



## Subject index

### Aluminum, Aluminum Alloys and Compounds

- Radiation damage at the aluminum entrance window of the SINQ Target 3, W. Lu, M.S. Wechsler and Y. Dai 318 (2003) 176
- 2.5 MeV electron irradiation effect of alumina ceramics, M. Kinsho, Y. Saito, D. Nishizawa and S. Michizono 318 (2003) 307
- Corrosion of type 6061-T6 aluminum in mercury and mercury vapor, S.J. Pawel and E.T. Manneschildt 318 (2003) 355

### Analytical Instruments and Methods *(not listed elsewhere)*

- Overview of the Spallation Neutron Source (SNS) with emphasis on target systems, T.A. Gabriel, J.R. Haines and T.J. McManamy 318 (2003) 1

### Cavities (includes Voids, Holes)

- Bubble dynamics in the thermal shock problem of the liquid metal target, S. Ishikura, H. Kogawa, M. Futakawa, K. Kikuchi, R. Hino and C. Arakawa 318 (2003) 113
- The effect of cascade induced gas resolution on bubble formation in metals, H. Trinkaus 318 (2003) 234

### Coatings and Coated Particles

- R&D of A MW-class solid-target for a spallation neutron source, M. Kawai, M. Furusaka, K. Kikuchi, H. Kurishita, R. Watanabe, J.-F. Li, K. Sugimoto, T. Yamamura, Y. Hiraoka, K. Abe, A. Hasegawa, M. Yoshiie, H. Takenaka, K. Mishima, Y. Kiyonagi, T. Tanabe, N. Yoshida and T. Igarashi 318 (2003) 38

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

- Materials research and development for the Spallation Neutron Source mercury target, L.K. Mansur 318 (2003) 14
- R&D of A MW-class solid-target for a spallation neutron source, M. Kawai, M. Furusaka, K. Kikuchi, H. Kurishita, R. Watanabe, J.-F. Li, K. Su-

- gimoto, T. Yamamura, Y. Hiraoka, K. Abe, A. Hasegawa, M. Yoshiie, H. Takenaka, K. Mishima, Y. Kiyonagi, T. Tanabe, N. Yoshida and T. Igarashi 318 (2003) 38
- LiSoR, a liquid metal loop for material investigation under irradiation, T. Kirchner, Y. Bortoli, A. Cadiou, Y. Foucher, J.S. Stutzmann, T. Auger, Y. Dai, S. Dementjev, K. Geissmann, H. Glasbrenner, F. Gröschel, F. Heinrich, K. Kohlik, G. von Holzen, Ch. Perret and D. Viol 318 (2003) 70
- Influence of PbBi environment on the low-cycle fatigue behavior of SNS target container materials, D. Kalkhof and M. Grosse 318 (2003) 143
- Effects of mercury on fatigue behavior of Type 316 LN stainless steel: application in the spallation neutron source, H. Tian, P.K. Liaw, J.P. Strizak and L.K. Mansur 318 (2003) 157
- Influence of mercury velocity on compatibility with type 316L/316LN stainless steel in a flow loop, S.J. Pawel, R.P. Taleyarkhan, D.K. Felde and E.T. Manneschildt 318 (2003) 313
- Corrosion behaviour of steels and refractory metals and tensile features of steels exposed to flowing PbBi in the LECOR loop, C. Fazio, I. Ricapito, G. Scaddozzo and G. Benamati 318 (2003) 325
- Tensile tests on MANET II steel in circulating Pb–Bi eutectic, H. Glasbrenner, F. Gröschel and T. Kirchner 318 (2003) 333
- Synergy effect of LBE and hydrogenated helium on resistance to LME of T91 steel grade, S. Guerin, J.-L. Pastol, C. Leroux and D. Gorse 318 (2003) 339
- Corrosion–erosion test of SS316 in flowing Pb–Bi, K. Kikuchi, Y. Kurata, S. Saito, M. Futakawa, T. Sasa, H. Oigawa, E. Wakai and K. Miura 318 (2003) 348
- Corrosion of type 6061-T6 aluminum in mercury and mercury vapor, S.J. Pawel and E.T. Manneschildt 318 (2003) 355
- Summary of third workshop on materials science and technology for the spallation neutron source at KEK, March 2002, M. Kawai 318 (2003) 371

**Dosimetry**

Neutronics calculation, dosimetry analysis and gas measurements of the first SINQ target irradiation experiment, STIP-I, Y. Dai, Y. Foucher, M.R. James and B.M. Oliver 318 (2003) 167

**Electrical Properties**

2.5 MeV electron irradiation effect of alumina ceramics, M. Kinsho, Y. Saito, D. Nishizawa and S. Michizono 318 (2003) 307

**Electron Irradiation**

R&D of A MW-class solid-target for a spallation neutron source, M. Kawai, M. Furusaka, K. Kikuchi, H. Kurishita, R. Watanabe, J.-F. Li, K. Sugimoto, T. Yamamura, Y. Hiraoka, K. Abe, A. Hasegawa, M. Yoshiie, H. Takenaka, K. Mishima, Y. Kiyanagi, T. Tanabe, N. Yoshida and T. Igara-shi 318 (2003) 38

