



## Subject index

### Adsorption

- Discharge cleaning and wall conditioning in a Novillo Tokamak, R. Valencia, J. de la Rosa, E. Camps, G. Contreras and S. Muhl 305 (2002) 232

### Amorphization and Amorphous Materials

- The precision of product consistency tests conducted with a glass-bonded ceramic waste form, W.L. Ebert, M.A. Lewis and S.G. Johnson 305 (2002) 37

### Carbon

- Thermo-oxidation of hard carbon films with tungsten surface impurity, J.W. Davis, C.G. Hamilton, A.A. Haasz and R.G. Macaulay-Newcombe 305 (2002) 66
- The preparation of fine-grain doped graphite and its properties, Z. Fan, L. Liu, J. Li, J. Song, J. Chen, J. Shi and G. Zhai 305 (2002) 77

### Cavities (includes Voids, Holes)

- Microstructural evolution of nickel-doped 9Cr steels irradiated in HFIR, N. Hashimoto and R.L. Klueh 305 (2002) 153

### Ceramics (not listed elsewhere)

- The precision of product consistency tests conducted with a glass-bonded ceramic waste form, W.L. Ebert, M.A. Lewis and S.G. Johnson 305 (2002) 37
- Microstructure and leach rates of apatite glass-ceramics as a host for Sr high-level liquid waste, Y. He, W. Bao and C. Song 305 (2002) 202

### Cladding Materials

- Comparison of the air oxidation behaviors of Zircaloy-4 implanted with yttrium and cerium ions at 500 °C, X.W. Chen, X.D. Bai, J. Xu, Q.G. Zhou and B.S. Chen 305 (2002) 8
- Creep strength of Zircaloy-4 cladding depending on applied stress and annealing temperature, C. Nam, B.-K. Choi, M.-H. Lee and Y.-H. Jeong 305 (2002) 70
- Thermal creep of Zr–Nb1%–O alloys: experimental analysis and micromechanical modelling, R. Brenner, J.L. Béchade, O. Castelnau and B. Bacroix 305 (2002) 175

- Studies of second phase particles in different zirconium alloys using extractive carbon replica and an electrolytic anodic dissolution procedure, C. Toffolon-Masclat, J.-C. Brachet and G. Jago 305 (2002) 224

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

- Influence of chemical composition, prior deformation and prolonged thermal aging on the sensitization characteristics of austenitic stainless steels, N. Parvathavarthini and R.K. Dayal 305 (2002) 209

### Copper, Copper Alloys and Compounds

- Overall mechanical properties of fiber-reinforced metal matrix composites for fusion applications, J.H. You and H. Bolt 305 (2002) 14

### Creep and Stress Relaxation

- The secondary stress analyses in the fuel pin cladding due to the swelling gradient across the wall thickness, T. Uwaba and S. Ukai 305 (2002) 21
- Creep strength of Zircaloy-4 cladding depending on applied stress and annealing temperature, C. Nam, B.-K. Choi, M.-H. Lee and Y.-H. Jeong 305 (2002) 70
- Size effect studies of the creep behaviour of a pressure vessel steel at temperatures from 700 to 900 °C, K. Krompholz and D. Kalkhof 305 (2002) 112
- Thermal creep of Zr–Nb1%–O alloys: experimental analysis and micromechanical modelling, R. Brenner, J.L. Béchade, O. Castelnau and B. Bacroix 305 (2002) 175

### Crystallographic Properties

- Phase studies in the Rb–Sr–U–O system: characterisation of new phases, M. Keskar, R. Agarwal and K.D. Singh Mudher 305 (2002) 90

### Diffusion

- Single-phase diffusion study in  $\beta$ -Zr(Al), A. Laik, K. Bhanumurthy and G.B. Kale 305 (2002) 124
- Construction of radiation-modified phase diagrams under cascade-producing irradiation: application to Zr–Nb alloy, A.A. Turkin, A.V. Buts and A.S. Bakai 305 (2002) 134

