

References

- [1] W. Chen, M. Chaturvedi, The effect of grain boundary precipitates on the creep behavior of Inconel 718, *MSE A.* 183(1-2) (1994) 81-89.
- [2] A. Devaux, L. Nazé, R. Molins, A. Pineau, A. Organista, J. Guédou, J. Uginet, P. Héritier, Gamma double prime precipitation kinetic in Alloy 718, *MSE A.* 486(1-2) (2008) 117-122.
- [3] M. Fisk, J.C. Ion, L.-E. Lindgren, Flow stress model for IN718 accounting for evolution of strengthening precipitates during thermal treatment, *Comput. Mater. Sci.* 82 (2014) 531-539.
- [4] A. Malmelöv, M. Fisk, A. Lundbäck, L.-E. Lindgren, Mechanism based flow stress model for alloy 625 and alloy 718, *Mater.* 13(24) (2020) 5620.
- [5] M.A. Moretti, L.-E. Lindgren, P. Åkerström, Physics-based flow stress model for alloy 718, *Metall. Mater. Trans A.* 54(5) (2023) 1985-1997.
- [6] B. Hassan, J. Corney, Grain boundary precipitation in Inconel 718 and ATI 718Plus, *J. Mater. Sci. Technol.* 33(16) (2017) 1879-1889.
- [7] G.Z. Voyiadjis, Y. Song, A physically based constitutive model for dynamic strain aging in Inconel 718 alloy at a wide range of temperatures and strain rates, *Acta Mechanica* 231 (2020) 19-34.
- [8] J. Aktaa, C. Petersen, Modeling the constitutive behavior of RAFM steels under irradiation conditions, *J. Nucl. Mater.* 417(1-3) (2011) 1123-1126.
- [9] S. Albert, K. Laha, A. Bhaduri, T. Jayakumar, E. Rajendrakumar, Development of IN-RAFM steel and fabrication technologies for Indian TBM, *Fusion Eng. Des.* 109 (2016) 1422-1431.
- [10] J. Chen, Y. Liu, Y. Xiao, Y. Liu, C. Liu, H. Li, Improvement of high-temperature mechanical properties of low-carbon RAFM steel by MX precipitates, *Acta Metall. Sinica (English Letters)* 31 (2018) 706-712.
- [11] K. Laha, S. Saroja, A. Moitra, R. Sandhya, M. Mathew, T. Jayakumar, E.R. Kumar, Development of India-specific RAFM steel through optimization of tungsten and tantalum contents for better combination of impact, tensile, low cycle fatigue and creep properties, *J. Nucl. Mater.* 439(1-3) (2013) 41-50.
- [12] G. Liu, C. Mao, R. Ding, L. Yu, C. Liu, Y. Liu, The kinetics of dynamic recrystallization and construction of constitutive modeling of RAFM steel in the hot deformation process, *J. Nucl.*

- Mater. 557 (2021) 153285.
- [13] C. Mao, C. Liu, L. Yu, H. Li, Y. Liu, Mechanical properties and tensile deformation behavior of a reduced activated ferritic-martensitic (RAFM) steel at elevated temperatures, *MSE A.* 725 (2018) 283-289.
- [14] V. Srinivasan, J. Vanaja, B. Choudhary, K. Laha, Modeling of creep deformation behaviour of RAFM steel, *Trans. Indian Inst. Met.* 69 (2016) 567-571.
- [15] H. Tripathy, S. Raju, R.N. Hajra, S. Saibaba, High temperature elastic properties of reduced activation ferritic-martensitic (RAFM) steel using impulse excitation technique, *Metall. Mater. Trans A.* 49 (2018) 979-989.
- [16] J. Christopher, B. Choudhary, Kinetics of uniaxial tensile flow and work hardening behavior of type 316L (N) austenitic stainless steel in the framework of two-internal-variable approach, *Metall. Mater. Trans. A* 46 (2015) 674-687.
- [17] L. Esposito, N. Bonora, G. De Vita, Creep modelling of 316H stainless steel over a wide range of stress, *Proc. Struct. Integr.* 2 (2016) 927-933.
- [18] V. Ganesan, C. Praveen, J. Christopher, G. Prasad Reddy, M. Vasudevan, Creep behavior of nuclear grade 316LN austenitic stainless steel at 873 K and 923 K, *Mech. Time-Depend. Mater.* 26(3) (2022) 593-610.
- [19] J. Janovec, J. Blach, P. Zahumensky, V. Magula, J. Pecha, Role of intergranular precipitation in the fracture behaviour of AISI 316 austenitic stainless steel, *Can. Metall. Q.* 38(1) (1999) 53-59.
- [20] W.-G. Kim, S.-H. Kim, W.-S. Ryu, Creep characterization of type 316LN and HT-9 stainless steels by the KR creep damage model, *KSME Int. J.* 15 (2001) 1463-1471.
- [21] S. Krishnan, R. Nikhil, G. Sasikala, A. Moitra, S.K. Albert, A. Bhaduri, C.L. Rao, S. Vishnuvardhan, M. Saravanan, P. Gandhi, Evaluation of fracture resistance of AISI type 316LN stainless steel base and welded pipes with circumferential through-wall crack, *Int. J. Press. Vessels Pip.* 178 (2019) 104008.
- [22] Q. Lin, X. Chen, Y. Zheng, Z. Zhang, G. Chen, B. Li, Multiaxial isothermal and thermomechanical fatigue behavior of 316LN stainless steel, *Int. J. Press. Vessels Pip.* 197 (2022) 104633.
- [23] G.R. Johnson, A constitutive model and data for metals subjected to large strains, high strain rates and high temperatures, *Proceedings of the 7th International Symposium on Ballistics*,

The Hague, Netherlands, 1983, 1983.

- [24] F.J. Zerilli, R.W. Armstrong, Dislocation-mechanics-based constitutive relations for material dynamics calculations, *J. Appl. Phys.* 61(5) (1987) 1816-1825.
- [25] Y. Lin, X.-M. Chen, A combined Johnson–Cook and Zerilli–Armstrong model for hot compressed typical high-strength alloy steel, *Comput. Mater. Sci.* 49(3) (2010) 628-633.
- [26] Y. Bergström, A dislocation model for the stress-strain behaviour of polycrystalline α -Fe with special emphasis on the variation of the densities of mobile and immobile dislocations, *MSE*. 5(4) (1970) 193-200.
- [27] F. Barlat, M. Glazov, J. Brem, D. Lege, A simple model for dislocation behavior, strain and strain rate hardening evolution in deforming aluminum alloys, *Int. J. Plast.* 18(7) (2002) 919-939.
- [28] L. Kubin, Y. Estrin, Evolution of dislocation densities and the critical conditions for the Portevin-Le Chatelier effect, *Acta Metall. Mater.* 38(5) (1990) 697-708.
- [29] Y. Lin, D.X. Wen, A novel unified dislocation-density based model for hot deformation behavior of a nickel-based superalloy, *AMM*. 853 (2017) 117-121.
- [30] X. Tang, B. Wang, Y. Huo, W. Ma, J. Zhou, H. Ji, X. Fu, Unified modeling of flow behavior and microstructure evolution in hot forming of a Ni-based superalloy, *MSE A*. 662 (2016) 54-64.
- [31] C. Sellars, W.M. Tegart, Hot workability, *Int. Met. Rev.* 17(1) (1972) 1-24.
- [32] H. Mecking, U. Kocks, Kinetics of flow and strain-hardening, *Acta Metall.* 29(11) (1981) 1865-1875.
- [33] Y. Huo, Q. Bai, B. Wang, J. Lin, J. Zhou, A new application of unified constitutive equations for cross wedge rolling of a high-speed railway axle steel, *J. Mater. Process. Technol.* 223 (2015) 274-283.
- [34] L.-E. Lindgren, Q. Hao, D. Wedberg, Improved and simplified dislocation density based plasticity model for AISI 316 L, *Mech. Mater.* 108 (2017) 68-76.
- [35] R. Wang, M. Wang, Z. Li, C. Lu, Physics-based Constitutive Model for the Hot Deformation of 2Cr11Mo1VNbN Martensitic Stainless Steel, *J. Mater. Eng. Perform.* 27 (2018) 4932-4940.
- [36] H. Li, Z. Zhao, H. Guo, Y. Ning, Z. Yao, Dislocation density-based model for flow behavior of a near- α titanium alloy considering effects of initial lamellar thickness, *J. Mater. Eng. Perform.* 28 (2019) 2477-2487.

