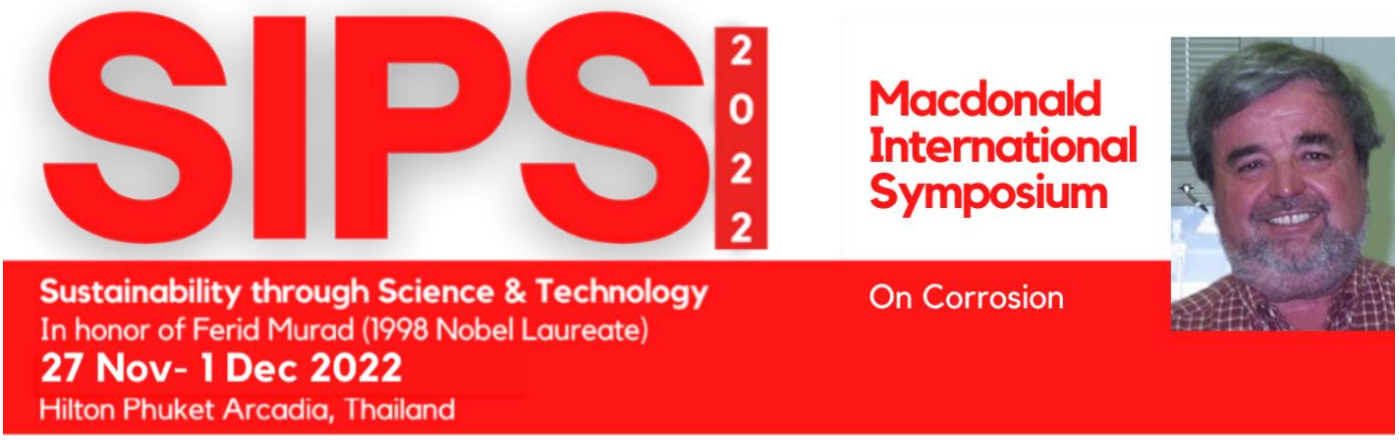

CAREER PUBLICATIONS OF DIGBY D. MACDONALD
Peer Reviewed Journals and Conference Proceedings

1968.

1. D. D. Macdonald and E. Tschuikow-Roux. "Temperature Dependence of Kinetic Isotope Effects in Gas-Phase Reactions. I. Theory of the High-Temperature Limit". *J. Chem. Phys.*, 49(12), 5342-5345 (1968).

1969.

2. J. B. Hyne, D. D. Macdonald and F. L. Swinton. "Thermodynamics of Aqueous Organic Solvent Mixtures of Importance in Gas Processing". *ASR Bulletin*, 6, 14-22 (1969).

1970.

3. D. D. Macdonald and E. Tschuikow-Roux. "Comment on High-Temperature Approximations for Kinetic Isotope Effects". *J. Chem. Phys*., 52(2), 1017-1018 (1970).
4. D. D. Macdonald and G. A. Wright. "Dissolution of Bismuth Metal by Tri-Iodide Ion in Acidified Potassium Iodide Solution". *Can. J. Chem*., 48, 2847-2852 (1970).
5. J. B. Hyne and D. D. Macdonald. "Partial Molal Volume Behavior of Tetra-alkylammonium Chlorides in Aqueous Acetone and Aqueous DimethylSulfoxide". *Can. J. Chem*., 48(15), 2416-2422 (1970).
6. J. B. Hyne and D. D. Macdonald. "The Pressure Dependence of Benzyl Chloride Solvolysis in Aqueous Acetone and Aqueous DimethylSulfoxide". *Can. J. Chem*., 48(16), 2494-2499 (1970).
7. B. Hyne, D. D. Macdonald and F. L. Swinton. "Energy-Volume Coefficients of Alcohol-Water Mixtures". *J. Amer. Chem. Soc*., 92, 6355-6356 (1970).

1971.

8. D. D. Macdonald and D. Owen. "The Dissolution of Magnesium Oxide in Dilute Sulfuric Acid". *Can. J. Chem*., 49, 3375-3380 (1971).

9. D. Dunay, G. Hanlon, J. B. Hyne and D. D. Macdonald. "Properties of the N-Methyl-2-Pyrrolidinone-Water System". *Can. J. Chem. Eng*., 49, 420-423 (1971).
10. J. B. Hyne and D. D. Macdonald. "The Thermal Pressure and Energy-Volume Coefficients of the Methyl Alcohol-Water and t-Butyl Alcohol-Water Systems". *Can. J. Chem*., 49, 2636 (1971).
11. J. B. Hyne, D. D Macdonald and M. D. Smith. "The Influence of Sulfoxides and Sulfones on the Temperature of Maximum Density of Water". *Can. J. Chem*., 49(17), 2817-2821 (1971).

1972.

12. D. D. Macdonald, "The Thermodynamics of Metal-Water Systems at Elevated Temperatures. IV. The Nickel-Water Systems". AECL-4139 (1972). Atomic Energy of Canada Limited.
13. D. D. Macdonald, G. Shierman, and P. Butler. "The Thermodynamics of Metal-Water Systems at Elevated Temperatures. I. The Water and Copper-Water Systems". AECL-4136 (1972). Atomic Energy of Canada Limited.
14. D. D. Macdonald, G. Shierman, and P. Butler. "The Thermodynamics of Metal-Water Systems at Elevated Temperatures. II. The Iron-Water System". AECL-4137 (1972). Atomic Energy of Canada Limited.
15. D. D. Macdonald, G. Shierman, and P. Butler. "The Thermodynamics of Metal-Water Systems at Elevated Temperatures. III. The Cobalt-Water System". AECL-4138 (1972). Atomic Energy of Canada Limited.

1973.

16. D. D Macdonald and D. Owen. "The Electrochemistry of Iron in 1M Lithium Hydroxide Solution at 22° and 200°C". *J. Electrochem. Soc*., 120(3), 317-324 (1973).
17. D. D Macdonald and D. Owen. "Transport Numbers for Hydrochloric Acid at Elevated Temperatures". *Can. J. Chem*., 51, 2747-2749 (1973).
18. D. D. Macdonald and P. Butler. "The Thermodynamics of the Aluminum-Water System at Elevated Temperatures". *Corros. Sci*., 13, 259-274 (1973).
19. D. D. Macdonald and T. E. Rummery. "The Thermodynamics of Metal Oxides in Water Cooled Nuclear Reactors". AECL-4140 (1973). Atomic Energy of Canada Limited.
20. D. D. Macdonald, P. Butler, and D. Owen. "High Temperature Aqueous Electrolyte Concentration Cells and the Ionization of Liquid Water to 200°C". *Can. J. Chem*., 51, 2590-2597 (1973).
21. D. D. Macdonald, P. Butler, and D. Owen. "Hydrothermal Hydrolysis of Al^{3+} and Precipitation of Boehmite from Aqueous Solution". *J. Phys. Chem*., 77(20), 2474-2479 (1973).
22. T. E. Rummery and D. D. Macdonald. "The Thermodynamics of Selected Transition Metal Ferrites in High Temperature Aqueous Systems". AECL- 4577 (1973). Atomic Energy of Canada Limited.

1974.

23. D. D Macdonald. "Cyclic Voltammetry of Copper Metal in Lithium Hydroxide Solution at Elevated Temperatures". *J. Electrochem. Soc*., 121(5), 651-656 (1974).
24. D. D. Macdonald, T. E. Rummery and M. Tomlinson. "Stability and Solubility of Metal Oxides in High Temperature Water". *Thermodyn. Nucl. Mat*., 2, 123-141 (1974).
25. D. D. Macdonald. "Unesco International Instrument on the Status of Scientific Research Workers, A Review and Comments". *New Zealand Science Review*, 31(2), 43-48 (1974).
26. M. E. Estep, J. B. Hyne, D. D. Macdonald and M. D. Smith. "Heats of Solution and the Influence of Solutes on the Temperature of Maximum Density of Water". *J. Soln. Chem*., 3, 713-718 (1974).

1975.

27. D. D. Macdonald and B. E. Roberts. "Corrosion of Carbon Steel and Aluminum in Aqueous Sulfur Systems". *ASR Bulletin*, 12(1), 29-43 (1975).
28. D. D. Macdonald. "Corrosion and Corrosion Control in Condensed Sulphur Containing Systems". *ASR Bulletin*, 11(3,4), 27-38 (1975).
29. D. D. Macdonald. "The Corrosion of Steels by High Temperature Sulphur and Hydrogen Sulphide Gas". *ASR Bulletin*, 12(2), 27-39 (1975).
30. D. D. Macdonald and T.E. Rummery. "Prediction of Corrosion Product Stability in High-temperature Aqueous Systems", *J. Nucl. Mat.*, 55(1), 23-32(1975).
31. D. D. Macdonald and T. E. Rummery. "The Growth of Iron Oxide Films on Carbon Steel and Platinum Surfaces in LiOH and NaOH Solutions at 285°C". *Corros. Sci*., 15, 521-527 (1975).
32. D. D. Macdonald, "The Electrochemistry of Metals in Aqueous Systems at Elevated Temperatures". Chapter 4 in *Modern Aspects of Electrochemistry*, 11, 141 (1975). (Edited by J. O'M. Bockris and B. E. Conway. Plenum, NY).
33. T. E. Rummery and D. D. Macdonald. "Prediction of Corrosion Product Stability in High Temperature Aqueous Systems". *J. Nuclear Mat*., 55, 23-32 (1975).

1976.

34. F. M. Barton and D. D. Macdonald. "The Effect of Temperature and Pressure on Reactions in Solution". Chapter XIV, Part 2 in *Techniques in Chemistry*. Edited by M.J.R. Dack and A. Weissberger. 8. Wiley-Interscience, NY (1976).
35. B. Dolan, J. B. Hyne and D. D Macdonald. "The Influence of Substituted Alcohols on the Temperature of Maximum Density of Water". *J. Soln. Chem*. 5(6), 405-416 (1976).
36. D. D. Macdonald. "Electrochemical Corrosion Studies at Elevated Temperatures - The Problem of Reference Electrodes", *ASR Bulletin*, 13(1,2), 12-20 (1976).
37. D. D. Macdonald. "Excess Thermal-Pressure and Energy-Volume Coefficients for Binary Systems". *Can. J. Chem*., 54, 3559-66 (1976).
38. D. D. Macdonald. "The Thermodynamics and Theoretical Corrosion Behavior of Manganese in Aqueous Systems at Elevated Temperatures". *Corros. Sci*., 16, 461-482 (1976).
39. D. D. Macdonald and B. E. Roberts. "The Mechanism of Formation of Thin Oxide Films on Iron in Aqueous Solution". *ASR Bulletin*, 12(4), 17-26 (1976).

40. D. D. Macdonald and D. Owen. "The Electrochemistry of Nickel Metal in Lithium Hydroxide Solutions at 22, 170, and 250°C". *Proc. Conf. High Temperature High Pressure Electrochemistry in Aqueous Solutions*. Edited by R. W. Staehle, D. de G. Jones, and J. E. Slater. National Association of Corrosion Engineers, Houston (1976).
41. D. D. Macdonald. "Cyclic Voltammetry of Monel 400 in Lithium Hydroxide Solution at Elevated Temperatures". *Electrochim. Acta*, 21, 169-174 (1976).
42. D. D. Macdonald. "Report on the NACE Corrosion/76 Conference". *ASR Bulletin*, 12(4), 8-16 (1976).
43. D. Grant-Taylor and D. D. Macdonald. "Thermal Pressure and Energy-Volume Coefficients for the Acetonitrile + Water System", *Can. J. of Chem*., 54, 17-24 (1976).
44. J. B. Hyne and D. D. Macdonald. "The Interrelationship Between Partial Molal Expansibility and the Solute Induced Shift in the Temperature of Maximum Density of Water". *Can. J. Chem*., 54(19), 3073-3076 (1976).
45. K.M. Chapman and D.D. Macdonald. "Thermal pressure and energy-volume coefficients for dimethyl sulfoxide+methanol", *J. Chem. Thermo.*, 8(7), 675-682 (1976).
46. M. Estep, J. B. Hyne and D. D Macdonald. "Enthalpies of Solution of Tetramethylammonium Chloride in Aqueous-Organic Binary Solvent Systems". *J. Soln. Chem*., 6(7) 56 (1976).

1977.

47. D. D. Macdonald. "Reply to comment: A Problem in Extracting Structure Information from the Temperature of Maximum Density for Aqueous Solutions". *Can. J. Chem*., 55(5), 800-801 (1977).
48. J. W. Greidanus, J. B. Hyne and D. D. Macdonald. "Hydrothermal (Water) Reactions of Athabasca Bitumen Organosulphur Model Compounds and Asphaltene". *AGARD Conf. Proc. the Oil Sands of Canada – Venezuela*, 17, 162-167 (1977).

1978.

49. D. D. Macdonald, B. C. Syrett and S. S. Wing. "Methods for Measuring Corrosion Rates for Copper-Nickel Alloys in Flowing Seawater". *CORROSION78*, Paper # 25. (1978). (NACE, International, Houston, TX).
50. D. D. Macdonald, B. C. Syrett and S. S. Wing. "The Corrosion of Copper-Nickel Alloys 706 and 715 in Flowing Seawater. - I. Effect of Oxygen". *Corrosion*, 34(9), 289-301 (1978).
51. D. D. Macdonald and B. C. Syrett. "A Thermodynamic Analysis of Corrosion Phenomena in High Salinity Geothermal Brines". *Proc. Symp. on Materials for Geothermal Systems*. (May 1978). Lakeway, Texas.
52. D. D. Macdonald and B. Roberts. "A Potentiostatic Transient Study of the Passivation of Carbon Steel in 1 M NaOH", *Electrochim Acta*, 23(6), 557-564 (1978).

53. D. D. Macdonald and B. Roberts. "The Cyclic Voltammetry of Carbon Steel in Concentrated Sodium Hydroxide Solution". *Electrochim. Acta*, 23, 781-786 (1978).
54. D. D. Macdonald. "A Method for Estimating Impedance Parameters for Electrochemical Systems that Exhibit Pseudoinductance". *J. Electrochem. Soc*., 125(12), 2062-2064 (1978).
55. D. D. Macdonald. "An Impedance Interpretation of Small Amplitude Cyclic Voltammetry. II. Theoretical Analysis of Systems that Exhibit Pseudoinductive Behavior". *J. Electrochem. Soc*., 125(12), 1977-1981 (1978).
56. D. D. Macdonald. "An Impedance Interpretation of Small Amplitude Cyclic Voltammetry. I. Theoretical Analysis for a Resistive-Capacitive System". *J. Electrochem. Soc*., 125(9), 1443-1449 (1978).
57. D. D. Macdonald. "Reference Electrodes for High Temperature Aqueous Systems - A Review and Assessment". *Corrosion*, 34(3), 75-84 (1978).
58. J. B. Hyne, D. D. Macdonald and A. McLean. "The Influence of Aliphatic Diols on the Temperature of Maximum Density of Water". *J. Soln. Chem*., 7(2), 63-71 (1978).
59. J. B. Hyne, D. D. Macdonald and B. Roberts. "Corrosion of Carbon Steel by Wet Elemental Sulphur*". Corros. Sci*., 18, 411-425 (1978).
60. J. B. Hyne, D. D. Macdonald and B. Roberts. "Corrosion of Carbon Steel During Cyclical Exposure to Wet Elemental Sulphur and the Atmosphere". *Corros. Sci*., 18, 499-501 (1978).
61. J. B. Hyne, R. Lohmuller, D. D. Macdonald and M. Mackinnon. "The Volume of Activation for Benzyl Chloride Hydrolysis and its Pressure Dependence". *Can. J. Chem*., 56(13), 1739-1745 (1978).

1979.

62. D. D. Macdonald and B. C. Syrett. "Potential-pH Diagrams for Iron and Nickel in High-Salinity Geothermal Brine Containing Low Concentrations of Hydrogen Sulfide". *Corrosion*, 35(10), 471-475 (1979).
63. D. D. Macdonald and B. C. Syrett. "The Validity of Electrochemical Methods for Measuring Corrosion Rates of Copper-Nickel Alloys in Seawater". *Corrosion*, 35(11), 505-509 (1979).
64. D. D. Macdonald, A. C. Scott and P. R. Wentrcek. "External Reference Electrodes for Use in High Temperature Aqueous Systems". *J. Electrochem. Soc*., 126, 908-911 (1979).
65. D. D. Macdonald, A. C. Scott and P. R. Wentrcek. "Silver-Silver Chloride Thermocells and Thermal Liquid Junction Potentials for Potassium Chloride Solutions at Elevated Temperatures". *J. Electrochem. Soc*., 126(9), 1618-1624 (1979).
66. D. D. Macdonald, B. C. Syrett and S. S. Wing. "Corrosion of Copper-Nickel Alloys in Sea Water Polluted with Sulfide and Sulfide Oxidation Products". *CORROSION79*, Paper #233. (March 12-16, 1979). (NACE, International, Houston, TX).

67. D. D. Macdonald, B. C. Syrett and S. S. Wing. "Corrosion of Copper-Nickel Alloys in Sea Water Polluted with Sulfide and Sulfide Oxidation Products". *Corrosion,* 35(9), 409-422 (1979).
68. D. D. Macdonald, B. C. Syrett and S. S. Wing. "The Corrosion of Cu-Ni Alloys 706 and 715 in Flowing Seawater - II. Effect of Dissolved Sulfide". *Corrosion*, 35(8), 367-378 (1979).
69. D. D. Macdonald, B. C. Syrett and S. S. Wing. "The Use of Potential-pH Diagrams for the Interpretation of Corrosion Phenomena in High Salinity Geothermal Brines". *Corrosion,* 35(1), 1-11 (1979).
70. D. D. Macdonald. "Reply to Comments on: A Method for Estimating Impedance Parameters for Electrochemical Systems that Exhibit Pseudoinductance". *J. Electrochem. Soc*., 126(6), 1082-1083 (1979).
71. D. D. Macdonald, B.G. Pound and J.W. Tomlinson. "The Electrochimistry of Silver in KOH Solutions at Elevated Temperatures – I. Thermodynamics", *Electrochim. Acta,* 24(9), 929-937 (1979).
72. J. B. Hyne, D. D. Macdonald and A. McLean. "The Influence of Cyclic Alcohols on the Temperature of Maximum Density of Water". *J. Soln. Chem*., 8(2), 97-103 (1979).

1980.

73. D. D. Macdonald, "Electrochemical Thermodynamics of Water-Cooled Nuclear Reactor Heat-Transport Circuits". *Proc. Intl. Conf. on Water Chemistry of Nuclear Reactor Systems*. (October 1980), Bournemouth, England.
74. D. D. Macdonald and M. C. H. McKubre. "The Rotating Cylinder-Collector Electrode (RCCE)". *J. Electrochem. Soc*., 127(3), 632-640 (1980).
75. R. W. Barlett and D. D. Macdonald. "High Temperature Equilibrium Estimates for the Zinc-Sulfur Hydrometallurgical System". *Proc. 109th AIME Annual Meeting*. (1980). Las Vegas, Nevada.
76. D. D. Macdonald and M. C. H. McKubre. "Temperature Limitations of Alkaline Battery Electrodes". *Proc. 15th Intersociety Energy Conversion Engineering Conf.* (August 1980). Seattle, WA, p 1207-1214, (1980).
77. D. D. Macdonald, H. Shih and B. C. Syrett. "Pitting Resistance of Engineering Materials in Geothermal Brines - I. Low Salinity Brine". *Corrosion,* 36, 130-138 (1980).
78. D. D. Macdonald, A. C. Scott and P. R. Wentrcek. "The Measurement of pH in Aqueous Systems at Elevated Temperatures using Palladium-Hydride Electrodes". *J. Electrochem. Soc*., 127(8), 1745-1751 (1980).
79. D. D. Macdonald, "Recent Advances in the Study of Electrochemical and Corrosion Phenomena in High Temperature Aqueous Systems". *Proc. 2nd Int'l. Symp. on Industrial and Oriented Basic Electrochemistry*. (1980). SAEST, Madras, India.
80. D. D. Macdonald, A. C. Scott and P. R. Wentrcek. "Measurement of pH in Simulated Water-Cooled Nuclear Reactor Heat Transport Circuits". *CORROSION80*, Paper 177. (1980). (NACE, International, Houston, TX).

81. D. D. Macdonald, B. G. Pound and J. W. Tomlinson. "The Electrochemistry of Silver in KOH at Elevated Temperatures – III. Potentiostatic Study", *Electrochim. Acta*, 25(10), 1293-1296 (1980).
82. D. D. Macdonald, B. G. Pound and J. W. Tomlinson. "The Electrochemistry of Silver in KOH at Elevated Temperatures – II. Cyclic Voltammetry and Galvanostatic Charging Studies", *Electrochim. Acta*, 25(5), 563-573 (1980).
83. R. W. Bartlett, E. Farley and D. D. Macdonald. "Extraction of Nonferrous Metals from High Salinity Goethermal Brine by Sulfide Precipitation", *Proc. ASTM STP, AIME Ann. Meeting,* Las Vegas, Feb. 24-28 (1980), 10p.

1981.

84. C. Y. Chao, S. J. Lenhart and D. D. Macdonald. "An Electrochemical and Morphological Study of the Restructuring and Loss of Capacity of Alkaline Battery Electrodes". Proc. 16th Intersociety Energy Conversion Engineering Conf. (August 9-14, 1981). Atlanta, Georgia, 1, 663-666 (1981).
85. C. Y. Chao, L. F. Lin, and D. D. Macdonald. "A Point Defect Model for Anodic Passive Films - (I) Film Growth Kinetics". *J. Electrochem. Soc*., 128(6), 1187-1194 (1981).
86. D. D. Macdonald, A. C. Scott, and P. Wentrcek. "Redox Potential Measurements in High Temperature Aqueous Systems". J. Electrochem., Soc., 128, 250-257 (1981).
87. D. D. Macdonald, R. P. Singh and B. K. Sundarara. "Thermodynamics of Alkaline Battery Systems," *Proc. 16th Intersoc. Energy Convers. Eng. Conf*., 1, 658-662 (1981). (ASME, NY).
88. D. D. Macdonald, T. Mizuno, S. Pednekar and Z. Szklarska-Smialowska. "Corrosion and Stress Corrosion Cracking Behavior of Plain-Carbon Steels in BWR Environments". *CORROSION81*, (April 1981). Toronto, Canada. (NACE, International, Houston, TX).
89. D. D. Macdonald and M. C. H. McKubre. "Temperature Limitations of Battery Electrodes". *J. Energy*, 5, 368-375 (1981).
90. D. D. Macdonald and M. C. H. McKubre. "The Dissolution and Passivation of Zinc in Concentrated Aqueous Hydroxide". *J. Electrochem. Soc*., 128, 524-530 (1981).
91. D. D. Macdonald and M.C.H. McKubre. "Electrochemical Impedance Techniques in Corros. Sci.". *Proc. ACS Symp. On Corrosion in Technological Environments*. ASTM STP No. 727. (1981). (Amer. Soc. For Testing and Materials, Philadelphia, PA.).
92. D. D. Macdonald. "Thermodynamics of Corrosion for Geothermal Systems". *Proc. ACS Symp. on Corrosion in Technological Environments*. Special Technical Publication # 717. (1981). Philadelphia, PA. Amer. Soc. For Testing and Materials.
93. G. Cragnolino, L. F. Lin, D. D. Macdonald and Z. Szklarska-Smialowska. "Stress Corrosion Cracking of Sensitized Type 304 Stainless Steel in High Temperature Chloride Solutions". *Corrosion*, 37, 616 (1981).

94. J. A. Begley, J. O'M. Bockris, J. Kruger, D. D. Macdonald, F. B. Mansfeld, P. R. Rhodes and R. W. Staehle. "Aqueous Corrosion Problems in Energy Systems". *Mat. Sci. Eng*., 50, 19-42 (1981).
95. L. F. Lin, C. Y. Chao, and D. D. Macdonald. "A Point Defect Model for Anodic Passive Films - (II) Chemical Breakdown and Pit Initiation". *J. Electrochem. Soc*., 128(6), 1194-1198 (1981).
96. Macdonald, M.C.H. McKubre, A. C. Scott, and P. R. Wentrcek. "Continuous In Situ Method for the Measurement of Dissolved Hydrogen in High Temperature Aqueous Systems". *Ind. Eng. Chem. Fund*., 20, 290-297 (1981).
97. S. Jin, A. Boateng, and D. D. Macdonald. "An Investigation of Stress Corrosion Cracking of ASTM A470 NiCrMoV Turbine Rotor Steel in NaCl Solutions". *Proc. AIME Annual Meeting.* (February 1981). Chicago. American Institute of Mining, Metallurgical and Petroleum Engineers.
98. Tsuruta, T., and D. D. Macdonald. "Measurement of pH and Redox Potential in Boric Acid/Lithium Hydroxide Buffer Solutions at Elevated Temperatures". *J. Electrochem. Soc*., 128, 1199-1203 (1981).

1982.

99. A. Boateng, D. D. Macdonald and S. Somuah. "Stress Corrosion Cracking of Turbine Rotor Steels". *Proc. the AIME Annual Meeting*. (1982). Dallas, American Institute of Mining, Metallurgical and Petroleum Engineers.
100. B. Bavarian, A. Moccari, and D. D. Macdonald. "Inhibition of Stress Corrosion Cracking of Type 403 Stainless Steel in Sodium Sulfate Solutions", *Corrosion*, 38(2), 104-116 (1982).
101. C.-Y. Chao, L. F. Lin, and D. D. Macdonald. "A Point Defect Model for Anodic Passive Films - (III) Impedance Response". *J. Electrochem. Soc*., 129(9), 1874-1879 (1982).
102. C.-Y. Chao, D. D. Macdonald and Z. Szklarska-Smialowska. "The Passivity of Nickel in Phosphate Solutions - (I) Effect of Temperature". *J. Electroanal. Chem*., 131, 279-287 (1982).
103. D. Macdonald, B. G. Pound and J. W. Tomlinson. "The Electrochemistry of Silver in KOH at Elevated Temperatures. IV. *AC* Impedance Study". *Electrochim. Acta*, 27(10), 1489-1500 (1982).
104. D. D. Macdonald, T. Mizuno, S. Pednekar and Z. Szklarska-Smialowska. "Stress Corrosion Cracking Behavior of Carbon Steel in High Purity Water at 100 to 288°C". Corrosion/82, NACE Annual Conference and Corrosion Show. Paper # 244. (NACE, International, Houston, TX).
105. D. D. Macdonald, A. Moccari and W. T. Tsai. "Effect of Silicate and Phosphate on the Fatigue Crack Growth Rates in Type 403 Stainless Steel in Concentrated Sodium Chloride and Sodium Hydroxide Solutions", Corrosion/82, Paper # 249 (NACE International, Houston, TX).
106. D. D. Macdonald and J.-R. Park. "Impedance Studies of the Growth of Porous Magnetite Films on Carbon Steel in High Temperature Aqueous Systems", EPRI NP 2791, 1-12 (1982). (Electric Power Research Institute, Palo Alto, CA).
107. D. D. Macdonald and M.C.H. McKubre. "Impedance Measurements in Electrochemical Systems". Chapter 2 in *Modern Aspects of Electrochemistry*. 14:

61(1982). Edited by J. O'M. Bockris, B. E. Conway, and Ralph E. White. Plenum Press, NY.

108. G. Cragnolino, and D. D. Macdonald. "Intergranular Stress Corrosion Cracking of Austenitic Stainless Steel at Temperatures Below 100°C - A Review". Corrosion, 38(8), 406-424 (1982).
109. H. Choi, F. H. Beck, Z. Szklarska-Smialowska, and D. D. Macdonald. "Stress Corrosion Cracking of ASTM A508 Cl 2 Steel in Oxygenated Water at Elevated Temperatures". Corrosion, 38, 136-144 (1982).
110. H. Choi, F. H. Beck, Z. Szklarska-Smialowska, and D. D. Macdonald. "The Effect of Fluid Flow on the Stress Corrosion Cracking of ASTM A508 Cl 2 Steel and AISI Type 304 Stainless Steel in High Temperature Water". *Corrosion*, 38, 76 (1982).

1983.

111. D. D. Macdonald, "Recent Advances in Defining Corrosion Phenomena in Water-Cooled Nuclear Reactors". *Proc. 3rd Asian -Pacific Corrosion Control Conf.* pp. 29-49. (June 19-26, 1983). Taipei, Taiwan, ROC.
112. D. D. Macdonald, Ahmad Moccari, and W.-T. Tsai. "Effect of Silicate and Phosphate on the Fatigue Crack Growth Rates in Type 403 Stainless Steel in Concentrated Sodium Chloride and Sodium Hydroxide Solutions". *Corrosion*, 39(1), 1-12 (1983).
113. D. D. Macdonald, T. Mizuno, S. Pednekar and Z. Szklarska-Smialowska. "Corrosion and Stress Corrosion Cracking of Carbon Steel in Oxygenated, High Purity Water at Elevated Temperatures". Proc. Int'l. Symp. Env. Deg. Mat. Nuclear Power Syst-Water Reactors. pp. 395-422. (August 22-25, 1983). Myrtle Beach, South Carolina.
114. D. D. Macdonald. "The Kinetics of Corrosion Processes". *Encyclopedia of Materials Science and Engineering*. Pergamon Press, London (1983).
115. G. Cragnolino, S. Dhawale and D. D. Macdonald. "Stress Corrosion Cracking of Sensitized Austenitic Stainless Steels in the Presence of Metastable Sulfur Oxyanions". Proc. Memorias De La VI Reunion Latinoamericana De Electroquimica Y Corrosion. (May 15-20, 1983). Oaxtepec, Mexico.
116. H. C. Park, G. Cragnolino, and D. D. Macdonald. "Stress Corrosion Cracking of Sensitized Type 304 SS in Borate Solutions at Elevated Temperatures". Proc. Int'l. Symp. Env. Deg. Mat. Nuclear Power Syst-Water Reactors. p. 604-622. (August 22-25, 1983). Myrtle Beach, South Carolina.
117. H. Chung and D. D. Macdonald. "Study of Transient Crack Growth in AISI 4340 Steel in NaCl Solution", Corrosion/83, Paper # 21, 20p (1983). (NACE, Houston, TX).
118. H. J. Choi, Y-H Hu, M. Karaminezhaad-Ranjbar, J. Mankowski, F. H. Beck, Z. Szklarska-Smialowska, and D. D. Macdonald. "The Effect of Flow Velocity on Pitting Corrosion and Stress Corrosion Cracking of Reactor Materials". *Proc. Int'l. Symp. Env. Deg. Mat. Nuclear Power Syst-Water Reactors*. p. 532-570. (August 22-25, 1983). Myrtle Beach, South Carolina.

119. J. R. Park and D. D. Macdonald. "Impedance Studies of the Growth of Porous Magnetite Films on Carbon Steel in High Temperature Aqueous Systems". *Corros. Sci*., 23(4), 295-315 (1983).
120. L. S. Hwang, A. Boateng, and D. D. Macdonald. "Silver-Silver Chloride Thermocells and Thermal Liquid Junction Potentials for Sodium Chloride Solutions at Elevated Temperatures". *Proc. Symp. Corr. Batteries and Fuel Cells and Corr. Solar Energy Systs*., 83-1, 492-501 (1983). Edited by C. J. Johnson and S. L. Pohlman. The Electrochemical Society, Inc., Pennington, N.J.
121. R. C. Alkire, J. A. Bett, A. Fickett, D. D. Macdonald, L. D. Schmidt, H.L. Tuller, G. W. Wiener and E. B. Yeager. "Fuel Cell Materials Technology in Vehicular Propulsion", NMAB Publ., 1983, 196p. (Natl. Res. Council./Nat. Mater. Advis. Board, Washington, D.C.).
122. S. Somauh, P. Chung, A. Boateng, Z. Szklarska-Smialowska, A. Moccari, H. Gayley, and D. D. Macdonald. "Stress Corrosion Cracking of ASTM A470 Turbine Disc Steel in LP Steam Turbine Environments". Proc. Int'l. Symp. Env. Deg. Mat. Nuclear Power Syst-Water Reactors. p. 479-505. (August 22-25, 1983). Myrtle Beach, South Carolina.
123. T. Mizuno, S. Pednekar, Z. Szklarska-Smialowska, and D. D. Macdonald. "Corrosion and Stress Corrosion Cracking of Carbon Steel in Oxygenated High Purity Water at Elevated Temperatures". Proc. Int'l. Symp. Env. Deg. Mat. Nuclear Power Syst-Water Reactors. pp. 395-422. (August 22-25, 1983). Myrtle Beach, South Carolina.

