



Subject index

Analytical Instruments and Methods (*not listed elsewhere*)

- Examination of U valence states in the brannerite structure by near-infrared diffuse reflectance and X-ray photoelectron spectroscopies, K.S. Finnie, Z. Zhang, E.R. Vance and M.L. Carter 317 (2003) 46

Breeding Materials for Fusion

- The nature and effects of the thermal stability of lithium hydroxide, L.N. Dinh, W. McLean II, M.A. Schildbach, J.D. LeMay, W.J. Siekhaus and M. Balooch 317 (2003) 175

Carbon

- Enthalpy and Gibbs energy of formation of cerium dicarbide, R. Vidhya, M.P. Antony, P.R. Vasudeva Rao and B. Viswanathan 317 (2003) 102

Cavities (*includes Voids, Holes*)

- Influence of irradiation temperature and dose gradients on the microstructural evolution in neutron-irradiated 316SS, D.J. Edwards, E.P. Simonen, F.A. Garner, L.R. Greenwood, B.M. Oliver and S.M. Bruemmer 317 (2003) 32

Chemical Reactions (*includes Electrochemical and Thermochemical Reactions*)

- Examination of U valence states in the brannerite structure by near-infrared diffuse reflectance and X-ray photoelectron spectroscopies, K.S. Finnie, Z. Zhang, E.R. Vance and M.L. Carter 317 (2003) 46
- The nature and effects of the thermal stability of lithium hydroxide, L.N. Dinh, W. McLean II, M.A. Schildbach, J.D. LeMay, W.J. Siekhaus and M. Balooch 317 (2003) 175
- Oxidation of spent UO₂ fuel stored in moist environment, A. Leenaers, L. Sannen, S. Van den Berghe and M. Verwerft 317 (2003) 226

Cladding Materials

- Differences in reactivity of oxide growth during the oxidation of Zircaloy-4 in

- water vapour before and after the kinetic transition, M. Tupin, M. Pijolat, F. Valdivieso, M. Soustelle, A. Fricchet and P. Barberis 317 (2003) 130

Compatibility and Corrosion (*includes Stress Corrosion Cracking*)

- Effect of β phase, precipitate and Nb-concentration in matrix on corrosion and oxide characteristics of Zr-xNb alloys, Y.H. Jeong, H.G. Kim and T.H. Kim 317 (2003) 1
- Study of gel development during SON68 glass alteration using atomic force microscopy. Comparison with two simplified glasses, N. Donzel, S. Gin, F. Augereau and M. Ramonda 317 (2003) 83
- Differences in reactivity of oxide growth during the oxidation of Zircaloy-4 in water vapour before and after the kinetic transition, M. Tupin, M. Pijolat, F. Valdivieso, M. Soustelle, A. Fricchet and P. Barberis 317 (2003) 130
- Compatibility of steel No. 1.4970 with liquid sodium at high temperatures, H.U. Borgstedt 317 (2003) 160

Composite Materials

- Defect structure and evolution in silicon carbide irradiated to 1 dpa-SiC at 1100 °C, D.J. Senior, G.E. Youngblood, L.R. Greenwood, D.V. Archer, D.L. Alexander, M.C. Chen and G.A. Newsome 317 (2003) 145

Creep and Stress Relaxation

- Irradiation creep of annealed 304L stainless steel at low dose levels, J.P. Foster, K. Bunde and D.L. Porter 317 (2003) 167

Diffusion

- Transport properties of iodine and tellurium in a thoria-2 mol% urania matrix, K.N.G. Kaimal, A.S. Kerkar, A.N. Shirsat, D. Das, A. Datta, A.G.C. Nair and S.B. Manohar 317 (2003) 189
- Diffusion bonding of stainless steel to Zircaloy-4 in the presence of a Ta intermediate layer, M. Ahmad, J.I.

