



## Subject index

### Actinides (excludes Plutonium, Thorium and Uranium)

Infiltration of highly radioactive materials: a novel approach to the fabrication of targets for the transmutation and incineration of actinides, K. Richter, A. Fernandez and J. Somers 249 (1997) 121

### Aluminum, Aluminum Alloys and Compounds

Investigations on the transformation behavior of the intermetallic phase  $(\text{Fe}, \text{Cr})_2\text{Al}_3$  formed on MANET II steel by aluminizing, K. Stein-Fechner, J. Konys and O. Wedemeyer 249 (1997) 33

The influence of alloying elements on the hot-dip aluminizing process and on the subsequent high-temperature oxidation, H. Glasbrenner, E. Nold and Z. Voss 249 (1997) 39

On the origin of the  $\text{F}^+$  centre radioluminescence in sapphire, A. Morono and E.R. Hodgson 249 (1997) 128

Melting behaviour of oxide systems for heterogeneous transmutation of actinides. I. The systems  $\text{Pu}-\text{Al}-\text{O}$  and  $\text{Pu}-\text{Mg}-\text{O}$ , H. Zhang, M.E. Huntelaar, R.J.M. Konings and E.H.P. Cordfunke 249 (1997) 223

### Amorphization and Amorphous Materials

Influence of the surface processes on the hydrogen permeation through ferritic steel and amorphous  $\text{Fe}_{40}\text{Ni}_{40}\text{Mo}_4\text{B}_{16}$  alloy specimens, J.S. Georgiev and L.A. Anestiev 249 (1997) 133

Measurement of kinetic rate law parameters on a  $\text{Na}-\text{Ca}-\text{Al}$  borosilicate glass for low-activity waste, B.P. McGrail, W.L. Ebert, A.J. Bakel and D.K. Peeler 249 (1997) 175

### Analytical Instruments and Methods

Atom probe characterization of the microstructure of nuclear pressure vessel surveillance materials after neutron irradiation and after annealing treatments, P. Pareige, R.E. Stoller, K.F. Russell and M.K. Miller 249 (1997) 165

### Carbon

Pyrolytic carbon coating of Zircaloy-4 tubes at relatively low temperatures, I.D. Abdelrazek, S.W. Sharkawy and H.A. El-Sayed 249 (1997) 159

### Ceramics (not listed elsewhere)

The crystal structure of ianthinite,  $[\text{U}_2^{4+}(\text{UO}_2)_4-\text{O}_6(\text{OH})_4(\text{H}_2\text{O})_4](\text{H}_2\text{O})_5$ : a possible phase for  $\text{Pu}^{4+}$  incorporation during the oxidation

of spent nuclear fuel, P.C. Burns, R.J. Finch, F.C. Hawthorne, M.L. Miller and R.C. Ewing 249 (1997) 199

### Chemical Reactions (includes Electrochemical and Thermochemical Reactions)

Redistribution of the alloying elements during Zircaloy-2 oxidation, B. Cox and H.I. Sheikh 249 (1997) 17

The influence of alloying elements on the hot-dip aluminizing process and on the subsequent high-temperature oxidation, H. Glasbrenner, E. Nold and Z. Voss 249 (1997) 39

### Cladding Materials

Redistribution of the alloying elements during Zircaloy-2 oxidation, B. Cox and H.I. Sheikh 249 (1997) 17

Is zirconium oxide morphology on fuel cladding largely determined by lithium hydroxide concentration effects?, B. Cox 249 (1997) 87

### Coatings and Coated Particles

Investigations on the transformation behavior of the intermetallic phase  $(\text{Fe}, \text{Cr})_2\text{Al}_3$  formed on MANET II steel by aluminizing, K. Stein-Fechner, J. Konys and O. Wedemeyer 249 (1997) 33

The influence of alloying elements on the hot-dip aluminizing process and on the subsequent high-temperature oxidation, H. Glasbrenner, E. Nold and Z. Voss 249 (1997) 39

Fission product release from ZrC-coated fuel particles during post-irradiation heating at 1800 and 2000°C, K. Minato, T. Ogawa, K. Fukuda, H. Sekino, I. Kitagawa and N. Mita 249 (1997) 142

Pyrolytic carbon coating of Zircaloy-4 tubes at relatively low temperatures, I.D. Abdelrazek, S.W. Sharkawy and H.A. El-Sayed 249 (1997) 159

### Compatibility and Corrosion (includes Stress Corrosion Cracking)

Redistribution of the alloying elements during Zircaloy-2 oxidation, B. Cox and H.I. Sheikh 249 (1997) 17