1984.

124. K Eghan, D. D. Macdonald and Z. Szklarska-Smialowska. "Stress Corrosion Cracking of Sensitized Type 304 Stainless Steel in Oxygenated High Temperature Chloride Solutions Containing Cupric (Cu^{2+}) and Lead (Pb^{2+}) Ions", *CORROSION84*, Paper # 163, 21p (1984). (NACE, Houston, TX).
125. D. D. Macdonald, B. G. Pound and R. P. Singh. "Extension of Potential-pH Diagrams to Concentrated Aqueous Solutions". *Proc. Symp. on Equilib. Diagrams and Localized Corrosion. Proc. Honoring Prof. Marcel Pourbaix on his Eightieth Birthday*, 84-2, 69 (1984). Edited by R. P. Frankenthal and J. Kruger. The Electrochemical Society, Inc., Pennington, N.J. Pennington, NJ.
126. D. D. Macdonald, B. G. Pound and M. Urquidi. "Point Defect Model for the Growth and Breakdown of Passive Films on Metal Surfaces". *Proc. Australian Corrosion Conf.* (November 1984). Rotorua, NZ.
127. D. D. Macdonald and M. C. H. McKubre. "Electronic Instrumentation for Electrochemical Studies", in *Comprehensive Treatise of Electrochemistry*, Plenum Press, N. Y., 1984, pp. 1-98.
128. G. A. Fuller and D. D. Macdonald. "The Effect of Fluid Flow on the Stress Corrosion Cracking of AISI 304 Stainless Steel in 0.01 M Na_2SO_4 Solution at 280°C". *Corrosion*, 40(9), 474-477 (1984).
129. G. Cragnolino, and D. D. Macdonald. "Stress Corrosion Cracking of Sensitized Type 304 Stainless Steel in High Temperature Aqueous Solutions". *Proc. Int'l. Conf. Met. Corros.* 2, 185-201 (1984).

130. H. S. Betrabet, W.A.T. Clark, W. B. Johnson and D. D. Macdonald. "Potential - pH Diagrams for the Tantalum-Water System at Elevated Temperatures". *Proc. Symp. on Equilib. Diagrams and Localized Corrosion. Proc. Honoring Prof. Marcel Pourbaix on his Eightieth Birthday*, 84-2: 83 (1984). Edited by R. P. Frankenthal and J. Kruger. The Electrochemical Society, Inc., Pennington, N.J. Pennington, NJ.
131. M. Karaminezhaad-Ranjbar, J. Mankowski, and D. D. Macdonald, "Pitting Corrosion of Inconel 600 in High Temperature Chloride Solutions Under Controlled Hydrodynamic Conditions", *Corrosion/84*, Paper 168, 15p (1984). (NACE, Houston, TX).
132. P. Chung, A. Yoshitake, G. Cragnolino, and D. D. Macdonald, "Environmentally-Controlled Crack Growth Rate of Type 304 Stainless Steel in High Temperature Sulfate Solutions", *Corrosion/84*, Paper 166, 29p (1984). (NACE, Houston, TX).
133. R. Liang, D. D. Macdonald and B. Pound. "Impedance Analysis of Passive Films on Single Crystal Nickel". *Proc. Electrochem. Soc*., 84-2. 357 (1984).
134. R. Wang, L. S. Lee, and D. D. Macdonald, "Development of Reference Electrodes for High Temperature Aqueous Systems", *Proc. Electrochem. Soc.*, 84-1, 13 (1884).
135. S. Hettiarachchi, and D. D. Macdonald. "Ceramic Membranes for Precise pH Measurements in High Temperature Aqueous Environments". *J. Electrochem. Soc*., 131(9), 2206-2207 (1984).
136. S. J. Lenhart, D. D. Macdonald and B. G. Pound. "Restructuring of Porous Nickel Electrodes". *Proc. 19th IECEC Conf*. pp. 875-880. (1984). (ANS, LaGrange Park, IL).
137. W.-T. Tsai, A. Moccari, Z. Szklarska-Smialowska, and D. D. Macdonald. "Effect of Potential on the Corrosion Fatigue Crack Growth Rate in AISI 304 Stainless Steel in Sodium Sulfate Solution at 250°C". *Corrosion*, 40(11), 573-583 (1984).
138. W.-T. Tsai, A. Moccari, Z. Szklarska-Smialowska, and D. D. Macdonald, "Effect of Potential on the Corrosion Fatigue Crack Growth Rate in Type 304 Stainless Steel in Sodium Sulfate Solution at 250 Degrees C"., *CORROSION84*, Paper # 127, 16p (1984). (NACE, Houston, TX).

1985.

139. K. Eghan, D. D. Macdonald and Z. Szklarska-Smialowska. "Stress Corrosion Cracking of Sensitized AISI 304 Stainless Steel in Oxygenated High Temperature Chloride Solutions Containing Cupric (Cu^{2+}) and Lead (Pb^{2+}) Ions". *Corrosion*, 41(8), 474-484 (1985).
140. D. D. Macdonald and A. Moccari. "Electrochemical Screening of Organic and Inorganic Inhibitors for the Corrosion of ASTM-A-470 Steel in Concentrated Sodium Hydroxide Solution". *Corrosion*, 41(5), 264-273 (1985).
141. D. D. Macdonald and M. Urquidi. "Solute/Vacancy Interaction Model for the Effect of Minor Alloying Elements on the Breakdown of Passive Films". *Proc. Electrochem. Soc*., 85-1, 29-30 (1985).
142. M. Urquidi and D. D. Macdonald, "Solute-Vacancy Interaction Model and the Effect of Minor Alloying Elements on the Initiation of Pitting Corrosion", J. Electrochem. Soc., 132, 555 (1985).

143. D. D. Macdonald and M. Urquidi-Macdonald. “Application of Kramers-Kronig Transforms in the Analysis of Electrochemical Systems. I. Polarization Resistance”. *J. Electrochem. Soc*., 132(10), 2316-2319 (1985).
144. D. D. Macdonald and M. Urquidi-Macdonald. “Distribution Functions for the Breakdown of Passive Films”. *Proc. 1985 Fischer-Symposium*. pp. 1-25. (June 1985). University of Kahlsruhe, Kahlsruhe, Federal Republic of Germany.
145. D. D. Macdonald. “Electrochemistry of Passive Films”. *Proc. NATO Advanced Workshop, Physics and Chemistry of Fracture*. (1985). Bad Reichenhall, FRG.
146. D. Harrington, K. H. Lee, D. D. Macdonald, A. Moccari and M. Urquidi. “The Development and Evaluation of Aluminum Alloys Fuels for Aluminum/Air Batteries”. *Proc. Electrochem. Soc*., 85-1, 777-8 (1985).
147. G. Cragnolino, K. H. Lee and D. D. Macdonald. “Effect of Heat Treatment Applied Potential on the Caustic Stress Corrosion Cracking of Inconel 600”. *Corrosion,* 41(9), 540-553 (1985).
148. G. Cragnolino, X. Liu, D. D. Macdonald and J. Shao. “Selective Grain Boundary Dissolution of Alloy 600 in a Concentrated Caustic Solution at 140°C”. *J. Mat. Energy Syst.,* 7(3), 223-236 (1985).
149. H. Chung and D. D. Macdonald. “A Study of Transient Crack Growth in AISI 4340 Steel in NaCl Solution”. *Corrosion,* 41(3), 151-159 (1985).
150. M. Karaminezhaad-Ranjbar, J. Mankowski, and D. D. Macdonald. “Pitting Corrosion of Inconel 600 in High Temperature Chloride Solution Under Controlled Hydrodynamic Conditions”. *Corrosion,* 41(4), 197-204 (1985).
151. P. C., Chung, G. Cragnolino, and D. D. Macdonald. “Instrumented Loading Devices for Monitoring Environmentally Assisted Crack Growth in High Temperature Aqueous Systems”. *Corrosion,* 41(3), 179-183 (1985).
152. P. C. Chung, G. Cragnolino, D. D. Macdonald and A. Yoshitake. “Environmentally-Controlled Crack Growth Rate of AISI 304 Stainless Steel in High Temperature Sulfate Solutions”. Corrosion, 41(3), 159-168 (1985).
153. S. Hettiarachchi, P. Kedzierzawski, and D. D. Macdonald. “pH Measurements of High Temperature Aqueous Environments with Stabilized Zirconia Membranes”. *J. Electrochem. Soc*., 132(8), 1866-1870 (1985).
154. S. K. Somuah, and D. D. Macdonald. “Performance of NiCrMoV Turbine Rotor Steels in Sodium Sulfate Solutions”. *Br. Corr. J.,* 20, 45 (1985).
155. W. A. T. Clark, W. B. Johnson, D. D. Macdonald, T. A. Mozhi and K. Nishimoto. “The Effect of Nitrogen on the Sensitization of AISI 304 Stainless Steel”. *Corrosion,* 41, 555-559 (1985).
156. D. D. Macdonald and M. Urquidi, “Transforms in the Analysis of Electrochemical Impedance Data”, *Proc. DOE/BES Corrosion Contractor’s Workshop,* Sandia National Laboratory, Albuquerque, NM (Sept. 1985).
157. D. D. Macdonald, and G. Cragnolino. “The Critical Potential for the IGSCC of Sensitized Type 304 SS in High Temperature Aqueous Systems”. *Proc. 2nd Int’l. Symp. Env. Deg. Mat. Nucl. Power Syst. - Water Reactors*. (September 9-12, 1985). Monterey, CA., ANS.
158. D. M. Rote, A. B. Hull, G. S. Was, D. D. Macdonald, B. E. Wilde, J. E. Russell, J. Kruger, W. Harrison and D. F. Hambley. “Radioactive Waste Isolation in Salt: Peer Review of Westinghouse Electric Corporation’s Report on Reference

Conceptual Designs for a Repository Waste Package". *ANL/EES-TM-292. Report*, sponsored by DOE. Contract W-31-109-ENG-38. (1985).

159. D. D. Macdonald. "The Electrolyte-Iron Interface". Chapter in Hydrogen Degradation of Ferrous Alloys. Edited by R. A. Oriani, J. P. Hirth, and M. Smialowski. Noyes Publishing, Park Ridge, NJ (1985).

1986.

160. B. G. Pound, D. D. Macdonald and R. P. Singh. "A Thermodynamic Framework for Estimating the Efficiencies of Alkaline Batteries". *J. Power Sources*, 18, 1-31 (1986).
161. D. D. Macdonald, S. Real and M. Urquidi-Macdonald. "Application of Kramers-Kronig Transforms in the Analysis of Electrochemical Impedance Data. II. Transformations in the Complex Plane". *J. Electrochem. Soc*., 133(10), 2018-2024 (1986).
162. D. D. Macdonald, S. Real and M. Urquidi-Macdonald. "Application of Kramers-Kronig Transforms in the Analysis of Electrochemical Impedance Data". *Proc. Electrochem. Soc*., 86-1, 827-8 (1986).
163. D. D. Macdonald, S. Real and M. Urquidi-Macdonald. "The Electrochemistry of Aluminum Anodes for Aluminum/Air Batteries". *Proc. Electrochem. Soc*., 86-1, 907-8 (1986).
164. D. D. Macdonald, "Corrosion in Nuclear Power Systems". *Proc. U.S./Taiwan Corros. Symp.* (December 1986). Taipei, Taiwan.
165. D. D. Macdonald and M. Urquidi-Macdonald. "Distribution Functions for the Breakdown of Passive Films". *Proc. Electrochem. Soc*., 86-1, 4-5 (1986).
166. D. D. Macdonald and M. Urquidi-Macdonald. "Distribution Functions for the Initiation of Pitting Attack on Passive Alloys". *Ind. J. Tech*., 24, 485-491 (1986).
167. D. D. Macdonald et al. "New Horizons in Electrochemical Science and Technology". *NRC (Nat. Acad. Sci.). Report NMAB* 438-1, Nat. Mat. Adv. Board (1986).
168. D. D. Macdonald. "Chemical Interpretation of Corrosion Processes in Geothermal Brines". Proc. Intl. Symp. Utilization Geothermal Energy. November 1986. Sendai, Japan, MITI; pp. 248-273.
169. D. D. Macdonald. "Corrosion in Marine Systems". *Proc. U.S./Taiwan Corros. Symp*. (December 1986). Taipei, Taiwan; pp. 273-360.
170. D. D. Macdonald. "Corrosion in Nuclear Power Systems". *Proc. U.S./Taiwan Corros. Symp*. (December 1986). Taipei, Taiwan; pp. 1-122.
171. D. D. Macdonald. "Impedance Measurements for Corrosion Monitoring", in Critical Issues in Reducing the Corrosion of Steels, (Nikko, Japan), Publ. NSF, Washington, D.C., and NACE, Houston, TX, 1986. pp. 326-347.
172. S. J. Lenhart, D. D. Macdonald and M. Urquidi-Macdonald. "Recent Developments in the Point Defect Model for the Growth and Breakdown of Passive Film". Proc. Int'l. Symp. Honoring Dr. Norman Hackerman 75th Birthday: Surfaces, Inhibition and Passivation. Edited by E. McCafferty and R. J. Brodd. Pennington, NJ. 86-7, 402-436. (1986). The Electrochemical Society.

1987.

173. D. D. Macdonald and M. C. H. McKubre. "Impedance Measurement Techniques". Chapter in *Impedance Spectroscopy*. Edited by J. R. Macdonald. Wiley Interscience, NY (1987).
174. D. D. Macdonald and M. Urquidi-Macdonald. "Deterministic Models for the Distributions in Passivity Breakdown Parameters". *Key Eng. Mats*., 20-28, 3875-3894 (1987).
175. D. D. Macdonald and M. Urquidi-Macdonald. "Distribution Functions for the Breakdown of Passive Films". *Electrochim. Acta*, 31, 1079 (1987).
176. D. D. Macdonald and M. Urquidi-Macdonald. "Theoretical Distribution Functions for Breakdown of Passive Films". *J. Electrochem. Soc*., 134(1), 41-46 (1987).
177. D. D. Macdonald and M. Urquidi-Macdonald. "Thin Layer Mixed Potential Model for the Corrosion of High-Level Nuclear Waste Canisters", *Key Eng. Mats*., 20-28, 351-382 (1987).
178. D. D. Macdonald and M.C.H. McKubre. "Corrosion of Materials". Chapter in *Impedance Spectroscopy*. Edited by J. R. Macdonald. Wiley Interscience, NY (1987).
179. D. D. Macdonald et al. "A Plan for Advancing Electrochemical Corros. Sci. and Technology". *NRC (Nat. Acad. Sci.). Report NMAB* 438-2, Nat. Mat. Adv. Board (1987).
180. D. D. Macdonald. "Electrochemistry of Passive Films". Proc. Symp. Electrochem. Solid State Science Educat. Grad. Undergrad. Level. 87-3, 159-183 (1987). Edited by W. H. Smyrl and F. McLarnon. The Electrochemical Society, Inc., Pennington, N.J.
181. F. Beck, H. Choi, D. D. Macdonald and Z. Szklarska-Smialowska. "Stress Corrosion Cracking of ASTM A508 cl 2 Steel in Oxygenated Water at Elevated Temperatures", *Sel of Mater for Serv Environ (Source Book Series)*, 1987, p 357-365 (ASM Int, Metals Park, OH, USA, 1987)
182. J. W. Evans and D. D. Macdonald. "Transient Response under Non-Ideal Potential Control. I. Reversible Charge Transfer Reaction". *J. Electrochem. Soc*., 134(9), 2234-2238 (1987).
183. R.A. Paddock, A. Lerman, J.D. Ditmars, D.D. Macdonald, "Peer Review Of The Office Of Nuclear Waste Isolation's Draft Report On Multif Actor Test Design To Investigate Uniform Corrosion Of Low-Carbon Steel", Anl/Ees-Tm-319, Argonne National Laboratory, Argonne, Il, 1987
184. S. Hettiarachchi, and D. D. Macdonald. "A Solid Polymer Electrolyte Internal Reference Electrode for High Temperature Aqueous Systems". *J. Electrochem. Soc*., 134(5), 1307-1308 (1987).
185. S. J. Lenhart, D. D. Macdonald and M. Urquidi-Macdonald. "Photo-Inhibition of Passivity Breakdown on Nickel". *Electrochim. Acta*, 32, 1739-1741 (1987).
186. S. J. Lenhart, D. D. Macdonald and S. Narang. "Conducting Polymers in Battery Systems for Electronic Device Applications", *IEEE Midcon/87 Conf. Proc*., 11, 225-228 (1987). (Chicago, IL).

1988.

187. D. D. Macdonald and J-R Park. “The Fast-Growth Mechanism of Magnetite on Carbon Steel in Oxidizing High Temperature Aqueous Solutions”. *Corrosion*, 45, 563-571(1988).
188. D. D. Macdonald and M. Urquidi-Macdonald. “Effect of Alloying Elements on the Theoretical Distribution Functions for the Breakdown of Passive Films”. *Localized Corrosion*, pp. 1-11 (1988). NACE International, Houston, TX.
189. D. D. Macdonald and M. Urquidi-Macdonald. “Mathematical Models for Redox and Corrosion Potentials for High Level Nuclear Waste Containers in Tuff Environments”. *Proc. Electrochem. Soc*., 88-2, 221-2 (1988).
190. D. D. Macdonald, M.C.H. McKubre and M. Urquidi-Macdonald. “Theoretical Assessment of AC Impedance Spectroscopy for Detecting Corrosion of Rebar in Reinforced Concrete”. *Corrosion*, 44(1), 2-7 (1988).
191. D. D. Macdonald, S. Hettiarachchi, and S. J. Lenhart. “The Thermodynamic Viability of Yttria-Stabilized Zirconia pH Sensors for High Temperature Aqueous Solutions”. *J. Soln. Chem*., 17(8), 719-732 (1988).
192. D. D. Macdonald, S. Real and M. Urquidi-Macdonald. “Evaluation of Alloy Anodes for Aluminum/Air Batteries II. Delineation of Anodic and Cathodic Partial Reactions”. *J. Electrochem. Soc*., 135(7), 1633-1636 (1988).
193. D. D. Macdonald, S. Real and M. Urquidi-Macdonald. “An Impedance Study of the Electrodissolution of Aluminum in 4M KOH at 25°C”. *Proc. Electrochem. Soc*., 88-2, 105-6 (1988).
194. D. D. Macdonald, S. Real and M. Urquidi-Macdonald. “Evaluation of Alloy Anodes for Aluminum-Air Batteries III. Mechanisms of Activation, Passivation, and Hydrogen Evolution”. *J. Electrochem. Soc*., 135(10), 2397-2409 (1988).
195. D. D. Macdonald, S. Real, S. I. Smedley and M. Urquidi-Macdonald. “Evaluation of Alloy Anodes for Aluminum-Air Batteries IV. Electrochemical Impedance Analysis of Pure Aluminum in 4M KOH at 25°C”. *J. Electrochem. Soc*., 135(10), 2410-2414 (1988).
196. D. D. Macdonald. “Materials Corrosion in High Temperature Aqueous Solutions in Power Generating Systems”. Proc. Seminario Scientifico-Tecnico di Lecce. Castro Marina, Lecce, Italy. (1-10 September 1988).
197. D. Harrington, K. H. Lee, D. D. Macdonald and A Moccari. “Evaluation of Alloy Anodes for Aluminum/Air Batteries I. Corrosion Studies”. *Corrosion*, 44, 652-657 (1988).
198. G. Cragnolino and D. D. Macdonald. “The Critical Potential for the IGSCC of Sensitized Type 304 SS in High Temperature Aqueous Systems”, Proc. Workshop on Initiation of Stress Corrosion Cracking Under LWR Conditions, Electric Power Institute, Palo Alto, CA, Nov. 13, 1986 (EPRI Report NP-5828, 1988), pp. 2-2 to 2-10.
199. G. Cragnolino, D. D. Macdonald, H. M. Shalaby and P. Zha. “Corrosion Fatigue Behavior of Alloy 600 in High Salinity Brine”. *Corrosion*, 44(12), 905-915 (1988).
200. J.-R. Park and D. D. Macdonald. “Mechanism of the Fast Growth of Magnetite on Carbon Steel in Oxidizing High Temperature Aqueous Solutions”. *Corrosion*, 45, 563 (1988)

201. J. Pangski, M. Karaminezhaad-Ranjbar, Y.-H. Hu, and D. D. Macdonald. "Apparatus for Controlled Hydrodynamic Electrochemical and Corrosion Studies in High Temperature Aqueous Systems". *Corrosion*, 44(3), 186-192 (1988).
202. K.-S. Lei, D. D. Macdonald, B. G. Pound, and B. E. Wilde. "Breakdown of the Passive Film on Polycrystal and Single Crystal (100) Nickel by Chloride". *J. Electrochem. Soc*., 135(7), 1625-1632 (1988).
203. M. Ben-Haim, C. English, D. D. Macdonald and J. Pallix. "Segregation of Alloying Elements into the Passive Films on Binary Nickel Alloys". *Proc. Electrochem. Soc*., 88-2, 173. (1988).
204. M. Ben-Haim, D. D. Macdonald and S. J.Smedley. "An Electrochemical Impedance Study of the Passive State on Nickel and Dilute Nickel Alloys". *Proc. Electrochem. Soc*., 88-2, 277. (1988).
205. R. Y. Liang, D. D. Macdonald and B. G. Pound. "An Electrochemical Impedance Study of the Passive Film on Single Crystal Ni (111) in Phosphate Solutions". *J. Electrochem. Soc*., 134(12), 2981-2986 (1988).
206. S. Hettiarachchi, S. J. Lenhart and D. D. Macdonald. "Electrochemical Techniques for Monitoring pH in High Temperature Aqueous Systems". Proc. 3rd Int'l. Symp. Envir. Degrad. Mat. Nucl. Power Systs. -Water Reactors. pp. 165 (1988). Edited by G. J. Theus and J. R. Weeks. Met. Soc. AIME. Warrendale, PA.
207. S. J. Lenhart, D. D. Macdonald and B. G. Pound. "Application of Transmission Line Analysis to Porous Battery Electrodes". *Proc. Electrochem. Soc*., 88-2, 4. (1988).
208. S. Lenhart, D. D. Macdonald and B. G. Pound. "An AC Impedance Study of the Degradation of Porous Nickel Battery Electrodes". *J. Electrochem. Soc*., 135(5), 1063-1071 (1988).

1989.

209. D. D. Macdonald, P. Paine, C. Shoemaker and H. Song. "Measurement of pH in High Temperature Concentrated Solutions Simulating PWR Steam Generator Crevice Environments". *Proc. 4th Int. Symp. Envir. Degr. Mat. Nucl. Power Systems - Water Reactors. (1989)*. NACE International, Houston, TX.
210. D. D. Macdonald, and M. Urquidi-Macdonald. "Modeling of the Electrochemistry of Stress Corrosion Cracks in Sensitized Type 304 SS in Boiling Water Reactors". *Proc. 4th Int. Symp. Envir. Degr. Mat. Nucl. Power Systems - Water Reactors*. pp. 4/1-4/11 (1989). Houston, TX, National Association of Corrosion Engineers, International.
211. D. D. Macdonald and G. A. Cragnolino. "Corrosion and Erosion-Corrosion of Steam Cycle Materials". Chapter 9 in *Water Technology for Thermal Power Systems*. Edited by P. Cohen. New York, NY. (1989). American Society of Mechanical Engineers.
212. D. D. Macdonald and M. Urquidi-Macdonald. "How do I Know My Impedance Measurements are Correct?" *Proc. 40th ISE Meeting*. pp. 1085-1090 (1989). Kyoto, Japan.
213. D. D. Macdonald and M. Urquidi-Macdonald. "Modeling of the Electrochemistry of Stress Corrosion Cracks in Sensitized Type 304 SS in Boiling Water Reactors". *Proc. 4th Int. Symp. Envir. Degr. Mat. Nucl. Power Systems - Water Reactors*. pp.

4/1-4/11 (1989). Houston, TX, National Association of Corrosion Engineers, International.

214. D. D. Macdonald and M. Urquidi-Macdonald. "Theoretical Analysis of the Steady-State Properties of Passive Films on Metal Surfaces". *Proc. 40th ISE Meeting*. pp. 651-659 (1989). Kyoto, Japan.
215. D. D. Macdonald and M. Urquidi-Macdonald. "Theoretical Analysis of the Effects of Alloying Elements on Distribution Functions of Passivity Breakdown". *J. Electrochem. Soc*., 136(4), 961-967 (1989).
216. D. D. Macdonald and S. J. Smedley. "An Electrochemical Impedance Study of the Passive State on Nickel". Proc. Symp. Transient Techs. Corros. Sci. Eng. 89-1: 254 (1989). Edited by W. H. Smyrl, D. D. Macdonald, and W. Lorenz. Pennington, NJ. The Electrochemical Society, Inc., Pennington, N.J.
217. D. D. Macdonald. "Corrosion in High Temperature Aqueous Solutions in Power Generating Systems". Proc. Symp. Electrochem. Opt. Tech. Study and Monit. Met. *Corros*. July 9-21, 1989. Viana do Castelo, Portugal. NATO ASI. Martinus Nijhoff Publ. Lisbon.
218. D. D. Macdonald. "Electrochemical Impedance Spectroscopy". Proc. Symp. Electrochem. Opt. Tech. Study and Monit. Met. *Corros*. July 9-21, 1989. Viana do Castelo, Portugal. NATO ASI. Martinus Nijhoff Publ. Lisbon.
219. D. D. Macdonald. "Theoretical Analysis of Electrochemical Impedance". Chapter in Techniques for Characterization of Electrodes and Electrochemical Processes. Edited by R. Varma and R. Selman. J. Wiley and Sons, NY. (1989).
220. M. Ben-Haim, D. D. Macdonald and J. Pallix. "Segregation of Alloying Elements into Passive Films". *J. Electrochem. Soc*., 136(11), 3269-3273 (1989).
221. S. J. Lenhart, D. D. Macdonald and B. G. Pound. "The Application of Electrochemical Impedance Spectroscopy for Characterizing the Degradation of $Ni(OH)_2$/NiOOH Electrodes". in *Proc. Space Electrochem. Res. Tech*.1989. pp. 211-242. April 11-13, 1989. NASA Conf. Publ. 3056. NASA Lewis.
222. W. J. Lorenz, D. D. Macdonald and W. H. Smyrl, (Editors), "Transient Techniques in Corros. Sci. and Engineering", PV 89-1, The Electrochemical Society, Pennington, N.J., 1989.

1990.

223. C. English and D. D. Macdonald. "Development of Anodes for Aluminum/Air Batteries - Solution Phase Inhibition of Corrosion". *J. Appl. Electrochem*., 20, 405-417 (1990).
224. D. D. Macdonald, and M. Urquidi-Macdonald. "Thin Layer Mixed Potential Model for the Corrosion of High-Level Nuclear Waste Canisters". *Corrosion*, 46(5), 380-390 (1990).
225. D. D. Macdonald, S. Real and M. Urquidi-Macdonald. "Application of Kramers-Kronig Transforms in the Analysis of Electrochemical Impedance Data. III. Stability, and Linearity". *Electrochim. Acta*, 35(10), 1559-1566 (1990).
226. D. D. Macdonald and M. Urquidi-Macdonald. "Deterministic Models for Passivity Breakdown". *Corr. Sci*., 31, 425-430 (1990).
227. D. D. Macdonald and M. Urquidi-Macdonald. "Kramers-Kronig Transformation of Constant Phase Impedances". *J. Electrochem. Soc*., 137(2), 515-517 (1990).

228. D. D. Macdonald and M. Urquidi-Macdonald. "Theory of Steady State Passive Films". *J. Electrochem. Soc*., 137(8), 2395-2402 (1990).
229. D. D. Macdonald and S. I. Smedley. "Characterization of Vacancy Transport in Passive Films Using Low Frequency Electrochemical Impedance Spectroscopy". *Corr. Sci*., 31, 667-672 (1990).
230. D. D. Macdonald. "Review of Mechanistic Analysis by Electrochemical Impedance Spectroscopy". *Electrochim. Acta*, 35(10), 1509-1525 (1990).
231. D. D. Macdonald. "Some Advantages and Pitfalls of Electrochemical Impedance Spectroscopy". *Corrosion*, 46(3), 229-242 (1990).
232. J. D. Lee, D. D. Macdonald and M. Urquidi-Macdonald. "Object-Oriented Expert System to Infer Intergranular Stress Corrosion Cracking in Light Water Nuclear Reactors". Corrosion/90, Paper #340, pp.1-10. (April 23-27, 1990). (NACE, International, Houston, TX).
233. M. Ben-Haim, D. D. Macdonald and J. Pallix. "SALI Analysis of Passive Films on Nickel Alloys". *Corr. Sci*., 31, 223-230 (1990).
234. S. Hettiarachchi, S. J. Lenhart and D. D. Macdonald. "The Thermodynamic Viability of Yttria-Stabilized Zirconia pH Sensors for High Temperature Aqueous Solutions", *Proc. 1987 Symposium on Chemistry in High Temperature Water*, Brigham Young University, Provo, Utah (EPRI Report NP-6005, 1990)
235. S. Hettiarachchi and D. D. Macdonald. "High Temperature pH Measurements – A Comparison of Techniques", *Proc. 1987 1987 Symposium on Chemistry in High Temperature Water*, Brigham Young University, Provo, Utah (EPRI Report NP-6005, 1990).
236. S. J. Lenhart, D. D. Macdonald, B. G. Pound. "The Application of Electrochemical Impedance Spectroscopy for Characterizing the Degradation of $Ni(OH)_2$/NiOOH Electrodes". *J. Power Sources*, 29, 477-502 (1990).

1991.

237. D. D. Macdonald and H. Song. "Photoelectrochemical Impedance Spectroscopy. I. Validation of the Transfer Function by Kramers-Kronig Transformation". *J. Electrochem. Soc*., 138(5), 1408-1410 (1991).
238. D. D. Macdonald and M. Urquidi-Macdonald. "An Advanced Coupled Environment Fracture Model for Predicting Crack Growth Rates in LWR Heat Transport Circuits". *Proc. Electrochem. Soc*., 91-2, 288 (1991).
239. D. D. Macdonald, and M. Urquidi-Macdonald. "An Advanced Coupled Environment Fracture Model for Predicting Crack Growth Rates in LWR Heat Transport Circuits". *Proc. Fifth Int. Symp. Envir. Degr. Mat. Nucl. Power Systems - Water Reactors*, pp. 345-349 (September 1991). Monterey, CA, ANS/NACE. Houston, TX, National Association of Corrosion Engineers, International.
240. D. D. Macdonald, and M. Urquidi-Macdonald. "An Advanced Coupled Environment Fracture Model for Predicting Crack Growth Rates". Chapter 4 - Control, Mitigation, and Prediction of Stress Corrosion Cracking". *TMS Proc. Parkins Symp. on Fund. Aspects of Stress Corrosion Cracking*. pp. 443-455. (October 20-24, 1991). Cincinnati, OH.

