Publications for Arthur Motta

1. Motta, A.T., D.R. Olander and A.J. Machiels, “Electron-Irradiation-Induced Amorphization of Precipitates in Zircaloy,” 14th International Symposium on the Effects of Irradiation on Materials, Andover, MA, June 1988, ASTM STP 1046, 457-469.

2. Motta, A.T., F. Lefebvre and C. Lemaignan, “Amorphization of Precipitates in Zircaloy with Neutron and Charged-Particle Irradiation,” 9th International Symposium on Zirconium in the Nuclear Industry, Kobe, Japan, November 1990, ASTM STP 1132, 718-739.

3. Motta, A.T. and D.R. Olander, “Theory of Amorphization under Electron Irradiation,” Acta Metallurgica et Materialia, Vol. 38 (11) (1990), 2175-2185.

4. Motta, A.T. and C. Lemaignan, “Mechanisms of Radiation Induced Amorphization,” Ordering and Disordering in Alloys, (1992), 255-276.

5. Motta, A.T. and C. Lemaignan, “A Ballistic Mixing Model for Neutron Irradiation Induced Amorphization of Precipitates in Zircaloy,” Journal of Nuclear Materials, 195 (1992), 277-285.

6. Pêcheur, D., A.T. Motta and C. Lemaignan, “Amorphization During Sample Preparation by Ion Milling,” Journal of Nuclear Materials, 195 (1992), 221-227.

7. Motta, A.T., C. Lemaignan and D.R. Olander, “Segregation of Tin in Zircaloy-2 under Proton Irradiation,” 15th International Symposium on the Effects of Irradiation on Materials, Nashville, TN, ASTM STP 1125, (1992), 689-702.

8. Pêcheur, D., F. Lefebvre, A. T. Motta, C. Lemaignan and J.F. Wadier, “Precipitate Evolution in the Zircaloy-4 Oxide Layer,” Journal of Nuclear Materials, 189 (1992), 2318-332.

9. Motta, A.T., L.M. Howe, and P.R. Okamoto, “Amorphization Kinetics of Zr3Fe under Electron Irradiation,” Journal of Nuclear Materials, 205 (1993), 258-266.

10. Pêcheur, D., F. Lefebvre, A.T. Motta, C. Lemaignan and D. Charquet, "Effect of Irradiation on the Precipitate Stability in Zr Alloys," Journal of Nuclear Materials, 205 (1993), 445-451.

11. Motta, A.T., L.M. Howe and P.R. Okamoto, “Amorphization Kinetics of Zr(Cr,Fe)2 Under Ion Irradiation”, Materials Research Society Symposium Proceedings, 279 (1993), 517-522.

12. Pêcheur, D., F. Lefebvre, A.T. Motta, C. Lemaignan and D. Charquet, “Oxidation of Intermetallic Precipitates in Zircaloy-4: Impact of Irradiation,” 10th International Symposium on Zirconium in the Nuclear Industry, ASTM STP 1245 (1994), 687-705.

13. Howe, L.M., D. Phillips, A.T. Motta, and P.R. Okamoto, “Irradiation Induced Phase Transformations in Zr Alloys,” Surface & Coatings Technology, 66 (1994), 411-418.

14. Motta, A.T., L.M. Howe and P.R. Okamoto, “Electron Energy Dependence of Amorphization in Zr3Fe,” Materials Research Society Symposium Proceedings, vol. 316 (1994), 265-270.

15. Yeh, T.K., D.D. Macdonald and A.T. Motta, “Modeling Water Chemistry, ECP and Crack Rate in the BWR Heat Transport Circuits. Part I: The Damage-PREDICTOR Algorithm”, Nuclear Science and Engineering, 121 (1995) 468-482.

16. Macdonald, D.D., T.K.Yeh and A.T.Motta, “Simultaneous Radiolysis, ECP and Crack Growth Modeling of Components in BWR Coolant Systems”, Corrosion 95 Conference, NACE International, Houston TX, paper # 403.

17. Motta, A.T., L.M. Howe and P.R. Okamoto, “Crystalline-to-Amorphous Transformation of Intermetallic Compounds in the Zr-Fe-M System Induced By Irradiation”, Materials Research Society Symposium Proceedings, vol. 373 (1995), 183-188.

18. Motta, A.T., L.M. Howe and P.R. Okamoto, “In-Situ Studies of Phase Transformations in Zr Alloys and Compounds under Irradiation”, 11th ASTM Symposium on Zr in the Nuclear Industry, ASTM STP 1295 (1996) 557-579.

19. Faldowski, J.A., A.T.Motta, L.M.Howe and P.R.Okamoto, “Effect of Electron Energy on Amorphization of ZrCr2”, Journal of Applied Physics, 80 (2) (1996), 729-733.

20. Howe, L.M., D.Philips, H.Zou, J.Forster, R.Siegele, J.A.Davies, A.T.Motta, J.A.Faldowski, and P.R.Okamoto, “Application of Ion Beam Techniques to the Study of Irradiation Damage in Zirconium Alloys”, Nuclear Instruments and Methods in Physics Research B 118 (1996) 663-669.

21. Link, T.M., A.T.Motta and D.A.Koss, “On the Issue of Zircaloy Ductility during a Reactivity Initiated Accident”, Proceedings of the 24th Water Reactor Safety Meeting, Washington, NUREG/CP-0157 (1996), 141-149.

22. Pagano Jr., L., A.T.Motta, and R.C.Birtcher, “Bubble Formation in Zr and Zr Alloys under Heavy Ion Irradiation”, Materials Research Society Symposium Proceedings, vol. 398 (1996), 201-206.

23. Faldowski, J.A., A.T.Motta, L.M.Howe and P.R. Okamoto, “Influence of Stacking Faults and Alloy Composition on Irradiation-Induced-Amorphization of ZrCr2, ZrFe2 and Zr3 (Fex,N1-x)”, Materials Research Society Symposium Proceedings, vol. 398 (1996), 183-188.

24. Pagano Jr., L., A.T.Motta and R.C.Birtcher, “Formation of Kr Bubbles in Zirconium Alloys”, Journal of Nuclear Materials, 244 (1997) 295-304.

25. Motta, A.T., "Amorphization of Intermetallic Compounds under Irradiation: a Review", Journal of Nuclear Materials, 244 (1997) 227-250.

26. Link, T.M., A.T.Motta and D.A.Koss, “On the Influence of an Embrittled Rim on the Ductility of Zircaloy Cladding”, Proceedings of the 1997 ANS International Topical Meeting on Light Water Reactor Fuel Performance, (1997), 634-642.

27. Cumblidge, S.E., A.T.Motta and G.L.Catchen, “Neutron Damage in Reactor Pressure-Vessel Steel Examined using Positron Annihilation Lifetime Spectroscopy”, Materials Research Society Symposium Proceedings vol.439 (1997), 483-488.

28. Paesano, Jr., A., A.T.Motta, R.C.Birtcher, E.A.Ryan, S.R.Teixeira and L.Amaral, “Ion-Beam Mixing and Solid State reaction in Zr-Fe Multilayers”, Materials Research Society Symposium Proceedings, vol. 439 (1997) 419-424.

29. Link, T.M., D.A.Koss, A.T.Motta, “Failure of Zircaloy Cladding Under Severe Loading Conditions,” Nuclear Engineering and Design, 186 (1998) 379-394.