- Densification behaviour of UO<sub>2</sub> in six different atmospheres, T.R.G. Kutty, P.V. Hegde, K.B. Khan, U. Basak, S.N. Pillai, A.K. Sengupta, G.C. Jain, S. Majumdar, H.S. Kamath and D.S.C. Purushotham 305 (2002) 159
- First Wall Materials**  
The preparation of fine-grain doped graphite and its properties, Z. Fan, L. Liu, J. Li, J. Song, J. Chen, J. Shi and G. Zhai 305 (2002) 77
- Fission Products**  
Ab initio energetics of some fission products (Kr, I, Cs, Sr and He) in uranium dioxide, J.-P. Crocombette 305 (2002) 29  
Sub-solidus phase equilibria in the CeO<sub>2</sub>-ThO<sub>2</sub>-ZrO<sub>2</sub> system, V. Grover and A.K. Tyagi 305 (2002) 83  
Phase studies in the Rb-Sr-U-O system: characterisation of new phases, M. Keskar, R. Agarwal and K.D. Singh Mudher contribution to the Ru-Sn system, K. Ananthasivan, I. Kaliappan, P.R. Vasudeva Rao, C. Sudha and A.L.E. Terrance 305 (2002) 90
- Fracture and Fracture Toughness**  
Size effect studies of the creep behaviour of a pressure vessel steel at temperatures from 700 to 900 °C, K. Krompholz and D. Kalkhof 305 (2002) 112
- Fuels and Fuel Elements**  
The secondary stress analyses in the fuel pin cladding due to the swelling gradient across the wall thickness, T. Uwaba and S. Ukai 305 (2002) 21  
Processing of uranium oxide powders in a fluidized-bed reactor. I. Experimental, W.D. Cho, M.-H. Han, M.C. Bronson and Y. Zundelevich 305 (2002) 106
- Helium**  
Microstructural evolution of nickel-doped 9Cr steels irradiated in HFIR, N. Hashimoto and R.L. Klueh 305 (2002) 153
- Hydrogen and Hydrides** (*includes Deuterium and Deuterides*)  
Discharge cleaning and wall conditioning in a Novillo Tokamak, R. Valencia, J. de la Rosa, E. Camps, G. Contreras and S. Muhl 305 (2002) 232
- Impurities**  
Thermo-oxidation of hard carbon films with tungsten surface impurity, J.W. Davis, C.G. Hamilton, A.A. Haasz and R.G. Macaulay-Newcombe 305 (2002) 66
- Ion Irradiation**  
The impact of irradiation temperature on the microstructure of F82H martensitic/ferritic steel irradiated in a proton and neutron mixed spectrum, X. Jia, Y. Dai and M. Victoria 305 (2002) 1
- Characterisation of microstructural parameters in oxygen-irradiated Zr-1.0%Nb-1.0%Sn-0.1%Fe, P. Mukherjee, P. Barat, S.K. Bandyopadhyay, P. Sen, S.K. Chottopadhyay, S.K. Chatterjee and M.K. Mitra 305 (2002) 169
- Iron, Iron alloys** (*excludes Steels*) **and Compounds**  
Optimum EDTA solvent chemistry for iron oxide removal at 150 °C, D.H. Hur, M.S. Choi, H.S. Chung and U.C. Kim 305 (2002) 220
- Mathematical and Computational Methods**  
Ab initio energetics of some fission products (Kr, I, Cs, Sr and He) in uranium dioxide, J.-P. Crocombette 305 (2002) 29
- Mechanical Properties** (*not listed elsewhere*)  
Overall mechanical properties of fiber-reinforced metal matrix composites for fusion applications, J.H. You and H. Bolt 305 (2002) 14  
Microstructure of Ti5Al2.5Sn and Ti6Al4V deformed in tensile and fatigue tests, T. Leguey, R. Schäublin, P. Marmy and M. Victoria 305 (2002) 52  
The preparation of fine-grain doped graphite and its properties, Z. Fan, L. Liu, J. Li, J. Song, J. Chen, J. Shi and G. Zhai 305 (2002) 77
- Metals, Alloys and Compounds** (*not listed elsewhere*)  
Single-phase diffusion study in β-Zr(Al), A. Laik, K. Bhanumurthy and G.B. Kale 305 (2002) 124
- Microstructure and Texture** (*excludes by Irradiation*)  
Microstructure of Ti5Al2.5Sn and Ti6Al4V deformed in tensile and fatigue tests, T. Leguey, R. Schäublin, P. Marmy and M. Victoria 305 (2002) 52  
Microstructure and leach rates of apatite glass-ceramics as a host for Sr high-level liquid waste, Y. He, W. Bao and C. Song 305 (2002) 202
- Neutron Irradiation**  
The impact of irradiation temperature on the microstructure of F82H martensitic/ferritic steel irradiated in a proton and neutron mixed spectrum, X. Jia, Y. Dai and M. Victoria 305 (2002) 1  
Microstructural evolution of nickel-doped 9Cr steels irradiated in HFIR, N. Hashimoto and R.L. Klueh 305 (2002) 153
- Permeation**  
Densification behaviour of UO<sub>2</sub> in six different atmospheres, T.R.G. Kutty, P.V. Hegde, K.B. Khan, U. Basak, S.N. Pillai, A.K. Sengupta, G.C. Jain, S. Majumdar, H.S. Kamath and D.S.C. Purushotham 305 (2002) 159