241. D. D. Macdonald, Mirna Urquidi-Macdonald. “A coupled environment model for stress corrosion cracking in sensitized type 304 stainless steel in LWR environments” *Corros. Sci*., 32(1), 51-81 (1991).
242. D. D. Macdonald. “Application of Electrochemical Impedance Spectroscopy in Electrochemistry and Corros. Sci.”. Chapter in *Techniques for Characterization of Electrodes and Electrochemical Processes*. pp. 515-580. Edited by Ravi Varma and J. R. Selman. John Wiley & Sons, Inc. (1991).
243. D. D. Macdonald. “Calculation of Corrosion Potentials in Boiling Water Reactors”. *Proc. Fifth Int. Symp. Envir. Degr. Mat. Nucl. Power Systems - Water Reactors*. (September 1991). Monterey, CA, ANS/NACE. Houston, TX, National Association of Corrosion Engineers, International.
244. D. D. Macdonald. “Coupling of Water Radiolysis and Crack Growth in Sensitized Stainless Steels”, *Proc. 1989 Workshop on LWR Radiation Water Chemistry and its Influence on In-Core Structural Materials*, Electric Power Research Institute, Palo Alto, CA, Nov. 14-15, 1989 (*EPRI* Report NP-7033, 1991), pp. 8-1 to 8-50.
245. D. D. Macdonald. “Electrochemical Modeling of the Cores of Light Water Reactors”. *Proc. Electrochem. Soc*., 91-2, 287 (1991).
246. D. D. Macdonald. “Material Corrosion in High Temperature Aqueous Solutions in Power Generating Systems”. *Electrochemical and Optical Techniques for the Study and Monitoring of Metallic Corrosion*. pp. 611-650. Edited by M.G.S. Ferreira and C.A. Melendres. Kluwer Academic Publishers, Netherlands. (1991).
247. D. D. Macdonald. “Measurement/Data Needs for understanding and Controlling IASCC”, *Proc. 1989 Workshop on LWR Radiation Water Chemistry and its Influence on In-Core Structural Materials*, Electric Power Research Institute, Palo Alto, CA, Nov. 14-15, 1989 (*EPRI* Report NP-7033, 1991), pp. 15-4 to 15-22.
248. D. D. Macdonald. “Mechanistic Analysis Using Electrochemical Impedance Spectroscopy”. *Proc. of the Symp. High Temperature Electrode Materials and Characterization*. 91-6, 1-43 (1991).
249. D. D. Macdonald. “Probing the Passive State”. *Proc. Electrochem. Soc*., 91-2, 197 (1991).
250. D. D. Macdonald. “Review of Mechanistic Analysis by Electrochemical Impedance Spectroscopy”. Electrochemical and Optical Techniques for the Study and Monitoring of Metallic Corrosion. pp. 31-68. Edited by M.G.S. Ferreira and C.A. Melendres. Kluwer Academic Publishers, Netherlands. (1991).
251. G. Cragnolino, L. Durand-Keklikian and D. D. Macdonald. “Ex-Situ A.C. Impedance Studies of Oxide Film Growth on Zircaloys in High Temperature/High Pressure Steam”. *Corros. Sci*., 32(3), 347-359 (1991).
252. S. D. Bhakta, D. D. Macdonald, B. G. Pound and M. Urquidi-Macdonald. “Active Pore Distribution Spectroscopy - A New Way of Characterizing Porous Battery Electrodes”. *Proc. Electrochem. Soc*., 91-2, 77-78 (1991).
253. S. D. Bhakta, D. D. Macdonald, B. G. Pound and M. Urquidi-Macdonald. “The Electrochemical Impedance of Porous Nickel Electrodes in Alkaline Media. II. Non-uniform Transmission Line Analysis”. *J. Electrochem. Soc*., 138(5), 1359-1363 (1991).

254.S. R. Biaggio, D. D. Macdonald and H. Song. "Point Defect Model for Passive Films - Identification of Charge Carriers". *Proc. Electrochem. Soc*., 91-2, 252-253 (1991).

255.T. -Y. Chen, A. A. Moccari and D. D. Macdonald. "The Development of Controlled Hydrodynamic Techniques for Corrosion Testing". *Corrosion/91, NACE Annual Conference and Corrosion Show*. Paper #292. (March 11-13, 1991). Cincinnati, OH. Houston, TX, National Association of Corrosion Engineers, International (NACE, International).

256.Y. El-Tantawy, D. D. Macdonald, R. C. Rocha-Filho and M. Urquidi-Macdonald. "Determination of the Polarization Resistance of Rebar in Reinforced Concrete". *Corrosion*, 47(5), 330-335 (1991).

1992.

257.D. D. Macdonald and M. Urquidi-Macdonald. "A Deterministic Method for Predicting Crack Growth Rates in LWR Heat Transport Circuits". Paper #87. pp. 87/1-87/12. (April 27-May 1, 1992). NACE International, Houston, TX.

258.D. D. Macdonald, "Corrosion in Boiling Water Reactors". *Earth and Mineral Sciences Newsletter*. The Pennsylvania State University, 61(2), 27-32 (1992).

259.D. D. Macdonald, "Estimation of Corrosion Potentials in the Cores of Light Water Reactors". *CORROSION/92*, Paper #88. pp. 88/1-88/12. (April 27-May 1, 1992). NACE International, Houston, TX.

260.D. D. Macdonald, and M. Urquidi-Macdonald. "Corrosion Damage Function Interface Between Corros. Sci. and Engineering". *Corrosion*, 48(5), 354-367 (1992).

261.D. D. Macdonald, L. M. Peter and P. C. Searson, "Frequency Domain Analysis of Photoprocesses at Illuminated Semiconductor Electrodes by Transient Transformation". *J. Electrochem. Soc*., 139(9), 2538-2543 (1992).

262.D. D. Macdonald, M. Urquidi-Macdonald, and J. Lolcama. "Deterministic Predictions of Corrosion Damage to High Level Nuclear Waste Canisters". *Proc. Symp. Application of Accelerated Corrosion Tests to Service Life Prediction of Materials*. (November 16-17, 1992). Miami, FL. ASTM Spec. Publ. 1194, 143-164 (1992)

263.D. D. Macdonald, M. Urquidi-Macdonald, C. Liu, S. Bhakta, N. Khalil, and H. Yashiro. "Deterministic Prediction of Pitting Damage Function for Condensing Heat Exchangers". *Proc. Int'l. Gas Research Conf. IV*: 111-120. (November 1992). Orlando, sponsored by Gas Research Institute, International Gas Union, American Gas Association, and U. S. Dept. of Energy, Florida.

264.D. D. Macdonald. "Probing (and Understanding?) the Passive State". Proc. Symp. Crit. Factors Local. Corros. Presented at Fall Mtg. of Electrochemical Soc. in acceptance of the Carl Wagner Award. Edited by G. S. Frankel and R. C. Newman. 92-9, 1-35 (1992). Phoenix, AZ. The Electrochemical Society, Inc., Pennington, N.J.

265.D. D. Macdonald. "The Point Defect Model for the Passive State". *J. Electrochem. Soc*., 139(12), 3434-3449 (1992).

266.D. D. Macdonald. “Viability of Hydrogen Water Chemistry for Protecting In-Vessel Components of Boiling Water Reactors”. *Corrosion*, 48(3):194-205 (1992).
267.J. L. Lolcama and D. D. Macdonald. “The AECL Waste Package Concept: An Assessment of Post-Emplacement Performance”. *Proc. 45th Canadian Geotechnical Conf.*, Toronto, Canada, p88/1-88/10 (October 1992).
268.J. W. Halley, G. Hubler, A. Hurd, D. D. Macdonald, W. Smyrl, D. Snyder, and J. Williams. “Corrosion Protection”. *Current Status, Research Needs, and Opportunities in Applications of Surface Processing to Transportation and Utilities Technologies: Proc., December 1991 Workshop*. Edited by A.W. Czanderna and A.R. Landgrebe. NREL/CP-412-5007. pp. 20/1-20/21. (September 1992). Golden, CO, National Renewable Energy Laboratory.
269.K. Makela, S. Hettiarachchi, and D. D. Macdonald. “The Importance of On-Line pH Measurements to Control Corrosion of Materials in Water and Steam”. *Proc. Int. Conf. Interact. Iron Based Maters. Water and Steam*. pp. 3-2. (1992). Heidelberg, Germany. VGB/EPRI.
270.K. Makela, S. Hettiarachi, D. D. Macdonald, H. Song and R. Emerson. “Development of Reference and pH Sensors for Monitoring High Temperature Water Chemistry Parameters in Nuclear Power Plants”. *Proc. 12th Scandinavian Corrosion Congress & Eurocorr ‘92*. 160th Event of the European Federation of Corrosion. (May 31 - June 4, 1992). Dipoli, Espoo, Finland.
271.M. N. Eiden, D. D. Macdonald and M. Urquidi-Macdonald. “Development of a Neural Network Model for Predicting Damage Functions for Pitting Corrosion in Condensing Heat Exchangers”; Intelligent Engineering Systems Through Artificial Neural Networks Proc. 1992 Art, Neur, Netws Eng., ANNIE’92, Nov 15-18 1992, 2, 821-826 (1992).
272.Macdonald, D. D., S. Hettiarachchi, H. Song, K. Makela, R. Emerson, and M. Ben-Haim. “Measurement of pH in Subcritical and Supercritical Aqueous Systems”. *J. Soln. Chem*., 21(8), 849-881 (1992).
273.R. Emerson, S. Hettiarachi, D. D. Macdonald, K. Makela and H. Song. “Development of Reference and pH Sensors for Monitoring High Temperature Water Chemistry Parameters in Nuclear Power Plants”. Proc. 12th Scandinavian Corrosion Congress & Eurocorr ‘92. 160th Event of the European Federation of Corrosion. (May 31 - June 4, 1992). Dipoli, Espoo, Finland.
274.S. Bhakta, N. Khalil, C. Liu, D. D. Macdonald, M. Urquidi-Macdonald and H. Yashiro. “Deterministic Prediction of Pitting Damage Function for Condensing Heat Exchangers”. Proc. Int’l. Gas Research Conf. IV: 111-120. (November 1992). Orlando, sponsored by Gas Research Institute, International Gas Union, American Gas Association, and U. S. Dept. of Energy, Florida.
275.S. D. Bhaktra, D. D. Macdonald, B. G. Pound and M. Urquidi-Macdonald. “Active Pore Distribution Spectroscopy - A New Way of Characterizing Porous Battery Electrodes”, *Proc. Symp. Modeling Batt. Fuel Cells*, The Electrochem. Soc., (Ed. R. E. White, M. W. Verbrugge, and J. Stockel), 91(10), 17-29 (1992).
276.S. Hettiarachchi, D. D. Macdonald and K. Makela. “The Importance of On-Line pH Measurements to Control Corrosion of Materials in Water and Steam”. Proc.

Int. Conf. Interact. Iron Based Maters. Water and Steam. pp. 3-2. (1992). Heidelberg, Germany. VGB/EPRI.

277. S. Hettiarachchi, K. Makela, H. Song, and D. D. Macdonald. "The Viability of pH Measurements in Supercritical Aqueous Systems". *J. Electrochem. Soc.*, 139(1), L3-L4 (1992).
278. S. R. Biaggio, D. D. Macdonald and H. Song. "Steady State Passive Films-Interfacial Kinetic Effects and Diagnostic Criteria". *J. Electrochem. Soc*., 139(1), 170-177 (1992).
279. T. C. Ching, D. D. Macdonald and E. E. Ryba. "Novel Coatings and Corrosion Protection Methods", Proc. 1992 TM Service Conference on Corrosion, Ed. M. Levy, DOD, Plymouth, MA, May 12-14, 1992.

1993.

280. A. Goossens and D. D. Macdonald. "A Photoelectrochemical Impedance Spectroscopic Study of Passive Tungsten", *J. Electroanal. Chem.*, 352(1-2), 65-81 (1993).
281. A. Goossens, D. D. Macdonald and E. Sikora. "The Concentration Profile of Oxygen Vacancies in the Passive Film on Tungsten". *Proc. Electrochem. Soc*., 93-2, 811 (1993).
282. A. Goossens, D. D. Macdonald and M. Vazquez. "Characterization of the Passive Film on Zr by Electrochemical and Optical Techniques". *Proc. Electrochem. Soc*., 93-1, 2525-2526 (1993).
283. A. Goossens, D. D. Macdonald, E. Sikora Sikorand and M. Vazquez. "A Study of the Passive Film on Tungsten by Photoelectrochemical Spectroscopy". *Proc. Electrochem. Soc., Inc*., 93-1, 2650 (1993).
284. A. Goossens, D. D. Macdonald "A photoelectrochimical Impedance Spectroscopic Study of Passive Metals", *Electrochim. Acta*, 38(14), 1965-1968 (1993).
285. Diaz, D. D. Macdonald, A. C. Ramamurthy, A. Sabata, G. Ström, M. Ström, M. Urquidi-Macdonald and W. J. van Ooij. "Interpretation of Electrochemical Impedance Data for Damaged Automotive Paint Films". *Proc. of the 12th Intl. Corros. Congr*., 5A, 3508-3518 (1993). (NACE International).
286. C. Liu and D. D. Macdonald. "The Deterministic Prediction of Failure of Low-Pressure Steam Turbine Disks". *Proc. of the 12th Intl. Corros. Congr.*, 5A, 3446-3459 (1993).
287. C. Liu, and D. D. Macdonald. "The Deterministic Prediction of Damage Functions to Low Pressure Steam Turbines". *Proc. EPRI Turbine and Generator NDE, Life Assessment, and Maintenance Workshop*. pp. 1-7. July 1993. Albany, NY, Electric Power Research Institute.
288. C. Liu, D. D. Macdonald and M. Urquidi-Macdonald. "Prediction of Pitting Damage Functions for Condensing Heat Exchangers". Proc. of the 12th Intl. Corros. Congr., 5A, 3460-3476. (1993). (NACE International).
289. D. D. Macdonald and P. C. Searson. "Measurement of the Frequency Dependent Quantum Efficiency by Transient Excitation". *Electrochim. Acta*, 38(14), 1913-1917 (1993).

290.D. D. Macdonald, A. Bertuch, and M. Urquidi-Macdonald. "Deterministic Estimation of Damage Due to IGSCC/IASCC in the Heat Transport Circuits on Light Water Reactors". *CORROSION/93*, Paper #9. pp. 905-911. (March 7-12, 1993), NACE International, Houston, TX.
291.D. D. Macdonald, and M. Urquidi-Macdonald. "Fundamental Aspects in the Design of Passive Alloys. Modifications of Passive Films and Relation to the Resistance to Localized Corrosion". *Proc. European Symp. Modifications Passive Films*, (ed. P. Marcus, B. Baroux, and M. Keddam), Paper No. 46: pp. 262-272, Paris, France, (February 1993).
292.D. D. Macdonald, C. Liu, and M. Urquidi-Macdonald. "The Deterministic Estimation of Damage Functions for Pitting Corrosion". *Proc. Electrochem. Soc.*, 93-1, 167-168 (1993).
293.D. D. Macdonald, H. Song, K. Makela, K. Yoshida. "Corrosion Potential Measurements on Type 304SS and Alloy 182 in Simulated BWR Environments". *Corrosion*, 49(1), 8-16 (1993).
294.D. D. Macdonald, M. Urquidi-Macdonald, and C. Liu. "The Deterministic Prediction of Damage in Light Water Nuclear Reactors". *CORROSION/93*, Paper #173, pp. 1-22, (March 7-12, 1993). NACE International, Houston, TX.
295.D. D. Macdonald. (Editor), Second International Symposium Electrochemical Impedance Spectroscopy, Special Issue, *Electrochim. Acta*, 38(14) (1993). Conference volume.
296.D. D. Macdonald. "On the Formation of Voids in Anodic Oxide Films on Aluminum". *J. Electrochem. Soc.*, 140(3), L27-L30 (1993).
297.D. D. Macdonald. "On the Possible Role of Vacancy Condensation in Passivity Breakdown". *Proc. Electrochem. Soc*., 93-1, 164-165 (1993).
298.D. D. Macdonald. "Vacancy Condensation as the Precursor to Passivity". Proc. of the 12th Intl. Corros. Congr., 3, 2065-2076 (1993).
299.H. W. Pickering, D. D. Macdonald and H. Shih. "Modeling of Small Amplitude Cyclic Voltammetry and its Application to Copper and Copper-Nickel Alloys in Sodium Chloride Solution". *Proc. Electrochem. Soc.*, 93-1, 189-190 (1993).
300.J. Bueno, C. Liu, D. D. Macdonald, E. Medina, J. Pang and J. Villa. "Development of Sensors for In-Situ Monitoring of Corrosion and Water Chemistry Parameters for the Electric Power Utility Industry". Proc. of the 12th Intl. Corros. Congr., 6, 4274-4285 (1993). (NACE International).
301.J. Lolcama, C. Liu, D. D. Macdonald, M. Urquidi-Macdonald. "Prediction of Corrosion Damage to High Level Nuclear Waste Canisters". *Corrosion/93*, Paper #174, pp.1-24 (March 7-12, 1993). NACE International, Houston, TX.
302.J. Pang, D. D. Macdonald, and P. J. Millett. "Acid/Base Titrations of Simulated PWR Crevice Environments". *Proc. Sixth Int. Symp. Environ. Degrad. Maters. Nucl. Power Systs. -Water Reactors*, pp. 923-927, August 1-5, 1993. San Diego, CA. Houston, TX, National Association of Corrosion Engineers, International (NACE International).
303.K. Arioka, A. Bertuch, L. Kriksunov, D. D. Macdonald and J. Pang. "Modeling the Corrosion Behaviors of the Heat Transport Circuits of Light Water Nuclear Reactors". Proc. Sixth Intl. Symp. Environ. Degrad. Maters. Nucl. Power Systs. -

Water Reactors. pp. 905-913. August 1-5, 1993. San Diego, CA. Houston, TX, National Association of Corrosion Engineers, International (NACE International).
304. C. Liu, R. Crovetto and D. D. Macdonald. "Characterization of Corrosion Process by Electrochemical Noise Analyses". *Proc. Electrochem. Soc*., 93-1, 307-308 (1993).
305. M. Ben Haim, R. Emerson, S. Hettiarachchi, D. D. Macdonald, K. Makela and H. Song. "Measurement of pH in Subcritical and Supercritical Aqueous Systems", Proc. 1991 Symposium on Chemistry in High Temperature Aqueous Solutions, Brigham Young University, Provo, Utah (EPRI Report TR-102706S, 1993).
306. M. L. Challingsworth and D. D. Macdonald. "The Impedance Characteristics of Nickel-Cadmium Batteries". Chapter in Nickel-Cadmium Batteries, pp. 1-46. Edited by S. Gross, Boeing Aircraft Co. (December 1993).
307. M. L. Challingsworth and D. D. Macdonald. "Thermodynamics of Nickel-Cadmium and Nickel-Hydrogen Batteries". *J. Electrochem. Soc*., 140(3), 606-609 (1993).
308. M. L. Challingsworth and D. D. Macdonald. "Thermodynamics of nickel-cadmium and nickel-hydrogen batteries", Proc. Conf. Space Electrochem. Res. Tech., n 3228, pp. 27-39 (Nov. 1993), NASA Lewis Research Center, Cleveland, OH (publ. NASA Washington, D.C.).
309. M. N. Eiden, D. D. Macdonald and M. Urquidi-Macdonald. "Development of a Neural Network Model for Predicting Damage Functions for Pitting Corrosion in Condensing Heat Exchangers". Proc. Europ. Symp. Modifications Passive Films. Paper #58. pp. 336-343. (February 15-17, 1993). Paris, France. (Edited by P. Marcus, B. Baroux, and M. Keddam).
310. M. P. Manahan, Sr., D. D. Macdonald, K. E. Newman, A. J. Peterson, Jr. "Experimental Validation of the Basis for the Coupled Environment Fracture Model". Proc. EPRI Workshop on Secondary-Side Initiated IGA/SCC. p. 1-9. (October 14-15, 1993). Minneapolis, MN, Electric Power Research Institute, Palo Alto, CA.
311. M. Urquidi-Macdonald, M. N. Eiden and D. D. Macdonald. "Development of a Neural Network Model for Predicting Damage Functions for Pitting Corrosion in Condensing Heat Exchangers". *Proc. Europ. Symp. Modifications Passive Films*. Paper #58. pp. 1-13. (February 15-17, 1993). Paris, France. (Edited by P. Marcus, B. Baroux, and M. Keddam).
312. Macdonald, D. D., "Some Critical Electrochemical Issues in the Failure of Steam Generator Materials". *Proc. EPRI Workshop on IGSCC in Alloy 600*. (April 1993). Airlie House, VA, Electric Power Research Institute, Palo Alto, CA.
313. R. Crovetto, C. Liu and D. D. Macdonald. "Characterization of Corrosion Process by Electrochemical Noise Analyses". *Proc. Electrochem. Soc*., 93-1, 307-308 (1993).
314. M. P. Manahan Sr., K. E. Newman, D. D. Macdonald, A. J. Peterson, Jr. "Experimental Validation of the Basis for the Coupled Environment Fracture Model". *Proc. EPRI Workshop on Secondary-Side Initiated IGA/SCC*. p. 1-9. (October 14-15, 1993). Minneapolis, MN, Electric Power Research Institute, Palo Alto, CA.

1994.

315. Bertuch, L. Kriksunov and D. D. Macdonald. "Modeling the Corrosion Behaviors of the Heat Transport Circuits of Light Water Nuclear Reactors", Proc. 1st Mex. Symp. Met. Corros., 7-11 March, Merida, Yucatan, Mex., Facultad de Quimica Press, Mexico, D.F., Paper 40, pp. 280-292 (1994).
316. C. Khandkar, D. D. Macdonald and S. Srinivasan. (eds.). "Electrode Materials and Processes for Energy Storage and Conversion". *Proc. Electrochem. Soc*., 94-23, (1994).
317. Goossens, D. D. Macdonald and E. Sikora. "A Photoelectrochemical Study of the Electronic Properties of the Passive Film on Tungsten", *Proc. Electrochem. Soc*., 94--1, 1322 (1994).
318. K. Agrawal, B. Hindin, C. Liu, D. D. Macdonald, G. Stickford and M. Urquidi-Macdonald. "Prediction and Measurement of Pitting Damage Functions for Condensing Heat Exchangers". *Corrosion*, 50(10), 761-780 (1994).
319. C. Liu and D. D. Macdonald. "The Deterministic Prediction of Damage in Power Plant Steam Cyclic Systems". *Corros. Sci. and Protection Techniques*. 6(2), 115-122 (1994). The Institute of Corrosion and Protection of Metals, Academia Sinica, (in Chinese).
320. D. Macdonald and L. Zhang. "Ionic Diffusion in Passive Oxide Films with Inhomogeneous Vacancy Distributions". Proc. 7th Int'l. Symp. on Oxide Films on Metals and Alloys VII. 94-25: 152-163. (1994). Edited by K. R. Herbert and G. E. Thompson.
321. D. Macdonald and M. Urquidi-Macdonald, *Proc. Electrochem. Soc*., 94-2, 4-5 (1994).
322. D. D. Macdonald, E. Sikora and J. Sikora. "A New Method for Estimating the Diffusivities of Vacancies in Passive Films". Proc. of H. H. Uhlig Memorial Symposium-Corros. Sci.: From Theory to Practice. Proc. Electrochem. Soc., 94-26: 30-41. (1994). Edited by F. B Mansfeld, R. M. Latanision, A. I. Asphahani, and H. Bohni.
323. D. D. Macdonald, E. Sikora and J. Sikora. "Capacitance Studies of the Passive Film on Tungsten". *Proc. Electrochem. Soc*., 94-1, 85 (1994).
324. D. D. Macdonald, E. Sikora and J. Sikora. "On the Dissolution and Growth of Passive Films on Tungsten". *Proc. Electrochem. Soc*., 94-2, 321 (1994).
325. D. D. Macdonald, E. Sikora and J. Sikora. "On the Dissolution and Growth of Passive Films on Tungsten". Proc. 7th Int'l Symp. on Oxide Films on Metals and Alloys VII, 94-25, 268-280. (1994). Edited by K. R. Herbert and G. E. Thompson.
326. D. D. Macdonald, E. Sikora and J. Sikora. "The Point Defect Model vs. the High Field Model for Describing the Growth of Passive Films". *Proc. Electrochem. Soc*., 94-2, 303 (1994).
327. D. D. Macdonald, E. Sikora and J. Sikora. "The Point Defect Model vs. the High Field Model for Describing the Growth of Passive Films". Proc. 7th Intíl. Symp. on Oxide Films on Metals and Alloys VII. 94-25, 139-151. (1994). Edited by K. R. Herbert and G. E. Thompson.
328. D. D. Macdonald, E. Sikora, and J. Sikora. "The Viability of the High Field Model vs. the Point Defect Model for Describing the Growth of Passive Films". Proc. Int'l. Symp. on Localized Dissolution and Corrosion. (October 1994). 1994

Materials Week ASM International. Rosemont, IL, American Society of Metals International.
329. D. J. Ellerbrock and D. D. Macdonald. "Passivity Breakdown on Solid vs. Liquid Gallium". *J. Electrochem. Soc*., 141(10), 2645-2649 (1994).
330. D. J. Ellerbrook and D. D. Macdonald. "Passivity Breakdown on Solid vs. Liquid Gallium", Corrosion Research in Progress Symposium, CORROSION/94, Baltimore, MD, (Feb. 28-Mar. 2, 1994) (NACE International, Houston, TX), p. 13.
331. H. Brookes, D. D. Macdonald, E. Sikora, M. Urquidi-Macdonald and M. Vazquez. "Photoinhibition of Localized Corrosion. Proc. Int'l. Symp. on Localized Dissolution and Corrosion". Proc.TMS/ASM Fall Meeting. pp. 1-8 (1994).
332. J. A. Begley, D. D. Macdonald and H. M. Shalaby. "Fatigue Crack Initiation in 403 Stainless Steel in Simulated Steam Cycle Environments: Hydroxide and Silicate Solutions". *Brit. Corros. J*., 29(1), 43-52 (1994).
333. J. Bueno, C. Liu, D. D. Macdonald, E. Medina and J. Villa. "Probing Corrosion Activity in High Subcritical and Supercritical Water through Electrochemical Noise Analysis". *Corrosion*, 50(9), 687-694 (1994).
334. J. Bueno, L. Kriksunov, C. Liu, D. D. Macdonald, E. Medina, J. Pang, and J. Villa. "Monitoring Corrosion and Chemistry Phenomena in Supercritical Aqueous Systems". Corrosion/94, NACE Annual Conference and Corrosion Show. Paper #627. pp. 627/1 - 627/12. (February 28-March 4, 1994). NACE International, Houston, TX.
335. K. Arioka, A. Bertuch, L. B. Kriksunov, D. D. Macdonald and J. Pang. "Modeling the Electrochemistry of the Primary Circuits of Light Water Reactors". Corrosion/94, NACE Annual Conference and Corrosion Show. Paper #326. pp. 326/1-326/15. (February 28-March 4, 1994). NACE International, Houston, TX.
336. K. Arioka, A. Bertuch, L. Kriksunov, D. D. Macdonald and J. Pang. "Estimation of Corrosion Potentials of Materials in the Heat Transport Circuits of Light Water Reactors". Proc. Int'l. Conf. Chem. Water Reactors-Operating Experience and New Developments. pp. 371-385. (April 24-27, 1994). Nice, France, French Nuclear Energy Soc.
337. K. M. Ismail and D. D. Macdonald. "Characterization of the Barrier Passive Film on Zinc". Proc. 7th Int'l. Symp. on Oxide Films on Metals and Alloys VII. 94-25: 236-245. (1994). Edited by K. R. Herbert and G. E. Thompson.
338. L. B. Kriksunov and D. D. Macdonald. "Tungsten/Tungsten Oxide pH Sensing Electrode for High Temperature Aqueous Environments". *Proc. Electrochem. Soc*., 94-1, 1597-1598 (1994).
339. L. B. Kriksunov and D.D. Macdonald. "Development of Glass pH Sensors for use at Temperatures of 200-250°C", *Sensors and Actuators B: Chemical*, 22(3), 201-204(1994).
340. L. B. Kriksunov, and D. D. Macdonald. "Advances in Measuring Chemistry Parameters in High Temperature Aqueous Systems". *Proc. 12th Int'l. Conf. on the Properties of Water and Steam*. (September 11-16, 1994). Orlando, FL.
341. L. B. Kriksunov, and D. D. Macdonald. "Study of the Zirconium/Zirconium Oxide Electrode as a pH Sensor at Temperatures up to 300°C". *Proc. 186th Mtg.*

of The Electrochemical Society, Inc., Extended Abstracts, 94-2, (1994). The Electrochemical Society, Inc., Pennington, N.J.

342. L. B. Kriksunov, D. D. Macdonald and P. J. Millett. "Tungsten/Tungsten Oxide pH Sensing Electrode for High Temperature Aqueous Environments". *J. Electrochem. Soc.*, 141(11), 3002-3005 (1994).
343. L. B. Kriksunov, D. D. Macdonald, and P. Millett. "Development and Testing of Combination pH Sensing Electrodes for use at High Temperatures and Pressures". *Proc. Electrochem. Soc*., 94-2, (1994).
344. M. Ben-Haim and D. D. Macdonald. "Modeling Geological Brines in Salt-Dome High Level Nuclear Waste Isolation Repositories by Artificial Neural Networks". *Corros. Sci*., 36(2), 385-393 (1994).
345. M. P. Manahan, D. D. Macdonald, K. E. Newman, and A. J. Peterson, Jr. "Stress-Corrosion Cracking (SCC) Monitoring and Mitigation for Critical Power Plant Components". *Proc. ASME Pressure Vessel and Piping Conf*., 283, 29-42 (1994). American Society of Mechanical Engineers, New York, NY.
346. M. Urquidi-Macdonald, and D. D. Macdonald. "Performance Comparison between a Statistical Model, a Deterministic Model, and an Artificial Neural Network Model for Predicting Damage for Pitting Corrosion". *J. Res. NIST*, 99(4), 495-504 (1994).
347. P-C. Lu, D. D. Macdonald and M. Urquidi-Macdonald. "The Coupled Environmental Fracture Model - A Deterministic Method for Calculating Crack Growth Rates". Corrosion/94, NACE Annual Conference and Corrosion Show. Paper #246. pp. 1-22 (February 28-March 4, 1994). NACE International, Houston, TX.
348. P-C. Lu, D. D. Macdonald and M. Urquidi-Macdonald. "Towards Deterministic Methods for Predicting Stress Corrosion Cracking Damage in Reactor Heat Transport Circuits". Proc. Int'l. Conf. Chem. Water Reactors-Operating Experience and New Developments. (April 24-27, 1994). Nice, France, French Nuclear Energy Soc.

1995.

349. A. Bertuch, D. D. Macdonald and J. Pang. "The Argument for Low Hydrogen and Lithium Operation in PWR Primary Circuits". Proc. 7th Int'l. Symp. Env. Deg. of Mat. Nucl. Pwr. Sys. - Water Reactors. 2: 687-697 (August 1995). Breckenridge, CO. (NACE International).
350. A. Bertuch, S. N. Lvov and D. D. Macdonald. "Controlled Hydrodynamic Electrochemical Studies in High Temperature Aqueous Systems". *Proc. Electrochem. Soc*., 95-1, (1995).
351. C. Breslin, D. D. Macdonald, E. Sikora and J. Sikora. "Semiconductive Properties of Passive Films on Stainless Steels". *Proc. Electrochem. Soc*., 95-15, 344-354 (1995).
352. C. Breslin, D. D. Macdonald, E. Sikora and J. Sikora. "Attractor Dimensions and Lyapunov Exponents of Electrochemical Noise Measured on Irradiated and Unirradiated Type 304 SS and 316 SS in Chloride Solution". *Proc. Electrochem. Soc*., 95-2, 227-228 (1995).

