

References

- [1] Klueh R.L. And Nelson A.T., "Ferritic/Martensitic Steels for Next-Generation Reactors," **371**(2008)37–52.
- [2] Dhanda S., "Challenges to India's Nuclear Energy Security," **1**(2012)1–11.
- [3] Garg P., "Energy Scenario and Vision 2020 in India," *Journal of Sustainable Energy & Environment*, (2012), 7–17.
- [4] Friedman C. and Schaffer A.T., "India's Energy Options: Coal And Beyond," (2009).
- [5] Srinivasan G., Kumar K.V.S., Rajendran B., and Ramalingam P. V., "The Fast Breeder Test Reactor—Design And Operating Experiences," **236**(2006)796–811.
- [6] Raj B., Mannan S.L., Rao P.R.V., and Mathew M.D., "Development of Fuels and Structural Materials for Fast Breeder Reactors," **27**(2002)527–558.
- [7] Mannan S.L., C. C.S., Raj. B., and Bhoje S.B., "Selection of Materials for Prototype Fast Breed Reactor," *Transactions-Indian Institute of Metals*, **56**(2003)155–178.
- [8] Mannan S.L. and Sivaprasad P.V., "Fast Reactor Cores, Austenitic Steels for," *Encyclopedia of Materials: Science and Technology*, **3**(2001)2855–2862.
- [9] Garner F.A. And Gelles D.S., "Neutron Induced Swelling of Commercial Alloys At Very High Exposures," 14th International Symposium on Effect of Radiation on Materials, ASTM STP 1046, (1990), 673–683.
- [10] Seran J.L., Brachet J.C., And Alamo A., "Fast Reactor Cores, Ferritic–Martensitic Steels for," *Encyclopedia of Materials Science and Technology*, **3**(2001)2865–2867.
- [11] Klueh R.. And Harries D.R., "High Chromium Ferritic And Martensitic Steels For Nuclear Applications," ASTM, Philadelphia, **3**(2001).
- [12] Nandakumar R., Athmalingham S., Balasubramaniyan V., And Chetal S.C., "Steam Generators for Future Fast Breeder Reactors," *Energy Procedia*, **7**(2011)351–358.
- [13] Machida H., Yoshioka N., And Ogo H., "Structural Integrity Evaluation Method for Overheating Rupture of FBR Steam Generator Tube," **212**(2002)183–192.
- [14] Matsuura M., Hatori M., And Ikeda M., "Design and Modification of Steam Generator Safety System of FBR MONJU," **237**(2007)1419–1428.
- [15] Ruhela S.P., Vinod V., Kishore S., et al., "Thermo–Mechanical Analysis of Steam Generator Bottom Tube Sheet of Steam Generator Test Facility," *Comsol Conference*, (2009) 1–5.
- [16] Raj B., Indira Gandhi Centre for Atomic Research, Annual Technical Report, (2010)1–248.
- [17] Johnston W.G., Lauritzen T., Rosolowski J.H., And Turkalo A.M., "The Effect of Metallurgical Variables on Void Swelling," In: *Radiation Damage In Metals* (American Society for Metals, Metals Park, Ohio, (1975)227–266.
- [18] Little E.A. and Stow D.A., "Void Swelling In Fast-Reactor Irradiated High Purity Binary Fe-Cr Alloys," In: *Proc. Irradiation Behavior of Metallic Materials for Fast*

Reactor Components (Corse, France, June 4–8, (1979)17–24.

[19] Orr J., Beckitt F.R., And Fawkes G.D., "The Physical Metallurgy of Chromium–Molybdenum Steels For Fast Reactor Boilers," Ferritic Steels for Fast Reactor Steam Generators, Nuclear Energy Society, London, **1**(1978)91–109.

[20] Babcock, Wilcox, And Corp., "Intermediate Croloy Steels," Technical Bulletin T410, (1971).

[21] Mannan, S. L., Chetal, S. C., Raj, B., and Bhoje, S. B. Selection of Materials for Prototype Fast Breeder Reactor. Transactions–Indian Institute of Metals, **56**(2)(2003)155–178.

[22] Sikka, V.K, Ward C. T, C. Thomas K., "Ferritic Steels for High Temperature Applications," ASM Int., Metals Park, (1983)65–84.

[23] Klueh R., "Chromium–Molybdenum Steels For Fusion Reactor First Walls—A Review," Nuclear Engineering and Design, **72**(1982)329–344.

[24] Swindeman R.W., Santella M.L., Maziasz P.J., Roberts B.W., And Coleman K., "Issues In Replacing Cr–Mo Steels And Stainless Steels With 9Cr–1Mo–V Steel," International Journal of Pressure Vessels and Piping, **81**(2004)507–512.

[25] Klueh R.L. And Nelson A.T., "Ferritic/Martensitic Steels For Next–Generation Reactors," Journal of Nuclear Materials, **371**(2007)37–52.

