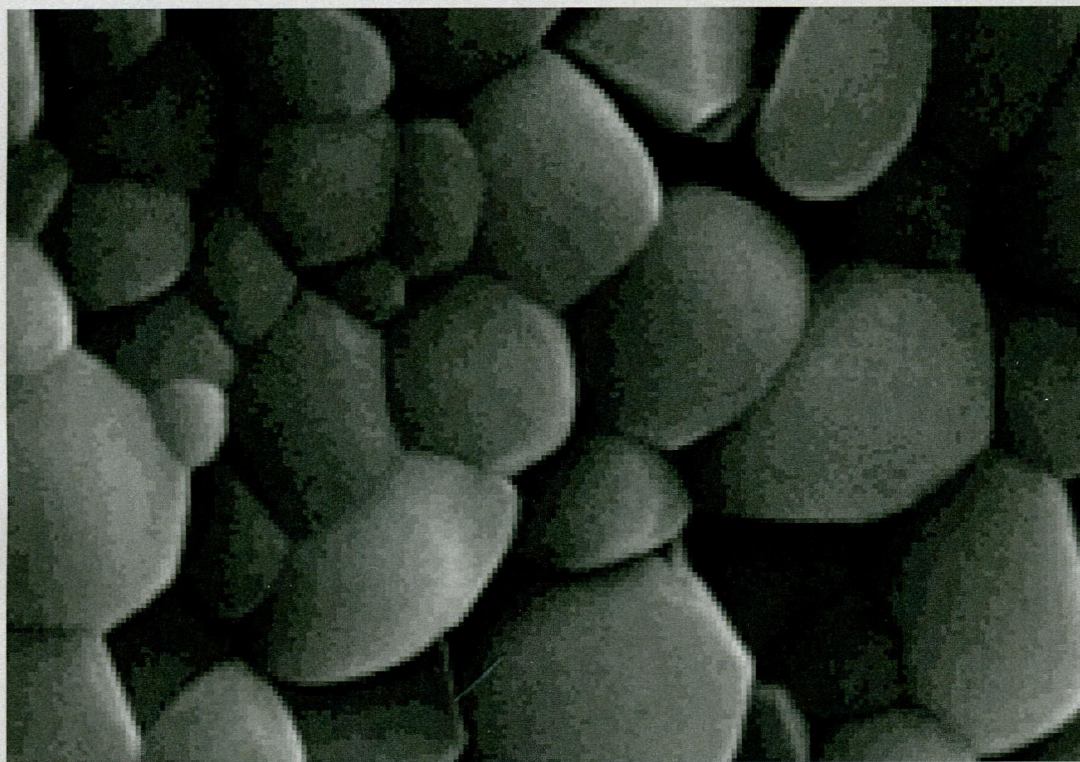


Journal of Nuclear Materials



EDITORS

L.K. MANSUR — Oak Ridge, TN, USA (Chairman)
M. GRIFFITHS — Chalk River, ON, Canada
T. MUROGA — Toki, Japan
T. OGAWA — Niigata, Japan
R.E. STOLLER — Oak Ridge, TN, USA
L.O. WERME — Uppsala, Sweden

Abstracted/Indexed in: Aluminium Industry Abstracts/Chemical Abstracts/Current Contents: Engineering, Computing and Technology/Current Contents: Physical, Chemical and Earth Sciences/El Compendex Plus/Engineered Materials Abstracts/Engineering Index/INSPEC/Metals Abstracts. Also covered in the abstract and citation database Scopus®. Full text available on ScienceDirect®