- Phase Equilibria** (*includes Constitution, Phase Stability, Phase Instability*)
- Sub-solidus phase equilibria in the CeO<sub>2</sub>-ThO<sub>2</sub>-ZrO<sub>2</sub> system, V. Grover and A.K. Tyagi 305 (2002) 83
- Phase studies in the Rb-Sr-U-O system: characterisation of new phases, M. Keskar, R. Agarwal and K.D. Singh Mudher 305 (2002) 90
- A contribution to the Ru-Sn system, K. Ananthasivan, I. Kaliappan, P.R. Vasudeva Rao, C. Sudha and A.L.E. Terrance 305 (2002) 97
- Construction of radiation-modified phase diagrams under cascade-producing irradiation: application to Zr-Nb alloy, A.A. Turkin, A.V. Buts and A.S. Bakai 305 (2002) 134
- Studies of second phase particles in different zirconium alloys using extractive carbon replica and an electrolytic anodic dissolution procedure, C. Toffolon-Masclat, J.-C. Brachet and G. Jago 305 (2002) 224
- Phase Transformation** (*includes Evaporation, Sublimation*)
- Thermal creep of Zr-Nb1%-O alloys: experimental analysis and micromechanical modelling, R. Brenner, J.L. Béchade, O. Castelnau and B. Bacroix 305 (2002) 175
- Physical Properties** (*not listed elsewhere*)
- The preparation of fine-grain doped graphite and its properties, Z. Fan, L. Liu, J. Li, J. Song, J. Chen, J. Shi and G. Zhai 305 (2002) 77
- Plasma-Materials Interaction**
- Thermo-oxidation of hard carbon films with tungsten surface impurity, J.W. Davis, C.G. Hamilton, A.A. Haasz and R.G. Macaulay-Newcombe 305 (2002) 66
- Discharge cleaning and wall conditioning in a Novillo Tokamak, R. Valencia, J. de la Rosa, E. Camps, G. Contreras and S. Muhl 305 (2002) 232
- Plutonium, Plutonium Alloys and Compounds**
- Plutonium chemistry: a synthesis of experimental data and a quantitative model for plutonium oxide solubility, J.M. Haschke and V.M. Oversby 305 (2002) 187
- Powder Processes and Products**
- Processing of uranium oxide powders in a fluidized-bed reactor. I. Experimental, W.D. Cho, M.-H. Han, M.C. Bronson and Y. Zundelevich 305 (2002) 106
- Densification behaviour of UO<sub>2</sub> in six different atmospheres, T.R.G. Kutty, P.V. Hegde, K.B. Khan, U. Basak, S.N. Pillai, A.K. Sengupta, G.C. Jain, S. Majumdar, H.S. Kamath and D.S.C. Purushotham 305 (2002) 159
- Precipitates and Precipitation**
- Construction of radiation-modified phase diagrams under cascade-producing irradiation: application to Zr-Nb alloy, A.A. Turkin, A.V. Buts and A.S. Bakai 305 (2002) 134
- Pressure Vessel Materials**
- Size effect studies of the creep behaviour of a pressure vessel steel at temperatures from 700 to 900 °C, K. Krompholz and D. Kalkhof 305 (2002) 112
- Microstructure and leach rates of apatite glass-ceramics as a host for Sr high-level liquid waste, Y. He, W. Bao and C. Song 305 (2002) 202
- Processing**
- The precision of product consistency tests conducted with a glass-bonded ceramic waste form, W.L. Ebert, M.A. Lewis and S.G. Johnson 305 (2002) 37
- Creep strength of Zircaloy-4 cladding depending on applied stress and annealing temperature, C. Nam, B.-K. Choi, M.-H. Lee and Y.-H. Jeong 305 (2002) 70
- The preparation of fine-grain doped graphite and its properties, Z. Fan, L. Liu, J. Li, J. Song, J. Chen, J. Shi and G. Zhai 305 (2002) 77
- Processing of uranium oxide powders in a fluidized-bed reactor. I. Experimental, W.D. Cho, M.-H. Han, M.C. Bronson and Y. Zundelevich 305 (2002) 106
- Radiation Effects: Extended Defects, Microstructures**
- Microstructural evolution of nickel-doped 9Cr steels irradiated in HFIR, N. Hashimoto and R.L. Klueh 305 (2002) 153
- Characterisation of microstructural parameters in oxygen-irradiated Zr-1.0%Nb-1.0%Sn-0.1%Fe, P. Mukherjee, P. Barat, S.K. Bandyopadhyay, P. Sen, S.K. Chottopadhyay, S.K. Chatterjee and M.K. Mitra 305 (2002) 169
- Radiation Effects: Mechanical Properties**
- The impact of irradiation temperature on the microstructure of F82H martensitic/ferritic steel irradiated in a proton and neutron mixed spectrum, X. Jia, Y. Dai and M. Victoria 305 (2002) 1
- Radiation Effects: Physical Properties**
- Construction of radiation-modified phase diagrams under cascade-producing irradiation: application to Zr-Nb alloy, A.A. Turkin, A.V. Buts and A.S. Bakai 305 (2002) 134
- Silicon and Silicon Compounds**
- Overall mechanical properties of fiber-reinforced metal matrix composites for fusion applications, J.H. You and H. Bolt 305 (2002) 14

