

Curriculum Vitae

Jamie J. Kruzic

Professor

School of Mechanical, Industrial, and Manufacturing Engineering

Oregon State University

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EDUCATION:

University of California, Berkeley (1998-2001)

Ph.D. in Materials Science and Mineral Engineering received 2001.

Thesis Advisor: Robert O. Ritchie

University of California, Berkeley (1996-1998)

M.S. in Materials Science and Mineral Engineering received 1998.

Thesis Advisor: Robert O. Ritchie

University of Illinois, Urbana-Champaign (1992-1996)

B.S with honors in Materials Science and Engineering received 1996.

EXPERIENCE:

Oregon State University

Professor of Materials Science (2014 – present) School of Mechanical, Industrial, and Manufacturing Engineering

Associate Professor of Materials Science (2008 – 2014) School of Mechanical, Industrial, and Manufacturing Engineering (Early Tenure Granted in 2008)

Assistant Professor of Materials Science (2004 – 2008) Department of Mechanical Engineering and School of Mechanical, Industrial, and Manufacturing Engineering

Saarland University, Saarbrücken, Germany

Visiting Scientist (2012 – 2013), Chair for Metallic Materials, Department of Materials Science and Engineering

Lawrence Berkeley National Laboratory

Post Doctoral Fellow (2001 – 2004)

HONORS AND AWARDS:

- Friedrich Wilhelm Bessel Research Award, Alexander von Humboldt Foundation, Germany (2011)
- Faculty Researcher of the Year, Oregon State University, School of Mechanical, Industrial, and Manufacturing Engineering (2011)
- Arthur E. Hitsman Faculty Scholar, Oregon State University, College of Engineering (2009 – 2012)
- Promising Scholar Award, Oregon State University (2009)
- Erasmus Mundus Fellowship (2009)

- Top Reviewer Award, *Journal of the Mechanical Behavior of Biomedical Materials* (2008)
- Young Leader Professional Development Award, The Minerals, Metals, and Materials Society (2007)
- CAREER Award, National Science Foundation (2006)
- Engelbrecht Young Faculty Award, Oregon State University, College of Engineering (2006)
- John G. Maurer Graduate Fellowship (2000-2001)
- Regents of the University of California Graduate Fellowship (1998)
- John H. Wheeler and Elliott H. Wheeler Graduate Fellowship (1996)
- Inducted into Tau Beta Pi and Phi Kappa Phi Honor Societies (1995)

JOURNAL PUBLICATIONS:

1. S. E. Naleway, W. J. Lear, J. J. Kruzic, C. Maughan, "Mechanical properties of suture materials in general and cutaneous surgery," *Journal of Biomedical Materials Research Part B: Applied Biomaterials*, 2014, in press, DOI: 10.1002/jbm.b.33171.
2. Z. Evenson, S. E. Naleway, S. Wei, O. Gross, J. J. Kruzic, I. Gallino, W. Possart, M. Stommel, R. Busch, "Beta-relaxation and low-temperature aging in a Au-based bulk metallic glass: from elastic properties to atomic-scale," *Physical Review B*, 2014, **89** (17), 174204.
3. B. Gludovatz, S. E. Naleway, R. O. Ritchie, J. J. Kruzic, "Size-dependent fracture toughness of bulk-metallic glasses," *Acta Materialia*, 2014, **70** 198-207.
4. R. B. Greene, S. Fünfschilling, T. Fett, M. J. Hoffmann, J. J. Kruzic, "Fatigue Threshold *R*-curves Predict Fatigue Endurance Strength for Self Reinforced Silicon Nitride," *Journal of the American Ceramic Society*, 2014, **97** (2) 577-583.
5. M. Yahyazadehfar, A. Nazari, J. J. Kruzic, G. D. Quinn, D. Arola, "An Inset CT Specimen for Evaluating Fracture in Small Samples of Material," *Journal of the Mechanical Behavior of Biomedical Materials*, 2014, **30** 358-368.
6. M. Stolpe, J. J. Kruzic, R. Busch, "Evolution of shear bands, free volume, and hardness during cold-rolling of a Zr-based bulk metallic glass," *Acta Materialia*, 2014, **64** 231-240.
7. S. E. Naleway, R. B. Greene, B. Gludovatz, N. K. N. Dave, R. O. Ritchie, J. J. Kruzic, "A highly fatigue resistant Zr-based bulk metallic glass," *Metallurgical and Materials Transactions A*, 2013, **44** (13) 5688-5693.
8. D. Khvostenko, J. C. Mitchell, T. J. Hilton, J. L. Ferracane, J. J. Kruzic, "Mechanical performance of novel bioactive glass containing dental restorative composites," *Dental Materials*, 2013, **29** (11) 1139-1148.
9. M. Härtelt, S. Fünfschilling, T. Schwind, H. Riesch-Oppermann, T. Fett, J. J. Kruzic, "Deducing the fatigue crack growth rates of natural flaws in silicon nitride ceramics: Role of *R*-curves," *Journal of the American Ceramic Society*, 2013, **96** (8) 2593-2597.
10. W. H. Warnes, J. J. Kruzic, C. C. Pratt, C. Stehr, D. P. Cann, B. J. Gibbons, I. Gallino, F. Soldera, R. Busch, L. Wallström, "Improving Participation of Engineering Students Studying Abroad: An International Dual Degree Program in Materials Science and Mechanical Engineering," *JOM*, 2013, **65** (7) 840-845.

11. J. Eilertsen, M. A. Subramanian, J. J. Kruzic, "Fracture toughness of $\text{Co}_4\text{Sb}_{12}$ and $\text{In}_{0.1}\text{Co}_4\text{Sb}_{12}$ thermoelectric skutterudites evaluated by three methods," *Journal of Alloys and Compounds*, 2013, **552** 492-498.
12. R. B. Greene, S. Fünfschilling, T. Fett, M. J. Hoffmann, J. J. Kruzic, "Fatigue crack growth behavior of silicon nitride: Roles of grain aspect ratio and intergranular film composition," *Journal of the American Ceramic Society*, 2013, **96** (1) 259-265.
13. R. B. Greene, S. Gallops, S. Fünfschilling, T. Fett, M. J. Hoffmann, J. W. Ager III, J. J. Kruzic, "A direct comparison of non-destructive techniques for determining bridging stress distributions," *Journal of the Mechanics and Physics of Solids*, 2012, **60** (8) 1462-1477.
14. S. Gallops, T. Fett, J. W. Ager III, J. J. Kruzic, "Fatigue threshold *R*-curves predict small crack fatigue behavior of bridging toughened materials," *Acta Materialia*, 2011, **59** (20) 7654-7661.
15. S. Gallops, T. Fett, J. J. Kruzic, "Fatigue threshold *R*-curve behavior of grain bridging ceramics: Role of grain size and grain boundary adhesion," *Journal of the American Ceramic Society*, 2011, **94** (8) 2556-2561.
16. S. Fünfschilling, T. Fett, M. J. Hoffmann, R. Oberacker, G. A. Schneider, P. F. Becher, J. J. Kruzic, "Crack-tip toughness from Vickers crack tip opening displacements for materials with strongly rising *R*-curves," *Journal of the American Ceramic Society*, 2011, **94** (6) 1884-1892.
17. S. Fünfschilling, T. Fett, M. J. Hoffmann, R. Oberacker, T. Schwind, J. Wippler, T. Böhlke, H. Özcohan, G. A. Schneider, P. F. Becher, J. J. Kruzic, "Mechanisms of toughening in silicon nitrides: Roles of crack bridging and microstructure," *Acta Materialia*, 2011, **59** (10) 3978-3989.
18. J. J. Kruzic, "Understanding the Problem of Fatigue in Bulk Metallic Glasses," *Metallurgical and Materials Transactions A*, 2011, **42** (6) 1516-1523.
19. S. L. Philo, J. Heinrich, I. Gallino, R. Busch, J. J. Kruzic, "Fatigue crack growth behavior of a $\text{Zr}_{58.5}\text{Cu}_{15.6}\text{Ni}_{12.8}\text{Al}_{10.3}\text{Nb}_{2.8}$ bulk metallic glass forming alloy," *Scripta Materialia*, 2011, **64** (4) 359-362.
20. S. Fünfschilling, T. Fett, M. J. Hoffmann, R. Oberacker, G. A. Schneider, H. Jelitto, H. Özcohan, J. J. Kruzic, "*R*-curves from compliance and optical crack-length measurements," *Journal of the American Ceramic Society*, 2010, **93** (9) 2814-2821.
21. S. Fünfschilling, T. Fett, S. E. Gallops, J. J. Kruzic, M. J. Hoffmann, R. Oberacker, "First- and second-order approaches for the direct determination of bridging stresses from *R*-curves," *Journal of the European Ceramic Society*, 2010, **30** (6) 1229-1236.
22. S. L. Philo, J. J. Kruzic, "Fatigue crack growth behavior of a Zr-Ti-Cu-Ni-Be bulk metallic glass: Role of ambient air environment," *Scripta Materialia*, 2010, **62** (7) 473-476.
23. M. D. Landrigan, J. C. Flatley, T. L. Turnbull, J. J. Kruzic, J. L. Ferracane, T. J. Hilton, R. K. Roeder, "Detection of dentinal cracks using contrast enhanced micro-computed tomography," *Journal of the Mechanical Behavior of Biomedical Materials*, 2010, **3** (2) 223-227.
24. J. J. Kruzic, "Predicting Fatigue Failures," *Science*, 2009, **325** (5937) 156-158.
25. M. B. Shah, J. L. Ferracane, J. J. Kruzic, "Mechanistic aspects of fatigue crack growth behavior in resin based dental restorative composites," *Dental Materials*, 2009, **25** (7) 909 – 916.

