

cracking in such cases will likely require more advanced statistical models of fracture involving easy crack propagation along clusters of defects situated along specific directions.

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References

- J.M. Howe, *Interfaces in Materials* (John Wiley & Sons, New York, 1997).
- W.T. Read and W. Shockley, *Phys. Rev.* **78** (1950) p. 275.
- D. Wolf and K.R. Merkle, in *Material Interfaces: Atomic Level Structure and Properties*, edited by D. Wolf and S. Yip (Chapman and Hall, London, 1992) p. 87.
- E.D. Hondros and M.P. Seah, *Int. Met. Rev.* **22** (2) (1977) p. 262.
- Ibid.*, *Metall. Trans. A* **8A** (1977) p. 1363.
- P. Marcus and J. Oudar, *Mater. Sci. Eng.* **42** (1980) p. 191.
- R.M. Latanision and H. Opperhauser Jr., *Metall. Trans. A* **14A** (1974) p. 483.
- S.M. Bruemmer, R.H. Jones, M.T. Thomas, and D.R. Baer, *Metall. Mater. Trans. A* **14A** (1983) p. 223.
- R.H. Jones, S.M. Bruemmer, M.T. Thomas, and D.R. Baer, *ibid.* p. 1729.
- D.H. Lassila and H.K. Birnbaum, *Acta Metall.* **35** (1987) p. 1815.
- H. Fukushima and H.K. Birnbaum, *ibid.* **32** (1984) p. 851.
- R.A. Mulford, *Treatise of Materials Science and Technology*, vol. 25 (Academic Press, 1983).
- R.A. Oriani and P.H. Josephic, *Acta Metall.* **22** (1974) p. 1065.
- R.P. Messmer and C.L. Briant, *ibid.* **30** (1982) p. 457.
- N.R. Moody and S.M. Foiles, in *Structure and Properties of Interfaces in Materials*, edited by W.A.T. Clark, U. Dahmen, and C.L. Briant (Mater. Res. Soc. Symp. Proc. **238**, Pittsburgh, 1992) p. 381.
- I.M. Robertson and H.K. Birnbaum, *Acta Metall.* **34** (1986) p. 353.
- E. Sirois and H.K. Birnbaum, *ibid.* **40** (1992) p. 1377.
- H.B. Aaron and H.I. Aronson, *ibid.* **16** (1968) p. 789.
- J.R. Galvele and S.M. DeMicheli, *Corros. Sci.* **10** (1970) p. 795.
- I.L. Muller and J.R. Galvele, *ibid.* **17** (1977) p. 179.
- K. Urushino and K. Sugimoto, *ibid.* **19** (1979) p. 225.
- C. Kumai, J. Kusinski, G. Thomas, and T. Devine, *Corrosion* **45** (1989) p. 94.
- E.C. Bain, R.H. Aborn, and J.J.B. Rutherford, *Trans. Am. Steel Treating Soc.* **21** (1933) p. 481.
- S.M. Bruemmer, B.W. Arey, and L.A. Charlot, *Corrosion* **48** (1992) p. 42.
- S.M. Bruemmer and L.A. Charlot, *Scripta Metall.* **20** (1986) p. 1019.
- E.L. Hall and C.L. Briant, *Metall. Trans. A* **15A** (1984) p. 793.
- E.D. Hondros and D. McLean, *Philos. Mag. A* **29** (1974) p. 771.
- T. Watanabe and P.W. Davies, *ibid.* **37** (1978) p. 649.
- J. Don and S. Majumdar, *Acta Metall.* **34** (1986) p. 961.
- T. Watanabe, M. Yamada, S. Shima, and S. Karashima, *Philos. Mag. A* **40** (1979) p. 667.
- J.A. Kargol and D.L. Albright, *Metall. Trans. A* **8** (1977) p. 27.
- O.P. Arora and M. Metzger, *Trans. Metall. Soc. AIME* **236** (1966) p. 1205.
- G. Hasson, J.-Y. Boos, I. Herbeuval, M. Biscondi, and C. Goux, *Surf. Sci.* **31** (1972) p. 115.