Is zirconium oxide morphology on fuel cladding largely determined by lithium hydroxide concentration effects?, B. Cox 249 (1997) 87

- Reactions of oxygen with V–Cr–Ti alloys, J.R. DiStefano and J.H. DeVan 249 (1997) 150
- Pyrolytic carbon coating of Zircaloy-4 tubes at relatively low temperatures, I.D. Abdelrazek, S.W. Sharkawy and H.A. El-Sayed 249 (1997) 159
- Measurement of kinetic rate law parameters on a Na–Ca–Al borosilicate glass for low-activity waste, B.P. McGrail, W.L. Ebert, A.J. Bakel and D.K. Peeler 249 (1997) 175
- Composite Materials**
- Radio-frequency sheath mitigation by insulating antenna limiters, J.R. Myra, D.A. D'Ippolito, J.A. Rice and C.S. Hazelton 249 (1997) 190
- Copper, Copper Alloys and Compounds**
- Effects of heat treatments and neutron irradiation on microstructures and physical and mechanical properties of copper alloys, B.N. Singh, D.J. Edwards, M. Eldrup and P. Toft 249 (1997) 1
- Radiation hardening revisited: role of intracascade clustering, B.N. Singh, A.J.E. Foreman and H. Trinkaus 249 (1997) 103
- The effect of neutron irradiation on the electrical resistivity of high-strength copper alloys, S.A. Fabritsiev and A.S. Pokrovsky 249 (1997) 239
- The effect of neutron irradiation on the mechanical properties of precipitation hardened copper alloys, S.A. Fabritsiev and A.S. Pokrovsky 249 (1997) 250
- Crystallographic Properties**
- A new uranyl oxide hydrate phase derived from spent fuel alteration, E.C. Buck, D.J. Wronkiewicz, P.A. Finn and J.K. Bates 249 (1997) 70
- Diffusion**
- Indium diffusion study in  $\alpha$ -titanium, R.A. Pérez, M.R.F. Soares, M. Behar and F. Dymont 249 (1997) 52
- Dislocations**
- Mechanisms for decoration of dislocations by small dislocation loops under cascade damage conditions, H. Trinkaus, B.N. Singh and A.J.E. Foreman 249 (1997) 91
- Electrical Properties**
- Effects of heat treatments and neutron irradiation on microstructures and physical and mechanical properties of copper alloys, B.N. Singh, D.J. Edwards, M. Eldrup and P. Toft 249 (1997) 1
- The effect of neutron irradiation on the electrical resistivity of high-strength copper alloys, S.A. Fabritsiev and A.S. Pokrovsky 249 (1997) 239
- Electron Irradiation**
- On the origin of the  $F^+$  centre radioluminescence in sapphire, A. Moróño and E.R. Hodgson 249 (1997) 128
- Embrittlement**
- A model for hydride-induced embrittlement in zirconium-based alloys, D. Wäppling, A.R. Massih and P. Stähle 249 (1997) 231
- Fabrication**
- Preparation of homogeneous  $(Th_{0.8}U_{0.2})O_2$  pellets via coprecipitation of  $(Th,U)C_2O_4 \cdot nH_2O$  powders, Y. Altaş, M. Eral and H. Tel 249 (1997) 46
- Infiltration of highly radioactive materials: a novel approach to the fabrication of targets for the transmutation and incineration of actinides, K. Richter, A. Fernandez and J. Somers 249 (1997) 121
- Fission Products**
- Fission product release from ZrC-coated fuel particles during post-irradiation heating at 1800 and 2000°C, K. Minato, T. Ogawa, K. Fukuda, H. Sekino, I. Kitagawa and N. Mita 249 (1997) 142
- Investigation of the thermal conductivity of selected compounds of gadolinium and lanthanum, G. Suresh, G. Seenivasan, M.V. Krishnaiah and P. Srirama Murti 249 (1997) 259
- Fuels and Fuel Elements**
- Determination of the activation energy for the formation of  $U_3O_8$  on  $UO_2$ , R.J. McEachern, J.W. Choi, M. Kolář, W. Long, P. Taylor and D.D. Wood 249 (1997) 58
- A new uranyl oxide hydrate phase derived from spent fuel alteration, E.C. Buck, D.J. Wronkiewicz, P.A. Finn and J.K. Bates 249 (1997) 70
- The crystal structure of ianthinite,  $[U_2^{4+}(UO_2)_4O_6(OH)_4(H_2O)_4](H_2O)_5$ : a possible phase for  $Pu^{4+}$  incorporation during the oxidation of spent nuclear fuel, P.C. Burns, R.J. Finch, F.C. Hawthorne, M.L. Miller and R.C. Ewing 249 (1997) 199
- The analytical and numerical study of the fluorination of uranium dioxide particles, S.S. Sazhin and A.P. Jeapes 249 (1997) 207
- Fusion Reactors**
- Impact of molybdenum and tungsten test limiters on ion fluxes in the plasma edge of TEXTOR, M. Rubel, V. Philipps, U. Kögler, T. Tanabe, D. Larsson, B. Unterberg, A. Pospieszczyk, Y. Ueda and P. Wienhold 249 (1997) 116
- Hydrogen and Hydrides (includes Deuterium and Deuterides)**
- Influence of the surface processes on the hydrogen permeation through ferritic steel and amorphous  $Fe_{40}Ni_{40}Mo_4B_{16}$  alloy specimens, J.S. Georgiev and L.A. Anestiev 249 (1997) 133
- Reactions of oxygen with V–Cr–Ti alloys, J.R. DiStefano and J.H. DeVan 249 (1997) 150
- Iron, Iron Alloys (excludes Steels) and Compounds**
- A molecular dynamics study of temperature effects on defect production by displace-

