Lied1*, Wolfgang Pantleon2, Carsten Bonnekoh1, Michael Dürrschnabel1, Andreas Hoffmann3, Jens Reiser1	1Karlsruhe Institute of Technology, Institute for Applied Materials – Applied Materials Physics, 76344 Eggenstein-Leopoldshafen, Germany, 2Technical University of Denmark, Department of Mechanical Engineering, Section of Materials and Surface Engineering, 2800 Kongens Lyngby, Denmark, 3Plansee SE, 6600 Reutte, Austria	Germany, Denmark, Austria	Comparison of K-doped and pure cold rolled tungsten sheets: As-rolled condition and recrystallization behavior after isochronal annealing at different temperatures
1d Tungsten	41	Andrey Litnovsky1, Janina Schmitz1,2, Felix Klein1, Karen De Lannoye1,3, Arkadi Kreter1, Marcin Rasinski1, Jan W. Coenen1, Christian Linsmeier1, Andreas Mutzke4, Ivan Povstugar1, Duc Nguyen5, Mark Gilbert5, Damjan Sobiraj6 and Jan Wrobel6	1aForschungszentrum Jülich GmbH, 52425 Jülich, Germany, 2Department of Applied Physics, Ghent University, 9000 Ghent, Belgium, 3Vrije Universiteit Brussel, 1050 Elsene, Belgium, 4Max-Planck-Institut für Plasmaphysik, 17491 Greifswald, Germany, 5CCFE, United Kingdom Atomic Energy Authority, Culham Science Centre, Abingdon, Oxfordshire OX14, 6Warsaw University of Technology, 00-661 Warsaw, Poland	Germany, Belgium, UK, Poland	SMART TUNGSTEN-BASED ALLOYS FOR A FIRST WALL OF DEMO
36					
1e Vanadium	1	Kazuki Saito1*, Takuya Nagasaka1,2, Makoto Kobayashi1,2, Jingjie Shen2, Gaku Yamazaki1, Valentyn Tsisar2,3, Takeo Muroga1,2	1SOKENDAI(The Graduate University for Advanced Studies), Toki, 509-5292 Japan 2 National Institute for Fusion Science, 509-5292, Japan 3 Karlsruhe Institute of Technology, 76344, Germany	Japan, Germany	Effect of nitrogen impurity and alloy composition on mechanical properties of low-activation vanadium alloy
1e Vanadium	2	Manabu Satou1*, Ken-ich Fukumoto2, Shuichiro Miura2, Kohei Umehara2, Masanori Yamazaki3	1Hachinohe Institute of Technology, Hachinohe, 031-8501 Japan 2RINE, Fukui University, Tsuruga, 914-0055 Japan 3IMR, Tohoku University, Oarai, 311-1313 Japan	Japan	INFLUENCE OF ALLOYING ELEMENTS ON STABILITY OF MICROSTRUCTURE AFTER NEUTRON IRRADIATION OF VANADIUM ALLOYS
1e Vanadium	3	M. Khalid Hossain1,2*, Kenichi Hashizume1**	1Department of Advanced Energy Engineering Science, Interdisciplinary Graduate School of Engineering Science, Kyushu University, 6-1 Kasugakoen, Kasuga 816-8580, Japan 2Atomic Energy Research Establishment, Bangladesh Atomic Energy Commission, Bangladesh	Japan, Bangladesh	VISUALIZATION OF HYDROGEN ISOTOPES DISTRIBUTION IN YTTRIUM AND COBALT DOPED BARIUM-ZIRCONATES
1e Vanadium	4	Shaoning Jiang1, Jingjie Shen2, Takuya Nagasaka2, Takeo Muroga2, Akio Sagara2, Somei Ohnuki3, Kazuyuki Hokamoto4, Shigeru Tanaka4, Daisuke Inao4, Yasuhiro Morizono5, Ryuta Kasada6	1Qilu University of Technology (Shandong Academy of Sciences), Jinan 250353, China 2 National Institute for Fusion Science, Toki 509-5292, Japan 3 University of Science and Technology Beijing, Beijing 100083, China 4Institute of Pulsed Power Science, Kumamoto University, Kumamoto 860-8555, Japan 5 National Institute for Technology, Kurume College, 830-8555, Kurume, Japan 6Institute for Materials Research, Tohoku University, Sendai 980-8577, Japan	China, Japan	Dissimilar-metals bonding between a low-activation vanadium alloy and Hastelloy X alloy by explosive welding
1e Vanadium	6	Seiji Sakurai1*, Kazuhiro Nomura1, Hideo Yoshinaga1, Jingjie Shen2, Takuya Nagasaka2, Takeo Muroga2, Yoshitaka Matsukawa3, Ryuta Kasada3	1Taiyokoko Co.,LTD., Aiko 678-0232, Japan 2National Institute for Fusion Science, Toki 509-5292, Japan 3Institute for Materials Research, Tohoku University, Sendai 980-8577, Japan	Japan	EFFECT OF CR AND TI CONCENTRATION ON MECHANICAL PROPERTIES OF LOW-ACTIVATION VANADIUM ALLOYS FOR NUCLEAR FUSION REACTOR
1e Vanadium	7	Teruya Tanaka1, 2*, Takuya Nagasaka1, 2, Takeo Muroga1, 2, Masanori Yamazaki3, Takeshi Toyama3	1 National Institute for Fusion Science, Toki 509-5292, Japan 2 SOKENDAI (The Graduate University for Advanced Studies), Toki 509-5292, Japan 3 Institute for Materials Research, Tohoku University, Sendai 980-8577, Japan	Japan	ACTIVATION ANALYSIS FOR THE REFERENCE LOW-ACTIVATION VANADIUM ALLOY NIFS-HEAT-2
1e Vanadium	8	Ran Wei, Pengfei Zheng, Haiying Fu, Liwen Zhang	Southwestern Institute of Physics, Chengdu, 610225, China	China	EVOLUTION OF DISPERSION PARTICLES NEAR JOINT INTERFACE OF HIPED V-4CR-4TI ALLOYS W/O Ti3SiC2 ADDITION DURING LONG-TERM ANNEALING AT ELEVATED TEMPERATURE
1e Vanadium	9	Paul J. Barron1*, Michael Preuss1, Mike J. Gorley2, and Ed J. Pickering1	1University of Manchester, Manchester, M13 9PL, UK 2Culham Centre for Fusion Energy, Culham, OX14 3DB, UK	UK	Towards V-based High Entropy Alloys for Fusion Blanket Applications
1e Vanadium	10	Takuya Nagasaka1, 2*, Jingjie Shen1, Teruya Tanaka1, 2, Makoto Kobayashi1, 2, Takeo Muroga1, 2, Akio Sagara1, Kazuki Saito2, Valentyn Tsisar3, Kouji Fujita4, Ken-ichi Fukumoto4, Takeshi Toyama5, Takamasa Sugawara5, Kunio Yubuta5, Ryuta Kasada5, Yuji Yamauchi6, Kiyohiro Yabuuchi7, Akihiko Kimura7, Seiji Sakurai8, Kazuhiro Nomura8, Hideo Yoshinaga8	1 National Institute for Fusion Science, Toki 509-5292, Japan 2 SOKENDAI (The Graduate University for Advanced Studies), Toki 509-5292, Japan 3 Karlsruhe Institute of Technology, Karlsruhe 76344, Germany 4 Research Institute of Nuclear Engineering, University of Fukui, Tsuruga 914-0055, Japan 5 Institute for Materials Research, Tohoku University, Sendai 980-8577, Japan 6 Hokkaido University, Sapporo 060-8628, Japan 7 Institute of Advanced Energy, Kyoto University, Uji 611-0011, Japan 8 Taiyo Koko Co., LTD., Aiko 678-0232, Japan	Japan, Germany	NO MORE THAN TEN YEARS FOR VANADIUM ALLOY RECYCLING AFTER THE USE IN FUSION REACTORS
1e Vanadium	11	Ken-ichi Fukumoto1*, Koji Fujita1, Masanori Yamazaki2	1RINE/Univ. of Fukui, 914-0055, Japan 2the Oarai center, IMR/Tohoku Univ., 311-1313, Japan	Japan	Effect of Temperature History on Swelling behavior of Vanadium Binary Alloy Irradiated in a Fast Reactor JOYO
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1f-OSA	1	Tatsuya Fukushi1*, N. Hashimoto2	1Graduate School of Engineering, Hokkaido University, Sapporo, 060-8628 Japan 2Faculty of Engineering, Hokkaido University, Sapporo, 060-8628 Japan	Japan	Research and development of High Entropy Alloys for nuclear reactor
1f-OSA	3	Ying Yang1*, Ling Wang2, Ce Zheng3, Lizhen Tan1, Yukinori Yamamoto1, Steven J. Zinkle1,2	1Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA 2University of Tennessee, Knoxville, TN 37996-2100, USA 3North Carolina State University, Raleigh, North Carolina 27695, USA	US	TENSILE AND THERMAL CREEP BEHAVIOR OF A NOVEL COPPER ALLOY FOR FUSION ENERGY APPLICATIONS
1f-OSA	5	Yu Lei1*, Naoyuki Hashimoto2	1Graduate School of Engineering, Hokkaido University, Hokkaido, 060-8628 Japan 2Faculty of Engineering, Hokkaido University, Hokkaido, 060-8628 Japan	Japan	Study on Cu-based High Entropy Alloys for Nuclear Fusion Application
1f-OSA	6	Yutao Zhai*, Bo Huang, Xiaodong Mao, Shaojun Liu, Yican Wu, Qunying Huang, FDS Team	Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, No. 350 Shushanhu Road, Hefei, Anhui, China	China	MICROSTRUCTURES AND TENSILE PROPERTIES OF 316L STEEL PRODUCED BY SELECTIVE LASER MELTING
1f-OSA	7	Masayuki Tokitani1*, Yukinori Hamaji1, Yutaka Hiraoka2, Suguru Masuzaki1, Hitoshi Tamura1, Hiroyuki Noto1, Teruya Tanaka1, Takeo Muroga1, Akio Sagara1, and the FFHR Design Group1	1National Institute for Fusion Science, National Institutes of Natural Sciences, Toki, Gifu 509-5292, Japan 2Department of Applied Physics, Okayama University of Science, Okayama 700-0005, Japan	Japan	NOVEL FABRICATION METHOD FOR HIGH HEAT FLUX COMPONENT BY THE MULTI-STEP BRAZING TECHNIQUE
1f-OSA	8	Yukinori Yamamoto*, Roger G. Miller, Arthur F. Rowcliffe	Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA	US	DESIGN OF ADVANCED BAINITIC STEELS WITH IMPROVEMENT IN CROSS-WELD PROPERTIES
1f OSA	9	Nicola Helfer1*, Jens Bröder2, Hans Rudolf Koslowski1, Christian Linsmeier1	1Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung –Plasmaphysik, 52428 Jülich, Germany 2Forschungszentrum Jülich GmbH, Peter Grünberg Institut and Institute for Advanced Simulation, 52425 Jülich, Germany	Germany	Phase Stability of Beryllium-Titanium Intermetallic Compounds
1f-OSA	10	Da Chen1*, Shijun Zhao, Jianrong Sun2, Ji-Jung Kai	1 Department of Mechanical Engineering, City University of Hong Kong, Hong Kong, China 2 Institute of Modern Physics, Chinese Academy of Sciences, Lanzhou, 710000, China	China	Effect of minor doping elements on the radiation defects in FeCoNiCr-based high entropy alloys

1f-OSA	11	Taku Ishida1,2*, Hiroaki Kurishita1,2, Hiroyuki Noto3 Shunsuke Makimura1,2 and Eiichi Wakai1,4	1J-PARC Center, Tokai-mura, 319-1106 Japan 2KEK, Tsukuba, 305-0801 Japan 3NIFS, Toki, 509-5292 Japan 4JAEA, Tokai-mura, 319-1106 Japan	Japan	AN EXPLORATORY PRODUCTION OF TITANIUM-BASED OXIDE DISPERSION-STRENGTHENED ALLOY MATERIAL
1f-OSA	12	Taku Ishida1,2*, Eiichi Wakai1,3, Shunsuke Makimura1,2, Masayuki Hagiwara2 Naritoshi Kawamura1,2, Makoto Teshigawara1,3, Shin-ichiro Meigo1,3 Patrick G. Hurh4, Kavin Ammigan4, Katsuya Yoehara4 David J. Senor5, Andrew M. Casella5, Danny J. Edwards5 Dohyun Kim6, Nikolaos Simos6 Christopher J. Densham7, Michael Fitton7 The RaDIATE COLLABORATION	1J-PARC Center, Tokai-mura, 319-1106 Japan 2KEK, Tsukuba, 305-0801 Japan 3JAEA, Tokai-mura, 319-1106 Japan 4Fermilab, Batavia, IL 60510-5011 U.S.A. 5PNNL, Richland, WA 99352 U.S.A. 6BNL, Upton, NY 11973-5000 U.S.A. 7STFC RAL, Didcot, OX11 0QX U.K.	Japan, US, UK	NEW ASPECT OF RADIATION DAMAGE BEHAVIOR ON TITANIUM ALLOYS UNDER HIGH-INTENSITY PROTON BEAM EXPOSURE
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2a-PFM	1	R. Arredondo1, K.Schmid1, A. Houben2, W. Jacob1	1 Max-Planck-Institut für Plasmaphysik, Boltzmannstr. 2, D-85748, Germany 2Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung – Plasmaphysik, Partner of the Trilateral Euregio Cluster (TEC), D-52425, Germany	Germany	Modelling of gas-driven deuterium permeation in EUROFER
2a-PFM	2	F. Effenberg1*, S. Brezinsek2, Y. Feng3, H. Frerichs1, J. Geiger3, M. Jakubowski3, R. König3, M. Krychowiak3, J.D. Lore4, D. Naujoks3, H. Niemann3, F. Reimold3, J.C. Schmitt5, O. Schmitz1, T. Sunn Pedersen3, G.A. Wurden6, D. Zhang3 and the W7-X team	1Department of Engineering Physics, University of Wisconsin, Madison, WI 53706, USA 2Forschungszentrum Jülich GmbH, Institut für Plasmaphysik, Trilateral Euregio Cluster TEC, Association EURATOM-FZJ, 52425 Jülich, Germany 3Max-Planck-Institut für Plasmaphysik, Association EURATOM-IPP, 17491 Greifswald, Germany 4Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA 5Department of Physics, Auburn University, Auburn, AL 36849, USA 6Los Alamos National Laboratory, Los Alamos, NM 87545, USA	US, Germany	Development of impurity seeding for divertor power flux handling in Wendelstein 7-X long-pulse scenarios
2a-PFM	3	Heung Nam Han1*, Yeonju Oh 1, Nojun Kwak1, Ki-Baek Roh2, Gon-Ho Kim2, and Hyoung Chan Kim3	1Department of Materials Science and Engineering & Research Institute of Advanced Materials, Seoul National University, Seoul, 08826, Republic of Korea 2Department of Nuclear Engineering, Seoul National University, Seoul, 08826, Republic of Korea 3National Fusion Research Institute, Daejeon 34133, Republic of Korea	South Korea	Materials properties and characterization of tungsten developed by spark plasma sintering
2a-PFM	4	Nojun Kwak1*, Yeonju Oh 1, Ki-Baek Roh2, Gon-Ho Kim2, Hyoung Chan Kim3, and Heung Nam Han1	1Department of Materials Science and Engineering & Research Institute of Advanced Materials, Seoul National University, Seoul, 08826, Republic of Korea 2Department of Nuclear Engineering, Seoul National University, Seoul, 08826, Republic of Korea 3National Fusion Research Institute, Daejeon 34133, Republic of Korea	South Korea	A comparative study on the deuterium irradiation behavior of tungsten materials fabricated by spark plasma sintering technique
2a-PFM	5	R. Mateus1, M.B. Costa2, J.P.S. Loureiro1, R. Gomes1, T. Pereira1, H. Alves1, H. Figueiredo1, C. Silva1, N. Catarino1, M. Dias1, R.C. da Silva1, L.C. Alves3, M. Guedes2,4, A.C. Ferro2,5, H. Fernandes1, E. Alves1,*	1IPFN, Instituto Superior Técnico, ULisboa, 1049-001 Lisboa, Portugal 2CeFEMA, Instituto Superior Técnico, ULisboa, 1049-001 Lisboa, Portugal 3C2TN, Instituto Superior Técnico, ULisboa, 1049-001 Lisboa, Portugal 4CDP2T and Department of Mechanical Engineering, Setúbal School of Technology, Instituto Politécnico de Setúbal, 2910-761 Setúbal, Portugal 5Department of Mechanical Engineering, Instituto Superior Técnico, ULisboa, 1049-001 Lisboa, Portugal	Portugal	DEUTERIUM RETENTION INVESTIGATIONS IN Li-Sn ALLOYS
2a-PFM	6	Carmen García-Rosales1,2*, Elisa Sal1,2, Karsten Schlueter3,4, Felix Klein5, Janina Schmitz5, Aida Calvo1,2, Gerald Pintsuk5, Henri Greuner3, M. Balden3, H. Maier3, J. de Prado6, María Sánchez6, E. Tejado7, Jens Reiser8, N. Ordas1,2, I. Iturriza1,2, Andrey Litnovsky5, Rudolf Neu3,4, J.Y. Pastor7	1Ceit Technology Center, E-20018 San Sebastian, Spain 2Universidad de Navarra, Tecnun, E-20018 San Sebastian, Spain 3Max-Planck-Institut für Plasmaphysik, D-85748 Garching, Germany 4Technische Universität München, D-85748 Garching, Germany 5Forschungszentrum Jülich GmbH, D-52425 Jülich, Germany 6Universidad Rey Juan Carlos, E-28933 Móstoles, Spain 7Universidad Politécnica de Madrid, E-28040 Madrid, Spain 8Karlsruhe Institute of Technology, D-76344 Eggenstein-Leopoldshafen, Germany	Spain, Germany	Current status of the development of oxidation-resistant tungsten-based alloys for first wall application in fusion devices
2a-PFM	7	Elisa Sal1,2, Carmen García-Rosales1,2*, Aida Calvo1,2, Karsten Schlueter3,4, Iñigo Iturriza1,2, Rudolf Neu3,4, Gerald Pintsuk5	1Ceit Technology Center, San Sebastian, E-20018, Spain 2Universidad de Navarra, Tecnun, San Sebastian, E-20018, Spain 3Max-Planck-Institut für Plasmaphysik, Garching, D-85748, Germany 4Technische Universität München, Boltzmannstr. 15, D-85748 Garching, Germany 5Forschungszentrum Jülich GmbH, Jülich, D-52425, Germany	Spain, Germany	Microstructure, oxidation behavior and thermal shock resistance of self-passivating W-Cr-Y-Zr alloys
2a-PFM	8	Benjamin Spilker*1, Gerald Pintsuk1, Marius Wirtz1, Jonathan H. Yu2, Miroslaw Zlobinski1	1Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung, 52425 Jülich, Germany 2Center for Energy Research, UC San Diego, 9500 Gilman Dr., La Jolla, CA 92093-0417, USA	Germany, US	Laser-Induced Desorption of Transient Thermally Damaged Beryllium
2a-PFM	9	Marlene I. Patino*, Russell P. Doener, George R. Tynan	Center for Energy Research, University of California – San Diego, La Jolla, CA 92093, USA	US	Al enrichment of AlN and Al2O3 during D plasma exposure
2a-PFM	10	Xiang Chen1*, Lauren M. Garrison1, Logan N. Clowers1, Josina W. Geringer1, Tatsuya Hinoki2, Yutai Kato1	1Oak Ridge National Laboratory, Oak Ridge, TN 37830, USA 2Kyoto University, Kyoto, 606-8501, Japan	US, Japan	FRACTURE TOUGHNESS CHARACTERIZATION OF NEUTRON IRRADIATED W AND W COMPOSITE
2a-PFM	11	Dwaipayana Dasgupta1*, Robert D. Kolasinski2, Chun-Shang Wong2, Dimitrios Maroudas3, Brian D. Wirth1,4	1University of Tennessee, Knoxville, TN 37996, USA 2Sandia National Laboratories, Livermore, CA 94550, USA 3University of Massachusetts, Amherst, MA 01003, USA 4Oak Ridge National Laboratory, Oak Ridge, TN 37830, USA	US	MODELING OF SURFACE MORPHOLOGICAL EVOLUTION OF PLASMA-FACING TUNGSTEN
2a-PFM	12	Dwaipayana Dasgupta1*, Robert D. Kolasinski2, Sophie Blondel1, Dimitrios Maroudas3, Brian D. Wirth1,4	1University of Tennessee, Knoxville, TN 37996, USA 2Sandia National Laboratories, Livermore, CA 94550, USA 3University of Massachusetts, Amherst, MA 01003, USA 4Oak Ridge National Laboratory, Oak Ridge, TN 37830, USA	US	MODELING OF HELIUM RETENTION AND BUBBLE BURSTING IN LOW-ENERGY HELIUM PLASMA-EXPOSED TUNGSTEN