26. M. B. Shah, J. L. Ferracane, J. J. Kruzic, "R-curve behavior and toughening mechanisms of resin based dental composites: Effects of hydration and post-cure heat treatment," *Dental Materials*, 2009, **25** (6) 760-770.
27. M. B. Shah, J. L. Ferracane, J. J. Kruzic, "R-curve behavior and micromechanisms of fracture in resin based dental restorative composites," *Journal of the Mechanical Behavior of Biomedical Materials*, 2009, **2** (5) 502-511.
28. M. Liu, R. S. Vallery, D. W. Gidley, M. E. Launey, J. J. Kruzic, "Assessment of the fatigue transformation zone in bulk metallic glasses using positron annihilation spectroscopy," *Journal of Applied Physics*, 2009, **105** (9), 093501.
29. J. J. Kruzic, D. K. Kim, K. J. Koester, R. O. Ritchie, "Indentation techniques for evaluating the fracture toughness of biomaterials and hard tissues," *Journal of the Mechanical Behavior of Biomedical Materials*, 2009, **2** (4) 384-395.
30. J. J. Kruzic, R. L. Satet, M. J. Hoffmann, R. M. Cannon, R. O. Ritchie, "The utility of R-curves for understanding fracture toughness-strength relations in bridging ceramics," *Journal of the American Ceramic Society*, 2008, **91** (6), 1986-1994.
31. J. J. Kruzic, R. O. Ritchie, "Comments on 'Measurement of the microstructural fracture toughness of cortical bone using indentation fracture,'" *Journal of Biomechanics*, 2008, **41** (6), 1379 -1380.
32. M. E. Launey, R. Busch, J. J. Kruzic, "Effect of free volume changes and residual stresses on the fatigue and fracture behavior of a Zr-Ti-Ni-Cu-Be bulk metallic glass," *Acta Materialia*, 2008, **56** (3), 500-510.
33. J. J. Kruzic, R. O. Ritchie, "Fatigue of mineralized tissues: Cortical bone and dentin," *Journal of the Mechanical Behavior of Biomedical Materials*, 2008, **1** (1) 3-17.
34. R. S. Vallery, M. Liu, D. W. Gidley, M. E. Launey, J. J. Kruzic, "Characterization of fatigue induced free volume changes in a bulk metallic glass using positron annihilation spectroscopy," *Applied Physics Letters*, 2007, **91** (26), 261908.
35. M. E. Launey, J. J. Kruzic, C. Li, R. Busch, "Quantification of Free Volume Differences in a $Zr_{44}Ti_{11}Ni_{10}Cu_{10}Be_{25}$ Bulk Amorphous Alloy," *Applied Physics Letters*, 2007, **91** (5), 051913.
36. I. M. Gunter, J. H. Schneibel, J. J. Kruzic, "Ductility and fracture toughness of molybdenum with $MgAl_2O_4$ additions," *Materials Science and Engineering A*, 2007, **458** (1-2) 275-280.
37. M. E. Launey, R. Busch, J. J. Kruzic, "Influence of structural relaxation on the fatigue behavior of a $Zr_{41.25}Ti_{13.75}Ni_{10}Cu_{12.5}Be_{22.5}$ bulk amorphous alloy," *Scripta Materialia*, 2006, **54** (3) 483-487.
38. R. O. Ritchie, R. K. Nalla, J. J. Kruzic, J. W. Ager III, G. Balooch, J. H. Kinney, "Fracture and ageing in bone: Toughness and structural characterization," *Strain*, 2006, **42** (4) 225-232.
39. J. J. Kruzic, R. O. Ritchie, "Kitagawa-Takahashi diagrams define the limiting conditions for cyclic fatigue failure in human dentin," *Journal of Biomedical Materials Research A*, 2006, **79A** (3) 747-751.
40. R. K. Nalla, J. J. Kruzic, J. H. Kinney, M. Balooch, J. W. Ager III, R. O. Ritchie, "Role of microstructure in the aging-related deterioration of the toughness of human cortical bone," *Materials Science and Engineering C*, 2006, **26** (8) 1251-1260.
41. J. J. Kruzic, J. A. Scott, R. K. Nalla, R. O. Ritchie, "Propagation of surface fatigue cracks in human cortical bone," *Journal of Biomechanics*, 2006, **39** (5) 968-972.

42. J. J. Kruzic, J. H. Schneibel, R. O. Ritchie, "Ambient to elevated temperature fracture and fatigue properties of Mo-Si-B Alloys: Role of microstructure," *Metallurgical and Materials Transactions A*, 2005, **36A** (9), 2393-2402.
43. J. J. Kruzic, S. J. Kuskowski, R. O. Ritchie, "Simple and accurate fracture toughness testing methods for pyrolytic carbon/graphite composites used in heart-valve prostheses," *Journal of Biomedical Materials Research A*, 2005, **74A** (3) 461-464.
44. J. H. Schneibel, M. P. Brady, J. J. Kruzic, R. O. Ritchie, "On the improvement of the ductility of molybdenum by spinel ($MgAl_2O_4$) particles," *Zeitschrift für Metallkunde*, 2005, **96** (6), 632-637.
45. J. J. Kruzic, R. M. Cannon, R. O. Ritchie, "Effects of moisture and grain boundary strength on the fracture and fatigue properties of polycrystalline alumina," *Journal of the American Ceramic Society*, 2005, **88** (8), 2236-2245.
46. J. J. Kruzic, R. M. Cannon, J. W. Ager III, R. O. Ritchie, "Fatigue threshold R-curves for predicting reliability of ceramics under cyclic loading," *Acta Materialia*, 2005, **53** (9), 2595-2605.
47. V. Imbeni, J. J. Kruzic, G. W. Marshall, S. J. Marshall, R. O. Ritchie, "On the mechanistic role of the dentin-enamel junction in preventing the fracture of human teeth," *Nature Materials*, 2005, **4** (3), 229-232.
48. J. H. Schneibel, R. O. Ritchie, J. J. Kruzic, P. F. Tortorelli, "Optimization of Mo-Si-B intermetallics," *Metallurgical and Materials Transactions A*, 2005, **36A** (3), 525-532.
49. R. O. Ritchie, J. H. Kinney, J. J. Kruzic, R. K. Nalla, "A fracture mechanics and mechanistic approach to the failure of cortical bone," *Fatigue and Fracture of Engineering Materials and Structures*, 2005, **28** (4), 345-372.
50. R. K. Nalla, J. J. Kruzic, J. H. Kinney, R. O. Ritchie, "Aspects of *in vitro* fatigue in human cortical bone: Time- and cycle-dependent crack growth," *Biomaterials*, 2005, **26** (14) 2183-2195.
51. J. J. Kruzic, R. K. Nalla, J. H. Kinney, R. O. Ritchie, "Mechanistic aspects of *in vitro* fatigue-crack growth in dentin," *Biomaterials*, 2005, **26** (10), 1195-1204.
52. R. K. Nalla, J. J. Kruzic, J. H. Kinney, R. O. Ritchie, "Mechanistic aspects of fracture and R-curve behavior of human cortical bone," *Biomaterials*, 2005, **26** (2), 217-231.
53. R. K. Nalla, M. Balooch, J. W. Ager III, J. J. Kruzic, J. H. Kinney, R. O. Ritchie, "Effects of polar solvents on the fracture resistance of dentin: Role of water hydration," *Acta Biomaterialia*, 2005, **1** (1) 31-43.
54. R. K. Nalla, J. J. Kruzic, J. H. Kinney, R. O. Ritchie, "Effect of aging on the toughness of human cortical bone: Evaluation by R-curves," *Bone*, 2004, **35** (6)1240-1246.
55. R.O. Ritchie, J.J. Kruzic, C.L. Muhlstein , R.K. Nalla, E.A. Stach, "Characteristic dimensions and micro-mechanisms of fracture and fatigue in 'nano' and 'bio' materials", *International Journal of Fracture*, 2004, **128** (1-4), 1-15.
56. R. K. Nalla, J. J. Kruzic, R. O. Ritchie, "On the origin of the toughness of mineralized tissue: Microcracking or crack bridging?" *Bone*, 2004, **34** (5), 790-798.
57. J. J. Kruzic, J. H. Schneibel, R. O. Ritchie, "Fracture and fatigue resistance of Mo-Si-B alloys for ultrahigh-temperature structural applications," *Scripta Materialia*, 2004, **50** (4), 459-464.
58. J. J. Kruzic, R. M. Cannon, R. O. Ritchie, "Crack-size effects on cyclic and monotonic crack growth in polycrystalline alumina: Quantification of the role of grain bridging," *Journal of the American Ceramic Society*, 2004, **87** (1), 93-103.