2.5 MeV electron irradiation effect of alumina ceramics, M. Kinsho, Y. Saito, D. Nishizawa and S. Michizono 318 (2003) 307

**Electron Microscopy**

Microstructural analysis of ion-irradiation-induced hardening in Inconel 718, N. Hashimoto, J.D. Hunn, T.S. Byun and L.K. Mansur 318 (2003) 300

**Embrittlement**

LiSoR, a liquid metal loop for material investigation under irradiation, T. Kirchner, Y. Bortoli, A. Cadiou, Y. Foucher, J.S. Stutzmann, T. Auger, Y. Dai, S. Dementjev, K. Geissmann, H. Glasbrenner, F. Gröschel, F. Heinrich, K. Kohlik, G. von Holzen, Ch. Perret and D. Viol 318 (2003) 70

**Experimental Techniques**

Overview of the Spallation Neutron Source (SNS) with emphasis on target systems, T.A. Gabriel, J.R. Haines and T.J. McManamy 318 (2003) 1

**Fatigue**

Materials research and development for the Spallation Neutron Source mercury target, L.K. Mansur 318 (2003) 14

High strain fatigue properties of F82H ferritic-martensitic steel under proton irradiation, P. Marmy and B.M. Oliver 318 (2003) 132

Influence of PbBi environment on the low-cycle fatigue behavior of SNS target container materials, D. Kalkhof and M. Grosse 318 (2003) 143

The effect of mean stress on the fatigue behavior of 316 LN stainless steel in air and mercury, J.P. Strizak and L.K. Mansur 318 (2003) 151

Effects of mercury on fatigue behavior of Type 316 LN stainless steel: application in the Spallation Neutron Source, H. Tian, P.K. Liaw, J.P. Strizak and L.K. Mansur 318 (2003) 157

**Fracture and Fracture Toughness**

R & D on mercury target pitting issue, K. Kikuchi, H. Kogawa, M. Futakawa, S. Ishikura, M. Kaminaga and R. Hino 318 (2003) 84

SNS target tests at the LANSCE-WNR in 2001 – Part I, B.W. Riemer, J.R. Haines, J.D. Hunn, D.C. Lousteau, T.J. McManamy and C.C. Tsai 318 (2003) 92

SNS target tests at the LANSCE-WNR in 2001 – Part II, J.D. Hunn, B.W. Riemer and C.C. Tsai 318 (2003) 102

Influence of PbBi environment on the low-cycle fatigue behavior of SNS target container materials, D. Kalkhof and M. Grosse 318 (2003) 143

The effect of mean stress on the fatigue behavior of 316 LN stainless steel in air and mercury, J.P. Strizak and L.K. Mansur 318 (2003) 151

Tensile properties of 9Cr-1Mo martensitic steel irradiated with high energy protons and neutrons, J. Henry, X. Averty, Y. Dai, P. Lamagnère, J.P. Pizzanelli, J.J. Espinas and P. Wident 318 (2003) 215

Effect of implanted helium on tensile properties and hardness of 9% Cr martensitic stainless steels, P. Jung, J. Henry, J. Chen and J.-C. Brachet 318 (2003) 241

Tensile tests on MANET II steel in circulating Pb-Bi eutectic, H. Glasbrenner, F. Gröschel and T. Kirchner 318 (2003) 333

Corrosion of type 6061-T6 aluminum in mercury and mercury vapor, S.J. Pawel and E.T. Manneschildt 318 (2003) 355

**Fusion Reactor Materials**

Structural materials for fusion and spallation sources, G.A. Cottrell and L.J. Baker 318 (2003) 260

**Helium**

Neutronics calculation, dosimetry analysis and gas measurements of the first SINQ target irradiation experiment, STIP-I, Y. Dai, Y. Foucher, M.R. James and B.M. Oliver 318 (2003) 167

Radiation damage at the aluminum entrance window of the SINQ Target 3, W. Lu, M.S. Wechsler and Y. Dai 318 (2003) 176