2a-PFM	13	J.H. You1 *, E. Visca2, T. Barrett3, B. Böswirth1, F. Crescenzi2, F. Dompai3, G. Dose4, M. Fursdon3, F. Gallay5, B-E. Ghidersa6 H. Greuner1, K. Hunger1, M. Li1, A. v. Müller1, J. Reiser6, M. Richou5, S. Roccella2, C. Vorpah7, K. Zhang1	1Max Planck Institute for Plasma Physics, Boltzmann Str. 2, 85748 Garching, Germany 2ENEA, Department of Fusion and Technology for Nuclear Safety and Security, via E. Fermi 45, 00044 Frascati, Italy 3CCFE, Culham Science Centre, Abingdon OX14 3DB, United Kingdom 4Università di Roma "Tor Vergata", Dipartimento di Ingegneria Industriale, Via del Politecnico 1, 00133 Rome, Italy 5CEA, IRFM, F-13108 Saint Paul Lez Durance, France 6KIT, Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany 7EUROfusion, PMU PPPT, Boltzmann Str. 2, 85748 Garching, Germany	Germany, Italy, UK	Status of technology R&D and the results of pre-conceptual evaluation of the EU DEMO divertor target concepts
2a-PFM	15	E. Visca1 *, J.H. You2, T. Barrett3, G. Dose4, M. Fursdon3, F. Gallay5, H. Greuner2, A. v. Müller2, M. Richou5, S. Roccella1	1 ENEA, Department of Fusion and Technology for Nuclear Safety and Security, via E. Fermi 45, 00044 Frascati, Italy 2 Max Planck Institute for Plasma Physics, Boltzmannstr. 2, 85748 Garching, Germany 3CCFE, Culham Science Centre, Abingdon OX14 3DB, United Kingdom 4Università di Roma "Tor Vergata", Dipartimento di Ingegneria Industriale, Via del Politecnico 1, 00133 Rome, Italy 5CEA, IRFM, F-13108 Saint Paul Lez Durance, France	Italy, Germany, UK, France	QUALIFICATION ROUTE FOR DIVERTOR TARGET CONCEPTS FOR EU-DEMO
2a-PFM	16	Osman El Atwani*1, E. Martinez, S.A. Maloy1	1Los Alamos National Laboratory, Los Alamos, 87545 United States	US	Multiscale irradiation effects of nanocrystalline tungsten based materials as plasma facing components
2a-PFM	17	Umberto M. Ciucani1*, Hanns Gietl2, Lea Haus1, Johann Riesch2, Wolfgang Pantleon1	1Dept. of Mechanical Engineering, Technical University of Denmark, Kongens Lyngby, 2800, Denmark. 2Div. of Plasma Edge and Wall, Max-Planck-Institut für Plasmaphysik, 85748 Garching, Germany	Denmark, Germany	Microstructural arrangement and texture evolution in single tungsten fibre-reinforced tungsten: recrystallization and abnormal grain growth
2a-PFM	18	Takuro Wada1*, Akihiro Togari1, Moeko Nakata1, Shota Yamazaki1, Ayaka Koike1, Fei Sun2, Mingzhong Zhao1, Yuji Hatano3, Yasuhisa Oya1	1Graduate School of Integrated Science and Technology, Shizuoka University, Shizuoka, 422- 8529, Japan 2Faculty of Science, Shizuoka University, Shizuoka, 422-8529, Japan 3Hydrogen Isotope Research Center, Toyama University, Toyama, 930-8555, Japan	Japan	Influence of damage depth distribution formed by hydrogen ion on the deuterium retention behavior in tungsten
2a-PFM	19	Z.J. Bergstrom*1, L. Yang1, B.D. Wirth1	1The University of Tennessee, Knoxville, 37996 USA	US	Hydrogen Trapping and Segregation Strength of Helium Interfaces in BCC Tungsten and Iron
2a-PFM	20	Rui Liu1*, Xiong Yao 1, 2, Zhuoming Xie 1, Tao Zhang1, Xianping Wang 1, Ting Hao 1, Qianfeng Fang 1, 2, Changsong Liu 1, Youyun Lian 3, Fan Feng 3, Xiang Liu 3, Long Cheng 4, Guangnan Luo5, Ming Zhong 6	1Key Laboratory of Materials Physics, Institute of Solid State Physics, Chinese Academy of Sciences, Hefei 230031, China 2University of Science and Technology of China, Hefei 230026, China 3Southwestern Institute of Physics, Chengdu, Sichuan 610041, China 4School of Physics and Nuclear Energy Engineering, Beihang University, Beijing 100191, China 5Institute of Plasma Physics, Chinese Academy of Sciences, Hefei 230031, China 6ATTL Advanced Materials Co., Ltd, Beijing, Beijing 100083, China	China	Development of nanostructured K-doped W-ZrC alloys with enhanced mechanical properties
2a-PFM	21	Steffen Antusch1*, Simon Bonk1, Thomas Hanemann1, Jan Hoffmann1, Alexander Klein1, Dorit Nötzel1, Kilian Pursche1, Michael Rieth1	1Karlsruhe Institute of Technology (KIT), Institute for Applied Materials, 76344 Eggenstein-Leopoldshafen, Germany	Germany	3D PRINTING OF FUSION RELEVANT MATERIALS
2a-PFM	22	Steffen Antusch1*, Carsten Bonnekoh1, Simon Bonk1, Peter Holzer1, Alexander Klein1, Klaus Plewa1, Michael Rieth1, Heinz Walter1	1Karlsruhe Institute of Technology (KIT), Institute for Applied Materials, 76344 Eggenstein-Leopoldshafen, Germany	Germany	PROCESSING OF COMPLEX SHAPED PARTS VIA 2COMPONENT-TUNGSTEN POWDER INJECTION MOLDING
2a-PFM	23	S. Brezinsek1, M. Jakubowski2, R. König2, O. Schmitz3, S. Masuzaki4, R. Brakel2, C.P. Dhard2, T. Dittmar1, F. Effenber3, A. Gorlaev5, M. Mayer6, G. Motojima4, D. Naujoks2, M. Rack1, E. Wang1, T. Wauters5, V. Winters2 and the W7-X team	1Forschungszentrum Jülich, Institute of Energy and Climate Research – Plasma Physics, TEC, 52425 Jülich, Germany 2Max-Planck-Institut für Plasmaphysik, 17491 Greifswald, Germany 3University of Wisconsin - Madison, Engineering Physics, Madison, WI 53706, 4National Institute for Fusion Science, Toki, Japan 5Laboratory for Plasma Physics, LPP-ERM/KMS, TEC, Brussels, Belgium 6Max-Planck-Institut für Plasmaphysik, Boltzmannstr. 2, 85748 Garching, Germany	Germany, US, Japan, Belgium	Plasma-surface interaction in the stellarator W7-X operating with inertially cooled graphite plasma-facing components
2a-PFM	24	W. Chromiński1, Lukasz Ciupinski1, P. Bazarnik1, S. Markel2, T. Schwarz-Selinger3	1Warsaw University of Technology, Woloska 141, 02-507 Warsaw, Poland 2Jožef Stefan Institute, Jamova cesta 39, 1000 Ljubljana, Slovenia 3Max-Planck-Institut für Plasmaphysik, Boltzmannstrasse 2, D-85748 Garching, Germany	Poland, Slovenia, Germany	Evolution of dislocation structures and D retention under simultaneous W and D ions exposure in tungsten
2a-PFM	25	Daisuke Nishijima1*, Masayuki Tokitani2, Daisuke Nagata2, Marlene Patino1, Russell P. Doerner1	1Center for Energy Research, University of California – San Diego, La Jolla, CA 92093, USA 2National Institute for Fusion Science, Toki, Gifu 509-5292, Japan	US, Japan	D retention properties of RAFM steels
2a-PFM	26	Hang Si1*, Houyang Guo2, Rui Ding1, Guosheng Xu1, Liang Wang1, Bingjia Xiao1, Zhengping Luo1, and the EAST team1	1Institute of Plasma Physics Chinese Academy of Sciences, Hefei, 230031, China 2General Atomics, San Diego, 92121, United States of America	China, US	Advanced Divertor Studies in EAST/DIII-D by SOLPS
2a-PFM	27	Hyoung Chan Kim1*, Kyungmin Kim1, Nojun Kwak2, Yeonju Oh2, Heung Nam Han2, S.-H. Son2, Eunnam Bang1, Heekyung Choi1, Suk-Ho Hong1	1National Fusion Research Institute, Daejeon 34133, Korea 2Department of Materials Science and Engineering, SNU, Seoul 08826, Korea	South Korea	Comparison of material properties of Tungsten fabricated by spark plasma sintering in Tokamak plasma exposure and Heat flux test
2a-PFM	28	Xiang Liu1*, Youyun Lian1, Tao Zhang2, Changsong Liu2, Laima Luo3, Yucheng Wu3, Jinglian Fan4, Qingzhi Yan5, Yingchun Zhang5, Jun Tang6, Wei Liu7, Jiupeng Song8, Guangnan Luo9 and Jiming Chen1	1Southwestern Institute of Physics, P.O. Box 432, Chengdu 610041, Sichuan, China. 2Institute of Solid State Physics, Chinese Academy of Sciences, Hefei 230031, China. 3School of Materials Science and Engineering, Hefei University of Technology, Hefei 230009, China. 4State Key Laboratory for Powder Metallurgy, Central South University, Changsha 410083, China. 5Institute of Special Ceramics and Powder Metallurgy, University of Science & Technology Beijing, 30 Xueyuan Road, Haidian District, Beijing, China. 6Institute of Nuclear Science and Technology, Sichuan University, Chengdu 610064, China. 7School of Material Science and Engineering, Tsinghua University, Beijing 100084, China. 8China National R&D Center for Tungsten Technology, Xiamen Tungsten Co. Ltd, Xiamen, China. 9Institute of Plasma Physics, Chinese Academy of Sciences, Hefei, Anhui 230031, China.	China	Progress of Advanced Tungsten Base Materials Developed for Fusion Applications in China

2a-PFM	29	Masashi Shimada1, Yuji Nobuta2, Makoto Oya3, Chase N. Taylor1, Yuji Hatano4, and Yasuhisa Oya5	1Fusion Safety Program, Idaho National Laboratory, Idaho Falls, ID 83415, USA 2Graduate School of Engineering, Hokkaido University, Sapporo 060-0808, Japan 3Interdisciplinary Graduate School of Engineering Sciences, Kyushu University, Kasuga, Fukuoka, 816-8580, Japan 4Hydrogen Isotope Research Center, University of Toyama, Toyama 930-8555, Japan 5College of Science, Academic Institute, Shizuoka University, Shizuoka 422-8529, Japan	US, Japan	Surface Analysis of Shielded and Unshielded Neutron-Irradiated Polycrystalline Tungsten by Scanning Auger Microscope
2a-PFM	30	Mathias Jetter*, Marco Conte, Michael Mahler, Jarir Aktaa	Karlsruhe Institute of Technology (KIT), Institute for Applied Materials, 76344 Eggenstein-Leopoldshafen, Germany	Germany	Brittle Fracture Assessment for Tungsten and Tungsten alloy components
2a-PFM	31	Mauricio Gago*, Arkadi Kreter, Bernhard Unterberg and Marius Wirtz	Forschungszentrum Jülich, Institut für Energie- und Klimaforschung, 52425 Jülich, Germany	Germany	Damage evolution in ITER-grade tungsten after simultaneous steady state plasma and high pulse number thermal shock tests
2a-PFM	32	M. Minisale1*, F. Ghiorghiu1, T. Aissou1, T. Angot1, G. De Temmerman2, R. Bisson1	1Aix-Marseille Université, CNRS, PIIM, Marseille, France 2ITER Organization, Route de Vinon-sur-Verdon, CS-90046, 13067 St. Paul Lez Durance Cedex, France	France	Ammonia production and sticking on materials relevant to fusion reactors: tungsten and 316L stainless steel
2a-PFM	33	Kai Nordlund1*, Flyura Djurabekova1, Gerhard Hobler2, K. Schlueter3,4 and M. Balden3	1Department of Physics and Helsinki Institute of Physics, University of Helsinki, Finland 2Institute of Solid State Electronics, TU Wien, Wien, Austria 3Max-Planck Institute for Plasma Physics, Garching, Germany 4Technische Universität München, Boltzmannstr. 15, D-85748 Garching, Germany	Finland, Austria, Germany	MAJOR EFFECT OF CRYSTAL ORIENTATION ON SPUTTERING
2a-PFM	34	Gerald Pintsuk1*, Steffen Antusch2, Thorsten Loewenhoff1, Michael Rieth2, Marius Wirtz1	1Forschungszentrum Juelich GmbH, Institute for Energy and Climate Research, 52425 Juelich, Germany 2Karlsruhe Institute of Technology (KIT), Institute for Applied Materials, 76344 Eggenstein-Leopoldshafen, Germany	Germany	High heat flux and microstructural investigation of powder injection molded tungsten composites
2a-PFM	35	Alain Durocher1*, Sophie Carpentier-Chouchana1, Frederic Escourbiac1, Andrey Fedosov1, Takeshi Hirai1, Victor Komarov1, Mario Merola1, Vladimir Kuznetsov2, Andrew Volodin2, Bruno Riccardi3, Pierre Gavila3, Koichiro Ezato4, Satoshi Suzuki4	1ITER Organization Route de Vinon-sur-Verdon CS 90 046 13067 St. Paul Lez Durance, France 2NIIIEFA, 3 doroga na Metallostroy, Metallostroy, St. Petersburg, 196641, Russia 3FAE, c/ Josep Pla, n.2, Torres Diagonal Litoral, Edificio B3, 08019, Barcelona, Spain 4National Institutes for Quantum and Radiological Science and Technology, Naka-shi, Japan	France, Russia, Spain, Japan	EXPERIMENTAL VALIDATION OF THE PLASMA FACING UNITS OF ITER TUNGSTEN DIVERTOR VERTICAL TARGETS
2a-PFM	36	Irina L. Tazhibauva1,2*, Timur V. Kulsartov3, Yuriy V. Ponkratov1, Yuriy N. Gordienko1, Zhanna A. Zaurbekova1,3, Yevgen V. Chikhray3, Mazhyn K. Skakov3, Giuseppe Mazzitelli4	1Institute of Atomic Energy NNC RK, Kurchatov, 071100, Kazakhstan 2National Research Nuclear University MEPhI, 115409, Russian Federation 3IETP al-Farabi KazNU, 050040, Kazakhstan 4ENEA, 00044, Italy	Kazakhstan, Russia, Italy	REACTOR EXPERIMENTS AND MODELING OF HYDROGEN ISOTOPES INTERACTION WITH LITHIUM CPS
2a-PFM	37	Nan Deng1, Zhangjian Zhou1*, Jianqiang Li2	1University of Science and Technology Beijing, Beijing, 100083 China 2Institute of Process Engineering, Chinese Academy of Sciences, Beijing 100190, China.	China	FABRICATION AND CHARACTERIZATION OF W/CU FGM BASED HEAT SINK BY COLD SPRAY USING CORE-SHELL POWDER
2a-PFM (Also reviewed as 1f2 but keep here)	38	Yuta Toramoto1*, N. Hashimoto2, H. Noto3	1Graduate School of Engineering, Hokkaido University, Sapporo, 060-8628 Japan 2Faculty of Engineering, Hokkaido University, Sapporo, 060-8628 Japan 3National Institute of Fusion Science (NIFS), Toki, Gifu,509-5202 Japan	Japan	Fabrication of Fe-based composite material with high thermal conductivity
2a-PFM	39	T. Zhang, Z. M. Xie	School of Physics and Electronic Engineering, GuangZhou University	China	Ultra-fine grained and nano-grained bulk W-ZrC alloy as plasma-facing components in fusion devices
2a-PFM	40	Wuxin Song1, Yonggang Li2, Zhangcan Yang1*	1Department of Nuclear Engineering and Technology, School of Energy and Power Engineering, Huazhong University of Science and Technology, Wuhan 430074, China 2Key Laboratory of Materials Physics, Institute of Solid State Physics, Chinese Academy of Sciences, Hefei 230031, China	China	Sputtering properties of tungsten fuzzy surfaces investigated by BCA method
2a-PFM	41	Zhe Chen1*, Xiang Liu1, Laizhong Cai1, Yu Li2, Thomas Morgan2, Hans van Eck2, Youyun Lian1, Fan Feng1, Jianbao Wang1, Yang Tan1	1Southwestern Institute of Physics, P.O. Box 432, Chengdu 610041, People's Republic of China 2DIFFER - Dutch Institute for Fundamental Energy Research, De Zaal 20, 5612 AJ Eindhoven, The Netherlands	China, Netherlands	Response of W-Y2O3 alloy and CVD-W coating exposed to ELM-like hydrogen plasma at Magnum-PSI
2a-PFM	42	Xiu-Li Zhu1*, Long Cheng 2, Yue Yuan 2, Arkadi Kreter3, Guang-Hong Lu 2, Jian-Jun Huang 1, Jian-Gang Li 1,4	1Advanced Energy Research Center, Shenzhen University, Shenzhen 518060, China 2School of Physics, Beihang University, Beijing 100191, China 3Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung-Plasmaphysik, 52425 Jülich, Germany 4Institute of Plasma Physics, Chinese Academy of Science, Hefei 230031, China	China, Germany	Damage dependence of deuterium behavior in tungsten after plasma exposure
2a-PFM	43	Li Yang1*, Brian D. Wirth1,2	1Department of Nuclear Engineering, University of Tennessee, Knoxville, TN 37996, USA 2Fusion and Materials for Nuclear Systems Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA	US	FIRST-PRINCIPLES STUDY OF HYDROGEN BEHAVIOR NEAR W/WC INTERFACES
2a-PFM	44	Li Yang1*, Zack J. Bergstrom1, Brian D. Wirth1,2	1Department of Nuclear Engineering, University of Tennessee, Knoxville, TN 37996, USA 2Fusion and Materials for Nuclear Systems Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA	US	FIRST-PRINCIPLES STUDY OF HELIUM EFFECT ON HYDROGEN TRAPPING IN BULK AND NEAR SURFACES OF TUNGSTEN
2a-PFM	45	Zhihong Jiang1*, Lin Luo1, Zunqi Xiao1, Jihua Huang2, Qunying Huang1, FDS Team	1Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China 2University of Science and Technology Beijing, Beijing, 10083, China	China	PREPARATION OF TUNGSTEN-DIAMOND COMPOSITES WITH HIGH THERMAL CONDUCTIVITY
2a-PFM	46	M. Minisale1*, A. Durif2, T. Vidal3, P. Hiret3, J. Faucheux5, M. Lenci4, G. Kermouche4, Y. Pontillon5, M. Richou2, and L. Gallais3	1Aix-Marseille Univ, CNRS, PIIM, Marseille, France 2CEA, IRFM, F-13108 Saint-Paul-Lez-Durance, France 3Aix Marseille Univ, CNRS, Centrale Marseille, Institut Fresnel, Marseille, France 4Ecole Nationale Supérieure des Mines de Saint-Etienne, LGF, CNRS UMR 5307, Saint-Etienne, France 5CEA, DEN/CAD/DEC/SSA3C, Saint-Paul-lez-Durance, France	France	A high power laser facility to submit plasma facing materials to extreme heats loads
2a-PFM	47	A. Kreter*, M. Freisinger, Ch. Linsmeier, S. Möller, M. Rasinski, G. Sergienko, A. Terra and B. Unterberg	Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung – Plasmaphysik, Partner of the Trilateral Euregio Cluster (TEC), 52425 Jülich, Germany	Germany	ENHANCED FUEL RETENTION IN TUNGSTEN PROVOKED BY NITROGEN AS SEEDED SPECIES

2a-PFM	48	Eric Lang ^{1*} , Aveek Kapat ¹ , Nathan Madden ² , Charles Smith ² , Jessica Kroghstad ^{2,3} , Jean Paul Allain ^{1,3}	1Nuclear, Plasma, and Radiological Engineering Department, University of Illinois at Urbana-Champaign, Urbana, IL 61801 USA 2Materials Science and Engineering Department, University of Illinois at Urbana-Champaign, Urbana, IL 61801 USA 2Frederick Seitz Materials Research Laboratory, University of Illinois at Urbana-Champaign, Urbana, IL 61801 USA	US	Unravelling the effects of second phase particles on the morphology, retention, and mechanical properties of W alloys under high flux D/He irradiation
2a-PFM	49	Eric Lang ^{1*} , Lauren Garrison ² , Nathan Reid ¹ , Xunxiang Hu ² , Jean Paul Allain ¹	1Nuclear, Plasma, and Radiological Engineering Department, University of Illinois at Urbana-Champaign, Urbana, IL 61801 USA 2Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, 37830 USA	US	Surface Chemistry and Morphology Response of High-Temperature Ceramics to Low Energy, High Temperature D/He Irradiation
2a-PFM	50	D. Martin ^{1*} , M. A. Cusentino ² , and B.D. Wirth ^{1,3}	1University of Tennessee, Knoxville, 37996 USA 2Sandia National Laboratory, Albuquerque, 87123 USA 3Oak Ridge National Laboratory, Oak Ridge, 37830 USA	US	Large Scale MD Study of the Effect of a Helium Bubble Layer on Hydrogen Diffusion in Tungsten
2a-PFM	51	Miao Qu ^{1*} , Fanhang Kong ¹ , Sha Yan ¹ , Jianming Xue ¹ , Yugang Wang ¹	1Institute of heavy ion physics, State key laboratory of nuclear physics and technology, Peking University, Beijing, 100871 China;	China	Cracking and grain growth behaviors of pure tungsten induced by ELM-like transient heat loads
2a-PFM	52	Michael J. Simmonds ^{1*} , Russell P. Doerner ¹ , Peihao Sun ² , Siegfried H. Glenzer ² , Phillip Heimann ² , Qianran Yu ³ , Jaime Marian ³ , George R. Tynan ¹	1Center for Energy Research, UC San Diego, 9500 Gilman Dr., La Jolla, CA 92093-0417, USA 2SLAC National Accelerator Laboratory, Menlo Park, CA, 94025, USA 3Materials Science and Engineering, UCLA, 410 Westwood Plaza, Los Angeles, CA, 90095, USA	US	Characterization of Post-Damage Defect Annealing in Heavy Ion Irradiated Tungsten by X-Ray Diffuse Scattering
2a-PFM	53	M. Rasinski [*] , A. Kreter, J.W. Coenen, Ch. Linsmeier	Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung – Plasmaphysik, Partner of the Trilateral Euregio Cluster (TEC), 52425 Jülich,	Germany	Retarded recrystallization of tungsten due to deuterium loading
2a-PFM	54	Chad M. Parish ^{1*} , Kun Wang ^{1,2} , Thomas Song ¹ , Russell P. Doerner ³ , and Matthew J. Baldwin ³	1Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA 2Now at: Alfred University, Alfred, NY 14802, USA 3University of California San Diego, La Jolla, CA 92093, USA	US	EFFECTS OF HELIUM EXPOSURE ON TUNGSTEN MECHANICAL BEHAVIOR
2a-PFM	55	Sergey Pestchany ^{1*} , Francesco Maviglia ²	1KIT, Hermann-von-Helmholtz-Platz 1, Eggenstein-Leopoldshafen, Germany 2Consorzio CREATE, Via Claudio, 21, 80125 Napoli, Italy	Germany, Italy	SIMULATION OF THE FIRST WALL SHIELDING DURING UPWARD VDE IN DEMO
2a-PFM	56	J.W.Coenen ¹ , S. Masuzaki ³ , Y.Ueda ⁶ , G.N.Luo ⁴ , Y.C.Wu ^{9,10,11} , X.Liu ¹³ , A. Litnovsky ¹ , G.Pintsuk ¹ , J.H.You ² , A. von Mueller ^{2,5} , S.Zinkle ^{7,8} , C.Henager ¹² , R.Nygren ¹⁵ , J.Li ⁴ , Ch.Linsmeier ¹ , R.Neu ^{2,5} , G. De Temmerman ¹⁴ , T.Nakano ¹⁶ , K.Krieger ² , R.A. Pitts ¹⁴	1Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung – Plasmaphysik, 52425, Jülich, Germany; 2Max-Planck-Institut für Plasmaphysik, 85748, Garching, German; 3National Institute for Fusion Science, 322-6 Oroshi, Toki, 509-5292, Japan; 4Institute of Plasma Physics, Chinese Academy of Sciences, PO Box 1126, Hefei, Anhui 230031, People's Republic of China; 5Technische Universität München, 85748, Garching, Germany; 6Graduate School of Engineering, Osaka University, Osaka 565-0871, Japan; 7University of Tennessee, 306 Pasqua Engineering Bldg, Knoxville, TN 37996 USA; 8Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA; 9School of Materials Science and Engineering, Hefei University of Technology, Hefei 230009, China; 10Laboratory of Nonferrous Metal Material and Processing Engineering of Anhui Province, Hefei 230009, China; 11National-Local Joint Engineering Research Centre of Nonferrous Metals and Processing Technology, Hefei 230009, China; 12Pacific Northwest National Laboratory, P.O. Box 999, Richland, WA, 99352, USA; 13Southwestern Institute of Physics, Chengdu, China; 14ITER Organization, Route de Vinon-sur-Verdon, CS 90 046, 13067 St. Paul Lez Durance Cedex, France 15Sandia National Laboratories, Albuquerque, NM, USA1, 16 QST Naka Fusion Institute, Naka-shi, Japan	Germany, Japan, China, US, France	Materials R&D for a 2nd ITER Divertor and beyond: an overview of available concepts and new material classes.
2a-PFM	58	Leonid.N. Vyacheslavov ^{1,2} , Alexey.S. Arakcheev ^{1,2,3} , Alexander.V. Burdakov ^{1,3} , Dmitry E. Cherepanov ^{2,1} , Igor V. Kandaurov ¹ , Alexander A. Kasatov ^{1,2} , Viktor V. Kurkuchekov ^{1,2} , Galina G. Lazareva ^{2,3,4} , Anastasia G. Maksimova ^{1,2,4} , Vladimir A. Popov ^{1,2} , Alexey A. Ruktuev ^{1,3} , Andrey A. Shoshin ^{1,2} , and Alexander A. Vasilyev ^{1,2}	1Budker Institute of Nuclear Physic SB RAS, Novosibirsk, 630090, Russia 2Novosibirsk State University, Novosibirsk, 630090, Russia 3Novosibirsk State Technical University, Novosibirsk, 630092, Russia 4Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, 630090, Russia	Russia	IN SITU STUDY OF THE PROCESSES OF DAMAGE TO THE TUNGSTEN SURFACE UNDER TRANSIENT HEAT LOADS POSSIBLE IN ITER
2a-PFM	59	Marius Wirtz [*] , Mauricio Gago, Thorsten Loewenhoff and Gerald Pintsuk	Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung, 52425 Jülich, Germany	Germany	Laser and Electron Beam Experiments to Quantify the Thermal Shock Behavior of Tungsten
2a-PFM	60	Takuro Wada ^{1*} , Akihiro Togari ¹ , Moeko Nakata ¹ , Shota Yamazaki ¹ , Ayaka Koike ¹ , Fei Sun ² , Mingzhong Zhao ¹ , Yuji Hatano ³ , Yasuhisa Oya ¹	1Graduate School of Integrated Science and Technology, Shizuoka University, Shizuoka, 422-8529, Japan 2Faculty of Science, Shizuoka University, Shizuoka, 422-8529, Japan 3Hydrogen Isotope Research Center, Toyama University, Toyama, 930-8555, Japan	Japan	INFLUENCE OF DAMAGE DEPTH DISTRIBUTION FORMED BY IRON AND HYDROGEN ION ON DEUTERIUM RETENTION IN TUNGSTEN
2a-PFM	61	Massimo Zucchettia [*] , Raffaella Testonia, Stefano Segantina, Zachary Hartwigb, Dennis Whyteb, Antonio Melia, Edoardo Andrea Pratoa,b	aDENERG, Politecnico di Torino, Italy bPlasma Science and Fusion Center, MIT, Cambridge (MA), USA	Italy, US	MATERIAL CHALLENGES AND RADIATION DAMAGE FOR THE ARC REACTOR
2a-PFM	62	Yini Lv ¹ , Min Pan ^{*1} , Kaige Hu ^{*2} , Zelin Cao ² , Shulong Wen ¹ , Zheng Huang ³ , Yong Zhao ¹	1 Key Laboratory of Advanced Technology of Materials (Ministry of Education), Superconductivity and New Energy R&D Center, Southwest Jiaotong University, Chengdu, Sichuan, 610031, China. 3 School of Physical Science Technology, Southwest Jiaotong University, Chengdu, Sichuan, 610031, China.	China	THE STUDY OF W ELEMENT EFFECT ON VACANCY CLUSTER BEHAVIOR IN Ta-W ALLOY
2a-PFM	63	Robert D. Kolasinski ^{1*} , Aaron Engel ¹ , Dwaipayan Dasgupta ² , Chun-Shang Wong ¹ , Josh A. Whaley ¹ , Dean A. Buchenauer ¹ , Dimitrios Maroudas ³ , and Brian D. Wirth ²	1Sandia National Laboratories, Energy Innovation Department, Livermore, CA 94550 USA 2University of Tennessee, Department of Nuclear Engineering, Knoxville, TN 37996 USA 3University of Massachusetts – Amherst, Department of Chemical Engineering, Amherst, 01003 MA USA	US	In-situ spectroscopic ellipsometry for characterizing plasma-surface interactions
2a-PFM	64	T. S. Wang ^{1,2*} , J.T. Zhao ^{1,2} , X.Meng ^{1,2} , J.D. Zhang ^{1,2} and Z.H.Chen ^{1,2}	1. School of Nuclear Science and Technology, Lanzhou University, Lanzhou, 730000 P. R. China 2. Key Laboratory of Special Function Materials and Structure Design, Ministry of Education, Lanzhou 730000, China	China	REAL TIME STUDY OF DYNAMIC DEPOSITION OF DEUTRON IN TUNGSTEN, BERYLLIUM AND MOLYBDENUM