CONTENTS

Evaluation of radiation hardening in ion-irradiated Fe based alloys by nanoindentation, <i>X. Liu, R. Wang, A. Ren, J. Jiang, C. Xu, P. Huang, W. Qian, Y. Wu and C. Zhang</i>	1	An atomistic modeling of the xenon bubble behavior in the UO ₂ matrix, <i>A. Jelea, R.J.-M. Pellenq and F. Ribeiro</i>	153
Sintering and characterization of ZrN and (Dy,Zr)N as surrogate materials for fast reactor nitride fuel, <i>M. Pukari and M. Takano</i>	7	Microstructural modeling of thermal conductivity of high burn-up mixed oxide fuel, <i>M. Teague, M. Tonks, S. Novascone and S. Hayes</i>	161
In situ monitored in-pile creep testing of zirconium alloys, <i>R.W. Kozar, A.W. Jaworski, T.W. Webb and R.W. Smith</i>	14	Development of a multi-layer diffusion couple to study fission product transport in β-SiC, <i>S. Dwaraknath and G.S. Was</i>	170
In situ analysis of impurities deposited on the tokamak flange using laser induced breakdown spectroscopy, <i>G.S. Maurya, A. Jyotsana, R. Kumar, A. Kumar and A.K. Rai</i>	23	Spark plasma sintering and mechanical properties of zirconium micro-alloyed tungsten, <i>Z.M. Xie, R. Liu, Q.F. Fang, Y. Zhou, X.P. Wang and C.S. Liu</i>	175
Oxidation induced localized creep deformation in Zircaloy-2, <i>P. Tejlund and H.-O. Andrén</i>	30	Americium-based oxides: Dense pellet fabrication from co-converted oxalates, <i>D. Horlait, F. Lebreton, A. Gauthé, M. Caisso, B. Arab-Chapelet, S. Picart and T. Delahaye</i>	181
Effect of bulk oxygen on 14YWT nanostructured ferritic alloys, <i>N.J. Cunningham, Y. Wu, A. Etienne, E.M. Haney, G.R. Odette, E. Stergar, D.T. Hoelzer, Y.D. Kim, B.D. Wirth and S.A. Maloy</i>	35	Thermal treatment of simulant plutonium contaminated materials from the Sellafield site by vitrification in a blast-furnace slag, <i>N.C. Hyatt, R.R. Schwarz, P.A. Bingham, M.C. Stennett, C.L. Corkhill, P.G. Heath, R.J. Hand, M. James, A. Pearson and S. Morgan</i>	186
Synthesis and crystalline phase of monazite-type Ce _{1-x} Gd _x PO ₄ solid solutions for immobilization of minor actinide curium, <i>H. Yang, Y. Teng, X. Ren, L. Wu, H. Liu, S. Wang and L. Xu</i>	39	Molecular dynamics simulation of Cu atoms interaction with symmetrical grain boundaries of BCC Fe, <i>N. Gao, A. Ghoniem, X. Gao, P. Luo, K.F. Wei and Z.G. Wang</i>	200
Development and testing of microcompression for post irradiation characterization of ODS steels, <i>C. Shin, S. Lim, H.-h. Jin, P. Hosemann and J. Kwon</i>	43	Investigation of temperature dependence of fracture toughness in high-dose HT9 steel using small-specimen reuse technique, <i>J.-H. Baek, T.S. Byun, S.A. Maloy and M.B. Toloczko</i>	206
A thermal desorption study of the kinetics of uranium hydride decomposition, <i>R.S. Lillard, C.D. Taylor, J.R. Wermer, N.A. Mara and J.C. Cooley</i>	49	High temperature strain hardening behavior in double forged and potassium doped tungsten, <i>H. Sheng, G. Van Oost, E. Zhurkin, D. Terentyev, V.I. Dubinko, I. Uytdenhouten and J. Vleugels</i>	214