30. Weber, W.J., R.C.Ewing, C.R.A.Catlow, T.Diaz de la Rubia, L.W.Hobbs, C.Kinoshita, Hj.Matzke, A.T.Motta, M.A.Nastasi, E.H.K.Salje, E.R.Vance and S.J.Zinkle, “Radiation Effect in Crystalline Ceramic Phases Relevant to the Immobilization and disposition of Nuclear Waste and Weapons Plutonium”, Journal of Materials Research, 13(6) (1998), 1434-1484.

31. Motta, A.T., A. Paesano. Jr., R.C.Birtcher, M.E. Bruckmann, S.R.Teixeira, and L.Amaral, "Phase Formation in Zr-Fe Multilayers: Effect of Irradiation", Journal of Applied Physics, vol. 85 (10), (1999), 7146.

32. Motta, A.T., S.E.Cumblidge, G.L.Catchen, R.L.Rasera, A.Paesano, Jr., and L.Amaral, "Defects and Magnetic Hyperfine Fields in ZrFe2 Studied Using Perturbed Angular Correlation Spectroscopy", Physical Review B (1999), 60 (2), 1188-1196.

33. Motta, A.T., L.M.Howe and P.R.Okamoto, "Amorphization of Zr3Fe under Electron Irradiation", Journal of Nuclear Materials, 270 (1999), 174.

34. Daum, R. S., Motta, A. T., Macdonald, D. D., and Koss, D. A., “Hydrogen Assisted failure of Alloys X-750 and 625 under Slow Strain Rate Conditions,” Proceedings of the 9th NACE International Symposium on Environmental Degradation of Materials in Nuclear Power Systems, TMS, 1999, Newport Beach, pp. 179-187.

35. Link, T.M., D.A.Koss and A.T.Motta, "Strain Localization in Sheets Containing a Geometric Defect", Metallurgical Transactions A Letters, 31A, (2000), 1883-1886.

36. Kwon, J. and Motta, A. T., “Gamma Displacement Cross Sections in Various Materials,” Annals of Nuclear Energy, 27 (2000), 1627 - 1642.

36.

37. Bates, D.W. , D. A. Koss, A.T. Motta and S. Majumdar, "Influence of Specimen Design on the Zircaloy Ductility", Proceedings of the ANS International Topical Meeting on Fuel Performance, Park City, Utah, 2000, American Nuclear Society, LaGrange Park, IL, pp.296-305.

38. Delaire, O., Erwin, K. T., Motta, A. T., Birtcher, R. C., Maser, J., and Lai, B., “Study of Alloying Elements in the Matrix of Zr alloys using the Advanced Photon Source at Argonne National Laboratory,” Proceedings of ICONE-8, 8th International Conference on Nuclear Engineering, ASME , 2000, Baltimore, paper # 8320.

39. Erwin, K. T., Delaire, O., Motta, A. T., Birtcher, R. C., Chu, Y., and Mancini, D., “Study of Second Phase Particles in Zr alloys using the Advanced Photon Source at Argonne National Laboratory,” Proceedings of ICONE-8, 8th International Conference on Nuclear Engineering, ASME , 2000, Baltimore, paper # 8319.

40. Moura, C. S., Motta, A. T., Lam, N. Q., and Amaral, L., “Atomistic Simulations of Point Defects in Zr-Ni Intermetallic Compounds,” Nuclear Instruments and Methods in Physics Research B, 180 (2001), 257-264.

41. Motta, A.T. , S.E. Cumblidge, G.L.Catchen, S.B.Legoas, A.Paesano, Jr., and L.Amaral, “Electric-field gradients at the Zr-sites in Zr3Fe: measured using perturbed-angular-correlation spectroscopy and calculated using band theory”, Physical Review B (2001), B 65 (2001), 14115.

42. Moura, C. S., Motta, A. T., Lam, N. Q., and Amaral, L., “Point Defect Energetics in the ZrNi and Zr2Ni Intermetallics,” Nuclear Instruments and Methods in Physics Research B, 175-177 (2001), 526-530.

43. Erwin, K. T., Delaire, O., Motta, A. T., Birtcher, R. C., Chu, Y., and Mancini, D., “Observation of Second Phase Particles in bulk Zirconium Alloys Using Synchrotron Radiation,” Journal of Nuclear Materials, 294, (2001) 299-304.

44. Motta, A. T., Paesano, A., Birtcher, R. C., and Amaral, L., “Grain Growth in Zr-Fe Multilayers Under In-Situ Ion Irradiation,” Nuclear Instruments and Methods in Physics Research B, 175-177 (2001), 521-525.

45. Cumblidge, S. E., G. L. Catchen, A.T. Motta, G. Brauer, and J. Böhmert, "Effects of Neutron Irradiation and Thermal Annealing on Model Alloys using Positron Annihilation Techniques" Effects of Radiation on Materials: 20th International Symposium ASTM STP 1405, S. T. Rosinski, M. L. Grossbeck, T. R. Allen, and A. S. Kumar, Eds., American Society for Testing and Materials, West Conshohocken, PA, (2001), 247-261.

46. Kwon, J. and Motta, A. T., “Role of Radiation in BWR Core Shroud Cracking,” Reactor Dosimetry, ASTM STP 1398, John G. Williams, David W. Vehar, Frank H. Ruddy, and David M. Gilliam, Eds., American Society for Testing and Materials, West Conshohocken, PA, (2001), 607-616.

47. Daum, R. S., S. Majumdar, H. Tsai, T. S. Bray, D. A. Koss, A. T. Motta and M. C. Billone, “Mechanical Property Testing of Irradiated Zircaloy Cladding under Reactor Transient Conditions,” Small Specimen Test Techniques: Fourth Volume, ASTM STP 1418, M. A. Sokolov, J. D. Landes, and G. E. Lucas, Eds., American Society for Testing and Materials, West Conshohocken, PA, (2002), 195-210.

48. Daum, R. S., S. Majumdar, M. C. Billone, D. W. Bates, D. A. Koss and A. T. Motta, “On the Embrittlement of Zircaloy-4 under RIA Relevant Conditions,” 13th International Symposium on Zirconium in the Nuclear Industry, ASTM STP 1423, (2002), 696-713.

49. Motta, A. T., K. T. Erwin, O. Delaire, R. C. Birtcher, Y. Chu, J. Maser, D. Mancini and B. Lai, “Synchrotron Radiation Study of Second Phase Particles and Alloying Elements in Zircaloy-4,” 13th International Symposium on Zirconium in the Nuclear Industry, ASTM STP 1423, (2002), 59-76.

50. Poynor, N., S. E. Cumblidge, R. L. Rasera, G. L. Catchen and A. T. Motta, “Hyperfine Interactions of 181Ta in Zr2Ni Observed Using PAC Spectroscopy,” Hyperfine Interactions, 136(3) (2002), 549-553.

51. Pierron, O.N., Koss, D.A., Motta, A.T., Daum, R.S., Chan K.S, “Failure of Zircaloy-4 Sheet Containing Hydride Blisters”, Proceedings of the Nuclear Safety Research Conference, Nuclear Regulatory Commission, November 2002.