- Mechanical properties of modified 9Cr–1Mo (T91) irradiated at  $\leq 300$  °C in SINQ Target-3, Y. Dai, X.J. Jia and K. Farrell 318 (2003) 192
- High temperature tensile testing of modified 9Cr–1Mo after irradiation with high energy protons, M.B. Toloczko, M.L. Hamilton and S.A. Maloy 318 (2003) 200
- Microstructure in martensitic steels T91 and F82H after irradiation in SINQ Target-3, X. Jia and Y. Dai 318 (2003) 207
- The effect of cascade induced gas resolution on bubble formation in metals, H. Trinkaus 318 (2003) 234
- Effect of implanted helium on tensile properties and hardness of 9% Cr martensitic stainless steels, P. Jung, J. Henry, J. Chen and J.-C. Brachet 318 (2003) 241
- Microstructural analysis of 9% Cr martensitic steels containing 0.5 at.% helium, J. Henry, M.-H. Mathon and P. Jung 318 (2003) 249
- Swelling behavior of F82H steel irradiated by triple/dual ion beams, E. Wakai, K. Kikuchi, S. Yamamoto, T. Aruga, M. Ando, H. Tanigawa, T. Taguchi, T. Sawai, K. Oka and S. Ohnuki 318 (2003) 267
- Hydrogen and Hydrides** (*includes Deuterium and Deuterides*)
- High strain fatigue properties of F82H ferritic–martensitic steel under proton irradiation, P. Marmy and B.M. Oliver 318 (2003) 132
- Neutronics calculation, dosimetry analysis and gas measurements of the first SINQ target irradiation experiment, STIP-I, Y. Dai, Y. Foucher, M.R. James and B.M. Oliver 318 (2003) 167
- Radiation damage at the aluminum entrance window of the SINQ Target 3, W. Lu, M.S. Wechsler and Y. Dai 318 (2003) 176
- High temperature tensile testing of modified 9Cr–1Mo after irradiation with high energy protons, M.B. Toloczko, M.L. Hamilton and S.A. Maloy 318 (2003) 200
- Swelling behavior of F82H steel irradiated by triple/dual ion beams, E. Wakai, K. Kikuchi, S. Yamamoto, T. Aruga, M. Ando, H. Tanigawa, T. Taguchi, T. Sawai, K. Oka and S. Ohnuki 318 (2003) 267
- Ion Irradiation**
- Materials related R&D work for the ESS target stations, G.S. Bauer and H. Ullmaier 318 (2003) 26
- R&D of A MW-class solid-target for a spallation neutron source, M. Kawai, M. Furusaka, K. Kikuchi, H. Kurishita, R. Watanabe, J.-F. Li, K. Sugimoto, T. Yamamura, Y. Hiraoka, K. Abe, A. Hasegawa, M. Yoshiie, H. Takenaka, K. Mishima, Y. Kiyonagi, T. Tanabe, N. Yoshida and T. Igaraishi 318 (2003) 38
- Low temperature tensile properties of steels containing high concentrations of helium, H. Ullmaier and J. Chen 318 (2003) 228
- Effect of implanted helium on tensile properties and hardness of 9% Cr martensitic stainless steels, P. Jung, J. Henry, J. Chen and J.-C. Brachet 318 (2003) 241
- Swelling behavior of F82H steel irradiated by triple/dual ion beams, E. Wakai, K. Kikuchi, S. Yamamoto, T. Aruga, M. Ando, H. Tanigawa, T. Taguchi, T. Sawai, K. Oka and S. Ohnuki 318 (2003) 267
- Microstructural analysis of ion-irradiation-induced hardening in Inconel 718, N. Hashimoto, J.D. Hunn, T.S. Byun and L.K. Mansur 318 (2003) 300
- Liquid Metals**
- Materials research and development for the Spallation Neutron Source mercury target, L.K. Mansur 318 (2003) 14
- Materials related R&D work for the ESS target stations, G.S. Bauer and H. Ullmaier 318 (2003) 26
- LiSoR, a liquid metal loop for material investigation under irradiation, T. Kirchner, Y. Bortoli, A. Cadiou, Y. Foucher, J.S. Stutzmann, T. Auger, Y. Dai, S. Dementjev, K. Geissmann, H. Glasbrenner, F. Gröschel, F. Heinrich, K. Kohlik, G. von Holzen, Ch. Perret and D. Viol 318 (2003) 70
- R & D on mercury target pitting issue, K. Kikuchi, H. Kogawa, M. Futakawa, S. Ishikura, M. Kaminaga and R. Hino 318 (2003) 84
- SNS target tests at the LANSCE-WNR in 2001 – Part I, B.W. Riemer, J.R. Haines, J.D. Hunn, D.C. Lousteau, T.J. McManamy and C.C. Tsai 318 (2003) 92
- SNS target tests at the LANSCE-WNR in 2001 – Part II, J.D. Hunn, B.W. Riemer and C.C. Tsai 318 (2003) 102
- Experimental observation of proton-induced shocks in free surface liquid metal targets, A. Fabich, M. Benedikt and J. Lettry 318 (2003) 109
- Bubble dynamics in the thermal shock problem of the liquid metal target, S. Ishikura, H. Kogawa, M. Futakawa, K. Kikuchi, R. Hino and C. Arakawa 318 (2003) 113
- Preliminary evaluation of cavitation resistance of type 316LN stainless steel in mercury using a vibratory horn, S.J. Pawel and E.T. Manneschildt 318 (2003) 122