353.C. Breslin, D. D. Macdonald, E. Sikora and J. Sikora. “Semiconductive Properties of Passive Films on 304 and 316 Type Stainless Steel Formed Under UV-Irradiation”. *Proc. Electrochem. Soc*., 95-2, 220-221 (1995).
354.C. Liu, D. D. Macdonald and M. Urquidi-Macdonald. “Deterministic Prediction of Pitting Damage Functions for Condensing Heat Exchangers”. Proc. 46th Annual Int’l Appliance Technical Conference. (May 15-19 1995). Urbana-Champ, The Electrochemical Society, Inc., Pennington, N.J.
355.C. Liu, D. D. Macdonald and M. Urquidi-Macdonald. “Use of Damage Functions for Life Prediction”, Research in Progress Symposium, CORROSION/95, Orlando, FL, March 27-29, 1995 (NACE International, Houston, TX), p. 51.
356.D. D. Macdonald, M. Urquidi-Macdonald and D. VanVoorhis. “Prediction of Single-Phase Erosion-Corrosion in Mild Steel Pipes Using Artificial Neural Networks and a Deterministic Model”. *Corrosion/95*, NACE Annual Conference and Corrosion Show. Paper #546. pp. 546/1-546/18. (March 26-31, 1995). NACE International, Houston, TX.
357.D. D. Macdonald, P. C. Lu, and M. Urquidi-Macdonald. “Deterministic Estimation of Crack Growth Rates Steels in LWR Coolant Circuits”. *Proc. Int’l. Symp. On Plant Aging and Life Prediction of Corrodible Structures/95*. pp. 1-26 (1995). NACE International, Houston, TX.
358.D. D. Macdonald, A. T. Motta and T. K. Yeh. “Simultaneous Radiolysis, ECP, and Crack Growth Modeling of Components in BWR Coolant Systems”. Corrosion/95, NACE Annual Conference and Corrosion Show. Paper #403. pp. 403/1-403/22. (March 26-31, 1995). NACE International, Houston, TX.
359.D. D. Macdonald, E. Sikora and J. Sikora. “Modeling the Electronic Structure of the Passive Film on Tungsten from Capacitance Measurements”. *Proc. Electrochem. Soc*., 95-1, (1995).
360.D. D. Macdonald, E. Sikora and J. Sikora. “Non-linear Potential and Current Oscillations on Irradiated and Unirradiated Type 304SS in Chloride Solution”. *Proc. Electrochem. Soc*., 95-1, (1995).
361.D. D. Macdonald, E. Sikora and J. Sikora. “Transient Behavior of Passive Film on Tungsten”. *Proc. Electrochem. Soc*., 95-1, (1995).
362.D. D. Macdonald. “Reply to discussion on ‘Determination of the fate of the current in the SCC of sensitized type 304SS in high temperature aqueous systems’”, *Corros. Sci*., 37(12), 2090-2097 (1995).
363.D. D. Macdonald “Measuring Dissolved Hydrogen in High Subcritical and Supercritical Aqueous Environment”. *Proc. Electrochem. Soc*., 95-1, (1995).
364.D. D. Macdonald and M. Urquidi-Macdonald. “Analysis of Fatigue Crack Growth Rate in Sensitized Type 304 Stainless Steel in High Temperature Aqueous Systems Using Artificial Neural Networks”, Proc. 7th Int’l. Symp. Environ. Degrad. Matls. Nucl. Power Systs.-Water Reactors, Paper # 25, pp. 1-7 (1995) (Breckinridge, CO, NACE International).
365.D. D. Macdonald and M. Urquidi-Macdonald. “On the Interpretation of ECP Data from Operating Boiling Water Reactors”. Proc. 7th Int’l. Symp. Env. Deg. of Mat. Nucl. Pwr. Sys. - Water Reactors. 2: 711-721 (August 1995). Breckenridge, CO. (NACE International).

366. D. D. Macdonald and M. Urquidi-Macdonald. “Predictions of Erosion Corrosion in Weld Steel Pipes Using Artificial Neural Networks”. *Metallic Corrosion*, pp. 1-11. Merida, Mexico. (May 1995).
367. D. D. Macdonald and T. K. Yeh. “Modeling the Development of Damage in BWR Primary Coolant Circuits”. Proc. 7th Int’l. Symp. Env. Deg. of Mat. Nucl. Pwr. Sys. - Water Reactors. 2: 909-919 (August 1995). Breckenridge, CO. (NACE International).
368. D. J. Ellerbrock and D. D. Macdonald. “Concerning Passivity Breakdown on Solid and Liquid Gallium and Titanium in Halide Solutions”. *Materials Science Forum*, 185-188: 927-936 (1995).
369. G. R. Engelhardt, D. D. Macdonald, P. J. Millett, J. Sikora and M. Urquidi-Macdonald. “A Mathematical Model for Localized Corrosion in Steam Generator Crevices under Heat Transfer Conditions”. Proc. 7th Int’l. Symp. Env. Deg. of Mat. Nucl. Pwr. Sys. - Water Reactors. 1: 423-434 (August 1995). Breckenridge, CO. (NACE International).
370. G. R. Engelhardt, D. D. Macdonald and M. Urquidi-Macdonald. “A Simplified Model for Predicting Pit Growth Rates”. Proc. Int’l. Chem. Congr. of Pacific Basin Soc. pp. 1-24. (December 1995).
371. G. R. Engelhardt, D. D. Macdonald, P. Millett, A. Sehgal and J. Sikora. “Combined Thermal Hydraulic/Electrochemical Model for Steam Generator Crevices”, Proc. Workshop on Improving the Understanding and Control of Corrosion on the Secondary Side of Steam Generators”, Electric Power Research Institute, Airlie House, VA, Oct. 9-13, 1995.
372. G. R. Engelhardt, C. Liu, D. D. Macdonald and M. Urquidi-Macdonald. “A Simplified Model for Predicting Pit Growth Rates”. *Proc. Electrochem. Soc*., 95-2, 194-195 (1995).
373. G. R. Engelhardt, D. D. Macdonald, P. Millett and M. Urquidi-Macdonald. “Modeling of Localized Corrosion in Steam Generators Crevices”. *Proc. Electrochem. Soc*., 95-2, 658-659 (1995).
374. K. M. Ismail and D. D. Macdonald. “Characterization of Passive Zinc by Electrochemical Impedance Spectroscopy”. *Proc. Electrochem. Soc*., 95-2, 39-40. (1995).
375. K. M. Ismail and D. D. Macdonald. “Electrochemical Characterization of Passive Zinc”. *Proc. Electrochem. Soc.*, 95-2, 37-38 (1995).
376. L. B. Kriksunov, C. Liu and D. D. Macdonald. “Electrochemical Noise Analysis for Monitoring Corrosion Activity in SCWO Systems”. Proc. 1st Int’l. Workshop Supercritical Water Oxidation. (February 1995). Amelia Island Plantation, FL.
377. L. B. Kriksunov, C. Liu and D. D. Macdonald. “Oxygen, Hydrogen and Redox Potential Combination Sensors for Supercritical Aqueous Systems”. Proc. 1st Int’l. Workshop Supercritical Water Oxidation. (February 1995). Amelia Island Plantation, FL.
378. L. B. Kriksunov, and D. D. Macdonald, “Advances in Measuring Chemistry Parameters in High Temperature Aqueous Systems”, in *Physical Chemistry of Aqueous Systems* (Ed. H.J. White, J.V. Sengers, D.B. Neumann, and J.C. Bellows), Begell House, N.Y., pp.432-440 (1995).

379. L. B. Kriksunov and D. D. Macdonald. “Corrosion in Supercritical Water Oxidation Systems: A Phenomenological Model”. *J. Electrochem. Soc*., 142(12), 4069-4073 (1995).
380. L. B. Kriksunov and D. D. Macdonald. “Corrosion in Supercritical Aqueous Systems and the Density of the Solvent”. *Proc. Electrochem. Soc*., 95-1, (1995).
381. L. B. Kriksunov and D. D. Macdonald. “Corrosion Testing and Prediction in SCWO Environments”. Proc. 1995 ASME International Mechanical Engineering Congress and Exposition (IMECE), Part 2, HTD 317-2, 281-288 (1995), San Francisco, CA, American Society for Metals International.
382. L. B. Kriksunov and D. D. Macdonald. “Critical Issues in the Supercritical Water Oxidation of Army Toxic Wastes”. Proc. Symposium on Emerging Technologies in Hazardous Waste Management VII. pp. 1280-1283. Edited by D. W. Tedder. Atlanta, GA, *American Chemical Society* (1995).
383. L. B. Kriksunov and D. D. Macdonald. “Development of Pourbaix Diagrams for Metals in Supercritical Aqueous Media”. Proc. 1st Int’l. Workshop Supercritical Water Oxidation. (February 1995). Amelia Island Plantation, FL.
384. L. B. Kriksunov and D. D. Macdonald. “Electrochemical Sensors for High Temperature Aqueous Environments”. *Proc. Electrochem. Soc*., 95-1, (1995).
385. L. B. Kriksunov and D. D. Macdonald. “Phenomenological Analysis of Corrosion Phenomena in Supercritical Aqueous Systems”. Proc. 1st Int’l. Workshop Supercritical Water Oxidation. (February 1995). Amelia Island Plantation, FL.
386. L. B. Kriksunov and D. D. Macdonald. “Understanding Chemical Conditions in Supercritical Water Oxidation Systems”. Proc. 1995 ASME International Mechanical Engineering Congress and Exposition (IMECE), Part 2, HTD 317-2, 271-279 (1995), San Francisco, CA, American Society for Metals International.
387. L. B. Kriksunov and D. D. Macdonald. “Understanding corrosion in high subcritical and supercritical aqueous environments”. Proc. 1995 Summer National Meeting of AIChE. (1995). Boston, MA.
388. M. Urquidi-Macdonald, and D. D. Macdonald. “Predictions of Erosion Corrosion in Welded Steel Pipes Using Artificial Neural Networks”. *Metallic Corrosion,* pp. 1-11. Merida, Mexico. (May 1995).
389. P. C. Lu, D. D. Macdonald and M. Urquidi-Macdonald. “Deterministic Estimation of Crack Growth Rates in Steels in LWR Coolant Environments”. Corrosion/95, NACE Annual Conference and Corrosion Show. Paper #176. pp. 176/1-176/26. (March 26-31, 1995). NACE International, Houston, TX.
390. P. C. Lu, D. D. Macdonald and M. Urquidi-Macdonald. “The Use of Neural Networks in the Prediction of Damage in Water Cooled Nuclear Reactors”. *Proc. Int’l. Symp. on Plant Aging and Life Prediction of Corrodible Structures/95*. pp. 1-7 (1995). NACE International, Houston, TX.
391. R. C. Alkire, M. B. Balmas, D. D. Macdonald and E. Sikora. “Photoinhibition of 304 Stainless Steels”. *Proc. Electrochem. Soc*., 95-2, 206-207 (1995).
392. S. N. Lvov, and D. D. Macdonald. “An Estimation of the Thermal Liquid Junction Potential for Further Development of External Pressure Balanced Reference Electrode”. *Proc. 187th Mtg. of The Electrochemical Society, Inc., Extended Abstracts,* 95-1, (1995). The Electrochemical Society, Inc., Pennington, N.J.

393. S. N. Lvov and D. D. Macdonald. "Thermal Diffusion of Electrolytes in High Temperature Aqueous Solutions". Proc. ASME Int'l. Mechanical Engineering Congress and Exposition". Paper - 95-WA/HT-38. pp. 1-13 (November 12-17, 1995). San Francisco, CA, American Society of Mechanical Engineers (November 1995).
394. M. P. Manahan, D. D. Macdonald, and A. J. Peterson, Jr. "Determination of the Fate of the Current in the Stress-Corrosion Cracking of Sensitized Type 304SS in High Temperature Aqueous Systems". *Corros. Sci*., 37(1), 189-208 (1995).
395. T. Haruna and D. D. Macdonald. "Scan Rate Dependence of the Pitting Potential on the Basis of the Point Defect Model". *Proc. Electrochem. Soc*., 95-2, 209-210 (1995).
396. T. K. Yeh, D. D. Macdonald, and A. T. Motta. "Modeling Water Chemistry, Electrochemical Corrosion Potential and Crack Growth Rate in the Boiling Water Reactor Heat Transport Circuits-Part I: The DAMAGE-PREDICTOR Algorithm". *Nucl. Sci. Eng*., 121, 468-482 (1995).

1996.

397. D. D. Macdonald. "Some Critical Issues in the Failure of Steam Generator Materials", Proc. Specialist Meeting on Environmental Degradation of Alloy 600", Electric Power Research Institute, Airlie House, VA, April 6-9, 1993 (EPRI Report TR-104898, S406, 1996).
398. A. Bertuch, R. Biswas, G. P. Kelkar and D. D. Macdonald. "Brazing of Zirconia to Metal for Development of Oxygen and pH Sensors for High-Temperature, High-Pressure Aqueous Environments". *Ceram. Trans*., 77, 99-106 (1996).
399. A. Goossens, Marcela Vazquez, Digby D. Macdonald, "The nature of electronic states in anodic zirconium oxide films, Part 1: The potential distribution", *Electrochim. Acta*, 41(1), 35-45 (1996).
400. A. Goossens, D. D. Macdonald and M. Vazquez. "The Nature of Electronic States in Anodic Zirconium Oxide Films, Part 2: Photoelectrochemical Characterization". *Electrochim. Acta*, 41(1), 47-55 (1996).
401. A. Goossens and D. D. Macdonald. "Photostimulated Anodic Oxide Film Formation". *J. Appl. Phys.*, 79(1), 157-162 (1996).
402. C. Liu and D. D. Macdonald. "An Advanced Pd/Pt Relative Resistance Sensor for the Continuous Monitoring of Dissolved Hydrogen in Aqueous Systems at High Subcritical and Supercritical Temperatures". *J. Supercrit. Fluids*, 8, 263-270 (1996).
403. C. Liu and D. D. Macdonald. "Prediction of Damage due to Localized Corrosion". *Proc. 1st Intíl. Symp. on Surface Sci. Eng. (supplement)*. Beijing, China. May 15-19, 1995. International Academy Publication, PRC (1996).
404. D. Macdonald, E. Sikora and J. Sikora. "A New Method for Estimating the Diffusivities of Vacancies in Passive Films". *Electrochim. Acta*, 41(6), 783-789 (1996).
405. D. D. Macdonald, C. Liu, and M. P. Manahan, Sr. "Electrochemical Noise Measurements on Carbon and Stainless Steels in High Subcritical and Supercritical Aqueous Environments". Proc. 1st Int'l. Symp. Electrochemical Noise Measurement for Corrosion Applications. ASTM Publication STP-1277,

pp. 247-264 (September 1996). Montreal, Quebec, Canada. Edited by J. R. Kearns, J. R. Scully, P. R. Roberge, D. L. Reichert, and J. L. Dawson. American Society for Testing and Materials.
406. D. D. Macdonald (Panel Chair), "Materials", New World Vistas Air and Space Power for the 21st Century. US Air Force Scientific Advisory Board, The Pentagon, Washington, DC (April 1996).
407. D. D. Macdonald and M. Urquidi-Macdonald. "Interpretation of Corrosion Potential Data from Boiling-Water Reactors under Hydrogen Water Chemistry Conditions". *Corrosion*, 52(9), 659-670 (1996).
408. D. D. Macdonald. "On the Modeling of Stress Corrosion Cracking in Iron and Nickel Base Alloys in High Temperature Aqueous Environments". *Corros. Sci*., 38(6), 1003-1010 (1996).
409. R. Engelhardt, D. D. Macdonald and M. Urquidi-Macdonald. "A Simplified Method for Estimating Corrosion Cavity Growth Rates", *Corros. Sci.*, 38(9), 1613-1635 (1996).
410. R. Engelhardt, D. D. Macdonald, P. J. Millett, A. Sehgal and M. Urquidi-Macdonald. "Modeling Corrosion in Steam Generator Crevices Under Heat Transfer Conditions", Control of Corrosion on the Secondary Side of Steam Generators, (Eds R. W. Staehle, J. A. Gorman, and A. R. McIlree), NACE International, Houston, TX, 1996, p. 551.
411. R. Engelhardt, D. D. Macdonald, P. J. Millett and M. Urquidi-Macdonald. "Transport Processes by Localized Corrosion in Steam Generator Crevices". *Corrosion/96*, Paper #96, pp. 96/1 - 96/20 (March 26-31, 1996). NACE International, Houston, TX.
412. R. Engelhardt and D. D. Macdonald. "The Deterministic Prediction of Damage" Corrosion/97, NACE Annual Conference and Corrosion Show. Paper #331, pp. 331/1 - 331/19 (March 26-31, 1996). NACE International, Houston, TX.
413. Begley, D. D. Macdonald and H. M. Shalab. "Phenomenological Aspects of Fatigue Crack Initiation and Propagation in Type 403 Stainless Steel in Simulated Steam Cycle Environments". *Corrosion*, 52(4), 262-274 (1996).
414. Flores, D. D. Macdonald, O. Pensado, M. Urquidi-Macdonald, D. VanVoorhis and L. Ventzel. "Anode Evaluation for Lithium Aqueous Systems". *Proc. Electrochem Soc*., Los Angeles, CA, pp.1-2 (May 1996).
415. L. Grosso, D. D. Macdonald, J. Panqueva, H. Quiroga-Becerra and C. Retamoso. "Corrosiveness of o/w Emulsions under Hydrodynamic Conditions. DC and AC measurements". *Proc. Electrochem Soc*., 96-2, (1996).
416. L. Kriksunov, and D. D. Macdonald. "Amperometric Hydrogen Sensor for High-temperature Water". *Sensors and Actuators B: Chemical*, B32, 57-60 (1996).
417. Urquidi-Macdonald, D. D. Macdonald, and H-P Chu. "Exploring the Effects of Low Amplitude Fatigue in Crack Growth Rates in High Temperature Aqueous Solution/Metal Systems". Corrosion/96, Paper 125, pp. 125/1 - 125/16 (March 26-31, 1996). NACE International, Houston, TX.
418. P. C. Lu, D. D. Macdonald, M. Urquidi-Macdonald and T. K. Yeh. "Theoretical Estimation of Crack Growth Rates in Type 304 Stainless Steel in BWR Coolant Environments". *Corrosion*, 52(10), 768-785 (1996).

419.R. C. Alkire, M. W. Balmas, D. D Macdonald and E. Sikora. "The Photo-Inhibition of Localized Corrosion on Stainless Steel in Neutral Chloride Solution". *Corr. Sci*., 38(1), 97-103 (1996).

420.S. N. Lvov, and D. D. Macdonald. "Estimation of the Thermal Liquid Junction Potential of an External Pressure Balanced Reference Electrode". *J. Electroanal. Chem*., 403, 25-30 (1996).

421.D. D. Macdonald, "The Deterministic Prediction of Damage", Industrial Corrosion and Corrosion Control Technology Shalaby, H.M. et al. (Editors) 1996 Kuwait Institute for Scientific Research.

422.T. K. Yeh, and D. D. Macdonald. "Computer Modeling for Boiling Water Reactors on Radiolysis, ECP, and Crack Growth Rates". Corrosion/96, Paper 370, pp. 370/1 - 370/17 (March 26-31, 1996). NACE International, Houston, TX.

423.T. K. Yeh, D. D. Macdonald, and A. T. Motta. "Modeling Water Chemistry, Electrochemical Corrosion Potential, and Crack Growth Rate in the Boiling Water Reactor Heat Transport Circuits-Part III: Effect of Reactor Power Level". *Nucl. Sci. Eng*., 123, 305-316 (1996).

424.T. K. Yeh, D. D. Macdonald, and A. T. Motta. "Modeling Water Chemistry, Electrochemical Corrosion Potential and Crack Growth Rate in the Boiling Water Reactor Heat Transport Circuits-Part II: Simulation of Operating Reactors". *Nucl. Sci. Eng*., 123, 295-304 (1996).

425.T. K. Yeh, and D. D. Macdonald. "Predictions of Enhancing Hydrogen Water Chemistry for Boiling Water Reactors by General Catalysis and General Inhibition". Corrosion/96, Paper #124, pp. 124/1 - 124/10 (March 26-31, 1996). NACE International, Houston, TX.

426.T. K. Yeh, and D. D. Macdonald. "Effects of Power Level Change on the Development of Damage in Boiling Water Reactors under Hydrogen Water Chemistry". Corrosion/96, Paper 126, pp. 126/1 - 126/12 (March 26-31, 1996). NACE International, Houston, TX.

1997.

427.C. Breslin, Digby D. Macdonald, Elzbieta Sikora, Janusz Sikora. "Photoinhibition of pitting corrosion on types 304 and 316 stainless steels in chloride-containing solution". *Electrochim. Acta*, 42(1), 137-144 (1997).

428.C. Breslin, Digby D. Macdonald, Janusz Sikora, Elzbieta Sikora." Influence of uv light on the passive behaviour of SS316—effect of prior illumination", *Electrochim. Acta*, 42(1), 127-136 (1997).

429.Liu and D. D. Macdonald. "Modeling the Failure of Low-Pressure Steam Turbine Disks". Proc. 1997 5th Int'l. Conf. Nucl. Eng., ICONE5, May 25-9, 1997, Nice, Fr., Paper 5-2621, p. 423-435 (ASME, NY).

430.Liu and D. D. Macdonald. "Prediction of Failures of Low-Pressure Steam Turbine Disks", *J. Press. Vessel Tech.*, 119, 393-400 (1997).

431.Macdonald and E. Sikora. "Defining the Passive State". *Solid State Ionics*, 94, 141-150 (1997).

432.Macdonald and E. Sikora. "Physics and Electrochemistry of Oxide Growth". Proc. Materials Research Society 1996 Spring Meeting, Symposium on Aqueous

Chem. Geochem. Oxides, Oxyhydroxides, and Related Matls, 432, 259-271 (1997).

433. D. D. Macdonald, T. Miller, B. Shaw and E. Sikora. "Passivity of Nonequilibrium Al-Mo Alloys Formed by EB-PVD", *Proc. Electrochem. Soc*., 97-1, pp. 208-209 (1997).
434. D. Macdonald and L. Zhang. "On the Transport of Point Defects in Passive Films", *Electrochim. Acta*, Vol. 43(7), 679-691 (1997).
435. D. Macdonald and M. Urquidi-Macdonald. "Prediction of Radiation Fields in Pressurized Water Nuclear Reactors". *Proc. Electrochem. Soc*., 97-2, p. 385 (1997).
436. D. D. Macdonald and M. Urquidi-Macdonald. "Exploring the effects of Low Amplitude Fatigue in Crack Growth Rates in High Temperature Aqueous Solution/Metal Systems". *Proc. Electrochem. Soc.*, 97-1, (1997).
437. D. D. Macdonald and M. Urquidi-Macdonald. "Prediction of Radiation Fields in Pressurized Reactors", in *Passivity and Its Breakdown* (Ed. P. M. Natishan, et al.). *Proc. Electrochem. Soc*., 97-26, 91-99 (1997).
438. D. D. Macdonald, and I. Balachov, "On the Determination of Bottom Drain Oxygen in Boiling Water Reactors", *Nuclear Technology*, 120, 86-93 (1997).
439. D. D. Macdonald, E. Sikora and J. Sikora. "The Passive Film on Tungsten", *Proc. Electrochem. Soc.*, 97-1, p. 272 (1997).
440. D. D. Macdonald, E. Sikora, J. Sikora and L. Zhang, "The Kinetics of Growth of Anodic Oxide Films", in Passivity and Its Breakdown (Ed. P. M. Natishan, et al.). *Proc. Electrochem. Soc*., 97-26, 411-419 (1997).
441. D. D. Macdonald, M. Urquidi-Macdonald and B. Voelker. "Lithium-Solid Polymer Electrolyte Batteries: Modeling the Cathode", *Proc. Electrochem. Soc*., 97-1, p. 19 (1997).
442. D. D. Macdonald, M. Urquidi-Macdonald and D. VanVoorhis. "Aging Characteristics for Nickel and Ruthenium Electrodes for Lithium-Water Batteries", *Proc. Electrochem. Soc*., 97-1, p. 17 (1997).
443. D. D. Macdonald, M. Urquidi-Macdonald and D. VanVoorhis. "Cathodes for lithium anodes". *Proc. Electrochem. Soc*., 97-2, pp. 301-302 (1997).
444. D. D. Macdonald, T. Miller, B. Shaw and E. Sikora. "Passivity of Al-Mo Non-equilibrium Alloys Produced by EB-PVD", in Pits and Pores: Formation Properties, and Significance for Advanced Luminescent Materials, pp. 269-281 (1997). The Electrochemical Society, Pennington, N.J.
445. D. D. Macdonald. "Chemistry Sensors for the Universal Solvents—Supercritical Aqueous Solutions", Proc. 4th. Int. Symp. Supercrit. Fluids (Edit. S. Saito and K. Arai), Sendai, Japan, May 11-14, 1997.
446. D. D. Macdonald. "Corrosion/Physicochemical Measurements in Supercritical Aqueous Solutions". Proc. Fifth Int. Symp. Hydrothermal Reacts. Ed. D. A. Palmer and D. Wesolowski. (Gatlinburg, TN, July 20-24, 1997; Publ. ORNL, U.S. Dept. of Energy), pp. 118-123 (1997).
447. D. D. Macdonald. "Evolution of the Point Defect Model in Describing the Growth and Breakdown of Passive Films", *Proc. Electrochem. Soc*., 97-1, p. 252 (1997).

448. K. Eklund, K. E., S. N. Lvov, and D. D. Macdonald, "Measurement of Henry's Constant for Hydrogen in High Subcritical and Supercritical Aqueous Systems", *J. Electroanal. Chem*., 437, 99-110 (1997).
449. G. R. Engelhardt and D. D. Macdonald. "Damage Function Analysis in Describing the Evolution of Corrosion Damage", *Proc. Electrochem. Soc*., 97-1, p. 253 (1997).
450. G. R. Engelhardt, M. Urquidi-Macdonald, and D. D. Macdonald. "A Simplified Method for Estimating Corrosion Cavity Growth Rates". *Corros. Sci*., 39(3), 419-441 (1997).
451. G. R. Engelhardt, S. N. Lvov and D. D. Macdonald. "Importance of Thermal Diffusion in High Temperature Electrochemical Cells". *J. Electroanal. Chem*., 429, 193-201 (1997).
452. H. C. Brookes and D. D. Macdonald. "Inhibition of Oxidation of Nickel, Cu30Ni and Stainless-Steel Type 403 in Buffered Aqueous Chloride Media by Ultraviolet Radiation". Symp. Corros. Prev., Proc. Austral. Corros. Assoc., ISSN 1328-3901 (1997). Electronic publication (CD).
453. J. Flores, D. D. Macdonald and M. Urquidi-Macdonald. "DC and AC anodic behavior of lithium in alkaline aqueous electrolytes". *Proc. Electrochem. Soc*., 97-2, pp. 351-352 (1997).
454. J. Flores, D. D. Macdonald and M. Urquidi-Macdonald. "Anodic Behavior of Lithium in Alkaline Aqueous Electrolytes", *Proc. Electrochem. Soc*., 97-1, p. 18 (1997).
455. J. Flores, D. D. Macdonald, O. Pensado and M. Urquidi-Macdonald. "Outer layer growth modeling for lithium dissolution in concentrated electrolyte aqueous solutions". *Proc. Electrochem. Soc*., 97-2, pp. 506-507 (1997).
456. J. Flores, D. D. Macdonald, O. Pensado, M. Urquidi-Macdonald and D. VanVoorhis. "Lithium/Water System- Primary Batteries". Proc. Fisher Symposium, Karlsruhe Germany, June 1997.
457. J. Flores, D. D. Macdonald, O. Pensado-Rodrguez and M. Urquidi-Macdonald. "Bilayer Film Structure Modeling for Lithium Dissolution in Alkaline Solutions", in *Passivity and Its Breakdown, Proc. Electrochem. Soc*. (Ed. P. M. Natishan, et al.). *Proc. Electrochem. Soc*., 97-26, 870-879 (1997).
458. R. Flores, D. D. Macdonald, O. Pensado-Rodrguez and M. Urquidi-Macdonald. "Modeling of Lithium Anode in Alkaline Solution", *Proc. Electrochem. Soc*., 97-1, p. 16 (1997).
459. L. B. Kriksunov and D. D. Macdonald. "Potential-pH Diagrams for Iron in Supercritical Water", *Corrosion*, 53(8), 605-611 (1997).
460. L. Gao and D. D. Macdonald. "Characterization of Irreversible Processes at the Li/Poly[bis(2,3-di-(2-methoxyethoxy)propoxy)phosphazene] Interface on Charge Cycling". *J. Electrochem. Soc*., 144(4), 1174-1179 (1997).
461. L. Gao and D. D. Macdonald. "Characterization of Irreversible Processes at the Li/Poly[bis(2,3-di-methoxyethoxy)propoxy)phosphazene] Interface on Charge Cycling", *Proc. Electrochem. Soc*., 97-1, p. 80 (1997).
462. L. Zhang and D. D. Macdonald. "Segregation of Alloying Elements in the Passive Films on Ni/W Alloys", *Proc. Electrochem. Soc*., 97-1, p. 271 (1997).

463.N. Hara and D. D. Macdonald. "A New Potentiometric Sensor Based on YSZ Solid Electrolyte for Monitoring of Dissolved Hydrogen in Aqueous Systems at High Temperatures". Proc. JSCE Materials and Environments. Tokyo, Japan. 1997. pp. 333-336. Japan Society of Corrosion Engineering. (In Chinese).

464.N. Hara and D. D. Macdonald. "Oxygen Response of YSZ Sensors with Ag Powder Electrodes in Gaseous and Aqueous Environments". Proc. JSCE Materials and Environments. Tokyo, Japan. 1997. pp. 329-332. Japan Society of Corrosion Engineering. (In Chinese)

465.N. Hara, and D. D. Macdonald, "Development of Dissolved Hydrogen Sensor Based on Yittria-Stabilized Zirconia Solid Electrolyte with Noble Metal Electrode", *J. Electrochem. Soc*.,144(12), 4152-4157 (1997).

466.N. Hara, and D. D. Macdonald, "Oxygen Response of a Yittria-Stabilized Zirconia Sensor with Ag Powder Electrodes at Low Temperatures", *J. Electrochem. Soc.*, 144(12), 4158-4160 (1997).

467.R. Biswas, S. L. Lvo, and D. D. Macdonald. "The Measurement of Kinetic Parameters of Electrochemical Reactions in High Temperature Aqueous Solutions", *Proc. Electrochem. Soc*., 97-1, p. 862 (1997).

468.S. N. Lvov and D. D. Macdonald. "Potentiometric Studies of Supercritical Water Chemistry", in High Temperature Materials Chemistry, (Edit. K. Spear). *The Electrochem. Soc*., pp.746-754 (1997).

469.S. N. Lvov and D. D. Macdonald. "Thermodynamic Computer Simulation of Hydrothermal Synthesis of Oxides in Supercritical Aqueous Environments", in *High Temperature Materials Chemistry*, (Edit. K. Spear). The Electrochem. Soc., pp.472-479 (1997).

470.S. N. Lvov, H. Gao, and D. D. Macdonald. "Development of an Advanced Flow Through External Reference Electrode for Accurate Potentiometric and pH Measurements in Hydrothermal Systems". Proc. Fifth Int. Symp. Hydrothermal Reacts. Ed. D.A. Palmer and D. Wesolowski. (Gatlinburg, TN, July 20-24,1997; Publ. ORNL, U.S. Dept. of Energy), pp.146-148 (1997).

471.T. Haruna and D. D. Macdonald. "Theoretical Prediction of the Scan Rate Dependencies of the Pitting Potential and the Probability Distribution in the Induction Time". *J. Electrochem. Soc*., 144(5), 1574-1581 (1997).

472.T. -K. Yeh, C.-H. Liang, M.-S. Yu, and D. D. Macdonald, "The Effect of Catalytic Coatings on IGSCC Mitigation for Boiling Water Reactors Operated under Hydrogen Water Chemistry". Proc. 8th Int'l. Symp. Env. Deg. of Mat. Nucl. Pwr. Sys. - Water Reactors. (August 1995). Amelia Island, GA (NACE International), 1, 551-558 (1997).

473.T. L. Dull, D. J. Ellerbrock, W. E. Frieze, D. W. Gidley and D. D. Macdonald. "Positron Depth Profiling of Lattice Defects Within the Passive Film on Titanium", *Proc. Electrochem. Soc*., 97-1, p. 165 (1997).

474.T. L. Dull, D. J. Ellerbrock, W. E. Frieze, D. W. Gidley, D. D. Macdonald and B. G. Scherer. "Positron DBS Studies of the Corrosive Breakdown of the Passive Film on Titanium". Proc. 11-th. Int. Conf. Positron Annihilation, ICPA-11, Kansas City, MO, May 25-30, 1997; *Mat. Sci. Forum*, 225-7, 671-673 (1997).

1998.