52. A. T. Motta, R. A. Holt, and U. Colak, "Irradiation growth in Zirconium Alloys at Low Temperatures by Direct Athermal Deposition of vacancies at Extended Sinks," in Proceedings of the 11th International Symposium on Reactor Dosimetry, Brussels, Belgium, 2002, p. 278.

53. Daum, R.S., D. W. Bates, D. A. Koss, and A. T. Motta, "The influence of a hydrided layer on the fracture of Zircaloy-4 cladding tubes," International Conference on Hydrogen Effects on Material Behavior and Corrosion Deformation Interactions, Sep 22-26 2002, Moran, WY, United States, (2003), Minerals, Metals and Materials Society, Warrendale, PA 15086, United States, vol., 249-258.

54. Pierron, O. N., D. A. Koss, and A. T. Motta, “Tensile Specimen Geometry and the Constitutive Behavior of Zircaloy 4”, Journal of Nuclear Materials 312 (2003), 257-261.

55. S. E. Cumblidge, A. T. Motta, G. L. Catchen, G. Brauer, and J. Bohmert, “Evidence for neutron irradiation-induced metallic precipitates in model alloys and pressure-vessel weld steel,” Journal of Nuclear Materials, vol. 320, {2003), 245-257.

56. Yilmazbayhan, A. O. Delaire, A. T. Motta, R. C. Birtcher, J. M. Maser, and B. Lai, "Determination of the Alloying Content in the Matrix of Zr Alloys Using Synchrotron Radiation Microprobe X-Ray Fluorescence," Journal of Nuclear Materials, vol. 321, {2003), 221-232.

57. O. N. Pierron, D. A. Koss, A. T. Motta, and K. S. Chan, "The Influence of Hydride Blisters on Fracture of Zircaloy 4," Journal of Nuclear Materials, vol. 322, (2003), 21-35.

58. Yilmazbayhan, A., A. T. Motta, R. J. Comstock, G. P. Sabol, B. Lai, and Z. Cai, "Structure of Zirconium Alloy Oxides formed in pure water studied with Synchrotron radiation and optical microscopy: relation to corrosion rate," Journal of Nuclear Materials, vol. 324, {2004), 6-22.

59. Motta, A. T. , A. Yilmazbayhan, R. J. Comstock, B. Lai, and Z. Cai, "Using small x-ray beams to understand corrosion in nuclear fuel cladding," Proceedings of IMECE04, ASME Annual Conference, Anaheim, CA, (2004), vol., paper number 62475.

59.bis Motta, A. T., “A Review of the Critical Strain Energy (CSED) Model to Analyzing Reactivity Initiated Accidents (RIA) in High Burnup Fuel”, ML041030260 NRC Proposal Attachment (2004).

60. Glendening, A. , D. A. Koss, O. N. Pierron, A. T. Motta, and R. S. Daum, "Failure of Hydrided Zircaloy-4 Under Equal-Biaxial and Plane-Strain Tensile Deformation," Journal of ASTM International, vol. 2, (2005), paper ID12441.

61. Motta, A. T. , A. Yilmazbayhan, R. J. Comstock, J. Partezana, S. G.P., Z. Cai., and B. Lai, "Microstructure and Growth Mechanism of Oxide Layers Formed in Zr Alloys Studied with Micro Beam Synchrotron Radiation," Journal of ASTM International, vol. 2, (2005), Paper # JAI 12375.

62. Jeong, Y. H., J. Y. Park, H. G. Kim, J. T. Busby, E. L. Gartner, M. Atzmon, G. S. Was, R. Comstock, M. Silva, and A. T. Motta, "Corrosion of zirconium based fuel cladding alloys in supercritical water," 12th International Conference on Environmental Degradation of Materials in Nuclear Power Systems- Water Reactors, Snowbird, UT, (2005), TMS, vol., 1369-1377.

63. A. Yilmazbayhan, M. G. da Silva, A. Motta, H.-G. Kim, Y. H. Jeong, J.-Y. Park, R. Comstock, B. Lai, and Z. Cai, "Characterization of Oxides Formed on Zirconium Alloys in 360 C Water Using Microbeam Synchrotron Radiation," 12th International Conference on Environmental Degradation of Materials in Nuclear Systems-Water Reactors., Snowbird, UT, (2005), TMS , 201-210,

64. Olander, D. R. and A. T. Motta, "A New Book: Light Water Reactor Materials," Nuclear Engineering and Technology, vol. 37, {2005), 309-3316.

65. Kaoumi, D. , A. T. Motta, and R. C. Birtcher, "Irradiation-Enhanced Second-Phase Precipitation in Zr-Fe Nanocrystalline Thin Films," MRS Symposium Proceedings, Boston, MA, (2005), vol. 908E.

66. Kaoumi, D., A. Motta, and R. C. Birtcher, "Grain growth in Zr-Fe thin films during in situ ion irradiation in a TEM," Nuclear Instruments and Methods in Physics Research B, vol. 242, {2005), 490-493.

67. Yilmazbayhan, A., E. Breval, A. Motta, and R. Comstock, "Transmission Electron Microscopy Examination of Oxide Layers Formed in Zr Alloys," Journal of Nuclear Materials, vol. 349, {2006), 265-281.

68. Arthur Motta, Aylin Yilmazbayhan, Marcelo Gomes da Silva, Robert J. Comstock, Gary Was, Jeremy Busby, Eric Gartner, Qunjia Peng, Yong Hwan Jeong, Jeong Yong Park, “Zirconium Alloys for Supercritical Water Reactor Applications: Challenges and Possibilities,” Journal of Nuclear Materials, vol. 371, (1-3) (2007) pp 61-75.

69. Q. Peng, E. Gartner, J. T. Busby, A. T. Motta and G. S. Was, “Corrosion Behavior of Model Zirconium Alloys in Deaerated Supercritical Water at 500ºC,” Corrosion, 63(6) (2007) 577-590.

70. P. A. Raynaud, D. A. Koss, A. T. Motta, K. S. Chan, “Fracture Toughness of Hydrided Zircaloy-4 Sheet Under Through-Thickness Crack Growth Conditions”, Journal of ASTM International, vol. 5 no.1 (2008) paper ID# JAI101183.

71. Arthur T. Motta, Andrew D. Siwy, Jamie M. Kunkle, Jeremy B. Bischoff, Robert J. Comstock, Yun Chen, Todd R. Allen, “Microbeam Synchrotron radiation Diffraction and Fluorescence Study of Oxide Layers formed on 9CrODS steel in Supercritical Water,” Proceedings of the 13th International Conference on Environmental Degradation of Materials in Nuclear Systems-Water Reactors., Whistler, Canada, (2007), TMS.

72. P. A. Raynaud , M. J. Meholic, D. A. Koss , A. T. Motta, K. S. Chan. “Influence of Hydride Microstructure on Through-Thickness Crack Growth in Zircaloy-4 Sheet”, Proceedings of the 13th International Conference on Environmental Degradation of Materials in Nuclear Systems-Water Reactors., Whistler, Canada, (2007), TMS.

73. P. A. Raynaud , D. A. Koss , A. T. Motta , and K. S. Chan, “Fracture of Hydrided Zircaloy-4 Sheet under Through-Thickness Crack Growth Conditions”, Proceedings of the 2007 International LWR Fuel Performance Meeting, San Francisco, California, September 30 – October 3, 2007, Paper 1032

74. D. Kaoumi, A. T. Motta, R. C. Birtcher, “Grain Growth in Nanocrystalline Metal Thin Films under In Situ Ion-Beam Irradiation”, Journal of ASTM International, 2007, vol 4 (8) paper ID # JAI100743.