- Akhter, Q. Zaman, M.A. Shaikh, M. Akhtar, M. Iqbal and E. Ahmed 317 (2003) 212
- Dislocations**
 Determination of dislocation density and composition of β -Zr in Zr-2.5Nb pressure tubes using X-ray and TEM, Y.S. Kim, S.S. Kim, Y.M. Cheong and K.S. Im 317 (2003) 117
- Electron Microscopy**
 Determination of dislocation density and composition of β -Zr in Zr-2.5Nb pressure tubes using X-ray and TEM, Y.S. Kim, S.S. Kim, Y.M. Cheong and K.S. Im 317 (2003) 117
- Fission Products**
 Enthalpy and Gibbs energy of formation of cerium dicarbide, R. Vidhya, M.P. Antony, P.R. Vasudeva Rao and B. Viswanathan 317 (2003) 102
 Transport properties of iodine and tellurium in a thoria-2 mol% urania matrix, K.N.G. Kaimal, A.S. Kerker, A.N. Shirsat, D. Das, A. Datta, A.G.C. Nair and S.B. Manohar 317 (2003) 189
- Fracture and Fracture Toughness**
 Application of the local fracture stress model on the cleavage fracture of the reactor pressure vessel steels in the transition temperature region, W.-J. Yang, B.-S. Lee, M.-Y. Huh and J.-H. Hong 317 (2003) 234
- Fuels and Fuel Elements**
 Mechanical behaviour of macro-dispersed inert matrix fuels, E.A.C. Neeft, K. Bakker, R.L. Belvroy, W.J. Tams, R.P.C. Schram, R. Conrad and A. van Veen 317 (2003) 217
- Hydrogen and Hydrides** (*includes Deuterium and Deuterides*)
 Permeation of hydrogen through tantalum: influence of surface effects, A. Pisarev, K. Miyasaka and T. Tanabe 317 (2003) 195
- Joining** (*includes Welding, Brazing, Soldering*)
 Diffusion bonding of stainless steel to Zircaloy-4 in the presence of a Ta intermediate layer, M. Ahmad, J.I. Akhter, Q. Zaman, M.A. Shaikh, M. Akhtar, M. Iqbal and E. Ahmed 317 (2003) 212
- Kinetics**
 Differences in reactivity of oxide growth during the oxidation of Zircaloy-4 in water vapour before and after the kinetic transition, M. Tupin, M. Pijolat, F. Valdivieso, M. Soustelle, A. Frichet and P. Barberis 317 (2003) 130
- The nature and effects of the thermal stability of lithium hydroxide, L.N. Dinh, W. McLean II, M.A. Schildbach, J.D. LeMay, W.J. Siekhaus and M. Balooch 317 (2003) 175
- Liquid Metals**
 Compatibility of steel No. 1.4970 with liquid sodium at high temperatures, H.U. Borgstedt 317 (2003) 160
- Low Activation Materials** (*includes Reduced Activation*)
 Defect structure and evolution in silicon carbide irradiated to 1 dpa-SiC at 1100 °C, D.J. Senor, G.E. Youngblood, L.R. Greenwood, D.V. Archer, D.L. Alexander, M.C. Chen and G.A. Newsome 317 (2003) 145
- Mathematical and Computational Methods**
 Statistical approach and benchmarking for modeling of multi-dimensional behavior in TRISO-coated fuel particles, G.K. Miller, D.A. Petti, D.J. Varacalle Jr. and J.T. Maki 317 (2003) 69
- Mechanical Properties** (*not listed elsewhere*)
 Mechanical behaviour of macro-dispersed inert matrix fuels, E.A.C. Neeft, K. Bakker, R.L. Belvroy, W.J. Tams, R.P.C. Schram, R. Conrad and A. van Veen 317 (2003) 217
 Compression properties of lead-bismuth, Y. Dai, F. Barbagallo and F. Groeschel 317 (2003) 252
- Metals, Alloys and Compounds** (*not listed elsewhere*)
 On the solubility of chromium sesquioxide in uranium dioxide fuel, A. Leenaers, L. de Tollenaere, Ch. Delafooy and S. Van den Berghe 317 (2003) 62
 Permeation of hydrogen through tantalum: influence of surface effects, A. Pisarev, K. Miyasaka and T. Tanabe 317 (2003) 195
 Compression properties of lead-bismuth, Y. Dai, F. Barbagallo and F. Groeschel 317 (2003) 252
- Microstructure and Texture** (*excludes by Irradiation*)
 Effect of β phase, precipitate and Nb-concentration in matrix on corrosion and oxide characteristics of Zr-xNb alloys, Y.H. Jeong, H.G. Kim and T.H. Kim 317 (2003) 1
- Neutron Irradiation**
 Evolution of fine-scale defects in stainless steels neutron-irradiated at 275 °C, D.J. Edwards, E.P. Simonen and S.M. Bruemmer 317 (2003) 13
 Influence of irradiation temperature and dose gradients on the microstructural