[26] Klueh R.L., "Elevated Temperature Ferritic And Martensitic Steels and Their Application to Future Nuclear Reactors," International Materials Reviews, **50**(2005)287–310.

[27] Rosenwasser S.N., Miller P., Dalessandro J.A., Rawls J.M., Toffolo W.E., and Chen W., "The Application of Martensitic Stainless Steels In Long Lifetime Fusion First Wall/Blankets," Journal of Nuclear Materials, **85–86**(1979)177–182.

[28] Chetal S.C., "Material Selection For Steam Generator," IGCAR Technical Note No. PFBR/33710/DN/1043, (1995).

[29] Choudhary B., Rao K.B.S., and Mannan S.L., "High Temperature Low Cycle Fatigue Properties of A Thick–Section 9wt.%Cr–1wt.% Mo Ferritic Steel Forging," Materials Science and Engineering A, **148**(1991)267–278.

[30] Choudhary B.K., Saroja S., Sankara Rao K.B., And Mannan S.L., "Creep–Rupture Behavior of Forged, Thick Section 9Cr–1Mo Ferritic Steel," Metallurgical and Materials Transactions A, **30**(1999)2825–2834.

[31] Choudhary B.K., Rao K.B.S., And Mannan S.L., "Effects of Strain Rate and Temperature on Tensile Deformation and Fracture Behaviour of Forged Thick Section 9Cr–1Mo Ferritic Steel," International Journal of Pressure Vessels and Piping, **58**(1994)151–160.

[32] Sanderson S.J., "Mechanical Properties and Metallurgy of 9%Cr–1%Mo Steel," In Ferritic Steels for High Temperature Applications, ASM, Metals (1981), 85–99.

[33] Irwine K.J., Crowe D.J., and Pickering F.B., "Journal of Iron Steel Inst.," Iron and

Steel Institute, **195**(1960)386.

[34] Patriarca P., Harkness S.D., Duke J., And Cooper L.R., "U.S. Advanced Materials Development Program for Steam Generators," *Nuclear Technology*, **28**(1976)516–536.

[35] Orr J. and Sanderson S.J., "An Examination of the Potential For 9%Cr- 1%Mo Steel As Thick Section Tube Plate in Fast Reactors," In Proceedings Topical Conf. on Ferritic Alloys for Use in Nuclear Energy Technologies, AIME (1983), 161–167.

[36] Atkins M., "Atlas for Continuous Cooling Transformation Diagrams for Engineering Steel," British Steel Corporation, (1978).

[37] Sikka V.K., Ward C.T., and Thomas K.C., "In Proc. ASM International Conference Production, Fabrication, Properties and Application of Ferritic Steels for 177 High Temperature Applications," ASM, Metals Park, OH (1982).

[38] Saroja S., Parameswaran P., Vijayalakshmi M., And Raghunathan V.S., "Prediction of Microstructural States in Cr–Mo Steels Using Phase Evolution Diagrams," *Acta Metallurgica et Materialia*, **43**(1995)2985–3000.

[39] Maysuyama F., "History of Power Plants And Progress in Heat Resistant Steels," *ISIJ International*, **41**(2001)612–625.

[40] Gieseke B.G., Brinkman C.R., and Maziasz P.J., "The Influence of Thermal Aging on the Microstructure and Fatigue Properties of Modified 9Cr–1Mo Steel," First International Conference on Microstructures and Mechanical Properties Of Aging Materials, (1993)197–205.

[41] Tsuchida Y., Hashimoto K., And Tkuno K., "Nippon Steel," Technical Report, **58**(1993)27–35.

[42] Santella M., Swindeman R., and Reed R., "Martensite Formation in 9Cr–1Mo Steel Weld Metal and Its Effect on Creep Behavior," EPRI Conference On 9Cr, (2001).

[43] Tamura M., Kumagai T., Miura N., Kondo Y., Shinozuka K., and Esaka H., "Effect of Martensitizing Temperature on Creep Strength of Modified 9Cr Steel," **52**(2011) 691–698.

[44] Srinivasan V.S., Sandhya R., Valsan M., Rao K.B.S., Mannan S.L., and Sastry D.H., "The Influence of Dynamic Strain Ageing on Stress Response and Strain–Life Relationship in Low Cycle Fatigue of 316L (N) Stainless Steel," *Scripta Materialia*, **37**(1997)1593–1598.

[45] Mathew M.D., Laha K., And Sandhya R., "Creep and Low Cycle Fatigue Behaviour of Fast Reactor Structural Materials," *Procedia Engineering*, **55**(2013)17–26.

[46] Rodriguez P., "Serrated Plastic Flow," *Bulletin of Materials Science*, **6**(1984)653–663.

[47] Mannan S., "Role Of Dynamic Strain Ageing in Low Cycle Fatigue," *Bulletin of Materials Science*, **16**(1993)561–582.