75. A. T. Motta, M. J. Gomes da Silva, A. Yilmazbayhan, R. J. Comstock, J. Ilavsky, Z. Cai, and B. Lai, “Microstructural Characterization of Oxides Formed on Model Zr Alloys Using Synchrotron Radiation,” Journal of ASTM International, 2008, vol. 5 no.2. paper ID# JAI101257.

76. D.Kaoumi, A.T.Motta and R.C.Birtcher, “Influence of alloying elements on grain-growth in Zr(Fe), and Cu(Fe) thin-films under in situ ion irradiation”, Journal of Nuclear Materials, 382, n 2-3, Dec 1, 2008, p 184-189

77. D. Kaoumi, A. T. Motta, R. C. Birtcher, “A Thermal Spike Model of Grain Growth under Irradiation”, Journal of Applied Physics, 104 (2008) 073525 (also October 20, 2008 issue of Virtual Journal of Nanoscale Science & Technology)

78. M. A. Kirk, P. M. Baldo, A. C. Y. Liu, E. A. Ryan, R. C. Birtcher, Z. Yao, S. Xu, M. L. Jenkins, M. Hernandez-Mayoral, D. Kaoumi and A. T. Motta, “In-situ TEM and Ion Irradiation of Ferritic Materials”, Microscopy and Research Technique, 72 (2009) 182.

79. Jeremy Bischoff, Arthur T. Motta, Robert J. Comstock, “Evolution of the Oxide Structure of 9CrODS Exposed to Supercritical Water,” Journal of Nuclear Materials, 392 (2009) 272–279.

80. A. D. Siwy, T. E. Clark, and A. T. Motta, “Transmission Electron Microscopy of oxide development on 9Cr ODS in Supercritical water”, Journal of Nuclear Materials, 392 (2009) 280–285.

81. J. Kunkle, A. T. Motta, R. J. Comstock, and P. Hosemann, “Characterization of HT-9 Ferritic-Martensitic Steels Oxidized in Lead Bismuth Eutectic”, Transactions of the American Nuclear Society, v 98, Embedded Topical Meetings: Nuclear Fuels and Structural Materials for the Next Generation Nuclear Reactors, NFSM, 2008, p 1115-116

82. Djamel Kaoumi, Arthur Motta, Mark Kirk, “Characterization and In-Situ Ion-Irradiation of MA957 ODS Steel,” Transactions of the American Nuclear Society, v 98, Embedded Topical Meetings: Nuclear Fuels and Structural Materials for the Next Generation Nuclear Reactors, NFSM, 2008, p 1113-1114.

83. Jeremy Bischoff, Arthur T. Motta, Lizhen Tan and Todd R. Allen, “Influence of Alloy Microstructure on Oxide Growth in HCM12A in Supercritical Water”, Materials Research Society (MRS) Proceedings Symposium R: Materials for Future Fusion and Fission Technologies, 2008, paper ID R # 519941

84. M. E. Flanagan, D. A. Koss, and A. T. Motta, “The Influence of Hydrogen on the Deformation Behavior of Zircaloy-4”, Proceedings of the 2008 Water Reactor Fuel Performance Meeting, October 19~23, 2008, Seoul, Korea.

85. A.T. Motta, J. Bischoff, A. Siwy, M.J. Gomes da Silva, R.J. Comstock, Z.Cai and B.Lai, “Characterization of Oxide Layers Formed During Corrosion in Supercritical Water,” Proceedings of the 17th NACE International Corrosion Congress, Las Vegas, October 2008, paper #4868.

86. J. Bischoff, A.T. Motta, Y. Chen, T. R. Allen, •Oxidation of 9CrODS Exposed to Supercritical Water,” Proceedings of the NACE 2009 Corrosion Conference, Atlanta, Ga, paper # 09248.

87. Robert S. Daum, Yong S. Chu and Arthur T. Motta, “Identification and Quantification of hydride phases in Zircaloy-4 cladding using Synchrotron radiation Diffraction,” Journal of Nuclear Materials, 392 (3) (2009), Pages 453-463.

88. K. Colas, A. Motta, M. Daymond, J. Santisteban, P. Vizcaino, D. Banchik, and Y. Chu., "Kinetics of Hydride Precipitation in Zr alloys Using Synchrotron Radiation," in CIAM Workshop in the VII Meeting of the Brazilian Society for Research in Materials (SBPMat), Guaruja, Brazil, 2008.

89. Arthur Motta and André Pineau, “Sommaire sur le RIA et Evaluation de la Strategie IRSN,” rapport, rédigé pour la Commission des Essais Globaux, le 4 février 2008.

90. In Situ Studies of Phase Stability and Microstructure Evolution in Metal Alloys Under Ion Irradiation in the IVEM at ANL D. Kaoumi, A T Motta, R C Birtcher, M Kirk, and P. Baldo, In-Situ TEM-Ion Accelerator Techniques in the Study of Radiation Damage in Solids Workshop at the University of Salford., 2008

91. M. A. Kirk, P. M. Baldo, A. C. Y. Liu, E. A. Ryan, R. C. Birtcher, Z. Yao, S. Xu, M. L. Jenkins, M. Hernandez-Mayoral, D. Kaoumi, and A. T. Motta, "In situ transmission electron microscopy and ion irradiation of ferritic materials," Microscopy Research and Technique 72 (2009) 182-186.

92. TEM Characterization of Crept and Irradiated Nano-structured Ferritic Alloys, Bentley, J.; Hoelzer, D. T.; Busby, J. T.; Certain, A. G.; Allen, T. R.; Kaoumi, D.; Motta, A. T.; Kirk, M. A., Microscopy and Microanalysis, vol. 15, issue S2, p. 1350 2009

93. J. Bischoff, A.T. Motta, X. Ren, and T.R. Allen, Comparison of the oxide structure formed on 9CrODS and NF616 in Supercritical water, 14th International Conference on Environmental Degradation of Materials in Nuclear Power Systems-Water Reactors, Virginia Beach, 2009.

94. C. Topbasi, A.T.Motta and M.Kirk, In Situ Study of Heavy Ion Induced Radiation Damage in NF616 (P92) Alloy , Journal of Nuclear Materials 425 (2012) 48-53.

95. K. B. Colas, A. T. Motta, J. D. Almer, M. R. Daymond, M. Kerr, A. D. Banchik, P. Vizcaino, and J. R. Santisteban, "In situ study of hydride precipitation kinetics and re-orientation in Zircaloy using synchrotron radiation," Acta Materialia 58 (2010) 6575-6583.

96. K. B. Colas, A. T. Motta, M.R. Daymond, M. Kerr, and J. D. Almer, “Hydride Platelet Reorientation in Zircaloy Studied with Synchrotron Radiation Diffraction,” Journal of ASTM International, Vol. 8, No. 1 (2011) paper ID JAI103033.