2a-PFM	65	Y. Sugimoto1, M. Miyamoto1, M. Nakamichi2, J. Kim, H. Kurata3, M. Haruta3	1Department of Material Science, Shimane University, Matsue, Shimane 690-8504, Japan 2Fusion Energy Research and Development Directorate, National Institutes for Quantum and Radiological Science and Technology, Rokkasho, Aomori 2-166, Japan 3Institute for Chemical Research, Kyoto University, Gokasho Uji-city, Kyoto 611-0011, Japan	Japan	Deuterium and helium desorption behavior and microstructure evolution in beryllium during annealing
2a-PFM	66	Edward Gao 1 , Warren Nadvornick 1 , Russ Doerner 2 , Brian Williams 3 , and Nasr M Ghoniem 1	Department of Mechanical and Aerospace Engineering, University of California Los Angeles, Los Angeles, CA 90095, 2 Center for Energy Research, University of California, San Diego (UCSD), 9500 Gilman Dr, La Jolla, CA, 92093, USA, 3 UltraMet, 12173 Montague St, Pacoima, CA, 91331, USA	US	MULTISCALE MODELING AND EXPERIMENTAL VALIDATION OF HELIUM BUBBLE FORMATION AND SPUTTERING EROSION IN MICRO-ENGINEERED TUNGSTEN
2a-PFM	67	Miao Qu1*, Fanhang Kong1, Sha Yan1, Jianming Xue1, Yugang Wang1	1Institute of heavy ion physics, State key laboratory of nuclear physics and technology, Peking University, Beijing, 100871 China;	China	Comparison of cracking behaviors on pure tungsten induced by different transient heat loads
2a-PFM	68	Chad M. Parish1*, Kun Wang1,2, Russell P. Doerner3, Matthew J. Baldwin3, Fred W. Meyer1, and Mark E. Bannister1	1Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA 2Now at: Alfred University, Alfred, NY 14802, USA 3 University of California San Diego, La Jolla, CA 92093, USA	US	THE INTERPLAY BETWEEN HELIUM PLASMA AND TUNGSTEN MICROSTRUCTURE IN PMI
2a-PFM	69	J. Jun, M. Romedenne, and B. A. Pint	Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA	US	LIQUID METAL COMPATIBILITY WITH PLASMA-FACING COMPONENT MATERIALS
2a-PFM	70	Clyde J. Beersa**, Juan F. Canesesb, Rick H. Goulding b, Juergen Rappb, Ezekial A. Unterbergb, Steve J. Zinklea,b	a University of Tennessee – Knoxville, Knoxville, Tennessee 37996, USA b Oak Ridge National Laboratory, Oak Ridge, Tennessee 37831, USA	US	High Flux SiC Chemical Erosion Yields on Proto-MPEX*
2a-PFM	71	Yutai Katoh1*, Daniel Clark2, Yoshio Ueda3, Yuji Hatano4, Minami Yoda5, Adrian S. Sabau1, Takehiko Yokomine6, Lauren M. Garrison1, Xunxiang Hu1, Takaaki Koyanagi1, Chad M. Parish1, Philip D. Edmondson1, J. Wilna Geringer1, Akira Hasegawa7, Tatsuya Hinoki6, Masashi Shimada8, Dean Buchenauer9, Yasuhisa Oya10, Takeo Muroga11	1Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA 2United States Department of Energy, Germantown, MD, USA; 3Osaka University, Osaka, Japan; 4University of Toyama, Toyama, Japan; 5Georgia Institute of Technology, Atlanta, GA, USA; 6Kyoto University, Kyoto, Japan; 7Tohoku University, Sendai, Japan; 8Idaho National Laboratory, Idaho Falls, ID, USA; 9Sandia National Laboratory, Livermore, CA, USA; 10Shizuoka University, Shizuoka, Japan; 11National Institute for Fusion Science, Toki, Japan	US, Japan	PROJECT PHENIX FOR TECHNOLOGICAL ASSESSMENT OF PLASMA FACING COMPONENTS FOR DEMO REACTORS: SUMMARY OF MATERIALS RESEARCH ACCOMPLISHMENTS
2a-PFM	72	Chang-Chun Ge*, §, Qing-Zhi Yan§, Xiao-Na Ren§	1Institute of Nuclear Materials (INM), University of Science and Technology Beijing (USTB), Beijing, 100083, China	China	Progress of Research on Plasma Facing Materials for Fusion Reactors in INM, USTB
2a-PFM	73	Xiao-Na REN1, *, Min XIA1, §, Qing-Zhi YAN1, §, Chang-Chun GE1, §	1 Institute of Powder Metallurgy and Advanced Ceramics, School of Materials Science and Engineering, University of Science and Technology Beijing, 100083, China	China	Tungsten Nanowires Prepared for Bulk Tungsten Strengthening
2a-PFM	74	Michael Duerrschnebel1*, Birger Holtermann1, Ute Jaentsch1, Mirjam Hoffmann1, Jan Hoffmann1, Siegfried Baumgaertner1, Steffen Antusch1, Michael Rieth1	1Karlsruhe Institute of Technology (KIT), Institute for Applied Materials, 76344 Eggenstein-Leopoldshafen, Germany	Germany	Characterization of powder injection molded tungsten composites via electron microscopic methods
2a-PFM	75	Jiří Matějčiček1*, Pavel Rohan2, Jakub Antoš2	1Institute of Plasma Physics, Prague, 18200, Czechia, 2Czech Technical University in Prague, Prague, 16607, Czechia	Czechia	W+CU AND W+NI COMPOSITES AND FGMS PREPARED BY PLASMA TRANSFERRED ARC CLADDING
2a-PFM	76	Y.C. Wu1,2,3,4*, X.Y. Tan1, W.J. Wang1, X. Zan1, X.Y. Zhu1, J.Q. Liu3, L.M. Luo1,2	1School of Materials Science and Engineering, Hefei University of Technology, Hefei 230009 China, 2National-Local Joint Engineering Research Centre of Nonferrous Metals and Processing Technology, Hefei 230009 China, 3Institute of Industry & Equipment Technology, Hefei University of Technology, Hefei 230009 China 4Key Laboratory of Interface Science and Engineering of New Materials, Ministry of Education, Taiyuan University of Technology, Taiyuan 030024, China	China	Toughening Approaches and Mechanisms of Tungsten Materials for the Future Fusion Reactor
2a-PFM	77	L.M. Luo1,3*, Y.F. Zhou1, X.Y. Tan1, Y. Xu1,3, X. Zan1,3, Q. Xu2, K. Tokunaga4, X.Y. Zhu1,3, Y.C. Wu1,3,5*	1School of Materials Science and Engineering, Hefei University of Technology, Hefei 230009, China, 2Institute for Integrated Radiation and Nuclear Science, Kyoto University, Osaka-fu 590-0494, Japan; 3Laboratory of Nonferrous Metal Material and Processing Engineering of Anhui Province, Hefei 230009, China; 4Research Institute for Applied Mechanics, Kyushu University, Kasuga, Fukuoka 816-8580, Japan; 5National-Local Joint Engineering Research Centre of Nonferrous Metals and Processing Technology, Hefei 230009, China	China, Japan	Dual-Effects from Thermal Shock and Helium Irradiation on W-TiC Composites
75					
2b HHF + CU	1	Lauren M. Garrison* 1, Adrian S. Sabau1, Chad Parish1, Benjamin Gregory1, Josina W. Geringer1, Yutai Katoh1, Yukinori Hamajiri2, and Akira Hasegawa3	1Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA 2National Institute for Fusion Science, Toki city, Gifu Japan 3Tohoku University, Sendai, Miyagi Japan	US, Japan	MICROSTRUCTURAL CHANGES IN PLASMA-ARC LAMP HIGH HEAT FLUX EXPOSED NEUTRON IRRADIATED TUNGSTEN
2b HHF + CU	3	M. Eddahbia, M.A. Mongea, b, * R. Dominguez Reyesa, B. Savoinia, b, A. Muñoz, b	aDepartamento de Física, Universidad Carlos III de Madrid, b(IAAB) Avda. de la Universidad 30, 28911 Leganés, Spain	Spain	MICROSTRUCTURE AND MECHANICAL PROPERTIES OF A NOVEL COPPER COMPOSITE REINFORCED BY NANOMETRIC VANADIUM CARBIDE PARTICLES
2b HHF + CU	4	A.A. Suvorova*, O.V. Goslavsky, A.B. Korostelev, M.N. Sviridenko, S.E. Chomyakov	N.A. Dollezhal Research and Development Institute of Power Engineering (JSC "NIKIET"), Moscow, Russia	Russia	EFFECT OF THE TEMPERATURE OF HOT ISOSTATIC PRESSING ON THE STRUCTURE AND PROPERTIES OF CU-CR-ZR ALLOY
2b HHF + CU	5	Y. Hishinuma1,2), B. Ma2), B. Huang3), H. Noto1,2), Y. Liu4), R. Kasada4), S. M. S. Aghamiri5), N. Oono5), S. Ueki5) and T. Muroga1,2)	1National Institute for Fusion Science, Toki, 509-5292, Japan 2Graduate University for Advanced Studies (SOKENDAI), Toki, 509-5292, Japan 3Institute of Advanced Energy, Kyoto University, Uji, 611-0011, Japan 4Institute for Materials Research, Tohoku University, Sendai, 980-8577, Japan 5Hokkaido University, Sapporo, 060-0808, Japan	Japan	Effects of Mechanical Alloying parameters on the Cu-Y2O3 ODS alloys synthesized with MA-HIP process
2b HHF + CU	6	Shuming Wang1*, Jiangshan Li1, Yanxin Wang1, Changchun Ge1*	1 Department of Materials Science and Engineering, University of Science & Technology Beijing, Beijing 100083, China	China	Thermal shock behavior analysis of tungsten-armored plasma facing components
2b HHF + CU	7	Dahuan Zhu 1,*, Changjun Li 1,2, Junling Chen 1, Rui Ding 1, Baoguo Wang 1 and EAST Team	1Institute of Plasma Physics, Chinese Academy of Sciences, Hefei, 230031, China 2Science Island Branch of Graduate School, University of Science and Technology of China, Hefei, 230021, China	China	Thermal induced cracking and melting on ITER-like W/Cu PFC in EAST
2b HHF + CU	8	Makoto Fukuda, Yohji Seki, Koichiro Ezato, Hiroshi Nishi, Kenji Yokoyama, Satoshi Suzuki	National Institutes for Quantum and Radiological Science and Technology, Ibaraki, 311-0193, Japan	Japan	Influence of cyclic heat load on pure tungsten for ITER divertor
2b HHF + CU	9	Henri Greuner1*, B. Bösowirth1, K. Hunger1, A. Khan1, A.v. Müller1,2, R.Neu1,2 E. Visca3 and J.H. You1	1Max Planck Institute for Plasma Physics, Boltzmannstr. 2, 85748 Garching, Germany 2Technical University Munich, Boltzmannstr. 15, 85748 Garching, Germany 3ENEA, Department of Fusion and Technology for Nuclear Safety and Security, Frascati, Italy	Germany, Italy	Investigation of the thermal performance of newly developed European DEMO divertor target concepts

2b HHF + CU	10	Yuchen Liu1*, Sosuke KONDO1, Hao YU1, Haoran WANG1, Ryuta KASADA1, Kiyohiro YABUUCHI2, Takeo MUROGA3, Shigeharu UKAI4	1Tohoku University, Institute for Materials Research, Sendai, 980-8577, Japan 2Kyoto University, Institute of Advanced Energy, Uji, 611-0011, Japan 3National Institute for Fusion Science, Toki City, 509-5292, Japan 3Hokkaido University, Sapporo, 060-0808, Japan	Japan	Evaluation of irradiation hardening of ion-irradiated ODS-Cu Alloy using ultra-small testing technologies (USTT)
2b HHF + CU	11	Marta Dias 1*, Francisco Antão 1, José. B. Correia 2, Marcin Rosinski 3, R.C da Silva 1, António P. Gonçalves 4, Patricia Carvalho 5,6, Eduardo Alves 1	1 Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Universidade de Lisboa, Av. Rovisco Pais, 1049-001, Lisboa, Portugal 2LNEG, Laboratório Nacional de Energia e Geologia, Estrada do Paço do Lumiar, 1649-038 Lisboa, Portugal 3 GeniCore, Wolczynska 1, 01-919, Warsaw, Poland 4 C2 TN, Instituto Superior Técnico, Universidade de Lisboa, Campus Tecnológico e Nuclear, Estrada Nacional 10, 2695-066 Bobadela LRS, Portugal 5 CeFEMA, Instituto Superior Técnico, Universidade de Lisboa, Av. Rovisco Pais, 1049-001 Lisboa, Portugal 6 SINTEF Materials Physics, Forskningsveien 1, 0314 Oslo, Norway	Portugal, Poland, Norway	SYNTHESIS AND CHARACTERIZATION OF WxTaCrNbV HIGH ENTROPY ALLOYS
2b HHF + CU	12	Qiang. Li1*, Chunyi. Xie1, Zhen. Chen1, Wuqingliang. Peng1, Wangjing. Wang1, Jichao. Wang1, Xingli. Wang1, Qingran. Gao1, Xiang. Geng1, G.-N. Luo1	1Institute of Plasma Physics, Chinese Academy of Sciences, Hefei 230031, China	China	Creep Analysis of Cu Interlayer in W/Cu Flat-type Mock-ups under High Heat Flux of 20 MW/m2
2b HHF + CU	13	Ermile Gaganidze1*, Frank Schoofs2, Simon Ng2, Triestino Minniti2, Michael Gorley2, Gerald Pintsuk3	1 Karlsruhe Institute of Technology, Institute for Applied Materials (IAM), Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany 2UK Atomic Energy Authority, Culham Science Center, Abingdon, Oxfordshire, OX14 3DB, UK 3Forschungszentrum Jülich, Institut für Energie- und Klimaforschung, D-52425 Jülich, Germany	Germany, UK	European Tungsten Material Property Handbook
2b HHF + CU	14	Mingyang Li, Pei Hu, Dong Liu, Yongqin Chang*	School of Material Science and Engineering, University of Science and Technology Beijing, 100083, China	China	Microstructure and mechanical properties of the CuCrZrFeTiY alloy
2b HHF + CU	15	A. Muñoz1,2*, B. Savoini1,2, M.A. Monge1,2 and M. Eddahbi1	1Dpto. de Física, Universidad Carlos III de Madrid, Avda. de la Universidad 30, Leganés 28911, Spain 2Instituto Tecnológico de Química y Materiales Álvaro Alonso y Barba (IAAB), Avda. de la Universidad 30, Leganés 28911, Spain	Spain	MICROSTRUCTURE AND MECHANICAL PROPERTIES OF HOT ROLLED ODS COPPER
2b HHF + CU	16	A. Rodríguez-Lopez1, M.A Monge1,2, B. Savoini1,2, A. Muñoz1,2 and P. Pérez3	1 Universidad Carlos III de Madrid, Dpto. de Física, Avda. de la Universidad 30, Leganés 28911, Spain 2Instituto Tecnológico de Química y Materiales Álvaro Alonso y Barba (IAAB), Avda. de la Universidad 30, Leganés 28911, Spain 3Centro Nacional de Investigaciones Metalúrgicas, Dpto. de Metalurgia Física, Avd. Gregorio del Amo 8, Madrid, 28040, Spain	Spain	EXPLORING CuCrFeVTI SYSTEM TO PRODUCE HIGH ENTROPY ALLOYS FOR HIGH HEAT FLUX APPLICATIONS
2b HHF + CU	17	Adrian S. Sabau1*, Sarma Gorti1, Kazutoshi Tokunaga2, and Masafumi Akiyoshi3	1Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA 2Kyushu University, Fukuoka 816-8580, Japan 3Osaka Prefecture University, Osaka 599-8531, Japan	US, Japan	THERMO-MECHANICAL EFFECTS DURING 5 MW/m2 HIGH-HEAT FLUX TESTING OF PLASMA FACING MATERIALS USING AN INFRARED PLASMA-ARC LAMP
2b HHF + CU	18	Ryuta Kasada1*, Hao Yu1, Sosuke Kondo1, Yuchen Liu2, Mohamad Aghamiri3, Naoko Oono3, Shigeharu Ukai3, Hiroyuki Noto4, Yoshimitsu Hishinuma4 and Takeo Muroga4	1Institute for Materials Research, Tohoku University, Sendai, 980-8577, Japan 2Graduate School of Engineering, Tohoku University, Sendai, 980-8577, Japan 2Institute of Advanced Energy, Kyoto University, Uji, 611-0011, Japan 3Graduate School of Engineering, Hokkaido University, Sapporo, 060-0808, Japan 4National Institute for Fusion Science, Toki City, 509-5292, Japan	Japan	Japanese R&D on ODS-Cu for divertor application
2b HHF + CU	19	Jeongwoo Heo1*, N. Hashimoto2	1Graduate School of Engineering, Hokkaido University, Sapporo, 060-8628 Japan 2Faculty of Engineering, Hokkaido University, Sapporo, 060-8628 Japan	Japan	Development of F82H-W-Cu composites with a high thermal conductivity
2b HHF + CU	20	Richard E. Nygren1, John Rosenfeld2, Guy F. Matthews3	1Sandia National Laboratories, P.O. Box 5800 Albuquerque NM 87185 USA 2Engineering Consultant for Aavid-Thermacore, 780 Eden Rd. Lancaster, PA 17601 USA 3Culham Science Centre (CCFE), Abingdon, OX14 3DB, UK	US, UK	Materials for Heat Pipes Applications in Fusion
2b HHF + CU	21	Nerea Ordás1,2*, Luis Portolés3, María Azpeleta1,2, José Ramón Blasco3, Mario Martínez3, Julia Ureña3, Iñigo Iturriza1,2	1Ceit-IK4, 20018, Donostia-San Sebastián, Spain 2Universidad de Navarra, Tecnun, 20018, Donostia-San Sebastián, Spain 3AIDIMME, 46980 Paterna, Spain	Spain	PROCESS DEVELOPMENT OF CuCrZr COMPONENTS VIA ELECTRON BEAM MELTING
2b HHF + CU	22	Ki-Baek Roh1*, Myeong-Geon Lee1, Nam-Kyun Kim1, Kyungmin Kim2 and Gon-Ho Kim1	1Department of Nuclear Engineering, Seoul National University, Seoul, 08826, Republic of Korea 2National Fusion Research Institute, Daejeon, 34133, Republic of Korea	South Korea	Investigation of Macro Crack Enhanced by Grain Growth on Tungsten Divertor Monoblock at the Strike Point
2b HHF + CU	23	John R. Echols1*, A.L. Winfrey2	1Oak Ridge National Laboratory, Oak Ridge, TN, 37830, USA 2Pennsylvania State University, State College, PA, 16802, USA	US	Evaluation of W surface damage over high heat flux exposure range with the HELIOS device.
2b HHF + CU	24	G.-N. Luo1*, Qiang Li1, Zhen Chen1, Chunyi Xie1, Wuqingliang Peng1, Wangjing Wang1, Jichao Wang1, Xingli Wang1, Qingran Gao1, Xiang Geng1	1 Institute of Plasma Physics, Chinese Academy of Sciences, Hefei 230031, China	China	Design and manufacturing of flat-type W/Cu mockup with novel hypervapotron cooling structure for CFETR divertor
2b HHF + CU	25	D. Terentyev1, J.-H. You2, and N. Van Steenberg3	1Institute of Nuclear Materials Science, SCK CEN, Mol, 2400, Belgium, 2Max-Planck-Institut für Plasmaphysik, 85748 Garching, Germany, 3OCAS N.V., Pres J.F. Kennedylaan 2, 9060 Zelzate, Belgium	Belgium, Germany	Development of pure chromium and Cr-10W for mid-flux region PFCs for DEMO divertor
2b HHF + CU	26	L.L. Snead1* D. J. Sprouster1, J. R. Trelewicz1, S. J. Zinkle2, Bin Cheng2, Y. Yang3	1Stony Brook University, Stony Brook, NY, 11794, United States, 2University of Tennessee, Knoxville, TN, 37926, USA, 3Oak Ridge National Laboratory, Oak Ridge, TN, 37831, USA	US	Kinetics of Processing Advanced Copper Alloys for Graded HHF Structures
2b HHF + CU	27	A. Terra *, G. Sergienko, A. Kreter, Y. Martynova, M. Rasiński, M. Wirtz, Th. Loewenhoff, G. Pintsuk, D. Dorow-Gerspach, Y. Mao, J. W. Coenen, S. Brezinssek, B. Unterberg, and Ch. Linsmeier	Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung, 52425 Jülich, Germany	Germany	Micro-structured tungsten, a high heat flux pulse proof material
2b HHF + CU	28	X.Y. Tan1*, W.J. Wang1, X. Chen3, L.M. Luo1,2, X. Zan1, X.Y. Zhu1, J.Q. Liu1, Y.C.Wu1,2,3,4	1School of Materials Science and Engineering, Hefei University of Technology, Hefei 230009 China, 2National-Local Joint Engineering Research Centre of Nonferrous Metals and Processing Technology, Hefei 230009 China 3Institute of Industry & Equipment Technology, Hefei University of Technology, Hefei 230009 China 4Key Laboratory of Interface Science and Engineering of New Materials, Ministry of Education, Taiyuan University of Technology, Taiyuan 030024, China	China	The Thermal Conductivity Behaviors and Its Influence Factors of Pure Tungsten with Different Statuses