[48] Tsuzaki K., Matsuzaki Y., Maki T., and Tamura I., "Fatigue Deformation Accompanying Dynamic Strain Aging in A Pearlitic Eutectoid Steel," *Materials Science*

and Engineering A, **142**(1991)63–70.

[49] Weisse M., Wamukwamba C.K., Christ H.J., and Mughrabi H., "The Cyclic Deformation and Fatigue Behaviour of the Low Carbon Steel SAE 1045 in the Temperature Regime of Dynamic Strain Ageing," *Acta Metallurgica Et Materialia*, **41**(1993)2227–2233.

[50] Roy A.K., Kumar P., and Maitra D., "Dynamic Strain Ageing of P91 Grade Steels of Varied Silicon Content," **499**(2009)379–386.

[51] Kishore R. and Sinha T.K., "Analysis of The Stress–Strain Curves of A Modified 9Cr–1Mo Steel by the Voce Equation," *Metallurgical and Materials Transactions A*, **27**(1996)3340–3343.

[52] Chandravathi K.S., Laha K., Parameswaran P., and Mathew M.D., "Effect of Microstructure on the Critical Strain to Onset of Serrated Flow in Modified 9Cr–1Mo Steel," *International Journal of Pressure Vessels and Piping*, **89**(2012)162–169.

[53] Kishore R., Singh R.N., Sinha T.K., and Kashyap B.P., "Effect of Dynamic Strain Ageing on the Tensile Properties of a Modified 9Cr–1Mo Steel," *Journal of Materials Science*, **32**(1997)437–442.

[54] Keller C., Margulies M.M., Hadjem-Hamouche Z., and Guillot I., "Influence of the Temperature on the Tensile Behaviour of a Modified 9Cr–1Mo Steel," *Materials Science & Engineering A*, **527**(2010)6758–6764.

[55] Hayes R.W. And Hayes W., "On the Mechanism of Delayed Discontinuous Plastic Flow in an Age–Hardened Nickel Alloy," *Acta Metallurgica*, **30**(1982)1295–1301.

[56] Kishore R., Singh R., Sinha T., And Kashyap B., "Serrated Flow in a Modified 9Cr–1Mo Steel," *Scripta Metallurgica et Materialia*, **32**(1995)1297–1300.

[57] Balluffi R.W., "On Measurements of Self–Diffusion Rates Along Dislocations in F.C.C. Metals," *Physica Status Solidi (B)*, **42**(1970)11–34.

[58] Cuddy L. And Leslie W., "Some Aspects of Serrated Yielding in Substitutional Solid Solutions of Iron," *Acta Metallurgica*, **20**(1972)1157–1167.

[59] Mulford R.A. And Kocks U.F., "New Observations on the Mechanisms of Dynamic Strain Aging and of Jerky Flow," *Acta Metallurgica*, **27**(1979)1125–1134.

[60] Sleswyk A., "Slow Strain–Hardening of Ingot Iron," *Acta Metallurgica*, **6**(1958)598–603.

[61] Di Gianfrancesco A., Tiberi Vipraio S., and Vendit D., "Long Term Microstructural Evolution of 9–12%Cr Steel Grades for Steam Power Generation Plants," *Procedia Engineering*, **55**(2013)27–35.

[62] Kannan R., Sankar V., Sandhya R., and Mathew M.D., "Comparative Evaluation of the Low Cycle Fatigue Behaviours of P91 and P92 Steels," *Procedia Engineering*, **55**(2013)149–153.

[63] Kim D.W. and Kim S.S., "Contribution of Microstructure and Slip System to Cyclic Softening of 9 Wt.%Cr Steel," *International Journal of Fatigue*, **36**(2012)24–29.