Ultra-high temperature steam corrosion of complex silicates for nuclear applications: A computational study, <i>S.N. Rashkeev, M.V. Glazoff and A. Tokuhira</i>	56	Effect of plutonium doping on radiation damage in zirconolite: A computer simulation study, <i>H.R. Foxhall, K.P. Travis and S.L. Owens</i>	220
Oxidation and hydrogen uptake in zirconium, Zircaloy-2 and Zircaloy-4: Computational thermodynamics and <i>ab initio</i> calculations, <i>M.V. Glazoff, A. Tokuhira, S.N. Rashkeev and P. Sabharwall</i>	65	Principal physical parameters characterizing the interactions between irradiation-induced point defects and several tilt symmetric grain boundaries in Fe, Mo and W, <i>X. Li, W. Liu, Y. Xu, C.S. Liu, Q.F. Fang, B.C. Pan, J.-L. Chen, G.-N. Luo and Z. Wang</i>	229
Specific outcomes of the research on the radiation stability of the French nuclear glass towards alpha decay accumulation, <i>S. Peugeot, J.-M. Delaye and C. Jégou</i>	76	Interaction of minor alloying elements of high-Cr ferritic steels with lattice defects: An <i>ab initio</i> study, <i>A. Bakaev, D. Terentyev, G. Bonny, T.P.C. Klaver, P. Olsson and D. Van Neck</i>	237
Multi-nuclear NMR study of polytype and defect distribution in neutron irradiated silicon carbide, <i>C.T. Brigden, I. Farnan and P.R. Hania</i>	92	Corrosion of soda lime silicate glasses co-doped with Gd ₂ O ₃ and Y ₂ O ₃ , <i>M. Wang, M. Li, J. Cheng, F. He, Z. Liu and Y. Hu</i>	247
Fuel clad chemical interactions in fast reactor MOX fuels, <i>R. Viswanathan</i>	101	Characterisation of nanosized oxides in ODM401 oxide dispersion strengthened steel, <i>K. Dawson and G.J. Tatlock</i>	252
Chemical kinetics parameters and model validation for the gasification of PCEA nuclear graphite, <i>M.S. El-Genk, J.-M.P. Tournier and C.I. Contescu</i>	112	Electrochemical reduction of UO ₂ in LiCl–Li ₂ O molten salt using porous and nonporous anode shrouds, <i>E.-Y. Choi, C.Y. Won, J.-S. Cha, W. Park, H.S. Im, S.-S. Hong and J.-M. Hur</i>	261
Interaction of dislocations in UO ₂ during high burn-up structure formation, <i>V.G. Baranov, A.V. Lunev, A.V. Tenishev and A.V. Khlunov</i>	129	Synthesis and chemical durability of U-doped sphene ceramics, <i>Y. Teng, L. Wu, X. Ren, Y. Li and S. Wang</i>	270
Radiation damage and deuterium trapping in deuterium-ion-irradiated Fe-9Cr alloy, <i>H. Iwakir, M. Tani, Y. Watanabe and N. Yoshida</i>	138	Irradiation effects and micro-structural changes in large grain uranium dioxide fuel investigated by micro-beam X-ray diffraction, <i>C. Mieszczynski, G. Kuri, C. Degueldre, M. Martin, J. Bertsch, C.N. Borca, D. Grolimund, Ch. Delafoy and E. Simoni</i>	274
Structural investigations in helium charged titanium films using grazing incidence XRD and EXAFS spectroscopy, <i>C. Wan, X. Zhou, Y. Wang, S. Li, X. Ju and S. Peng</i>	142		
He-induced vacancy formation in bcc Fe solid from first-principles simulation, <i>P. Zhang, C. Zhang, R. Li and J. Zhao</i>	147		