- Influence of PbBi environment on the low-cycle fatigue behavior of SNS target container materials, D. Kalkhof and M. Grosse 318 (2003) 143
- The effect of mean stress on the fatigue behavior of 316 LN stainless steel in air and mercury, J.P. Strizak and L.K. Mansur 318 (2003) 151
- Effects of mercury on fatigue behavior of Type 316 LN stainless steel: application in the Spallation Neutron Source, H. Tian, P.K. Liaw, J.P. Strizak and L.K. Mansur 318 (2003) 157
- Characterization of lead–bismuth eutectic target material for accelerator driven transmuters, Y. Gohar 318 (2003) 185
- Influence of mercury velocity on compatibility with type 316L/316LN stainless steel in a flow loop, S.J. Pawel, R.P. Taleyarkhan, D.K. Felde and E.T. Manneschildt 318 (2003) 313
- Corrosion behaviour of steels and refractory metals and tensile features of steels exposed to flowing PbBi in the LECOR loop, C. Fazio, I. Ricapito, G. Scaddozzo and G. Benamati 318 (2003) 325
- Tensile tests on MANET II steel in circulating Pb–Bi eutectic, H. Glasbrenner, F. Gröschel and T. Kirchner 318 (2003) 333
- Synergy effect of LBE and hydrogenated helium on resistance to LME of T91 steel grade, S. Guerin, J.-L. Pastol, C. Leroux and D. Gorse 318 (2003) 339
- Corrosion–erosion test of SS316 in flowing Pb–Bi, K. Kikuchi, Y. Kurata, S. Saito, M. Futakawa, T. Sasa, H. Oigawa, E. Wakai and K. Miura 318 (2003) 348
- Corrosion of type 6061-T6 aluminum in mercury and mercury vapor, S.J. Pawel and E.T. Manneschildt 318 (2003) 355
- Summary of third workshop on materials science and technology for the spallation neutron source at KEK, March 2002, M. Kawai 318 (2003) 371
- Mathematical and Computational Methods**
- Neutronics calculation, dosimetry analysis and gas measurements of the first SINQ target irradiation experiment, STIP-I, Y. Dai, Y. Foucher, M.R. James and B.M. Oliver 318 (2003) 167
- Radiation damage at the aluminum entrance window of the SINQ Target 3, W. Lu, M.S. Wechsler and Y. Dai 318 (2003) 176
- Characterization of lead–bismuth eutectic target material for accelerator driven transmuters, Y. Gohar 318 (2003) 185
- S. Ishikura, M. Kaminaga and R. Hino 318 (2003) 84
- SNS target tests at the LANSCE-WNR in 2001 – Part I, B.W. Riemer, J.R. Haines, J.D. Hunn, D.C. Lousteau, T.J. McManamy and C.C. Tsai 318 (2003) 92
- SNS target tests at the LANSCE-WNR in 2001 – Part II, J.D. Hunn, B.W. Riemer and C.C. Tsai 318 (2003) 102
- Experimental observation of proton-induced shocks in free surface liquid metal targets, A. Fabich, M. Benedikt and J. Lettry 318 (2003) 109
- Preliminary evaluation of cavitation resistance of type 316LN stainless steel in mercury using a vibratory horn, S.J. Pawel and E.T. Manneschildt 318 (2003) 122
- Tensile properties of Inconel 718 after low temperature neutron irradiation, T.S. Byun and K. Farrell 318 (2003) 292
- 2.5 MeV electron irradiation effect of alumina ceramics, M. Kinsho, Y. Saito, D. Nishizawa and S. Michizono 318 (2003) 307
- Molybdenum, Molybdenum Alloys and Compounds**
- Corrosion behaviour of steels and refractory metals and tensile features of steels exposed to flowing PbBi in the LECOR loop, C. Fazio, I. Ricapito, G. Scaddozzo and G. Benamati 318 (2003) 325
- Neutron Irradiation**
- Neutronics calculation, dosimetry analysis and gas measurements of the first SINQ target irradiation experiment, STIP-I, Y. Dai, Y. Foucher, M.R. James and B.M. Oliver 318 (2003) 167
- Mechanical properties of modified 9Cr–1Mo (T91) irradiated at  $\leq 300$  °C in SINQ Target-3, Y. Dai, X.J. Jia and K. Farrell 318 (2003) 192
- Microstructure in martensitic steels T91 and F82H after irradiation in SINQ Target-3, X. Jia and Y. Dai 318 (2003) 207
- Tensile properties of 9Cr–1Mo martensitic steel irradiated with high energy protons and neutrons, J. Henry, X. Averty, Y. Dai, P. Lamagnère, J.P. Pizzanelli, J.J. Espinas and P. Wident 318 (2003) 215
- Microstructural analysis of 9% Cr martensitic steels containing 0.5 at.% helium, J. Henry, M.-H. Mathon and P. Jung 318 (2003) 249
- Tensile properties of ferritic/martensitic steels irradiated in HFIR, and comparison with spallation irradiation data, K. Farrell and T.S. Byun 318 (2003) 274
- Comparison of fission neutron and proton/spallation neutron irradiation effects on the tensile behavior of type 316 and 304 stainless steel, S.A.
- Mechanical Properties (not listed elsewhere)**
- R & D on mercury target pitting issue, K. Kikuchi, H. Kogawa, M. Futakawa,