- M. Yamashita, T. Mikaki, S. Hashimoto, and S. Miura, *Philos. Mag. A* **63** (1991) p. 695.
- Ibid.* p. 707.
- G. Palumbo and K.T. Aust, *Acta Metall. Mater.* **38** (1990) p. 2343.
- D.C. Crawford and G.S. Was, *Metall. Trans. A* **23A** (1992) p. 1195.
- T.A. Mason and B.L. Adams, *JOM* (October 1994) p. 43.
- D.A. Vermilyea, *J. Electrochem. Soc.* **119** (1972) p. 405.
- R.C. Newman and K. Sieradzki, *Corros. Sci.* **23** (1983) p. 363.
- S.R. Ortner and V. Randle, *Scripta Metall.* **23** (1989) p. 1903.
- B.W. Bennett and H.W. Pickering, *Acta Metall.* **36** (1988) p. 539.
- R.J. Bourcier, J.R. Scully, and W.B. Jones, "A Probabilistic Model of IGSCC," in *Proc. Symp. on Lifetime Prediction of Corrodible Structures 2*, edited by R.N. Parkins (National Association of Corrosion Engineers, Kauai, HI, 1991) p. 903.
- R. Kirchheim and U. Stolz, *J. Non-Cryst. Solids* **70** (1985) p. 323.
- R. Kirchheim, *Prog. Mater. Sci.* **32** (1988) p. 261.
- J.E. Angelo, N.R. Moody, and M.I. Baskes, *Model. Sim. Mater. Sci. Eng.* **3** (1995) p. 289.
- H.J. Herrmann and S. Roux, *Statistical Models for the Fracture of Disordered Media* (North-Holland, New York, 1990).
- D. Stauffer, *Introduction to Percolation Theory* (Taylor and Francis, London, 1985).
- V.K.S. Shante and S. Kirkpatrick, *Adv. Phys.* **20** (1991) p. 325.
- D. McLean, *Grain Boundaries in Metals* (Clarendon Press, Oxford, UK, 1957).
- D.B. Wells, J. Stewart, A.W. Herbert, P.M. Scott, and P.E. Williams, *Corrosion* **45** (1989) p. 649.
- Y. Pan and B.L. Adams, *Scripta Metall.* **30** (8) (1994) p. 1055.
- T. Schober and C. Dieker, *Metall. Mater. Trans. A* **14A** (1983) p. 2440.
- J. Yao and J.R. Cahoon, *ibid.* **21A** (1990) p. 603.
- D.P. Woodruff and T.A. Delcher, eds., "Desorption-Spectroscopies," *Modern Techniques in Surface Science* (Cambridge University Press, Cambridge, U.K., 1986) p. 279.
- W.Y. Choo and J.Y. Lee, *Metall. Trans. A* **13A** (2) (1982) p. 135.
- H.G. Lee and J.-Y. Lee, *Acta Metall.* **32** (1) (1984) p. 131.
- G.A. Young and J.R. Scully, *Scripta Metall.* **36** (1997) p. 713.
- S. Lee and J. Lee, *Metall. Mater. Trans. A* **17A** (1986) p. 181.
- J.T. Johnson, MS thesis, University of Virginia, 1998.
- J.-S. Chen, V. Radmilovic, and T.M. Devine, *Corros. Sci.* **30** (1990) p. 477.
- R.P. Frankenthal and H.W. Pickering, *J. Electrochem. Soc.* **120** (1973) p. 23.
- T.M. Devine, *Acta Metall.* **36** (1988) p. 1491.
- M.A. Gaudett and J.R. Scully, *J. Electrochem. Soc.* **140** (1993) p. 3425.
- Ibid.*, *Metal. Mater. Trans. A* **25A** (1994) p. 775.
- R.A. Oriani, *Corros. J.* **43** (1987) p. 390.
- R. Durrett and R.H. Schonmann, *Ann. Prob.* **77** (1988) p. 583.
- A.L. Efros, *Physics and Geometry of Disorder: Percolation Theory* (Mir Publishers, Moscow, 1986). □

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