2b HHF + CU	29	Pengqi Chen1,2*, Jigui Cheng1,2, Bangzheng Wei1,2	1Hefei University of Technology, Hefei, 230009, China, 2 Research Centre for Powder Metallurgy Engineering and Technology of Anhui Province, Hefei, 230009, China	China	Study on preparation of functional grade W-Cu materials by a combustion-based method and its thermal properties
28					
2c Breeding	1	Shahram Sharafat 1,3, B. Williams2, N. Ghoniem3, M. Shimada4, A. Ying1	1University of California, Los Angeles, Los Angeles, CA. 90095, U.S.A. 2Ultramet, Pacoima, CA. 91331, U.S.A. 3Digital Materials Solution, Carlsbad, CA. 92011, U.S.A., 4Idaho National Laboratory, Idaho Falls, ID 83402, U.S.A.	US	CELLULAR BREEDER MATERIALS: A TRANSFORMATIVE CERAMIC SOLID BREEDER FOR FUSION REACTOR BLANKETS
2c Breeding	2	Masaru Nakamichi1*, Jae-Kwan Kim1, Petr Kurinsky1	1National Institutes for Quantum and Radiological Science and Technology, Rokkasho, 039-3212 Japan	Japan	OXIDATION AND GRANULATION BEHAVIORS OF Be13Zr PEBBLES ADDED BY Si AS ADVANCED NEUTRON MULTIPLIERS
2c Breeding	4	N. Catarino1, Luis C. Alves2, M. Dias1, Nuno P. Barradas2, Sander van Til3,	1 Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Universidade de Lisboa, Av. Rovisco Pais, 1049-001, Lisboa, Portugal, 2Centro de Ciências e Tecnologias Nucleares, Instituto Superior Técnico, Universidade de Lisboa, E.N. 10 ao km 139,7, 2695-066 Bobadela LRS, Portugal, 3Nuclear Research and consultancy Group, Westerduinweg 3, Postbus 25, 1755 ZG Petten, the Netherlands	Portugal, Netherlands	Oxidation behaviour of neutron irradiated Be pebbles
2c Breeding	5	Jae-Hwan Kim, Masaru Nakamichi	Fusion Energy Research & Development Directorate, Department of Blanket Systems Research, National Institutes for Quantum and Radiological Science and Technology, 2-166 Obuchi, Omotedate, Rokkasho, Aomori 039-3212, Japan.	Japan	MECHANICAL STRENGTH OF BERYLLIDE PEBBLES AS ADVANCED NEUTRON MULTIPLIERS
2c Breeding	6	Keisuke Mukai1*, Ryuta Kasada, 2 Kiyohiro Yabuuchi,1 Satoshi Konishi,1 Jae-Hwan Kim,3 and Masaru. Nakamichi3	1 Institute of Advanced Energy, Kyoto University, Gokasho, Uji, Kyoto 611-0011, Japan 2 Institute for Material Research, Tohoku University, 2-1-1 Katahira, Aoba-ku, Sendai 980-8577, Japan 3 Fusion Energy Research and Development Directorate, National Institutes for Quantum and Radiological Science and Technology, 2-166 Obuchi, Omotedate, Rokkasho, Aomori, 039-3212, Japan	Japan	Chemical state analysis of steamed Be12V beryllides by soft X-ray emission spectroscopy
2c Breeding	7	Irina L. Tazhibayeva1,2*, Yuriy N. Gordienko1, Yeyven V. Chikhray3, Saulet K. Askerbekov3, Zhanna A. Zaurbekova1,3, Kuanysh K. Samarkhanov1, Vadim S. Bochkov1, Mazhyn K. Skakov1	1Institute of Atomic Energy NNC RK, Kurchatov, 071100, Kazakhstan 2National Research Nuclear University MEPhI, 115409, Russian Federation 3IETP al-Farabi KazNU, 050040, Kazakhstan	Kazakhstan, Russia	REACTOR STUDIES OF TRITIUM RELEASE FROM LEAD-LITHIUM EUTECTIC Li15.7PB WITH DEUTERIUM OVER THE SAMPLE
2c Breeding	8	Ramil Gaisin1*, Vladimir Chakin1, Rolf Roll1, Harald Leiste1, Aniceto Goraieb2, Pavel Vladimirov1	1Karlsruhe Institute of Technology, Institute for Applied Materials, Eggenstein-Leopoldshafen, 76344 Germany 2Karlsruhe Beryllium Handling Facility (KBHF GmbH), Eggenstein-Leopoldshafen, 76344 Germany	Germany	EFFECT OF HOT ISOSTATIC PRESSING TEMPERATURE ON MICROSTRUCTURE AND PROPERTIES OF HOT-EXTRUDED Be-Ti COMPOSITES
2c Breeding	9	Taotao jin*, Hongguang Yang, Shanshan Liu, Changshui He, Xiaoming Yuan, Qin Zhan	China Institute of Atomic Energy (CIAE), Beijing, PR China	China	Study on the fabrication and properties of the lithium orthosilicate pebbles by improved gel-casting method
2c Breeding	10	Yuichi Furuyama, Masaaki Yamamoto, Yuma Akita, Tsubasa Takeda, Hiroaki Samata, Akira Taniike	Graduate School of Maritime Sciences, Kobe University, KOBE 658-0022, Japan	Japan	CO2 absorption characteristics of a blanket candidate material Li2TiO3 under moist air exposure
2c Breeding	11	Megha Sanjeev*, Samuel T. Murphy	Lancaster University, Lancaster, LA1 4YW, UK	UK	Thermal Conductivity of Li2TiO3 by Atomistic Simulation
2c Breeding	12	Samuel J. Waters*1, Yiqiang Wang2, Ionut Jecu2, Graeme Greaves3, Ron Smith4, Nik Reeves-McLaren1, Amy S. Gandy1.	1Department of Materials Science and Engineering, University of Sheffield, S1 3JD, UK. 2Culham Centre for Fusion Energy (CCFE), Culham Science Centre, OX14 3DB, UK. 3MIAMI Facility, University of Huddersfield, HD1 3DR, UK. 4ISIS Neutron and Muon Source, STFC, Rutherford Appleton Laboratory, OX11 0QX, UK.	UK	Radiation Damage and Helium Accommodation in Lithium Metatitanate Ceramic Breeder Materials
2c Breeding	13	Vladimir Chakin*, Rolf Rolli	Karlsruhe Institute of Technology, Institute for Applied Materials, Eggenstein-Leopoldshafen, 76344 Germany	Germany	TRITIUM AND HELIUM RELEASE FROM BERYLLIUM PEBBLES IRRADIATED UP TO 640 APPM TRITIUM AND 6000 APPM HELIUM
2c Breeding (Reviewed under 1FOSA)	14	Nicola Helfer1*, Jens Bröder2, Hans Rudolf Koslowski1, Christian Linsmeier1	1Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung – Plasmaphysik, 52428 Jülich, Germany 2Forschungszentrum Jülich GmbH, Peter Grünberg Institut and Institute for Advanced Simulation, 52425 Jülich, Germany	Germany	Phase Stability of Beryllium-Titanium Intermetallic Compounds
2c Breeding	15	Yi-Hyun Park1*, Jongil Kim1, Mu-Young Ahn1, Youngmin Lee1, Seungyon Cho1	1National Fusion Research Institute (NFRl), Daejeon, 34133 Republic of Korea	Korea	MAXIMUM OPERATING TEMPERATURE FOR Li2TiO3 PEBBLE BED BY SINTERING PHENOMENON
2c Breeding	16	Pavel V. Vladimirov1*, Dmitry Bachurin1, Vladimir P. Chakin1, Ramil Gaisin1, Aniceto Goraieb2, Francisco Hernandez1, Michael Klimentov1, Rolf Roll1, Christopher Stihl1, Nikolai Zimmer1	Karlsruhe Institute of Technology, Institute for Applied Materials, Eggenstein-Leopoldshafen, 76344 Germany, 2Karlsruhe Beryllium Handling Facility, 76344, Eggenstein-Leopoldshafen	Germany	DEVELOPMENT AND CHARACTERIZATION OF ADVANCED NEUTRON MULTIPLIER MATERIALS
15					
2d Other	1	Philip D Edmondson	Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA	US	RADIATION EFFECTS IN HIGH TEMPERATURE SUPERCONDUCTORS: CURRENT PROGRESS AND PERSPECTIVES
2d Other	2	Naoko Ashikawa1,2*, Toshikio Takimoto3, Akira Tonegawa3, Yoshihito Matsumura3, Kazunari Katayama4	1National Institute for Fusion Science, Toki, 5095292, JAPAN 2SOKENDAI, Toki, 5095292, JAPAN 3Tokai University, Hiratsuka, 2591292, JAPAN 4Kyushu University, Kasuga, 8128581, JAPAN	Japan	Detection of permeated hydrogen isotopes into plasma facing material using combined specimen with palladium and titanium
2					
3a TBM	1	Bo Huang*, Yutao Zhai, Xiaodong Mao, Shaojun Liu, Yican Wu, Qunying Huang, FDS Team	Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China	China	JOINING QUALIFICATION AND ADVANCED FABRICATION TECHNIQUE DEVELOPMENT ON FUSION REACTOR BLANKET IN CHINA
3a TBM	2	Akihiko Kimura1*, Jin Gao1, Yen-Jui Huang1, Kiyohiro Yabuuchi1, Han Wentuo2, Sanghoon Noh3, Peng Dou4, QST5	1Institute of Advanced Energy, Kyoto University, Gokasho, Uji, Kyoto 611-0011, Japan 2University of Science and Technology of Beijing, Beijing 100083, China 3Korea Atomic Energy Research Institute, Taejon 34057, Korea 4Chongqing University, Chongqing 400044, China 5Quantum Science Technology, Rokkasho, Aomori 611-0011, Japan	Japan, China, South Korea	COMPLEMENTARITY IN RAFS/ODSS FUSION BLANKETS
3a TBM	3	Chang-An CHEN1*, Zhanlei WANG1, Xin Xiang1, Guangda Lu1, Chunjing Li2, Yongjin Feng3	1Institute of Materials, China Academy of Engineering Physics, Mianyang, Sichuan, 621907, P. R. China 2Institute of Nuclear Energy Safety Technology, Chinese Academy of Science, Hefei, Anhui, 230031, P. R. China 3Southwestern Institute of Physics, Chengdu, 610041, China	China	Research Progress on Tritium Compatibility Issues for China RAFM Steels to Be Served as the Tritium Breeding Blanket Structure Material in CFETR
3					

3b ITER Materials	1	Arkady Serikov1*, Luciano Bertalot2, Ulrich Fischer1, Dieter Leichte1	1Karlsruhe Institute of Technology (KIT), Institute for Neutron Physics and Reactor Technology, Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany 2 ITER Organization, Route de Vinon-sur-Verdon, CS 90 046, 13067 St. Paul Lez Durance Cedex, France,	Germany, France	TRANSMUTATION EFFECTS IN MATERIALS FOR ITER DIAGNOSTICS
1					
3c-IFMIF	1	A. Ibarra1*, F. Arbeiter2, D. Bernardi3, J. Castellanos1, W. Krolas4, M. Cappelli6, U. Fischer2, R. Heidinger5, F. Martin-Fuertes1, G. Micciché3, A. Muñoz6, F. S. Nitti3, T. Pinna7, J. Quiñones1 and the full IFMIF-DONES team	1CIEMAT, Madrid, Spain 2KIT, Karlsruhe, Germany 3ENEA, Brasimone, Italy 4IFJ PAN, Krakow, Poland 5F4E, Garching, Germany 6Empresarios Agrupados, Madrid, Spain 7ENEA, Frascati, Italy	Spain, Germany, Italy, Poland	IFMIF-DONES PROJECT: STATUS AND NEAR FUTURE
3c-IFMIF	2	A. KASUGAI1*, S. SATO1, K. OCHIAI1, M. OHTA1, M. OYAIIDZU1, M. M. NAKAMURA1, S. KWON1, C. PARK1, K. SAKAMOTO1, and S. ISHIDA1	Rokkasho Fusion Institute, National Institutes for Quantum and Radiological Science and Technology (QST), Rokkasho, Aomori 039-3212 Japan	Japan	Progress of Conceptual Design of Advanced Fusion Neutron Source A-FNS
3c-IFMIF	3	Takeo Muroga1*, Anton Möslang2, Eberhard Diegele3	1National Institute for Fusion Science, Toki, 509-5292 Japan 2Karlsruhe Institute of Technology, 76021 Karlsruhe, Germany 3EUROfusion PMU, 85748 Garching, Germany	Japan, Germany	USERS' PERSPECTIVE ON D-Li NEUTRON SOURCES (A-FNS and IFMIF-DONES) FOR DEMO AND BEYOND
3c-IFMIF	4	Takuma Higashia*, Taichi Koyamaa, Takayuki Teraia and Juro Yagib	aSchool of Engineering, The University of Tokyo, Yayoi, Tokyo, 113-0032, Japan bInstitute of Advanced Energy, Kyoto University, Uji, Kyoto, 611-0011, Japan	Japan	Nitrogen Concentration Dependence of Corrosion of SS316L in Liquid Lithium
3c-IFMIF	5	Yican Wu*, Yongfeng Wang, Zhigang Wang, Qi Yang, Wen Wang, Canjun Liang, Size Chen, Jun Gao, Taosheng Li, Lijuan Hao, Jing Song, Pengcheng Long, Chao Liu, Fang Wang, Liqin Hu, Qunying Huang, and FDS Team	Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China	China	NEUTRONICS EXPERIMENTS FOR ADVANCED NUCLEAR SYSTEMS AT HINEG FACILITY
3c-IFMIF	6	Saerom Kwon1*, Satoshi Sato1, Makoto Nakamura1, Masayuki Ohta1, ChangHo Park1, Makoto Oyaidzu1, Kentaro Ochiai1, Atsushi Kasugai1	1 National Institutes for Quantum and Radiological Science and Technology, Rokkasho, 039- 3212 Japan	Japan	CONCEPTUAL DESIGN OF BLANKET MATERIALS TEST MODULES FOR A-FNS
3c-IFMIF	7	Eiichi Wakai1*, Takuma Higashi2, Akihiro Suzuki2,3, Yuzuru Ito1, Hiroyasu Tanigawa4, Hiroo Nakamura1, Takayuki Terai2, Davide Bernardi5	1Japan Atomic Energy Agency, Tokai-mura, Naka-gun, Ibaraki, 319-1195 Japan 2University of Tokyo, Tokyo, Japan 3Nippon Nuclear Fuel Development, Oarai-machi, Higashiibaraki-gun, Ibaraki, 311-1313 Japan 4National Institutes for Quantum and Radiological Science and Technology, Aomori, Japan 5ENEA, Brasimone, Italy	Japan, Italy	Validation Tests of Lithium Target System of Accelerator Driven Irradiation Facility
3c-IFMIF	8	B. V. Kuteev	National RC "Kurchatov Institute", Moscow, 123182 Russia	Russia	FUSION NEUTRON SOURCES FOR DEVELOPMENT OF MATERIALS AND FUSION-FISSION HYBRID TECHNOLOGIES
3c-IFMIF	9	K. D. Weaver1*, J. D. McDuffee2, and L. L. Snead3*	1Idaho National Laboratory, Idaho Fall, ID, 83415, USA, 2Oak Ridge National Laboratory, Oak Ridge, TN, 37831, USA, 3Stony Brook University, Stony Brook, NY, 11794, USA	US	Current Status and Prospects for Fission Based Materials Test Reactors for Fusion in the US
3c-IFMIF	10	W. Leysen, A. Stankovsky, D. Terentyev	Institute of Nuclear Materials Science, SCK CEN, Mol, 2400, Belgium	Belgium	Fusion Material Irradiation Station on MYRRHA Facility: Baseline concept
10					
3d Testing	1	Xiang Chen1*, Arunodaya Bhattacharya1, Tim Graening2, Logan N. Clowers1, Mikhail A. Sokolov1, Josina W. Geringer1, Kory D. Linton1, Yutai Katoh1, Michael Rieth2	1Oak Ridge National Laboratory, Oak Ridge, TN 37830, USA 2 Karlsruhe Institute of Technology, Karlsruhe, 76131, Germany	US, Germany	POST-IRRADIATION EVALUATION OF EUROFER97 FRACTURE TOUGHNESS USING MINIATURE MULTINOTCH BEND BAR SPECIMENS
3d Testing	2	Josina W. Geringer*, Padhraic L. Mulligan, Richard Howard, Nesrin Cetiner, Christian M. Petrie, Joel L. McDuffee, Kevin Field, Yutai Katoh	Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA	US	HFIR IRRADIATION ENGINEERING FOR FUSION MATERIALS
3d Testing	3	Josina W. Geringer*, Xiang Chen, Philip Edmondson, Xunxiang Hu, Hsin Wang, Anne Campbell, Arunodaya Bhattacharya, Kory Linton, Yutai Katoh	Oak Ridge National Laboratory, Oak Ridge, TN 37830, USA	US	RECENT ENHANCEMENT OF ORNL PIE CAPABILITIES
3d Testing	4	Andres Morell-Pacheco*, Laura Hawkins, Hyosim Kim, Jonathan Gigax, Frank A. Garner, and Lin Shao	Texas A&M University, College Station, TX 77843, USA	US	MAPPING OF SWELLING AND HARDNESS OF 316L AS A FUNCTION OF STRESS THROUGH A COMBINATION OF ION IRRADIATION AND A THREE-POINT BENDING TECHNIQUE
3d Testing	5	Alexander Valentin Brabänder, Hans-Christian Schneider, Marc Kamlah	Karlsruhe Institute of Technology, Institute for Applied Materials, Karlsruhe, Germany	Germany	An Advanced Characterization Method of Ductile-to-brittle-transition-temperature of Neutron-irradiated Structure Materials
3d Testing	6	Michael Mahler*, Stephane Fessi, Jarir Aktaa	Karlsruher Institute of Technology, Institute for Applied Materials, Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany	Germany	Simplified Ductile Approach for fracture-mechanical SSTT and its application to Eurofer97
3d Testing	7	Weihua Zhong, Zhenfeng Tong*, Guangsheng Ning, Ziyang Zhou, Wen Yang	China Institute of Atomic Energy, Beijing, 102413 China	China	Fracture toughness test on miniature specimen of Chinese RAFM
3d Testing	8	David Andres1*, Mike Gorley1, Elizabeth Surrey1	1UK Atomic Energy Authority, Abingdon, OX14 3DB United Kingdom	UK	APPLICATION OF THE SMALL PUNCH TESTING TECHNIQUE ON FUSION MATERIALS
3d Testing	9	Adrian S. Sabau1*, Kazutoshi Tokunaga2, Kenzo Imano3, Charles R. Schaich1, Daniel T. Moore1, and Yutai Katoh1	1Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA 2Kyushu University, Fukuoka 816-8580, Japan 3Osaka University, Osaka 565-0871, Japan	US, Japan	A 6 MW/m2 INFRARED HIGH-HEAT FLUX TEST FACILITY FOR HIGH-THROUGHPUT SCREENING OF IRRADIATED MATERIALS
3d Testing	10	Mikhail A. Sokolov1*, H. Tanigawa2, S. M. Gonzalez-de-Vicente3, X. Chen1, M. Mahler4, M. Walter4, J. Aktaa4, R. Heidinger5, Y. Carin5, T. Nagasaka6, S. Nogami7, M. Serrano8, Y. Shen9 T. Nozawa2 and M. Ohata10	1Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA 2QST, Rokkasho, Japan 3International Atomic Energy Agency, Vienna, Austria 4Karlsruhe Institute of Technology, Karlsruhe, Germany 5Fusion for Energy, BA/IFMIF, Garching, Germany 6National Institute for Fusion Science, Toki, Japan 7Tohoku University, Sendai, Japan 8CIEMAT, Madrid, Spain 9Shanghai Jiao Tong University, Shanghai, China 10Osaka University, Osaka, Japan	US, Japan, Germany, Spain	IAEA COORDINATED RESEARCH PROJECT ON SMALL SPECIMEN TEST TECHNIQUES FOR FUSION APPLICATIONS
3d Testing	11	Richard H. Howard*, Ryan C. Gallagher, Josina W. Geringer, Yutai Katoh	Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA	US	USING SURFACE RESPONSE METHODS TO RAPIDLY AND EFFICIENTLY DESIGN HFIR FUSION MATERIALS IRRADIATION CAPSULES

3d Testing	12	Takuya Yamamoto*, Souptak Pal and G. Robert Odette	University of California Santa Barbara, Santa Barbara, CA USA	US	DEVELOPING UNIFIED MICROHARDNESS - TENSILE – NANOIDENTATION RELATIONS TO TRUE STRESS-STRAIN CONSTITUTIVE PROPERTIES
4 Materials Design Interface	1	Denis L.S. Sornin 1*, N. Lochet 1, R. Marull 1, L. Forest2	1DEN-Service de Recherches Métallurgiques Appliquées, CEA, Univ. Paris-Saclay, F-91191,Gif-sur-Yvette. France. 2DEN-Service d'études mécaniques et thermiques (SEMT), CEA, Univ. Paris-Saclay, F-91191,Gif-sur-Yvette. France.	France	Double walled heat exchanger tube design and manufacturing for Water Cooled Lithium Lead breeder module
4 Materials Design Interface	2	Kurt Terrani*	Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA	US	ADVANCED MANUFACTURING FOR NUCLEAR ENERGY SYSTEMS: OPPORTUNITIES FOR FUSION ENERGY
4 Materials Design Interface	3	J. Aktaa*, M. Walter, Matthias Kolb, R. Knitter	Karlsruhe Institute of Technology (KIT), Institute for Applied Materials, 76344 Eggenstein-Leopoldshafen, Germany	Germany	Assessment of the chemical compatibility between EUROFER and ceramic breeder with respect to fatigue lifetime
5e Adv Charact (Moved to 4 MDI)	4	A.F. Rowcliffe*, C.E. Kessel, Y. Katoh	Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA	US	MATERIALS-DESIGN INTEGRATION FOR THE NEXT PHASE OF FNSF DESIGN STUDIES
5a-Defect Production	1	O. V. Ogorodnikova1*, M. Majerle2, V.V. Gann3, J. Cizek4, P. Hruska4, S.Simakov5, M. Stefanik2, V. Zach2	1National Research Nuclear University "MEPHI" (Moscow Engineering Physics Institute),Kashirskoe sh. 31, Moscow, Russia 2Nuclear Physics Institute of the CAS, Rez 130, 250 68 Rez, Czech Republic 3National Science Centre "Kharkov Institute of Physics and Technology", Kharkov, Ukraine 4Department of Low-temperature physics, Charles University, V Holesovickach 2, 180 00, Prague, Czech Republic 5Institute for Neutron Physics and Reactor Technology, Karlsruhe Institute of Technology, 76344 Eggenstein-Leopoldshafen, Germany	Russia, Czech Republic, Ukraine, Germany	EXPERIMENTAL STUDY OF PRIMARY RADIATION DEFECTS IN W AND Fe
5a-Defect Production	2	Vladimir Vojtech*1, Robin Schäublin1, Dongsheng Song2, Rafal Dunin-Borkowski2, Jörg F. Löffler1	1Laboratory of Metal Physics and Technology, Department of Materials, ETH Zurich, 8093 Zurich, Switzerland, 2Ernst Ruska-Centre for Microscopy and Spectroscopy with Electrons, Jülich, Germany	Switzerland, Germany	Relationship between radiation-induced dislocation loops and the local magnetic field in Fe(Cr)
5a-Defect Production	3	John Echols1*, Lauren M. Garrison1, Yutai Katoh1, Masafumi Akiyoshi2	1Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA 2Radiation Research Center, Osaka Prefecture University, Japan	US, Japan	ELECTRICAL RESISTIVITY OF IRRADIATED TUNGSTEN
5a-Defect Production	5	S. Agarwal1, C. Li1, Y-Ru Lin1, R. Stoller2, S. J. Zinkle1,2	1Department of Nuclear Engineering, University of Tennessee, Knoxville, TN 37996, USA 2 Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA	US	On using SRIM for correctly calculating dpa: Quick Kinchin-Pease versus Full-cascade option
5a-Defect Production	6	Weilin Jiang*, Giridhar Nandipai, Wahyu Setyawan, Charles H. Henager Jr., Richard J. Kurtz	Pacific Northwest National Laboratory, Richland, WA 99354, United States	US	DAMAGE ACCUMULATION AND VOID FORMATION IN SELF-ION IRRADIATED TUNGSTEN
5a-Defect Production	7	Yuta Ono1*, N. Hashimoto2, Wei-Ying Chen3	1Graduate school of engineering, Hokkaido University, Sapporo, Hokkaido, 060-8628 Japan 2Faculty of engineering, Hokkaido University, Sapporo, Hokkaido, 060-8628 Japan 3Argonne National Laboratory (ANL), Lemont, IL 60439 USA	Japan, US	Mobility of point defects in CoCrFeNi-base High Entropy Alloys
5a-Defect Production (Could also be 7a)	9	Barbara Wielunska1, Matej Mayer1, Thomas Schwarz-Selinger1, Werner Egger2, Lukasz Ciupinski3, Tomasz Plocinski3	1Max-Planck-Institut für Plasmaphysik, Boltzmannstraße 2, 85748 Garching,Germany 2Institut für Angewandte Physik und Messtechnik LRT2, Fakultät für Luft- und Raumfahrttechnik, Werner-Heisenberg-Weg 39, 85577 Neubiberg, Germany 3Wydział Inżynierii Materiałowej, ul. Woloska 141, 02-507 Warszawa, Poland	Germany, Poland	RADIATION DAMAGE AND DEUTERIUM RETENTION IN TUNGSTEN
5a-Defect Production	10	F. Borgognonia*, V. Burwitzb, W. Eggerc, T. Schwarz-Selingerb, M. Vadrucchia, M. Zibrovb, L. Picardia	a ENEA - Development of Particle Accelerators and Medical Applications Laboratory, Via E. Fermi, 45, 00044 Frascati (RM), Italy b Max-Planck-Institut für Plasmaphysik, Boltzmannstrasse 2, D-85748 Garching, Germany c Universität der Bundeswehr München, 85579 Neubiberg, Germany	Italy, Germany	Vacancy creation on tungsten through MeV electron-beam irradiation
5a-Defect Production	11	Jingping Xin1,2, *, Qunying Huang1, Yong Dai2, FDS Team1	1Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui 230031, China 2Laboratory for Nuclear Materials, Paul Scherrer Institut, 5232 Villigen PSI, Switzerland	China, Switzerland	NANOSCALE DEFECTS AND ITS EFFECT ON PROPERTIES OF CLAM STEEL UNDER HIGH ENERGY PROTON AND SPALLATION NEUTRON MIXED SPECTRUM IRRADIATION
5a-Defect Production	12	Pär Olsson1*, Timofiy Lukinov1, Charlotte Becquart2, Rebecca Alexander2, Zoi Kotsina3, Michal Axiotis3, George Apostolopoulos3	1KTH Royal Institute of Technology, Nuclear Engineering, Stockholm, 11421 Sweden 2Univ Lille, UMET, UMR 8207, ENSCL, Villeneuve d'Ascq, 59655 France 3Institute of Nuclear & Radiological Sciences & Technology, Energy & Safety, N.C.S.R. "Demokritos", Aghia Paraskevi, 15310 Greece	Sweden, France, Greece	Coupled theoretical and experimental determination of residual resistivity for defects in fusion reactor materials
5a-Defect Production	13	Sana Cao1*, Qing Peng1, Brian Wirth2, Fei Gao1	1Department of Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor,48105 USA 2Department of Nuclear Engineering, University of Tennessee, Knoxville, TN 37996-2300, USA	US	Modeling point defect cluster absorption bias of Cavities in FeCr Alloys
5a-Defect Production	14	Steven J. Zinkle 1,2	1University of Tennessee, Knoxville, TN 37996 USA 2Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA	US	Defect production, Diffusion and Interaction with He in Irradiated Materials
5a-Defect Production	15	M. Roldán (1)*, P. Fernández (1), A. Gómez-Herrero (2) and R. Vila (1)	1CIEMAT. National Fusion Laboratory. Technology Division. Avda. Complutense, 40. 28040. Madrid. Spain. 2National Center of Electronic Microscopy. Avda. Complutense s/n.28040 Madrid.	Spain	Cr EFFECT ON DISLOCATION LOOPS ON FeCr ALLOYS IRRADIATED AT IANNUS (HE+H+FE)
5a-Defect Production (Could also be 6e)	16	Jesper Byggmästar1*, Ali Hamedani1, Kai Nordlund1, Flyura Djurabekova1	1Department of Physics, University of Helsinki, FIN-00014 Finland	Finland	MACHINE-LEARNING INTERATOMIC POTENTIALS FOR RADIATION DAMAGE IN BCC METALS
5a-Defect Production (Could also be 6b)	17	Yuri Osetsky	Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA	US	DYNAMICS OF INTERSTITIAL DEFECTS IN TUNGSTEN-RHENIUM ALLOYS
5a-Defect Production	18	Takaaki Koyanagi*, Hsin Wang, Yoonjo Lee, Yutai Katoh	Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA	US	EFFECTS OF NEUTRON IRRADIATION ON ELECTRICAL PROPERTIES OF HIGH-PURITY SiC CERAMICS
5a-Defect Production	19	Yuri Osetsky	Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA	US	WHAT IS THE MAXIMUM POSSIBLE STRENGTHENING DUE TO LOCALIZED OBSTACLES IN FERRITIC ALLOYS?
5a-Defect Production	20	M. Zibrov1*, W. Egger2, M. Mayer1	1Max-Planck-Institut für Plasmaphysik, 85748 Garching, Germany 2Universität der Bundeswehr München, 85579 Neubiberg, Germany	Germany	HIGH TEMPERATURE RECOVERY OF RADIATION DEFECTS IN TUNGSTEN AND ITS EFFECT ON DEUTERIUM RETENTION