**Steels, Austenitic**

The secondary stress analyses in the fuel pin cladding due to the swelling gradient across the wall thickness, T. Uwaba and S. Ukai 305 (2002) 21

Influence of chemical composition, prior deformation and prolonged thermal aging on the sensitization characteristics of austenitic stainless steels, N. Parvathavarthini and R.K. Dayal 305 (2002) 209

**Steels, Ferritic, Pressure Vessel**

Size effect studies of the creep behaviour of a pressure vessel steel at temperatures from 700 to 900 °C, K. Krompholz and D. Kalkhof 305 (2002) 112

**Steels, Ferritic/Martensitic, Low Activation**

The impact of irradiation temperature on the microstructure of F82H martensitic/ferritic steel irradiated in a proton and neutron mixed spectrum, X. Jia, Y. Dai and M. Victoria 305 (2002) 1

Overall mechanical properties of fiber-reinforced metal matrix composites for fusion applications, J.H. You and H. Bolt 305 (2002) 14

Microstructural evolution of nickel-doped 9Cr steels irradiated in HFIR, N. Hashimoto and R.L. Klueh 305 (2002) 153

**Surface Effects**

Enhanced erosion of tungsten by atom clusters, E. Salonen, K. Nordlund, J. Keinonen and C.H. Wu 305 (2002) 60

**Swelling: Metals and Alloys**

The secondary stress analyses in the fuel pin cladding due to the swelling gradient across the wall thickness, T. Uwaba and S. Ukai 305 (2002) 21

**Theory and Modelling**

The secondary stress analyses in the fuel pin cladding due to the swelling gradient across the wall thickness, T. Uwaba and S. Ukai 305 (2002) 21

Ab initio energetics of some fission products (Kr, I, Cs, Sr and He) in uranium dioxide, J.-P. Crocombette 305 (2002) 29

**Thermal Reactor Materials**

Single-phase diffusion study in  $\beta$ -Zr(Al), A. Laik, K. Bhanumurthy and G.B. Kale 305 (2002) 124

**Thorium, Thorium Alloys and Compounds**

Sub-solidus phase equilibria in the CeO<sub>2</sub>-ThO<sub>2</sub>-ZrO<sub>2</sub> system, V. Grover and A.K. Tyagi 305 (2002) 83

**Titanium, Titanium Alloys and Compounds**

Microstructure of Ti5Al2.5Sn and Ti6Al4V deformed in tensile and fatigue tests, T. Leguey, R. Schäublin, P. Marmy and M. Victoria 305 (2002) 52