59. J. J. Kruzic, J. M. McNaney, R. M. Cannon, R. O. Ritchie, "Effects of plastic constraint on the cyclic and static fatigue behavior of metal/ceramic layered structures," *Mechanics of Materials*, 2004, **36** (1-2), 57-72.
60. J. J. Kruzic, R. K. Nalla, J. H. Kinney, R. O. Ritchie, "Crack blunting, crack bridging and resistance-curve fracture mechanics in dentin: Effect of hydration," *Biomaterials*, 2003, **24** (28), 5209-5221.
61. R. Yuan, J. J. Kruzic, X. F. Zhang, L. C. De Jonghe, R. O. Ritchie, "Ambient to high-temperature fracture toughness and cyclic fatigue behavior in Al-containing silicon carbide ceramics," *Acta Materialia*, 2003, **51** (20), 6477-6491.
62. J. J. Kruzic and R. O. Ritchie, "Determining the toughness of ceramics from Vickers indentations using the crack-opening displacements: An experimental study," *Journal of the American Ceramic Society*, 2003, **86** (8), 1433-1436.
63. J. J. Kruzic, R. A. Marks, M. Yoshiya, A. M. Glaeser, R. M. Cannon, R. O. Ritchie, "Fracture and fatigue behavior at ambient and elevated temperatures of alumina bonded with copper/niobium/copper interlayers," *Journal of the American Ceramic Society*, 2002, **85** (10), 2531-2541.
64. J. J. Kruzic, J. P. Campbell, R. O. Ritchie, "On the fatigue behavior of gamma-based titanium aluminides: Role of small cracks," *Acta Materialia*, 1999, **47** (3), 801-816.
65. J. P. Campbell, J. J. Kruzic, S. Lillibridge, K. T. Venkateswara Rao, R. O. Ritchie, "On the growth of small fatigue cracks in gamma-based titanium aluminides," *Scripta Materialia*, 1997, **37** (5), 707-712.

BOOK SECTIONS:

1. J. J. Kruzic, "Fatigue Threshold R-curves for the Analysis of Short Fatigue Cracks," in *Fatigue Crack Growth: Mechanisms, Behavior and Analysis*, Nova Science Publishers, NY, 2012.
2. R. O. Ritchie, J. H. Kinney, J. J. Kruzic, and R. K. Nalla, "Cortical bone fracture," in *Wiley Encyclopedia of Biomedical Engineering*, M. Akay, ed., Wiley-Interscience, 2006.

CONFERENCE PROCEEDINGS PUBLICATIONS:

1. M. Ziomek-Moroz, S. Bullard, K. Rozman, J. Kruzic, "Effects of Inclusions in HSLA Carbon Steel on Pitting Corrosion in CaCl₂," in *Proceedings of the 219th ECS Meeting*, S. Fujimoto, D. Hansen, S. Virtanen, eds., *ECS Transactions*, vol. 35 (17) The Electrochemical Society, Pennington, NJ, 2011, pp. 11-20.
2. M. Härtelt, H. Riesch-Oppermann, J.J. Kruzic, O. Kraft, "Statistical analysis of fatigue crack propagation for natural flaws in silicon nitride," in *Proceedings of the 2nd International Conference of Engineering Against Fracture*, 2011.
3. R. B. Greene, J. J. Kruzic, "Fatigue behavior, bridging stresses, and fatigue reliability in silicon nitride ceramics," in *Proceedings of the ASME 2011 International Manufacturing Science and Engineering Conference*, American Society of Mechanical Engineers, 2011.
4. S. Gallops, J. J. Kruzic, "Fatigue reliability predictions for crack bridging materials," in *2011 Proceedings of the ASME Turbo Expo Conference*, vol. 8, American Society of Mechanical Engineers, 2011.

5. M. Ziomek-Moroz, D. E. Alman, J. J. Kruzic, "Laboratory evaluation approaches to materials selection for ultra-deep well drilling applications," in *Proceedings of the NACE Northern Area Western Conference*, 2009.
6. J. J. Kruzic, "Understanding crack size effects during fatigue of extrinsically toughened materials," in *Proceedings of the 12th International Conference on Fracture*, 2009.
7. J. H. Schneibel, J. J. Kruzic, R. O. Ritchie, "Development of ultra-high temperature molybdenum borosilicides," in *Proceedings of the 20th Annual Conference on Fossil Energy Materials*, Oak Ridge National Laboratory, Knoxville, TN, 2006.
8. J. J. Kruzic, R. M. Cannon, R. O. Ritchie, "Fatigue Threshold R-curves for Reliability Predictions in Bridging Materials," in *Proceedings of the 9th International Fatigue Congress*, 2006.
9. J. J. Kruzic, M. E. Launey, R. Busch, "Fatigue of bulk metallic glasses: Role of free volume," in *Bulk Metallic Glasses*, P.K. Liaw and R.A. Buchanan, eds., TMS, Warrendale, PA, 2006, pp. 45-50.
10. J. H. Schneibel, M. P. Brady, H. M. Meyer III, J. A. Horton, J. J. Kruzic, R. O. Ritchie, "Mo-Si-B alloy development," in *Proceedings of the 19th Annual Conference on Fossil Energy Materials*, Oak Ridge National Laboratory, Knoxville, TN, 2005.
11. J. J. Kruzic, R. M. Cannon, R. O. Ritchie, "Fatigue of bridging ceramics: Understanding crack size effects," in *Proceedings of the 11th International Conference on Fracture*, 2005.
12. R. O. Ritchie, R. K. Nalla, J. J. Kruzic, J. H. Kinney, "Time vs. cycle dependence of ex vivo fatigue of human cortical bone," in *Proceedings of the 11th International Conference on Fracture*, 2005.
13. R. K. Nalla, J. J. Kruzic, J. H. Kinney, M. Balooch, J. W. Ager III, M. C. Martin, A. P. Tomsia, R. O. Ritchie, "Effects of aging on the toughness of human cortical bone: A study from nano to macro size-scales," in *Mechanical Properties of Bioinspired and Biological Materials*, C. Viney, K. Katti, F. J. Ulm, C. Hellmich, eds., *MRS Symposium Proceedings*, vol. 844, Materials Research Society, Warrendale, PA, 2005, pp. 53-58.
14. J. J. Kruzic, J. H. Schneibel, R. O. Ritchie, "Role of microstructure in promoting fracture and fatigue resistance in Mo-Si-B alloys," in *Integrative and Interdisciplinary Aspects of Intermetallics*, M. J. Mills, H. Inui, C.-L. Fu, H. Clemens, eds., *MRS Symposium Proceedings*, vol. 842, Materials Research Society, Warrendale, PA, 2005, pp. 303-308.
15. J. J. Kruzic, R. K. Nalla, R. O. Ritchie, J. H. Kinney, "Fracture properties of cortical bone and dentin," in *Bioceramics: Materials and Applications*, R. Rusin, ed., *Ceramic Transactions*, vol. 164, The American Ceramic Society, Westerville, OH, 2005, pp. 53-62.
16. J. H. Schneibel, J. J. Kruzic, R. O. Ritchie, "Mo-Si-B alloy development," in *Proceedings of the 18th Annual Conference on Fossil Energy Materials*, R. R. Judkins, L. S. Mack, eds., Oak Ridge National Laboratory, Knoxville, TN, 2004.
17. R. K. Nalla, J. J. Kruzic, J. H. Kinney, R. O. Ritchie, "Mechanistic aspects of fracture of human cortical bone," in *Biological and Bio-Inspired Materials and Devices*, R. Wang, ed., *MRS Symposium Proceedings*, vol. 823, Materials Research Society, Warrendale, PA, 2004, pp. W8.2.1-6.
18. J. J. Kruzic and R. O. Ritchie, "An experimental assessment of using crack-opening displacements to determine indentation toughness from Vickers indents," in