- [37] L.-E. Lindgren, K. Domkin, S. Hansson, Dislocations, vacancies and solute diffusion in physical based plasticity model for AISI 316L, *Mech. Mater.* 40(11) (2008) 907-919.
- [38] Y. Estrin, L. Tóth, A. Molinari, Y. Bréchet, A dislocation-based model for all hardening stages in large strain deformation, *Acta Mater.* 46(15) (1998) 5509-5522.
- [39] X. Fan, H. Yang, Internal-state-variable based self-consistent constitutive modeling for hot working of two-phase titanium alloys coupling microstructure evolution, *Int. J. Plast.* 27(11) (2011) 1833-1852.
- [40] P. Gao, H. Yang, X. Fan, S. Zhu, Unified modeling of flow softening and globularization for hot working of two-phase titanium alloy with a lamellar colony microstructure, *J. Alloys Compd.* 600 (2014) 78-83.
- [41] S.D. Yadav, V. Vijayanand, M. Nandgopal, G. Prasad Reddy, On the tensile flow stress response of 304 HCu stainless steel employing a dislocation density based model and electron backscatter diffraction measurements, *Philos. Mag.* 100(3) (2020) 312-336.
- [42] Y. Estrin, H. Mecking, A unified phenomenological description of work hardening and creep based on one-parameter models, *Acta Metall.* 32(1) (1984) 57-70.
- [43] M. McLean, B. Dyson, Modeling the effects of damage and microstructural evolution on the creep behavior of engineering alloys, *J. Eng. Mater. Technol.* 122(3) (2000) 273-278.
- [44] Y. Yin, R. Faulkner, Continuum damage mechanics modelling based on simulations of microstructural evolution kinetics, *J. Mater. Sci. Technol.* 22(8) (2006) 929-936.
- [45] N. Bonora, L. Esposito, Mechanism based unified creep model incorporating damage, ASME pressure vessels and piping conference, 2008, pp. 1189-1193.
- [46] B. Xiao, L. Xu, L. Zhao, H. Jing, Y. Han, Deformation-mechanism-based creep model and damage mechanism of G115 steel over a wide stress range, *MSE A.* 743 (2019) 280-293.
- [47] N.M. Ghoniem, J. Matthews, R.J. Amodeo, A dislocation model for creep in engineering materials, *Res Mechanica;(UK)* 29(3) (1990).
- [48] E. Orowan, Problems of plastic gliding, *Proceedings of the Physical Society* 52(1) (1940) 8.
- [49] H. Magnusson, R. Sandström, Creep strain modeling of 9 to 12 Pct Cr steels based on microstructure evolution, *Metall. Mater. Trans A.* 38 (2007) 2033-2039.
- [50] R. Sandström, On recovery of dislocations in subgrains and subgrain coalescence, *Acta Metall.* 25(8) (1977) 897-904.
- [51] H. Semba, B. Dyson, M. McLean, Microstructure-based creep modelling of a 9% Cr

- martensitic steel, *Mater. High Temp.* 25(3) (2008) 131-137.
- [52] Y. Kadoya, N. Nishimura, B. Dyson, M. McLean, Origins of tertiary creep in high chromium steels, 7 th International Conference on Creep and Fracture of Engineering Materials and Structures, 1997, pp. 343-352.
- [53] B. Dyson, Microstructure based creep constitutive model for precipitation strengthened alloys: theory and application, *J. Mater. Sci. Technol.* 25(2) (2009) 213-220.
- [54] F. Krumphals, T. Wlanis, C. Sommitsch, I. Holzer, B. Sonderegger, V. Wieser, Modelling of microstructure evolution in hot work tool steels during service, *Comput. Methods Mater. Sci.* 9 (2009) 228-233.
- [55] M. Basirat, T. Shrestha, G. Potirniche, I. Charit, K. Rink, A study of the creep behavior of modified 9Cr–1Mo steel using continuum-damage modeling, *Int. J. Plast.* 37 (2012) 95-107.
- [56] Y.-K. Kim, D. Kim, H.-K. Kim, C.-S. Oh, B.-J. Lee, An intermediate temperature creep model for Ni-based superalloys, *Int. J. Plast.* 79 (2016) 153-175.
- [57] S. Yadav, T. Scherer, G.P. Reddy, K. Laha, G. Sasikala, S. Albert, C. Poletti, Creep modelling of P91 steel employing a microstructural based hybrid concept, *Eng. Fract. Mech.* 200 (2018) 104-114.
- [58] S.D. Yadav, B. Sonderegger, M. Stracey, C. Poletti, Modelling the creep behaviour of tempered martensitic steel based on a hybrid approach, *MSE A.* 662 (2016) 330-341.
- [59] C.Ó. Murchú, S.B. Leen, P. O'Donoghue, R.A. Barrett, A physically-based creep damage model for effects of different precipitate types, *MSE A.* 682 (2017) 714-722.
- [60] I. Perrin, D. Hayhurst, Creep constitutive equations for a 0.5 Cr–0.5 Mo–0.25 V ferritic steel in the temperature range 600–675 C, *J. Strain Anal. Eng. Des.* 31(4) (1996) 299-314.
- [61] Z. Kowalewski, D. Hayhurst, B. Dyson, Mechanisms-based creep constitutive equations for an aluminium alloy, *J. Strain Anal. Eng. Des.* 29(4) (1994) 309-316.
- [62] S. Wu, H. Song, H. Peng, P. Hodgson, H. Wang, X. Wu, Y. Zhu, M. Lam, A. Huang, A microstructure-based creep model for additively manufactured nickel-based superalloys, *Acta Mater.* 224 (2022) 117528.
- [63] B. Babu, L.-E. Lindgren, Dislocation density based model for plastic deformation and globularization of Ti-6Al-4V, *Int. J. Plast.* 50 (2013) 94-108.
- [64] Y. Lin, D.-X. Wen, M.-S. Chen, Y.-X. Liu, X.-M. Chen, X. Ma, Improved dislocation density-based models for describing hot deformation behaviors of a Ni-based superalloy, *J. Mater.*