(Contents continued on inside back cover)



(Contents continued from outside back cover)

Characterization of a 14Cr ODS steel by means of small punch and uniaxial testing with regard to creep and fatigue at elevated temperatures, <i>M. Bruchhausen, K. Turba, F. de Haan, P. Hähner, T. Austin and Y. de Carlan</i>		
Theoretical study of mixing energetics in homovalent fluorite-structured oxide solid solutions, <i>V. Alexandrov, N. Grønbech-Jensen, A. Navrotsky and M. Asta</i>	283	
Efficient simulation of kinetics of radiation induced defects: A cluster dynamics approach, <i>T. Jourdan, G. Bencteux and G. Adjanor</i>	292	
Nano-cluster stability following neutron irradiation in MA957 oxide dispersion strengthened material, <i>J. Ribis and S. Lozano-Perez</i>	298	
The performance of Inconel 693 electrodes for processing an iron phosphate glass melt containing 26 wt.% of a simulated low activity waste, <i>J.-H. Hsu, J.W. Newkirk, C.-W. Kim, R.K. Brow, M.E. Schlesinger, C.S. Ray and D.E. Day</i>	314	
Crack initiation behavior of neutron irradiated model and commercial stainless steels in high temperature water, <i>K.J. Stephenson and G.S. Was</i>	323	
Resistance to He ²⁺ induced irradiation damage in metallic glass Zr ₆₄ Cu _{17.8} Ni _{10.7} Al _{7.5} , <i>B. Wang, X. Mei, H. Zhang, W. Hou, Y. Wang, Z. Wang and C. Dong</i>	342	
A study on the effects of dissolved hydrogen on zirconium alloys corrosion, <i>Y.-s. Kim, Y.-h. Jeong and S.-b. Son</i>	349	
Electron correlation and relativity of the 5f electrons in the U-Zr alloy system, <i>P. Söderlind, B. Sadigh, V. Lordi, A. Landa and P.E.A. Turchi</i>	356	
Effect of hydration and thermal treatment on ceria surface using non-intrusive techniques, <i>J. Gaillard, L. Venault, R. Calvet, S. Del Confetto, N. Clavier, R. Podor, M. Odorico, J.-L. Pellequer, N. Vigier and P. Moisy</i>	359	
First-principles study of helium trapping in cementite Fe ₃ C, <i>B.L. He, D.H. Ping and W.T. Geng</i>	368	
Effect of neutron irradiation on tensile properties of materials for pressure vessel internals of WWER type reactors, <i>A.A. Sorokin, B.Z. Margolin, I.P. Kursevich, A.J. Minkin and V.S. Neustroev</i>	373	
Effect of composition on thermal conductivity of MgO-Nd ₂ Zr ₂ O ₇ composites for inert matrix materials, <i>A.T. Nelson, M.M. Giachino, J.C. Nino and K.J. McClellan</i>	385	
Effect of creep and oxidation on reduced fatigue life of Ni-based alloy 617 at 850 °C, <i>X. Chen, Z. Yang, M.A. Sokolov, D.L. Erdman III, K. Mo and J.F. Stubbins</i>	393	
Embrittlement of molybdenum-rhenium welds under low and high temperature neutron irradiation, <i>A.V. Krajnikov, F. Morito and M.I. Danylenko</i>		404
Oxide dispersion strengthened Fe-12Cr steel in three dimensions: An electron tomography study, <i>V. de Castro, P. Rodrigo, E.A. Marquis and S. Lozano-Perez</i>		416
Sintering and characterization of (Pu,Zr)N, <i>M. Pukari, M. Takano and T. Nishi</i>		421
The thermal crack characteristics of rolled tungsten in different orientations, <i>X. Zhang and Q. Yan</i>		428
Hydrogen effects on tensile properties of EUROFER 97 and ODS-EUROFER steels, <i>Y. Yagodzinskyy, E. Malitckii, M. Ganchenkova, S. Binyukova, O. Emelyanova, T. Saukkonen, H. Hänninen, R. Lindau, P. Vladimirov and A. Moeslang</i>		435
TEM and HRTEM study of oxide particles in an Al-alloyed high-Cr oxide dispersion strengthened steel with Zr addition, <i>P. Dou, A. Kimura, R. Kasada, T. Okuda, M. Inoue, S. Ukai, S. Ohnuki, T. Fujisawa and F. Abe</i>		441
Effects of temperature on stress corrosion cracking behavior of stainless steel and outer oxide distribution in cracks due to exposure to high-temperature water containing hydrogen peroxide, <i>J. Nakano, T. Sato, C. Kato, M. Yamamoto, T. Tsukada and Y. Kaji</i>		454
Effect of zirconium addition on the microstructure and mechanical properties of ODS ferritic steels containing aluminum, <i>R. Gao, T. Zhang, X.P. Wang, Q.F. Fang and C.S. Liu</i>		462
Viability of the ESS-Bilbao neutron source for irradiation of nuclear fusion materials, <i>A.R. Páramo, F. Sordo, J.M. Perlado and A. Rivera</i>		469
EBS and TEM characterization of high burn-up mixed oxide fuel, <i>M. Teague, B. Gorman, B. Miller and J. King</i>		475
Cold crucible induction melter studies for making glass ceramic waste forms: A feasibility assessment, <i>J. Crum, V. Maio, J. McCloy, C. Scott, B. Riley, B. Benefiel, J. Vienna, K. Archibald, C. Rodriguez, V. Rutledge, Z. Zhu, J. Ryan and M. Olszta</i>		481
He migration and bubble formation in Ga stabilised δ-Pu, <i>M. Robinson, S.D. Kenny, R. Smith and M.T. Storr</i>		493