- Indentation Techniques in Ceramic Materials Characterization*, A. Solomah, ed., *Ceramic Transactions*, vol. 156, The American Ceramic Society, Westerville, OH, 2004, pp. 83-91.
19. J. H. Schneibel, J. J. Kruzic, R. O. Ritchie, "Mo-Si-B alloy development," in *Proceedings of the 17th Annual Conference on Fossil Energy Materials*, Oak Ridge National Laboratory, Oak Ridge, TN, 2003.
 20. J. H. Schneibel, P. F. Tortorelli, M. J. Kramer, A. J. Thom, J. J. Kruzic, R. O. Ritchie, "Optimization of Mo-Si-B intermetallics," in *Defect Properties and Related Phenomena in Intermetallic Alloys*, E. P. George, M. J. Mills, H. Inui, G. Eggeler, eds., *MRS Symposium Proceedings*, vol. 753, Materials Research Society, Warrendale, PA, 2003, pp. 53-58.
 21. J. J. Kruzic, R. Yuan, R. M. Cannon, R. O. Ritchie, "Determining worst-case fatigue thresholds in grain-bridging ceramics," in *Materials Lifetime Science and Engineering*, P.K. Liaw, R.A. Buchanan, D.L. Klarstrom, R.P. Wei, D.G. Harlow, eds., TMS, Warrendale, PA, 2003, pp. 61-68.
 22. J. J. Kruzic, J. M. McNaney, R. M. Cannon, R. O. Ritchie, "Time dependent debonding of aluminum/alumina interfaces under cyclic and static loading," in *Structure-Property Relationships of Oxide Surfaces and Interfaces*, C. B. Carter, X. Pan, K. Sickafus, H. L.Tuller, and T. Wood, eds., *MRS Symposium Proceedings*, vol. 654, Materials Research Society, Warrendale, PA, 2001, pp. AA4.10.1-6.
 23. J. J. Kruzic, J. P. Campbell, A. L. McKelvey, H. Choe, R. O. Ritchie, "The contrasting role of microstructure in influencing fracture and fatigue-crack growth in gamma-based titanium aluminides at large and small crack sizes," in *Gamma Titanium Aluminides 1999*, Y-W. Kim, D. M. Dimiduk, M. H. Loretto, eds., TMS, Warrendale, PA, 1999, pp. 495-507.
 24. J. J. Kruzic, J. P. Campbell, R. O. Ritchie, "Fatigue-crack propagation in gamma-based titanium aluminide alloys at large and small crack sizes," in *High-Temperature Ordered Intermetallics VIII*, E. P. George, M. J. Mills, M. Yamaguchi, eds., *MRS Symposium Proceedings*, vol. 552, Materials Research Society, Warrendale, PA, 1999, pp. KK2.3.1-6.

NON-REFEREED TECHNICAL REPORTS:

1. K. A. Rozman, M. Ziomek-Moroz, S. Bullard, J. J. Kruzic, J. A. Hawk, "Localized Corrosion and Fatigue Behavior of Ultra-Deep Drilling Alloys;" NETL-TRS-1-2014; EPAAct Technical Report Series; U.S. Department of Energy, National Energy Technology Laboratory: Morgantown, WV, 2014; p 28.
2. J. A. Hogg, J. J. Kruzic, "A validation study of Verity™ Module in Fe-Safe™ for welded plate of thicknesses greater than 1 inch using ANSYS™," ESCO Corporation, 2009.
3. J. J. Kruzic, "Materials performance in extreme ultra deep well and sour gas environments," National Energy Technology Laboratory (NETL) Report, 2008.

EDITED WORKS/EDITORIALS:

1. Nychka, J. A., Kruzic, J. J. "Dedication to Degradation: The Beauty of Materials Designed to Lay in Ruin," *JOM*, 2014, **66** (4) .
2. Nychka, J. A., Kruzic, J. J. "Design of Biomaterials: The Balancing Act between Reductionism and Systems Thinking," *JOM*, 2013, **65** (4) 469-472.

3. J. J. Kruzic, Rahbar, N., Chen, P.-Y., Tamerler, C., editors, "Editorial on the special issue-7th TMS Symposium on Biological Materials Science," Special Issue of *Journal of the Mechanical Behavior of Biomedical Materials*, 2012, **7**, 1-2.
4. Nychka, J. A., Kruzic, J. J., Bandyopadhyay, A., Sarikaya, M., editors, "Biological materials science: An emerging art," Special Issue of *Materials Science and Engineering C – Materials For Biological Applications*, 2011, **31** (4), 713-715.
5. J. J. Kruzic, R. O. Ritchie, D. Taylor, editors, "Papers from the International Conference on the Mechanics of Biomaterials and Tissues," Special Issue of *Engineering Fracture Mechanics*, 2007, **74** (12) 1837.
6. D. Taylor, J. J. Kruzic and R. O. Ritchie, editors, "Papers from the International Conference on the Mechanics of Biomaterials and Tissues," Special Issue of *International Journal of Fatigue*, 2007, **29** (6) 991.

INVITED ORAL CONFERENCE PRESENTATIONS: (Kruzic presenter)

1. J. J. Kruzic, "Fatigue Threshold R-Curves Predict Fatigue Behavior of Bridging Toughened Ceramics," Eighth International Conference on the Science and Technology for Advanced Ceramics, Yokohama, Japan, June 2014.
2. J. J. Kruzic, S. E. Naleway, B. Gludovatz, R. O. Ritchie, "Unique Characteristics of the Fracture and Fatigue Behavior of Bulk Metallic Glasses," 2014 TMS Annual Meeting, San Diego, CA, February 2014.
3. J. J. Kruzic, J. L. Ferracane, T. J. Hilton, J. C. Mitchell, "Challenges in Dental Restorative Composites," 5th International Conference on Mechanics of Biomaterials and Tissues, Sitges, Spain, December 2013.
4. J. J. Kruzic, S. E. Naleway, B. Gludovatz, R. O. Ritchie, "Unique Characteristics of the Fracture and Fatigue Behavior of Bulk Metallic Glasses," Fall Meeting of the Materials Research Society, Boston, MA, December 2013.
5. J. J. Kruzic, Utilizing crack bridging toughening to move beyond nickel based superalloys," Beyond Nickel Based Superalloys an ECI Conference, Bad Berneck, Germany, May 2013.
6. J. J. Kruzic, S. E. Naleway, B. Gludovatz, R. O. Ritchie, "A fracture and fatigue resistant bulk metallic glass," 2013 TMS Annual Meeting, San Antonio, TX, March 2013.
7. J. J. Kruzic, D. Khvostenko, J. C. Mitchell, J. L. Ferracane, "Strategies for improving the performance of dental restorative composites," 2013 TMS Annual Meeting, San Antonio, TX, March 2013.
8. J. J. Kruzic, "Understanding the problem of fatigue in bulk metallic glasses," 2012 TMS Annual Meeting, Orlando, FL, March 2012.
9. J. J. Kruzic, "Bulk metallic glasses: Highly processable, high performance materials" 2012 TMS Annual Meeting, Orlando, FL, March 2012.
10. J. J. Kruzic, "Understanding the problem of fatigue in bulk metallic glasses," 2012 TMS Annual Meeting, San Diego, CA, March 2011.
11. J. J. Kruzic, K. A. Rozman, M. Ziomek-Moroz, S. Bullard, "Materials to support high pressure, high temperature (HPHT) drilling," MS&T 2010, Houston, TX, October 2010.
12. J. J. Kruzic, M. B. Shah, J. L Ferracane, "Micromechanisms of fracture and fatigue in resin based dental restorative composites," Composites at Lake Louise 2009, Lake Louise, Canada, October 2009.