- Res. 31(16) (2016) 2415-2429.
- [65] Y. Lin, D.-X. Wen, J. Deng, G. Liu, J. Chen, Constitutive models for high-temperature flow behaviors of a Ni-based superalloy, *Mater. Des.* 59 (2014) 115-123.
- [66] J. Christopher, B. Choudhary, Prediction of long-term creep behaviour of Grade 91 steel at 873 K in the framework of microstructure-based creep damage mechanics approach, *Int. J. Damage Mech.* 28(6) (2019) 877-895.
- [67] X. Chen, H. Chen, S. Ma, Y. Chen, J. Dai, Y. Bréchet, G. Ji, S. Zhong, H. Wang, Z. Chen, Insights into flow stress and work hardening behaviors of a precipitation hardening AlMgScZr alloy: Experiments and modeling, *Int. J. Plast.* 172 (2024) 103852.
- [68] E. Galindo-Nava, R. Schlütter, O. Messé, C. Argyrakis, C. Rae, A model for dislocation creep in polycrystalline Ni-base superalloys at intermediate temperatures, *Int. J. Plast.* 169 (2023) 103729.
- [69] J. Zhang, Y. Liu, Y. Cheng, H. Wang, A. Sha, H. Duan, Modeling of creep in nickel-based superalloy based on microtwinning mechanism, *Int. J. Plast.* 174 (2024) 103916.
- [70] A.S. Khan, S. Huang, Experimental and theoretical study of mechanical behavior of 1100 aluminum in the strain rate range 10^{-5} – 10^4 s $^{-1}$, *Int. J. Plast.* 8(4) (1992) 397-424.
- [71] X. Shang, Z. Cui, M. Fu, Dynamic recrystallization based ductile fracture modeling in hot working of metallic materials, *Int. J. Plast.* 95 (2017) 105-122.
- [72] F.J. Humphreys, M. Hatherly, *Recrystallization and related annealing phenomena*, elsevier2012.
- [73] F. Montheillet, J.J. Jonas, *Models of recrystallization*, (2009).
- [74] C. Poletti, R. Bureau, P. Loidolt, P. Simon, S. Mitsche, M. Spuller, Microstructure evolution in a 6082 aluminium alloy during thermomechanical treatment, *Mater.* 11(8) (2018) 1319.
- [75] M. Ardeljan, I.J. Beyerlein, M. Knezevic, Effect of dislocation density-twin interactions on twin growth in AZ31 as revealed by explicit crystal plasticity finite element modeling, *Int. J. Plast.* 99 (2017) 81-101.
- [76] N. Kumar, D. Choudhuri, R. Banerjee, R. Mishra, Strength and ductility optimization of Mg–Y–Nd–Zr alloy by microstructural design, *Int. J. Plast.* 68 (2015) 77-97.
- [77] M. Zecevic, M. Knezevic, B. McWilliams, R.A. Lebensohn, Modeling of the thermo-mechanical response and texture evolution of WE43 Mg alloy in the dynamic recrystallization regime using a viscoplastic self-consistent formulation, *Int. J. Plast.* 130 (2020) 102705.

- [78] R.H. Buzolin, M. Lasnik, A. Krumphals, M.C. Poletti, A dislocation-based model for the microstructure evolution and the flow stress of a Ti5553 alloy, *Int. J. Plast.* 136 (2021) 102862.
- [79] G. Zhou, Z. Li, D. Li, Y. Peng, H.S. Zurob, P. Wu, A polycrystal plasticity based discontinuous dynamic recrystallization simulation method and its application to copper, *Int. J. Plast.* 91 (2017) 48-76.
- [80] X. Hu, C. Chen, Y. Li, Z. Yang, F. Zhang, W. Zhang, Microstructural evolution of cast super austenitic stainless steel during hot compression, *J. Mater. Res. Technol.* 26 (2023) 2770-2781.
- [81] N. Sahu, A. Selokar, U. Prakash, Thermo-mechanical behaviour of 23/8 austenitic stainless steel, *ISIJ Int.* 54(4) (2014) 970-978.
- [82] G. Shankar, V. Gayatri, L.A. Barrales-Mora, S. Suwas, Evolution of recrystallization texture in medium to low stacking fault energy alloys: Experiments and simulations, *Int. J. Plast.* 172 (2024) 103827.
- [83] Z. Gao, Z. Jia, J. Ji, D. Liu, T. Guo, Y. Ding, Texture Evolution and Dislocation Behavior in a Nickel-Based Superalloy during Hot Compression, *Adv. Eng. Mater.* 22(3) (2020) 1900892.
- [84] M. Wang, C. Sun, M. Fu, Z. Liu, C. Wang, Microstructure and microtexture evolution of dynamic recrystallization during hot deformation of a nickel-based superalloy, *Mater. Des.* 188 (2020) 108429.
- [85] P. Zhao, Y. Wang, S.R. Niezgoda, Microstructural and micromechanical evolution during dynamic recrystallization, *Int. J. Plast.* 100 (2018) 52-68.
- [86] A.S. Khan, O. Lopez-Pamies, R. Kazmi, Thermo-mechanical large deformation response and constitutive modeling of viscoelastic polymers over a wide range of strain rates and temperatures, *Int. J. Plast.* 22(4) (2006) 581-601.
- [87] A.S. Khan, A. Pandey, T. Gnäupel-Herold, R.K. Mishra, Mechanical response and texture evolution of AZ31 alloy at large strains for different strain rates and temperatures, *Int. J. Plast.* 27(5) (2011) 688-706.
- [88] Y. Bergström, W. Roberts, The application of a dislocation model to dynamical strain ageing in α -iron containing interstitial atoms, *Acta Metall.* 19(8) (1971) 815-823.
- [89] C. Poletti, R.H. Buzolin, S. Kumar, P. Wang, T.F.J. Simonet-Fotso, Microstructure evolution of ti-5al-5v-5mo-3cr after hot deformation at large and moderate strains, *Mater. Sci. Forum*, Trans Tech Publ, 2019, pp. 1443-1449.