- [64] Shankar V., Valsan M., Bhanu Sankara Rao K., and Pathak S.D., "Low Cycle Fatigue And Creep–Fatigue Interaction Behavior of Modified 9Cr–1Mo Ferritic Steel and Its Weld Joint," *Transactions of the Indian Institute of Metals*, **63**(2010)622–627.
- [65] Shankar V., Valsan M., Rao K.B.S., Kannan R., Mannan S.L., and Pathak S.D., "Low Cycle Fatigue Behavior and Microstructural Evolution of Modified 9Cr–1Mo Ferritic Steel," *Materials Science and Engineering A*, **437**(2006)413–422.
- [66] Shankar V., Bauer V., Sandhya R., Mathew M.D., and Christ H.-J., "Low Cycle Fatigue and Thermo–Mechanical Fatigue Behavior of Modified 9Cr–1Mo Ferritic Steel at Elevated Temperatures," *Journal of Nuclear Materials*, **420**(2012)23–30.
- [67] Li J.C., "Petch Relation and Grain Boundary Sources," *Transactions of the Metallurgical Society of AIME*, **227**(1963)239–247.
- [68] Fournier B., Sauzay M., Caes C., Noblecourt M., and Mottot M., "Analysis of the Hysteresis Loops of a Martensitic Steel. Part I: Study of the Influence of Strain Amplitude and Temperature Under Pure Fatigue Loadings Using an Enhanced Stress Partitioning Method," *Materials Science and Engineering A*, **437**(2006)183–196.
- [69] Benjamin F., Maxime S., Alexandra R., Françoise B., and André P., "Microstructural Evolutions and Cyclic Softening of 9%Cr Martensitic Steels," *Journal of Nuclear Materials*, **386-388**(2009)71–74.
- [70] Kannan R., Sandhya R., Ganesan V., Valsan M., and Bhanu Sankara Rao K., "Effect of Sodium Environment on the Low Cycle Fatigue Properties of Modified 9Cr–1Mo Ferritic Martensitic Steel," *Journal of Nuclear Materials*, **384**(2009)286–291.
- [71] Ebi G. And Mcevely A., "Effect of Processing on the high Temperature Low Cycle Fatigue Properties of Modified 9Cr-1Mo Ferritic Steel," *Fatigue & Fracture of Engineering Materials*, **7**(1984)299–314.
- [72] Gong X., Marmy P., Volodin A., et al., "Multiscale Investigation of Quasi–Brittle Fracture Characteristics in a 9Cr–1Mo Ferritic–Martensitic Steel Embrittled By Liquid Lead–Bismuth Under Low Cycle Fatigue," **102**(2016)137–152.
- [73] Gong X., Marmy P., Qin L., Verlinden B., Wevers M., and Seefeldt M., "Temperature Dependence of Liquid Metal Embrittlement Susceptibility of a Modified 9Cr–1Mo Steel Under Low Cycle Fatigue in Lead Bismuth Eutectic at 160–450 °C," **468**(2016)289–298.
- [74] Gong X., Marmy P., Qin L., Verlinden B., Wevers M., and Seefeldt M., "Effect of Liquid Metal Embrittlement on Low Cycle Fatigue Properties and Fatigue Crack Propagation Behavior of a Modified 9Cr–1Mo Ferritic–Martensitic Steel in an Oxygen–Controlled Lead–Bismuth Eutectic Environment at 350°C," *Materials Science and Engineering A*, **618**(2014)406–415.
- [75] Gong X., Marmy P., Verlinden B., Wevers M., And Seefeldt M., "Low Cycle Fatigue Behavior of A Modified 9Cr–1Mo Ferritic–Martensitic Steel in Lead–Bismuth Eutectic at 350 °C– Effects Of Oxygen Concentration In The Liquid Metal And Strain Rate," *Corrosion Science*, **94**(2015)377–391.
- [76] Nishino S., Shiozawa K.S., Kojima A., and Yamamoto Y., "Influence of Thermal Forged Aging and Notch on Low Cycle Fatigue Strength of Steel at Elevated

Temperature," *Journal of Society Materials Science, Japan* **48**(1999)610–615.

[77] Kim S. and Weertman J.R., "Investigation of Microstructural Changes in a Ferritic Steel Caused By High Temperature Fatigue," *Metallurgical Transactions*, **19A**(1988)999–1007.

[78] Guguloth K., Sivaprasad S., Chakrabarti D., and Tarafder S., "Low Cyclic Fatigue Behavior of Modified 9Cr–1Mo Steel at Elevated Temperature," *Materials Science and Engineering A*, **604**(2014)196–206.

[79] Mariappan K., Shankar V., Sandhya R., Reddy G.V.P., and Mathew M.D., "Dynamic Strain Aging Behavior of Modified 9Cr–1Mo and Reduced Activation Ferritic Martensitic Steels Under Low Cycle Fatigue," *Journal of Nuclear Materials*, **435**(2013)207–213.

[80] Zhou H., He Y., Zhang H., and Cen Y., "Influence of Dynamic Strain Aging Pre-Treatment on the Low Cycle Fatigue Behavior of Modified 9Cr–1Mo Steel," *International Journal of Fatigue*, **47**(2013)83–89.

[81] Nagesha A., Valsan M., Kannan R., Rao K.B.S., and Mannan S.L., "Influence of Temperature on The Low Cycle Fatigue Behaviour of a Modified 9Cr–1Mo Ferritic Steel," **24**(2002)1285–1293.

[82] Nagesha A., Kannan R., Sastry G.V.S., et al., "Isothermal And Thermomechanical Fatigue Studies on A Modified 9Cr–1Mo Ferritic Martensitic Steel," *Materials Science and Engineering A*, **554**(2012)95–104.

[83] Rao K.B.S., Valsan M., Sandhya R., Mannan S.L., And Rodriguez P., "Dynamic Strain Ageing Effects In Low Cycle Fatigue," **7**(1986)171–178.

[84] Argon A.S. And Im J., "Separation of Second Phase Particles in Spheroidized 1045 Steel, Cu-0.6pct Cr Alloy, and Maraging Steel in Plastic Straining," *Metallurgical Transactions A*, **6**(1975)839–851.