- Maloy, M.R. James, W.R. Johnson, T.S. Byun, K. Farrell and M.B. Toloczko  
Tensile properties of Inconel 718 after low temperature neutron irradiation, T.S. Byun and K. Farrell 318 (2003) 283
- 318 (2003) 292
- Neutron Scattering**
- Overview of the Spallation Neutron Source (SNS) with emphasis on target systems, T.A. Gabriel, J.R. Haines and T.J. McManamy 318 (2003) 1
- Nickel, Nickel Alloys and Compounds**
- Summary of the results from post-irradiation examination of spent targets at the FZ-Juelich, J. Chen, G.S. Bauer, T. Broome, F. Carsughi, Y. Dai, S.A. Maloy, M. Roedig, W.F. Sommer and H. Ullmaier 318 (2003) 56
- Preliminary evaluation of cavitation resistance of type 316LN stainless steel in mercury using a vibratory horn, S.J. Pawel and E.T. Manneschildt 318 (2003) 122
- Tensile properties of Inconel 718 after low temperature neutron irradiation, T.S. Byun and K. Farrell 318 (2003) 292
- Microstructural analysis of ion-irradiation-induced hardening in Inconel 718, N. Hashimoto, J.D. Hunn, T.S. Byun and L.K. Mansur 318 (2003) 300
- Nuclear Properties**
- Characterization of lead–bismuth eutectic target material for accelerator driven transmuters, Y. Gohar 318 (2003) 185
- Structural materials for fusion and spallation sources, G.A. Cottrell and L.J. Baker 318 (2003) 260
- Proton Irradiation**
- Overview of the Spallation Neutron Source (SNS) with emphasis on target systems, T.A. Gabriel, J.R. Haines and T.J. McManamy 318 (2003) 1
- Summary of the results from post-irradiation examination of spent targets at the FZ-Juelich, J. Chen, G.S. Bauer, T. Broome, F. Carsughi, Y. Dai, S.A. Maloy, M. Roedig, W.F. Sommer and H. Ullmaier 318 (2003) 56
- LiSoR, a liquid metal loop for material investigation under irradiation, T. Kirchner, Y. Bortoli, A. Cadiou, Y. Foucher, J.S. Stutzmann, T. Auger, Y. Dai, S. Dementjev, K. Geissmann, H. Glasbrenner, F. Gröschel, F. Heinrich, K. Kohlik, G. von Holzen, Ch. Perret and D. Viol 318 (2003) 70
- Experimental observation of proton-induced shocks in free surface liquid metal targets, A. Fabich, M. Benedikt and J. Lettry 318 (2003) 109
- Bubble dynamics in the thermal shock problem of the liquid metal target, S. Ishikura, H. Kogawa, M. Futakawa, K. Kikuchi, R. Hino and C. Arakawa 318 (2003) 113
- High strain fatigue properties of F82H ferritic–martensitic steel under proton irradiation, P. Marmy and B.M. Oliver 318 (2003) 132
- Neutronics calculation, dosimetry analysis and gas measurements of the first SINQ target irradiation experiment, STIP-I, Y. Dai, Y. Foucher, M.R. James and B.M. Oliver 318 (2003) 167
- Radiation damage at the aluminum entrance window of the SINQ Target 3, W. Lu, M.S. Wechsler and Y. Dai 318 (2003) 176
- Characterization of lead–bismuth eutectic target material for accelerator driven transmuters, Y. Gohar 318 (2003) 185
- Mechanical properties of modified 9Cr–1Mo (T91) irradiated at  $\leq 300$  °C in SINQ Target-3, Y. Dai, X.J. Jia and K. Farrell 318 (2003) 192
- High temperature tensile testing of modified 9Cr–1Mo after irradiation with high energy protons, M.B. Toloczko, M.L. Hamilton and S.A. Maloy 318 (2003) 200
- Microstructure in martensitic steels T91 and F82H after irradiation in SINQ Target-3, X. Jia and Y. Dai 318 (2003) 207
- Tensile properties of 9Cr–1Mo martensitic steel irradiated with high energy protons and neutrons, J. Henry, X. Averty, Y. Dai, P. Lamagnère, J.P. Pizzanelli, J.J. Espinas and P. Wident 318 (2003) 215
- Structural materials for fusion and spallation sources, G.A. Cottrell and L.J. Baker 318 (2003) 260
- Comparison of fission neutron and proton/spallation neutron irradiation effects on the tensile behavior of type 316 and 304 stainless steel, S.A. Maloy, M.R. James, W.R. Johnson, T.S. Byun, K. Farrell and M.B. Toloczko 318 (2003) 283
- Summary of third workshop on materials science and technology for the spallation neutron source at KEK, March 2002, M. Kawai 318 (2003) 371
- Radiation Effects: Atomic Defects**
- The effect of cascade induced gas resolution on bubble formation in metals, H. Trinkaus 318 (2003) 234
- Structural materials for fusion and spallation sources, G.A. Cottrell and L.J. Baker 318 (2003) 260