13. J. J. Kruzic, "Short crack effects in extrinsically toughened materials," 2009 TMS Annual Meeting, San Francisco, CA, February 2009.
14. J. J. Kruzic, M. B. Shah, J. L. Ferracane "Micromechanisms of fracture in resin based dental restorative composites," 2009 TMS Annual Meeting, San Francisco, CA, February 2009.
15. J. J. Kruzic, "Fatigue failure and its relevance to the dental field," International Association of Dental Research 86th General Session and Exhibition, Toronto, Canada, July 2008.
16. J. J. Kruzic, R. M. Cannon, R. O. Ritchie, "The role of grain-boundary strength in affecting the fracture and fatigue properties of ceramics," The American Ceramic Society's 32nd International Conference on Advanced Ceramics and Composites, Daytona, FL, January 2008.
17. J. J. Kruzic, J. H. Schneibel, R. O. Ritchie, "Developing fracture resistant Mo-Si-B alloys for ultra-high temperature applications," 14th International Symposium on Plasticity, Kailua/Kona, HI, January 2008.
18. J. J. Kruzic, "Fatigue of mineralized tissues: Cortical bone and dentin," 2nd International Conference on Mechanics of Biomaterials and Tissues, Lihue, Kaua'i, HI, December 2007.
19. J. J. Kruzic, R. M. Cannon, R. O. Ritchie, "Fatigue threshold R-curves for reliability predictions in bridging materials," 43rd Annual Technical Meeting of the Society of Engineering Science, State College, PA, August 2006.
20. J. J. Kruzic, R. M. Cannon, R. O. Ritchie, "Interfacial and near-interfacial fatigue-crack growth," 2006 TMS Annual Meeting, San Antonio, TX, March 2006.
21. J. J. Kruzic, R. M. Cannon, R. O. Ritchie, "Fatigue of bridging ceramics: Understanding crack size effects," 11th International Conference on Fracture, Turin, Italy, March 2005.
22. J. J. Kruzic, R. O. Ritchie, H. Choe, J. H. Schneibel, "Damage tolerance in refractory Mo-Mo₃Si-Mo₅SiB₂ silicides at temperatures up to 1300°C," 2003 TMS Annual Meeting, San Diego, CA, March 2003.

OTHER INVITED LECTURES (Kruzic presenter)

1. J. J. Kruzic, "Materials for mechanical and biomedical applications," Chonnam National University, Yeosu, South Korea, September 2014.
2. J. J. Kruzic, "Resistance curves (*R*-curves) for predicting the behavior of ceramic materials," Materials and Structures Laboratory, Tokyo Institute of Technology, Yokohama, Japan, June 2014.
3. J. J. Kruzic, "Predicting the fatigue behavior of bridging toughened materials," Department of Materials Science, Universität des Saarlandes, Saarbrücken, Germany, December 2012.
4. J. J. Kruzic, "Co-extrusion as a potential route to bulk metallic glass composites with tensile ductility," Chair of Metallic Materials, Universität des Saarlandes, Saarbrücken, Germany, December 2012.
5. J. J. Kruzic, "Fatigue threshold R-curves predict fatigue behavior of bridging toughened ceramics," Institute for Advanced Ceramics, Technische Universität Hamburg-Harburg, Hamburg, Germany, November 2012.

6. J. J. Kruzic, "Understanding the problem of fatigue in bulk metallic glasses," School of Mechanical and Materials Engineering, Washington State University, Pullman, WA, February 2011.
7. J. J. Kruzic, "Mechanisms of fatigue in bulk metallic glasses," Department of Materials Science, Universität des Saarlandes, Saarbrücken, Germany, November 2009.
8. J. J. Kruzic, "Mechanisms of fatigue in bulk metallic glasses," Department of Materials Science, Technische Universität Darmstadt, Darmstadt, Germany, November 2009.
9. J. J. Kruzic, "Effects of free volume changes and residual stresses on the fatigue and fracture behavior of a Zr-Ti-Ni-Cu-Be bulk metallic glass," Department of Physics, Linfield College, McMinnville, OR, April 2009.
10. J. J. Kruzic, "Micromechanisms of Fracture and Fatigue in Resin Based Dental Restorative Composites," Lawrence Berkeley National Laboratory, Berkeley, CA, February 2009.
11. J. J. Kruzic, "Understanding Crack Size Effects in the Fatigue of Materials," Department of Mechanical and Automotive Engineering, Chonnam National University, Yeosu, South Korea, September 2008.
12. J. J. Kruzic, "Understanding Crack Size Effects in the Fatigue of Materials," Department of Mechanical Engineering, Chungnam National University, Daejeon, South Korea, September 2008.
13. J. J. Kruzic, "Effects of free volume changes and residual stresses on the fatigue and fracture behavior of a Zr-Ti-Ni-Cu-Be bulk metallic glass," Department of Physics, Oregon State University, Corvallis, OR, May 2008.
14. J. J. Kruzic, "Understanding Fatigue Behavior in Extrinsicly Toughened Materials," Department of Mechanical and Materials Engineering, Portland State University, Portland, OR, February 2008.
15. J. J. Kruzic, "Improving fatigue reliability predictions in bridging ceramics," Institut für Keramik im Maschinenbau (IKM), Universität Karlsruhe, Karlsruhe, Germany, October 2007.
16. J. J. Kruzic, "Understanding fatigue behavior in extrinsically toughened materials," Ingenieurwissenschaftliches Kolloquium, Universität des Saarlandes, Saarbrücken, Germany, October 2007.
17. J. J. Kruzic, "Mechanistic aspects of the fatigue behavior of mineralized tissues," Genetically Engineering Materials Science and Engineering Center, University of Washington, Seattle, WA, May 2007.
18. J. J. Kruzic, "The role of crack bridging in the reliability of structural materials," Department of Mechanical Engineering, University of Nevada, Las Vegas, NV, April 2007.
19. J. J. Kruzic, "Mechanistic aspects of the fracture and fatigue behavior of mineralized tissues," Department of Nutrition and Exercise Science, Oregon State University, Corvallis, OR, January 2007.
20. J. J. Kruzic, "The role of crack bridging in the reliability of structural materials," Meeting of the Oregon Chapter of ASM, Portland, OR, February 2006.
21. J. J. Kruzic, "Promoting fracture and fatigue resistance in Mo-Si-B alloys," Lawrence Berkeley National Laboratory, Berkeley, CA, November 2005.
22. J. J. Kruzic, "The role of crack bridging in the reliability of structural materials," Department of Physics, Oregon State University, Corvallis, OR, June 2005.

23. J. J. Kruzic, "Mechanistic aspects of the fracture and fatigue behavior of mineralized tissues," Department of Biomaterials and Biomechanics, Oregon Health and Science University, Portland, OR, November 2004.
24. J. J. Kruzic, "SiC as a parallel to Si₃N₄," 2004 MIT NANOAM Meeting, Boston, MA, March 2004.
25. J. J. Kruzic, "A micro-mechanical approach to understanding crack size effects in the failure of grain bridging ceramics," Sandia National Laboratory, Albuquerque, NM, August 2003.
26. J. J. Kruzic, "A micro-mechanical approach to understanding the effects of crack size on the failure of grain bridging ceramics," Department of Materials Science and Engineering, University of California, Berkeley, CA, October 2002.

INVITED POSTER PRESENTATIONS: (Kruzic presenter)

1. J. J. Kruzic, R. B. Greene, S. Gallops, "Fatigue threshold R-curves predict fatigue behavior of bridging toughened ceramics," Gordon Conference on Solid State Studies of Ceramics, South Hadley, MA, August, 2012.
2. J. J. Kruzic, K. Rozman, M. Ziomek-Moroz, S. Bullard, "Materials performance in high pressure, high temperature drilling environments," 23rd Annual Conference on Fossil Energy Materials, Pittsburgh, PA, May, 2009.