- evolution in neutron-irradiated 316SS, D.J. Edwards, E.P. Simonen, F.A. Garner, L.R. Greenwood, B.M. Oliver and S.M. Bruemmer 317 (2003) 32
- Anisotropy of in-reactor deformation of Zr-2.5Nb pressure tubes, R.A. Holt, N. Christodoulou and A.R. Causey 317 (2003) 256
- Neutron Scattering**
- Defect structure and evolution in silicon carbide irradiated to 1 dpa-SiC at 1100 °C, D.J. Senior, G.E. Youngblood, L.R. Greenwood, D.V. Archer, D.L. Alexander, M.C. Chen and G.A. Newsome 317 (2003) 145
- Permeation**
- Permeation of hydrogen through tantalum: influence of surface effects, A. Pisarev, K. Miyasaka and T. Tanabe 317 (2003) 195
- Phase Equilibria (includes Constitution, Phase Stability, Phase Instability)**
- Grain size control of UO₂ pellets by adding heat-treated U₃O₈ particles to UO₂ powder, K.W. Song, K. Sik Kim, K. Won Kang and Y. Ho Jung 317 (2003) 204
- Pressure Vessel Materials**
- Application of the local fracture stress model on the cleavage fracture of the reactor pressure vessel steels in the transition temperature region, W.-J. Yang, B.-S. Lee, M.-Y. Huh and J.-H. Hong 317 (2003) 234
- Processing**
- Grain size control of UO₂ pellets by adding heat-treated U₃O₈ particles to UO₂ powder, K.W. Song, K. Sik Kim, K. Won Kang and Y. Ho Jung 317 (2003) 204
- Plasma Properties (includes Plasma Disruption)**
- Statistical approach and benchmarking for modeling of multi-dimensional behavior in TRISO-coated fuel particles, G.K. Miller, D.A. Petti, D.J. Varacalle Jr. and J.T. Maki 317 (2003) 69
- Plutonium, Plutonium Alloys and Compounds**
- Statistical approach and benchmarking for modeling of multi-dimensional behavior in TRISO-coated fuel particles, G.K. Miller, D.A. Petti, D.J. Varacalle Jr. and J.T. Maki 317 (2003) 69
- Radiation Effects: Extended Defects, Microstructures**
- Evolution of fine-scale defects in stainless steels neutron-irradiated at 275 °C, D.J. Edwards, E.P. Simonen and S.M. Bruemmer 317 (2003) 13
- Influence of irradiation temperature and dose gradients on the microstructural evolution in neutron-irradiated 316SS, D.J. Edwards, E.P. Simonen, F.A. Garner, L.R. Greenwood, B.M. Oliver and S.M. Bruemmer 317 (2003) 32
- Radiation Effects: Mechanical Properties**
- Evolution of fine-scale defects in stainless steels neutron-irradiated at 275 °C, D.J. Edwards, E.P. Simonen and S.M. Bruemmer 317 (2003) 13
- Influence of irradiation temperature and dose gradients on the microstructural evolution in neutron-irradiated 316SS, D.J. Edwards, E.P. Simonen, F.A. Garner, L.R. Greenwood, B.M. Oliver and S.M. Bruemmer 317 (2003) 32
- Statistical approach and benchmarking for modeling of multi-dimensional behavior in TRISO-coated fuel particles, G.K. Miller, D.A. Petti, D.J. Varacalle Jr. and J.T. Maki 317 (2003) 69
- Defect structure and evolution in silicon carbide irradiated to 1 dpa-SiC at 1100 °C, D.J. Senior, G.E. Youngblood, L.R. Greenwood, D.V. Archer, D.L. Alexander, M.C. Chen and G.A. Newsome 317 (2003) 145
- Irradiation creep of annealed 304L stainless steel at low dose levels, J.P. Foster, K. Bunde and D.L. Porter 317 (2003) 167
- Anisotropy of in-reactor deformation of Zr-2.5Nb pressure tubes, R.A. Holt, N. Christodoulou and A.R. Causey 317 (2003) 256
- Radiation Effects: Physical Properties**
- Defect structure and evolution in silicon carbide irradiated to 1 dpa-SiC at 1100 °C, D.J. Senior, G.E. Youngblood, L.R. Greenwood, D.V. Archer, D.L. Alexander, M.C. Chen and G.A. Newsome 317 (2003) 145
- Redeposition**
- Study of gel development during SON68 glass alteration using atomic force microscopy. Comparison with two simplified glasses, N. Donzel, S. Gin, F. Augereau and M. Ramonda 317 (2003) 83
- Segregation**
- Examination of U valence states in the brannerite structure by near-infrared diffuse reflectance and X-ray photoelectron spectroscopies, K.S. Finnie, Z. Zhang, E.R. Vance and M.L. Carter 317 (2003) 46
- Silicon and Silicon Compounds**
- Defect structure and evolution in silicon carbide irradiated to 1 dpa-SiC at