5a-Defect Production	21	Jesper Byggmästar1*, Fredric Granberg1, Andrea E. Sand1, Aslak Fellman1, Antti Pirrtikoski1, Rebecca Alexander2, Mihai-Cosmin Marinica3, Kai Nordlund1	1Department of Physics, University of Helsinki, FIN-00014, Finland 2UMET, UMR 8207, ENSCL, U Lille, 59655 Villeneuve d'Ascq Cédex, France 3DEN-Service de Recherches de Métallurgie Physique, CEA, Université Paris-Saclay, F-91191 Gif-sur-Yvette, France	Finland, France	CASCADE OVERLAP EFFECTS IN IRON AND TUNGSTEN
5a-Defect Production	22	Rebecca L. Gray1*, Michael J.D. Rushton2, Samuel T. Murphy1	1Lancaster University, Lancaster, LA1 4YW, UK 2Bangor University, LL57 2DG, UK	UK	RADIATION DAMAGE IN REBCO MATERIALS FOR COMPACT FUSION REACTORS
5a-Defect Production	23	Ningning Zhang1, Yujuan Zhang1*, Changchun Ge1,*	1Institute of Nuclear Materials, School of Materials Science and Engineering, University of Science and Technology Beijing (USTB), Beijing 100083, China	China	THEORETICAL INSIGHT INTO THE INFLUENCES OF NITROGEN/ZIRCONIUM AND VACANCY DEFECTS ON THE BEHAVIOR OF HELIUM IN TUNGSTEN
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5b Microstructure	1	Arunodaya Bhattacharya*, David T. Hoelzer, Dalong Zhang1, Kun Wang, Josina W. Geringer, Kevin G. Field, Yutai Katoh	Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA 1Now at Pacific Northwest National Laboratory, Richland, WA 99352 USA	US	MICROSTRUCTURES OF MA957, 12YWT AND PM2000 ODS STEELS AFTER > 50 DPA NEUTRON IRRADIATIONS
5b Microstructure	2	Matheus A Tunes1, Stephen E Donnelly1, Philip D Edmondson2	1University of Huddersfield, Huddersfield, HD1 3DH. UK 2Oak Ridge National Laboratory, Oak Ridge, TN 37831. USA	UK, US	ACCELERATED RADIATION EFFECTS IN MAX PHASES AT HIGH TEMPERATURES
5b Microstructure	3	Yao Li1*, Yajie Zhao1, Arunodaya Bhattacharya2, Jean Henry3, Steven John Zinkle1,2	1The University of Tennessee, Knoxville, 37996-1410 USA 2Oak Ridge National Laboratory, 37981, USA 3CEA, DEN-Service de Recherches Métallurgiques Appliquées, Laboratoire d'Analyse Microstructurale des Matériaux, Université Paris-Saclay, F-91191, Gif-sur-Yvette, France	US, France	Effect of Cr and C on dislocation loops in heavy ion irradiated ultra-high purity FeCr alloys
5b Microstructure	4	Weilin Jiang*, David J. Senor	Pacific Northwest National Laboratory, Richland, WA 99354, United States	US	DIFFUSION OF HYDROGEN ISOTOPES AND MICROSTRUCTURE IN ION IRRADIATED LITHIUM ALUMINATE
5b Microstructure	5	F. A. Garner*, A. J. French and Lin Shao	Texas A&M University, College Station TX, 77843 USA	US	IMPROVEMENT OF ION BOMBARDMENT FOR SIMULATION OF NEUTRON-INDUCED VOID SWELLING USING PREVIOUSLY NEUTRON-IRRADIATED SPECIMENS.
5b Microstructure	6	Dai Hamaguchi1, Masami Ando1, Hiroyasu Tanigawa1, Arunodaya Bhattacharya2, Kevin G. Field2, J. Wilna Geringer2, Yutai Kato2, Sho Kano3, Hiroaki Abe3	1National Institute for Quantum and Radiological Science and Technology, Rokkasho, Aomori, Japan 2Oak Ridge, National Laboratory, Oak Ridge, TN 37831, USA 3Nuclear Professional School, The University of Tokyo, Tokaimura, Ibaraki, Japan	Japan, US	MICROSTRUCTURAL EVOLUTION OF F82H UNDER HIGH DOSE IRRADIATION
5b Microstructure	7	Yeping Lin1*, Lin Lang1, Chang Shan1, Huiqiu Deng2, Wangyu Hu1, Fei Gao3, 1	1College of Materials Science and Engineering, Hunan University, Changsha, 410082, China 2School of Physics and Electronics, Hunan University, Changsha, 410082, China 3Department of Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, MI, 48109, USA	China, US	GENERATION AND EVOLUTION OF IRRADIATION-INDUCED DEFECTS IN Ni-Co-Cr-Fe SINGLE-PHASE CONCENTRATED SOLID-SOLUTION ALLOYS
5b Microstructure	9	M. Šćepanović, M.A. Auger*, T. Leguey, J. Macías, V. de Castro	Departamento de Física, Universidad Carlos III de Madrid, Avenida Universidad 30, 28911 Leganés (Madrid), Spain	Spain	Atom Probe Tomography analysis of dual ion beam irradiated ODS steel
5b Microstructure	10	Chenxu Wang1, 2*, Rodney C. Ewing1, Yugang Wang2	1Department of Geological Sciences, Stanford University, Stanford, California 94305, USA 2State Key Laboratory of Nuclear Physics and Technology, Center for Applied Physics and Technology, Peking University, Beijing 100871, China	US, China	Disorder in Mn+1AXn phases at the atomic scale
5b Microstructure	11	Chenyang Lu1,2*, Yanwen Zhang3, Fei Gao1, Lumin Wang1	1 Department of Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, MI 48109, United States 2 Department of Nuclear Science and Technology, Xi'an Jiaotong University, Xi'an, Shanxi 710049, China 3. Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA	US, China	INFLUENCE OF CHEMICAL COMPLEXITY ON RADIATION EFFECTS: FROM PURE METAL TO HIGH ENTROPY ALLOY
5b Microstructure	14	Naoyuki Hashimoto1*, Wei-Ying Chen2, Jien-Wei Yeh3	1Hokkaido University, Sapporo, 060-8628 Japan 2Argonne National Laboratory, Lemont, IL 60439, USA 3National Tsing Hua University, Hsinchu, Taiwan	Japan, US, Taiwan	In-situ observation of radiation damage in FeCrNiMn high entropy alloys
5b Microstructure	15	Akihiko Kimura1*, Jin Gao1, Kiyohiro Yabuuchi1, Eva Hasenhuettl2, Zhexion Zhang3	1Institute of Advanced Energy, Kyoto University, Gokasho, Uji, Kyoto 611-0011, Japan 2Graduate School of Energy Science, Kyoto University, Sakyo-ku, Kyoto 606-8501, China 3University of New Mexico, Albuquerque, NM, 87131, USA	Japan, China, US	ORDERED DEFECT STRUCTURES IN BCC METALS
5b Microstructure	16	Koichi Sato1*, Yohei Kondo1, Masakiyo Ota1, Masahira Onoue2, Masahiko Hatakeyama3, Satoshi Sunada3, Qiu Xu4, Yoshiyuki Watanabe5, Dai Hamaguchi5, Hiroyasu Tanigawa5	1 Graduate School of Science and Engineering, Kagoshima University, Kagoshima, 890-0065 Japan 2 Natural Science Centre for Research and Education, Kagoshima University, Kagoshima, 890-0065 Japan 3 Graduate School of Science and Engineering for Research, University of Toyama, Toyama, 930-8555 Japan 4Institute for Integrated Radiation and Nuclear Science, Kyoto University, Osaka, 590-0494 Japan 5 National Institutes for Quantum and Radiological Science and Technology, Aomori, 039-3212 Japan	Japan	DEPENDENCE OF POSITRON ANNIHILATION LIFETIME OF VACANCY-TYPE DEFECTS ON HYDROGEN ATOMS IN METALS
5b Microstructure	17	Yan-Ru Lin1, Arunodaya Bhattacharya2, Jean Henry3 and Steven J. Zinkle1,2,*	1University of Tennessee, Knoxville, TN 37996, USA 2Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA 3CEA, DEN-Service de Recherches Métallurgiques Appliquées, Laboratoire d'Analyse Microstructurale des Matériaux, Université Paris-Saclay, F-91191, Gif-sur-Yvette, France	US, France	VOID SWELLING IN ION IRRADIATED HIGH-PURITY Fe AND Fe-Cr ALLOYS: PEAK SWELLING TEMPERATURES AND CARBON EFFECT
5b Microstructure	18	Ling Wang1, Arunodaya Bhattacharya2, David Martin3, Chad M. Parish2, Spencer Kropf3, Brian D. Wirth2,3, Steven J. Zinkle1,2,3*	1Department of Materials Science and Engineering, University of Tennessee, Knoxville, TN 37996-2100, USA 2Oak Ridge National Laboratory, Oak Ridge, Tennessee 37831, USA 3Department of Nuclear Engineering, University of Tennessee, Knoxville, TN 37996-2100, USA	US	Phase stability of coherent precipitates in dilute binary alloys after ion irradiation
5b Microstructure	19	Yosuke Abe1*, Yuhki Satoh2, Nariaki Okubo1, Azusa Konno1	1Nuclear Science and Engineering Center, Japan Atomic Energy Agency, Tokai-mura, Ibaraki, 319-1195, Japan 2Department of Intelligent Mechanical Engineering, Faculty of Engineering, Hiroshima Institute of Technology, Hiroshima, 731-5193, Japan	Japan	EFFECT OF ONE-DIMENSIONAL MIGRATION OF SELF-INTERSTITIAL ATOM CLUSTERS ON THEIR NUMBER DENSITY IN ALPHA-IRON UNDER ELECTRON IRRADIATION

5b Microstructure	20	Yoshiyuki Watanabe1*, Kazunori Morishita2, Masami Ando1 and Hiroyasu Tanigawa1	1National Institutes for Quantum and Radiological Science & Tech., Aomori 039-3212, Japan 2Institute of Advanced Energy, Kyoto University, Kyoto 611-0011, Japan	Japan	Microstructure correlation of RAFM steel under different irradiation fields: Reaction rate theory analysis
5b Microstructure	21	Yajie Zhao1*, Arunodaya Bhattacharya2, Philip D. Edmondson2, Caleb Massey1, Jean Henry3, and Steven J. Zinkle1,2	1University of Tennessee, Knoxville, TN 37996, USA 2Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA 3CEA, DEN, Service de Recherches Métallurgiques Appliquées, Laboratoire d'Analyse Microstructurale des Matériaux, Université Paris-Saclay F-91191 Gif-sur-Yvette, France	US, France	DOSE RATE AND TEMPERATURE EFFECT ON IRRADIATION-ENHANCED ALPHA PRIME PRECIPITATION IN ULTRA-HIGH PURITY FeCr ALLOYS
5b Microstructure	22	Yuta Ono1*, N. Hashimoto2, Wei-Ying Chen3	1Graduate school of engineering, Hokkaido University, Sapporo, Hokkaido, 060-8628 Japan 2Faculty of engineering, Hokkaido University, Sapporo, Hokkaido, 060-8628 Japan 3Argonne National Laboratory (ANL), Lemont, IL 60439 USA	Japan, US	Mobility of point defects in CoCrFeNi-base High Entropy Alloys
5b Microstructure	23	Mitsuki Zushi1*, N. Hashimoto2, D. Hamaguchi3, Y. Watanabe3, H. Tanigawa3	1Graduate School of Engineering, Hokkaido University, Sapporo, Hokkaido, 060-8628 Japan 2Faculty of Engineering, Hokkaido University, Sapporo, Hokkaido, 060-8628 Japan 3National Institutes for Quantum and Radiological Science and Technology (QST), Rokkasho, Aomori, 039-3212 Japan	Japan	Determination of grain boundary character in ferritic/martensitic steel F82H
5b Microstructure	24	Dan Edwards1*, Hee Joon Jung3, Karen Kruska1, Richard Kurtz1, Takuya Yamamoto2, G. Robert Odette2	1Pacific Northwest National Laboratory, Richland, WA 99352, USA 2University of California Santa Barbara, Santa Barbara, CA 93106, USA 3 Northwestern University, Evanston, IL 60208	US	RESISTANCE TO VOID FORMATION IN ODS ALLOYS IN THE PRESENCE OF IN-SITU HELIUM INJECTION
5b Microstructure	25	Zhiwei Hu1, MF Barthe1*, C Genevois-Mazellier1, B Decamps2, P Desgardin1, R Schaublin3	1 CNRS, CEMHTI UPR3079, Univ. Orléans, F-45071 Orléans, France 2 Centre de Sciences Nucléaires et de Sciences de la Matière (CSNSM/IN2P3/CNRS), Orsay University, Bât. 108, F-91405 Orsay Campus, France 3 Laboratory of Metal Physics and Technology, Department of Materials, ETH Zurich, 8093 Zurich, Switzerland	France, Switzerland	Damage induced in self irradiated tungsten as a function of its purity
5b Microstructure	26	Mitsutaka Miyamoto1*, Masaharu Hashiguchi1, Yutaka Sugimoto1, Yoshiyuki Watanabe2	1 Material Science, Shimane University, Matsue, Shimane 690-8504, Japan 2 Fusion Energy Research and Development Directorate, National Institutes for Quantum and Radiological Science and Technology, Rokkasho, Aomori 2-166, Japan	Japan	Formation and migration of helium bubbles in Reduced Activation Ferritic/Martensitic Steel F82H
5b Microstructure	27	Jin Gao1*, Kiyohiro Yabuuchi1, Peng Song1, Akihiko Kimura1, Yuuki Yamasaki2, Kan Sakamoto3, Shinichiro Yamashita4	1Institute of Advanced Energy, Kyoto University, Uji, Kyoto 611-0011, Japan 2 Graduate School of Energy Science, Kyoto University, Kyoto, Kyoto 606-8501, Japan 3 Nippon Nuclear Fuel Development, Co., Ltd, Oarai, Ibaraki 311-1313, Japan 4 Japan Atomic Energy Agency, Tokai, Ibaraki 319-1195, Japan	Japan	COMPARISON BETWEEN NEUTRON AND SELF-ION IRRADIATION EFFECTS ON ODS Fe-12Cr-6Al AT 290 °C
5b Microstructure	28	Robert E. Rudd1*, Timofey Frolov1 and Jaime Marian2	1Lawrence Livermore National Laboratory, Livermore CA 94550 USA 2University of California Los Angeles, Los Angeles CA 90095 USA	US	TUNGSTEN GRAIN BOUNDARY MOBILITY
5b Microstructure		Masafumi Akiyoshi1, Lauren M. Garrison2, Josina W. Geringer2, Hsin Wang2, Akira Hasegawa3, Syuhei Nogami3 and Yutai Katoh2	1 Osaka Prefecture University, Sakai, Osaka 599-8570 Japan 2Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA 3Tohoku University, Sendai, Miyagi 980-8579, Japan	Japan, US	THERMAL DIFFUSIVITY OF IRRADIATED TUNGSTEN AND TUNGSTEN-RHENIUM ALLOYS
5b Microstructure	30	Xunxiang Hu1*, Chad M. Parish1, Kun Wang1,2, Takaaki Koyanagi1, Benjamin P. Eftink3, Jaime Marian4, Lauren M. Garrison1, Yutai Katoh1	1Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA 2Alfred University, Alfred, NY 14802, USA 3Los Alamos National Laboratory, Los Alamos, NM, 87545, USA 4University of California, Los Angeles, CA, 90095, USA	US	OVERVIEW OF TRANSMUTATION-INDUCED PRECIPITATION IN TUNGSTEN DURING NEUTRON IRRADIATION
5b Microstructure	31	Michael Klimenkov*, Ute Jäntsch, Michael Rieth and Anton Möslang	Karlsruhe Institute of Technology, Institute for Applied Materials, Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany	Germany	Correlation of microstructural and mechanical properties of neutron irradiated EUROFER97
	27				
5c Mechanical Properties	1	Arunodaya Bhattacharya1*, Xiang Chen1, Josina W. Geringer1, Tim Graening2, Yutai Katoh1, Michael Rieth2	1Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA 2Karlsruhe Institute of Technology, Karlsruhe, 76131 Germany	US, Germany	MICROSTRUCTURE AND PROPERTY DEGRADATION OF EUROFER97 IN NON-STANDARD METALLURGICAL CONDITIONS
5c Mechanical Properties	2	Yeonju Oh1*, Nojun Kwak1, Ki-Baek Roh2, Gon-Ho Kim2, and Heung Nam Han1	1Department of Materials Science and Engineering & Research Institute of Advanced Materials, Seoul National University, Seoul, 08826, Republic of Korea 2Department of Nuclear Engineering, Seoul National University, Seoul, 08826, Republic of Korea	South Korea	Microstructure dependence on the nano-mechanical properties of deuterium irradiated tungsten
5c Mechanical Properties	3	Xiang Chen1*, Mikhail A. Sokolov1, Logan N. Clowers1, Josina W. Geringer1, Yutai Katoh1, Hiroyasu Tanigawa2	1Oak Ridge National Laboratory, Oak Ridge, TN 37830, USA 2National Institutes for Quantum and Radiological Science and Technology, Rokkasho, 039-3212, Japan	US, Japan	EFFECTS OF NEUTRON IRRADIATION ON FRACTURE TOUGHNESS PROPERTIES OF STANDARD AND NI-DOPED F82H STEELS
5c Mechanical Properties	4	S Dellis1, Xiazhi Xiao2, A. Bakaev3, S. Krimpalis1, K. Mergia1*, S. Messoloras1 and D. Terentyev3	1NCSR Demokritos, Institute of Nuclear and Radiological Science and Technology, Energy and Safety, 15310 Agia Paraskevi, Greece 2Department of Mechanics, School of Civil Engineering, Central South University, Changsha 410075, P.R. China 3SCK•CEN, Nuclear Materials Science Institute, Boeretang 200, 2400 Mol, Belgium	Greece, Belgium	Mechanical properties of neutron irradiated single crystal tungsten studied by non-destructive mechanical testing and FEM modelling
5c Mechanical Properties	5	Lauren M. Garrison1*, Yutai Katoh1, Wilna Geringer1, Masafumi Akiyoshi2, Takeshi Miyazawa3, Xiang Chen1, John Echols1, Tim Graening1, Akira Hasegawa3, Tatsuya Hinoki4, Xunxiang Hu1, Takaaki Koyanagi1, Eric Lang1, Chad Parish1, Nathan Reid1, Hsin Wang1	1Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA 2Radiation Research Center, Osaka Prefecture University, Japan 3Tohoku University, Sendai, Japan 4Kyoto University, Kyoto, Japan	US, Japan	MECHANICAL AND THERMAL PROPERTY CHANGES IN IRRADIATED TUNGSTEN
5c Mechanical Properties	6	Atsushi Kiyohara1*, Koichi Sato1, Hayato Yamashita1, Masahira Onoue2, Qiu Xu3, Kiyohiro Yabuuchi4, Akihiko Kimura4, Ryuta Kasada5	1 Graduate School of Science and Engineering, Kagoshima University, Kagoshima, 890-0065 Japan 2Natural Science Centre for Research and Education, Kagoshima University, Kagoshima, 890-0065 Japan 3Institute for Integrated Radiation and Nuclear Science, Kyoto University, Osaka, 590-0494 Japan 4Institute of Advanced Energy, Kyoto University, Kyoto, 611-0011 Japan 5Institute for Materials Research, Tohoku University, Miyagi, 980-5877 Japan	Japan	EFFECT OF HYDROGEN ON THE SURFACE HARDNESS IN ION-IRRADIATED TUNGSTEN
5c Mechanical Properties	7	Shuhei Nogami1*, Akira Hasegawa1, and Masanori Yamazaki2	1 Department of Quantum Science & Energy Engineering, Graduate School of Engineering, Tohoku University, Sendai 980-8579, Japan 2 Institute of Materials Research, Tohoku University, Oarai, Ibaraki 311-1313, Japan	Japan	FATIGUE PROPERTIES OF FERRITIC/MARTENSITIC STEEL AFTER NEUTRON IRRADIATION AND HELIUM IMPLANTATION