- ment cascades in  $\alpha$ -iron, F. Gao, D.J. Bacon, P.E.J. Flewitt and T.A. Lewis 249 (1997) 77
- Kinetics**
- Determination of the activation energy for the formation of  $U_3O_8$  on  $UO_2$ , R.J. McEachern, J.W. Choi, M. Kolář, W. Long, P. Taylor and D.D. Wood 249 (1997) 58
- Is zirconium oxide morphology on fuel cladding largely determined by lithium hydroxide concentration effects?, B. Cox 249 (1997) 87
- Measurement of kinetic rate law parameters on a Na–Ca–Al borosilicate glass for low-activity waste, B.P. McGrail, W.L. Ebert, A.J. Bakel and D.K. Peeler 249 (1997) 175
- Limiter Materials**
- Impact of molybdenum and tungsten test limiters on ion fluxes in the plasma edge of TEXTOR, M. Rubel, V. Philipps, U. Kögler, T. Tanabe, D. Larsson, B. Unterberg, A. Pospieszczyk, Y. Ueda and P. Wienhold 249 (1997) 116
- Radio-frequency sheath mitigation by insulating antenna limiters, J.R. Myra, D.A. D'Ippolito, J.A. Rice and C.S. Hazelton 249 (1997) 190
- Magnesium, Magnesium Alloys and Compounds**
- Melting behaviour of oxide systems for heterogeneous transmutation of actinides. I. The systems Pu–Al–O and Pu–Mg–O, H. Zhang, M.E. Huntelaar, R.J.M. Konings and E.H.P. Cordfunke 249 (1997) 223
- Mathematical and Computational Methods**
- A molecular dynamics study of temperature effects on defect production by displacement cascades in  $\alpha$ -iron, F. Gao, D.J. Bacon, P.E.J. Flewitt and T.A. Lewis 249 (1997) 77
- Mechanical Properties (not listed elsewhere)**
- Effects of heat treatments and neutron irradiation on microstructures and physical and mechanical properties of copper alloys, B.N. Singh, D.J. Edwards, M. Eldrup and P. Toft 249 (1997) 1
- Reactions of oxygen with V–Cr–Ti alloys, J.R. DiStefano and J.H. DeVan 249 (1997) 150
- The effect of neutron irradiation on the mechanical properties of precipitation hardened copper alloys, S.A. Fabritsiev and A.S. Pokrovsky 249 (1997) 250
- Molybdenum, Molybdenum Alloys and Compounds**
- Impact of molybdenum and tungsten test limiters on ion fluxes in the plasma edge of TEXTOR, M. Rubel, V. Philipps, U. Kögler, T. Tanabe, D. Larsson, B. Unterberg, A. Pospieszczyk, Y. Ueda and P. Wienhold 249 (1997) 116
- Neutron Irradiation**
- Effects of heat treatments and neutron irradiation on microstructures and physical and mechanical properties of copper alloys, B.N. Singh, D.J. Edwards, M. Eldrup and P. Toft 249 (1997) 1
- Is zirconium oxide morphology on fuel cladding largely determined by lithium hydroxide concentration effects?, B. Cox 249 (1997) 87
- Radiation hardening revisited: role of intracascade clustering, B.N. Singh, A.J.E. Foreman and H. Trinkaus 249 (1997) 103
- Fission product release from ZrC-coated fuel particles during post-irradiation heating at 1800 and 2000°C, K. Minato, T. Ogawa, K. Fukuda, H. Sekino, I. Kitagawa and N. Mita 249 (1997) 142
- Atom probe characterization of the microstructure of nuclear pressure vessel surveillance materials after neutron irradiation and after annealing treatments, P. Pareige, R.E. Stoller, K.F. Russell and M.K. Miller 249 (1997) 165
- The effect of neutron irradiation on the electrical resistivity of high-strength copper alloys, S.A. Fabritsiev and A.S. Pokrovsky 249 (1997) 239
- The effect of neutron irradiation on the mechanical properties of precipitation hardened copper alloys, S.A. Fabritsiev and A.S. Pokrovsky 249 (1997) 250
- Permeation**
- Influence of the surface processes on the hydrogen permeation through ferritic steel and amorphous  $Fe_{40}Ni_{40}Mo_4B_{16}$  alloy specimens, J.S. Georgiev and L.A. Anestiev 249 (1997) 133
- Phase Equilibria (includes Constitution, Phase Stability, Phase Instability)**
- Melting behaviour of oxide systems for heterogeneous transmutation of actinides. I. The systems Pu–Al–O and Pu–Mg–O, H. Zhang, M.E. Huntelaar, R.J.M. Konings and E.H.P. Cordfunke 249 (1997) 223
- Plasma–Materials Interaction**
- Radio-frequency sheath mitigation by insulating antenna limiters, J.R. Myra, D.A. D'Ippolito, J.A. Rice and C.S. Hazelton 249 (1997) 190
- Plasma Properties (includes Plasma Disruption)**
- Radio-frequency sheath mitigation by insulating antenna limiters, J.R. Myra, D.A. D'Ippolito, J.A. Rice and C.S. Hazelton 249 (1997) 190
- Plutonium, Plutonium Alloys and Compounds**
- The crystal structure of ianthinite,  $[U_2^{4+}(UO_2)_4O_6(OH)_4(H_2O)_4(H_2O)_5]$ : a possible phase for  $Pu^{4+}$  incorporation during the oxidation of spent nuclear fuel, P.C. Burns, R.J. Finch, F.C. Hawthorne, M.L. Miller and R.C. Ewing 249 (1997) 199
- Melting behaviour of oxide systems for heterogeneous transmutation of actinides. I. The systems Pu–Al–O and Pu–Mg–O, H. Zhang, M.E. Huntelaar, R.J.M. Konings and E.H.P. Cordfunke 249 (1997) 223