- [90] F.M.B. Ferraz, Ł. Sztangret, F. Carazo, R.H. Buzolin, P. Wang, D. Szeliga, P. dos Santos Effertz, P. Macioł, A. Krumphals, M.C. Poletti, Metamodelling the hot deformation behaviour of titanium alloys using a mean-field approach, *Mater. Today Commun.* 35 (2023) 106148.
- [91] A.S. Joseph, P. Gupta, N. Kumar, M.C. Poletti, S.D. Yadav, An advanced dislocation density-based approach to model the tensile flow behaviour of a 64.7 Ni–31.96 Cu alloy, *Philos. Mag.* 102(15) (2022) 1481-1504.
- [92] R. Liu, Z. Zhang, G. Zhou, Z. Jia, D. Li, P. Wu, A polycrystal plasticity-cellular automaton integrated modeling method for continuous dynamic recrystallization and its application to AA2196 alloy, *Int. J. Plast.* 182 (2024) 104127.
- [93] F. Xiong, C. Huang, O.L. Kafka, Y. Lian, W. Yan, M. Chen, D. Fang, Grain growth prediction in selective electron beam melting of Ti-6Al-4V with a cellular automaton method, *Mater. Des.* 199 (2021) 109410.
- [94] P. Zhao, T.S.E. Low, Y. Wang, S.R. Niezgoda, An integrated full-field model of concurrent plastic deformation and microstructure evolution: Application to 3D simulation of dynamic recrystallization in polycrystalline copper, *Int. J. Plast.* 80 (2016) 38-55.
- [95] D. He, S.-b. Chen, Y. Lin, C. Li, Z. Xu, G. Xiao, Microstructural evolution characteristics and a unified dislocation-density related constitutive model for a 7046 aluminum alloy during hot tensile, *J. Mater. Res. and Technology* 25 (2023) 2353-2367.
- [96] F. Lizzi, K. Pradeep, A. Stanojevic, S. Sommadossi, M.C. Poletti, Hot Deformation Behavior of a Ni-Based Superalloy with Suppressed Precipitation, *Metals* 11(4) (2021) 605.
- [97] J. Pešička, A. Dronhofer, G. Eggeler, Free dislocations and boundary dislocations in tempered martensite ferritic steels, *MSE A.* 387 (2004) 176-180.
- [98] A. Sarkar, S.D. Yadav, A. Nagesha, An EBSD based investigation on the deformation mechanisms under HCF-creep interaction in a Ni-based superalloy (alloy 617M), *MSE A.* 832 (2022) 142399.
- [99] A. Sarkar, S.D. Yadav, A. Nagesha, K. Mariappan, S. Ramaseshan, Mechanism of crack initiation under high cycle fatigue through an EBSD based approach in a 10 wt% Cr steel, *MSE A.* 795 (2020) 139940.
- [100] G.I. Taylor, The mechanism of plastic deformation of crystals. Part II.—Comparison with observations, *Proceedings of the Royal Society of London. Series A, Containing Papers of a*

- Mathematical and Physical Character 145(855) (1934) 388-404.
- [101] D. He, X.-y. Chen, Y. Lin, The improved physically-mechanism constitutive model for a Ni-Mo-Cr-based superalloy with the pre-precipitation of μ phase in hot forming, *J. Alloys Compd.* (2024) 174934.
- [102] C. Varvenne, G.P.M. Leyson, M. Ghazisaeidi, W.A. Curtin, Solute strengthening in random alloys, *Acta Mater.* 124 (2017) 660-683.
- [103] G. Leyson, W. Curtin, Solute strengthening at high temperatures, *Modell. Simul. Mater. Sci. Eng.* 24(6) (2016) 065005.
- [104] A. Argon, *Strengthening mechanisms in crystal plasticity*, OUP Oxford 2007.
- [105] R. Fleischer, Substitutional solutes in AlRu—I. Effects of solute on moduli, lattice parameters and vacancy production, *Acta Metall. et materialia* 41(3) (1993) 863-869.
- [106] H. Frost, M. Ashby, *Deformation-mechanism maps for pure iron, two austenitic stainless steels, and a low-alloy ferritic steel*, *Fundamental aspects of structural alloy design*, Springer 1977, pp. 27-65.
- [107] K. Sedighiani, K. Traka, F. Roters, D. Raabe, J. Sietsma, M. Diehl, Determination and analysis of the constitutive parameters of temperature-dependent dislocation-density-based crystal plasticity models, *Mech. Mater.* 164 (2022) 104117.
- [108] S. Nemat-Nasser, T. Okinaka, L. Ni, A physically-based constitutive model for bcc crystals with application to polycrystalline tantalum, *J. Mech. Phys. Solids.* 46(6) (1998) 1009-1038.
- [109] J. Lothe, Theory of dislocation climb in metals, *J. Appl. Phys.* 31(6) (1960) 1077-1087.
- [110] D. Caillard, J. Martin, *Thermally activated mechanisms in crystal plasticity*, Amsterdam 2003.
- [111] R.A. Lebensohn, C.S. Hartley, C.N. Tomé, O. Castelnau, Modeling the mechanical response of polycrystals deforming by climb and glide, *Philos. Mag.* 90(5) (2010) 567-583.
- [112] D. Caillard, J.-L. Martin, *Thermally activated mechanisms in crystal plasticity*, Elsevier 2003.
- [113] F. Roters, D. Raabe, G. Gottstein, Work hardening in heterogeneous alloys—a microstructural approach based on three internal state variables, *Acta Mater.* 48(17) (2000) 4181-4189.
- [114] S.L. Wong, M. Madivala, U. Prahl, F. Roters, D. Raabe, A crystal plasticity model for twinning-and transformation-induced plasticity, *Acta Mater.* 118 (2016) 140-151.

- [115] W. Roberts, B. Ahlblom, A nucleation criterion for dynamic recrystallization during hot working, *Acta Metall.* 26(5) (1978) 801-813.
- [116] A. Momeni, G. Ebrahimi, M. Jahazi, P. Bocher, Microstructure evolution at the onset of discontinuous dynamic recrystallization: A physics-based model of subgrain critical size, *J. Alloys Compd.* 587 (2014) 199-210.
- [117] K. Huang, R.E. Logé, A review of dynamic recrystallization phenomena in metallic materials, *Mater. Des.* 111 (2016) 548-574.
- [118] F. Chen, H. Zhu, W. Chen, H. Ou, Z. Cui, Multiscale modeling of discontinuous dynamic recrystallization during hot working by coupling multilevel cellular automaton and finite element method, *Int. J. Plast.* 145 (2021) 103064.
- [119] F. Chen, H. Zhu, H. Zhang, Z. Cui, Mesoscale modeling of dynamic recrystallization: multilevel cellular automaton simulation framework, *Metall. Mater. Trans A.* 51 (2020) 1286-1303.
- [120] X. Zhao, R. Guest, S. Tin, D. Cole, J. Brooks, M. Peers, Modelling hot deformation of Inconel 718 using state variables, *J. Mater. Sci. Technol.* 20(11) (2004) 1414-1420.
- [121] K. Pradeep, R.H. Buzolin, M. Domankova, F. Godor, A. Stanojevic, M.C. Poletti, Dynamic recrystallisation in Inconel® 718 at creep conditions, *MSE A.* 893 (2024) 146146.
- [122] J.C. Lagarias, J.A. Reeds, M.H. Wright, P.E. Wright, Convergence properties of the Nelder-Mead simplex method in low dimensions, *SIAM J. Optim.* 9(1) (1998) 112-147.
- [123] J. D'Errico, `fminsearchbnd`, `fminsearchcon`, MATLAB central file exchange (2021).
- [124] S.M. Walley, The effect of temperature gradients on elastic wave propagation in split Hopkinson pressure bars, *J. Dyn. Behav. Mater.* 6(3) (2020) 278-286.
- [125] W.D. Jenkins, T.G. Digges, Effect of temperature on the tensile properties of high-purity nickel, *J. Res. Natl. Bur. Stand.* 48(4) (1952) 313-321.
- [126] R.P. Guest, S. Tin, The dynamic and metadynamic recrystallisation of IN 718, *Proceedings of the International Symposium on Superalloys and Various Derivatives*, 2005, pp. 373-383.
- [127] M.N. Gussev, K.J. Leonard, In situ SEM-EBSD analysis of plastic deformation mechanisms in neutron-irradiated austenitic steel, *J. Nucl. Mater.* 517 (2019) 45-56.
- [128] Y.-X. Liu, Z.-J. Ke, R.-H. Li, Effects of sudden changes in strain rate on hot deformation behavior of Inconel 718, *Mater. Today Commun.* 34 (2023) 105295.
- [129] N. Koundinya, A.K. Karnati, A. Sahadevan, S.N. Murty, R.S. Kottada, Assessment of the