Sc Mechanical Properties	8	S. Ohnuki1,S. Yamashita2,L. Zhang1, K. Toyama3, K. Yoshida3, Y. Nagai3, W. Han1, X. Yi1, P. Liu1,Q. Zhan1, F. Wan1	1 USTB, Beijing, 100083 China, 2IAEA, Tokai, Japan, 3 IMR, Tohoku U, Oarai, Japan,	China, Japan	Anomalous phase separation in Fe-Cr alloys under three types of irradiation
Sc Mechanical Properties	9	Cunfeng Yao1,2*, Yong Dai1	1Laboratory for Nuclear Materials, Paul Scherrer Institut, 5232 Villigen PSI, Switzerland 2Institute of Modern Physics, Chinese Academy of Sciences, 730000 Lanzhou, P.R. China	Switzerland, China	DBTT shift of ferritic/martensitic and ODS steels after spallation irradiation evaluated with small punch testing
Sc Mechanical Properties	10	Eiichi Wakai1,2*, Taku Ishida1,3, Shigeru Takaya2, Shunsuke Makimura1,3, Koichi Sato4, Kazumi Aoto2, Hiroaki Abe5, Patrick G. Hurr6, Kavin Ammigam6, David J. Senor7, Andrew M. Casella7, Danny J. Edwards7	1J-PARC Center, Tokai-mura, 319-1195 Japan 2IAEA, Tokai-mura, 319-1195 Japan 3KEK, Tsukuba, 305-0801 Japan 4Kagoshima University, Kagoshima, 890-0065 Japan 5University of Tokyo, Tokai-mura, 319-1188 Japan 6Fermilab, Batavia, IL 60510-5011 U.S.A. 7PNPL, Richland, WA 99352 U.S.A.	Japan, US	Reviews and Analysis of Irradiation Damage of Structural Materials and Design Windows under Different Irradiation Environments
Sc Mechanical Properties	11	Pengcheng Zhu1*, Shradha Agarwal1, Yajie Zhao1, Steven J.Zinkle1,2	1 University of Tennessee, Knoxville, TN 37996, United States of America 2Oak Ridge National Laboratory, Oak Ridge, TN 37831, United States of America	US	EXAMINATION OF HARDENING IN ION IRRADIATED Fe14Cr ALLOY BY SPHERICAL AND BERKOVICH NANOINDENTATION
Sc Mechanical Properties	12	Yuguang Chen1, Chonghong Zhang1*, Zhaonan Ding1, Xianlong Zhang1, Yitao Yang1, Yin Song1, Akihiko Kimura2	1Institute of Modern Physics, Chinese Academy of Sciences, Lanzhou 730000, China 2Institute of Advanced Energy, Kyoto University, Kyoto 611-0011, Japan	China, Japan	Hardening/embrittlement of An Al-added 16Cr ODS Ferritic Steel Irradiated with High-energy Heavy Ions
Sc Mechanical Properties	13	H. Watanabe*a, T. Irie b,Y. Gouya b, Y. Kamada c	aResearch Institute for Applied Mechanics, Kyushu University, 6-1, Kasuga-kouenn, Kasugashi, Fukuoka, 816-8580, Japan binterdiscipraly Graduate School of Kyushu University, 6-1, Kasuga-kouenn, Kasugashi, Fukuoka, 816-8580, Japan cFaculty of Engineering, Iwate University, 4-3-5 Ueda, Morioka-shi, Morioka, 020-8551, Japan	Japan	Effects of Mn, Ni addition on radiation induced dislocation loops and solute clusters of Fe-based model alloys under Irradiation
Sc Mechanical Properties	14	W. Q. Chen1,2, X. Z. Xiao3, K. L. Li1, T. W. Morgan4, W. Liu1,* and Y. L. Chiu2	1 School of Materials Science and Engineering, Tsinghua University, Beijing, 100084, PR China 2 School of Metallurgy and Materials, University of Birmingham, Birmingham B15 2TT, UK 3 School of Civil Engineering, Central South University, Changsha 410075, PR China 4 DIFFER-Dutch Institute for Fundamental Energy Research, De Zaale 20, 5612 AJ Eindhoven, Netherlands	China, UK, Netherlands	Mechanical properties of tungsten under hydrogen plasma exposure at different temperature
Sc Mechanical Properties	15	Hans-Christian Schneider, Alexander Valentin Brabänder, Michael Klimentov	Karlsruhe Institute of Technology, Institute for Applied Materials, Karlsruhe, Germany	Germany	Thermally Activated Recovery of Neutron-induced Defects and Mechanical Properties of Reduces Activation Ferritic/Martensitic Steels
Sc Mechanical Properties	16	Zhouran Zhang1*, Patrick S. Grant1, David E.J. Armstrong	1Department of Materials, University of Oxford, Oxford, OX1 3PH UK	UK	Radiation-induced segregation, defect evolution and mechanical behavior of Y-doped CrMnFeCoNi High-entropy alloys
Sc Mechanical Properties	17	Takashi Tanno*, Yasuhide Yano, Hiroshi Oka, Yoshihiro Sekio, Satoshi Ohtsuka, Takeji Kaito, Yoshiaki Tachi	Fuels and Materials Department, Japan Atomic Energy Agency, Oarai, Ibaraki, 311-1393 Japan	Japan	Tensile Property Changes of 11Cr Ferritic/Martensitic Steel Irradiated in Fast Reactor JOYO
Sc Mechanical Properties	18	Takuya Yamamoto1*, Dhriti Bhattacharyya2, Emmanuelle E. Marquis3, Tarik A. Saleh4, Stuart A. Maloy4 and G. Robert Odette1	1University of California Santa Barbara, Santa Barbara, CA USA, 2Australian Nuclear Science and Technology Organization, Lucas Heights, NSW Australia, 3University of Michigan, Ann Arbor, MI USA, 4Los Alamos National Laboratory, Los Alamos, NM USA	US, Australia	Microstructure Based Predictions of Hardening in Irradiated Fe-Cr Alloys and Tempered Martensitic Steels
5d He T H	1	Amy Sarah Gandy1*, Alice Marcella Williams1, 2, Kai Kang3, Dhinisa Patel1, Jack Haley4, Russell Goodall1	1Department of Materials Science and Engineering, University of Sheffield, S1 3JD, UK 2Delphi Technologies, Stonehouse, GL10 3SX, UK 3Dongying Institute of Beihang University, Beijing, China 4Department of Materials Science and Engineering, University of Oxford, OX1 3PH, UK	UK, China	Surface nano-structuring in High Entropy Alloys from He plasma irradiation
5d He T H	2	Georg Holzner1*, Thomas Schwarz-Selinger1, Udo von Toussaint1, Stefan Elget1	1Max-Planck-Institut für Plasmaphysik, Boltzmannstraße 2, 85748 Garching, Germany	Germany	Inductive heating based apparatus to revise the Frauenfelder data set for hydrogen diffusion in tungsten
5d He T H	3	Yiqiang Wang1*, Andrej Turk2, Biao Cai3, Robert Dalglis4, Adam Washington4, Jan Hoffmann5, Elizabeth Surrey1, Mike Gorley1	1Culham Centre for Fusion Energy, UK Atomic Energy Authority, OX14 3DB, United Kingdom, 2Department of Materials Science and Metallurgy, University of Cambridge, 27 Charles Babbage Road, Cambridge, United Kingdom 3School of metallurgy and Materials, University of Birmingham, Birmingham, United Kingdom 4ISIS Facility, Rutherford Appleton Laboratory, Didcot, OX11 0QX, United Kingdom 5Institute for Applied Materials (IAM), Karlsruhe Institute of Technology (KIT), Hermann-von-Helmholtz-Platz 1, 76344, Eggenstein-Leopoldshafen, Germany	UK, Germany	Quantitative analysis of hydrogen trapping in ODS-EUROFER97 using small-angle neutron scattering
5d He T H	4	Congyi Li1*, Xunxiang Hu2, Qiu Jie1, Yutai Katoh2, Brian Wirth1,2	1University of Tennessee, Knoxville, TN 37996, USA 2Oak Ridge National Lab, Knoxville, TN 38831, USA	US	INVESTIGATING THE DEPENDENCE OF MICROSTRUCTURE AND SURFACE ORIENTATION ON THE HELIUM DESORPTION BEHAVIOR FROM TUNGSTEN
5d He T H	5	Duc Nguyen-Manh1,* and Sergei L. Dudarev1	1CCFE, United Kingdom Atomic Energy Authority, Culham Science Centre, Oxfordshire, OX14 3DB, United Kingdom	UK	RELAXATION VOLUMES OF IRRADIATION-INDUCED DEFECTS CONTAINING HELIUM AND NOBLE GASES: A SYSTEMATIC TREND PREDICTED BY FIRST-PRINCIPLES MODELLING
5d He T H	6	Shijun Zhao, Da Chen, and Ji-Jung Kai	Department of Mechanical Engineering, City University of Hong Kong, Hong Kong, China	China (Hong Kong)	Assessment of He behavior in a NiCoFeCr High-Entropy Alloy
5d He T H	8	Wanguo Guo1*, Lin Ge2, Yue Yuan1, Long Cheng1, Shiwei Wang1, Xiaona Zhang2, Guang-Hong Lu1	1School of Physics, Beihang University, Beijing 100191, PRC 2Beijing Key Laboratory of Microstructure and Property of Advanced Materials, Institute of Microstructure and Property of Advanced Materials, Beijing University of Technology, Beijing 100124, PRC	China	<001> edge dislocation nucleation mechanism of deuterium-induced blistering in tungsten
5d He T H	9	Akira. Hasegawa*, Takeshi. Miyazawa, Takaya. Hattori, Daichi. Itou, and Shuhei. Nogami	Tohoku University ,Sendai 980-8579 Japan	Japan	Helium Effects on Recovery and Recrystallization Behavior and Tensile Properties of Powder-Metallurgical Processed Tungsten
5d He T H	10	Kodai Tabira1*, Takuya Shiratsuru1, Kenichi Hashizume1	1Interdisciplinary Graduate School of Engineering Science, Kyushu University, Kasuga, 816-8580 Japan	Japan	Thermal diffusion of deuterium in nickel under temperature gradient
5d He T H	11	Vladimir Krsjak1*, Jarmila Degmova1, Jana Simeg-Veternikova1, Stanislav Sojak1 and Vladimir Slugen1	1Institute of Nuclear and Physical Engineering, Slovak University of Technology, Ilkovicova 3, 81219 Bratislava, Slovakia	Slovakia	EXPERIMENTAL COMPARISON OF THE (ODS)EUROFER STEELS IMPLANTED BY HELIUM IONS AND IRRADIATED IN SPALLATION NEUTRON TARGET

5d He T H	12	Lei Peng1*, Jingyi Shi2, Liulu Li1, Yong Dai3	1University of Science and Technology of China, Hefei, 230027, China 2Shenzhen University, Shenzhen, 518060, China 3Paul Scherrer Institut, Villigen PSI, 5232, Switzerland	China, Switzerland	Molecular dynamics simulation on barrier strength of irradiation induced helium bubble in RAFM steels
5d He T H	13	Alexander B. Sivak1*, Polina A. Sivak1	1NRC "Kurchatov Institute", Moscow, 123182, Russia	Russia	DIFFUSION AND THERMAL DISSOCIATION OF VACANCY-HYDROGEN COMPLEXES IN BCC IRON
5d He T H	14	A. Hollingsworth1*, A. De Backer1, M.Yu. Lavrentiev1, S. Davies1, R. Smith1, S.L. Dudarev1, Z. Kollo1, A. Davies1, D. Mason1, A. Widdowson1, K. Heinola2, K. Mizohata2, J. Likonen3, A. Baron-Wiechec1, I. Jecu4, J. Hess, E. Meslin5, A. Morellec5, M.-F. Barthe6, Y. Martynova7, M. Freisinger7, K. Abraham1, G. Papadopoulos1	1UKAEA, Culham Science Centre, Abingdon, Oxon, OX14 3DB, UK 2University of Helsinki, PO Box 64, 00560, Helsinki, Finland 3VTT, Otakaari 3J, 02150, Espoo, Finland 4National Institute for Laser, Plasma and Radiation Physics (NILPRP), Magurele, 077125, Romania 5SRMP, University Paris-Saclay, CEA Saclay, 91191 Gif sur Yvette, France 6CEMHTI/CNRS, Université d'Orléans, Orléans, France 7Forschungszentrum Jülich GmbH, 52425 Jülich, Germany	UK, Finland, Romania, France, Germany	EXPERIMENTAL AND THEORETICAL STUDY OF HYDROGEN ISOTOPES RETENTION AND RELEASE FROM IRRADIATED FUSION REACTOR MATERIALS
5d He T H	15	S. Davies1*, A. Hollingsworth1, A. De Backer1, M.Yu. Lavrentiev1, R. Smith1, Z. Kollo1, A. Davies1, A. Widdowson1, K. Heinola2, K. Mizohata2, J. Likonen3, A. Baron-Wiechec1, I. Jecu4, J. Hess1, E. Meslin5, A. Morellec5, M.-F. Barthe6, K. Abraham1, G. Papadopoulos1	1UKAEA, Culham Science Centre, Abingdon, Oxon, OX14 3DB, UK 2University of Helsinki, PO Box 64, 00560, Helsinki, Finland 3VTT, Otakaari 3J, 02150, Espoo, Finland 4National Institute for Laser, Plasma and Radiation Physics (NILPRP), Magurele, 077125, Romania 5SRMP, University Paris-Saclay, CEA Saclay, 91191 Gif sur Yvette, France 6CEMHTI/CNRS, Université d'Orléans, Orléans, France	UK, Finland, Romania, France	NEW RESULTS FROM A STUDY OF CHANGES IN HYDROGEN ISOTOPE RETENTION AND RELEASE FROM FUSION RELEVANT MATERIALS DUE TO EVOLUTION OF THE MICROSTRUCTURE
5d He T H	17	Wahyu Setyawan1*, Charles H. Henager Jr.1	1Pacific Northwest National Laboratory, Richland, WA 99352, USA	US	AB INITIO STUDY OF HELIUM EFFECTS AND HYDROGEN RETENTION ON W/Ni-Fe COMPOSITE INTERPHASE BOUNDARIES
5d He T H	18	Y.Q. Wang1*, D. Chen2, N. Li1, D. Yuryev3, K. Baldwin1, and M.J. Demkowicz4	1Los Alamos National Laboratory, Los Alamos, NM 87545, USA 2University of Houston, Houston, TX 77004, USA 3Massachusetts Institute of Technology, Cambridge, MA 02139, USA 4Texas A&M University, College Station, TX 77840, USA	US	CONFINEMENT OF HE PRECIPITATES GROWTH WITHIN METAL NANO-LAYERS AND IMPLICATIONS TO RADIATION DAMAGE
5d He T H	19	Sarah Stevenson1*, Mehdi Balooch1, Andrew Scott1, Peter Hosemann1,2, Frances Allen1,2, and Saryu Fensin3	1University of California, Berkeley, CA 94720, USA 2Lawrence Berkeley National Laboratory, Berkeley, CA 94720, USA 3Los Alamos National Laboratory, Los Alamos, NM 87545, USA	US	CHARACTERIZATION OF HELIUM IMPLANTED SINGLE CRYSTAL TITANIUM
5d He T H	20	Ze Chen1,2*, Xunxiang Hu3, Lizhen Tan3, David T. Hoelzer3, Minyou Ye1, Brian D. Wirth2,	1School of Physical Sciences, University of Science and Technology of China, Hefei, 230026, China 2University of Tennessee, Knoxville, TN 37996, USA 3Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA	China, US	HYDROGEN ISOTOPE RETENTION AND TRANSPORT PROPERTY IN FUSION STRUCTURAL MATERIALS
5d He T H	22	A. Scott 1, M. Balooch 1, M. Ambat 1, M. Popovic 1, P. Hosemann 12	University of California at Berkeley, Department of Nuclear Engineering, Berkeley, CA, USA Lawrence Berkeley National Laboratory, Berkeley, CA, USA	US	Microstructural Evolution of Helium Bubbles in Metals Using Nanoscale Implantation
5d He T H	23	Elodie Bernard1*, Russell Doerner2, Sebastien Garcia-Argote3, Sophie Feuillastre3, Gregory Pletiers3, Ryuichi Sakamoto4, Arkadi Kreter5, Etienne Hodille6, Nathalie Herlin-Boime7, Mykola Jalovega1, Bernard Rousseau3 and Christian Grisolia1,8	1IRFM, CEA Cadarache, St Paul lez Durance, 13108 France. 2Center for Energy Research, UCSD, La Jolla, CA, United State 3CEA, SCBM, Université Paris Saclay, F-91191, Gif-sur-Yvette, France 4National Institute for Fusion Science, Toki, Japan 5Forschungszentrum Jülich GmbH, Jülich, Germany 6Department of Physics, University of Helsinki, Finland 7CEA, IRAMIS UMR NIMBE, Université Paris Saclay, 91191 Gif-sur-Yvette, France 8National Research Nuclear University "MEPhI", Moscow, 115409 Russian Federation	France, US, Japan, Germany, Finland, Russia	IMPACT OF W FUZZ ON TRITIUM TRAPPING AND DESORPTION
5d He T H	24	S. Karpov1, V. Voyevodin1, G. Tolstolutskaia1, I. Kopanets1, V. Ruzhyskiy1 and F. Garner2,3	1Institute of solid state physics, material science and technology NSC KIPT Kharkov, Ukraine 2Radiation Effects Consulting, Richland, WA, USA 3Moscow Engineering Physics Institute, Moscow, Russian Federation	Ukraine, US, Russia	RADIATION DEFECTS EFFICIENCY WITH RESPECT TO HYDROGEN TRAPPING IN AUSTENITIC STAINLESS STEELS
5d He T H	25	Tianyao Wang1*, Zach Levin2, Hyosim Kim1, Karl T. Hartwig2 F.A. Garner1, Lin Shao1	1Department of Nuclear Engineering, Texas A&M University, College Station, TX 77843 2Department of Materials Science and Engineering, Texas A&M University, College Station, TX 77843	US	GAS BUBBLE SUPERLATTICE FORMATION IN HELIUM-IMPLANTED TUNGSTEN: A STUDY ON HELIUM RETENTION AND SUPERLATTICE DEPENDENCE ON TEMPERATURE, DOSE AND GRAIN BOUNDARIES
5d He T H	26	Kazuhiro Ohsawa1*, Takeshi Toyama2, Yuji Hatano3, Masatake Yamaguchi4, Hideo Watanabe1	1Institute for Applied Mechanics, Kyushu University, Fukuoka, 816-8580 Japan 2Institute for Materials Research, Tohoku University, Ibaraki 311-1313, Japan 3Hydrogen Isotope Research Center, Organization for Promotion of Research, University Toyama, Toyama 930-8555, Japan 4Center for Computational Science and e-System, Japan Atomic Energy Agency, Ibaraki 319-1195, Japan	Japan	Interaction of divacancy with hydrogen in tungsten and stability induced by interstitial atoms
5d He T H	27	Takuya Yamamoto1*, Daniel J. Edwards2, Karen Kruska2, Richard J. Kurtz2, Yutai Katoh3 and G. Robert Odette1	1University of California Santa Barbara, Santa Barbara, CA USA 2Pacific Northwest National Laboratory, Richland WA, USA 3Oak Ridge National Laboratory, Oak Ridge, TN USA	US	STATUS OF THE DESIGN AND SPECIMEN MATRICES FOR IN SITU HE INJECTION RE-IRRADIATIONS IN A HFIR RABBIT CAPSULE AND NEUTRON-ION BOOTSTRAPPING EXPERIMENTS
5d He T H	28	D.V. Bachurin1*, P.V. Vladimirov1	1Karlsruhe Institute of Technology, Institute for Applied Materials, 76344 Eggenstein-Leopoldshafen, Germany	Germany	AB INITIO STUDY OF HYDROGEN DIFFUSION IN TITANIUM BERYLLIDE
5d He T H	29	N. Hashimoto*1, D. Hamaguchi2, and H. Tanigawa2	1Hokkaido University, Sapporo, Hokkaido, 060-8628 Japan, 2 QST, Rokkasho, Aomori, 039-3212 Japan	Japan	Direct observation of H and He effect on cavity formation in alpha-iron under irradiation
5d He T H	30	Michael Klimentov*, Ute Jäntsch, Jan Hoffmann, Pavel Vladimirov and Anton Möslang	Karlsruhe Institut of Technology, Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany	Germany	Radiation induced formation gas bubbles in beryllium after neutron irradiation up to 6000 appm helium production
5d He T H	31	Nikolai Zimmer1*, Pavel Vladimirov1, Michael Dürrschnabel1, Slava Kuskenko2, Michael Klimentov1, Anton Möslang1	1Karlsruhe Institut of Technology, Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany, 2Culham Centre for Fusion Energy, OX14 3DB, Abingdon, United Kingdom	Germany, UK	Investigation of high-dose irradiated beryllium microstructure including STEM-EELS analysis of Helium/Tritium-bubbles
5d He T H	32	Xiaoqing Du1*, Zhihao Yang2, Xiaoqiu Ye1	1Institute of Materials, China Academy of Engineering Physics, Mianyang, 621908 China, 2Institute of Solid Mechanics, Beihang University, Beijing, 100083 China	China	HYDROGEN AND DEUTERIUM SEPERATION PROPERTY OF NANOPOROUS PALLADIUM
5d He T H	33	Christopher Stihl1*, Pavel V. Vladimirov1	1Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, 76344 Germany	Germany	Multiscale tritium desorption models from (0001) Be surfaces
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5e Adv Charact	1	Hirokazu Ando1*, Masato Yamawaki2, Tetsuya Hirade3, Xunxiang Hu4, Masafumi Akiyoshi1	1Osaka Prefecture University, Sakai-shi, Osaka 599-8107, Japan 2National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki 305-8560 Japan 3Japan atomic energy agency, Naka-gun, Ibaraki 319-1195, Japan 4Oak Ridge National Laboratory, Oak Ridge, TN 37830, USA	Japan, US	ADVANCED FAST PALS SYSTEM FOR IRRADIATED SINGLE MINIATURE SPECIMEN
5e Adv Charact	2	Jarmila Degmova1*, Vladimir Kršjak1, Alžbeta Kubiritova1, Adam Jakabovic1, Stanislav Sojak1 and Martin Petriská1	1Institute of Nuclear and Physical Engineering, Slovak University of Technology, Ilkovicova 3, 81219 Bratislava, Slovakia	Slovakia	CDBS CHARACTERIZATION OF ADVANCED STEELS FOR FUSION APPLICATIONS
5e Adv Charact	3	Andrew J. London1*, Chris Hardie1, Joven J. H. Lim1, Rob Bamber1 2	1UKAEA, Culham Centre for Fusion Energy, Culham Science Centre, Abingdon, OX14 3DB UK 2Ruder Boskovic Institute, Zagreb, 10000, Croatia	UK, Croatia	RAPID INVESTIGATION OF IRRADIATION TEMPERATURE SENSITIVITY WITH CHARGED PARTICLES
5e Adv Charact	4	Lijuan Cui1, Yong Dai1*, Stephan Gerstl2, Xing Huang2, Manuel Pouchon1, Robin Schäublin2	1Laboratory for Nuclear Materials, Paul Scherrer Institut, 5232 Villigen PSI, Switzerland 2Scientific Center for Optical and Electron Microscopy, ETH Zurich, 8093 Zurich, Switzerland	Switzerland	APT/TEM characterization of the microstructural and chemical evolutions in RAFM and ODS steels after irradiation at Swiss spallation neutron source
5e Adv Charact	5	Lijuan Cui1*, Yong Dai1, Stephan Gerstl2, Xing Huang2, Manuel Pouchon1, Robin Schäublin2	1Laboratory for Nuclear Materials, Paul Scherrer Institut, 5232 Villigen PSI, Switzerland 2Scientific Center for Optical and Electron Microscopy, ETH Zurich, 8093 Zurich, Switzerland	Switzerland	Irradiation induced Segregation analyses in grain boundaries and phase boundaries by using APT/TEM in F82H steels after irradiated in SINQ
5e Adv Charact	6	Lijuan Cui1, Yong Dai1*, Stephan Gerstl2	1Laboratory for Nuclear Materials, Paul Scherrer Institut, 5232 Villigen PSI, Switzerland 2Scientific Center for Optical and Electron Microscopy, ETH Zurich, 8093 Zurich, Switzerland	Switzerland	Systematically indexing APT mass spectrum of ODS and RAFM steels after irradiation in SINQ
5e Adv Charact	7	Wendy A Garcia1*, G. Shaw1, X. Hu2, J. Qiu1, R. Doerner3, K. Haynes4, K.S. Jones4, and B. D. Wirth1,2	1Department of Nuclear Engineering, University of Tennessee-Knoxville, Knoxville, TN, 37902, USA 2Oak Ridge National Laboratory, Oak Ridge, TN, 37831, USA 3Center for Energy Research, University of California, San Diego, La Jolla, CA, 92093, USA 4University of Florida, Gainesville, FL, 32611, USA	US	Depth Dependent Helium and Hydrogen Concentrations in Materials Measured by Laser Induced Breakdown Spectroscopy and Laser Ablation Mass Spectrometry
5e Adv Charact	8	M. Roldán1*, F. J. Sánchez1, P. Galán2, A. Gómez-Herrero3	1National Fusion Laboratory. CIEMAT, Madrid, Spain. 2Centro de Microanálisis de Materiales, Universidad Autónoma Madrid, Madrid, Spain. 3Centro Nacional de Microscopia Electrónica, Universidad Complutense, Madrid, Spain.	Spain	ON THE STRAIN EFFECT IN DISLOCATION LOOPS PRODUCED BY SELF-ION IRRADIATION TO EMULATE IN-SERVICE REACTOR CONDITION.
5e Adv Charact	9	Takaaki Koyanagi1*, Yutai Katoh1, Christian Petrie1, Gyanender Singh2, Xunxiang Hu1, José Arregui-Mena1, Christian Deck3, Kurt Terrani1	1Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA 2 The University of Tennessee Knoxville, TN 37996 USA 3 General Atomics, San Diego, CA 92121 USA	US	RESPONSE OF SiC COMPOSITES TO NEUTRON-IRRADIATION WITH A HIGH HEAT FLUX: EXPERIMENTS AND MODELING
5e Adv Charact	10	D. J. Spruster1*, L. L. Sneed1, J. R. Trelewicz1, G. R. Odette2, X. Hu3, T. Koyanagi3, Y. Katoh3, B. D. Wirth4	1Stony Brook University, Stony Brook, NY, 11794, USA 2University of California Santa Barbara, Santa Barbara, CA, 93106, USA 3Oak Ridge National Laboratory, Oak Ridge, TN, 37831, USA 4University of Tennessee, Knoxville, TN, 37926, USA	US	ADVANCED SYNCHROTRON CHARACTERIZATION TECHNIQUES FOR FUSION MATERIALS SCIENCE
5e Adv Charact	11	Sarah Stevenson*, Peter Hosemann1, Lee Bernstein1,2, Andrew Voyles1,2, and Saryu Fensin3	1University of California, Berkeley, CA 94720, USA 2Lawrence Berkeley National Laboratory, Berkeley, CA 94720, USA 3Los Alamos National Laboratory, Los Alamos, NM 87545, USA	US	DEEP HELIUM ION BEAM IMPLANTATION AT THE 88-INCH CYCLOTRON
5e Adv Charact	12	Arunodaya Bhattacharya1*, Chad M. Parish1, Niyanth Sridharan1, Jean Henry2, Yutai Katoh1	1Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA 2CEA, DEN-Service de Recherches Métallurgiques Appliquées, Laboratoire d'Analyse Microstructurale des Matériaux, Université Paris-Saclay, F-91191, Gif-sur-Yvette, France.	US, France	HIGH-THROUGHPUT PHASE-CHEMISTRY MAPPING OF NANO-PRECIPITATES IN RAFM STEELS BY TRANSMISSION KIKUCHI DIFFRACTION AND ANALYTICAL ELECTRON MICROSCOPY
5e Adv Charact	13	Viacheslav M. Chernov1-2	1A.A. Bochvar High-technology Research Institute of Inorganic Materials (SC "VNIINM"), 123098, Moscow, Russia 2National Research Nuclear University "MEPhI", 115409, Moscow, Russia	Russia	RADIATION PROPERTIES OF THE METAL STRUCTURAL MATERIALS DURING LOW-TEMPERATURE DAMAGING IRRADIATION
5e Adv Charact	14	Graham Roberts1, Rajat Sainju2, Colin Ophus3, Brian Hutchinson4,5, Mychailo B. Toloczko1, Danny J. Edwards1, Rick Kurtz1, Chuck Henager1 and Yuanyan Zhu1,2*	1Nuclear Sciences Division, 4 Computing & Analytics Division, Pacific Northwest National Laboratory, Richland, WA 99352, USA 2Department of Materials Science and Engineering, Institute of Materials Science, University of Connecticut, Storrs, CT 06269, USA 3National Center for Electron Microscopy, Molecular Foundry, Lawrence Berkeley National Laboratory, Berkeley, CA 94720, USA 5Computer Science Department, Western Washington University, Bellingham, WA 98225, USA	US	ACCELERATING THE UNDERSTANDING OF RADIATION EFFECTS VIA A NEW END-TO-END DEFECT QUANTIFICATION WORKFLOW
5e Adv Charact	15	Azusa Konno*1, Yojiro Oba1, Aki Tominaga1, Satoshi Morooka1, Naoko H. Oono2, Naoyuki Hashimoto2, Shigeharu Uka2, Kenji Ohwada3, Ryuhei Motokawa1, Takayuki Kumada1, Takahisa Shobu1, Shinichiro Yamashita1	1Japan Atomic Energy Agency, Ibaraki, Japan 2Hokkaido University, Sapporo, Hokkaido, Japan 3National Institute for Quantum and Radiological Science and Technology, Hyogo, Japan	Japan	NOVEL QUALITATIVE EVALUATION METHOD OF MICROSTRUCTURE IN ODS ALLOY BY ANOMALOUS SMALL-ANGLE X-RAY SCATTERING TECHNIQUE
5e Adv Charact	16	Dalong Zhang1*, Maxim Gussev2, Samuel A. Briggs3, Philip D. Edmondson2, Yukinori Yamamoto2, and Kevin G. Field2	1Pacific Northwest National Laboratory, Richland, WA, 99352, USA 2Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA 3Oregon State University, Corvallis, OR, 97331, USA	US	Deformation Mechanisms in a Neutron Irradiated FeCrAl Alloy and its Weldment
5e Adv Charact	17	Edgar Leon-Gutierrez1*, Rafael Vila1, JET Contributors2+*See the author list of "X. Litaudon et al 2017 Nucl. Fusion 57 102001"	1Laboratorio Nacional de Fusión, CIEMAT, Madrid 28040 Spain 2 EUROfusion Consortium JET, Culham Science Centre, Abingdon, OX14 3DB, UK	Spain, UK	SYSTEM OPTIMIZATION AND OFF-LINE CHARACTERIZATION OF FUSED SILICA FIBERS FOR IN-SITU MEASUREMENTS IN THE NEXT TRITIUM-TRITIUM AND DEUTERIUM-TRITIUM JET'S CAMPAIGNS
5e Adv Charact	18	Peter Warrnicke1*, Yong Dai1, and Manuel Pouchon1	1 Paul Scherrer Institute, Villigen, 5232 Switzerland	Switzerland	Extended X-ray absorption fine structure analysis of transmutation induced Re lattice defects in irradiated W
6a Multi Scale Model	1	Pietro Alessandro Di Maio1*, Fabio Cismondi2, Alessandro Del Nevo3, Ruggero Forte1, Nasr Ghoniem4, Yue Huang4	1Department of Engineering, University of Palermo, Palermo, 90128, Italy 2EUROfusion Consortium, Programme Management Unit, Garching, 85748, Germany 3ENEA C.R. Brasimone, 40032 Camugnano (BO), Italy 4Department of Mechanical and Aerospace Engineering, University of California Los Angeles, Los Angeles, CA 90095, United States	Italy, Germany, US	Multi-physics/multi-scale approach for breeding blanket design optimization
6a Multi Scale Model	2	Yue Huang1*, Arian Ghazari 1, Warren Nadvornick 1, Nasr Ghoniem1	1Department of Mechanical and Aerospace Engineering, University of California Los Angeles, Los Angeles, CA 90095, United States	US	Multiscale-Multiphysics Based Design of a Solid-Liquid Hybrid Divertor Module
6a Multi Scale Model	3	Fei Gao1, Qing Peng1, Renjie Luo1, Mark A Tschopp2	1Department of Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, 48105 USA 2U.S. Army Research Laboratory, Aberdeen Proving Ground, MD 21005 USA	US	Machine Learning for Predicting Segregation and Helium Bubbles at Grain Boundaries in Metals