**Pressure Vessels**

- Atom probe characterization of the microstructure of nuclear pressure vessel surveillance materials after neutron irradiation and after annealing treatments, P. Pareige, R.E. Stoller, K.F. Russell and M.K. Miller 249 (1997) 165

**Radiation Effects: Atomic Defects**

- A molecular dynamics study of temperature effects on defect production by displacement cascades in  $\alpha$ -iron, F. Gao, D.J. Bacon, P.E.J. Flewitt and T.A. Lewis 249 (1997) 77

**Radiation Effects: Extended Defects, Microstructures**

- Mechanisms for decoration of dislocations by small dislocation loops under cascade damage conditions, H. Trinkaus, B.N. Singh and A.J.E. Foreman 249 (1997) 91
- Radiation hardening revisited: role of intracascade clustering, B.N. Singh, A.J.E. Foreman and H. Trinkaus 249 (1997) 103
- Atom probe characterization of the microstructure of nuclear pressure vessel surveillance materials after neutron irradiation and after annealing treatments, P. Pareige, R.E. Stoller, K.F. Russell and M.K. Miller 249 (1997) 165

**Radiation Effects: Physical Properties**

- On the origin of the  $F^+$  centre radioluminescence in sapphire, A. Moróño and E.R. Hodgson 249 (1997) 128

**Segregation**

- Redistribution of the alloying elements during Zircaloy-2 oxidation, B. Cox and H.I. Sheikh 249 (1997) 17

**Steels, Ferritic**

- Investigations on the transformation behavior of the intermetallic phase  $(Fe, Cr)_2Al_5$  formed on MANET II steel by aluminizing, K. Stein-Fechner, J. Konys and O. Wedemeyer 249 (1997) 33
- Influence of the surface processes on the hydrogen permeation through ferritic steel and amorphous  $Fe_{40}Ni_{40}Mo_4B_{16}$  alloy specimens, J.S. Georgiev and L.A. Anestiev 249 (1997) 133
- Atom probe characterization of the microstructure of nuclear pressure vessel surveillance materials after neutron irradiation and after annealing treatments, P. Pareige, R.E. Stoller, K.F. Russell and M.K. Miller 249 (1997) 165