- post-dynamic recrystallization effects on the overall dynamic recrystallization kinetics in a Ni-base superalloy, *J. Alloys Compd.* 930 (2023) 167412.
- [130] S. Mitsche, P. Pöhl, C. Sommitsch, Recrystallization behaviour of the nickel-based alloy 80 A during hot forming, *J. Microsc.* 227(3) (2007) 267-274.
- [131] R.W. Rohde, C.H. Pitt, Dislocation velocities in nickel single crystals, *J. Appl. Phys.* 38(2) (1967) 876-879.
- [132] J.H. Hollomon, Tensile deformation, *Aime Trans* 12(4) (1945) 1-22.
- [133] P. Ludwik, *Elemente der technologischen Mechanik*, Springer 1909.
- [134] E. Voce, The relationship between stress and strain for homogeneous deformation, *J. Inst. Met.* 74 (1948) 537-562.
- [135] D.L. Holt, Dislocation cell formation in metals, *J. Appl. Phys.* 41(8) (1970) 3197-3201.
- [136] E. Nes, Modelling of work hardening and stress saturation in FCC metals, *Prog. Mater. Sci.* 41(3) (1997) 129-193.
- [137] B. Rath, M. Imam, C. Pande, Nucleation and growth of twin interfaces in fcc metals and alloys, *Mater. Phys. Mech.* 1(0) (2000).
- [138] L. Gyphen, A. Deruyttere, Multi-component solid solution hardening: Part 1 Proposed model, *J. Mater. Sci.* 12 (1977) 1028-1033.
- [139] T. Chen, Understanding the deformation mechanisms in Ni-based superalloys with using crystal plasticity finite element method, Missouri University of Science and Technology 2020.
- [140] M.A. Moiz, The influence of grain size on mechanical properties of Inconel 718, 2013.
- [141] R. Klueh, A.T. Nelson, Ferritic/martensitic steels for next-generation reactors, *J. Nucl. Mater.* 371(1-3) (2007) 37-52.
- [142] A. Kohyama, Y. Kohno, K. Asakura, H. Kayano, R&D of low activation ferritic steels for fusion in Japanese universities, *J. Nucl. Mater.* 212 (1994) 684-689.
- [143] B. Raj, T. Jayakumar, Development of reduced activation ferritic–martensitic steels and fabrication technologies for Indian test blanket module, *J. Nucl. Mater.* 417(1-3) (2011) 72-76.
- [144] K. Sahoo, J. Vanaja, P. Parameswaran, V. Vijayanand, K. Laha, Effect of thermal ageing on microstructure, tensile and impact properties of reduced activated ferritic-martensitic steel, *MSE A.* 686 (2017) 54-64.

- [145] A. Suri, N. Krishnamurthy, I. Batra, Materials issues in fusion reactors, Journal of physics: conference series, IOP Publishing, 2010, p. 012001.
- [146] X. Wang, A.M. Monterrosa, F. Zhang, H. Huang, Q. Yan, Z. Jiao, G.S. Was, L. Wang, Void swelling in high dose ion-irradiated reduced activation ferritic–martensitic steels, J. Nucl. Mater. 462 (2015) 119-125.
- [147] J.-h. Zhou, Y.-f. Shen, N. Jia, Strengthening mechanisms of reduced activation ferritic/martensitic steels: A review, Int. J. Miner. Metall. Mater. 28 (2021) 335-348.
- [148] Z. Zhu, H. Basoalto, N. Warnken, R. Reed, A model for the creep deformation behaviour of nickel-based single crystal superalloys, Acta Mater. 60(12) (2012) 4888-4900.
- [149] Q. Huang, N. Baluc, Y. Dai, S. Jitsukawa, A. Kimura, J. Konys, R.J. Kurtz, R. Lindau, T. Muroga, G.R. Odette, Recent progress of R&D activities on reduced activation ferritic/martensitic steels, J. Nucl. Mater. 442(1-3) (2013) S2-S8.
- [150] M. Mathew, J. Vanaja, K. Laha, G.V. Reddy, K. Chandravathi, K.B.S. Rao, Tensile and creep properties of reduced activation ferritic–martensitic steel for fusion energy application, J. Nucl. Mater. 417(1-3) (2011) 77-80.
- [151] M. Yaylaci, Simulate of edge and an internal crack problem and estimation of stress intensity factor through finite element method, Adv. Nano Res. 12(4) (2022) 405-414.
- [152] B. Xiao, S.D. Yadav, L. Zhao, Z. Tang, Y. Han, X. Yang, J.-J. Kai, T. Yang, L. Xu, Deep insights on the creep behavior and mechanism of a novel G115 steel: Micromechanical modeling and experimental validation, Int. J. Plast. 147 (2021) 103124.
- [153] J. Xiao, H. Cui, H. Zhang, W. Wen, J. Zhou, A physical-based constitutive model considering the motion of dislocation for Ni3Al-base superalloy, MSE A. 772 (2020) 138631.
- [154] W. Blum, P. Eisenlohr, F. Breutinger, Understanding creep—a review, Metall. Mater. Trans A. 33 (2002) 291-303.
- [155] T. Barkar, J. Ågren, Creep simulation of 9–12% Cr steels using the composite model with thermodynamically calculated input, MSE A. 395(1-2) (2005) 110-115.
- [156] K. Song, L. Zhao, L. Xu, Y. Han, S. Pan, Dislocation creep modelling of Sanicro 25 based on microstructural evolution and particle hardening mechanism, Theor. Appl. Fract. 112 (2021) 102893.
- [157] R. Oruganti, M. Karadge, S. Swaminathan, Damage mechanics-based creep model for 9–10% Cr ferritic steels, Acta Mater. 59(5) (2011) 2145-2155.