475.V. Bandura, S. N. Lvov and D. D. Macdonald. “Thermodynamics of Ion Solvation in Dipolar Solvent Using the Monte Carlo Mean Reaction Field Simulation”. *J. Chem. Soc. Faraday Trans*., 94(8), 1063-1072 (1998).
476.C. B. Breslin and D. D. Macdonald. “The Influence of UV Light on the Dissolution and Passive Behavior of Copper-Containing Alloys in Chloride Solutions”, *Electrochim. Acta,* 44, 643-651 (1998).
477.D. D. Macdonald “Passivity: The Key to Our Metals-Based Civilization”, *Proc. 7th International Chemistry Conference in Africa*, University of Natal, Durban, South Africa, July 1998.
478.D. Macdonald “The Electrochemistry of Turbine Cracking”. *Proc. Workshop Corros. Steam Turbine Blading & Disks Phase Transit. Zone*, Electric Power Research Institute, Report TR-111340, C115 (1998).
479.D. Macdonald and L. Zhang. “Segregation of Alloying Elements in Passive Systems. II. Numerical Simulation”, *Electrochim. Acta,* 43, 2673-2685 (1998).
480.D. D. Macdonald and L. Zhang. “Segregation of Alloying Elements in Passive Systems – I. XPS Studies on the NiW System”, *Electrochim. Acta*, 43(18), 2661-2671 (1998).
481.D. D. Macdonald, and L. B. Kriksunov, “Flow Rate Dependence of Localized Corrosion in Thermal Power Plant Materials”. *Adv. Electrochem. Sci. Eng*., 5, 125-193 (1998).
482.D. D. Macdonald, E. Sikora and J. Sikora. “The Kinetics of Growth of the Passive Film on Tungsten in Acidic Phosphate Solutions”, *Electrochim. Acta*, 43(19-20), 2851-2861 (1998).
483.D. D. Macdonald, E. Sikora, J. Sikora and L. Zhang. “On the Kinetics of Growth of Anodic Oxide Films”, *J. Electrochem. Soc*., 145(3), 898-905 (1998).
484.D. D. Macdonald, M. Urquidi-Macdonald and D. Van Voorhis. “Evaluation of Air Cathodes for Lithium/Air Batteries”, *Proc. Electrochem. Soc*., 98-2, 147 (1998).
485.D. D. Macdonald. “Electrochemistry”, Chapter in *The Era of Materials*, Penn. Acad. Sci., Easton, PA (1998).
486.G. R. Engelhardt, D. D. Macdonald and E. Sikora. “Characterizing Electrochemical Systems in the Frequency Domain”, *Electrochim. Acta*, 43(1-2), 87-107 (1998).
487.G. R. Engelhardt and D. D. Macdonald. “Deterministic Prediction of Pit Depth Distribution”, *Corrosion*, 54(6), 469-479 (1998).
488.G. R. Engelhardt and D. D. Macdonald. “The Deterministic Prediction of Localized Corrosion Damage”, *Proc. Electrochem. Soc*., 98-2, Abstr. 223 (1998).
489.G. R. Engelhardt, S. N. Lvov and D. D. Macdonald. “The Use of Channel Flow Cells for Electrochemical Kinetic Studies in High Temperature Aqueous Solutions”, *Proc. Electrochem. Soc*., 98-2, Abstr. 1071 (1998).
490.R. Engelhardt, S. N. Lvov, D. D. Macdonald and M. M. Ulyanova. “Importance of Thermal Diffusion in High Subcritical and Supercritical Aqueous Solutions”, *Int. J. Thermophysics*, 19, 1567-1575 (1998).
491.I. Balachov, G. R. Engelhardt and D. D. Macdonald. “Deterministic Prediction of Damage in Boiling Water Reactors, Due to Stress Corrosion Cracking”. *Proc. Symp. Crit. Factors Localized Corros*., (1998).

492.I. Balachov, I. Kriksunov, D. D. Macdonald and M. Urquidi-Macdonald. "New Techniques to Assess the Level of Cathodic Protection in Underground Pipe Systems". *Proc. 7th International Chemistry Conference in Africa*, University of Natal, Durban, South Africa, July 1998.
493.I. Balachov, N. Henzel, R. Kilian, D. D. Macdonald and B. Stellwag. "Prediction of Materials Damage History from Stress Corrosion Cracking in Boiling Water Reactors". *Proc. ASME/JSME Joint Press. Vess. Piping Conf*., San Diego, CA, 376, 101-109 (July 26-30, 1998).
494.Balachov, D. D. Macdonald, N. Henzel and B. Stellwag, "Modeling and Prediction of Materials Integrity in Boiling Water Reactors". *Proc. Eurocorr98*, Utrecht, NL, (Sept. 28-Oct. 1, 1998).
495.J. Abella, I. Balachov, G. R. Engelhardt, D. D. Macdonald and P. J. Millett. "Chemistry and Electrochemistry of Steam Generator Tube/Support Plate Crevices". *Materials Science Forum*, 289-92, 895-914 (1998).
496.J. Flores, D. D. Macdonald, O. Pensado-Rodriguez, M. Urquidi-Macdonald and D. Vanvoorhis. "Lithium/water System: Primary Batteries", *Electrochim. Acta*, 43(19-20), 3069-3077 (1998).
497.J. Bertin, L. M. Couch, W.H. Heiser, J.E. Jaquish, W.E. Keicher, R.M. Latanision, J.J. Lewandowski, D. D. Macdonald, C. H. Much, S. N. Mullin, W. E. Ramsey, A. R. Seebass, R. E. Smith, and D. Van Wie. "Review and Evaluation of the Air Force Hypersonic Technology Program", *National Research Council, National Academy of Sciences Press*, Washington, D.C., 1998.
498.K. Ismail, D. D. Macdonald and E. Sikora. "Characterization of the Passive State on Zinc". *J. Electrochem. Soc*., 145(9), 3141-3149 (1998).
499.B. Kriksunov and D. D. Macdonald. "Estimation of Dissociation Parameters of Electrolytes at High Temperatures from Specific Conductance Data", *J. Electrochem. Soc*., 145, 4107-4109 (1998).
500.S. N. Lvov and D. D. Macdonald. "Thermodynamic Behavior of Ni-Cd and Ni-H_2 Batteries over Wide Ranges of Temperature (0-200^{o}C), KOH Concentrations (0.1-20 mol/kg^{-1}) and H_2 Pressure (0.1-500 bar)". *J. Power Sources*, 72, 136-145 (1998).
501.S. N. Lvov, H. Gao, and D. D. Macdonald, "Advanced Flow-Through External Pressure-Balanced Reference Electrode for Potentiometric and pH Studies in High Temperature Aqueous Solutions". *J. Electroanal. Chem.*, 443, 186-94 (1998).
502.R. Flores, D. D. Macdonald, O. Pensado-Rodriguez and M. Urquidi-Macdonald. "Steady-State and EIS Studies on the Electrochemistry of Lithium in Alkaline Solutions", *Proc. Electrochem. Soc*., 98-2, Abstr. 1070 (1998).
503.S. N. Lvov, H. Gao, D. Kuznetsov, I. Balachov, and D.D. Macdonald, "Potentiometric pH Measurements in High Subcritical and Supercritical Aqueous Solutions", *Fluid Phase Equilib*., 150-151, 515-523 (1998).
504.T. Haruna and D. D. Macdonald. "Breakdown of Passive Films on Metals: Explanation Based on the Point Defect Model", *Corros. Eng*., 47, 93-106 (1998).
505.X. -Y Zhou, I. I. Balachov, and D. D. Macdonald, "The Effect of Dielectric Coatings on IGSCC in Sensitized Type 304 SS in High Temperature Dilute Sodium Sulfate Solution", *Corros. Sci*., 40(8), 1349-1362 (1998).

506.T. Haruna and D. D. Macdonald. "Breakdown of Passive Films on Metals-Explanation Based on Point Defect Model", *Zairyo-to-Kanko*, 47, 78-85 (1998).

507.X. Zhou, Macdonald, D. D. and I. Balachov, "Enhancing the Operation of Boiling Water Reactors by Deterministic Simulation", *Proc. Water Chemistry '98, 1998 JAIF Int. Conf. Water Chem. Nucl. Power Plants*, Kashiwazaki, Japan, Oct. 13-16 (1998).

1999.

508.D. D. Macdonald, "Passivity-the key to our metals-based civilization", Pure Appl. Chem., 71, 951 (1999).

509.D. D. Macdonald and E. Sikora. "Electrochemical and Photoelectrochemical Study of Passive Films on Iron Formed in the Presence of EDTA", *Proc. Electrochem. Soc*., 99-2, Abstr. 484 (1999).

510.D. D. Macdonald and E. Sikora. "Electrochemical and Photoelectrochemical Study of Passive Films on Iron Formed in the Presence of EDTA", Proc. Int. Symp. Hon. Prof. Norio Sato: Passivity and Localized Corrosion, Electrochemical Society, Princeton, N.J., 99-27, 84-93 (1999).

511.D. D. Macdonald and E. Sikora. "Passive Films on Iron Formed in the Presence of EDTA", Proc. Int. Symp. Passivity Metals and Semiconductors., Jasper, Alberta, Canada, (May 9-14, 1999).

512.D. D. Macdonald, and G. R. Engelhardt, "Prediction of Localized Corrosion Damage", *Proc. Int. Symp. Passivity Metals Semiconds.*, Jasper, Alberta, Canada, (May 9-14, 1999).

513.D. D. Macdonald, and I. Balachov, "Modeling Noble Metal Coatings for Hydrogen Water Chemistry in BWRs", *Proc. 9th Int. Symp. Degrad. Mats. Nucl. Power Systs.-Water Reactors*, Newport Beach, Aug. 1-5, 1999. (ANS, LaGrange, IL). (1999).

514.D. D. Macdonald, E. Sikora and J. Sikora. "Nature of the Passive Film on Tungsten", *Proc. Electrochem. Soc*., 99-2, Abstr. 490 (1999).

515.D. D. Macdonald, E. Sikora and J. Sikora. "Nature of the Passive Film on Tungsten", Proc. Int. Symp. Hon. Prof. Norio Sato: Passivity and Localized Corrosion, Electrochemical Society, Princeton, N.J., 99-27, 205-214 (1999).

516.D. D. Macdonald, H. C. Brookes, M. Urquidi-Macdonald, and M. Vazquez, "Photo-Inhibition of Pitting of Nickel and Alloy CDA-715 in Buffered Chloride-Containing Solutions", *Corrosion*, 55, 343-354 (1999).

517.D. D. Macdonald, I. Balachov, and D. P. Bour, "Corrosion Damage-How Accurately Can We Predict Damage in Industrial Systems?", *Proc. Saudi Aramco Materials Engineering and Corrosion Control Technical Exchange Meeting*, Saudi Aramco, Dhahran, Saudi Arabia, (June 14-17, 1999).

518.D. D. Macdonald, I. Balachov, and G. R. Engelhardt. "Deterministic Prediction of Damage in Boiling Water Reactors Due to Stress Corrosion Cracking." *Proc. Symp. Crit. Factors Localized Corros*., Electrochemical Society, Pennington, N.J., 1999.

519.D. D. Macdonald, J. F. Magalhaes and L. Ventsel. "Environmental Effects on Pitting Corrosion of AISI 440C Ball Bearing Steels – Experimental Results", *Lubrication Engineering*, 55, 36-41 (1999).

520. D. D. Macdonald, O. Pensado-Rodriguez and M. Urquidi-Macdonald. "The Electrochemical Behavior of Lithium in Alkaline Aqueous Electrolytes. I: Thermodynamics". *J. Electrochem. Soc*., 146(4), 1318-1325 (1999).
521. D. D. Macdonald, R. Varma and A. Venugopal. "The Electrochemistry and Corrosion of Beryllium in Buffered and Unbuffered Chloride Solutions", *Proc. Electrochem. Soc*., 99-2, Abstr. 555 (1999).
522. D. D. Macdonald, R. Varma and A. Venugopal. "The Electrochemistry and Corrosion of Beryllium in Buffered and Unbuffered Chloride Solutions", Proc. Int. Symp. Hon. Prof. Norio Sato: Passivity and Localized Corrosion, Electrochemical Society, Princeton, N.J., 99-27, 580-588 (1999).
523. D. D. Macdonald and I. Balachov, "Modeling the Accumulation and Mitigation of SCC Damage in BWRs", Proc. 9-th. Int. Symp. Mats. Degrad. Nucl. Power Systs.-Water Reactors", (Ed. F. P. Ford, S. M. Bruemmer, and G. S. Was), TMS, Warrendale, PA., p. 399-407 (1999).
524. D. F. Heaney and D. D. Macdonald. "Sequence of Events in the Breakdown of Passivity on Stainless Steels", *Proc. Electrochem*., 99-2, Abstr. 540 (1999).
525. D. F. Heaney and D. D. Macdonald. "Sequence of Events in the Breakdown of Passivity on Stainless Steels", Proc. Int. Symp. Hon. Prof. Norio Sato: Passivity and Localized Corrosion, Electrochemical Society, Princeton, N.J., 99-27, 367-376 (1999).
526. D. Heaney and D. D. Macdonald. "On the Photoinhibition of Passivity Breakdown on Iron in Chloride-Containing Solutions". *J. Electrochem. Soc*., 146(5), 1773-1776 (1999).
527. R. Engelhardt and D. D. Macdonald. "Concentration and Potential Distributions in Corrosion Cavities in Steels in NaCl Solutions", *Proc. Electrochem. Soc*., 99-2, Abstr. 507 (1999).
528. R. Engelhardt and D. D. Macdonald. "Prediction of Localized Corrosion Damage", Proc. Int. Symp. Passivity Metals Semiconds., Jasper, Alberta, Canada, (May 9-14, 1999).
529. R. Engelhardt, D. D. Macdonald and M. Urquidi-Macdonald. "Development of Fast Algorithms for Estimating Stress Corrosion Crack Growth Rate in Sensitized Stainless Steels in Boiling Water Reactor Coolant Environments", CORROSION/99, Paper #452. pp. 1-32. San Antonio, TX, 1999.
530. R. Engelhardt, D. D. Macdonald and P. Millett. "Transport Processes in Steam Generator Crevices. I. General Corrosion Model", *Corros. Sci*., 41, 2165-2190 (1999).
531. R. Engelhardt, D. D. Macdonald, M. Urquidi-Macdonald,. "Development of fast algorithms for estimating stress corrosion crack growth rate", *Corros. Sci*., 41(12), 2267-2302 (1999).
532. R. Engelhardt, Digby D. Macdonald, Peter J. Millett, "Transport processes in steam generator crevices. II. A simplified method for estimating impurity accumulation rates", *Corros. Sci*., 41(11), 2191-2211 (1999).
533. C. Brookes, D. D. Macdonald, M. Urquidi-Macdonald and M. Vazquez. "Photo-Inhibition of Pitting of Nickel and Alloy CDA-715 in Buffered Chloride-Containing Solutions", *Corrosion*, 55, 343-354 (1999).

534. Balachov and D. D. Macdonald. "Modeling the Accumulation and Mitigation of SCC Damage in BWRs", Proc. 9-th. Int. Symp. Mats. Degrad. Nucl. Power Systs.-Water Reactors", (Ed. F. P. Ford, S. M. Bruemmer, and G. S. Was), TMS, Warrendale, PA., p. 399-407 (1999).
535. D. D. Macdonald, and I. Balachov, "Modeling Noble Metal Coatings for Hydrogen Water Chemistry in BWRs", *Proc. 9th Int. Symp. Degrad. Mats. Nucl. Power Systs.-Water Reactors,* Newport Beach, Aug. 1-5, 1999. (ANS, LaGrange, IL). (1999).
536. Balachov, D. P. Bour and D. D. Macdonald. "Corrosion Damage-How Accurately Can We Predict Damage in Industrial Systems?", Proc. Saudi Aramco Materials Engineering and Corrosion Control Technical Exchange Meeting, Saudi Aramco, Dhahran, Saudi Arabia, June 14-17, 1999.
537. I. Balachov, G. Engelhardt and D. D. Macdonald. "Deterministic Prediction of Localized Corrosion Damage in Power Plant Coolant Circuits", *Power Plant Chemistry*, 1, 9 (1999).
538. J. Flores, D. D. Macdonald, O. Pensado-Rodriguez and M. Urquidi-Macdonald. "Electrochemical Behavior of Lithium in Alkaline Aqueous Electrolytes. Part II: Point Defect Model". *J. Electrochem. Soc.*, 146(4), 1326-1335 (1999).
539. R. S. Daum, A. T. Motta, D. A. Koss, and D. D. Macdonald, "Hydrogen-Assisted Failure of Alloys X-750 and 625 Under Slow Strain Rate Conditions", *Proc. 9-th. Int. Symp. Mats. Degrad. Nucl. Power Systs.-Water Reactors*, (Ed. F. P. Ford, S. M. Bruemmer, and G. S. Was), TMS, Warrendale, PA., p. 179-186 (1999).
540. S. N. Lvov, D. D. Macdonald and X. Zhou. "Flow-Through Electrochemical Cell for Accurate pH Measurements at Temperatures up to 400oC". *J. Electroanal. Chem*., 463, 146-156 (1999).
541. S. N. Lvov, D. D. Macdonald, S. M. Ulyanov and X. Zhou. "Potentiometric Measurements of Association Constants and pH in High Temperature HCl(aq) Solutions", Proc. 13th. Int. Conf. Props. Water Steam (Toronto, Canada, Sept. 13-17, 1999).
542. S. N. Lvov, X. Zhou, S. M. Ulyanov, and D. D. Macdonald, "Potentiometric Measurement of Association Constant and pH in High Temperature HCl(aq) Solutions", in Properties of High Temperature Water and Aqueous Solutions (Ed. P. Tremaine), (1999).

2000.

543. D. D. Macdonald and E. Sikora. "The Passivity of Iron in the Presence of Ethylenediaminetetraacetic Acid. I. General Electrochemical Behavior". *J. Electrochem. Soc*., 147(11), 4087-4092 (2000).
544. D. D. Macdonald, and G. R. Engelhardt, "Deterministic Prediction of Localized Corrosion Damage in Power Plant Coolant Circuits," in Environmentally Assisted Cracking: *Predictive Methods for Risk Assessment and Evaluation of Materials, Equipment, and Structures, ASTM STP* 1401, R. D. Kane, Ed., American Society for Testing and Materials, West Conshohocken, PA, (2000).
545. D. D. Macdonald, E. Sikora and J. Sikora. "The Electronic Structure of the Passive Film on Tungsten", *Electrochim. Acta,* 45, 1875-1883 (2000).

546. D. D. Macdonald, Jing Pang, and Peter J. Millett, The Hydrolysis of Metal Salt Solutions at Elevated Temperatures, *Power Plant Chemistry*, 2(3), 133–140 (2000).
547. D. D. Macdonald, R. Varma and A. Venugopal. "The Electrochemistry of Beryllium in Buffered and Unbuffered Chloride Solutions". *J. Electrochem. Soc*., 147(10), 3673-3679 (2000).
548. D. D. Macdonald. "Theoretical Interpretation of Anion Size Effects in Passivity Breakdown", *Proc. Electrochem. Soc*., Vol. 2000-2, Abstr. 405 (Oct 22-27, 2000, Phoenix, AZ).
549. D. D. Macdonald. "Review of Some Fundamental Aspects of Passivity Breakdown", *Proc. Corros*. Prev.-2000, pp. 250-275 (Nov. 19-22, Auckland, N.Z.).
550. D. F. Heaney and D. D. Macdonald. "Effect of Variable Intensity Ultraviolet Radiation on Passivity Breakdown of AISI Type 304 Stainless Steel", *Corros. Sci*., 42, 1779 – 1799 (2000).
551. G. R. Engelhardt, and D. D. Macdonald, "Modeling of Corrosion Fatigue Chemistry in Sensitized Steel in Boiling Water Reactor Environment", Paper No. 227, *CORROSION2000*, Orlando, FL (March 2000).
552. Quiroga Becerra, D. D. Macdonald and C. Retamosa. "The Corrosion of Carbon Steel in Oil-in-Water Emulsions Under Controlled Hydrodynamic Conditions", *Corros. Sci*., 42, 561-575 (2000).
553. H.-S. Kwon, A. Wuensche, and D. D. Macdonald, "Effect of Flow Rate on Crack Growth in Sensitized Type 304 Stainless Steel in High Temperature Solutions", *Corrosion*, 56, 482-491 (2000).
554. K.K. Aligizaki and D. D. Macdonald. "Diagnostic Analysis of the Growth of Passive Films on Aluminum," Proceedings of Symposium E1: Corrosion and Corrosion Prevention of Low-Density Metals and Alloys, Eds B. A. Shaw, R. G. Buchheit, and J. P. Moran, Vol. 2000-23, pp 211-219, Electrochemical Society 198th Meeting, Phoenix, AZ, October 22-27, 2000.
555. K. Aligizaki, M.R. de Rooij and D. D. Macdonald. "Analysis of Iron Oxides Accumulating at the Interface Between Aggregates and Cement Paste" Cement and Concrete Research, 30(12), 1941-1945 (2000).
556. Al-Rafaie, G. R. Engelhardt and D. D. Macdonald. "Transient Growth and Reduction of Anodic Oxide Films on Metal Surfaces", *Proc. Corros*. Prev.-2000, pp. 311-317 (Nov. 19-22, Auckland, N.Z.).
557. S. N. Lvov, D. D. Macdonald, S. M. Ulyanov and X. Y. Zhou, "Potentiometric Measurements of Association Constants and pH in High Temperature HCl(aq) Solutions", *Power Plant Chemistry*, 2(1), 5-8 (2000).

2001.

558. A. Davydov, G. R. Engelhardt, P. Jayaweera, D. D. Macdonald and N. Priyantha. "The Deterministic Prediction of Localized Corrosion Damage to Alloy C-22 HLNW Canisters", Proc. Int. Workshop Pred. Long Term Corros. Behav. Nucl. Waste Systs., (Commissariat a l'Energie Atomique and Pennsylvania State University), Cadarache, France, Nov. 26-29 (2001) pp. 103-117.

559.D. D. Macdonald, H. Quiroga and C Retamosa. “Anodic and Cathodic Behavior of Carbon Steel 1010 Immersed in O/W Emulsions Under Controlled Hydrodynamic Conditions”, *Corros. Sci*., 43, 681-692 (2001).
560.D. D. Macdonald. “An Overview of the Chemical and Electrochemical Conditions that Exist in SCWO Systems,” Paper No. 01358, pp. 1-27, *CORROSION2001* (NACE International, Houston, TX), March 11-16, 2001.
561.D. D. Macdonald. “Corrosion Kinetics”, Encyclopedia of Materials: Science and Technology, ISBN: 0-08-0431526, Elsevier Science Ltd., pp. 1690-1698, (2001).
562.D. D. Macdonald. “Deterministic Prediction of Localized Corrosion Damage”, *Proc.12th Asia-Pacific Corros. Control Conf*., (Seoul, Korea, Oct. 8-12,2001), 1, 67-81 (2001).
563.D. D. Macdonald. “Techniques for Monitoring the Chemistry and Electrochemistry of Very Hot Solutions”, *Proc. 1st DAWAC Conf., Int. Atomic Energy Agency*, Smolenice Castle, Slovakia, Nov. 20-23, (2001)
564.D. D. Macdonald. “The Deterministic Prediction of General Corrosion Damage in HLNW Canisters”, *Proc. Int. Workshop Long-Term Extrapolation Passive Behavior,* (A. A. Sagues and C. A. Di Bella, Eds), (July 19-20, 2001), Arlington, VA, US Nuclear Waste Tech. Rev. Board, 24 pp.
565.D. D. Macdonald. “The Role of Internal/External Environment Coupling in Stress Corrosion Cracking”, in Chemistry and Electrochemistry of Stress Corrosion Cracking: A Symposium Honoring the Contributions of R. W. Staehle”, pp. 193-210, (Ed. R. H. Jones), TMS (The Minerals, Metals, and Materials Soc), (2001).
566.R. Engelhardt and D. D. Macdonald. “Towards a Mechanism Based Theory for Crack Initiation,” Paper #01116, pp. 1-20, *CORROSION2001* (NACE International, Houston, TX), (March 22-16, 2001).
567.G. R.. Engelhardt, D. D. Macdonald, and M. Urquidi-Macdonald, “Response to Dr. A. Turnbull’s Discussion on “Development of Fast Algorithms for Estimating Stress Corrosion, Corros. Sci., 41(12), 2267 (1999)”, *Corros. Sci*., 43, 195-198 (2001).
568.Flores, D. D. Macdonald, O. Pensado-Rodriguez and M. Urquidi-Macdonald. “The Electrochemistry of Lithium in Alkaline Aqueous Electrolytes. Part III: Impedance Model”. *J. Electrochem. Soc.*, 148(10), B386 – B399 (2001).
569.J. Liu and D. D. Macdonald. “The Passivity of Iron in EDTA-Containing Solutions. Part II: Nature of the Passive Film”, *J. Electrochem. Soc*., 148(11), B425-B430 (2001).
570.R. Flores, D. D. Macdonald, O. Pensado and M. Urquidi-Macdonald. “The Electrochemical Behavior of Lithium in Alkaline Aqueous Electrolytes”, *Electrochim. Acta*, 47(5), 833-840 (2001).
571.K K. Aligizaki and D. D. Macdonald. "Mechanisms of Enhancing the Corrosion Resistance of Rebar in Chloride-Contaminated Concrete," Paper No 01639, pp. 1-11, Symposium T-11-4 Corrosion Resistant Reinforcing Materials for Reinforced Concrete Structures, *CORROSION2001* (NACE International, Houston, TX), (March 11-16, 2001).
572.G. Benning, S. N. Lvov, D. D. Macdonald, X. J. Wei and X. Y. Zhou. “Measuring Corrosion Rate of Type 304 SS in Subcritical and Supercritical Aqueous Solutions

via Electrochemical Noise Analysis", Paper No. 368, *CORROSION2001,* (NACE International, Houston, TX), March 11-16, 2001.

573. L. Kriksunov and D. D. Macdonald. "Probing the Chemical and Electrochemical Properties of SCWO Systems", *Electrochim. Acta*, 47, 775-790 (2001).
574. M. Al-Rafaie, G. R. Engelhardt and D. D. Macdonald. "New Rate Laws for the Growth and Reduction of Passive Films", *J. Electrochem. Soc*., 148(9), B343 - B347 (2001).
575. D. D. Macdonald, Urquidi-Macdonald, Mirna, Allcock, Harry, Engelhard, George, Bomberger, N, Gao, L, and Olmeijer, D. "*Development of novel strategies for enhancing the cycle life of lithium solid polymer electrolyte batteries". Final report*. United States, 2001. Web. doi:10.2172/810692.
576. S. Liu and D. D. Macdonald. "Fracture of AISI 4340 Steel in Concentrated Sodium Hydroxide Solution", Paper 01236, pp. 1-15, *CORROSION2001* (NACE Int., Houston, TX), (March 11-16, 2001).

2002.

577. D. D. Macdonald, "The Electrochemistry of IGSCC Mitigation in BWR Coolant Circuits", *Proc. Chimie* 2002, (French Nuclear Society), Avignon, France, (April 2002).
578. D. D. Macdonald and E. Sikora. "Nature of the Passive Film on Nickel", *Electrochim. Acta,* 48, 69-77 (2002).
579. D. D. Macdonald and M. Urquidi-Macdonald. "Transients in the Growth of Passive Films on High Level Nuclear Waste Canisters", *Proc. Int. Workshop Pred. Long Term Corros. Behav. Nucl. Waste Systs.*, (Commissariat a l'Energie Atomique and Pennsylvania State University), Cadarache, France, Nov. 26-29 (2002) pp. 165-178.
580. D. D. Macdonald and M. Vankeerberghen. "Predicting Crack Growth Rate vs. Temperature-Behaviour of Type 304 Stainless Steel in Dilute Sulfuric Acid Solutions", *Corros. Sci*., 44, 1425-1441 (2002).
581. D. D. Macdonald. "Comments on 'Electrochemical Transients During the Initial Moments of Anodic Oxidation of Aluminum' by Huiguan Wu and Kurt Hebert, *Electrochim. Acta,* 47, 1373-1383 (2002)", *Electrochim. Acta,* 48, 127-130 (2002).
582. D. D. Macdonald. "Controlling IGSCC in BWR Coolant Circuits", *Proc. 2nd*st *DAWAC Conf., Int. Atomic Energy Agency,* Prague, Czech Republic, Nov. 26-29, (2002).
583. D. D. Macdonald. "Fact and Fiction in ECP Measurement and Control", *Proc. Chimie 2002,* French Nuclear Soc., Avignon, France, April 22-26 (2002).
584. D. D. Macdonald. "The Electrochemistry of IGSCC Mitigation in BWR Coolant Circuits", *Power Plant Chemistry*, 4(6), 329-335 (2002).
585. D. D. Macdonald. et. al., "High temperature on-line monitoring of water chemistry and corrosion control in water cooled power reactors; Report of a coordinated research project 1995-1999", *Proc. IAEA-TECDOC-1303, International Atomic Energy Agency (IAEA)*, Vienna, Austria, (July 2002).
586. E. Cho, H. S. Kwon and D. D. Macdonald. "Photoelectrochemical Analysis on the Passive Film Formed on Fe-20Cr. In pH 8.5 Buffer Solution", *Electrochim. Acta*, 47(10), 1661-1668 (2002).

587. H. R. Allcock, L. Gao, D. D. Macdonald, D. L. Olmeijer and M. Urquidi-Macdonald. "Charge Cycling and Characterization of a Polyphosphazene Solid Polymer Electrolyte-Manganese (IV) Oxide Intercalation Cathode Interface", *Electrochim. Acta*, 47, 3863-3872 (2002).
588. J. Abellà, Iouri Balachov, Digby D. Macdonald, Peter J. Millet, "Transport processes in steam generator crevices: III. Experimental results", *Corros. Sci*., 44(1), 191 (2002).
589. G. Benning, S. N. Lvov, D. D. Macdonald, X. J. Wei and X.Y. Zhou. "Quantitative Evaluation of General Corrosion of Type 304 Stainless Steel in Subcritical and Supercritical Aqueous Solutions via Electrochemical Noise Analysis". *Corros. Sci*., 44(2), 841-860 (2002).
590. M. Urquidi-Macdonald, Stefany Lyn Jacesko, Digby D. Macdonald, and Monica Salter-Williams, "Importance of ECP in the Prediction of Radiation Fields in PWR and VVER Primary Circuits", *Power Plant Chemistry*, 4(7), 384–390 (2002).
591. D. D. Macdonald, "Application of Damage Function Analysis to Reactor Coolant Circuits", *Proc. Chimie 2002*, (French Nuclear Society), Avignon, France, (April 2002).
592. S. L. Jacesko, D. D. Macdonald, M. Salter-Williams and M. Urquidi-Macdonald. "Importance of ECP in the Prediction of Radiation Fields in PWR and VVER Primary Circuits", *Power Plant Chemistry*, 4(7), 384-390(2002).
593. S. Liu and D. D. Macdonald. "Fracture of AISI 4340 Steel in Concentrated Sodium Hydroxide Solution", *Corrosio*n, 58, 835-845 (2002).

2003.

594. Barry Dooley, Digby Macdonald, and Barry C. Syrett, "ORP - The Real Story for Fossil PowerPlants", *Power Plant Chemistry*, 5(1), 5–15 (2003); "Errata", *Power Plant Chemistry*, 5(2), 89 (2003).
595. D. Macdonald and M. Vankeerberghen. "Calculating the Temperature-Maximum and the Lower Potential Limit for the Crack Growth Rate in Type 304 SS Using the CEFM", *CORROSION 2003* (NACE), Paper No.03520 (2003).
596. D. Macdonald. "Mixed Potential-Point Defect Models for Nuclear Waste Containers", Topical Research Symposium on the Prediction of Corrosion Damage, *CORROSION2003*, San Diego, CA, March 2003.
597. G. Chen, D. D. Macdonald, T. E. Mallouk and C. C. Waraksa. "EIS Studies of Porous Oxygen Electrodes with Discrete Particles: II, Transmission Line Modeling", *J. Electrochem. Soc*., 150(9), E429-E437 (2003).
598. G. Chen, H. Cho, D. D. Macdonald, T. E. Mallouk and C. C. Warakas. "EIS Studies of Porous Oxygen Electrodes with Discrete Particles: I: Impedance of Catalyst Oxide Supports", *J. Electrochem. Soc*., 150(9), E423-E428 (2003)
599. G. Engelhardt and D. D. Macdonald. "Theory For The Deterministic Prediction Of Pitting Corrosion Damage On Aluminum", *Proc. Electrochemical Society*, Orlando, FL, (Oct. 12-17, 2003).
600. G. Engelhardt and D. D. Macdonald. "Unification of the Deterministic and Statistical Approaches for Predicting Localized Corrosion Damage: I. Theoretical Foundation", *Corros. Sci.*, 46, 2755-2780 (2003).