**Theory and Modelling**

- A molecular dynamics study of temperature effects on defect production by displacement cascades in  $\alpha$ -iron, F. Gao, D.J. Bacon, P.E.J. Flewitt and T.A. Lewis 249 (1997) 77
- A model for hydride-induced embrittlement in zirconium-based alloys, D. Wäppling, A.R. Massih and P. Stähle 249 (1997) 231

**Thermomechanical Treatment**

- Reactions of oxygen with V–Cr–Ti alloys, J.R. DiStefano and J.H. DeVan 249 (1997) 150

**Thermophysical Properties**

- Investigation of the thermal conductivity of selected compounds of gadolinium and lanthanum, G. Suresh, G. Seenivasan, M.V. Krishnaiah and P. Srirama Murti 249 (1997) 259

**Thorium, Thorium Alloys and Compounds**

- Preparation of homogeneous  $(Th_{0.8}U_{0.2})O_2$  pellets via coprecipitation of  $(Th,U)(C_2O_4)_2 \cdot nH_2O$  powders, Y. Altaş, M. Eral and H. Tel 249 (1997) 46

**Titanium, Titanium Alloys and Compounds**

- Indium diffusion study in  $\alpha$ -titanium, R.A. Pérez, M.R.F. Soares, M. Behar and F. Dymont 249 (1997) 52

**Tungsten, Tungsten Alloys and Compounds**

- Impact of molybdenum and tungsten test limiters on ion fluxes in the plasma edge of TEXTOR, M. Rubel, V. Philipps, U. Kögler, T. Tanabe, D. Larsson, B. Unterberg, A. Pospieszczyk, Y. Ueda and P. Wienhold 249 (1997) 116

**Uranium, Uranium Alloys and Compounds**

- Preparation of homogeneous  $(Th_{0.8}U_{0.2})O_2$  pellets via coprecipitation of  $(Th,U)(C_2O_4)_2 \cdot nH_2O$  powders, Y. Altaş, M. Eral and H. Tel 249 (1997) 46
- Determination of the activation energy for the formation of  $U_3O_8$  on  $UO_2$ , R.J. McEachern, J.W. Choi, M. Kolář, W. Long, P. Taylor and D.D. Wood 249 (1997) 58
- A new uranyl oxide hydrate phase derived from spent fuel alteration, E.C. Buck, D.J. Wronkiewicz, P.A. Finn and J.K. Bates 249 (1997) 70
- The analytical and numerical study of the fluorination of uranium dioxide particles, S.S. Sazhin and A.P. Jeapes 249 (1997) 207

**Vanadium, Vanadium Alloys and Compounds**

- Reactions of oxygen with V–Cr–Ti alloys, J.R. DiStefano and J.H. DeVan 249 (1997) 150

**Wastes**

- Determination of the activation energy for the formation of  $U_3O_8$  on  $UO_2$ , R.J. McEachern, J.W. Choi, M. Kolář, W. Long, P. Taylor and D.D. Wood 249 (1997) 58
- A new uranyl oxide hydrate phase derived from spent fuel alteration, E.C. Buck, D.J. Wronkiewicz, P.A. Finn and J.K. Bates 249 (1997) 70
- Measurement of kinetic rate law parameters on a Na–Ca–Al borosilicate glass for low-activity waste, B.P. McGrail, W.L. Ebert, A.J. Bakel and D.K. Peeler 249 (1997) 175

- The crystal structure of ianthinite,  $[U_2^{4+}(UO_2)_4-O_6(OH)_4(H_2O)_4](H_2O)_5$ : a possible phase for  $Pu^{4+}$  incorporation during the oxidation of spent nuclear fuel, P.C. Burns, R.J. Finch, F.C. Hawthorne, M.L. Miller and R.C. Ewing 249 (1997) 199
- Zirconium, Zirconium Alloys and Compounds**
- Redistribution of the alloying elements during Zircaloy-2 oxidation, B. Cox and H.I. Sheikh 249 (1997) 17
- Is zirconium oxide morphology on fuel cladding largely determined by lithium hydroxide concentration effects?, B. Cox 249 (1997) 87
- Pyrolytic carbon coating of Zircaloy-4 tubes at relatively low temperatures, I.D. Abdelrazek, S.W. Sharkawy and H.A. El-Sayed 249 (1997) 159
- A model for hydride-induced embrittlement in zirconium-based alloys, D. Wäppling, A.R. Massih and P. Stähle 249 (1997) 231