- [158] A. Argon, S. Takeuchi, Internal stresses in power-law creep, *Acta Metall.* 29(11) (1981) 1877-1884.
- [159] F. Riedlsperger, B. Krenmayr, G. Zuderstorfer, B. Fercher, B. Niederl, J. Schmid, B. Sonderegger, Application of an advanced mean-field dislocation creep model to P91 for calculation of creep curves and time-to-rupture diagrams, *Materialia* 12 (2020) 100760.
- [160] B. Grabowski, Y. Ikeda, P. Srinivasan, F. Körmann, C. Freysoldt, A.I. Duff, A. Shapeev, J. Neugebauer, Ab initio vibrational free energies including anharmonicity for multicomponent alloys, *npj Comput. Mater.* 5(1) (2019) 80.
- [161] J. Vanaja, K. Laha, Assessment of tungsten content on tertiary creep deformation behavior of reduced activation ferritic–martensitic steel, *Metall. Mater. Trans A.* 46 (2015) 4669-4679.
- [162] J. Vanaja, K. Laha, R. Mythili, K. Chandravathi, S. Saroja, M. Mathew, Creep deformation and rupture behaviour of 9Cr–1W–0.2 V–0.06 Ta Reduced Activation Ferritic–Martensitic steel, *MSE A.* 533 (2012) 17-25.
- [163] W. Wen, A. Kohnert, M.A. Kumar, L. Capolungo, C.N. Tomé, Mechanism-based modeling of thermal and irradiation creep behavior: An application to ferritic/martensitic HT9 steel, *Int. J. Plast.* 126 (2020) 102633.
- [164] F. Krumphals, B. Reggiani, L. Donati, T. Wlanis, C. Sommitsch, Deformation behaviour of a ferritic hot-work tool steel with respect to the microstructure, *Comput. Mater. Sci.* 52(1) (2012) 40-45.
- [165] S. Nandi, K. Vikrant, P. Ahv, K. Singh, R. Ghosh, Creep modelling of P91 steel for high temperature power plant applications, *Procedia Engineering* 55 (2013) 751-755.
- [166] K. Maruyama, K. Sawada, J.-i. Koike, Strengthening mechanisms of creep resistant tempered martensitic steel, *ISIJ Int.* 41(6) (2001) 641-653.
- [167] M. Abd El-Azim, O. Ibrahim, O. El-Desoky, Long term creep behaviour of welded joints of P91 steel at 650 C, *MSE A.* 560 (2013) 678-684.
- [168] S. Takeuchi, A. Argon, Steady-state creep of alloys due to viscous motion of dislocations, *Acta Metall.* 24(10) (1976) 883-889.
- [169] R.J. Amodeo, N.M. Ghoniem, Dislocation dynamics. I. A proposed methodology for deformation micromechanics, *Phys. Rev. B.* 41(10) (1990) 6958.
- [170] J. Salazar, O. Politano, D. Walgraef, On the dynamics of dislocation patterning, *MSE A.* 234 (1997) 397-400.

- [171] M.R. Ahmadi, B. Sonderegger, S.D. Yadav, M.C. Poletti, Modelling and simulation of diffusion driven pore formation in martensitic steels during creep, *MSE A.* 712 (2018) 466-477.
- [172] J. Vanaja, K. Laha, M. Mathew, Effect of tungsten on primary creep deformation and minimum creep rate of reduced activation ferritic-martensitic steel, *Metall. Mater. Trans A.* 45 (2014) 5076-5084.
- [173] S. Spigarelli, Quantification of the effect of early microstructural degradation during creep of 9Cr–1Mo–NbV steels at 600° C, *MSE A.* 565 (2013) 269-277.
- [174] C.G. Panait, A. Zielińska-Lipiec, T. Koziel, A. Czyska-Filemonowicz, A.-F. Gourgues-Lorenzon, W. Bendick, Evolution of dislocation density, size of subgrains and MX-type precipitates in a P91 steel during creep and during thermal ageing at 600 C for more than 100,000 h, *MSE A.* 527(16-17) (2010) 4062-4069.
- [175] A. Orlová, J. Čadek, Dislocation structure in the high temperature creep of metals and solid solution alloys: a review, *Mater. Sci. Eng.* 77 (1986) 1-18.
- [176] A. Argon, Mechanical properties of single-phase crystalline media: deformation at low temperatures, *Phys. Metall.* (1996) 1877-1955.
- [177] J. Pešička, A. Aghajani, C. Somsen, A. Hartmaier, G. Eggeler, How dislocation substructures evolve during long-term creep of a 12% Cr tempered martensitic ferritic steel, *Scripta Mater.* 62(6) (2010) 353-356.
- [178] J. Pešička, R. Kužel, A. Dronhofer, G. Eggeler, The evolution of dislocation density during heat treatment and creep of tempered martensite ferritic steels, *Acta Mater.* 51(16) (2003) 4847-4862.
- [179] J. Christopher, B. Choudhary, Constitutive modeling of primary creep behaviour of P9 steel, *Trans. Indian Inst. Met.* 69 (2016) 519-523.
- [180] J. Christopher, B. Choudhary, Constitutive description of primary and steady-state creep deformation behaviour of tempered martensitic 9Cr–1Mo steel, *Philos. Mag.* 96(21) (2016) 2256-2279.
- [181] J. Christopher, B. Choudhary, Constitutive modelling of stress-relaxation behaviour of tempered martensitic P91 steel using sine hyperbolic rate law, *Mater. Chem. Phys.* 205 (2018) 442-451.
- [182] S.D. Yadav, S. Kalácska, M. Dománková, D.C. Yubero, R. Resel, I. Groma, C. Beal, B.

- Sonderegger, C. Sommitsch, C. Poletti, Evolution of the substructure of a novel 12% Cr steel under creep conditions, *Mater. Charact.* 115 (2016) 23-31.
- [183] A.D. Rollett, U.F. Kocks, A review of the stages of work hardening, *Scripta Mater.* 21(2) (1987) 343-347.
- [184] K. Hamada, K. Tokuno, Y. Tomita, H. Mabuchi, K. Okamoto, Effects of precipitate shape on high temperature strength of modified 9Cr-1Mo steels, *ISIJ Int.* 35(1) (1995) 86-91.
- [185] P. Eisenlohr, W. Blum, K. Milička, Dislocation glide velocity in creep of Mg alloys derived from dip tests, *Mater. Sci. Eng. A* 523 (2009) 393-397.
- [186] W.G. Johnston, J.J. Gilman, Dislocation velocities, dislocation densities, and plastic flow in lithium fluoride crystals, *J. Appl. Phys.* 30(2) (1959) 129-144.
- [187] D.F. Stein, J. Low Jr, Mobility of edge dislocations in silicon-iron crystals, *J. Appl. Phys.* 31(2) (1960) 362-369.
- [188] A. George, Measurements of the dislocation velocities in silicon, *J. Phys. Colloques* 40(C6) (1979) C6-133–C6-137..
- [189] M. Turunen, V. Lindroos, Edge dislocation velocity in stress-induced climb, *Philos. Mag.* 27(1) (1973) 81-86.
- [190] G. Edelin, J. Poirier, Study of Dislocation climb by means of diffusional creep experiments in Mg. Pt. 1. Deformation Mechanism, *Phil. Mag.* 28(6) (1973) 1203-1210.
- [191] M. Kabir, T.T. Lau, D. Rodney, S. Yip, K.J. Van Vliet, Predicting dislocation climb and creep from explicit atomistic details, *Phys. Rev. Lett.* 105(9) (2010) 095501.
- [192] C.D. Versteyleen, M.H.F. Sluiter, N.H. van Dijk, Modelling the formation and self-healing of creep damage in iron-based alloys, *J. Mater. Sci.* 53(20) (2018) 14758-14773.
- [193] M. Winning, G. Gottstein, L.S. Shvindlerman, Stress induced grain boundary motion, *Acta Mater.* 49(2) (2001) 211-219.
- [194] F. Barou, A. Guillotin, C. Maurice, J.M. Feppon, J. Driver, Boundary mobilities during recovery and recrystallization of binary Al-Mn alloys, *Mater. Sci. Forum* 558-559 (2007) 53-59.
- [195] P. Eisenlohr, P. Sadrabadi, W. Blum, Quantifying the distributions of dislocation spacings and cell sizes, *J. Mater. Sci.* 43(8) (2008) 2700-2707.
- [196] J. Christopher, B. Choudhary, Applicability of improved Dyson–McLean approach to creep deformation behaviour of tempered martensitic P9 steel, *Mater. High Temp.* 35(4) (2018)

387-397.