[85] Veerababu J., Goyal S., Sandhya R., And Laha K., "Low Cycle Fatigue Properties and Cyclic Elasto–Plastic Response of Modified 9Cr–1Mo Steel," *Transactions of The Indian Institute of Metals*, **69**(2016)501–505.

[86] Fournier B., Sauzay M., and Pineau A., "Micromechanical Model of The High Temperature Cyclic Behavior Of 9–12%Cr Martensitic Steels," *International Journal of Plasticity*, **27**(2011)1803–1816.

[87] Jones W., Hills C., and Polonis D., "Microstructural Evolution of Modified 9Cr–1Mo Steel," *Metallurgical Transactions A*, (1991).

[88] Paul V., Saroja S., and Vijayalakshmi M., "Microstructural Stability of Modified 9Cr–1Mo Steel During Long Term Exposures at Elevated Temperatures," *Journal of Nuclear Materials*, **52**(2008)12.

[89] Dieter G.E., *Mechanical Metallurgy*, Mc–Graw Book Company, Singapore, 1988.

[90] Hong S.L, Woo S.R., and Chang S.R., "Elongation Minimum and Strain Rate Sensitivity Minimum of Zircaloy–4." *Journal of Nuclear Materials* 116.2 (1983) 314–316.

- [91] Karlsen W., Ivanchenko M., Ehrnstén U., Yagodzinskyy Y., and Hänninen H., "Microstructural Manifestation of Dynamic Strain Aging in AISI 316 Stainless Steel," *Journal of Nuclear Materials*, **395**(2009)156–161.
- [92] Ivanchenko M., Nevdacha V., and Yagodzinskyy Y., "Internal Friction Studies of Carbon and Its Redistribution Kinetics in Inconel 600 And 690 Alloys Under Dynamic Strain Aging Conditions," *Materials Science and Engineering A*, (2006).
- [93] Povolo F. and Bisogni E., "Internal Friction in Zirconium–Hydrogen Alloys at Low Temperatures," *Journal of Nuclear Materials*, **29**(1969)82–102.
- [94] Nowick A., *Anelastic Relaxation in Crystalline Solids*, 1 (2012).
- [95] Schaller R., Fantozzi G., and Gremaud G., "Mechanical Spectroscopy Q^{-1} 2001 With Applications to Materials Science," *Materials Science Forum*, 366–368(2001)683.
- [96] Kishore R., Singh R.N., Sinha T.K. and Kashyap B.P., "Serrated Flow in a Modified 9Cr-1Mo Steel," *Scripta Metallurgica et Materialia*, **32**(1995)1297–1300.
- [97] Keller C., Margulies M.M., Hadjem-Hamouche Z., And Guillot I., "Influence Of The Temperature on the Tensile Behaviour of a Modified 9Cr-1Mo T91 Martensitic Steel," *Materials Science and Engineering A*, **527**(2010)6758–6764.
- [98] Sleswijk AW., "On The Ductility Of Iron At 4.2° K," *Acta Metallurgica*, **5**(1957)764–765.
- [99] Beukel A. Van Den., "Theory of the Effect Of Dynamic Strain Aging on Mechanical Properties," *Physica Status Solidi (A)*, **30**(1975)197–206.
- [100] Choudhary B.K., Rao K.B.S., and Mannan S.L., "Effects of Strain Rate And Temperature On Tensile Deformation And Fracture Behaviour of Forged Thick Section 9 Cr -1Mo Ferritic Steel," *International Journal Of Pressure Vessels and Piping*, **58**(1994)151–160.
- [101] Choudhary B.K., Rao K.B.S., Mannan S.L., and Kashyap B.P., "Serrated Yielding In 9Cr-1Mo Ferritic Steel," *Materials Science and Technology*, **15**(1999)791–797.
- [102] Choudhary B., "Influence of Strain Rate and Temperature on Serrated Flow in 9Cr-1Mo Ferritic Steel," *Materials Science and Engineering: A*, **564**(2013)303–309.
- [103] Kim D., Ryu W., Hong J., and Choi S., "Effect of Nitrogen on the Dynamic Strain Ageing Behaviour of Type 316L Stainless Steel," *Journal of Materials Science*, **33**(1998)675–679.
- [104] Lee M.H., Kim J.H., Choi B.K., And Jeong Y.H., "Mechanical Properties and Dynamic Strain Aging Behavior of Zr-1.5Nb-0.4Sn-0.2Fe Alloy," *Journal of Alloys and Compounds*, **428**(2007)99–105.
- [105] Palaparti D.P.R., Choudhary B.K., Isaac Samuel E., Srinivasan V.S., and Mathew M.D., "Influence of Strain Rate and Temperature on Tensile Stress–Strain and Work Hardening Behaviour of 9Cr-1Mo Ferritic Steel," *Materials Science and Engineering: A*, **538**(2012) 110–117.
- [106] Baird J.D., "The Inhomogeneity Of Plastic Deformation," ASM, Metals Park, OH,

(1973)191–222.