6a Multi Scale Model	4	Maosheng Li*, Jing Xia, Hongming Li	Institute of Applied Physics and Computational Mathematics, P.O. Box 8009, Beijing 100088, China	China	Micromechanical Investigations Radiation Hardening Effect of FCC Metals
6a Multi Scale Model	5	Xuebang Wu 1*, X. Zhang 1, Z.M. Xie 1, Xiangyan Li 1, C.R. Miranda 2, and C.S. Liu 1*	1Key Laboratory of Materials Physics, Institute of Solid State Physics, Chinese Academy of Sciences, Hefei 230031, People's Republic of China 2Instituto de Física, Universidade de São Paulo, CP 66318, São Paulo, SP 05315-970, Brazil	China, Brazil	First principles prediction of stability and light elements trapping of interfaces between tungsten and transition metal carbides
6a Multi Scale Model	6	G. Apostolopoulos, J.P. Balbuena, M.-F. Barthe, C.S. Becquart, M. Boleininger, G. Bonny, J.-L. Boutard, C. Cabet, D. Caillard, N. Castin, M.J. Caturla, R. Coppola, P. M. Derlet, E. Diegele, C. Domain, S.L. Dudarev*, L.M. Dupuy, P. Fernandez, C.-C. Fu, T. Jourdan, E. Gaganidze, A. Gentils, M.R. Gilbert, F. Granberg, R. Kembleton, M. Klimenkov, M.Y. Lavrentiev, A. London, P.-W. Ma, M.-C. Marinica, D.R. Mason, K. Mergia, E. Meslin, M. Nastar, D. Nguyen-Manh, K. Nordlund, P. Olsson, C.J. Ortiz, G. Pintsuk, M. Prester, L. Provile, B. Radiguet, M. Rieth, C. Robertson, M. Roldan, A.E. Sand, R. Schäublin, F. Soisson, T.D. Swinburne, T. Tadić, L. Ventelon, F. Willaime, J. Wrobel	Research performed within the framework of EUROfusion Consortium		RECENT PROGRESS IN RESEARCH IN MODELLING FUSION REACTOR MATERIALS IN EUROPE: THE IREMEV COLLABORATION
6a Multi Scale Model	7	Lorenzo Malerba1*, Mar.a J. Caturla2, Ermile Gaganidze3, Cornelia Heintze4, Milan Konstantinovic5, Pär Olsson6, David Rodney7, Ana M. Ruiz8, Marta Serrano1, François Willaime9	1CIEMAT, Division of Energy Materials, Madrid, 28040, Spain, 2University of Alicante, 03690, San Vicente del Raspeig, Alicante, Spain 3Karlsruhe Institute of Technology, 76344 Eggenstein-Leopoldshafen, Germany 4Helmholtz Zentrum Dresden-Rossendorf, 01328 Dresden, Germany 5SCK-CEN, Institute of Nuclear Materials Science, Mol, 2400, Belgium 6KTH-Royal Institute of Technology, Stockholm, 11428, Sweden 7University of Lyon, Villeurbanne, 69622, France 8Joint Research Centre, Petten, The Netherlands 9CEA/DEN-Centre de Saclay, Gif-sur-Yvette 91191, France	EU	MODELLING ION IRRADIATION AND SLIP LOCALISATION IN FERRITIC-MARTENSITIC STEELS: THE FUSION-FISSION CROSS-CUTTING M4F PROJECT
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6b-MMP	1	Sho Hayakawa1*, Taira Okita2, Mitsuhiro Itakura3	1University of Tokyo, Tokyo, 1138656 Japan 2University of Tokyo, Kashiwa, 2778568 Japan 3Japan Atomic Energy Agency, Kashiwa, 2770871 Japan	Japan	Study of the stable configuration of cascade-induced defects in FCC metals using the temperature parallel simulated annealing with self-generated basins
6b-MMP	2	Fernando Mota1*, Christophe J. Ortiz1, Rafael Vila1, Angel Ibarra1	1Laboratorio Nacional de Fusion, CIEMAT, Madrid 28040, Spain	Spain	NEW PRIMARY DISPLACEMENT DAMAGE CALCULATION METHODS FOR INTERCOMPARISON OF IRRADIATION EXPERIMENTS
6b-MMP	3	Fredric Granberg1*, Andrey Litnovsky2, Kai Nordlund1	1Department of Physics, University of Helsinki, Helsinki, 00014, Finland 2Institut für Energie- und Klimaforschung – Plasmaphysik, Forschungszentrum Jülich GmbH, Jülich, 52425, Germany	Finland, Germany	ON THE SPUTTERING OF MOLYBDENUM SURFACES
6b-MMP	4	Fredric Granberg1*, Joonas Jussila1, Kai Nordlund1	1Department of Physics, University of Helsinki, Helsinki, 00014, Finland	Finland	EFFECT OF SURFACE ORIENTATION ON THE SPUTTERING YIELD OF TUNGSTEN SURFACES
6b-MMP	5	Max Boleininger1*, Thomas D Swinburne2, and Sergei L Dudarev1	1Culham Centre for Fusion Energy, UK Atomic Energy Authority, OX14 3DB, United Kingdom 2Centre Interdisciplinaire des Nanosciences de Marseille, Aix-Marseille Univ.-CNRS, F-13288, France	UK, France	A CONTINUUM NON-SINGULAR THEORY OF THERMALLY FLUCTUATING DISLOCATIONS
6b-MMP	6	Yang Li1, Max Boleininger2*, Christian Robertson1, Laurent Dupuy1, and Sergei L Dudarev2	1DEN-Service de Recherches Métallurgiques Appliquées, CEA, Paris-Saclay, F-91191 France 2Culham Centre for Fusion Energy, UK Atomic Energy Authority, OX14 3DB, United Kingdom	France, UK	FUNDAMENTAL REACTIONS BETWEEN PRISMATIC LOOPS IN STOCHASTIC DISLOCATION DYNAMICS
6b-MMP	7	Roshan Rajakrishnan*, Ermile Gaganidze, Jarir Aktaa	Karlsruhe Institute of Technology(KIT), Institute for Applied Materials, Hermann-von-Helmholtz-Platz 1, D-76344 Eggenstein-Leopoldshafen, Germany	Germany	Modelling the post-yield and post-necking behaviour of F/M steel
6b-MMP	8	Hu Jia-ju*, Zhang bin ,Liu Cong ,Chen Yi-xue	North China Electric Power University, No.2 Beinong Road, Changping District, Beijing, 102206, China	China	COMPUTATIONALLY OPTIMIZED MULTI-GROUP CROSS SECTION DATA COLLAPSING FOR FUSION REACTOR SHIELDING CALCULATION
6b-MMP	9	Dmitry D. Demidov1*, Alexander B. Sivak1, Polina A. Sivak1	NRC "Kurchatov Institute", Moscow, 123182, Russia	Russia	ENERGETIC, DIFFUSIONAL AND DISSOCIATIVE CHARACTERISTICS OF SELF DI-INTERSTITIALS IN BCC FE AND V
6b-MMP	10	Michael P. Higgins1*, Chaoming Yang2, Liang Qi2, Fei Gao1	1Department of Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor,48105 USA 2Department of Materials Science and Engineering, University of Michigan, Ann Arbor,48105 USA	US	Multiscale modelling of dislocation-nanocluster interactions in Fe-Y2O3: from molecular dynamics to dislocation dynamics
6b-MMP	11	Y. Igitkhanov1,2*, B. Bazylev1,2 and S. Pestchany1	1Karlsruhe Institute of Technology, 76137, Karlsruhe, Germany 2South Ural State University, 454080 Chelyabinsk, Lenin Prospect 76, Russian Federation 2Organization2, ZIP, Country2	Germany, Russia	THE EFFECT OF THE RUNAWAY ELECTRONS ON THE DEMO WALL EROSION
6b-MMP	12	Lixia Liu1, Yangchun Chen2, Wangyu Hu1, Fei Gao3,1, Huiqiu Deng2*	1College of Materials Science and Engineering, Hunan University, Changsha 410082, China 2School of Physics and Electronics, Hunan University, Changsha 410082, China 3Department of Nuclear Engineering and Radiological Sciences, University of Michigan, Michigan 48109, USA	China, US	ATOMISTIC SIMULATIONS OF TRANSMUTATION-PRODUCED RE INTERACTION WITH GRAIN BOUNDARIES IN TUNGSTEN
6b-MMP	13	Juan P. Balbuena1*, Andrea Sand2, Carolina Björkas2, Kai Nordlund2, Robin Scäublin3, Maria J. Caturla1	1Dept. of Applied Physics, University of Alicante, E-03690, Spain 2Division of Materials Physics, University of Helsinki, FI-00014, Finland 2ETH, Zurich, 8093, Switzerland	Spain, Finland, Switzerland	Simulation of dislocation loops formation after ion irradiation in UHP-Fe thin films
6b-MMP	15	Girdhar Nandipati1*, Wahyu Setyawan1, Kenneth J. Roche1, Richard J. Kurtz1, Brian D. Wirth2	1Pacific Northwest National Laboratory, Richland, WA 99354, USA 2University of Tennessee, Knoxville, TN 37996 USA	US	Effect of Confinement of SIA Diffusion by Traps on Radiation Damage Accumulation in Tungsten
6b-MMP	16	Emil Levo1*, Fredric Granberg1, Kai Nordlund1, Flyura Djurabekova,1,2	1Department of Physics, University of Helsinki, Helsinki, FIN-00014, Finland 2Helsinki Institute of Physics, Helsinki, FIN-00014, Finland	Finland	RADIATION STABILITY OF NANOCRYSTALLINE SINGLE PHASE MULTICOMPONENT ALLOYS
6b-MMP	17	Xinfu He1*, N. Castin2, S. Van den Kerkhof 3, D. Terentyev2, Wen Yang1	1China Institute of Atomic Energy, Beijing, 102413, China 2Institute of Nuclear Materials Science, SCK CEN, Mol, 2400, Belgium 3KU Leuven, Department of Mechanical Engineering, 3001 Leuven, Belgium	Belgium	Monte-Carlo modelling of microstructure induced by neutron irradiation in ITER-specification tungsten: effect of heat transients
6b-MMP	18	Mingjie Zheng1*, Wenyi Ding1, Weitao Cao1, Shenyang Hu2, Qunying Huang1, Shaojun Liu1, Xiaodong Mao1, Yican Wu1, FDS Team1	1Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China 2Pacific Northwest National Laboratory, 902 Battelle Blvd., Richland, WA 99352, USA	China, US	QUICK SCREENING DESIGN OF MULTI-PRINCIPAL ELEMENT ALLOYS FOR NEW GENERATION OF FUSION STRUCTURAL MATERIALS

6b-MMP	19	Jingming Shi1*, Naoyuki Hashimoto2, Shigehito Isebe2	1Graduate School of Engineering, Hokkaido University, Hokkaido, 060-8628 Japan 2Faculty of Engineering, Hokkaido University, Hokkaido, 060-8628 Japan	Japan	EFFECT OF H AND HE ON INCOHERENT FE/W INTERFACE: A DFT STUDY
6b-MMP	20	Shu Huang1*, Yinan Cui2, Jaime Marian1,2	1Department of Materials Science and Engineering, University of California Los Angeles, Los Angeles, CA 90095, United States of America 2Department of Mechanical and Aerospace Engineering, University of California Los Angeles, Los Angeles, CA 90095, United States of America	US	Coupling kinetic Monte Carlo with dislocation dynamics to simulate defect-assisted dislocation climb for irradiation creep in metals
6b-MMP	21	Wenyi Ding*, Mingjie Zheng, Chao Wang, Jingping Xin, Qunying Huang, FDS Team	Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui 230031, China	China	EFFECT OF NEUTRON ENERGY SPECTRUM ON MATERIAL IRRADIATION DAMAGE
6b-MMP	22	Emil Levo1*, Fredric Granberg1, Kai Nordlund1, Flyura Djurabekova,1,2	1Department of Physics, University of Helsinki, Helsinki, FIN-00014, Finland 2Helsinki Institute of Physics, Helsinki, FIN-00014, Finland	Finland	RADIATION TOLERANCE OF EQUIATOMIC MULTICOMPONENT ALLOYS
6b-MMP	23	Jan Fikar1*, Robin Schaublin2	1CEITEC, IPM, Brno, Czech Republic 2ScopeM, ETHZ Zurich, Switzerland	Czech Republic, Switzerland	MOBILITY OF SMALL DISLOCATION LOOPS IN TUNGSTEN IN PRESENCE OF OBSTACLES
6b-MMP	24	Yangchun Chen1, Lixia Liu2, Jun Fu1, Wangyu Hu2, Fei Gao3, 2, Huijiu Deng1*	1School of Physics and Electronics, Hunan University, Changsha 410082, China 2College of Materials Science and Engineering, Hunan University, Changsha 410082, China 3Department of Nuclear Engineering and Radiological Sciences, University of Michigan, Michigan 48109, USA	China, US	DEVELOPMENT OF INTERATOMIC POTENTIALS FOR BINARY W-X (X = TA, V, MO, NB, RE) ALLOYS
6b-MMP	25	Yinan Wang1, *, Xiaoyang Wang1, Xiaoyu Wu1, Qiulin Li1,2, Chengliang Li3, Guogang Shu3, Ben Xu1, Wei Liu1	1Key Laboratory of Advanced Materials (MOE), School of Material Science and Engineering, Tsinghua University, Beijing 100084, PR China 2Graduate School at Shenzhen, Tsinghua University, Shenzhen 518055, China 3State Key Laboratory of Nuclear Power Safety Monitoring Technology and Equipment, China Nuclear Power Engineering Co., Ltd., Shenzhen 518172, China	China	Hydrogen distribution induced screw dislocation core spreading in tungsten
6b-MMP	26	Pui-Wai Ma1* and S. L. Dudarev1	1United Kingdom Atomic Energy Authority, Culham Science Centre, Abingdon, Oxfordshire, OX14 3DB, United Kingdom	UK	Anisotropic Elastic Fields of Radiation Defects
6b-MMP	27	Xiao-Chun Li 1,*, Xin-Dong Pan 1,2, Tao Lu 1,2, Guang-Nan Luo 1,2	1Institute of Plasma Physics, Chinese Academy of Sciences, Hefei, 230031, P. R. China 2University of Science and Technology of China, Hefei, 230026, P. R. China	China	First-principles study on dissolution and diffusion properties of hydrogen in α -Al ₂ O ₃
6b-MMP	28	Kamal Nayan Goswami1* and Samuel T. Murphy1	1Department of Engineering, Lancaster University, Lancaster LA1 4YW, United Kingdom	UK	A first-principles kinetic Monte Carlo investigation of tritium diffusion in Li ₂ TiO ₃
6b-MMP	29	Padhraic L. Mulligan*, Christian M. Petrie, Lauren Garrison, Takaaki Koyanagi, Josina W. Geringer, Yutai Katoh	Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA	US	THERMAL AND STRUCTURAL MODELING OF CAPSULES TO IRRADIATE NONSTANDARD MATERIALS FOR FUSION APPLICATIONS
6b-MMP	30	Taira Okita1, Sho Hayakawa2, Mitsuhiro Itakura3	1The University of Tokyo, Kashiwa, 2778568Japan 2The University of Tokyo, Tokyo, 1138656 Japan 3Japan Atomic Energy Agency, Kashiwa, 2770871 Japan	Japan	Effects of applied strain on defect formation through collision cascade in FCC metals
6b-MMP	31	Qianran Yu2*, Michael J. Simmonds3, Russell P. Doerner3, George R. Tynan3, Jaime Marian1, 2	1Department of Materials Science and Engineering, UCLA, 410 Westwood Plaza, Los Angeles, CA90095, USA 2Department of Mechanical and Aerospace Engineering, UCLA, 48-121 Engineering IV, Box 951597, Los Angeles, CA 90095-1597, USA 3Center for Energy Research, UC San Diego, 9500 Gilman Dr., San Diego, CA 92093-0417,USA	US	Kinetic modeling of hydrogen retention in tungsten under fusion conditions using spatially resolved stochastic cluster dynamics
6b-MMP	32	Kota Ninomiya1, Sutatch Ratanaphan2, Sho Hayakawa1, Mitsuhiro Itakura3, Taira Okita4	1The University of Tokyo, Tokyo, 1138656 Japan 2King Mongkut's University of Technology Thonburi, Bangkok, 10140 Thailand 3Japan Atomic Energy Agency, Kashiwa, 2770871 Japan 4The University of Tokyo, Kashiwa, 2778568Japan	Japan, Thailand	MD simulations to evaluate a stable configuration of a vacancy cluster in FCC metals and its interaction with an edge dislocation
6b-MMP	33	Lukas Vlcek1*, German Samolyuk2, James Morris1,2 and Yuri Osetsky2	1University of Tennessee, Knoxville, TN 37996, USA 2Oak Ridge National Laboratory, Oak Ridge, 37831 USA	US	A NEW APPROACH FOR INTERATOMIC FORCES TRAINING FOR MODELING HIGH-TEMPERATURE PHENOMENA IN W-Re SYSTEMS
6b-MMP	34	Yuan Yuan Wang1*, Xin Sun2, Jijun Zhao1	1Key Laboratory of Materials Modification by Laser, Ion and Electron Beams (Ministry of Education), Dalian University of Technology, Dalian 116024, China 2Energy & Transportation Science Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA	China, US	A physics-based model coupled with the crystal plasticity theory for predicting irradiation-induced hardening of tungsten at low temperature
6b-MMP	35	Liuliu Li1, Jingyi Shi2, Lei Peng1*, Wei Jiang1	1 School of Physical Sciences, University of Science and Technology of China, Hefei, Anhui 230027, China. 2 Advanced Energy Research Center, Shenzhen University, Shenzhen 518060, China	China	Atomistic simulation on formation and evolution of heliumvacancy cluster in bcc Fe
6b-MMP	36	Jingyi Shi1*, Lei Peng2, Liuliu Li2, Fei Gao3, Jianjun Huang1, Jjiangang Li1, 4	1Advanced Energy Research Center, Shenzhen University, Shenzhen 518060, China 2School of Nuclear Science and Technology, University of Science and Technology of China, Hefei, 230027 China 3Department of Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, MI 48109, USA 4Institute of Plasma Physics, Chinese Academy of Sciences, Hefei, Anhui 330031, China	China, US	Molecular Dynamics Study on Effects of GB Characteristics on Helium Embrittlement
6b-MMP	37	Nasr M Ghoniem*, Yinan Cui1, Giacomo Po2	1Department of Mechanical and Aerospace Engineering, University of California Los Angeles, Los Angeles, CA 90095 2Mechanical and Aerospace Engineering Department, University of Miami, Coral Gables, FL 33146, USA	US	PLASTICITY OF IRRADIATED MATERIALS AT THE NANO- & MICRO-SCALES REVEALED BY DISLOCATION DYNAMICS SIMULATIONS
6b-MMP	38	Anter El-Azab	School of Materials Engineering, Purdue University, West Lafayette, 47907 USA	US	CONTINUUM THEORY OF DEFECTS AS A FRAMEWORK FOR PREDICTIVE MODELING OF RADIATION EFFECTS IN CRYSTALLINE SOLIDS
6b-MMP	39	Roger Stoller1*, Yuri Osetsky1 and Alexander Barashev2	1Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA 2University of Michigan, Ann Arbor, MI 48109, USA	US	THE ROLE OF OVERPRESSURIZED HELIUM BUBBLES IN IRON IN MICROSTRUCTURE EVOLUTION UNDER IRRADIATION
6b-MMP	40	Sergey Pestchany1*, Francesco Maviglia2	1KIT, Hermann-von-Helmholtz-Platz 1, Eggenstein-Leopoldshafen, Germany 2Consorzio CREATE, Via Claudio, 21, 80125 Napoli, Italy	Germany, Italy	SIMULATION OF THE FIRST WALL SHIELDING DURING UPWARD VDE IN DEMO