- [197] J. Hald, Microstructure and long-term creep properties of 9–12% Cr steels, *Int. J. Pressure Vessels Pip.* 85(1-2) (2008) 30-37.
- [198] M.E. Kassner, T.A. Hayes, Creep cavitation in metals, *Int. J. Plast.* 19(10) (2003) 1715-1748.
- [199] J. Christopher, C. Praveen, V. Ganesan, G.P. Reddy, S.K. Albert, Influence of varying nitrogen on creep deformation and damage behaviour of type 316L in the framework of continuum damage mechanics approach, *Int. J. Damage Mech.* 30(1) (2021) 3-24.
- [200] S. Yadav, G.P. Reddy, G. Sasikala, S. Albert, C. Poletti, Creep curve modeling of 9-12% Cr steels: a microstructural based semi-empirical approach, *Proc. 2nd Int. Conf. Struct. Integr.*, 2018, pp. 57-65.
- [201] H. Nitta, K. Miura, Y. Iijima, Self-diffusion in iron-based Fe–Mo alloys, *Acta Mater.* 54(10) (2006) 2833-2847.
- [202] Y. Han, M. Chaturvedi, Steady state creep deformation of superalloy inconel 718, *Mater. Sci. Eng.* 89 (1987) 25-33.
- [203] A. Drexler, A. Fischersworing-Bunk, B. Oberwinkler, W. Ecker, H.-P. Gänser, A microstructural based creep model applied to alloy 718, *Int. J. Plast.* 105 (2018) 62-73.
- [204] Z. Guo, D. Huang, X. Yan, Physics-based modeling of γ/γ' microstructure evolution and creep constitutive relation for single crystal superalloy, *Int. J. Plast.* 137 (2021) 102916.
- [205] K. Chen, J. Dong, Z. Yao, Creep failure and damage mechanism of Inconel 718 alloy at 800–900° C, *Metals Mater. Int.* 27 (2021) 970-984.
- [206] M.A. Kumar, L. Capolungo, Microstructure-sensitive modeling of high temperature creep in grade-91 alloy, *Int. J. Plast.* 158 (2022) 103411.
- [207] A. Epishin, T. Link, Mechanisms of high-temperature creep of nickel-based superalloys under low applied stresses, *Philos. Mag.* 84(19) (2004) 1979-2000.
- [208] G. Viswanathan, S. Karthikeyan, P.M. Sarosi, R. Unocic, M. Mills, Microtwinning during intermediate temperature creep of polycrystalline Ni-based superalloys: mechanisms and modelling, *Philos. Mag.* 86(29-31) (2006) 4823-4840.
- [209] L. Kachanov, Rupture time under creep conditions, *Izv. Akad. Nauk SSSR* 8 (1958) 26-31.
- [210] L. Kachanov, The theory of creep, national lending library for science and technology, Boston Spa, Yorkshire (1967).

- [211] Y.N. Rabotnov, F.A. Leckie, W. Prager, Creep problems in structural members, (1970).
- [212] V. Gaffard, J. Besson, A.-F. Gourgues-Lorenzon, Creep failure model of a tempered martensitic stainless steel integrating multiple deformation and damage mechanisms, *Int. J. Fract.* 133 (2005) 139-166.
- [213] J. He, R. Sandström, Basic modelling of creep rupture in austenitic stainless steels, *Theor. Appl. Fract.* 89 (2017) 139-146.
- [214] M. Ahlers, Stacking fault energy and mechanical properties, *Metall. Trans.* 1 (1970) 2415-2428.
- [215] P. Mehrotra, N. Kumar, A. George, K.C. Sahoo, V. Ganesan, M.R. Ahmadi, S. Trivedi, S.D. Yadav, An advanced mean field dislocation density reliant physical model to predict the creep deformation of 304HCu austenitic stainless steel, *Mater. Today Commun.* 32 (2022) 104128.
- [216] N. Kumar, A.S. Joseph, P. Mehrotra, S.D. Yadav, An improved dislocation density reliant model to address the creep deformation of reduced activation ferritic martensitic steel, *Forces Mech.* 9 (2022) 100117.
- [217] T. Shrestha, M. Basirat, I. Charit, G.P. Potirniche, K.K. Rink, U. Sahaym, Creep deformation mechanisms in modified 9Cr–1Mo steel, *J. Nucl. Mater.* 423(1) (2012) 110-119.
- [218] I. Fedorova, A. Kipelova, A. Belyakov, R. Kaibyshev, Microstructure evolution in an advanced 9 pct Cr martensitic steel during creep at 923 K (650 C), *Metall. Mater. Trans A.* 44 (2013) 128-135.
- [219] A. Manonukul, F. Dunne, D. Knowles, Physically-based model for creep in nickel-base superalloy C263 both above and below the gamma solvus, *Acta Mater.* 50(11) (2002) 2917-2931.
- [220] S.D. Yadav, M. El-Tahawy, S. Kalácska, M. Dománková, D.C. Yubero, C. Poletti, Characterizing dislocation configurations and their evolution during creep of a new 12% Cr steel, *Mater. Charact.* 134 (2017) 387-397.
- [221] A.S. Argon, Chapter 21 Mechanical properties of single-phase crystalline media: deformation at low temperatures, *Physical Metallurgy* 1996, pp. 1877-1955.
- [222] D. Jianxin, X. Xishan, Z. Shouhua, Coarsening behavior of γ'' precipitates in modified Inconel 718 superalloy, *Scripta Mater.* 33(12) (1995).
- [223] A. Baldan, Review progress in Ostwald ripening theories and their applications to nickel-