[107] Wagner D., Moreno J., and Prioul C., "Dynamic Strain Aging Sensitivity of Heat Affected Zones in C–Mn Steels," *Journal of Nuclear Materials*, **252**(1998)257–265.

[108] Bourell D.L., "Cleavage Delamination in Impact Tested Warm–Rolled Steel," *Metallurgical Transactions A*, **14**(1983)2487–2496.

[109] Joo M.S., Suh D.W., Bae J.H., and Bhadeshia H.K.D.H., "Role of Delamination and Crystallography on Anisotropy of Charpy Toughness in API-X80 Steel," *Materials Science and Engineering A*, **546**(2012)314–322.

[110] Guo W., Dong H., Lu M., And Zhao X., "The Coupled Effects Of Thickness And Delamination On Cracking Resistance Of X70 Pipeline Steel," *International Journal Of Pressure Vessels And Piping*, **79**(2002)403–412.

[111] Chatterjee A., Chakrabarti D., Moitra A., Mitra R., And Bhaduri A.K., " Effect Of Normalization Temperatures on Ductile–Brittle Transition Temperature of a Modified 9Cr–1Mo Steel," *Materials Science & Engineering A*, **618**(2014)219–231.

[112] Mintz B., Maina E., And Morrison W.B., "Origin of Fissures on Fracture Surfaces of Impact Samples of HSLA Steels With Ferrite/Pearlite Microstructures," *Materials Science and Technology*, **23**(2007)347–354.

[113] Inoue T., Yin F., Kimura Y., Tsuzaki K., and Ochiai S., "Delamination Effect on Impact Properties of Ultrafine–Grained Low–Carbon Steel Processed By Warm Caliber Rolling," *Metallurgical and Materials*, **41**(2010)341–355.

[114] Kimura Y., Inoue T., Fuxing Y.I.N., And Tsuzaki K., "Delamination Toughening of Ultrafine Grain Structure Steels Processed Through Tempforming at Elevated Temperatures," *ISIJ International*, **50**(2010)152–161.

[115] Sakai M., Bradt R., and Fischbach D., "Fracture Toughness Anisotropy of a Pyrolytic Carbon," *Journal of Materials Science*, **21**(1986)1491–1501.

[116] "A Simple Way To Make Tough Ceramics," *Nature*, **347**(1990)455–457.

[117] Baldi G. And Buzzichelli G., "Critical Stress for Delamination Fracture in HSLA Steels," *Metal Science*, **12**(1978)549–472.

[118] Dabkowski D.K.P.B.M., Canadian Metallurgical Society Symposium on Arctic Line Pipe, (1974).

[119] Mcevely, AJ. Bush R., "An Investigation of the Notch Impact Strength of an Ausformed Steel," *ASM Transactions*, (1962)654.

[120] Hero H.E.J.E.J., *Can Met Quart*, **14**(1975)117–122.

[121] Yamaguchi T., Tmra T., And Hirabayaski K., *Nippon Kokan Tech. Report-Overseas*, (1974), 41.

[122] Miyosla E., Fukuda M., Iwanga H., And Okazawa T., "No Title," *Conference On Crack Propagation On Pipe Lines*, British Gas Corporation (1974).

[123] Splech G. and Dabkowski D., "Effect of Deformation in the Austenite and

Austenite Ferrite Regions on the Strength and Fracture Behavior of C, C-Mn-Cb And C-Mn-Mo-Cb Steels.," The Hot Deformation of Austenite, AIME (1979), 557–597.

[124] English A.T., "Influence Of Mechanical Fiberling on Anisotropy of Strength and Ductility," Journal of Metals, **17**(1965)395.

[125] Bramfitt B.L. And Marder A.R., "A Study of the Delamination Behaviour of A Very Low Carbon Steel," Metallurgical Transactions A, **8**(1977)1263–1273.

[126] Hall J.N., Wayne Jones J., and Sachdev A.K., "Particle Size, Volume Fraction and Matrix Strength Effects on Fatigue Behavior and Particle Fracture in 2124 Aluminum–Sicp Composites," Materials Science And Engineering A, **183**(1994)69–80.

[127] Burch I. and Saunders D., "Observation Of Star Fracture and Longitudinal Splitting in BIS 812 EMA and Q1N Submarine Construction Steels," Melbourne, 1995.

[128] Zok F. And Embury J., "On the Analysis of Delamination Fracture of High Strength Steels," Metallurgical Transactions A, **21A**(1990)2565–2575.

[129] Hicho G., Brady C., Smith L., And Fields R., "Effect of Heat Treatment on Mechanical Properties and Microstructure of Four Different Heats Of ASTM A710 Steel.," 1985.

[130] Luo Y., Huang C., Yi G., and Wang Q., "Energy–Based Prediction of Low Cycle Fatigue Life of High-Strength Structural Steel," Journal of Iron And Steel Research, **19**(2012)47–53.