601. H. L. Barnes, L. G. Benning, D. E. Grandstaff, S. N. Lvov, D. D. Macdonald, M. Manna, G. C. Ulmer, S. M. Ulyanov, E. Vicenzi and X. Y. Zhou. "Progress on Yttria-stabilized Zirconia Sensors for Hydrothermal pH Measurements", *Chemical Geology*, 198(3-4), pp. 141-162(2003).
602. M. Gomez-Duran, Digby D. Macdonald, "Stress corrosion cracking of sensitized Type 304 stainless steel in thiosulfate solution: I. Fate of the coupling current", *Corros. Sci*., 45(7), 1455-1471 (2003).
603. S. Ahn, H. S. Kwon and D. D. Macdonald. "The Role of Chloride Ion in Passivity Breakdown on Nickel", *Proc. Electrochemical Society*, Orlando, FL, (Oct. 12-17, 2003).

2004.

604. A. Davydov, G. R. Engelhardt, P. Jayaweera, D. D. Macdonald and N. Priyantha. "The Localized Corrosion of Alloy C-22 in Simulated HLNW Environments", Paper #04693, *CORROSION2004*, New Orleans, LA, March 2004.
605. D. Macdonald, "Effect of pressure on the rate of corrosion of metals in high subcritical and supercritical aqueous systems", *J. Supercritical Fluids*, 30(3), 375-382 (2004).
606. D. D. Macdonald, "Stress Corrosion Cracking in Reactor Coolant Circuits – An Electrochemist's Viewpoint", *Power Plant Chemistry*, 6(12), 731-747 (2004).
607. D. D. Macdonald, A. Sun, N. Priyantha, and P. Jayaweera "An electrochemical impedance study of Alloy-22 in NaCl brine at elevated temperature: II. Reaction mechanism analysis". *J. Electroanal. Chem*., 572(2), 421-431 (2004).
608. D. D. Macdonald, L. G. McMillion, S. A. Namjoshi and A. Sun. "Deterministic Modeling of Alloy 22 Uniform Corrosion: Model Parameter Derivation from Electrochemical Impedance Spectroscopy Data," *TMS MS&T 2004 Symposium on Materials Damage Prognosis*, New Orleans, LA, (September 2004).
609. D. D. Macdonald, P. Park and M. Urquidi-Macdonald. "Application of the PDM (Point Defect Model) to the Oxidation of Zircaloy Fuel Cladding in Water-Cooled Nuclear Reactors," *Proc. 12th Intl. Conf. on Nuclear Engineering*, Paper ICONE12-49098, Arlington, VA, (April 25-29, 2004).
610. D. D. Macdonald and B. Soundararajan. "Caustic Cracking of AISI 4340 Steel", Paper #04572, *CORROSION2004*, New Orleans, LA, (March 2004).
611. D. D. Macdonald. "After Two Decades of Predicting Crack Growth Rate – What Have We Learned?" Paper #04673, *CORROSION2004*, New Orleans, LA, (March 2004).
612. D. D. Macdonald. "Critical Issues in Understanding Corrosion and Electrochemical Phenomena in Super Critical Aqueous Media", Paper #04484, CORROSION '04, New Orleans, LA, (March 2004).
613. D. D. Macdonald. "Fate of the Coupling Current in Stress Corrosion Cracking – Mechanistic and Corrosion Control Implications", Paper #04570, *CORROSION2004*, New Orleans, LA, (March 200)4.
614. D. D. Macdonald. "Fueling the Hydrogen Economy", *Materials Today*, p. 64, (June 2004).

615. D. D. Macdonald. “Fundamental Issues in the Application of Electrochemical Impedance Spectroscopy”, Paper #04443, *CORROSION2004*, New Orleans, LA, March 2004.
616. D. D. Macdonald. “Passive Films: Nature’s Exquisitely Nano-Engineered Protection System”, *Current Applied Physics*, 4(2-4), 129-132 (2004).
617. G. R. Engelhardt, Digby D. Macdonald, Yancheng Zhang, and R. Barry Dooley, “Deterministic Prediction of Corrosion Damage in Low Pressure Steam Turbines”, *Power Plant Chemistry*, 6(11), 647–661 (2004).
618. I. Balachov, G. R. Engelhardt and D. D. Macdonald. "The Electrochemistry of Stress Corrosion Cracking-from Theory to Damage Prediction in Practical Systems," *Proceedings of 2nd Intl. Conf. on Environment-Induced Cracking of Metals (EICM-2)*, Banff, Alberta, Canada, Sept. 19-23, 2004, Elsevier, pp. 55-92.
619. C.-T. Liu, D. Lee and D. D. Macdonald. “Development of W/WO_3 Sensors for the Measurement of pH in an Emulsion Polymerization System”, *J. Appl. Electrochem*., 34(6), 577-582 (2004)
620. N. Priyantha, P. Jayaweera, D. D. Macdonald, and A. Sun. “An electrochemical impedance study of Alloy 22 in NaCl brine at elevated temperature. I. Corrosion behavior”. *J Electroanal. Chem*., 572(2), 409-419 (2004).
621. D. D. Macdonald, “Passive films: nature’s exquisitely nano-engineered protection system”, Current Applied Physics 4 (2004) 129–132

2005.

622. A. Davydov, G. R. Engelhardt, P. Jayaweera, D. D. Macdonald, and N. Priyantha. “The Localized Corrosion of Alloy 22 in Sodium Chloride Solutions at Elevated Temperature” *Corrosion*, 61(9), 857-871 (2005).
623. D. A. Jones, D. D. Macdonald, L. G. McMillion and A. Sun. “General Corrosion of Alloy 22: Experimental Determination of Model Parameters from Electrochemical Impedance Spectroscopy Data,” *Met. Trans. A*, 36A, 1129 (2005).
624. D. D. Macdonald and M. T. Smith. “Wavelet Analysis of Electrochemical Noise Data,” Paper #05355, *CORROSION 2005*, Houston, TX, (April 2005).
625. D. D. Macdonald, “Fact and Fiction in ECP Measurement and Control in Boiling Water Reactor Primary Coolant Circuits,” *Power Plant Chemistry*, 7(6), 324-338 (2005).
626. D. D. Macdonald, C. L. Muhlstein and O. N. Pierron. “Galvanic effects in Si-based micro electro mechanical systems: Thick oxide formation and its implications for fatigue reliability.” *Applied Physics Letters*, 86(21), 211919 (2005).
627. D. D. Macdonald, J. H. Mahaffy, J. S. Pitt and M. Urquidi-Macdonald. “,” *Proc. 13th Intl. Conf.* Electrochemical Model of Activity Transport in Pressurized Water Reactors *on Nuclear Engineering*, Paper ICONE13-50423, Beijing, China, (May 16-20, 2005).
628. D. D. Macdonald, J. Pitt and M. Urquidi-Macdonald. “Modeling of Activity Transport in Pressurized Water Reactors”, Proc. ICONE-13, Shanghai, China, (May 16 – 20, 2005).

629. D. D. Macdonald. "Deterministic Prediction of Localized Corrosion Damage – A Reflective Review of Critical Issues", *J. Corr. Sci. Eng.*, 6, Paper C066 (2005).
630. D. D. Macdonald. "Fundamental Issues in the Application of Electrochemical Impedance Spectroscopy," Paper #05343, *CORROSION 2005*, Houston, TX, (April 2005).
631. D. D. Macdonald. "Internal/External Environment Coupling in Stress Corrosion Cracking", *J. Corr. Sci. Eng.*, 6, Paper C065 (2005).
632. D. J. Kim, H. P. Kim, J. S. Kim and D. D. Macdonald. "Galvanic Corrosion between Carbon Steel 1018 and Alloy 600 in Crevice with Boric Acid Solution", *Corros. Sci. and Tech.*, 4(3), 75 (2005).
633. G. Engelhardt and D. D. Macdonald. "The Holy Grail – Predicting Localized Corrosion Damage from First Principles," *Proc. Pipelines 21st Century Symposium*, Calgary Canada, August 21-24 (2005).
634. E. Bao, M. Kamrunnahar, and D. D. Macdonald. "Challenges in the Theory of Electron Transfer at Passive Interfaces," *Corros. Sci.*, 47(12) 3111-3139 (2005).
635. Beketaeva, A. Davydov, G. R. Engelhardt, P. Jayaweera, D. D. Macdonald and K. V. Rybalka. "The Kinetics of Hydrogen Evolution and Oxygen Reduction on Alloy 22*," Corros. Sci.*, 47(1), 195-215 (2005).
636. S. Ahn, H. S. Kwon, and D. D. Macdonald. "The Role of Chloride Ion in Passivity Breakdown on Iron and Nickel", *J. Electrochem. Soc.*, 152, B482 (2005).
637. X. Guan, D. D. Macdonald and T. Zhu. "A Review of Current and Past Reference Electrode Technology for Use in High Subcritical and Supercritical Aqueous Systems," Paper #05389, *CORROSION 2005*, Houston, TX, (April 2005).
638. X. Y. Guan and D. D. Macdonald. "Development of Advanced In-Situ Techniques for Probing the Chemistry and Electrochemistry Properties of High Temperature Aqueous Systems." *Proc. Ridge 2000 Progress and Planning Workshop*, Vancouver, Canada, (2005).
639. Y. Chen, D. D. Macdonald and M. Urquidi-Macdonald. "Transient Oxide Film Growth on Zirconium in High Temperature Aqueous Solutions," *Proceedings 12th Intl. Conf. on Env. Degradation of Materials in Nuclear Systems-Water Reactors*, August 14-18, Salt Lake City, Utah (2005).

2006.

640. D. D. Macdonald, A. Sun, "An electrochemical impedance spectroscopic study of the passive state on Alloy-22", *Electrochim. Acta*, 51(8-9), 1767-1779 (2006).
641. D. D. Macdonald and B. Roh. "The Impact of Oxygen Vacancies on the Oxygen Electrode Reactions on Anodic Oxide Films on Titanium," *Proc. 10th Meeting of the Electrochemical Society/XXI Congreso de la Sociedad Mexicana de Electroquimica*, (Oct. 29-Nov 3, 2006); Cancun, Mexico. Published in ECS Transactions-Cancun.
642. D. D. Macdonald and T. K. Yeh. "The Efficiency of Noble Metals in Reducing the Corrosion Potential in the Primary Coolant Circuits of Boiling Water Reactors Operating under Hydrogen Water Chemistry Operation," *J. Nuclear Sci. Tech.*, 43, 1228-1236 (2006).
643. D. D. Macdonald. "On the Existence of our Metals-Based Civilization: I. Phase Space Analysis," *J. Electrochem. Soc.*, 153(7), B213 (2006).

644. D. D. Macdonald. “Reflections on the History of Electrochemical Impedance Spectroscopy,” *Electrochim. Acta*, 51, 1376-1388 (2006).
645. D. D. Macdonald. “The Role of Passivity in the Corrosion Resistance of Metals and Alloys,” *AFINIDAD*, 62, 498 (2006).
646. J. Ai, Y. Chen, D. D. Macdonald and M. Urquidi-Macdonald. "Electrochemical Impedance Spectroscopic Study of Passive Zirconium: Part 1. High Temperature, Deaerated Aqueous Solutions," *J. Electrochem. Soc.*, 154(1), C43-C51 (2006).
647. J. Ai, Y. Chen, D. D. Macdonald and M. Urquidi-Macdonald. "Electrochemical Impedance Spectroscopic Study of Passive Zirconium: Part 2. High Temperature, Hydrogenated Aqueous Solutions," *J. Electrochem. Soc.*, 154(1), C52-C59 (2006).
648. A. Sun , J. Franc, D. D. Macdonald. “Growth and properties of Oxide Films on Platinum I. EIS and XPS Studies”, *J. Electrochem. Soc.*, 153, B260, (2006)
649. J. Liu, B. M. Marx and D. D. Macdonald. "Analysis of Electrochemical Impedance Data for Iron in Borate Buffer Solutions," *Nuclear Waste Management: Accomplishments of the Environmental Management Science Program*, Wang, P., Zachry, T., Eds.; ACS Symposium Series 943; American Chemical Society: Washington, DC, (2006).
650. L. Amelinckx, M. Kamrunnahar, P. Chou, D. D. Macdonald. “Figure of merit for the quality of ZrO2 coatings on stainless steel and nickel-based alloy surfaces”, *Corros. Sci*., 48(11), 3646-3667 (2006).
651. M. Gomez-Duran, Digby D. Macdonald, “Stress corrosion cracking of sensitized Type 304 stainless steel in thiosulphate solution. II. Dynamics of fracture”, *Corros. Sci*., 48(7), 1608-1622 (2006).
652. R. B. Dooley, G. R. Engelhardt, D. D. Macdonald, M. Urquidi-Macdonald and Y. Zhang. "Passivity breakdown on AISI Type 403 stainless steel in chloride-containing borate buffer solution", *Corros. Sci*., 48, 3812-3823 (2006).
653. X. Guan, Ting Zhu, and Digby D. Macdonald, “Application of Electrochemical Noise Analysis in High Subcritical and Supercritical Aqueous Systems”, *Power Plant Chemistry*, 8(12), 732–741 (2006).
654. X. Y. Guan, D. D. Macdonald and T. Zhu. "Application of Electrochemical Noise Analysis in High Subcritical and Supercritical Aqueous Systems," Paper 06449, *Corrosion2006*, NACE Intl., San Diego, CA, (March 12 – 16, 2006).
655. X. Y. Guan and D. D. Macdonald. “Corrosion of stainless steels in supercritical aqueous systems” *Proc. Eighth International Symposium on Advances in Electrochemical Science and Technology* (Goa, India, 2006).
656. X. Y. Guan and D. D. Macdonald. “Quantification of Corrosion Rates in Super Critical Aqueous Systems” *Proc. 14 th Asian Pacific Corrosion Control Conference*, (Shanghai, China, 2006).
657. Y. Chen, D. D. Macdonald and M. Urquidi-Macdonald. “The Electrochemistry of Zirconium in Aqueous Solutions at Elevated Temperatures and Pressures,” *J. Nuclear Materials*, 348, 133-147 (2006).

2007.

658. D. D. Macdonald. "Kinetic Stability Diagrams," *ECS Transactions*, 3(31) 403-418 (2007).

659. A. Sun and D. D. Macdonald, “Growth and Properties of Oxide Films on Platinum II. pH Dependence in Alkaline Solutions”, *ECS Trans*., 2 (17), 1 (2007).
660. B-W. Roh and D. D. Macdonald, “The Impact of Oxygen Vacancies on the Oxygen Electrode Reaction on Anodic Oxide Films on Titanium”, *ECS Trans*., 3 (32), 57 (2007).
661. D. D. Macdonald and B-W. Roh. "Impact of Oxygen Vacancies in Anodic Titanium Oxide Films on the Kinetics of the Oxygen Electrode Reaction - In honor of Dr. Boris Grafov," *Russ. J. Electrochem*., 43(2), 125 (2007).
662. D. D. Macdonald and M. Urquidi-Macdonald. " The Electrochemistry of Nuclear Reactor Coolant Circuits," *Encyclopedia of Electrochemistry*, A.J. Bard and M. Stratmann eds. Vol 5 Electrochemical Engineering, Edited by Digby D. Macdonald and Patrik Schmuki, Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, pp. 665-720, (2007).
663. D. D. Macdonald and S. F. Yang. "Passivity Breakdown and the Evolution of Localized Corrosion Damage on Type 316L Stainless Steel”, *ECS Trans.*, 3 (31), 73 (2007).
664. D. D. Macdonald and Shoufeng Yang, “Oxyanion Inhibition of Passivity Breakdown and the Nucleation of Pits on Type 316L Stainless Steel”, *Power Plant Chemistry*, 9(10), 596–607 (2007).
665. D. D. Macdonald, “Theory of Passive Film Stability”, *ECS Trans*., 2 (9), 73 (2007).
666. D. D. Macdonald, Jiahe Ai, Yingzi Chen, and Mirna Macdonald, “Electrochemical Impedance Spectroscopic Study of Passive Zirconium in High Temperature Deaerated Aqueous Solutions”, *ECS Trans*., 2 (17), 29 (2007).
667. D. D. Macdonald. “Erratum: On the Existence of Our Metals-Based Civilization: I. Phase-Space Analysis [J. Electrochem. Soc., 153, B213 (2006)]”, *J. Electrochem. Soc.*, 154, S12 (2007).
668. G. R. Engelhardt, Digby D. Macdonald, and R. Barry Dooley, “The Prediction of Blade and Disc Failures in Low Pressure Steam Turbines”, *Power Plant Chemistry*, 9(8), 454–462 (2007).
669. J. Ai, Y. Chen and D. D. Macdonald. “Electrochemical impedance study of zirconium in high temperature hydrogenated aqueous solutions”. *ECS Transactions*, 3(14), 161-170 (2007).
670. J. Ai, Y. Chen, D. D. Macdonald and M. Urquidi-Macdonald. “Electrochemical impedance study of zirconium in high temperature de-aerated aqueous solutions”. *ECS Trans.*, 2(17), 29-38 (2007).
671. J. Bao and D. D. Macdonald. “Charge Carrier Tunneling Across the Passive Film on Platinum”, *ECS Trans.*, 3 (34), 1-13 (2007).
672. J. Bao and D. D. Macdonald. “Hydrogen Oxidation on Oxidized Platinum at Elevated Temperatures, Part I: the Tunneling Current”, *special edition of J. Electroanal. Chem. in honor of Dr. Boris Grafov*, 600, 205-216 (2007).
673. J. Bao, C.-L. Liao, D. D. Macdonald and R. E. Vilar-Martinez. "Kinetics and Mechanism of Hydrogen Electrode Reaction on Platinum at Elevated Temperatures”, *ECS Trans.*, 2 (29), 9 (2007).

674. J. C. Tokash, Jason McLafferty, Yancheng Zhang, Wendy Coulson, and Digby D. Macdonald, "Polyhedral Boranes as Electrochemical Hydrogen Storage Materials", *ECS Trans*., 2 (29), 27 (2007).
675. M. Urquidi-Macdonald, Jonathan Pitt, Digby D. Macdonald, "The impact of radiolytic yield on the calculated ECP in PWR primary coolant circuits", *J. Nucl. Mat*., 362(1), 1-13 (2007).
676. S. Yang, Digby D. Macdonald. "Theoretical and experimental studies of the pitting of type 316L stainless steel in borate buffer solution containing nitrate ion", *Electrochim. Acta*, 52(5), 1871-1879 (2007).
677. W. Coulson, D. D. Macdonald, J. McLafferty, J. C. Tokash and Y. Zhang. "Electroanalysis of the Borohydride Ion", *ECS Trans.*, 2 (29), 19 (2007).
678. X. Y. Guan and D. D. Macdonald. "Volume of Activation for the Corrosion of Type 304 SS in High Subcritical and Supercritical Aqueous Media" National Association of Corrosion Engineers (NACE) paper no. 07407 (2007)
679. X. Y. Guan, D. D. Macdonald and T. Zhu. "Current State-of-the-Art in Reference Electrode Technology for Use in High Subcritical and Super Critical Aqueous Systems," *European Corrosion Federation Number 49, Electrochemistry in Light Water Reactors*, R-W. Bosch, D. Féron and J-P. Celis Eds, Woodhead Publishing Limited, Cambridge, UK, pp. 3-42, (2007).
680. Y. Kobayashi, D. D. Macdonald, T. E. Mallouk and J. A. Schottenfeld. "Structural Effects in the Protonic/Electronic Conductivity of Dion-Jacobson Phase Niobate and Tantalate Layered Perovskites" *J. Phys. Chem. C*, 111(7), 3185-3191 (2007).
681. Y. Zhang, Digby D. Macdonald, Mirna Urquidi-Macdonald, George R. Engelhardt, and R. Barry Dooley, "Prediction for Pitting Corrosion of AISI Type 403 Stainless Steel in Chloride-Containing Borate Buffer Solution", *Power Plant Chemistry*, 9(7), 401–408 (2007).
682. Z. Ahmed, R. Biswas, G. R. Engelhardt, S. N. Lvov and D. D. Macdonald. "The Use of Channel Flow Cells for Electrochemical Kinetic Studies in High Temperature Aqueous Solutions," *Electrochim. Acta*, 52, 4124-4131 (2007).

2008.

683. D. D. Macdonald and I. Nicic. "The Passivity of Type 316L Stainless Steel in Borate Buffer Solution", *J. Nuc. Mat*, 379(1-3), 54-58(2008).
684. D. D. Macdonald. "On the Tenuous Nature of Passivity and its Role in the Isolation of HLNW", *J. Nuc. Mat.*, 379(1-3), 24-32 (2008).
685. D. D. Macdonald, D. Féron. "Preface to Nuclear Waste Isolation Meeting". *J. Nucl. Mat*., 379(1-3), 1 (2008).
686. I. Balachov, G. R. Engelhardt and D. D. Macdonald. "The Electrochemistry of Stress Corrosion Cracking – from Theory to Damage Prediction in Practical Systems", *Environment-Induced Cracking of Materials*, Volume 2: Prediction, Industrial Development and Evaluation, Elsevier, pp. 55-92(2008).
687. J. Ai, Y. Chen, D. D. Macdonald and M. Urquidi-Macdonald. "Electrochemical Impedance Spectroscopic Study of Passive Zirconium", *J. Nucl. Mats*, 379(1-3), 162-168 (2008).

688.J. Bao and D. D. Macdonald, "Kinetics of the Hydrogen Electrode Reaction on Platinum in Alkaline Solutions at Elevated Temperatures", *ECS Trans*., 11 (27), 1 (2008)

689.O. Azizi and Digby D. Macdonald, "Sulphur Chemistry of the Near-Field Boom Clay Environment", *Proc. SANUC Conference*, Cadarache, France (2008).

690.W. Y. Maeng, Digby D. Macdonald. "The effect of acetic acid on the stress corrosion cracking of 3.5NiCrMoV turbine steels in high temperature water". *Corros. Sci*., 50(8), 2239-2250 (2008).

691.X. Y. Guan and D. D. Macdonald. "Volume of Activation for the Corrosion of Type 304 SS in High Subcritical and Supercritical Aqueous Systems and Pressure Effect on Corrosion Rate", *Proc. 14th International Corrosion Congress*, Las Vegas, NV, (October 6-10, 2008).

692.Y. Kobayashi, D. D. Macdonald, T. E. Mallouk, J. A. Schottenfeld and J. Wang. "Proton-Conducting Films of Nanoscale Ribbons Formed by Exfoliation of the Layer Perovskite $H_2SrTa_2O_7$", *Chem. Mats*, 20(1), 213-219 (2008).

693.Z. Lu, D. D. Macdonald, E. Manias, and G. Polizos. "State of Water in Perfluorosulfonic Ionomer (Nafion 117) Proton Exchange Membranes", *J. Electrochem. Soc*, 155(2), B163-B171, (2008).

694.Z. Lu and D. D. Macdonald. "Transient Growth and Thinning of the Barrier Oxide Layer on Iron Measured by Real-time Spectroscopic Ellipsometry," *Electrochim. Acta*, 53, 7696-7702 (2008).

695.W. Y. Maeng and D. D. Macdonald, "Fracture model of the stress corrosion cracking of low alloy steel in high temperature water", *Corros. Sci*., 50, 2239 (2008).

2009.

696. A. Almarzooqi, O. Azizi, D. D. Macdonald, and A. Saleh. "The Electrochemistry of Carbon Steel in Simulated Concrete Pore Water", *Proc. Eurocorr 2009*, Nice, France (2009).

697.D. D. Macdonald, "Modeling the Impedance of Bi-Layer Passive Films on Metal Surfaces"*, Proc. Eurocorr 2009*, Nice, France (2009).

698.D. D. Macdonald, O. Azizi, and A. Saleh, "The passivity and corrosion resistance of carbon steel in simulated boom clay HLNW environments", *Proc. International RILEM Workshop NUCPERF 2009 on Long-Term performance of cementitious barriers and reinforced concrete in nuclear power plants and waste management*, (30 March – 2 April 2009), Cadarache, France.

699.D. D. Macdonald., "Is Copper Immune When in Contact with Water", in *Mechanisms of Copper Corrosion in Aqueous Environments", Report: Swedish National Council for Nuclear Waste's Scientific Workshop*, Stockholm, Sweden, November 16, 2009.

700.D. D. Macdonald. "Kinetic Stability Diagrams and the Prediction of Passivity", *Proc. Eurocorr 2009*, Nice, France (2009).

701.D. D. Macdonald. "Why Electrochemical Impedance Spectroscopy is the Ultimate Tool in Mechanistic Analysis", *ECS Trans.*, 19(20), 55 (2009).

702. D. D. Macdonald. in "Electrochemistry in Light Water Reactors - Reference Electrodes, Measurement, Corrosion and Tribo-corrosion Issues" ISBN: 9781420054088, Publisher: CRC Press.
703. G. Cohn, Y. Ein-Eli, R. Hagiwara, D. D. Macdonald, and D. Starosvetsky. "Silicon-air Batteries", *Electrochem. Commun.*, 11(10), 1916-1918 (2009).
704. G. Engelhardt and D. D. Macdonald. "*ECS Trans.*, 19(29), 179 (2009).
705. G. R. Engelhardt and D. D. Macdonald. "Modeling the Dynamics of Corrosion Fatigue", *Proc. Eurocorr 2009*, Nice, France (2009).
706. J. Tokash, G. R. Engelhardt, and D. D. Macdonald, "On the Development of a General Electrochemical Impedance Model", *ECS Trans.*, 19(20), 13 (2009).
707. M. Lanagan, Z. Lu, E. Manias, and D. D. Macdonald. "Dielectric Relaxation in Dimethyl Sulfoxide/Water Mixtures Studied by Microwave Dielectric Relaxation Spectroscopy," *J. Phys. Chem. A*, 113, 12207-12214 (2009).
708. M. Lanagan, Z. Lu, E. Manias, and D. D. Macdonald. "Two-Port Transmission Line Technique for Dielectric Property Characterization of Polymer Electrolyte Membranes," *J. Phys. Chem. B*, 113, 13551-13559 (2009).
709. M. Lewis, D. D. Macdonald, J. McLafferty and R. Peek. "Electromagnetic Induction Corrosion Control Technology (EICCT)", *ECS Trans.*, 19 (29), 55 (2009)
710. H. Rosas-Camacho, Mirna Uquidi-Macdonald, and Digby D. Macdonald, "Deterministic Modeling of the Corrosion of Low-Carbon Steel by Dissolved Carbon Dioxide and the Effect of Acetic Acid. I-Effect of Carbon Dioxide", *ECS Trans*., 19(29), 143 (2009).
711. S. Colominas, J. McLafferty and D. D. Macdonald. "Electrochemical Studies of Sodium Borohydride in Alkaline Aqueous Solutions Using a Gold Electrode", *Electrochim. Acta*, 54, 3575 (2009).
712. X. Y. Guan and D. D. Macdonald, "Determination of Corrosion Mechanisms and Estimation of Electrochemical Kinetics of Metals Corrosion in High Subcritical and Supercritical Aqueous Systems" *Corrosion*, 65(6), 376 – 387 (2009)
713. X. Y. Guan and D. D. Macdonald. "Volume of Activation for the Corrosion of Type 304 SS in High Subcritical and Supercritical Aqueous Systems" *Corrosion*, 65(7), 427 - 437 (2009).

2010.

714. D. D. Macdonald, "The Electrochemical Nature of Stress Corrosion Cracking", *Proc. Workshop on Stress Corrosion Cracking of Nickel-Base Alloys at CEA – Coriou Effect*, CEA-Saclay, France, (Jan. 26, 2010)
715. D. D. Macdonald, and G. R. Engelhardt, "The Point Defect Model for Bi-Layer Passive Films", *ECS Trans*, 28(24), 123 – 144 (2010).
716. D. D. Macdonald. "Adventures in Corros. Sci. and Electrochemistry", You Tube, http://www.youtube.com/watch?v=9DJi_sWNnr8 (2010).
717. D. D. Macdonald. "Prediction of the Accumulation of Pitting Damage on Aluminum in Aqueous Solutions", *Proc. Alum. Anod. Council., Annual Meeting*, Marriott Montreal Chateau Champlain, Montreal, Quebec on (October 5-7, 2010).

718. E. C. Dickey, D. D. Macdonald, N. J. O. Podraza, and J. D. Sloppy. "Complex Dielectric Functions of Anodic Bi-layer Tantalum Oxide", *Electrochim. Acta*, 55, 8751 (2010).
719. E. C. Dickey, D. D. Macdonald and J. D. Sloppy. "Growth Laws of Bilayer Anodized Tantalum Oxide Films Formed in Phosphoric Acid", *J. Electrochem. Soc.*, 157(5), C157-C165 (2010).
720. G. R. Engelhardt and D.D. Macdonald. "Modeling the Crack Propagation Rate for Corrosion Fatigue at High Frequency of Applied Stress", *Corros. Sci.*, 52(4), 1115-1122 (2010).
721. H. Kim and D. D. Macdonald. "Measurement of steady-state hydrogen electrode reactions on Alloys 600 and 690 tubes", *Corros. Sci*., 52(4), 1139-1145 (2010).
722. Lanagan, Z. Liu, D. D. Macdonald and E. Manias. "Dielectric Properties of Polymer Electrolyte Membranes Measured by Two-Port Transmission Line Technique", *ECS Trans*, 28(29), 95 – 105 (2010).
723. S. Colominas, D. D. Macdonald, and J. Mc Lafferty, "Attempts to Cathodically Reduce Boron Oxides to Borohydride in Aqueous Solution", *Electrochim. Acta*, 56 108 (2010).
724. Z. Liu, D. D. Macdonald, E. Manias and G. Polizos, "State of Water in Perfluorosulfonic Ionomer (Nafion) Proton Exchange Membranes", *ECS Trans*, 28(30), 81 – 89 (2010).
725. Z. Lu, E. Manias, M. Lanagan, and D. Macdonald, "Dielectric Relaxation in Dimethyl Sulfoxide/Water Mixtures", *ECS Trans*., 28 (18), 11 (2010).
726. D. D. Macdonald and G. R. Engelhardt, "Predictive Modeling of Corrosion". In: Richardson J A et al. (eds.), *Shrier's Corrosion*, 2, 1630-1679 (2010). Amsterdam: Elsevier.
727. D. D. Macdonald, "Kinetic Theory of Depassivation", *Proc. 18th Int. Corros. Congr*., Perth, Australia, Nov. 20-24 (2010).
728. D. D. Macdonald and S. Sharifi(asl), "Volt Equivalent Diagrams as a Means of Displaying the Electrochemical Thermodynamics of Aqueous Systems", *Proc. 18th Int. Corros. Congr*., Perth, Australia, Nov. 20-24 (2010).
729. M. Urquidi-Macdonald, B. Normand, H. Mendy, D. D. Macdonald, "Extended Point Defect Model for Nickel-Chromium Alloys", *Proc. 18th Int. Corros. Congr*., Perth, Australia, Nov. 20-24 (2010).

2011.

730. A. Saleh, O. Azizi, O. Rosas-Camacho, Al-Marzooqi, D. D. Macdonald, "Some Important Issues in the electrochemistry of Carbon Steel in Simulated Concrete Pore Water: Part 2- Experimental", *Corros. Eng. Sci. Tech*., 46(2) 104-110 (2011).
731. Almarzooqi, O. Azizi, S. K. Lee, D. D. Macdonald, O. Rosas-Camacho, and, A. Saleh and M. Taylor. "The Electrochemistry of Carbon Steel in Simulated Concrete Pore Water in Boom Clay Repository Environments", *European Physics Journal* - Web of Conference (2011).
732. D. D. Macdonald, "Sulphur-assisted corrosion in nuclear waste disposal systems", (eds: Kursten B., Druyts F. and Féron D. *Proceedings of the International workshop on Sulphur-Assisted Corrosion in Nuclear Waste Disposal Systems*, (21-23 October, 2008), Brussels, Belgium, EFC publication N° 59, 2011.