**Radiation Effects: Extended Defects, Microstructures**

- Summary of the results from post-irradiation examination of spent targets at the FZ-Juelich, J. Chen, G.S. Bauer, T. Broome, F. Carsughi, Y. Dai, S.A. Maloy, M. Roedig, W.F. Sommer and H. Ullmaier 318 (2003) 56
- Microstructure in martensitic steels T91 and F82H after irradiation in SINQ Target-3, X. Jia and Y. Dai 318 (2003) 207
- Low temperature tensile properties of steels containing high concentrations of helium, H. Ullmaier and J. Chen 318 (2003) 228
- The effect of cascade induced gas resolution on bubble formation in metals, H. Trinkaus 318 (2003) 234
- Microstructural analysis of 9% Cr martensitic steels containing 0.5 at.% helium, J. Henry, M.-H. Mathon and P. Jung 318 (2003) 249
- Swelling behavior of F82H steel irradiated by triple/dual ion beams, E. Wakai, K. Kikuchi, S. Yamamoto, T. Aruga, M. Ando, H. Tanigawa, T. Taguchi, T. Sawai, K. Oka and S. Ohnuki 318 (2003) 267
- Microstructural analysis of ion-irradiation-induced hardening in Inconel 718, N. Hashimoto, J.D. Hunn, T.S. Byun and L.K. Mansur 318 (2003) 300
- Summary of third workshop on materials science and technology for the Spallation Neutron Source at KEK, March 2002, M. Kawai 318 (2003) 371

**Radiation Effects: Mechanical Properties**

- Materials research and development for the Spallation Neutron Source mercury target, L.K. Mansur 318 (2003) 14
- Materials related R&D work for the ESS target stations, G.S. Bauer and H. Ullmaier 318 (2003) 26
- Summary of the results from post-irradiation examination of spent targets at the FZ-Juelich, J. Chen, G.S. Bauer, T. Broome, F. Carsughi, Y. Dai, S.A. Maloy, M. Roedig, W.F. Sommer and H. Ullmaier 318 (2003) 56
- LiSoR, a liquid metal loop for material investigation under irradiation, T. Kirchner, Y. Bortoli, A. Cadiou, Y. Foucher, J.S. Stutzmann, T. Auger, Y. Dai, S. Dementjev, K. Geissmann, H. Glasbrenner, F. Gröschel, F. Heinrich, K. Kohlik, G. von Holzen, Ch. Perret and D. Viol 318 (2003) 70
- High strain fatigue properties of F82H ferritic-martensitic steel under proton irradiation, P. Marmy and B.M. Oliver 318 (2003) 132
- Mechanical properties of modified 9Cr-1Mo (T91) irradiated at  $\leq 300$  °C in

- SINQ Target-3, Y. Dai, X.J. Jia and K. Farrell 318 (2003) 192
- High temperature tensile testing of modified 9Cr-1Mo after irradiation with high energy protons, M.B. Toloczko, M.L. Hamilton and S.A. Maloy 318 (2003) 200
- Tensile properties of 9Cr-1Mo martensitic steel irradiated with high energy protons and neutrons, J. Henry, X. Averty, Y. Dai, P. Lamagnère, J.P. Pizzanelli, J.J. Espinas and P. Wident 318 (2003) 215
- Low temperature tensile properties of steels containing high concentrations of helium, H. Ullmaier and J. Chen 318 (2003) 228
- Effect of implanted helium on tensile properties and hardness of 9% Cr martensitic stainless steels, P. Jung, J. Henry, J. Chen and J.-C. Brachet 318 (2003) 241
- Microstructural analysis of 9% Cr martensitic steels containing 0.5 at.% helium, J. Henry, M.-H. Mathon and P. Jung 318 (2003) 249
- Tensile properties of ferritic/martensitic steels irradiated in HFIR, and comparison with spallation irradiation data, K. Farrell and T.S. Byun 318 (2003) 274
- Comparison of fission neutron and proton/spallation neutron irradiation effects on the tensile behavior of type 316 and 304 stainless steel, S.A. Maloy, M.R. James, W.R. Johnson, T.S. Byun, K. Farrell and M.B. Toloczko 318 (2003) 283
- Tensile properties of Inconel 718 after low temperature neutron irradiation, T.S. Byun and K. Farrell 318 (2003) 292
- Microstructural analysis of ion-irradiation-induced hardening in Inconel 718, N. Hashimoto, J.D. Hunn, T.S. Byun and L.K. Mansur 318 (2003) 300
- 2.5 MeV electron irradiation effect of alumina ceramics, M. Kinsho, Y. Saito, D. Nishizawa and S. Michizono 318 (2003) 307
- Summary of third workshop on materials science and technology for the spallation neutron source at KEK, March 2002, M. Kawai 318 (2003) 371