[131] Coffin L.F.J., "Low Cycle Fatigue-A Review," Appl. Mat. Res, **1**(1962)129–141.

[132] Fekete B. and Trampus P., "Isothermal and Thermal–Mechanical Fatigue of VVER-440 Reactor Pressure Vessel Steels," Journal of Nuclear Materials, (2015).

[133] Praveen K. And Singh V., "Effect Of Heat Treatment On Coffin–Manson Relationship In LCF Of Superalloy IN718," Materials Science and Engineering: A, **485**(2008)352–358.

[134] "Eigenspannungen Und Verfestigung Beim Messing," Proceedings of The 2nd International Congress of Applied Mechanics, Orell Füssli Verlag, (1926), 332–335.

[135] Sarkar A., Kumawat B.K., and Chakravartty J.K., "Low Cycle Fatigue Behavior of a Ferritic Reactor Pressure Vessel Steel," Journal of Nuclear Materials, **462**(2015)273–279.

[136] Sudhakar Rao G., Chakravartty J.K., Nudurupati S., et al., "Low Cycle Fatigue Behavior Of Zircaloy-2 at Room Temperature," Journal of Nuclear Materials, **441**(2013)455–467.

[137] Lv Y., Sheng G., and Xue H., "High Strain Low Cycle Fatigue and Anti-Seismic Behavior Of HRB400 QST Reinforced Steel Bars," Advanced Materials Research, (2011).

[138] Marmy P. And Kruml T., "Low Cycle Fatigue of Eurofer 97," Journal of Nuclear Materials, **377**(2008)52–58.

[139] Giordana Maria Florencia, Armas Iris Alvarez A.A., "On The Cyclic Softening

Mechanisms of Reduced Activity Ferritic_Martensitic Steels–Giordana," Steel Research International - Wiley Online Library," Steel Research International, **83**(2012)594–599.

[140] Sauzay M., Brillet H., Monnet I., et al., "Cyclically Induced Softening Due to Low–Angle Boundary Annihilation in a Martensitic Steel," Materials Science And Engineering A, **400-401**(2005)241–244.

[141] Seeger A., "CXXXII. The Generation of Lattice Defects by Moving Dislocations, and Its Application to the Temperature Dependence of the Flow–Stress of FCC Crystals," The London, Edinburgh, and Dublin Philosophical, **46**(1955)1194–1217.

[142] AH Cottrell., Dislocations and Plastic Flow in Crystals, Jr. New York: Mcgraw–Hill Book Company, Oxford, 1965.

[143] Cottrell A.H., "Dislocations and Plastic Flow in Crystals," Oxford University (1953), 111.

[144] Kuhlmann-Wilsdorf D. and Laird C., "Dislocation Behavior in Fatigue II. Friction Stress and Back Stress as Inferred From An Analysis of Hysteresis Loops," Materials Science And Engineering, **37**(1979)111–120.

[145] Plumtree A. and Abdel–Raouf H.A., "Cyclic Stress–Strain Response and Substructure," International Journal of Fatigue, **23**(2001)799–805.

[146] Ritchie RO., "In Environment–Sensitive Fracture of Engineering Materials," The Metallurgical Society, (1979), 538–564.

[147] Richards C. and Lindley T., "The Influence Of Stress Intensity and Microstructure on Fatigue Crack Propagation in Ferritic Materials," Engineering Fracture Mechanics, **4**(1972)951–978.

[148] Ritchie R. And Knott J., "Micro Cleavage Cracking During Fatigue Crack Propagation in Low Strength Steel," Materials Science and Engineering, **14**(1974)7–14.

[149] Batista M.N., Marinelli M.C., Herenu S., And Alvarez-Armas I., "The Role of Microstructure in Fatigue Crack Initiation of 9-12%Cr Reduced Activation Ferritic–Martensitic Steel," International Journal of Fatigue, **72**(2015)75–79.

[150] Hertzberg Richard W., Deformation and Fracture Mechanics of Engineering Materials, Publisher: John Willey & Sons, Inc., 1995.

[151] Rao K., Valsan M., Sandhya R., and Mannan S., "Dynamic Strain Ageing Effects in Low Cycle Fatigue," High Temperature Materials and Processes, **7**(1986)171–177.

[152] Mariappan K., Shankar V., Sandhya R., Prasad Reddy G. V., and Mathew M.D., "Dynamic Strain Aging Behavior of Modified 9Cr–1Mo And Reduced Activation Ferritic Martensitic Steels Under Low Cycle Fatigue," Journal of Nuclear Materials, **435**(2013)207–213.

[153] Bressers J V.B., "The Effect of Time-Dependent Processes on The High-Temperature LCF Life Of Waspaloy(Low Cycle Fatigue)," Res Mechanica Letters, **1**(1981)55.