97. Bisor-Melloul, C., Tupin, M., P.Bossis, J.Chene, J.L.Bechade, A.Motta, “Understanding of Hydriding Mechanisms during Corrosion in PWR Simulated Conditions and Influence of Zirconium Hydrides on Corrosion”, Revue Génerale Nucléaire, 2011 (2) March-April, pp.111-116

98. A. Couet, A. T. Motta, R. J. Comstock, and R. L. Paul, "Cold neutron prompt gamma activation analysis, a non-destructive technique for hydrogen level assessment in zirconium alloys," Journal of Nuclear Materials 425 (2012) 211-217.

99. A. T. Motta, "Waterside Corrosion in Zirconium Alloys," Journal of Metals, 63 (2011) p.59-63.

100. J. Bischoff and A. T. Motta, "EFTEM and EELS analysis of the oxide layer formed on HCM12A exposed to SCW," Journal of Nuclear Materials 430 (2012) 171-180.

101. P. A. Raynaud, D. A. Koss, and A. T. Motta, "Crack growth in the through-thickness direction of hydrided thin-wall Zircaloy sheet," Journal of Nuclear Materials 420 (2012) 69-82.

102. J. Desquines, D. A. Koss, A. T. Motta, B. Cazalis, and M. Petit, "The issue of stress state during mechanical tests to assess cladding performance during a reactivity-initiated accident (RIA)," Journal of Nuclear Materials 412 (2011) 250-267.

103. J. Bischoff and A. T. Motta, "Oxidation behavior of ferritic-martensitic and ODS steels in supercritical water," Journal of Nuclear Materials 424 (2012) 261-276.

104. T. R. Allen, R. J. M. Konings, A. T. Motta, and J. M. K. Editor-in-Chief: Rudy, "5.03 - Corrosion of Zirconium Alloys," in Comprehensive Nuclear Materials Oxford: Elsevier, (2012) pp. 49-68.

105. A. T. Motta and L.-Q. Chen, "Hydride formation in Zirconium Alloys," Journal of Metals 64 (2012) 1403-1408.

106. K. B. Colas, A. T. Motta, M. R. Daymond, J. D. Almer, “Effect of thermo-mechanical cycling on zirconium hydride reorientation studied in situ with synchrotron X-ray diffraction,” Journal of Nuclear Materials 440 (2013) 586-595.

107. Y. Dong, A. T. Motta, E. A. Marquis, Atom probe tomography study of alloying element distributions in Zr alloys and their oxides, Journal of Nuclear Materials, 442, Issues 1–3, November 2013, Pages 270-281.

108. J. Bischoff, A. T. Motta, C. Eichfeld, R. J. Comstock, G. Cao, and T. R. Allen, "Corrosion of ferritic-martensitic steels in steam and supercritical water," Journal of Nuclear Materials, 2013, 441, Issues 1–3, October 2013, 604-611.

109. B. de Gabory and A. T. Motta, “Structure of Zircaloy 4 Oxides Formed during Autoclave Corrosion”, ANS LWR Fuel Performance Meeting, TopFuel 2013, September 2013, Charlotte, NC, paper #8584.

110. I. J. Davis, O. F. Courty, M. N. Avramova, A. T. Motta, and K. N. Ivanov, “High-Fidelity Multi-Physics Coupling for Prediction of Anisotropic Power and Temperature Distributions in Fuel Rod: Impact on Hydride Dstribution.” The 15th International Topical Meeting on Nuclear Reactor Thermal-Hydraulics, NURETH-15, 491, May 2013, Pisa, Italy.

111. O. Courty, A. T. Motta, and J. D. Hales, "Modeling and simulation of hydrogen behavior in Zircaloy-4 fuel cladding," Journal of Nuclear Materials, 452, (2014) 311-320.

112. A. Couet, A. T. Motta, and R. J. Comstock, "Hydrogen Pickup Measurements in Zirconium Alloys: Relation to Oxidation Kinetics," Journal of Nuclear Materials, 451, (2014) 1-13.

113. A. Couet, A. T. Motta, B. de Gabory, and Z. Cai, "Microbeam X-ray Absorption Near-Edge Spectroscopy study of the oxidation of Fe and Nb in zirconium alloy oxide layers," Journal of Nuclear Materials, 452, (2014) 614-627.

114. A. Couet, A. T. Motta, R. J. Comstock, and A. Ambard, "Oxide electronic conductivity and hydrogen pickup fraction in Zr alloys," in 2014 Annual Meeting on Transactions of the American Nuclear Society and Embedded Topical Meeting: Nuclear Fuels and Structural Materials for the Next Generation Nuclear Reactors, NSFM 2014, June 15, 2014 - June 19, 2014, Reno, NV, United states, 2014, pp. 845-848.

115. Colas, Kimberly, Motta, Arthur, Daymond, Mark R., and Almer, Jonathan, “Mechanisms of Hydride Reorientation in Zircaloy-4 Studied in Situ,” Zirconium in the Nuclear Industry: 17th International Symposium, STP 1543, Robert Comstock and Pierre Barberis, Eds., pp. 1107–1137, doi:10.1520/STP154320120168, ASTM International, West Conshohocken, PA 2014.

116. Couet, Adrien, Motta, Arthur T., and Comstock, Robert J., “Effect of Alloying Elements on Hydrogen Pickup in Zirconium Alloys,” Zirconium in the Nuclear Industry: 17th International Symposium, STP 1543, Robert Comstock and Pierre Barberis, Eds., pp. 479–509, doi:10.1520/ STP154320120215, ASTM International, West Conshohocken, PA 2014.

117. C. Dances, C. Piotrowski, M. Mankosa, A. Motta, M. Avramova, and K. Ivanov, “Anisotropic Azimuthal Power and Temperature Distribution Impact on Hydride Distribution”, 2014 ANS Winter Meeting and Nuclear Technology Expo, November 9-13, 2014, Anaheim, CA.

118. B. de Gabory, A. T. Motta, and K. Wang, "Transmission electron microscopy characterization of Zircaloy-4 and ZIRLO oxide layers." Journal of Nuclear Materials, Volume 456, January 2015, Pages 272-280

119. O. Courty, A. T. Motta, C. J. Piotrowski, and J. D. Almer, "Hydride precipitation kinetics in Zircaloy-4 studied using synchrotron X-ray diffraction," Journal of Nuclear Materials, 461, (2014) 180-185.

120. T.R. Allen, D. Kaoumi, J.P. Wharry, Z. Jiao, C. Topbasi, A. Kohnert, L. Barnard, A. Certain, K.G. Field, G.S. Was, D.L. Morgan, A.T. Motta, B.D. Wirth, and Y. Yang, "Characterization of microstructure and property evolution in advanced cladding and duct: Materials exposed to high dose and elevated temperature," Journal of Materials Research, 30, (2015) 1246-1274.

121. B. de Gabory, Y. Dong, A.T. Motta, and E.A. Marquis, "EELS and atom probe tomography study of the evolution of the metal/oxide interface during zirconium alloy oxidation," Journal of Nuclear Materials, 462, (2015) 304-309.

122. D.J. Spengler, A. T. Motta, R. Bajaj, J.R. Seidensticker and Z. Cai, "Characterization of Zircaloy-4 corrosion films using microbeam synchrotron radiation," Journal of Nuclear Materials, 464, (2015) 107-118.