CONTRIBUTED ORAL CONFERENCE PRESENTATIONS: (Kruzic presenter)

1. J. J. Kruzic, "Predicting the Behavior of Small Fatigue Cracks," 2014 TMS Annual Meeting, San Diego, CA, February 2014.
2. J. J. Kruzic, R. Busch, "Understanding the problem of fatigue in bulk metallic glasses," MSE 2012, Darmstadt, Germany, September 2012.
3. J. J. Kruzic, S. Gallops, R. B. Greene, "Predicting the behavior of short fatigue cracks," 2012 TMS Annual Meeting, Orlando, FL, March 2012.
4. J. J. Kruzic, D. Khovstenko, M. B. Shah, J. C. Mitchell, J. L. Ferracane, "Strategies for improving the performance of dental restorative composites," 4th International Conference on the Mechanics of Biomaterials and Tissues, Waikoloa, HI, December 2011.
5. J. J. Kruzic, "Predicting the behavior of short fatigue cracks," 2nd International Conference of Engineering Against Fracture, Mykonos, Greece, June 2011.
6. J. J. Kruzic, S. L. Philo, M. E. Launey, "Mechanisms of fatigue crack growth in Zr-based bulk metallic glasses," 2010 TMS Annual Meeting, Seattle, WA, February 2010.
7. J. J. Kruzic, M. B. Shah, J. L. Ferracane, "Micromechanisms of fracture and fatigue in resin based dental restorative composites," 3rd International Conference on the Mechanics of Biomaterials and Tissues, Clearwater Beach, FL, December 2009.
8. J. J. Kruzic, "Understanding crack Size effects during fatigue of extrinsically toughened materials," 12th International Conference on Fracture, Ottawa, Canada, July 2009.
9. J. J. Kruzic, M. Shah, J. L. Ferracane, "Fracture behavior of resin based dental composites," MS&T 2007, Detroit, MI, September, 2007.
10. J. J. Kruzic, R. M. Cannon, R. O. Ritchie, "Fatigue threshold R-curves for reliability predictions in bridging materials," 9th International Fatigue Congress, Atlanta, GA, May 2006.

11. J. J. Kruzic, M. E. Launey, R. Busch, "Fatigue behavior of bulk metallic glasses: Role of free volume," 2006 TMS Annual Meeting, San Antonio, TX, March 2006.
12. J. J. Kruzic, R. M. Cannon, R. O. Ritchie, "Role of water vapor in affecting the grain-boundary strength, fracture, and Fatigue properties of alumina," 2006 TMS Annual Meeting, San Antonio, TX, March 2006.
13. R. K. Nalla, J. J. Kruzic, J. H. Kinney, R. O. Ritchie, "Toughening mechanisms in mineralized tissues, Crack bridging or microcracking?" 1st International Conference on Mechanics of Biomaterials and Tissues, Waikoloa, Hawaii, December, 2005.
14. J. J. Kruzic, R. K. Nalla, J. H. Kinney, R. O. Ritchie, "Mechanistic aspects of the fatigue behavior of mineralized tissues," 2005 TMS Annual Meeting, San Francisco, CA, February 2005.
15. J. J. Kruzic, J. H. Schneibel, R. O. Ritchie, "Role of microstructure in promoting fracture and fatigue resistance in Mo-Si-B alloys," Fall Meeting of the Materials Research Society, Boston, MA, November 2004.
16. J. J. Kruzic, R. K. Nalla, J. H. Kinney, R. O. Ritchie, "Fracture properties of cortical bone and dentin," 106th Annual Meeting of the American Ceramic Society, Indianapolis, IN, April 2004.
17. J. J. Kruzic, R. M. Cannon, R. O. Ritchie, "Understanding reliability in bridging ceramics under cyclic loading conditions," 106th Annual Meeting of the American Ceramic Society, Indianapolis, IN, April 2004.
18. J. J. Kruzic, R. M. Cannon, R. O. Ritchie, "Predicting cyclic fatigue thresholds and reliability in bridging ceramics," 55th Pacific Coast Regional and Basic Science Division Meeting of the American Ceramic Society, Oakland, CA, October 2003.
19. J. J. Kruzic, R. M. Cannon, R. O. Ritchie, "Understanding the effects of crack size on fatigue thresholds in bridging ceramics," Mechanics and Materials 2003, Scottsdale, AZ, June 2003.
20. J. J. Kruzic, R. A. Marks, M. Yoshiya, A. M. Glaeser, R. M. Cannon, R. O. Ritchie, "Ambient and elevated temperature fracture and fatigue behavior of partial transient-liquid phase bonded joints," 105th Annual Meeting of the American Ceramic Society, Nashville, TN, April 2003.
21. J. J. Kruzic, R. O. Ritchie, "An experimental assessment of using crack opening displacements to determine indentation toughness from Vickers indents," 105th Annual Meeting of the American Ceramic Society, Nashville, TN, April 2003.
22. J. J. Kruzic, R. Yuan, R. M. Cannon, R. O. Ritchie, "Determining worst-case fatigue thresholds in grain-bridging ceramics," 2003 TMS Annual Meeting, San Diego, CA, March 2003.
23. J. J. Kruzic, J. M. McNaney, R. M. Cannon, R. O. Ritchie, "Effects of plastic constraint on the cyclic and static fatigue behavior of metal/ceramic layered structures," Mechanics and Materials 2001, San Diego, CA, June 2001.
24. J. J. Kruzic, J. M. McNaney, R. M. Cannon, R. O. Ritchie, "Cyclic fatigue and moisture assisted crack growth at/near Al₂O₃/Al interfaces," 103rd Annual Meeting of the American Ceramic Society, Indianapolis, IN, April 2001.
25. J. J. Kruzic, J. M. McNaney, R. M. Cannon, R. O. Ritchie, "Time dependent debonding of aluminum/alumina interfaces under cyclic and static loading," Fall Meeting of the Materials Research Society, Boston, MA, November 2000.

26. J. J. Kruzic, J. M. McNaney, R. M. Cannon, R. O. Ritchie, "Fracture and fatigue of Al₂O₃/metal interfaces," 52nd Pacific Coast Regional and Basic Science Division Meeting of the American Ceramic Society, San Francisco, CA, September 2000.
27. J. J. Kruzic, J. M. McNaney, R. M. Cannon, R. O. Ritchie, "Sub-critical crack growth in Al₂O₃/Al/Al₂O₃ sandwich specimens during cyclic and static fatigue," 102nd Annual Meeting of the American Ceramic Society, St. Louis, MO, May 2000.
28. J. J. Kruzic, J. P. Campbell, R. O. Ritchie, "Fatigue-crack propagation in gamma-based titanium aluminide alloys at large and small crack sizes," Fall Meeting of the Materials Research Society, Boston, MA, November 1998.

FUNDED RESEARCH

(Total ~\$6.62M, Kruzic share ~\$2.78M):