733. D. D. Macdonald, M. Urquidi-Macdonald, George R. Engelhardt, Orchid Azizi, Amr Saleh, Ahmed Almazooqi, and Omar Rosas-Camacho, "Some Important Issues in the Electrochemistry of Carbon Steel in Simulated Concrete Pore Water: Part 1- Theoretical Issues", *Corros. Eng. Sci. Tech*., 46(2) 98-103 (2011).
734. D. D. Macdonald. "Electrochemical Methods and Sensors", Chapter 12, in Nuclear Corros. Sci. and Engineering, Ed. D. Feron, Woodhead Publ., Cambridge, UK, 2011, 61 pp.
735. J. Bellows, M. Taylor, D. Seong and D. D. Macdonald, "Modeling Studies and Electrochemical Experiments on Amine Systems." *Proc. 72nd Int. Water Conf.*, San Antonio, (October 2010), paper IWC 10-33 (2011).
736. D.D. Macdonald, A. Saleh, S.K. Lee, O, Azizi, O. Rosas-Camacho, A. Almarzooqi and M. Taylor "The Electrochemistry of Carbon Steel in Simulated Concrete Poor Water in boom Clay Repository Environment", *EPJ web of conferences*, 12, 04003, (2011), DOI, 10.1051/epjconf/20111204003.
737. D. D. Macdonald, M. Urquidi-Macdonald, George R. Engelhardt, O. Aziz, A. Saleh, A. Almarzooqi, and O. Rosas-Camacho, "Some Important Issues in Electrochemistry of Carbon Steel in Simulated Concrete Pore Water. Part 1 – Theoretical Issues". *Corro. Engin. Sci. Techn.*, 46(2), 98-103 (2011).
738. A. Saleh, O. Aziz, O. Rosas-Camacho, A. Almarzooqi, and D. D. Macdonald, "Some Important Issues In Electrochemistry of Carbon Steel in Simulated Concrete Pore Water. Part 2 – Experimental", *Corro. Engin. Sci. Techn.*, 46(2), 104-110 (2011).
739. D. D. Macdonald, "Theoretical Investigation of the Evolution of the Passive State on Alloy 22 in Acidified, Saturated Brine under Open Circuit Conditions", *Electrochim. Acta*, 56, 7411– 7420 (2011).
740. D. D. Macdonald, "The History of the Point Defect Model for the Passive State: A Brief Review of Film Growth Aspects", *Electrochim. Acta*, 56, 1761–1772 (2011). (Invited Review).
741. B. Kursten, F. Druyts, D. D. Macdonald, N. R. Smart, R. Gens, L. Wang, E. Weetjensand J. Govaerts, "Review of the Corrosion Studies of the Metallic Barrier in Geological Disposal Conditions with Respect to the Belgian Supercontainer Concept", *Corros. Engin. Sci. Techn.*, 46(2), 91-97 (2011).
742. G. Cohn, D. D. Macdonald, and Y. Ein-Eli, "Remarkable Impact of Water on the Discharge Performance of a Silicon–Air Battery", *Chemsuschem*, 4, 1124 – 1129 (2011).
743. Y-C. Zhang, M. Urquidi-Macdonald, G. R. Engelhardt, and D. D. Macdonald, "Development of Localized Corrosion Damage on Low Pressure Turbine Disks and Blades: II. Passivity Breakdown", *Electrochim. Acta*, 69, 12-18 (2011).
744. Y-C. Zhang, M. Urquidi-Macdonald, G. R. Engelhardt, and D. D. Macdonald, "Development of Localized Corrosion Damage on Low Pressure Turbine Disks and Blades: III. Application of Damage Function Analysis to the Prediction of Damage", *Electrochim. Acta*, 69, 19-29 (2011).
745. D. Macdonald, "Passivity: The Reason Why We Can Use Reactive Metals to Build Machines", Proc. *CORCON*, Mumbai, India, September 28-30, 2011.
746. D. D. Macdonald and S. Sharifiasl, "A Corrosion Domain Analysis of Copper Corrosion in Aqueous Media", *Proc. Eurocorr 2011*, Stockholm, Sweden, 2011.

747. D. D. Macdonald, A. Saleh, Ahmed Almarzooqi, O. Rosas-Comacho, S-K. Lee, S. Sharifiasl, and M. Taylor, "The Electrochemistry of Carbon Steel in Simulated Concrete Pore Water in Boom Clay Repository Environments", *Proc. EUROCORR 2011*, Euro. Fed. Corros., Stockholm, Sweden, 2011.
748. D. D. Macdonald, "On the Kinetic Theory of Depassivation", *Proc. EUROCORR 2011*, Euro. Fed. Corros., Stockholm, Sweden, 2011.
749. Z. Lu, B. Marx and D. D. Macdonald, "Transient Growth and Thinning of the Barrier Oxide Layer on Iron", *Proc. EUROCORR 2011*, Euro. Fed. Corros., Stockholm, Sweden, 2011.
750. D. D. Macdonald and S. Sharifiasl, "Volt Equivalent Diagrams as a Means of Displaying the Electrochemical Thermodynamics of Aqueous Systems", *Proc. EUROCORR 2011*, Euro. Fed. Corros., Stockholm, Sweden, 2011.
751. B. Kursten, F. Druyts, D.D. Macdonald, N.R. Smart, R. Gens, L. Wang, E. Weetjens and J. Govaerts, *Corros. Eng. Sci. Tech.*46(2), pp 91-97 (2011)
752. D. D. Macdonald. "Long-term prediction of corrosion damage in nuclear waste systems", (eds: B. Kursten, F. Druyts and D. Féron), Proceedings of the 4th International Workshop on the Long-Term Prediction of Corrosion Damage in Nuclear Systems, 28 June – 2 July, 2010, Bruges, Belgium, *Corros. Eng., Sci. Tech.*, in press, 2011.

2012.

753. Y. Zhang, M. Urquidi-Macdonald, G. R. Engelhardt, and D. D. Macdonald, "Development of Localized Corrosion Damage on Low Pressure Turbine Disks and Blades: III. Application to Damage Function Analysis", *Electrochim. Acta*., 69, 19-29 (2012).
754. Yu Zhong and Digby D. Macdonald, "Thermodynamics of the Zr-H Binary System Related to Nuclear Fuel Sheathing and Pressure Tube Hydriding", *J. Nucl. Mat.*, 423, 87-92 (2012).
755. Y. Zhang, M. Urquidi-Macdonald, G. R. Engelhardt, and D. D. Macdonald, "Development of Localized Corrosion Damage on Low Pressure Turbine Disks and Blades: I. Passivity", *Electrochim. Acta*., 69, 1-11, (2012).
756. D. D. Macdonald and G. R. Engelhardt, "A Brief Review of Determinism in the Prediction of Localized Corrosion Damage", *Z. Phys. Chem*., 226, 1–18 (2012).
757. D. D. Macdonald, "Advances in the Study of Electrochemical and Corrosion Phenomena In High Subcritical and in Supercritical Aqueous Solution", Modern Aspects of Electrochemistry, 47, 1 – 182 (2012); Ed. Su-l Pyun and J-N. Lee.
758. K. Kim, J. Geringer, and D. D. Macdonald, "Crack simulation of nano-bioceramic composite microstructures with cohesive failure law: effects of sintering, loads and time", *J. Mechan. Behav. Biomed.Mats*, 15, 1-12 (2012).
759. J. Geringer, D.D. Macdonald, "Modeling fretting corrosion wear of 316L SS against Poly(methyl methacrylate) with the point defect model: fundamental theory, assessment and outlook", *Electrochim. Acta*, 79, 17-30 (2012).
760. J. Geringer, J. Pellier, M. L. Taylor, and D. D. Macdonald, "Fretting corrosion with proteins: the role of organic coating on the synergistic mechanisms", *Proc. ICMCTF*, 2012.

761. G. R. Engelhardt and D. D. Macdonald, "Possible Distribution of Potential and Corrosion Current Density Inside Corroding Crevices", *Electrochim. Acta*, 65, 266– 274 (2012).
762. E. Salahinejad, M. J. Hadianfard, D. D. Macdonald, M. Mozafari, D. Vashaee, and L. Tayebi, "Zirconium titanate thin film prepared by an aqueous particulate sol–gelspin coating process using carboxy methylcellulose as dispersant", *Materials Letters*, 88, 5–8 (2012).
763. D. D. Macdonald, "Some Personal Adventures in Passivity—a Review of the Point Defect Model for Film Growth", *Russian Journal of Electrochemistry,* 48(3), 235–258 (2012).
764. Y. Zhong and D. D. Macdonald, "Thermodynamics of the Zr–H binary system related to nuclear fuel sheathing and pressure tube hydriding", *J. Nucl. Mat.*, 423, 87–92 (2012).
765. J. Geringer and D. D. Macdonald, "Modeling fretting-corrosion wear of 316L SS against poly(methyl methacrylate) with the point defect model: fundamental theory, assessment, and outlook", Electrochim. Acta, 79, 1730 (2012).
766. D. D. Macdonald, "The Passive State in Our Reactive Metals-Based Civilization", *Arab J. Sci. Eng*, 37, 1143–1185 (2012).
767. E. Salahinejad, M. J. Hadianfard, D. D. Macdonald, I. Karimi, D. Vashaee, L. Tayeb, "Aqueous Sol–gel Synthesis of Zirconium Titanate (ZrTiO4) Nanoparticles Using Chloride Precursors", *Ceram. Inter.*, 38, 6145–6149 (2012).

2012.

768. J. D. Sloppy, Z. Lu, E. C. Dickey and, D. D. Macdonald "Growth Mechanism of Anodic Tantalum Pentoxide formed in Phosphoric Acid", *Electrochim. Acta*, 87, 82-91(2013).
769. E. Salahinejad, M.J. Hadianfard, D.D. Macdonald, S. SharifiAsl, M. Mozafari, K.J. Walker, A. Tahmasbi Rad, S.V. Madihally, D. Vashaee, and L. Tayebi, "Surface modification of stainless-steel bone implants by means of sol–gel derived ZrTiO4 and ZrTiO4–PMMA thin films", *Journal of Biomedical Nanotechnology*, 9(8) 1327-1335 (2013).
770. J. Geringer, M. Mathew, M. Wimmer, N. Hallab, J. Jacobs, D. Macdonald, "About differences in wear-corrosion synergism between articulating surfaces and modular junctions of MoM joints", *Proc. ORS 2013*, San Antonio, TX, USA (2013).
771. J. Geringer, M.L. Taylor, D.D. Macdonald, "Predicting thickness of passive films in order to prevent degradations of implants", *Proc. ICMCTF 2013*, San Diego CA USA (2013).
772. E. Salahinejad, M. J. Hadianfard, D. D. Macdonald, M. Mozafari, D. Vashaee, L. Tayebi "Multilayer zirconium titanate thinfilms prepared by a sol–gel deposition method", *Ceram. Inter.,* 39, 1271–1276 (2013).
773. S.-K. Lee, W. Kuang, J. A. Mathews, and D. D. Macdonald, "Coupling Current Monitoring of Crevice Corrosion: Part I, Detecting Crevice Activation, Inversion, and Inhibition", *Power Plant Chem.,* 15(4) 240-250 (2013).
774. J. Geringer, M. Mathew, M. Wimmer, and D. D. Macdonald, "Synergism effects during and friction and fretting corrosion experiments – focusing on biomaterials

used as orthopedic implants", in *Biomaterials and Medical Tribology: Research and Development*, Ed.J. Paolo Davim, Woodhead Publishing Limited, 2013, DOI: 10.1533/9780857092205.133.
775. J. Geringer, J. Pellier, M.L Taylor, D.D. Macdonald, "Fretting corrosion with proteins: the role of organic coating about the synergistic mechanisms" *Thin solid films*, 528, 123-129 (2013).
776. J. Geringer, M.L. Taylor, D.D. Macdonald, "Predicting the steady-state thickness of passive films with the Point Defect Model in fretting corrosion experiments", *Thin solid films,* submitted (2013).
777. B. Kursten, F. Druyts, N. R. Smart, D. D. Macdonald, R. Gens, L. Wang, E. Weetjens, and J. Govaerts, "Review of Passive Corrosion Studies of Carbon Steel in Concrete in the Context of Disposal of HLW and Spent Fuel in Belgium", Proc. 15th Inter. Conf. Environ. Remed. Radioactive Waste Management, ICEM2013-96275, September 8-12, 2013, Brussels, Belgium.
778. S.-K. Lee, W. Kuang, J. A. Mathews, and D. D. Macdonald, "Determining the Coupling Current as a Means of Detecting Crevice Activation and Inhibition", *ECS Trans.*, 50(31), 69-78 (2013).
779. Z. Lu, S. Sharifi-Asl and D. D. Macdonald, "In-Situ Spectroscopic Ellipsometry and Electrochemical Studies of the Barrier Layer on Iron in Borate Buffer Solutions", *ECS Trans.,* 50 (31) 251-266 (2013).
780. M. Urquidi-Macdonald, A. Almarzooqi, B. Kursten, and D. D. Macdonald, "On the Stability of the Passive Film on Iron as Indicated by Electrochemical Impedance Spectroscopy", *ECS Trans.*, 50(31), 283-299 (2013).
781. J. Geringer, J. Pellier, M.T. Taylor, D.D. Macdonald, "Electrochemical Impedance Spectroscopy insights for fretting corrosion experiments", *Tribology International*, 68 (2013) 67-76.
782. J. Geringer, J. Pellier, M.L Taylor, D.D. Macdonald, "Fretting corrosion with proteins: the role of organic coatings on synergistic mechanisms". *Thin solid films*, 528, 123-129 (2013).
783. W.-J. Kuang, Sang-Kwon Lee, James A. Mathews, Digby D. Macdonald, "Monitoring crevice corrosion via the coupling current, PartII: the effect of Anodamine", *Power Plant Chemistr*y, 15, 328-337 (2013).
784. W. Kuang, S.-K. Lee, J. A. Mathews, and D. D. Macdonald, "Monitoring Crevice Corrosion via the Coupling Current: Part II, Effect of Anodamine", PowerPlant Chemistry 15(5), 356-365 (2013).
785. S.-K. Lee, W. Kuang, J. A. Mathews, and D. D. Macdonald, "Monitoring Crevice Corrosion via the Coupling Current: Part I: Detecting Crevice Activation, Inversion, and Inhibition", PowerPlant Chemistry 15(4), 240-250 (2013).
786. S.-K. Lee, P. Lv, and D. D. Macdonald, "Customization of the CEFM for Predicting Stress Corrosion Cracking in Lightly Sensitized Al-Mg alloys in Marine Applications", J. Solid State Electrochem., 17(8), 2319-2332 (2013).
787. E. Salahinejad, M.J. Hadianfard, D.D. Macdonald, S. Sharifi-Asl, M. Mozafari, K.J. Walker, A. Tahmasbi Rad, S.V. Madihally, D. Vashaee, and L. Tayebi, "Surface modification of stainless-steel orthopedic implants by sol–gel ZrTiO4 and ZrTiO4–PMMA coatings", J. Biomed. Nanotechnology, 9 1327-1335, (2013).

788.J Géringer, J Pellier, ML Taylor, D. D Macdonald, "Electrochemical Impedance Spectroscopy: Insights for fretting corrosion experiments", *Trib. Inter.*, 68, 67-76 (2013).

789.J Geringer, D. D Macdonald, M Taylor, "Predicting the steady state thickness of passive films with the Point Defect Model in fretting corrosion experiments // Prévision de l'épaisseur du film passif d'un acier inoxydable 316L soumis au fretting corrosion grâce au Point Defect Model, PDM", *MATEC Web of Conferences* 7, 04001 (2013).

790.K Williams, R Bayles, P. M Natishan, D. D Macdonald, "A novel application of the scanning vibrating probe for determination of coupling currents: Understanding the mechanisms SCC in 5000 series Al alloys", ECS ECS Meeting Abstracts, 1810-1810 (2013).

791.W Kuang, S Lee, J Mathews, D. D Macdonald, "Monitoring Crevice Corrosion Via the Coupling Current: Effect of Anodamine", ECS ECS Meeting Abstracts, 1785-1785 (2013).

792.P Lu, A Almarzooqi, B Kursten, D. D. Macdonald, "The Corrosion of Carbon Steel in Simulated Concrete Pore Water Under Anoxic Conditions", ECS Meeting Abstracts, 1836-1836 (2013).

793.S. K Lee, D. D Macdonald, "Stress Corrosion Cracking of Alloy 22", ECS ECS Meeting Abstracts, 1781-1781 (2013).

794.S-K. Lee, D. D Macdonald, "Development of semi-elliptical surface cracks in lightly sensitized Al-Mg alloys", ECS ECS Meeting Abstracts, 1780-1780 (2013).

795.G Engelhardt, B Kursten, D. D Macdonald, "Corrosion of Carbon Steel in Physically-Constrained Locations in HLNW Isolation", ECS ECS Meeting Abstracts, 1792-1792 (2013).

796.D. D Macdonald, "The Point Defect Model for the Passive Sulfide Films On Copper", ECS ECS Meeting Abstracts, 1834-1834 (2013).

797.D. D Macdonald, A Unified Theory for Passivity and Passivity Breakdown, ECS Meeting Abstracts, 1789-1789 (2013).

798.D. D Macdonald, F Mao, "Mechanism of the Anodic Oxidation of Platinum", ECS ECS Meeting Abstracts, 2510-2510 (2013).

799.B Kursten, F Druyts, N. R Smart, D. D Macdonald, R Gens, L Wang, E Weetjens, J Govaerts, "Review of passive corrosion studies of carbon steel in concrete in the context of disposal of HLW and spent fuel in Belgium", *ASME 2013 15th International Conference on Environmental Remediation and Radioactive Waste Management* (2013).

800.S. K Lee, P Lv, D. D Macdonald, Customization of the CEFM for predicting stress corrosion cracking in lightly sensitized Al–Mg alloys in marine applications, *J. Solid-State Electrochem*,17 (8), 2319-2332 (2013).

801.K Williams, R Bayles, D. D Macdonald, "Scanning Vibrating Probe Monitors Al Stress Corrosion Cracking", *Adv. Mat. & Proc.*, 171 (8), 19-23 (2013).

802.E Salahinejad, MJ Hadianfard, DD Macdonald, M Mozafari, KJ Walker, A Tahmasbi Rad, SV Madihally, D Vashaee, L Tayebi, "Surface modification of stainless steel orthopedic implants by sol-gel $ZrTiO_4$ and $ZrTiO_4$-PMMA coatings", *J. Biomed.* Nanotech., 9(8), 1327-1335 (2013).

803.S Sharifi-Asl, M. L Taylor, Z Lu, G. R Engelhardt, B Kursten, D. D Macdonald, "Modeling of the electrochemical impedance spectroscopic behavior of passive iron using a genetic algorithm approach", *Electrochim. Acta* 102, 161-173 (2013).
804.S. S Asl, D. D Macdonald, "Determination of Kinetic Parameters for Water Reduction on Copper", *ECS Transactions* 50 (31), 241-250 (2013).
805.S. K Lee, W Kuang, J. A Mathews, D. D Macdonald, "Determining the Coupling Current as a Means of Detecting Crevice Activity and Inhibition", *ECS Transactions* 50 (31), 69-78 (2013).
806.K Williams, R Bayles, P. M Natishan, D. D Macdonald, "Mechanistic Evaluation of SCC in Sensitized and Unsensitized Specimens of AA5083 Using Localized Probing Techniques", *ECS Transactions* 50 (31), 449-455 (2013).
807.Z Lu, S Sharifiasl, D. D Macdonald, "In Situ Spectroscopic Ellipsometry and Electrochemical Studies of the Barrier Layer on Iron in Borate Buffer Solutions", *ECS Transactions* 50 (31), 251-266 (2013).
808.J Geringer, ML Taylor, B Normand, DD Macdonald, "Predicting the steady state thickness of passive films with the point defect model in fretting corrosion experiments", *ECS Transactions* 50 (31), 115-129 (2013).
809.D. D Macdonald, "Mechanism of Depassivation", *ECS Transactions* 50 (31), 469-482 (2013).
810.Y Ling, M. L Taylor, S Sharifiasl, D. D Macdonald, "The semiconducting properties and impedance analysis of passive films on copper in anoxic sulfide-containing solutions from the viewpoint of the point defect model", *ECS Transactions* 50 (31), 53-67 (2013).
811.M. L Taylor, S Sharifi, D. D Macdonald, "Optimization of Impedance Models with Differential Evolution", *ECS Transactions* 50 (31), 131-139 (2013).
812.G. R Engelhardt, R. C Woollam, D. D Macdonald, "Deterministic Prediction of Localized Corrosion Damage in Oil and Gas Pipelines", *ECS Transactions* 50 (31), 141-153 (2013).
813.D. D Macdonald, B Kursten, G. R Engelhardt, "Corrosion of Iron in Physically-Constrained Locations", *ECS Transactions* 50 (31), 457-468 (2013).
814.J. E Bao, D. D Macdonald, "Growth kinetics of the anodic oxide film on platinum under potentiodynamic polarization conditions", *Zeitschrift für Physikalische Chemie* 227 (5), 541-559 (2013).
815.E Salahinejad, M Hadianfard, D. D Macdonald, S Sharifi-Asl, M Mozafari, K J Walker, A Rad, S Madihally, L Tayebi, "In vitro electrochemical corrosion and cell viability studies on nickel-free stainless steel orthopedic implants", *PloS one* 8 (4), e61633 (2013).
816.E Salahinejad, M. J Hadianfard, D. D Macdonald, M Mozafari, D Vashaee, L Tayebi, "A new double-layer sol–gel coating to improve the corrosion resistance of a medical-grade stainless steel in a simulated body fluid", *Materials Letters* 97, 162-165 (2013).
817.M Mathew, J Geringer, M Laurent, N Hallab, J Jacobs, D Macdonald, M Wimmer, "Wear-corrosion synergism under fretting and sliding contacts in hip prosthesis", *SFB 2013 (2013 Annual Meeting of the Society For Biomaterials, Biomaterials Revolution)* (2013).

818. K Kim, J Geringer, J Pellier, D. D Macdonald, "Fretting corrosion damage of total hip prosthesis: Friction coefficient and damage rate constant approach", *Trib. Inter.,* 60, 10-18 (2013).
819. S. K Lee, D Kramer, D. D Macdonald, "On the Shape of Stress Corrosion Cracks in Water-Cooled Nuclear Power Reactor Piping", *ECS Trans.,* 50 (30), 27-39 (2013).
820. D. D Macdonald, S Sharifi-Asl, A Almarzooqi, G. R Engelhardt, B Kursten, "Electrochemical Impedance Modeling of the Passivity of Carbon Steel in Simulated Concrete Pore Water", *ECS Transactions* 50 (30), 41-56 (2013).
821. E Salahinejad, M. J Hadianfard, D. D Macdonald, M Mozafari, D Vashaee, L Tayebi, "Multilayer zirconium titanate thin films prepared by a sol–gel deposition method", *Ceramics* International 39 (2), 1271-1276 (2013).
822. J Geringer, J Pellier, M. L Taylor, D. D Macdonald, "Fretting corrosion with proteins: The role of organic coating on the synergistic mechanisms", *Thin solid films* 528, 123-129 (2013).
823. J Geringer, K Kim, J Pellier, D. D Macdonald, "Fretting corrosion processes and wear mechanisms in medical implants", *Bio-tribocorrosion in biomaterials and medical implants*, 45-73 (2013).
824. J Geringer, M. T Mathew, M. A Wimmer, D. D Macdonald, "Synergism effects during friction and fretting corrosion experiments–focusing on biomaterials used as orthopedic implants", *Biomaterials and Medical Tribology*, 133-180 (2013).
825. S. K Lee, W Kuang, J. A Mathews, D. D Macdonald, "Monitoring Crevice Corrosion via the Coupling Current Part I: Detecting Crevice Activation, Inversion, and Inhibition", *Power Plant Chemistry* 15 (4), 240-250 (2013).
826. S Sharifi-Asl, D. D Macdonald, A Almarzooqi, B Kursten, G. R Engelhardt, "A comprehensive electrochemical impedance spectroscopic study of passive carbon steel in concrete pore water", *J. Electrochem. Soc.,* 160 (8), C316-C325 (2013).
827. S Sharifi-Asl, D. D Macdonald, "Investigation of the kinetics and mechanism of the hydrogen evolution reaction on copper", *J. Electrochem. Soc.* 160 (6), H382-H391 (2013).

2014.

828. Digby D. Macdonald and Samin Sharifi-Asl, "Volt Equivalent Diagrams as a Means of Displaying the Electrochemical thermodynamics of the Sulfur-Water System", *Corros. Sci.*, 81, 102-109 (2014).
829. D. D. Macdonald, "Passivity: The Enabler of Our Metals-Based Civilization", *Corros. Sci. Eng. Tech.*, 49(2) 143-155 (2014).
830. D. D. Macdonald, "Understanding the Corrosion of Metals in Really Hot Water", *Power Plant Chemistry*, 15(6), 400-443 (2014).
831. W-J. Kuang, J. A. Mathews, and D. D. Macdonald, "The effect of Anodamine on the corrosion behavior of 1018 mild steel in deionized water, Part I: Immersion and polarization tests", *Electrochim. Acta*, 127, 79–85 (2014).
832. W-J. Kuang, S-K.Lee, J. A. Mathews, and D D. Macdonald, "Monitoring crevice corrosion via the coupling current, Part III: Mechanistic studies", *Power Plant Chemistry*, 16, 48-57 (2014).

833.Mozafari, M., Salahinejad, E., Sharifi-Asl, S., Macdonald, D. D., Vashaee, D., & Tayebi, L.. "Innovative surface modification of orthopaedic implants with positive effects on wettability and in vitro anti-corrosion performance". *Surface Engineering*, *30*(9), 688-692 (2014).
834.S. Sharifi-Asl and D. D. Macdonald, "Electrochemical Impedance Spectroscopy", Martin Fleischmann – A Short Appreciation, John Wiley & Sons, London (2014).
835.M. Urquidi-Macdonald and D. D. Macdonald, "Modeling Biocorrosion: A Review of Fundamental Concepts", *Bioelectrochemistry*, European Federation of Corrosion, Maney, UK (2014).
836.S.-K. Lee, D. Kramer, and D. D. Macdonald, "On the Shape of Stress Corrosion Cracks in Sensitized Type 304 SS in Boiling Water Reactor Primary Coolant Piping at 288 °C", J. Nucl. Mater., 454(1-3), 359-372 (2014).
837.W. Kuang, S.-K. Lee, J. A. Mathews, and D. D. Macdonald, "Monitoring Crevice Corrosion via the Coupling Current: Part III, Mechanistic Studies", PowerPlant Chemistry 16(1),38-47 (2014).
838.M. Mozafari, E. Salahinejad, S. Sharifi-Asl, D.D. Macdonald, D. Vashaee, and L. Tayebi, "Innovative surface modification of orthopedic implants with positive effects on wettability and in vitro anti-corrosion performance", Surface Eng., 30(9) (2014) 688-692.
839.Feixiong Mao, Samin Sharifi-Asl, Jingkun Yu and Digby D. Macdonald, "Diagnostic of the Mechanism of Anodic Oxide Film Growth on Platinum in H_2SO_4", J. Electrochem. Soc., 161 (5) (2014) C254-C260.
840.J Shi, J Wang, D D Macdonald, "Prediction of crack growth rate in Type 304 stainless steel using artificial neural networks and the coupled environment fracture model", *Corros. Sci.*, 89, 69-80 (2014).
841.S K Lee, D Kramer, D D Macdonald, "On the shape of stress corrosion cracks in sensitized Type 304 SS in Boiling Water Reactor primary coolant piping at 288° C", *J. Nucl. Mat.*, 454 (1-3), 359-372 (2014).
842.J Geringer, D D Macdonald, Friction/fretting-corrosion mechanisms: Current trends and outlooks for implants, *Materials Letters* 134, 152-157 (2014).
843.F. Mao, C. Dong, S. Sharifi-Asl, P. Lu, D. D. Macdonald, "Passivity breakdown on copper: influence of chloride ion", *Electrochim. Acta*, 144, 391-399 (2014).
844.P Lu, B Kursten, DD Macdonald, "Deconvolution of the partial anodic and cathodic processes during the corrosion of carbon steel in concrete pore solution under simulated anoxic conditions", *Electrochim. Acta*, 143, 312-323 (2014).
845.Y Ein-Eli, DD Macdonald, "Silicon-air batteries", US Patent 8,835,060 (2014).
846.M Mozafari, E Salahinejad, S Sharifi-Asl, DD Macdonald, D Vashaee, L Tayebi, "Innovative surface modification of orthopaedic implants with positive effects on wettability and in vitro anti-corrosion performance", *Surf. Eng.*, 30 (9), 688-692 (2014).
847.P Lu, D D Macdonald, "An Investigation of the Corrosion of Carbon Steel in Simulated Concrete Pore Water Under Anoxic Conditions", ECS ECS Meeting Abstracts, 802-802 (2014).
848.K Williams, R Bayles, D Macdonald, Use of the Scanning Vibrating Probe for in-Situ Monitoring of SCC Via the Coupling Current in 5000 Series Al Alloys, ECS Meeting Abstracts, 752-752 (2014).

849. W Kuang, J A Mathews, M L Taylor, D D Macdonald, "The effect of Anodamine on the corrosion behavior of 1018 mild steel in deionized water: II. Electrochemical Impedance Analysis", *Electrochim. Acta* 136, 493-503 (2014).
850. S Sharifi-Asl, D D Macdonald, "Electrochemical Impedance Spectroscopy", *Developments in Electrochemistry: Science Inspired by Martin Fleischmann*, 349-365 (2014).
851. D D Macdonald, "Nuclear options for our energy future", *2014 IEEE Conference on Technologies for Sustainability (SusTech),* 1-8 (2014).
852. D D Macdonald, J Shi, "The mechanism of stress corrosion cracking in sensitized austenitic stainless steels in nuclear power reactor heat transport circuits", *2014 IEEE Conference on Technologies for Sustainability (SusTech),* 277-285 (2014).
853. D Ellerbrock, D D Macdonald, "Passivity of titanium, part 1: film growth model diagnostics", *J. Solid-State Electrochem.,* 18 (5), 1485-1493 (2014).
854. W Kuang, J. A. Mathews, D. D Macdonald, "The effect of Anodamine on the corrosion behavior of 1018 mild steel in deionized water: I. Immersion and polarization tests", *Electrochim. Acta*, 127, 79-85 (2014).
855. G Engelhardt, B Kursten, D D Macdonald, "Corrosion of Carbon Steel in Physically-Constrained Locations in HLNW Isolation Containers", *ECS Transactions*, 58 (41), 35-53 (2014).
856. D D Macdonald, S Sharifi-Asl, "Volt equivalent diagrams as a means of displaying the electrochemical thermodynamics of the sulfur–water system", *Corros. Sci.,* 81, 102-109 (2014).
857. D D Macdonald, "Passivity: enabler of our metals-based civilisation", *Corros. Eng. Sci. Tech.,* 49 (2), 143-155 (2014).
858. J Geringer, M L Taylor, D D Macdonald, "Predicting the steady state thickness of passive films in order to prevent degradations of implant", *arXiv preprint arXiv*: 1401.4570 (2014).
859. D Urquidi-Macdonald, D D Macdonald, "Modeling mechanisms in biocorrosion", *Understanding Biocorrosion: Fundamentals and Applications*, 243, EFC (2014).
860. F Mao, S Sharifi-Asl, J Yu, D D Macdonald, "Diagnosis of the mechanism of anodic oxide film growth on platinum in H_2SO_4", *J. Electrochem. Soc.* 161 (5), C254-C260 (2014).
861. S. Sharifi-Asl, Feixiong Mao and D. D. Macdonald, "Corrosion of Copper in Sodium Chloride Solution Containing Sulfide Species", *J. Electroanal. Chem.*, (2014) in review.
862. W.-J. Kuang, J. A. Mathews, M. L. Taylor, D. D. Macdonald, "The effect of Anodamine on the corrosion behavior of 1018 mild steel in deionized water: II. Electrochemical Impedance Analysis", *Electrochim. Acta*, submitted (2014).
863. J. Geringer, M.L. Taylor, D. D. Macdonald, "Prévision de l'épaisseur du film passif d'un acier inoxydable 316L soumis au fretting corrosion grâce au Point Defect Model, PDM." Matériaux et Techniques, Keynote accepted in press, SF2M society, 2014.
864. J. Geringer, M. Mathew, M. Wimmer, D.D. Macdonald, "Synergism effects during friction and fretting corrosion experiments - Focusing on biomaterials used as orthopedic implants". Edited by Pr. P. Davim, Department of Mechanical

Engineering, University of Aveiro, Biomaterials and medical tribology: Research & development, Woodhead Publishing Limited. in press (2014).

2015.