123. Y. Liu, I. Bhamji, P.J. Withers, D.E. Wolfe, A.T. Motta, and M. Preuss, "Evaluation of the interfacial shear strength and residual stress of TiAlN coating on ZIRLOTM fuel cladding using a modified shear-lag model approach," Journal of Nuclear Materials (2015), <http://dx.doi.org/10.1016/j.jnucmat.2015.06.003>

124. A.T.Motta, A. Couet, and R. J. Comstock, “Corrosion of Zirconium Alloys for Nuclear Fuel Cladding”, Annual Review of Materials Research, 45, (2015) 311-343.

125. B. Ensor, A. T. Motta, R. Bajaj, J.R. Seidensticker, and Z. Cai, “XANES Analysis of Iron in Zircaloy-4 Oxides Formed at Different Temperatures Studied with Microbeam Synchrotron Radiation”, ANS LWR Fuel Performance Meeting, TopFuel 2015, September 13-17, 2015, Zurich, Switzerland, paper A0191.

126. M.N. Cinbiz, D.A. Koss, and A.T. Motta, “The Effect of Stress Biaxiality on Hydride Reorientation Threshold Stress”, ANS LWR Fuel Performance Meeting, TopFuel 2015, September 13-17, 2015, Zurich, Switzerland, paper A0151.

127. C. Topbasi, D. Kaoumi, A.T. Motta, and M.A. Kirk, “Microstructural Evolution in NF616 (P92) and Fe-9Cr-0.1C-model Alloy under Heavy Ion Irradiation”, Journal of Nuclear Materials, 466, (2015) 179-186.

128. C.J. Ulmer, A.T. Motta, and M.A. Kirk, "*In situ* ion irradiation of zirconium carbide," Journal of Nuclear Materials, 466, (2015) 606-614.

129. E. Alat, A.T. Motta, R.J. Comstock, J.M. Partezana, and D.E. Wolfe, "Ceramic Coating for Corrosion (C3) Resistance of Nuclear Fuel Cladding," Surface & Coatings Technology, 281, (2015) 133-143.

130. J-Y. Park, I-H. Kim, A.T. Motta, C.J. Ulmer, M.A. Kirk Jr., E.A. Ryan, and P.M. Baldo "Irradiation-induced disordering and amorphization of Al3Ti-based intermetallic compounds," Journal of Nuclear Materials, 467, (2015) 601-606.

131. A. Couet, A.T. Motta, and A. Ambard "The coupled current charge compensation model for zirconium alloy fuel cladding oxidation: I. Parabolic oxidation of zirconium alloys," Corrosion Science, 100, (2015) 73-84.

132. E. Lacroix and A.T. Motta "Validation of BISON Calculation of Hydrogen Distribution by Comparison to Experiment", TMS2016 Annual Meeting Supplemental Proceedings, The Minerals, Metals & Materials Society, (2016) 263-272.

133. M. Desormeaux, B. Rouxel, A.T. Motta, M. Kirk, C. Bisor, Y. de Carlan, and A. Legris "Development of radiation damage during in-situ Kr++ irradiation of Fe-Ni-Cr model austenitic steels," Journal of Nuclear Materials, 475, (2016) 156-167.

134. M.N. Cinbiz, D.A. Koss, and A.T. Motta "The influence of stress state on the reorientation of hydrides in a zirconium alloy," Journal of Nuclear Materials, 477, (2016) 157-164.

135. E. Alat, A.T. Motta, R.J. Comstock, J.M. Partezana, and D.E. Wolfe "Multilayer (TiN, TiAlN) ceramic coatings for nuclear fuel cladding," Journal of Nuclear Materials, 478, (2016) 236-244.

136. M. S. Elbakhshwan, S.K. Gill, A.T. Motta, R. Weidner, T. Anderson, and L.E. Ecker "Sample environment for *in situ* synchrotron corrosion studies of materials in extreme environments,” Review of Scientific Instruments, 87, (2016) 1-8.

137. Adrien Couet, Arthur T.Motta, Antoine Ambard, Didier Livigni, "In-situ electrochemical impedance spectroscopy measurements of zirconium alloy oxide conductivity: relationship to hydrogen pickup", Corrosion Science, 119 (2017) 1-13.

138. Yan Dong, Arthur T. Motta, and Emmanuelle A. Marquis, "Multi-scale Characterization of Oxidized Zirconium Alloys", Microsc. Microanal., 22 (Suppl 3), 2016.

139. X. Xiao, S. Le Berre, K.C. Hartig, A.T. Motta, and I. Jovanivoc "Surrogate Measurement of Chlorine Concentration on Steel Surfaces by Alkali Element Detection via Laser-Induced Breakdown Spectroscopy," Spectrochimica Acta Part B: Atomic Spectroscopy, 130 (2017) 67-74.

140. Mahmut N. Cinbiz, Donald A. Koss, Arthur T. Motta, Jun-Sang Park, and Jonathan D. Almer "In situ synchrotron X-ray diffraction study of hydrides in Zircaloy-4 during thermomechanical cycling", Journal of Nuclear Material, 487 (2017) 247-259.

141. C.J. Lissenden, S. Choi, H. Cho, A. Motta, K. Hartig, X. Xiao, S. Le Berre, S. Brennan, K. Reichard, R. Leary, B. McNelly, and I. Jovanovic "Robotic Inspection of Dry Storage Casks for Spent Nuclear Fuel" ASME 2016 Pressure Vessels & Piping Conference, July 17-21, 2016.

142. J. Romero, J. Partezana, R.J. Comstock, L. Hallstadius, A. Motta, A. Couet "Evolution of Hydrogen Pickup Fraction with Oxidation Rate on Zirconium Alloys", Westinghouse Electric Company LLC, (2015).

143. C.J. Lissenden, S. Choi, H. Cho, A. Motta, K. Hartig, X. Xiao, S. Le Berre, S. Brennan, K. Reichard, R. Leary, B. McNelly, and I. Jovanovic "Toward Robotic Inspection of Dry Storage Casks for Spent Nuclear Fuel", Journal of Pressure Vessel Technology, Vol 139, June 2017.

144. M.G.Mankosa, C.J.Piotrowski, M.N.Avramova, A.T. Motta, and K.N.Ivanov,S.Stafford, and R.L.Williamson "Anisotropic Azimuthal Power and Temperature Distribution as a Driving

Force for Hydrogen Redistribution", NURETH-16, Chicago, IL, August 30-September 4, 2015.

145. X. Xiao, K.C. Hartig, S. Le Berre, A. T. Motta, I. Jovanovic “Quantitative Determination of Chlorine Concentration by Measurement of Sodium Deposited on Steel via Laser-Induced Breakdown Spectroscopy”, Transactions of the American Nuclear Society, Vol. 115, Las Vegas, NV, November 6–10, 2016.

146. Brendan Ensor, Michael Moorehead, John R. Seidensticker, Adrien Couet, and Arthur T. Motta "XANES Study of Fe and Nb Oxidation in Zr-2.5Nb Oxide Layers", Winter ANS meeting, 2017.

147. Christopher J. Ulmer, and Arthur T. Motta "Modeling thermal spike driven reactions at low temperature and application to zirconium carbide radiation damage", Nuclear Instruments and Methods in Physics Research B 410 (2017) 200–206.

148. B. Ensor, A.M. Lucente, M.J. Frederick, J. Sutliff, and A. T. Motta "The role of hydrogen in zirconium alloy corrosion", Journal of Nuclear Materials 496 (2017) 301-312.