- 1100 °C, D.J. Senior, G.E. Youngblood, L.R. Greenwood, D.V. Archer, D.L. Alexander, M.C. Chen and G.A. Newsome 317 (2003) 145
- Steels, Austenitic**
- Evolution of fine-scale defects in stainless steels neutron-irradiated at 275 °C, D.J. Edwards, E.P. Simonen and S.M. Bruemmer 317 (2003) 13
- Influence of irradiation temperature and dose gradients on the microstructural evolution in neutron-irradiated 316SS, D.J. Edwards, E.P. Simonen, F.A. Garner, L.R. Greenwood, B.M. Oliver and S.M. Bruemmer 317 (2003) 32
- Thermal expansion characteristics of a titanium modified austenitic stainless steel: measurement by high-temperature X-ray diffraction and modelling using Grüneisen formalism, R. Jose, S. Raju, R. Divakar, E. Mohandas, G. Panneerselvam, M.P. Antony and K. Sivasubramanian 317 (2003) 54
- Swelling rate versus swelling correlation in 20% cold-worked 316 stainless steels, S. Ukai and T. Uwaba 317 (2003) 93
- Compatibility of steel No. 1.4970 with liquid sodium at high temperatures, H.U. Borgstedt 317 (2003) 160
- Steels, Austenitic, Low C/N**
- Irradiation creep of annealed 304L stainless steel at low dose levels, J.P. Foster, K. Bunde and D.L. Porter 317 (2003) 167
- Steels, Ferritic, Pressure Vessel**
- Application of the local fracture stress model on the cleavage fracture of the reactor pressure vessel steels in the transition temperature region, W.-J. Yang, B.-S. Lee, M.-Y. Huh and J.-H. Hong 317 (2003) 234
- Surface Effects**
- The nature and effects of the thermal stability of lithium hydroxide, L.N. Dinh, W. McLean II, M.A. Schildbach, J.D. LeMay, W.J. Siekhaus and M. Balooch 317 (2003) 175
- Swelling: Metals and Alloys**
- Swelling rate versus swelling correlation in 20% cold-worked 316 stainless steels, S. Ukai and T. Uwaba 317 (2003) 93
- Irradiation creep of annealed 304L stainless steel at low dose levels, J.P. Foster, K. Bunde and D.L. Porter 317 (2003) 167
- Theory and Modelling**
- Thermal expansion characteristics of a titanium modified austenitic stainless steel: measurement by high-temperature X-ray diffraction and modelling using Grüneisen formalism, R. Jose, S. Raju, R. Divakar, E. Mohandas, G. Panneerselvam, M.P. Antony and K. Sivasubramanian 317 (2003) 54
- Swelling rate versus swelling correlation in 20% cold-worked 316 stainless steels, S. Ukai and T. Uwaba 317 (2003) 93
- Application of the local fracture stress model on the cleavage fracture of the reactor pressure vessel steels in the transition temperature region, W.-J. Yang, B.-S. Lee, M.-Y. Huh and J.-H. Hong 317 (2003) 234
- Anisotropy of in-reactor deformation of Zr-2.5Nb pressure tubes, R.A. Holt, N. Christodoulou and A.R. Causey 317 (2003) 256
- Thermodynamic Properties**
- On the solubility of chromium sesquioxide in uranium dioxide fuel, A. Leenaers, L. de Tollenaere, Ch. Delafoy and S. Van den Berghe 317 (2003) 62
- Enthalpy and Gibbs energy of formation of cerium dicarbide, R. Vidhya, M.P. Antony, P.R. Vasudeva Rao and B. Viswanathan 317 (2003) 102
- Investigation of vaporization behavior of hyper-stoichiometric uranium dioxide by Knudsen effusion mass spectrometry, K. Nakajima and Y. Arai 317 (2003) 243
- Thermophysical Properties**
- Thermal expansion characteristics of a titanium modified austenitic stainless steel: measurement by high-temperature X-ray diffraction and modelling using Grüneisen formalism, R. Jose, S. Raju, R. Divakar, E. Mohandas, G. Panneerselvam, M.P. Antony and K. Sivasubramanian 317 (2003) 54
- Thermophysical studies on the binary system $\text{UO}_2(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O} - \text{Sr}(\text{NO}_3)_2$, P.V. Ravindran, B.B. Kalekar, K.V. Rajagopalan, C.G.S. Pillai and P.K. Mathur 317 (2003) 109
- Thorium, Thorium Alloys and Compounds**
- Transport properties of iodine and tellurium in a thoria-2 mol% urania matrix, K.N.G. Kaimal, A.S. Kerkar, A.N. Shirsat, D. Das, A. Datta, A.G.C. Nair and S.B. Manohar 317 (2003) 189
- Uranium Oxides and Compounds**
- Examination of U valence states in the brannerite structure by near-infrared diffuse reflectance and X-ray photoelectron spectroscopies, K.S. Finnie, Z. Zhang, E.R. Vance and M.L. Carter 317 (2003) 46