**Radiation Effects: Physical Properties**

- Materials related R&D work for the ESS target stations, G.S. Bauer and H. Ullmaier 318 (2003) 26

**Steels, Austenitic**

- Overview of the Spallation Neutron Source (SNS) with emphasis on target systems, T.A. Gabriel, J.R. Haines and T.J. McManamy 318 (2003) 1
- Materials related R&D work for the ESS target stations, G.S. Bauer and H. Ullmaier 318 (2003) 26

- R & D on mercury target pitting issue, K. Kikuchi, H. Kogawa, M. Futakawa, S. Ishikura, M. Kaminaga and R. Hino 318 (2003) 84
- SNS target tests at the LANSCE-WNR in 2001 – Part I, B.W. Riemer, J.R. Haines, J.D. Hunn, D.C. Lousteau, T.J. McManamy and C.C. Tsai 318 (2003) 92
- SNS target tests at the LANSCE-WNR in 2001 – Part II, J.D. Hunn, B.W. Riemer and C.C. Tsai 318 (2003) 102
- Comparison of fission neutron and proton/spallation neutron irradiation effects on the tensile behavior of type 316 and 304 stainless steel, S.A. Maloy, M.R. James, W.R. Johnson, T.S. Byun, K. Farrell and M.B. Toloczko 318 (2003) 283
- Corrosion–erosion test of SS316 in flowing Pb–Bi, K. Kikuchi, Y. Kurata, S. Saito, M. Futakawa, T. Sasa, H. Oigawa, E. Wakai and K. Miura 318 (2003) 348
- Steels, Austenitic, Low C/N**
- Materials research and development for the Spallation Neutron Source mercury target, L.K. Mansur 318 (2003) 14
- Summary of the results from post-irradiation examination of spent targets at the FZ-Juelich, J. Chen, G.S. Bauer, T. Broome, F. Carsughi, Y. Dai, S.A. Maloy, M. Roedig, W.F. Sommer and H. Ullmaier 318 (2003) 56
- Preliminary evaluation of cavitation resistance of type 316LN stainless steel in mercury using a vibratory horn, S.J. Pawel and E.T. Manneschildt 318 (2003) 122
- Influence of PbBi environment on the low-cycle fatigue behavior of SNS target container materials, D. Kalkhof and M. Grosse 318 (2003) 143
- The effect of mean stress on the fatigue behavior of 316 LN stainless steel in air and mercury, J.P. Strizak and L.K. Mansur 318 (2003) 151
- Effects of mercury on fatigue behavior of Type 316 LN stainless steel: application in the Spallation Neutron Source, H. Tian, P.K. Liaw, J.P. Strizak and L.K. Mansur 318 (2003) 157
- Low temperature tensile properties of steels containing high concentrations of helium, H. Ullmaier and J. Chen 318 (2003) 228
- Influence of mercury velocity on compatibility with type 316L/316LN stainless steel in a flow loop, S.J. Pawel, R.P. Taleyarkhan, D.K. Felde and E.T. Manneschildt 318 (2003) 313
- Corrosion behaviour of steels and refractory metals and tensile features of steels exposed to flowing PbBi in the LECOR loop, C. Fazio, I. Ricapito, G. Scaddozzo and G. Benamati 318 (2003) 325
- Steels, Ferritic/Martensitic**
- Summary of the results from post-irradiation examination of spent targets at the FZ-Juelich, J. Chen, G.S. Bauer, T. Broome, F. Carsughi, Y. Dai, S.A. Maloy, M. Roedig, W.F. Sommer and H. Ullmaier 318 (2003) 56
- Influence of PbBi environment on the low-cycle fatigue behavior of SNS target container materials, D. Kalkhof and M. Grosse 318 (2003) 143
- Mechanical properties of modified 9Cr–1Mo (T91) irradiated at  $\leq 300$  °C in SINQ Target-3, Y. Dai, X.J. Jia and K. Farrell 318 (2003) 192
- High temperature tensile testing of modified 9Cr–1Mo after irradiation with high energy protons, M.B. Toloczko, M.L. Hamilton and S.A. Maloy 318 (2003) 200
- Tensile properties of 9Cr–1Mo martensitic steel irradiated with high energy protons and neutrons, J. Henry, X. Averty, Y. Dai, P. Lamagnère, J.P. Pizzanelli, J.J. Espinas and P. Wident 318 (2003) 215
- Low temperature tensile properties of steels containing high concentrations of helium, H. Ullmaier and J. Chen 318 (2003) 228
- Effect of implanted helium on tensile properties and hardness of 9% Cr martensitic stainless steels, P. Jung, J. Henry, J. Chen and J.-C. Brachet 318 (2003) 241
- Microstructural analysis of 9% Cr martensitic steels containing 0.5 at.% helium, J. Henry, M.-H. Mathon and P. Jung 318 (2003) 249
- Tensile properties of ferritic/martensitic steels irradiated in HFIR, and comparison with spallation irradiation data, K. Farrell and T.S. Byun 318 (2003) 274
- Corrosion behaviour of steels and refractory metals and tensile features of steels exposed to flowing PbBi in the LECOR loop, C. Fazio, I. Ricapito, G. Scaddozzo and G. Benamati 318 (2003) 325
- Tensile tests on MANET II steel in circulating Pb–Bi eutectic, H. Glasbrenner, F. Gröschel and T. Kirchner 318 (2003) 333
- Synergy effect of LBE and hydrogenated helium on resistance to LME of T91 steel grade, S. Guerin, J.-L. Pastol, C. Leroux and D. Gorse 318 (2003) 339
- Steels, Ferritic/Martensitic, Low Activation**
- High strain fatigue properties of F82H ferritic–martensitic steel under proton irradiation, P. Marmy and B.M. Oliver 318 (2003) 132