149. Michael J. Brova, Ece Alat, Mark A. Pauley, Rachel Sherbondy, Arthur T. Motta,

Douglas E. Wolfe "Undoped and ytterbium-doped titanium aluminum nitride coatings for

improved oxidation behavior of nuclear fuel cladding", Surface & Coatings Technology 331 (2017) 163-171.

150. Christopher J. Ulmer, and Arthur T. Motta "Characterization of faulted dislocation loops and cavities in ion irradiated alloy 800H", Journal of Nuclear Materials 498 (2018) 458-467.

151. X. Xiao, S. Le Berre, D.G. Fobar, M. Burger, P.J. Skrodzki, K.C. Hartig, A.T. Motta, and I. Jovanovic "Measurement of chlorine concentration on steel surfaces via fiber-optic laser-induced breakdown spectroscopy in double-pulse configuration", Spectrochimica Acta Part B 141 (2018) 44-52.

152. Cliff J. Lissenden, Igor Jovanovic, Arthur T. Motta, Xuan Xiao, Samuel Le Berre, David Fobar, Hwanjeong Cho, Sungho Choi "Remote detection of stress corrosion cracking: Surface composition and crack detection", AIP Conference Proceedings 1949, 110003 (2018); doi: 10.1063/1.5031582.

153. E. Lacroix, A. T. Motta, J.D. Almer “Experimental determination of zirconium hydride precipitation and dissolution in zirconium alloy”, Journal of Nuclear Materials 509 (2018) 162-167.

154. E. Lacroix, A. T. Motta “Hydrogen Precipitation Kinetics Measurement in Zircaloy-4 Using

Synchrotron Irradiation X-Ray Diffraction”, Transactions of the American Nuclear Society, Vol. 118, Philadelphia, Pennsylvania, June 17–21, 2018.

155. D.G. Fobar, X. Xiao, M. Burger, S. Le Berre, A.T. Motta, I. Jovanovic “Robotic delivery of laser-induced breakdown spectroscopy for sensitive chlorine measurement in dry cask storage systems”, Progress in Nuclear Energy 109 (2018) 188–194.

156. M. Ayanoglu, A.T. Motta "Microstructural evolution of the 21Cr32Ni model alloy under irradiation", Journal of Nuclear Materials, 510 (2018) 297-311.

157. E. Alat, M.J. Brova, I.M. Younker, A.T. Motta, M. Fratoni, D.E. Wolfe "Neutronic and mechanical evaluation of rare earth doped and undoped nitride-based coatings for accident tolerant fuels", Journal of Nuclear Materials, 518 (2019) 419-430.

158. Arthur T. Motta, Laurent Capolungo, Long-Qing Chen, Mahmut Nedim Cinbiz, Mark R. Daymond, Donald A. Koss, Evrard Lacroix, Giovanni Pastore, Pierre-Clement A. Simon, Michael R. Tonks, Brian D. Wirth, Mohammed A. Zikry "Hydrogen in zirconium alloys: A review", Journal of Nuclear Materials, 518 (2019) 440-460.

159. Ian Davis, Olivier Courty, Maria Avramova, Arthur Motta "High-fidelity multi-physics coupling for determination of hydride distribution in Zr-4 cladding", Annals of Nuclear Energy, 110 (2017) 475–485.

160. M. Nedim Cinbiz, Arthur T. Motta, Donald Koss, Michael Billone "Hydride Reorientation in Zircaloy-4 under Different States of Stress as Studied with In Situ X-Ray Diffraction", Zirconium in the Nuclear Industry: 18th International Symposium, STP 1597, Robert Comstock and Pierre Barberis, Eds., pp. 1252–1285, doi: 10.1520/STP159720160052, ASTM International, West Conshohocken, PA 2014.

161. Aditya P. Shivprasad, Arthur T. Motta, Aylin Kucuk, Suresh Yagnik, and Zhonghou Cai "MicrobeamX-Ray Absorption Near-Edge Spectroscopy of Alloying Elements in the Oxide Layers of Irradiated Zircaloy-2", Zirconium in the Nuclear Industry: 18th International Symposium, STP 1597, Robert Comstock and Pierre Barberis, Eds., pp. 524–554, doi: 10.1520/STP159720160076, ASTM International, West Conshohocken, PA 2014.

162. Arthur T. Motta "Mechanistic Understanding of Zirconium Alloy Fuel Cladding Performance", Zirconium in the Nuclear Industry: 18th International Symposium, STP 1597, Robert Comstock and Pierre Barberis, Eds., pp. 19–51, doi: 10.1520/STP159720160095, ASTM International, West Conshohocken, PA 2014.

163. Adrien Couet, Arthur T. Motta, Antoine Ambard, Robert J. Comstock "Hydrogen Pickup Mechanism in Zirconium Alloys", Zirconium in the Nuclear Industry: 18th International Symposium, STP 1597, Robert Comstock and Pierre Barberis, Eds., pp. 312–349, doi: 10.1520/STP159720160055, ASTM International, West Conshohocken, PA 2014.

164. Muhammet Ayanoglu, Arthur T. Motta "Swelling behavior of Fe-21Cr-32Ni model alloy", Transactions of the American Nuclear Society, v 119, p 523-525, 2018, Transactions of the American Nuclear Society, ANS 2018.

165. Muhammet Ayanoglu, Arthur T. Motta "In-situ study: Faulted loop and void behavior in single beam bulk irradiated Fe-21Cr-32Ni model alloy", Transactions of the American Nuclear Society, v 117, p 136-138, 2017, Transactions of the American Nuclear Society, ANS 2017.

166. Brendan Ensor, David J. Spengler, John R. Seidensticker, Ram Bajaj, Zhonghou Cai, Arthur T. Motta "Microbeam synchrotron radiation diffraction and fluorescence of oxide layers formed on zirconium alloys at different corrosion temperatures", Journal of Nuclear Materials 526 (2019) 151779.

167. Tae Wook Heo, Kimberly B. Colas, Arthur T. Motta, Long-Qing Chen "A phase-field model for hydride formation in polycrystalline metals: Application to *δ*-hydride in zirconium alloys", Acta Materialia 181 (2019) 262-277.

168. Pierre-Clément A. Simon, Larry K. Aagesen, Arthur T. Motta, Michael R. Tonks "The effects of introducing elasticity using different interpolation schemes to the grand potential phase field model", Computational Materials Science 183 (2020) 109790.

169. M. Ayanoglu, A.T. Motta, "Void shrinkage in 21Cr32Ni austenitic model alloy during in-situ ion irradiation", Journal of Nuclear Materials, Volume 543 (2021) 152636, ISSN 0022-3115.

170. Florian Passelaigue, Evrard Lacroix, Giovanni Pastore, Arthur T. Motta, "Implementation and Validation of the Hydride Nucleation-Growth-Dissolution (HNGD) model in BISON", Journal of Nuclear Materials, Volume 544 (2021) 152683, ISSN 0022-3115.

171. C.J. Ulmer, W-Y. Chen, D.E. Wolfe, A.T. Motta, "In-situ ion irradiation induced grain growth in nanocrystalline ceria", Journal of Nuclear Materials, Volume 545 (2021) 152688, ISSN 0022-3115.