- base superalloys Part I: Ostwald ripening theories, *J. Mater. Sci.* 37 (2002) 2171-2202.
- [224] S. Tian, X. Zhu, J. Wu, H. Yu, D. Shu, B. Qian, Influence of temperature on stacking fault energy and creep mechanism of a single crystal nickel-based superalloy, *J. Mater. Sci. Technol.* 32(8) (2016) 790-798.
- [225] C. Tian, G. Han, C. Cui, X. Sun, Effects of stacking fault energy on the creep behaviors of Ni-base superalloy, *Mater. Des.* 64 (2014) 316-323.
- [226] C. Liu, J. Yang, P. Ma, Z. Ma, L. Zhan, K. Chen, M. Huang, J. Li, Z. Li, Large creep formability and strength–ductility synergy enabled by engineering dislocations in aluminum alloys, *Int. J. Plast.* 134 (2020) 102774.
- [227] D.-S. Kang, H. Lee, D.W. Yun, H.W. Jeong, Y.-S. Yoo, S.-M. Seo, Microstructural mechanism of local dynamic recrystallization around cavity during tertiary creep in directionally solidified superalloy CM247LC, *Mater. Charact.* 198 (2023) 112727.
- [228] S. Sulzer, Z. Li, S. Zaeferrer, S.M.H. Haghighat, A. Wilkinson, D. Raabe, R. Reed, On the assessment of creep damage evolution in nickel-based superalloys through correlative HR-EBSD and cECCI studies, *Acta Mater.* 185 (2020) 13-27.
- [229] F. Riedlsperger, T. Wojcik, R. Buzolin, G. Zuderstorfer, M. Speicher, C. Sommitsch, B. Sonderegger, Microstructural insights into creep of Ni-based alloy 617 at 700° C provided by electron microscopy and modelling, *Mater. Charact.* 198 (2023) 112720.
- [230] A. Orlova, M. Pahutova, J. Čadek, Dislocation structure and applied, effective and internal stress in high-temperature creep of alpha iron, *Philos. Mag.* 25(4) (1972) 865-877.
- [231] P. Eisenlohr, W. Blum, K. Milicka, Dislocation glide velocity in creep of Mg alloys derived from dip tests, *MSE A.* 510 (2009) 393-397.
- [232] A. Dronhofer, J. Pešicka, A. Dlouhý, G. Eggeler, On the nature of internal interfaces in tempered martensite ferritic steels, *Int. J. Mater. Res.* 94(5) (2022) 511-520.
- [233] S. Shang, D. Kim, C. Zacherl, Y. Wang, Y. Du, Z. Liu, Effects of alloying elements and temperature on the elastic properties of dilute Ni-base superalloys from first-principles calculations, *J. Appl. Phys.* 112(5) (2012).
- [234] S. Shang, C. Zacherl, H. Fang, Y. Wang, Y. Du, Z. Liu, Effects of alloying element and temperature on the stacking fault energies of dilute Ni-base superalloys, *J. Phys. Condens. Matter.* 24(50) (2012) 505403.
- [235] M. Benyoucef, B. Décamps, A. Coujou, N. Clément, Stacking-fault energy at room

- temperature of the γ matrix of the MC2 Ni-based superalloy, *Philos. Mag. A* 71(4) (1995) 907-923.
- [236] F. Pettinari, J. Douin, G. Saada, P. Caron, A. Coujou, N. Clément, Stacking fault energy in short-range ordered γ -phases of Ni-based superalloys, *MSE A.* 325(1-2) (2002) 511-519.
- [237] D.M. Knowles, Q. Chen, Superlattice stacking fault formation and twinning during creep in γ/γ' single crystal superalloy CMSX-4, *MSE A.* 340(1-2) (2003) 88-102.
- [238] H. Zhou, Y. Ro, H. Harada, Y. Aoki, M. Arai, Deformation microstructures after low-cycle fatigue in a fourth-generation Ni-base SC superalloy TMS-138, *MSE A.* 381(1-2) (2004) 20-27.
- [239] S. Krishnan, R. Nikhil, A. Parnaik, A. Moitra, M. Vasudevan, Investigation on fracture resistance behaviour of dissimilar metal weld joint of modified 9Cr–1Mo steel and AISI 316LN SS, *Int. J. Press. Vessels Pip.* 211 (2024) 105260.
- [240] J. Hu, G. Green, S. Hogg, R. Higginson, A. Cocks, Effect of microstructure evolution on the creep properties of a polycrystalline 316H austenitic stainless steel, *Mater. Sci. Eng. A* 772 (2020) 138787.
- [241] R. Jain, M. Yadava, A. Tripathi, N. Gurao, Rate controlling deformation mechanisms in SS316L stainless steel manufactured using laser powder bed fusion technique, *Int. J. Plast.* 171 (2023) 103787.
- [242] S. Ghosh, N. Bibhanshu, S. Suwas, K. Chatterjee, Surface mechanical attrition treatment of additively manufactured 316L stainless steel yields gradient nanostructure with superior strength and ductility, *Mater. Sci. Eng. A* 820 (2021) 141540.
- [243] V. Srinivasan, B. Choudhary, M. Mathew, T. Jayakumar, Long-term creep-rupture strength prediction for modified 9Cr–1Mo ferritic steel and type 316L (N) austenitic stainless steel, *Mater. High Temp.* 29(1) (2012) 41-48.
- [244] F. Sui, R. Sandström, Basic modelling of tertiary creep of copper, *J. Mater. Sci.* 53(9) (2018) 6850-6863.
- [245] C. Praveen, J. Christopher, V. Ganesan, G.P. Reddy, G. Sasikala, S.K. Albert, Constitutive modelling of transient and steady state creep behaviour of type 316LN austenitic stainless steel, *Mech. Mater.* 137 (2019) 103122.
- [246] F.H. Norton, *The creep of steel at high temperatures*, No Title (1929).
- [247] D. Baraldi, S. Holmström, K.-F. Nilsson, M. Bruchhausen, I. Simonovski, 316L (N) creep

- modeling with phenomenological approach and artificial intelligence based methods, *Metals* 11(5) (2021) 698.
- [248] H. Basoalto, S. Sondhi, B. Dyson, M. McLean, A generic microstructure-explicit model of creep in nickel-base superalloys, *Superalloys 1* (2004) 897-906.
- [249] C. Praveen, J. Christopher, V. Ganesan, G. Prasad Reddy, S.K. Albert, Prediction of creep behaviour of 316LN SS under uniaxial and multiaxial stress state using Kachanov–Rabotnov model at 923 K, *Trans. Indian Inst. Met.* 73 (2020) 1645-1653.
- [250] P.S. Follansbee, An internal state variable constitutive model for deformation of austenitic stainless steels, *J. Eng. Mater. Technol.* 134(4) (2012) 041007.
- [251] S. Vujic, R. Sandström, C. Sommitsch, Precipitation evolution and creep strength modelling of 25Cr20NiNbN austenitic steel, *Mater. High Temp.* 32(6) (2015) 607-618.
- [252] U. Kocks, Laws for work-hardening and low-temperature creep, (1976).
- [253] L. Kubin, B. Devincre, T. Hoc, Modeling dislocation storage rates and mean free paths in face-centered cubic crystals, *Acta Mater.* 56(20) (2008) 6040-6049.
- [254] R. Sandström, H.C. Andersson, Creep in phosphorus alloyed copper during power-law breakdown, *J. Nucl. Mater.* 372(1) (2008) 76-88.
- [255] R. Sandström, Fundamental models for the creep of metals, *IntechOpen* (2017).
- [256] B. Devincre, T. Hoc, L. Kubin, Dislocation mean free paths and strain hardening of crystals, *Science* 320(5884) (2008) 1745-1748.
- [257] D. Terada, F. Yoshida, H. Nakashima, H. Abe, Y. Kadoya, In-situ observation of dislocation motion and its mobility in Fe-Mo and Fe-W solid solutions at high temperatures, *ISIJ Int.* 42(12) (2002) 1546-1552.
- [258] K.C. Sahoo, S. Goyal, V. Ganesan, J. Vanaja, G.V. Reddy, P. Padmanabhan, K. Laha, Analysis of creep deformation and damage behaviour of 304HCu austenitic stainless steel, *Mater. High Temp.* 36(5) (2019) 388-403.