1. Jamie Kruzic (PI), T. Matthew Evans, P. Alex Greaney, "New Mechanistic Models of Long Term Evolution of Microstructure and Mechanical Properties of Nickel Based Alloys," DOE, National Energy Technology Laboratory, Novel Crosscutting Research and Development to Support Advanced Energy Systems, funded for \$625,000 from 1/1/15 – 12/31/16 (\$208,333 Kruzic share)
2. Jamie Kruzic (PI), Thomas Siegmund, Vikas Tomar, "New Mechanistic Models of Creep-Fatigue Crack Growth Interactions for Advanced High Temperature Reactor Components," DOE, Nuclear Energy University Programs, funded for \$790,790, 1/13/14 – 1/12/17 (\$340,790 Kruzic share).
3. Julie Tucker (PI), Wade Marcum, Jamie Kruzic, "Corrosion of Advanced Energy System Materials in Supercritical Carbon-Dioxide," DOE, National Energy Technology Laboratory, funded for \$80,000 from 11/4/13 – 8/31/14. (Kruzic share \$22,026).
4. Thomas Siegmund (PI), Jamie Kruzic, Vikas Tomar, "New Mechanistic Models of Creep-Fatigue Interactions for Gas Turbine Components," DOE, National Energy Technology Laboratory, University Turbine Systems Research (USTR), funded for \$650,000 from 10/1/13 – 9/30/16 (\$299,833 subawarded to Kruzic at OSU).
5. Jamie Kruzic (PI), "Analysis of the Precision and Accuracy of the Aspex Explorer SEM for inclusion analysis," PCC Structurals Inc. and Oregon Metals Initiative, funded for \$24,500 from 7/1/13 – 7/31/14.
6. Jamie Kruzic (PI), Brian Bay, "Development of Mechanical Testing Protocols for Metal Coiled Sheets," Cascade Coil Defense Systems, Inc., funded for \$10,180 from 10/1/12 – 5/31/13.
7. Jamie Kruzic (PI from 2/21/13), Yi Liu (former PI), "Materials Lifetime Assessment for Existing Power Plants," DOE, National Energy Technology Laboratory, funded for \$40,668 from 8/2/10 – 3/3/14.
8. Jack Ferracane (PI), John Mitchell, Jamie Kruzic, "Effect of bacteria and mechanical loading on degradation of the composite-tooth interface," National Institutes of Health, funded for \$1,500,000 from 9/10/10 – 8/31/14 (\$362,974 subawarded to Kruzic at OSU).
9. Jamie Kruzic (PI), Nima Rahbar, Po-Yu Chen, Candan Tamerler, "Biological Materials Science Symposium, San Diego, February 27 – March 3, 2011," National Science Foundation, funded for \$4,000 from 1/1/11 – 12/31/11.
10. Jamie Kruzic (PI), Nima Rahbar, Po-Yu Chen, Candan Tamerler, "Biological Materials Science Symposium," Army Research Office, funded for \$5,000 from 3/5/11 – 3/4/12.

11. Jamie Kruzic (PI), Yi Liu, "Fractographic and Microstructural Analysis of Ni-based Alloy Test Bars," PCC Structural Inc. and Oregon Metals Initiative, funded for \$20,000 from 10/1/10 – 9/30/11.
12. Vince Remcho (PI), Jamie Kruzic, Chih-Hung Chang, John Conley, Mas Subramanian, "MRI: Acquisition of a High Resolution Field Emission Transmission Electron Microscope at Oregon State University," National Science Foundation, funded for \$890,000, awarded 8/13/10.
13. Jamie Kruzic (PI), "Materials Performance in Extreme Ultra Deep Well and Sour Gas Environments," DOE, National Energy Technology Laboratory, funded for \$125,000 from 1/15/10 – 3/31/11.
14. Jamie Kruzic (PI), Amit Bandyopadhyay, John Nychka, Mehmet Sarikaya, "Biological Materials Science Symposium," Army Research Office, funded for \$5,000 from 1/1/10 – 9/30/10.
15. Jamie Kruzic (PI), Amit Bandyopadhyay, John Nychka, Mehmet Sarikaya, "Biological Materials Science Symposium," National Science Foundation, funded for \$4,000 from 1/1/10 – 12/31/10.
16. Jamie Kruzic (PI), "Fracture Toughness of Various Printed Circuit Board Surface Finishes Soldered with a Lead Free Solder," Intel Corporation and Oregon Metals Initiative, funded for \$33,500 from 8/24/09 – 9/30/12.
17. Jamie Kruzic (PI), Research Experience for Undergraduates (REU) Supplement, National Science Foundation, funded for \$6,329, awarded 1/28/09
18. Jamie Kruzic (PI), "Materials Performance in Extreme Ultra Deep Well and Sour Gas Environments," DOE, National Energy Technology Laboratory, funded for \$169,765 from 12/9/08 – 10/31/09.
19. Jamie Kruzic (PI), "Validation Study with FE SafeTM/VerityTM Software," ESCO Corporation and Oregon Metals Initiative, funded for \$59,996 from 8/1/08 – 6/30/09.
20. Jamie Kruzic (PI), "Materials Performance in Extreme Ultra Deep Well and Sour Gas Environments," DOE, National Energy Technology Laboratory, funded for \$68,497 from 7/1/08 – 10/31/08.
21. Jamie Kruzic (PI), "Development of high temperature refractory metal based alloys," DOE, National Energy Technology Laboratory," funded for \$218,408 from 7/1/08 – 11/14/10.
22. Jamie Kruzic (PI), Research Experience for Undergraduates (REU) Supplement, National Science Foundation, funded for \$5,625, awarded 11/19/07.
23. William Warnes (PI), David Cann, Jamie Kruzic, Brady Gibbons, "Transatlantic Double Bachelor in Materials Science and Mechanical Engineering," U. S. Department of Education, funded for \$408,000 from 10/1/07 – 9/30/12
24. David Cann (PI), William Warnes, Jamie Kruzic, Brady Gibbons, "New Graduate/Senior Undergraduate Laboratory Course on Materials Analysis," Intel Corporation, funded for \$35,000, awarded 11/21/06.
25. Jamie Kruzic (PI), "Ductile B2 Intermetallic Compounds: Structural Materials for the 21st Century," Oregon State University General Research Fund (GRF), funded for \$10,000, awarded 11/20/06.
26. Jamie Kruzic (PI) "CAREER: New methods for predicting fatigue failures in extrinsically toughened materials," National Science Foundation CAREER award, funded for \$400,151 from 7/1/06 – 6/30/12.

27. David Cann (PI), Jamie Kruzic, William Warnes, Ralf Busch, “High-temperature X-ray Diffraction System for Materials Research,” DOD Defense University Research Instrumentation Program (DURIP), funded for \$209,000, awarded 4/4/06.
28. Jamie Kruzic (PI), David Cann, William Warnes, “Acquire high speed precision diamond sectioning saw,” Oregon State University Research Equipment Reserve Fund (RERF), funded for \$11,815, awarded 12/28/05.
29. Jamie Kruzic (PI), “Upgrade Instron 8501 Servohydraulic Dynamic Mechanical Testing Machine,” Oregon State University Research Equipment Reserve Fund (RERF), funded for \$55,960, awarded 1/20/05.

TEACHING EXPERIENCE:

ME 585 “Fatigue of Materials” (Graduate) at Oregon State University (Fall 2011, Spring 2014)

ME 584 “Advanced Fracture of Materials” (Graduate) Oregon State University (Spring 2008, 2009, 2010, 2011, 2012, Fall 2013)

ME 484 “Fracture of Materials” (Undergraduate) at Oregon State University (Spring 2008, 2009, 2010, 2011, 2012, Fall 2013)

ENGR 322 “Mechanical Properties of Materials” (Undergraduate) at Oregon State University (Winter 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2014)

ME 587 “Dislocations, Deformation, and Creep,” (Graduate) Oregon State University (Fall 2008, 2010)

ME 455/555 “Experimental Techniques in Materials Science” (Split level) Oregon State University (Spring 2009, 2010, 2011, 2012) team taught with B. Gibbons, W. Warnes, and D. Cann.

“Fracture of Materials” (Graduate) Universität des Saarlandes, Germany (Fall 2009)

ENGR 213 “Strength of Materials” (Undergraduate) at Oregon State University (Winter 2008)

ME 484/584 “Fracture of Materials” (Split level) at Oregon State University (Spring 2005, 2006, 2007)

ME 487/587 “Dislocations and the Mechanical Behavior of Materials” (Split level) at Oregon State University (Fall 2004, 2006)

Guest Lecturer for MSE 212, MSE 113, E45 taught by Robert O. Ritchie at the University of California, Berkeley (2002 - 2004)

THESIS ADVISING:

Current:

1. Dick Casali, Ph.D. student in Materials Science, from 2008 – present
2. Kyle Rozman, Ph.D. student in Materials Science, from 2011 – present
3. Michelle Jennings, Ph.D. student in Materials Science, from 2012 – present
4. Travis Gildner, B.S. Honors Thesis in Mechanical Engineering, 2012 - present
5. Bosong Li, M.S./Ph.D. student in Materials Science, From 2013 - present

Graduated:

Ph.D. Degree

1. Dmytro Khvostenko, Ph.D. in Materials Science, 2014
2. Rawley Greene, Ph.D. in Materials Science, 2012
3. Sarah Gallops, Ph.D. in Materials Science, 2011
4. Minal Shah, Ph.D. in Materials Science, 2008
5. Maximilien Launey, Ph.D. in Materials Science, 2007