865.Y Ein-Eli, D D Macdonald, "Silicon-air batteries", US Patent 9,159,995 (2015).

866.I. B. Obot, D. D. Macdonald, Z. M Gasem, "Density functional theory (DFT) as a powerful tool for designing new organic corrosion inhibitors. Part 1: an overview", *Corros. Sci.,* 99, 1-30 (2015).

867.S. Sharifi-Asl, F. Mao, P. Lu, B. Kursten, D. D. Macdonald, "Exploration of the effect of chloride ion concentration and temperature on pitting corrosion of carbon steel in saturated Ca $(OH)_2$ solution", *Corros. Sci.,* 98, 708-715 (2015).

868.F. Mao, C. Dong, D. D. Macdonald, "Effect of octadecylamine on the corrosion behavior of Type 316SS in acetate buffer", *Corros. Sci.*, 98, 192-200 (2015).

869.S. Sharifi-Asl, D. D. Macdonald, Corrosion domain analysis of copper corrosion in aqueous media, Corrosion Engineering, *Science and Technology*, 50 (6), 467-470 (2015).

870.P. Lu, S. Sharifi-Asl, B. Kursten, D. D. Macdonald, "The Modelling of Pitting Corrosion of Carbon Steel in High Level Nuclear Waste Supercontainer", ECS Meeting Abstracts, 716-716 (2015).

871.D D Macdonald, (Olin Palladium Award) "Some Critical Issues in the Breakdown of Passive Films", ECS Meeting Abstracts, 681-681 (2015).

872.L Choudhary, D D Macdonald, A Alfantazi, "Role of thiosulfate in the corrosion of steels: a review", *Corrosion* 71 (9), 1147-1168 (2015).

873.S. Sharifi-Asl, B. Kursten, D. D. Macdonald, "Localized Corrosion of Carbon Steel in Simulated Concrete Pore Solution: Influence of Chloride Ion and Temperature", ECS ECS Meeting Abstracts, 1065-1065 (2015).

874.J Shi, J Wang, D D Macdonald, "Prediction of primary water stress corrosion crack growth rates in Alloy 600 using artificial neural networks", *Corros. Sci.,* 92, 217-227 (2015).

875.Z. Ghelichkhah, S. Sharifi-Asl, K. Farhadi, S. Banisaied, S. Ahmadi, D. D. Macdonald, "L-cysteine/polydopamine nanoparticle-coatings for copper corrosion protection", *Corros. Sci.,* 91, 129-139 (2015).

876.P Lu, S Sharifi-Asl, B Kursten, D D Macdonald, "The irreversibility of the passive state of carbon steel in the alkaline concrete pore solution under simulated anoxic conditions", *J. Electrochem. Soc.,* 162 (10), C572-C581 (2015).

2016.

877.P. Lu, G. Engelhardt, D. D. Macdonald, "The Kinetics of the Metastable Pit Nucleation on Metal Surfaces", ECS Meeting Abstracts, 1156-1156 (2016).

878.R. Scarlat, F. Carotti, H. Wu, D. D. Macdonald, "Hydrogen Diffusion and Trapping in Fluoride Salt Melts and Graphite Electrodes", *ECS Transactions*, 75 (15), 181-188 (2016).

879.A. Xu, C. Dong, X. Wei, F. Mao, X. Li, D. D. Macdonald, "Ab initio calculation and electrochemical verification of a passivated surface on copper with defects in 0.1 M NaOH", *Electrochem. Comm,,* 68, 62-66 (2016).

880. X. Lei, Y. Feng, J. Zhang, A. Fu, C. Yin, D. D. Macdonald, "Impact of reversed austenite on the pitting corrosion behavior of super 13Cr martensitic stainless steel", *Electrochim. Acta*, 191, 640-650 (2016).
881. F. Mao, P. Lu, D. D. Macdonald, "Diagnosis of the Mechanism of Anodic Oxide Film Growth on Platinum in KOH", *Zeit. Physik. Chem.*, 230 (1), 79-95 (2016).
882. B. Kursten, F. Druyts, N. R. Smart, D. D. Macdonald, R. Gens, "Corrosion Considerations Related to Carbon Steel Radioactive Waste Packages Exposed to Cementitious Materials", *MRS Advances*, 1 (63-64), 4193-4199 (2016).
883. D D Macdonald, X Lei, Theoretical Interpretation of Anion Size Effects in Passivity Breakdown, *J. Electrochem. Soc.*, 163 (13), C738-C744 (2016).
884. C. Dong, F. Mao, S. Gao, S. Sharifi-Asl, P. Lu, D. D. Macdonald, "Passivity breakdown on copper: influence of temperature", *J. Electrochem. Soc.*, 163 (13), C707-C717 (2016).
885. D. D. Macdonald, "The electrochemical nature of stress corrosion cracking, Stress Corrosion Cracking of Nickel Based Alloys in Water-cooled Nuclear Reactors"(Woodhead Publishing), 2016.
886. G. R. Engelhardt, R. P. Case, D. D. Macdonald, "Electrochemical Impedance Spectroscopy Optimization on Passive Metals", *J. Electrochem. Soc.*, 163 (8), C470-C476 (2016).
887. P. Lu, G. R. Engelhardt, B. Kursten, D. D. Macdonald, "The kinetics of nucleation of metastable pits on metal surfaces: the Point Defect Model and its optimization on data obtained on stainless steel, carbon steel, iron, aluminum and Alloy-22", *J. Electrochem. Soc.*, 163 (5), C156-C163 (2016).
888. F. Sutanto and D. D. Macdonald, "On the Role of Quantum Mechanics in Corrosion Processes", Paper 118, Proc. Aust. Corros. Conf., Auckland, New Zealand, Nov. 13-18, 2016.
889. D. D. Macdonald, "Photo-Electrochemical Impedance Spectroscopic Study of the Passive State", Plenary Paper 4, Proc. Aust. Corros. Conf., Auckland, New Zealand, Nov. 13-18, 2016.

2017.

890. J. Zhong, F. Mao, E. Ghanbari, D. D. Macdonald, "Passivity breakdown on 300 M and S280 ultra-high strength steels in borate buffer solutions containing chloride ion", *Electrochim. Acta*, 251, 324-335 (2017).
891. D. D. Macdonald, "Redefining the Electrochemical Kinetics of Redox Reactions on Passive Metals", ECS Meeting Abstracts, 754-754 (2017).
892. D. D. Macdonald, E. Ghanbari, A. Saatchi, "The Mixed Potential Model for the Passive State and Hydrogen Evolution Reaction of AA2098-T851", ECS Meeting Abstracts, 752-752, (2017).
893. C. Padovani, F King, C. Lilja, D. Féron, S. Necib, D. Crusset, V. Deydier, et al, "The corrosion behaviour of candidate container materials for the disposal of high-level waste and spent fuel–a summary of the state of the art and opportunities for synergies", *Corros. Eng. Sci. Tech.*, 52 (sup1), 227-231 (2017).
894. B. Kursten, D. D. Macdonald, N. R. Smart, R. Gaggiano, "Corrosion issues of carbon steel radioactive waste packages exposed to cementitious materials with

respect to the Belgian supercontainer concept", *Corros. Eng. Sci. Tech.*, 52 (sup1), 11-16 (2017).

895. W. F. Bogaerts, D. D. Macdonald, A. S. Jovanovic, J. H. Zheng, K. Dockx, "Hydrogen Cracks in Belgian Nuclear Reactor Pressure Vessels: Five Years after Their Discovery–An Update", *CORROSION*, 2017 (2017).
896. D. Kong, A. Xu, C. Dong, F. Mao, K. Xiao, X. Li, D. D. Macdonald, "Electrochemical investigation and ab initio computation of passive film properties on copper in anaerobic sulphide solutions", *Corros. Sci.*, 116, 34-43 (2017).
897. E. Ghanbari, A. Saatchi, X. Lei, D. Kovalov, D D Macdonald, "Passivity breakdown and pitting corrosion of Al-Li aerospace alloys", 2017 Dep. Def.-Allied Nations Tech. Corros. Conf., 1-15 (2017).
898. D. D. Macdonald, S. Sharifi-Asl, G. Engelhardt, "Review of the extraction of electrochemical kinetic data from electrochemical impedance data using genetic algorithm optimization", *Bulgarian Chemical Communications*, 49, 53-64 (2017).
899. D. D. Macdonald and G. R. Engelhardt, "Review and Assessment of Radiolysis in the TCWS IBED PHTS." Prepared by OLI Systems, Inc. Cedar Knolls, NJ, under contract No. 6400014199 with Oak Ridge National Laboratory, US ITER, Oak Ridge, TN (2017).

2018.

900. A Wu, A Xu, J Yang, X Li, L Wang, J Wang, D Macdonald, J Yan, "Modulating Schottky Barrier of MoS_2 to Enhance Hydrogen Evolution Reaction Activity by Incorporating with Vertical Graphene Nanosheets Derived from Organic Liquid Waste", *ChemElectroChem* 5 (24), 3820-3820 (2018).
901. A Wu, A Xu, J Yang, X Li, L Wang, J Wang, D Macdonald, J Yan, *ChemElectroChem* 5 (24), 3841-3846 (2018).
902. J Qiu, B Leng, H Liu, D D Macdonald, A Wu, Y Jia, W Xue, G Yu, X Zhou, Effect of SO42− on the corrosion of 316L stainless steel in molten FLiNaK salt, *Corros. Sci.*, 144, 224-229 (2018).
903. Digby D. Macdonald, Michael Lewis, Jason McLafferty, Enrique Maya-Visuet, and Randy Peek, "Electromagnetic induction corrosion control technology (EICCT)", Materials and Corrosion, 69:436–446 (2018).
904. D Kovalov, B Fekete, G R Engelhardt, D D Macdonald, Prediction of corrosion fatigue crack growth rate in alloys. Part I: General corrosion fatigue model for aero-space aluminum alloys, *Corros. Sci.*, 141, 22-29 (2018).
905. E Ghanbari, A Saatchi, D D Macdonald, The Role of Al Interstitials on the Passivation of AA2098-T851 Based on the Mixed Potential Model, *CORROSION*, 2018 (2018).
906. E Ghanbari, D Kovalov, A Saatchi, B Kursten, D D Macdonald, The Influence of Halide Ions on the Passivity Breakdown of Carbon Steel Based on the Point Defect Model, *CORROSION*, 2018 (2018).
907. J Shi, B Fekete, J Wang, D D Macdonald, Customization of the coupled environment fracture model for predicting stress corrosion cracking in Alloy 600 in PWR environment, *Corros. Sci.*, 139, 58-67 (2018).

908. B Fekete, J Ai, J Yang, J S Han, W Y Maeng, D D Macdonald, An advanced coupled environment fracture model for hydrogen-induced cracking in alloy 600 in PWR primary heat transport environment, *Theoretical and Applied Fracture Mechanics*, 95, 233-241 (2018).
909. S K Lee, D D Macdonald, Theoretical aspects of stress corrosion cracking of Alloy 22, *J. Nucl. Mat.*, 503, 124-139 (2018).
910. Y Li, S Wang, P Sun, J Yang, X Tang, D Xu, Y Guo, J Yang, D D Macodnald, Investigation on early formation and evolution of oxide scales on ferritic–martensitic steels in supercritical water, *Corros. Sci.*, 135, 136-146 (2018).
911. N Bonanos, BCH Steele, E P Butler, J R Macdonald, W B Johnson et al, Applications of impedance spectroscopy, *Impedance spectroscopy: Theory, experiment, and applications*, 175-478 (2018).
912. M. C. H. McKubre, D. D. Macdonald, B. Sayers, J. R. Macdonald, "Measuring techniques and data analysis", *Impedance Spectroscopy: Theory, Experiment, and Applications*, 107-174 (2018).
913. X. Lei, H. Wang, F. Mao, J. Zhang, M. Zhao, A. Fu, Y. Feng, D. D. Macdonald, "Electrochemical behaviour of martensitic stainless steel after immersion in a H_2S-saturated solution", *Corros. Sci.*, 131, 164-173 (2018).
914. E. Huttunen-Saarivirta, E. Ghanbari, F. Mao, P. Rajala, L. Carpén, D. D. Macdonald, "Kinetic Properties of the Passive Film on Copper in the Presence of Sulfate-Reducing Bacteria", *J. Electrochem. Soc.*, 165 (9), C450-C460 (2018).
915. X. Wei, C. Dong, A. Xu, X. Li, D. D. Macdonald, "Oxygen-induced degradation of the electronic properties of thin-layer InSe", *Physical Chemistry Chemical Physics*, 20 (4), 2238-2250 (2018).
916. D. G. Ladha, N. K. Shah, Z. Ghelichkhah, I. B. Obot, F. Khorrami Dehkharghani, J. Z. Yao, D. D. Macdonald, "Experimental and computational evaluation of illicium verum as a novel eco-friendly corrosion inhibitor for aluminium", *Materials and Corrosion*, 69 (1), 125-139 (2018).

2019.

917. J. Zhong, M. Yu, S. Li, D.D. Macdonald, B. Xiao, J. Liu, Theoretical and experimental studies of passivity breakdown of Aermet 100 ultra-high stainless steel in chloride ion medium, Materials and Corrosion, 2019, 70(11): 2020-2032 (2019).
918. D. Kovalov, E. Ghanbari, F. Mao, B. Kursten, D.D. Macdonald, Investigation of artificial pit growth in carbon steel in highly alkaline solutions containing 0.5 M NaCl under oxic and anoxic conditions, Electrochim. Acta, 2019, 320: 134554 (2019).
919. Y. Zhou, A. Xu, F. Mao, J. Yu, D. Kong, C. Dong, D.D. Macdonald, Passivity breakdown on copper: Influence of borate anion, Electrochim. Acta, 2019, 320: 134545 (2019).
920. B. Roh, D.D. Macdonald, Passivity of titanium, part IV: reversible oxygen vacancy generation /annihilation, Journal of Solid-State Electrochemistry, 2019, 23(10): 2863-2879 (2019).

921.Y Li, T Xu, S Wang, J Yang, B Fekete, J Yang, A Wu, J Qiu, Y Xu, D. D Macdonald, Predictions and Analyses on the Growth Behavior of Oxide Scales Formed on Ferritic–Martensitic in Supercritical Water, Oxidation of Metals, 27-48 (2019).
922.G.R. Engelhardt, B. Kursten, D.D. Macdonald, On the nature of the electric field within the barrier layer of a passive film, Electrochim. Acta 313, 367-377 (2019).
923.D.D. Macdonald, B. Fekete, The foundations of fracture impedance spectroscopy, Engineering Failure Analysis 102, 102-110 (2019).
924.B. Roh, D.D. Macdonald, The passivity of titanium—part III: characterization of the anodic oxide film, J. Solid-State Electrochem,23 (7), 2001-2008 (2019).
925.B. Roh, D.D. Macdonald, Passivity of titanium: part II, the defect structure of the anodic oxide film, J. Solid-State Electrochem,23 (7), 1967-1979 (2019).
926.F. Mao, J. Yao, Y. Zhou, C. Dong, B. Kursten, D.D. Macdonald, Determining the electric-field strength in a passive film via photo-induced electric fields, Corros. Sci. 154, 239-245 (2019).
927.X Lei, H Wang, N Wang, D Ren, A Fu, C Yin, J Zhang, Y Feng, D. D Macdonald, Passivity of martensitic stainless steel in borate buffer solution: Influence of sulfide ion, *Applied Surface Science*, 478, 255-265 (2019).
928.D Kovalov, B Fekete, G. R Engelhardt, D. D Macdonald, Prediction of Corrosion Fatigue Crack Growth Rate in Alloys. Part II: Effect of Electrochemical Potential, NaCl Concentration, and Temperature on Crack Propagation in AA2024-T351, *Corros. Sci.*, 152. 130-139 (2019).
929.J Yang, Y Li, A Xu, B Fekete, D. D Macdonald, The electrochemical properties of alloy 690 in simulated pressurized water reactor primary water: Part I, effect of temperature, *J. Nucl. Mat.*, 518, 305-315 (2019).
930.J. Yao, D.D. Macdonald, M. Macdonald, F. Cao, C. Dong, Hydrogen permeation in 2205 duplex stainless steel under hydrostatic pressure and simulation by COMSOL, Materials and Corrosion, 2019, 70(5): 838-852 (2019).
931.J Wang, S Qian, Y Li, D. D Macdonald, Y Jiang, J Li, Passivity breakdown on 436 ferritic stainless steel in solutions containing chloride, *Journal of materials science & technology*, 35 (4), 637-643 (2019).
932.A Xu, C Dong, X Wei, X Li, D D Macdonald, DFT and photoelectrochemical studies of point defects in passive films on copper, *Journal of Electroanalytical Chemistry*, 834, 216-222 (2019) (2019).
933.A Al-Sahli, E Ghanbari, D. D Macdonald, Effect of tungsten alloying on passivity breakdown of nickel, *Materials and Corrosion*, 70 (2), 216-233 (2019).
934.E. Ghanbari, A. Saatchi, X. Lei, D.D. Macdonald, Studies on Pitting Corrosion of Al–Cu–Li Alloys Part III: Passivation Kinetics of AA2098–T851 Based on the Point Defect Model, Materials, 2019, 12(12): 1912 (2019).
935.E. Ghanbari, A. Saatchi, X. Lei, D.D. Macdonald, Studies on Pitting Corrosion of Al-Cu-Li Alloys Part II: Breakdown Potential and Pit Initiation, Materials, 2019, 12(11): 1786 (2019).
936.A Xu, C Dong, X Wei, X Li, D. D Macdonald, The aggression behavior study of Cl^- on the defect structure of passive films on copper, *RSC Advances* 9 (28), 15772-15779 (2019).

937. X Lei, A Saatchi, E Ghanbari, R Dang, W Li, N Wang, D. D Macdonald, Studies on Pitting Corrosion of Al-Cu-Li Alloys Part I: Effect of Li Addition by Microstructural, Electrochemical, In-situ, and Pit Depth Analysis, *Materials* 12 (10), 1600 (2019).
938. Y. Li, T. Xu, S. Wang, B. Fekete, J. Yang, J. Qiu, A. Xu, J .Wang, Y. Xu, D.D. Macdonald, Modelling and Analysis of the Corrosion Characteristics of Ferritic-Martensitic Steels in Supercritical Water, *Materials*, 12 (3), 409 (2019).
939. A Xu, A Wu, C Dong, R Li, L Wang, D Macdonald, X Li, Plasma modified C-doped Co_3O_4 nanosheets for oxygen evolution reaction designed by Butler-Volmer and first principle calculations, *Journal of Materials Chemistry A*, 7, 4581-4595 (2019).
940. J. Yao, D.D. Macdonald, C. Dong, Passive film on 2205 duplex stainless steel studied by photo-electrochemistry and ARXPS methods, *Corros. Sci.*, 146, 221-232 (2019).
941. A. Petrov, D. Macdonald, and G. Engelhardt. Assessment of Radiolysis in Tokamak Cooling Water System of ITER Fusion Reactor. Paper P18C. *Proceedings of the 21st International Conference on Water Chemistry in Nuclear Reactor Systems: San Francisco, September 2018.* EPRI, Palo Alto, CA: 2019. 3002016101 (2019).
942. D. D. Macdonald, J. Yang, B. Fekete, I. Balachov, and B. W. Spencer, "Development and Integration of Light Water Reactor (LWR) Materials Corrosion Degradation Codes into Grizzly", DOE/NEUP Report, Award DE-NE0008541, December 15, 2019.

2020.

943. J. Yao, J. Qiu, F. Carotti, R. Scarlat, D.D. Macdonald, Kinetic study of the hydrogen charging reaction on the graphitee in aqueous solution and in room temperature ionic liquid (RTIL), Electrochim. Acta, 2020, 330: 135291 (2020).
944. J. Yang, Y. Li, D.D. Macdonald, Effects of temperature and pH on the electrochemical behaviour of alloy 600 in simulated pressurized water reactor primary water, J. Nucl. Mat., 2020, 528: 151850 (2020).
945. J. Qiu, Y. Li, Y. Xu, A. Wu, E. Ghanbari, D. D. Macdonald, "Effect of temperature on the corrosion of carbon steel in simulated concrete pore solution under anoxic conditions", Corros. Sci. 175 (2020) 108886.
946. J. Qiu, D. D. Macdonald, Yi Xu, Sun Li, Bruno Kursten, "General Corrosion of Carbon Steel in Synthetic Concrete Pore solution", Mater. Corros. 1–13, (2020).
947. L Sun, Z Xiong, J Qiu, Y Zhu, D. D. Macdonald, "Corrosion behavior of carbon steel in dilute ammonia solution", Electrochim. Acta 364, 137295 (2020).
948. S. Guo, D. Xu, Y. Li, Y. Guo, S Wang, D. D. Macdonald, "Corrosion characteristics and mechanisms of typical Ni-based corrosion-resistant alloys in sub-and supercritical water", J. Supercrit. Fluids 170, 105138 (2020).
949. D. D. Macdonald, J. Qiu, Y. Zhu, J. Yang, G. R. Engelhardt, A Sagüés, "Corrosion of rebar in concrete. Part I: Calculation of the corrosion potential in the passive state", Corros. Sci. 177, 109018 (2020).

950. G. R. Engelhardt, B. Kursten, D. D. Macdonald, “Corrosion of carbon steel in physically constrained locations in High level nuclear waste isolation systems”, Corros. Sci. 177, 108974 (2020).
951. J. Qiu, J. Han, R Schoell, M. Popovic, E. Ghanbari, D. Kaoumi, J. R. Scully, D. D. Macdonald, P Hosemann, “Electrical properties of thermal oxide scales on pure iron in liquid lead-bismuth eutectic”, Corros. Sci. 176, 109052 (2020).
952. I. Balachov, B. Fekete, D. D. Macdonald, B Spencer, “Lifetime estimation of a BWR core shroud in terms of IGSCC”, Nucl. Eng. Design, 368, 110831 (2020).
953. S Guo, D Xu, Y Liang, Y Li, J Yang, G Chen, D. D. Macdonald, “Corrosion Characteristics of Typical Ni–Cr Alloys and Ni–Cr–Mo Alloys in Supercritical Water: A Review”, Ind. & Engin. Chem. Res., 59 (42), 18727-18739 (2020).
954. J. Qiu, Y. Li, Y. Xu, D. D. Macdonald, “Effect of temperature on corrosion of carbon steel in simulated concrete pore solution under anoxic conditions”. Corros. Sci., 175, 108886 (2020).
955. J. Qiu, A. Wu, J. Yao, Y. Xu, Y. Li, R. Scarlat, D. D. Macdonald, “Kinetic study of hydrogen transport in graphite under molten fluoride salt environment”. Electrochim. Acta, 352, 136459 (2020).
956. D. D. Macdonald, J. Qiu, “Re-defining the kinetics of redox reactions on passive metal surfaces”, J. Solid-State Electrochem., 24, 2663-2677 (2020).
957. 11. J. Qiu, A. Wu, Y. Li, Y. Xu, R. Scarlat, D. D. Macdonald, “Galvanic corrosion of Type 316L stainless steel and Graphite in molten fluoride salt”, Corros. Sci., 170, 108677 (2020).
958. J. Qiu, D. D. Macdonald, N. Li, R. Schoell, D. Kaoumi, P. Hosemann, “An Electrochemical Impedance Spectroscopic Study of Oxide Films in Liquid Metal”, JOM, 72, 2082-2088 (2020).
959. Y. Li, D. D Macdonald, J. Yang, J. Qiu, S. Wang, “Point defect model for the corrosion of steels in supercritical water: Part I, film growth kinetics”, Corros. Sci., 163, 108280 (2020).
960. S. Zhou, Q. Yan, C. Tang, F. Mao, J. Pu, D. D. Macdonald, “Effect of the chloride on passivity breakdown of Al-Zn-Mg alloy”, Corros. Sci., 163, 108254 (2020).
961. G. R. Engelhardt, D. D Macdonald, “Monte-Carlo Simulation of Pitting Corrosion with a Deterministic Model for Repassivation”, J. Electrochem. Soc. 167(1), 013540 (2020).
962. J. Yao, J. Qiu, F. Carotti, R. Scarlat, D. D. Macdonald, “Kinetic study of the hydrogen charging reaction on the graphite in aqueous solution and in room temperature ionic liquid (RTIL)”, Electrochim. Acta 330, 135291 (2020).

2021.

963. J. Yao, J. Qiu, F. Carotti, R. Scarlat, D.D. Macdonald, Kinetic study of the hydrogen charging reaction on the graphite e in aqueous solution and in room temperature ionic liquid (RTIL), Electrochim. Acta, 330, 135291 (2020).
964. L Sun, Y Sun, C Lv, Y Liu, N Dai, Y Jiang, J Li, D. D. Macdonald, “Studies on the degree of sensitization of hyper-duplex stainless steel 2707 at 900℃ using a modified DL-EPR test”, Corros. Sci. 185, 109432 (2021)

965.D. H. Xia, Z Qin, S Song, D Macdonald, J. L. Luo, Combating marine corrosion on engineered oxide surface by repelling, blocking and capturing Cl^-: A mini review, Corros. Comm.., 2 (2021) 1–8 (2021).
966.MA Siddiqui, I Ullah, SK Kolawole, C Peng, J Wang, L Ren, K Yang, DD Macdonald, Study the existing form of copper (p-type oxide/segregation) and its release mechanism from the passive film of Ti-7Cu alloy, Corros. Sci. 190, 109693 (2021).
967.M Aliofkhazraei, DD Macdonald, E Matykina, EV Parfenov, VS Egorkin, JA Curran, SC Troughton, SL Sinebryukhov, SV Gnedenkov, T Lampke, F Simchen, HF Nabavi, Review of plasma electrolytic oxidation of titanium substrates: mechanism, properties, applications and limitations, Appl. Sci. Ad., 5, 100121 (2021)..
968.Y Wen, M Ma, AR Baboukani, J Yang, DD Macdonald, W Shang, Microporous micro-arc oxidation/bis-[3-triethoxysilylpropyl] tetrasulfide/graphene composite film with improved corrosion protection properties on aluminum alloy, J. Alloys Comp., 871, 159526 (2021).
969.MA Siddiqui, L Ren, DD Macdonald, K Yang, Effect of Cu on the passivity of Ti-xCu (x = 0, 3 and 5 wt.%) alloy in phosphate-buffered saline solution within the framework of PDM-II, Electrochim. Acta, 138466 (2021).
970.J Qiu, DD Macdonald, R Schoell, J Han, S Mastromarino, JR Scully, D Kaoumi, P Hosemann, Electrochemical study of the dissolution of oxide films grown on Type 316 L stainless steel in molten fluoride salt, Corros. Sci., 109457 (2021).
971.DD Macdonald, Y Zhu, J Yang, J Qiu, GR Engelhardt, A Sagüés, L Sun, Z Xiong, Corrosion of rebar in concrete. Part IV. On the theoretical basis of the chloride threshold, Corros. Sci. 185, 109460 (2021).
972.Y. Zhu, D. D. Macdonald, J. Qiu, M. Urquidi-Macdonald, Corrosion of rebar in concrete. Part III: Artificial Neural Network analysis of chloride threshold data, Corros. Sci. 185, 109438 (2021).
973.S Choudhary, S Thomas, DD Macdonald, N Birbilis, Growth Kinetics of Multi-Oxide Passive Film Formed Upon the Multi-Principal Element Alloy AlTiVCr: Effect of Transpassive Dissolution of V and Cr, J. Electrochem. Soc., 168 (5), 051506 (2021).
974.Z Ghelichkhah, GS Ferguson, D. D. Macdonald, S Sharifi-Asl, Point Defect Model Description of the Formation of Anodic Gold Oxide in H2SO4 Solution, J. Electrochem. Soc., 168 (4), 041506 (2021).
975.Y Zhu, DD Macdonald, J Yang, J Qiu, GR Engelhardt, The Corrosion of Carbon Steel in Concrete. Part II: Literature Survey and Analysis of Existing Data on Chloride Threshold, Corros. Sci., 109439 (2021).
976.K Liivand, M Kazemi, P Walke, V Mikli, M Uibu, DD Macdonald, I Kruusenberg, Spent Li-Ion Battery Graphite Turned Into Valuable and Active Catalyst for Electrochemical Oxygen Reduction, ChemSusChem 14 (4), 1103-1111 (2021).
977.F Carotti, E Liu, DD Macdonald, RO Scarlat, An electrochemical study of hydrogen in molten 2LiF-BeF2 (FLiBe) with addition of LiH, Electrochim. Acta, 367, 137114 (2021).

978.X Liu, DD MacDonald, M Wang, Y Xu, Effect of dissolved oxygen, temperature, and pH on polarization behavior of carbon steel in simulated concrete pore solution, Electrochim. Acta, 366, 137437 (2021).

979.Z Ghelichkhah, FK Dehkharghani, S Sharifi-Asl, IB Obot, DD Macdonald, K Farhadi, M Avestan, A Petrossians, The inhibition of type 304LSS general corrosion in hydrochloric acid by the New Fuchsin compound, Corros. Sci. 178, 109072 (2021).

980.B Kursten, NR Smart, N. A. Senior, DD Macdonald, S Caes, V de Souza, R Gaggiano, Overview of anaerobic corrosion of carbon steel radioactive waste packages in alkaline media in support of the Belgian supercontainer concept, Mat. Corros., 72 (1-2), 32-51 (2021).

981.D.D. Macdonald, J. Qiu, S. Sharifi-Asl, J. Yang, G.R. Engelhardt, Y. Xu, E. Ghanbari, A. Xu, A. Saatchi, D Kovalov, "Pitting of carbon steel in the synthetic concrete pore solution", Mat. Corros., 72(1-2), 166-193 (2021).

982.J. Qiu, D. D. Macdonald, Y. Xu, L. Sun, "General corrosion of carbon steel in a synthetic concrete pore solution", Mat. Corros., 72(1-2), 107-119 (2021).

983.D. Xia, C. Deng, DD Macdonald, S. Jamali, D. Mills, J. Luo, M.G. Strebl, M. Amiri, W. Jin, S. Song, W. Hu, Electrochemical measurements used for assessment of corrosion and protection of metallic materials in the field: A critical review, Journal of Materials Science & Technology, 112, 151-183 (1921).

984. R Guo, P Yang, F Mao, J Li, L Chen, G Yu, DD Macdonald, Electrochemical noise studies on complex galvanic corrosion of submarine cable armor layer in artificial seawater, Materials and Corrosion, 2021.

2022.

988.L. Sun, T. Zhao, J. Qiu, Y. Sun, K. Li, H. Zheng, Y. Jiang, Y. Li, J. Li, W. Li, D.D. Macdonald," Point defect model for passivity breakdown on hyper-duplex stainless steel 2707 in solutions containing bromide at different temperatures", Corrosion Science 194, 109959 (2022).

989.W. Bogearts, D.D. Macdonald, J.H. Zheng, and A.S. Jovanovic, "Hydrogen and NPP Life Management: Doel 3 and Tihange 2.", Technical Report · February 2022, KU Leuven, Lelgium, 2022.

Books

1. *Transient Techniques in Electrochemistry* by Digby D. Macdonald Hardcover, Plenum Publishing Company Limited, ISBN 0306310104 (0-306-31010-4). Plenum Publishing Corporation, New York (1977).
2. Digby D. Macdonald, Tzu-Yu Chen, A. Moccari "*The Development of Controlled Hydrodynamic Techniques for Corrosion Testing"*, Hardcover, Published for the Materials Technology Institute of the Chemical Process Industries by the National Association of Corrosion Engineers, ISBN 1877914436 (1-877914-43-6)
3. *Prediction of Long-Term Corrosion Behaviour in Nuclear Waste Systems* by Damien Feron, Digby D. Macdonald, Hardcover, Woodhead Publishing, Limited, ISBN 1902653874 (1-902653-87-4), 1993

4. D. Feron and D. D. Macdonald, *"Prediction of Long-Term Corrosion Behaviour in Nuclear Waste Systems". Proceedings of an International Workshop, Cadarache, France, 2002,* France: N. p., 2003. Web.
5. *Proceedings of the Symposium on Electrode Materials and Processes for Energy Conversion and Storage* by S. Srinivasan, Digby D. MacDonald, Electrochemical Society, Ashok C. Khandkar Hardcover, Electrochemical Society, ISBN 1566770807 (1-56677-080-7), 1994.