- Microstructure in martensitic steels T91 and F82H after irradiation in SINQ Target-3, X. Jia and Y. Dai 318 (2003) 207
- Structural materials for fusion and spallation sources, G.A. Cottrell and L.J. Baker 318 (2003) 260
- Swelling behavior of F82H steel irradiated by triple/dual ion beams, E. Wakai, K. Kikuchi, S. Yamamoto, T. Aruga, M. Ando, H. Tanigawa, T. Taguchi, T. Sawai, K. Oka and S. Ohnuki 318 (2003) 267
- Tensile properties of ferritic/martensitic steels irradiated in HFIR, and comparison with spallation irradiation data, K. Farrell and T.S. Byun 318 (2003) 274
- Surface Effects**
- Overview of the Spallation Neutron Source (SNS) with emphasis on target systems, T.A. Gabriel, J.R. Haines and T.J. McManamy 318 (2003) 1
- R & D on mercury target pitting issue, K. Kikuchi, H. Kogawa, M. Futakawa, S. Ishikura, M. Kaminaga and R. Hino 318 (2003) 84
- SNS target tests at the LANSCE-WNR in 2001 – Part I, B.W. Riemer, J.R. Haines, J.D. Hunn, D.C. Lousteau, T.J. McManamy and C.C. Tsai 318 (2003) 92
- SNS target tests at the LANSCE-WNR in 2001 – Part II, J.D. Hunn, B.W. Riemer and C.C. Tsai 318 (2003) 102
- Experimental observation of proton-induced shocks in free surface liquid metal targets, A. Fabich, M. Benedikt and J. Lettry 318 (2003) 109
- Bubble dynamics in the thermal shock problem of the liquid metal target, S. Ishikura, H. Kogawa, M. Futakawa, K. Kikuchi, R. Hino and C. Arakawa 318 (2003) 113
- Preliminary evaluation of cavitation resistance of type 316LN stainless steel in mercury using a vibratory horn, S.J. Pawel and E.T. Manneschildt 318 (2003) 122
- Influence of mercury velocity on compatibility with type 316L/316LN stainless steel in a flow loop, S.J. Pawel, R.P. Taleyarkhan, D.K. Felde and E.T. Manneschildt 318 (2003) 313
- Tensile tests on MANET II steel in circulating Pb–Bi eutectic, H. Glasbrenner, F. Gröschel and T. Kirchner 318 (2003) 333
- Synergy effect of LBE and hydrogenated helium on resistance to LME of T91 steel grade, S. Guerin, J.-L. Pastol, C. Leroux and D. Gorse 318 (2003) 339
- Corrosion–erosion test of SS316 in flowing Pb–Bi, K. Kikuchi, Y. Kurata, S. Saito, M. Futakawa, T. Sasa, H. Oigawa, E. Wakai and K. Miura 318 (2003) 348
- Swelling: Metals and Alloys**
- Swelling behavior of F82H steel irradiated by triple/dual ion beams, E. Wakai, K. Kikuchi, S. Yamamoto, T. Aruga, M. Ando, H. Tanigawa, T. Taguchi, T. Sawai, K. Oka and S. Ohnuki 318 (2003) 267
- Theory and Modelling**
- Bubble dynamics in the thermal shock problem of the liquid metal target, S. Ishikura, H. Kogawa, M. Futakawa, K. Kikuchi, R. Hino and C. Arakawa 318 (2003) 113
- The effect of cascade induced gas resolution on bubble formation in metals, H. Trinkaus 318 (2003) 234
- Tungsten, Tungsten Alloys and Compounds**
- R&D of A MW-class solid-target for a spallation neutron source, M. Kawai, M. Furusaka, K. Kikuchi, H. Kurishita, R. Watanabe, J.-F. Li, K. Sugimoto, T. Yamamura, Y. Hiraoka, K. Abe, A. Hasegawa, M. Yoshiie, H. Takenaka, K. Mishima, Y. Kiyonagi, T. Tanabe, N. Yoshida and T. Igarashi 318 (2003) 38
- Corrosion behaviour of steels and refractory metals and tensile features of steels exposed to flowing PbBi in the LECOR loop, C. Fazio, I. Ricapito, G. Scaddozzo and G. Benamati 318 (2003) 325