M.S. Degree

1. Michelle Jennings, M.S. in Materials Science, 2014
2. Steven Naleway, M.S. in Materials Science, 2013
3. James Eilertsen, M.S. in Mechanical Engineering, 2011
4. Kyle Rozman, M.S. in Materials Science, 2011
5. Hailey Murdock, M.S. in Materials Science, 2010
6. Joshua Hogg, M.S. in Materials Science, 2010
7. Sarah Philo, M.S. in Materials Science, 2009
8. Sarah Gallops, M.S. in Materials Science, 2009
9. Justin Johnson, M.S. in Materials Science, 2007
10. Adam Robinson, M.S. dual major in Materials Science and Nuclear Engineering, 2006
11. Ian Gunter, M.S. in Mechanical Engineering, 2005

M. Eng. Degree (non-thesis)

1. Dmytro Khvostenko, M. Eng. in Mechanical Engineering, 2013

VISITING SCHOLARS:

Uigu “KG” Kang (Ph.D. student from Kookmin University, Seoul, South Korea) 2010 – 2011

Ho-Kyung Kim (Professor, Seoul National University of Technology, Seoul, South Korea) 2008 – 2009

Stefan Fünfschilling (Ph.D. student from Karlsruhe Institute of Technology, Karlsruhe, Germany) 2008

Kang Jung (Professor, Chonnam National University, Yoesu, South Korea) 2006 – 2008

PROFESSIONAL AFFILIATIONS:

Member of The Minerals, Metals and Materials Society (TMS)

Member of the American Ceramic Society (ACerS)

EXTERNAL ACTIVITIES AND SERVICE:

Editorial:

1. Key Reader and Board of Review – *Metallurgical and Materials Transactions A* (2004-present)
2. Editorial Board – *Journal of the Mechanical Behavior of Biomedical Materials* (2007 – present)
3. Advisory Board – *Advanced Engineering Materials* (2014 – present)

4. Guest editor, special issues of *JOM* (2013, 2014), *Journal of Mechanical Behavior of Biomedical Materials* (2012), *Engineering Fracture Mechanics* (2007) and *International Journal of Fatigue* (2007)

Professional Societies:

1. TMS Biomaterials Committee (Chair: 2014 – present, Vice Chair: 2012 – 2014; member: 2007 – present)
2. TMS Mechanical Behavior Committee (member: 2010 – present)
3. TMS Education Committee (member: 2010 – 2012)

Conference Organization:

1. Scientific Advisory Board, 14th International Conference on Fracture (2013 – 2017)
2. Conference Organizing Committee – 2nd - 5th International Conferences on the Mechanics of Biomaterials and Tissues (2006-2013)
3. Symposium Chair – From Macro to Nano, Understanding Mechanical Behavior across Length Scales: A Structural Materials Division Symposium in Honor of Robert Ritchie, 2012 TMS Annual Meeting, Orlando, FL.
4. Session Co-organizer – Fatigue Crack Growth Session, 2nd International Conference on Engineering Against Fracture, 2011, Mykonos, Greece.
5. Symposium Chair – Biological Materials Science Symposium, 2011 TMS Annual Meeting, San Diego, CA.
6. Symposium Vice-Chair – Biological Materials Science Symposium, 2010 TMS Annual Meeting, Seattle, WA.

Reviewing:

1. Program Reviews
 - Merit Review Panel Member, 2007 National Energy Technology Laboratory (NETL) Office of Research and Development (ORD) Materials Science Research Projects, June 2007.
2. Proposal Reviewing
 - National Science Foundation, Division of Civil, Mechanical, and Manufacturing Innovation (CMMI), panel reviewer, 2009-2010, 2014
 - National Science Foundation, Division of Materials Research (DMR), proposal reviewer: 2007-2008, 2010; panel reviewer 2011, 2012.
 - Research Grants Council (RGC) of Hong Kong, proposal reviewer, 2011.
 - Department of Energy, Division of Materials Science and Engineering, proposal reviewer, 2010.
 - Israel Science Foundation, proposal reviewer, 2009.
 - Center for Advanced Interdisciplinary Research in Materials (CIMAT), proposal reviewer, 2008.
 - American Chemical Society (ACS) Petroleum Research Fund (PRF), proposal reviewer, 2007.
 - The International Copper Association (ICA) and Center for Advanced Interdisciplinary Research in Materials (CIMAT), proposal reviewer, 2006.
3. Journal Reviewing
 - *Acta Biomaterialia*

- *Acta Materialia*
- *Advanced Engineering Materials*
- *Applied Composite Materials*
- *Applied Physics Letters*
- *Archives of Oral Biology*
- *ASME Journal of Biomechanical Engineering*
- *ASME Journal of Engineering Materials and Technology*
- ASTM Special Technical Publication 1413
- *Biomaterials*
- *Biomechanics and Modeling in Mechanobiology*
- *Computational Materials Science*
- *Dental Materials*
- *Engineering Fracture Mechanics*
- *Experimental Mechanics*
- *Fatigue & Fracture of Engineering Materials & Structures*
- *Intermetallics*
- *International Journal of Fatigue*
- *International Journal of Fracture*
- *International Journal of Materials Research*
- *Journal of Alloys and Compounds*
- *Journal of Biomechanics*
- *Journal of Biomedical Materials Research B*
- *Journal of Ceramic Science and Technology*
- *Journal of Dental Research*
- *Journal of Dentistry*
- *Journal of Endodontics, Scientific Advisory Board: 2010-2012*
- *Journal of Materials Research*
- *Journal of Materials Science*
- *Journal of the American Ceramic Society*
- *Journal of the Mechanical Behavior of Biomedical Materials*
- *Journal of the Mechanics and Physics of Solids*
- *Journal of Testing and Evaluation*
- *Material Letters*
- *Materials Science and Engineering A*
- *Medical Engineering & Physics*
- *Metallurgical and Materials Transactions A*
- *Nature Communications*
- *Physical Review Letters*
- *Science*
- *Scripta Materialia*
- *Strain*

OREGON STATE UNIVERSITY SERVICE:

- University Service
 1. Electron Microscopy Steering Committee (Chair: 2009 - 2012)
 2. Murdock Charitable Trust Site Visit (Participant: 2010)
 3. Electron Microscopy Facility Director Search Committee (Chair: 2009)
 4. OUS-Badan-Württemberg Faculty Partnership Conference (Participant: 2008)
- College of Engineering Service
 1. College of Engineering Awards Committee (Member: 2007 – 2008)
 2. College of Engineering Search Committees
 - i) Pre-award Grants and Contracts Coordinator (Chair: 2014)
 - ii) Interim Mechanical, Industrial, and Manufacturing Engineering School Head (Member: 2011)
 - iii) Microproducts Breakthrough Institute (MBI) Co-Director (Member: 2008)
- School or Department Service
 1. School of Mechanical, Industrial, and Manufacturing Engineering Awards Committee (Chair: 2008 – present, Member: 2007 – 2008)
 2. School of Mechanical, Industrial, and Manufacturing Engineering Promotion and Tenure sub-committee (Member: 2011, 2014)
 3. School of Mechanical, Industrial, and Manufacturing Engineering ad hoc Promotion and Tenure Process Development Committee (Chair: 2010 – 2011)
 4. Mechanical Engineering Undergraduate Program Committee (Member: 2005 – 2007)
 5. Mechanical Engineering Faculty Search Committees
 - i) Materials science search (Member: 2014)
 - ii) Multiple position search (Member: 2011)
 - iii) Engineering design search (Member: 2008–2009)
 - iv) Experimental mechanics search (Member: 2007)
 - v) Materials science search (Member: 2005–2006)
 - vi) Mechatronics search (Member: 2005)
 6. Mechanical Engineering and Industrial and Manufacturing Engineering department merger committee (Member: 2005)

CONSULTING:

Failure Analysis consultant for Hayes and Associates, Corvallis, OR (2005 – present)
Mechanical Testing consultant for Medical CV Inc., Inver Grove Heights, MN (2004)
Mechanical Testing consultant for Kevin Kennedy and Associates, Indianapolis, IN (2003)
Failure Analysis consultant for Patterson and Wagner Law Firm, San Antonio, TX (2002)
Materials Science consultant for Taproot Ventures, San Mateo, CA (2002)