172. Pierre-Clément A. Simon, Cailon Frank, Long-Qing Chen, Mark R. Daymond, Michael R. Tonks, Arthur T. Motta, "Quantifying the effect of hydride microstructure on zirconium alloys embrittlement using image analysis", Journal of Nuclear Materials, Volume 547 (2021) 152817, ISSN 0022-3115.

173. Seok Bin Seo, Edward Matthew Duchnowski, Miles O'Neal, Arthur T. Motta, Florian Passelaigue, Soyoung Kang, Giovanni Pastore, Annalisa Manera, Victor Petrov, Pei-Hsun Huang, Nicholas R. Brown, “Sensitivity analysis of BISON model for characterization of impact of experimental parameters on hydrogen migration and redistribution in zirconium-based alloys”, Journal of Nuclear Materials, Volume 550 (2021) 152941, ISSN 0022-3115.

174. M. Ayanoglu, C.J. Ulmer, A.T. Motta, ‘‘Characterization of in-situ ion irradiated Fe-21Cr-32Ni austenitic model alloy and alloy 800H at low doses’’, Journal of Nuclear Materials, Volume 555 (2021) 153149, ISSN 0022-3115.

175. E. Alat, J. Hu, D. E. Wolfe, and A. T. Motta, “Corrosion and Ion Irradiation Behavior of Ceramic-Coated Nuclear Fuel Cladding,” in *Zirconium in the Nuclear Industry: 19th International Symposium*, ASTM STP 1597 (2021), 149-171.

176. E. Lacroix, P.-C. A. Simon, A. T. Motta, and J. D. Almer, “Zirconium Hydride Precipitation and Dissolution Kinetics in Zirconium Alloys,” in *Zirconium in the Nuclear Industry: 19th International Symposium*, ASTM STP 1597 (2021), 67-91.

177. B. Ensor, G. Lucadamo, J. R. Seidensticker, R. Bajaj, Z. Cai and A. T. Motta, “Characterization of Long-Term, In-Reactor Zircaloy-4 Corrosion Coupons and the Impact of Flux, Fluence, and Temperature on Oxide Growth, Stress Development, Phase Formation, and Grain Size,” in *Zirconium in the Nuclear Industry: 19th International Symposium*, ASTM STP 1597 (2021), 588-619.

178. Peng Wang, Josh Bowman, Mukesh Bachhav, Bruce Kammenzind, Richard Smith, Jesse Carter, Arthur Motta, Evrard Lacroix, Gary Was, ‘‘Emulation of neutron damage with proton irradiation and its effects on microstructure and microchemistry of Zircaloy-4’’, Journal of Nuclear Materials, Volume 557 (2021) 153281, ISSN 0022-3115.

179. P.-C.A. Simon, Larry K. Aagesen, Andrea M. Jokisaari, Long-Qing Chen, Mark R. Daymond, Arthur T. Motta, Michael R. Tonks, ‘‘Investigation of δ zirconium hydride morphology in a single crystal using quantitative phase field simulations supported by experiments’’, Journal of Nuclear Materials, Volume 557 (2021) 153303, ISSN 0022-3115.

180. F. Passelaigue, P.-C.A. Simon, A.T. Motta, “Predicting the hydride rim by improving the solubility limits in the Hydride Nucleation-Growth-Dissolution (HNGD) model”, Journal of Nuclear Materials, Volume 558 (2022) 153363, ISSN 0022-3115.

181. B. Ensor, A.T. Motta, A. Lucente, J.R. Seidensticker, J. Partezana, Z. Cai, “Investigation of breakaway corrosion observed during oxide growth in pure and low alloying element content Zr exposed in water at 360°C”, Journal of Nuclear Materials, Volume 558 (2022) 153358, ISSN 0022-3115.

182. Z. Yu, X. Xu, W.-Y. Chen, Y. Sharma, X. Wang, A. Chen, C.J. Ulmer, A.T. Motta, “In-situ irradiation-induced studies of grain growth kinetics of nanocrystalline ”, Acta Materialia, Volume 231 (2022) 117856.

183. S. Bin Seo, E. M. Duchnowski, A. T. Motta, B. F. Kammenzind, N. R. Brown, “Sensitivity analysis for characterizing the impact of HNGD model on the prediction of hydrogen redistribution in Zircaloy cladding using BISON code”, Nuclear Engineering and Design, Volume 393, 2022, 111813, ISSN 0029-5493, <https://doi.org/10.1016/j.nucengdes.2022.111813>.

184. M. Ayanoglu, A.T. Motta, “Emulation of neutron-irradiated microstructure of austenitic 21Cr32Ni model alloy using dual-ion irradiation”, Journal of Nuclear Materials, Volume 570 (2022) 153944, ISSN 0022-3115.

185. J. Bowman, P. Wang, G.S. Was, M. Bachhav, A.T. Motta, “Ion irradiation induced amorphization of precipitates in Zircaloy”, Journal of Nuclear Materials, Volume 571 (2022) 153988, ISSN 0022-3115.

186. X. Xu, Z. Yu, A.T. Motta, X. Wang, “Automated Analysis of Grain Growth Under in-situ Irradiation Using Convolutional Neural Network”, Microscopy and Microanalysis, 28(S1), 2036-2037. <https://doi:10.1017/S1431927622007899>.

187. S. Kang, P.-H. Huang, V. Petrov, A. Manera, T. Ahn, B. Kammenzind, A.T. Motta, “Deternination of the hydrogen heat of transport in Zircaloy-4”, Journal of Nuclear Materials, Volume 573 (2023) 154122, ISSN 0022-3115. <https://doi.org/10.1016/j.jnucmat.2022.154122>

188. X. Xu, Z. Yu, W-Y Chen, A. Chen, A. Motta, X. Wang, “Automated analysis of grain morphology in TEM images using convolutional neural network with CHAC algorithm”, Journal of Nuclear Materials, Volume 588 (2024) 154813, ISSN 0022-3115. <https://doi.org/10.1016/j.jnucmat.2023.154813>

189. P.-C. A. Simon, L.-Q. Chen, M. R. Daymond, A. T. Motta, and M. R. Tonks, “Mechanisms of Mesoscale Hydride Morphology and Reorientation in a Polycrystal Investigated Using Phase- Field Modeling,” in Zirconium in the Nuclear Industry: 20th International Symposium, ed. S. K. Yagnik and M. Preuss (West Conshohocken, PA: ASTM International, 2023), 807–830.

190. K.R.B. Nantes, M. Jin, A.T. Motta, “Modeling hydrogen localization in Zircaloy cladding subjected to temperature gradients”, *Journal of Nuclear Materials*, Volume 589 (2024) 154853, ISSN 0022-3115.

191. L. Aldeia Machado, K. Nantes, E. Merzari, L. Charlot, A. Motta, “Toward development of a low-temperature failure envelope of cases for high-burnup RIAs under PWR operational conditions”, *Nuclear Engineering and Design*, Volume 429 (2024) 113642, ISSN 0029-5493.

192. P. Wang, B. Kammenzind, R. Smith, A. Motta, M. Aumand, D. Kaczorowski, M. Bachhav, G. Was, “Discerning the effect of various irradiation modes on the corrosion of Zircaloy-4”, *Journal of Nuclear Materials*, Volume 605 (2025) 155505, ISSN 0022-3115.