**Tritium and Tritides**

Thermo-oxidation of hard carbon films with tungsten surface impurity, J.W. Davis, C.G. Hamilton, A.A. Haasz and R.G. Macaulay-Newcombe 305 (2002) 66

**Tungsten, Tungsten Alloys and Compounds**

Enhanced erosion of tungsten by atom clusters, E. Salonen, K. Nordlund, J. Keinonen and C.H. Wu 305 (2002) 60

**Uranium Oxides and Compounds**

Ab initio energetics of some fission products (Kr, I, Cs, Sr and He) in uranium dioxide, J.-P. Crocombette 305 (2002) 29

Phase studies in the Rb-Sr-U-O system: characterisation of new phases, M. Keskar, R. Agarwal and K.D. Singh Mudher 305 (2002) 90

Processing of uranium oxide powders in a fluidized-bed reactor. I. Experimental, W.D. Cho, M.-H. Han, M.C. Bronson and Y. Zundelevich 305 (2002) 106

Densification behaviour of UO<sub>2</sub> in six different atmospheres, T.R.G. Kutty, P.V. Hegde, K.B. Khan, U. Basak, S.N. Pillai, A.K. Sengupta, G.C. Jain, S. Majumdar, H.S. Kamath and D.S.C. Purushotham 305 (2002) 159

**Waste Materials**

The precision of product consistency tests conducted with a glass-bonded ceramic waste form, W.L. Ebert, M.A. Lewis and S.G. Johnson 305 (2002) 37

Microstructure and leach rates of apatite glass-ceramics as a host for Sr high-level liquid waste, Y. He, W. Bao and C. Song 305 (2002) 202

**Waste: Behavior in Storage**

Microstructure and leach rates of apatite glass-ceramics as a host for Sr high-level liquid waste, Y. He, W. Bao and C. Song 305 (2002) 202

**X-ray Techniques and Applications**

Characterisation of microstructural parameters in oxygen-irradiated Zr-1.0%Nb-1.0%Sn-0.1%Fe, P. Mukherjee, P. Barat, S.K. Bandyopadhyay, P. Sen, S.K. Chottopadhyay, S.K. Chatterjee and M.K. Mitra 305 (2002) 169

**Zirconium, Zirconium Alloys**

Comparison of the air oxidation behaviors of Zircaloy-4 implanted with yttrium and cerium ions at 500 °C, X.W. Chen, X.D. Bai, J. Xu, Q.G. Zhou and B.S. Chen 305 (2002) 8

- Creep strength of Zircaloy-4 cladding depending on applied stress and annealing temperature, C. Nam, B.-K. Choi, M.-H. Lee and Y.-H. Jeong 305 (2002) 70
- Single-phase diffusion study in  $\beta$ -Zr(Al), A. Laik, K. Bhanumurthy and G.B. Kale 305 (2002) 124
- Construction of radiation-modified phase diagrams under cascade-producing irradiation: application to Zr-Nb alloy, A.A. Turkin, A.V. Buts and A.S. Bakai 305 (2002) 134
- Characterisation of microstructural parameters in oxygen-irradiated Zr-1.0%Nb-1.0%Sn-0.1%Fe, P. Mukherjee, P. Barat, S.K. Bandyopadhyay, P. Sen, S.K. Chottopadhyay, S.K. Chatterjee and M.K. Mitra 305 (2002) 169
- Thermal creep of Zr-Nb1%-O alloys: experimental analysis and micromechanical modelling, R. Brenner, J.L. Béchade, O. Castelnau and B. Bacroix 305 (2002) 175
- Studies of second phase particles in different zirconium alloys using extractive carbon replica and an electrolytic anodic dissolution procedure, C. Toffolon-Masclat, J.-C. Brachet and G. Jago 305 (2002) 224
- Zirconium Hydrides and Compounds**
- Comparison of the air oxidation behaviors of Zircaloy-4 implanted with yttrium and cerium ions at 500 °C, X.W. Chen, X.D. Bai, J. Xu, Q.G. Zhou and B.S. Chen 305 (2002) 8
- Studies of second phase particles in different zirconium alloys using extractive carbon replica and an electrolytic anodic dissolution procedure, C. Toffolon-Masclat, J.-C. Brachet and G. Jago 305 (2002) 224