- On the solubility of chromium sesquioxide in uranium dioxide fuel, A. Leenaers, L. de Tollenaere, Ch. Delafoy and S. Van den Berghe 317 (2003) 62
- Thermophysical studies on the binary system $\text{UO}_2(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O} - \text{Sr}(\text{NO}_3)_2$, P.V. Ravindran, B.B. Kalekar, K.V. Rajagopalan, C.G.S. Pillai and P.K. Mathur 317 (2003) 109
- Mechanical behaviour of macro-dispersed inert matrix fuels, E.A.C. Neeft, K. Bakker, R.L. Belvroy, W.J. Tams, R.P.C. Schram, R. Conrad and A. van Veen 317 (2003) 217
- Oxidation of spent UO_2 fuel stored in moist environment, A. Leenaers, L. Sannen, S. Van den Berghe and M. Verwerft 317 (2003) 226
- Investigation of vaporization behavior of hyper-stoichiometric uranium dioxide by Knudsen effusion mass spectrometry, K. Nakajima and Y. Arai 317 (2003) 243
- Waste Materials**
- Examination of U valence states in the brannerite structure by near-infrared diffuse reflectance and X-ray photoelectron spectroscopies, K.S. Finnie, Z. Zhang, E.R. Vance and M.L. Carter 317 (2003) 46
- Waste: Behavior in Storage**
- Study of gel development during SON68 glass alteration using atomic force microscopy. Comparison with two simplified glasses, N. Donzel, S. Gin, F. Augereau and M. Ramonda 317 (2003) 83
- Oxidation of spent UO_2 fuel stored in moist environment, A. Leenaers, L. Sannen, S. Van den Berghe and M. Verwerft 317 (2003) 226
- X-ray Techniques and Applications**
- Thermal expansion characteristics of a titanium modified austenitic stainless steel: measurement by high-temperature X-ray diffraction and modelling using Grüneisen formalism, R. Jose, S. Raju, R. Divakar, E. Mohandas, G. Panneerselvam, M.P. Antony and K. Sivasubramanian 317 (2003) 54
- Determination of dislocation density and composition of β -Zr in Zr-2.5Nb pressure tubes using X-ray and TEM, Y.S. Kim, S.S. Kim, Y.M. Cheong and K.S. Im 317 (2003) 117
- Zirconium, Zirconium Alloys**
- Effect of β phase, precipitate and Nb-concentration in matrix on corrosion and oxide characteristics of Zr-xNb alloys, Y.H. Jeong, H.G. Kim and T.H. Kim 317 (2003) 1
- Determination of dislocation density and composition of β -Zr in Zr-2.5Nb pressure tubes using X-ray and TEM, Y.S. Kim, S.S. Kim, Y.M. Cheong and K.S. Im 317 (2003) 117
- Differences in reactivity of oxide growth during the oxidation of Zircaloy-4 in water vapour before and after the kinetic transition, M. Tupin, M. Pijolat, F. Valdivieso, M. Soustelle, A. Fricbet and P. Barberis 317 (2003) 130
- Diffusion bonding of stainless steel to Zircaloy-4 in the presence of a Ta intermediate layer, M. Ahmad, J.I. Akhter, Q. Zaman, M.A. Shaikh, M. Akhtar, M. Iqbal and E. Ahmed 317 (2003) 212
- Anisotropy of in-reactor deformation of Zr-2.5Nb pressure tubes, R.A. Holt, N. Christodoulou and A.R. Causey 317 (2003) 256