[154] Edington J. And Smallman R., "The Relationship Between Flow Stress and

- Dislocation Density in Deformed Vanadium," *Acta Metallurgica*, **12**(1964)1313–1328.
- [155] Sleswyk AW., "Blue–Brittle Armco Ingot Iron," *Acta Metallurgica*, **8**(1960)130–132.
- [156] Wilcox B. and Smith G., "Intercrystalline Fracture in Hydrogen–Charged Nickel," *Acta Metallurgica*, **13**(1965)331–343.
- [157] Mannan S., Samuel K., and Rodriguez P., "Stress–Strain Relation for 316 Stainless Steel at 300K," *Scripta Metallurgica*, **16**(1982)255–27.
- [158] Dingley D. and Mclean D., "Components of the Flow Stress of Iron," *Acta Metallurgica*, **15**(1967)885–901.
- [159] Rao V., Taplin D., and Rao P., "The Grain Size Dependence of Flow and Fracture in a Cr–Mn–N Austenitic Steel From 300 to 1300K," *Metallurgical Transactions A*, **6**(1975)77–86.
- [160] Armstrong RW , Bechtold J.H.B.R., "Refractory Metals and Alloys, II," *Interscience*, Newyork, **17**(1963)159.
- [161] Hong S. And Lee S., "Mechanism Of Dynamic Strain Aging And Characterization of Its Effect on the Low Cycle Fatigue Behavior in Type 316L Stainless Steel," **340**(2005)307–314.
- [162] Kim D., Kim W., And Ryu W., "Role of Dynamic Strain Aging on Low Cycle Fatigue and Crack Propagation of Type 316L (N) Stainless Steel," *International Journal of Fatigue*, **25**(2003)1203–1207.
- [163] Abdel-Raouf H., Plumtree A., And Topper T., "Effects of Temperature and Deformation Rate on Cyclic Strength and Fracture of Low–Carbon Steel," *Cyclic Stress–Strain Behavior Analysis, Experimentation, and Failure Prediction*, ASTM STP 519, American Society For Testing And Materials (1971), 28–57.
- [164] Sivaprasad S., Paul S., Das A., And Narasaiah N., "Cyclic Plastic Behaviour of Primary Heat Transport Piping Materials: Influence of Loading Schemes on Hysteresis Loop," *Materials Science And Engineering A*, **527**(2010)6858–6869.
- [165] Borrego L., Abreu L., Costa J., And Ferreira J., "Analysis of Low Cycle Fatigue in Al-Mg-Si Aluminium Alloys," *Engineering Failure*, **11**(2004)715–725.
- [166] Fournier B., Sauzay M., Caes C., et al., "Creep–Fatigue–Oxidation Interactions in a 9Cr–1Mo Martensitic Steel. Part I: Effect of Tensile Holding Period on Fatigue Lifetime," *International Journal of Fatigue*, **30**(2008)649–662.
- [167] Park J.S., Lee K.A., And Lee C.S., "Effect of W–Addition on Low Cycle Fatigue Behavior of High Cr Ferritic Steels," *Metals and Materials*, **5**(1999)559–562.
- [168] Chang H. And Kai J., "Effects of Temperature on the Low Cycle Fatigue and Microstructures of HT–9 Ferritic Steel," *Journal of Nuclear Materials*, (1992).
- [169] Mecking H. And Kocks U.F., "Kinetics of Flow and Strain–Hardening," *Acta Metallurgica*, **29**(1981)1865–1875.
- [170] Montheillet F., Cohen M., and Johnans J., "Axial Stresses and Texture

Development During the Torsion Testing of Al, Cu and A-Fe," *Acta Metallurgica*, **32**(1984)2077–2089.

[171] McQueen H.J. and Blum W., "Dynamic Recovery: Sufficient Mechanism in the Hot Deformation of Al (<99.99)," *Materials Science and Engineering A*, **290**(2000)95–107.

[172] Hoppel H.W., Zhou Z.M., Mughrabi H., And Valiev R.Z., "Microstructural Study Of The Parameters Governing Coarsening And Cyclic Softening In Fatigued Ultrafine-Grained Copper," *Philosophical Magazine A*, **82**(2002)1781–1794.

[173] Gao Q., Di X., Liu Y., and Yan Z., "Recovery And Recrystallization In Modified 9Cr-1Mo Steel Weldments After Post-Weld Heat Treatment," *International Journal of Pressure Vessels And Piping*, **93-94**(2012)69–74.

[174] Ouchi C. and Okita T., "Dynamic Recrystallization Behavior of Austenite in Nb-Bearing High Strength Low Alloy Steels and Stainless Steel," *Transactions ISIJ*, **22**(1982)543–551.

[175] Wang L., Teng J., Liu P., et al., " Grain Rotation mediated by Grain Boundary Dislocations in Nanocrystalline Platinum," *Nature Communication* (2014)1–7.

[176] Choi S.B., Lee D.H., and Kwun S.I., "Fatigue Deformation Mechanism of Weakly Textured Zircaloy-4 Alloy," *Metals and Materials*, **3**(1997)153–158.