6b-MMP	41	Min Pan ¹ , Zelin Cao ² , Yini Lv ² , Shulong Wen ¹ , Zheng Huang ^{2*} , Yong Zhao ¹	1 Key Laboratory of Advanced Technology of Materials (Ministry of Education), Superconductivity and New Energy R&D Center, Southwest JiaoTong University, Chengdu, Sichuan, 610031, China. 2School of Physical Science Technology, Southwest Jiaotong University, Chengdu, Sichuan, 610031, China.	China	EFFECT OF TI ON PRECIPITATION PROPERTY OF TRANSMUTATION ELEMENTS IN W-Ti ALLOY FROM FIRST – PRINCIPLES CALCULATIONS
6b-MMP	42	Tomas Oppelstrup ^{1*} , Timofey Frolov ¹ , Robert E. Rudd ¹	1Lawrence Livermore National Lab, Livermore, CA 94550, USA	US	Large scale kinetic Monte-Carlo modeling of recrystallization in tungsten
6b-MMP	43	David Cereceda ¹ , Sicong He ² , Vasily Bulatov ³ , Jaime Marian ^{2,4}	1Department of Mechanical Engineering, Villanova University, USA, 2Department of Materials Science and Engineering, University of California Los Angeles, USA, 3Physical and Life Sciences Directorate, Lawrence Livermore National Laboratory, USA, 4Department of Mechanical and Aerospace Engineering, University of California Los Angeles, USA	US	Understanding the plastic behavior of tungsten from first principles to crystal plasticity and its implications as a fusion material
6b-MMP	44	Jingyi Shi ^{1*} , Lei Peng ² , Liulu Li ² , Fei Gao ³ , Jianjun Huang ¹ , Jiangang Li ¹ , 4	1Advanced Energy Research Center, Shenzhen University, Shenzhen 518060, China, 2School of Nuclear Science and Technology, University of Science and Technology of China, Hefei, 230027 China, 3Department of Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, MI 48109, USA, 4Institute of Plasma Physics, Chinese Academy of Sciences, Hefei, Anhui 330031, China	China, US	Molecular Dynamics Study on Effects of GB Characteristics on Helium Embrittlement
6b-MMP	45	Takuya Yamamoto* and G. Robert Odette	University of California Santa Barbara, Santa Barbara, CA USA	US	MODELING OF HELIUM EFFECTS ON MICROSTRUCTURAL EVOLUTION IN TMS AND NFA: THE EFFECTS OF HE/DPA, TEMPERATURE, DOSE AND DOSE RATE
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6c New Model Methods	1	Giacomo Po ^{1,2*} , Yue Huang ² , Nasr Ghoniem ²	1Mechanical and Aerospace Engineering Department, University of Miami, Coral Gables, FL 33146, USA 2Mechanical and Aerospace Engineering Department, University of California Los Angeles, Los Angeles, CA 90095, USA	US	A MODEL OF 3D DISLOCATION CLIMB AND ANNEALING IN IRRADIATED MATERIALS
6c New Model Methods	2	Arian Ghazari ^{1*} , Giacomo Po ^{1,2} , Andrew Sheng ¹ , Nasr Ghoniem ¹	1Mechanical and Aerospace Engineering Department, University of California Los Angeles, Los Angeles, CA 90095, USA 2Mechanical and Aerospace Engineering Department, University of Miami, Coral Gables, FL 33146, USA	US	A 3D DISLOCATION MODEL OF PLASTICITY AND FRACTURE IN IRRADIATED TUNGSTEN
6c New Model Methods	3	Michael Mahler ^{1*} , Giacomo Po ² , Yinan Cui ³ , Nasr Ghoniem ³ , Jarir Aktaa ¹	1Karlsruher Institute of Technology, Eggenstein-Leopoldshafen, 76344, Germany 2University of Miami, Miami, 33124, Florida, USA 3University of California Los Angeles, Los Angeles, 90095, California, USA	Germany, US	Dislocation Dynamics simulation of irradiation induced hardening in ferritic-martensitic steel
6c New Model Methods	4	Juan P. Balbuena ^{1*} , Lorenzo Malerba ² , Nicolas Castin ³ , Giovanni Bonny ³ , Maria J. Caturla ¹	1Dept. of Applied Physics, University of Alicante, E-03690, Spain 2CIEMAT, Madrid, E-28040, Spain 3Nuclear Research Centre, SCK-CEN, Mol, B-2400, Belgium	Spain, Belgium	Segregation and precipitation in Cell-OKMC simulations of iron alloys
6c New Model Methods	5	Haixuan Xu ¹	1Department of Materials Science and Engineering, The University of Tennessee Knoxville, Knoxville, TN, U.S. 37996	US	Comparative Study of Dislocation Bias in W and Fe using SEAKMC
6c New Model Methods	6	Ba Nghiep Nguyen*, Charles H. Henager, Jr., Richard J. Kurtz	Pacific Northwest National Laboratory, Richland, WA 99352, USA	US	TAILORING MECHANICAL PROPERTIES OF DUCTILE-PHASE TOUGHENED TUNGSTEN COMPOSITES BY A MULTISCALE MICROSTRUCTURAL APPROACH
6c New Model Methods	7	Yinan Cui ^{1*} , Giacomo Po ¹ , Yue Huang ¹ , Nasr Ghoniem ¹	1 Department of Mechanical and Aerospace Engineering, University of California Los Angeles, Los Angeles, CA 90095	US	Revealing Irradiation Creep Mechanisms in Nanostructured Materials Through Coupled Diffusion-Dislocation-Dynamics Simulations
6c New Model Methods	8	Hsing-Yin Chang ^{1*} , Dylan Dickstein ² , Nasr Ghoniem ² , Jaime Marian ^{1,2}	1Department of Materials Science and Engineering, University of California Los Angeles, Los Angeles, CA 90095, 2Department of Mechanical and Aerospace Engineering, University of California Los Angeles, Los Angeles, CA 90095	US	Computational Modeling of Secondary Electron Emission in Microarchitected Surfaces for Designing Plasma-resilient Devices
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7a T Retention	1	Xunxiang Hu ^{1*} , Lizhen Tan ¹ , David T. Hoelzer ¹ , Yutai Katoh ¹ , Guiyang Huang ² , Ze Chen ^{2,3} , Brian D. Wirth ²	1Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA 2University of Tennessee, Knoxville, TN 37996, USA 3University of Science and Technology of China, Hefei, Anhui 230026, China	US, China	DEUTERIUM RETENTION IN ADVANCED STEELS FOR FUSION STRUCTURAL APPLICATIONS
7a T Retention	2	Akito Ipponsugi ^{1*} , Kazunari Katayama ¹ , Tsuyoshi Hoshino ²	1Department of Advanced Energy Engineering Science, Kyushu University, Kasuga, 816-8580, Japan 2Department of Blanket Systems Research, National Institutes for Quantum and Radiological Science and Technology (QST), Rokkasho-mura, Kamikita-gun, Aomori, 039-3212, Japan	Japan	Li mass loss and structure change due to long time heating in hydrogen atmosphere from Li ₂ TiO ₃ with excess Li
7a T Retention	3	Kazunari Katayama ^{1*} , Naoko Ashikawa ^{2,3} , Takumi Chikada ⁴	1Department of Advanced Energy Engineering Science, Kyushu University, Kasuga, 816-8580, Japan 2National Institute for Fusion Science, Toki, 509-5292, Japan 3SOKENDAI, Toki, 509-5292, Japan 4Graduate School of Integrated Science and Technology, Shizuoka University, Shizuoka, 422-8529, Japan	Japan	MASS TRANSFER AT THE INTERFACE BETWEEN STAINLESS STEEL AND SUPERCRITICAL CARBON DIOXIDE
7a T Retention	4	Kazuki Nakamura ^{1*} , Hikari Fujita ² , Jan Engels ³ , Masayuki Tokitani ⁴ , Yoshimitsu Hishinuma ⁴ , Kiyohiro Yabuuchi ⁵ , Sho Kano ² , Takayuki Terai ² , Wataru Inami ¹ , Yoshimasa Kawata ¹ , Takumi Chikada ¹	1Shizuoka University, Shizuoka, Japan 2The University of Tokyo, Tokyo, Japan 3Forschungszentrum Jülich, Jülich, Germany 4National Institute for Fusion Science, Gifu, Japan 5Kyoto University, Kyoto, Japan	Japan, Germany	EFFECTS OF HELIUM IMPLANTATION WITH HEAVY ION IRRADIATION ON DEUTERIUM PERMEATION IN YTTRIUM OXIDE COATING
7a T Retention	5	Yuji Nobuta ¹ , Masashi Shimada ² , Chase N. Taylor ² , Yasuhisa Oya ³ , Yuji Hatano ⁴	1Graduate School of Engineering, Hokkaido University, Sapporo 060-8628, Japan 2Fusion Safety Program, Idaho National Laboratory, Idaho Falls, ID 83415, USA 3College of Science, Academic Institute, Shizuoka University, Shizuoka 422-8529, Japan 4Hydrogen Isotope Research Center, University of Toyama, Toyama 930-8555, Japan	Japan, US	EFFECTS OF HELIUM SEEDING ON DEUTERIUM RETENTION IN NEUTRON-IRRADIATED TUNGSTEN
7a T Retention	6	Takumi Chikada ^{1*} , Hikari Fujita ² , Kazuki Nakamura ¹ , Keisuke Kimura ¹ , Teruya Tanaka ³ , Wataru Inami ¹ , Yoshimasa Kawata ¹	1Shizuoka University, Shizuoka 422-8529, Japan 2The University of Tokyo, Tokyo 113-8656, Japan 3National Institute for Fusion Science, Toki 509-5292, Japan	Japan	DEUTERIUM PERMEATION MECHANISM IN CERAMIC COATINGS UNDER GAMMA-RAY IRRADIATION
7a T Retention	7	Ayaka Koike ^{1*} , Akihiro Togari ¹ , Moeko Nakata ¹ , Shota Yamazaki ¹ , Takuro Wada ¹ , Fei Sun ² , Mingzhong Zhao ¹ , Naoaki Yosida ³ , Kazuaki Hanada ³ , Yasuhisa Oya ^{1,2}	1Graduate School of Integrated Science and Technology, Shizuoka University, Shizuoka, 422-8529, Japan 2Faculty of Science, Shizuoka University, Shizuoka, 422-8529, Japan 3Research Institute for Applied Mechanics, Kyusyu University, Kasuga, 816-8580, Japan	Japan	EVALUATION OF HYDROGEN RETENTION BEHAVIOR IN TUNGSTEN EXPOSED TO HYDROGEN PLASMA IN QUEST

7a T Retention	8	Yasuhiisa Oya1, Masashi Shimada2, Yuji Nobuta3, Yuji Yamauchi3, Makoto Kobayashi4, Makoto Oya5, Tepei Otsuka6, Chase N. Taylor2*, Robert Kolasinski7, Dean Buchenauer7, Yuji Hatano8	1College of Science, Academic Institute, Shizuoka University, 836 Ohya, Suruga-ku, Shizuoka 422-8529, Japan 2Fusion Safety Program, Idaho National Laboratory, Idaho Falls, ID 83415, USA 3Graduate School of Engineering, Hokkaido University, Sapporo 060-0808, Japan 4National Institute for Fusion Science, 5Interdisciplinary Graduate School of Engineering Sciences, Kyushu University, Kasuga, Fukuoka, 816-8580, Japan 6Faculty of Science and Engineering, Kindai University, Higashi-Osaka 577-8502, Japan 7Energy Innovation Department, Sandia National Laboratories, Livermore, CA 94550, USA 8Hydrogen Isotope Research Center, University of Toyama, Toyama 930-8555, Japan	Japan, US	OVERVIEW OF PHENIX TASK 3 ACTIVITIES FOR TRITIUM BEHAVIOR IN HIGH-TEMPERATURE NEUTRON-IRRADIATED TUNGSTEN
7a T Retention	9	Jing Wang1*, Yuji Hatano1, Tatsuya Hinoki2, Alexander V. Spitsyn3, Nikolay P. Bobyr3, Sosuke Kondo4, Takeshi Toyama4, Heun Tae Lee5, Yoshio Ueda5	1Hydrogen Isotope Research Center, Organization for Promotion of Research, University of Toyama, Toyama 930-8555, Japan 2Institute of Advanced Energy, Kyoto University, Kyoto 611-0011, Japan 3NRRC "Kurchatov Institute", Kurchatov sq. 1, Moscow 123182, Russia 4Institute for Materials Research, Tohoku University, Miyagi 980-8577, Japan 5Graduate School of Engineering, Osaka University, Osaka 565-0871, Japan	Japan, Russia	DEUTERIUM RETENTION IN W AND BINARY W ALLOYS IRRADIATED WITH HIGH ENERGY FE IONS
7a T Retention	10	B. Unterberga1, M. Zlobinskia,*, G. De Temmermanb, C. Porosnicu, D. Matveeva, G. Sergienkoa, S. Brezinseka, D. Nicolaia, M. Rasinskia, B. Spilker, M. Freisingera, S. Möllera, Ch. Linsmeiera, C. P. Lunguc, P. Dincac	1Institute of Energy and Climate Research – Plasma Physics, Forschungszentrum Jülich GmbH (FZJ), Partner in the Trilateral Euregio Cluster, D-52425 Jülich, Germany bITER Organization, Route de Vinon-sur-Verdon, CS 90 046, 13067 St Paul Lez Durance Cedex, France cNational Institute for Laser, Plasma and Radiation Physics (INFLPR), Atomistilor 409, Magurele, Jud Ilfov, 077125, Bucharest, Romania	Germany, France, Romania	Analysis of fuel retention in Be layers by Laser-Induced Desorption (LID)
7a T Retention	11	Yuji Hatano1, Xin Xiang1*, Peng Shi1*, Vladimir Kh. Alimov1,2, Takeshi Toyama3, Naoki Ebisawa3, Sosuke Kondo4, Tatsuya Hinoki5	1Hydrogen Isotope Research Center, Organization for Promotion of Research, University of Toyama, Toyama 930-8555, Japan 2A.N. Frumkin Institute of Physical Chemistry and Electrochemistry, Russian Academy of Sciences, Moscow, 119071, Russia 3Institute for Materials Research, Tohoku University, Oarai, Ibaraki 311-1313, Japan 4Institute for Materials Research, Tohoku University, Sendai, Miyagi 980-8577, Japan 5Institute of Advanced Energy, Kyoto University, Uji, Kyoto 611-0011, Japan *Present address: China Academy of Engineering Physics, Mianyang, Sichuan, 621900, China	Japan, Russia, China	ISOTOPE EFFECTS ON HYDROGEN RETENTION, TRAPPING AND PERMEATION IN COPPER-BASED MATERIALS
7a T Retention	12	Hai-Shan Zhou1,2*, Lu Wang1,2, Hao-Dong Liu1,2, Xin Yang1, Guang-Nan Luo1,2	1Institute of Plasma Physics, Chinese Academy of Sciences, Hefei, 230031 China, 2University of Science and Technology of China, Hefei, 230031 China	China	EFFECTS OF ION-INDUCED DESORPTION ON HYDROGEN ISOTOPE PERMEATION AND RETENTION IN WALL MATERIALS
7b Oxidation Corrosion	1	W. Krauss1*, P. Chakraborty2, S.-E. Wulf1, J. Lorenz1, Q. Huang3, J. Konys1	1Karlsruhe Institute of Technology, Hermann-von-Helmholtz-Platz 1 76344 Eggenstein-Leopoldshafen, Germany 2Materials Science Division, Bhabha Atomic Research Centre, Mumbai 400085, India 3Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui 230031, China	Germany, India, China	Compatibility of RAFM steels with flowing Pb-Li examined in the corrosion testing loop PICOLO during the last decades
7b Oxidation Corrosion	2	Joven J H Lim1* and George Fulton1	1UK Atomic Energy Authority, Culham Science Centre, Abingdon, OX14 3DB, UK	UK	Irradiation Assisted Corrosion study of ITER-grade CuCrZr
7b Oxidation Corrosion	3	Tepei Otsuka1*, Natsuki Sawano1, Yuji Fujii1	1Kindai University, Higashi-Osaka, 577-8502 Japan	Japan	Effect of rhenium contents on oxidation behaviors of tungsten-rhenium alloys
7b Oxidation Corrosion	4	Pablo Pérez1, Ángel Muñoz2, Paloma Adeva1, Miguel Ángel Monge2*	1Departamento de Metalurgia Física, Centro Nacional de Investigaciones Metalúrgicas (CENIM-CSIC), Avd. Gregorio del Amo 8, 28040 Madrid, Spain 2Departamento de Física, Universidad Carlos III, Avda. Universidad 30, 28911 Leganés, Spain	Spain	Influence of 1 and 5 wt.% TiC additions on the oxidation behaviour of pure tungsten
7b Oxidation Corrosion	5	P. Chakraborty1*, W. Krauss2, S.-E. Wulf2, R. Tewari1, J. Konys2	1Materials Science Division, Bhabha Atomic Research Centre, Mumbai 400085, India 2Karlsruhe Institute of Technology, Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany	India, Germany	Corrosion of Indian RAFM and EUROFER steel in Pb-Li loop PICOLO
7b Oxidation Corrosion	6	J. Jun, K. A. Unocic, M. Romedenne, and B. A. Pint	Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA	US	COMPATIBILITY OF ALUMINA-FORMING STEEL IN FLOWING PbLi AT 600°-700°C WITH TEMPERATURE GRADIENTS
7b Oxidation Corrosion	7	Hao Yu1*, Sosuke Kondo1, Ryuta Kasada1 Naoko Oono2, Shigenari Hayashi2, Shigeharu Uka2	1Institute of Materials Research, Tohoku University, Sendai, 980-8577, Japan 2Graduate School of Engineering, Hokkaido University, Sapporo, 060-8628, Japan	Japan	Influence of excessive oxygen addition on the oxidation resistance of Zr-added FeCrAl ODS ferritic steels
7c-BCC	1	Xiaoming Yuan*, Hongguang Yang, Qin Zhan	China Institute of Atomic Energy, Beijing, China	China	DEVELOPMENT OF TRITIUM PERMEATION BARRIER COATING FOR FUSION TBM IN CIAE
7c-BCC	2	Hao Yang, Xiang Ji, Siwei Zhang, Wei Wang*, Qunying Huang, FDS Team	Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences, Hefei, Anhui, 230031, China	China	SYNTHESIS AND CHARACTERISTIC OF BIOMIMETIC GRAPHENE OXIDE/Al2O3 COMPOSITE TRITIUM PERMEATION BARRIER
7c-BCC	3	A. Houben1*, M. Rasiński1, L. Gao2, Ch. Linsmeier1, and WP PFC contributors	1 Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung – Plasmaphysik, Partner of the Trilateral Euregio Cluster (TEC), 52425 Jülich, Germany 2 Max-Planck-Institut für Plasmaphysik, Boltzmannstr. 2, D-85748, Germany	Germany	Tungsten Nitride as Tritium Permeation Barrier
7c-BCC	4	Yu-Ping Xu*, Yi-Ming Lyu, Xiao-Chun Li, Hai-Shan Zhou, Guang-Nan Luo	Institute of Plasma Physics, Chinese Academy of Sciences, Hefei, 230031, China	China	Repair the damaged tritium permeation barrier by cold spray

7c-BCC	5	Wei Mao1*, Wilde Markus2, Shohei Ogura2, Takumi Chikada3, Katsuyuki Fukutani2, Hiroyuki Matsuzaki4,5, Takayuki Terai1,5	1 Institute of Engineering Innovation, School of Engineering, The University of Tokyo, 2-11-16 Yayoi, Bunkyo-ku, Tokyo 113-0032, Japan 2Institute of Industrial Science, The University of Tokyo, 4-6-1 Komaba, Meguro-ku, Tokyo 153-8505, Japan 3Department of Chemistry, Graduate School of Science, Shizuoka University, 836 Ohya, Suruga-ku, Shizuoka 422-8529, Japan 4The University Museum, The University of Tokyo, 2-11-16 Yayoi, Bunkyo-ku, Tokyo 113-0032, Japan 5Department of Nuclear Engineering and Management, School of Engineering, The University of Tokyo, 2-11-16 Yayoi, Bunkyo-ku, Tokyo 113-8656, Japan	Japan	H isotope behaviors in rutile TiO2(110) surface
7c-BCC	6	Laizhong Cai1*, Xiaoxiao Zeng1, Jianbao Wang1, Jiupeng Song2, Binyou Yan2, Zhe Chen1, Xiang Liu1, Youyun Lian1, Yu Li3, Thomas Morgan3	1Southwestern Institute of Physics, Chengdu, Sichuan, China 2Xiamen Tungsten Company, Xiamen, Fujian, China 3DIFFER, 5600 HH Eindhoven, Netherlands	China, Netherlands	Fabrication and test of the new first wall structure with a tritium barrier for DEMO
7c-BCC	7	Shota Nakazawa1*, Kazuki Nakamura1, Hikari Fujita2, Hans Maier3, Thomas Schwarz-Selinger3, Yuji Hatano4, Naoko Ashikawa5, Wataru Inami1, Yoshimasa Kawata1, Takumi Chikada1	1Shizuoka University, Shizuoka, Japan 2University of Tokyo, Tokyo, Japan 3Max-Planck-Institut für Plasmaphysik, 85748 Garching, Germany 4University of Toyama, Toyama, Japan 5National Institute for Fusion Science, Gifu, Japan	Japan, Germany	Gamma-ray irradiation effect on deuterium retention in reduced activation ferritic/martensitic steel and ceramic coatings
7c-BCC	8	Hisashi Serizawa1*, Jun Shimaoka2, Yuji Sato3, Takahiro Hara2, Masahiro Tsukamoto1, Hiroyasu Tanigawa4	1Joining and Welding Research Institute, Osaka University, Osaka, 567-0047, Japan 2Graduate School of Engineering, Osaka University, Osaka 565-0871, Japan 3Japan Atomic Energy Agency, Fukui, 914-8585, Japan 4National Institute for Quantum and Radiological Science and Technology, Aomori, 039-3212, Japan	Japan	DEVELOPMENT OF COPPER DEPOSITION ON TUNGSTEN WITH BLUE AND INFRARED DIODE LASERS
7c-BCC	9	Teresa Hernández1*, Fernando J. Sánchez1, Eric Platacis2, Kalvis Kravalis2	1 National Laboratory for Magnetic Fusion, CIEMAT, Avda. Complutense 40, 28040 Madrid, Spain 2Institute of Physics, University of Latvia, 32 LV-2169 Salaspils, Latvia	Spain, Latvia	COATINGS COMPATIBILITY WITH Pb-17Li FLOW AND MAGNETIC FIELD
9					
9	1	Christian Hill1*, Kalle Heinola1, Andrea Sand2, Sergei Dudarev3, Wahyu Setyawan4	1International Atomic Energy Agency, Vienna, A-1400, Austria 2University of Helsinki, Helsinki 00014, Finland 3Culham Centre for Fusion Energy, UK Atomic Energy Authority, Culham Science Centre, Abingdon, Oxfordshire OX14 3DB, UK 4Pacific Northwest National Laboratory, Richland WA 99352, United States	Austria, Finland, UK, US	CASCADESDB: AN OPEN DATABASE OF COLLISION CASCADE SIMULATIONS FOR FUSION MATERIALS
Totals	481	481			