

DAVID R. JOHNSON

Associate Professor and Associate Head for Undergraduate Education
School of Materials Engineering, Purdue University

Education

University of Tennessee, Knoxville, TN

Doctor of Philosophy in Metallurgical Engineering, 1994

Advisor Professor B. F. Oliver

University of Tennessee, Knoxville, TN

Master of Science in Metallurgical Engineering, 1990

Advisor Professor W. T. Becker

University of Tennessee, Knoxville, TN

Bachelor of Science in Engineering Science & Mechanics

Professional appointments

Purdue University, West Lafayette, Indiana

Associate Professor and Associate Head for Undergraduate Education, School of Materials Engineering, 2021-present

Associate Professor, School of Materials Engineering, 7/2004 - present

Technical Assistance Program (TAP), 25% appointment, 8/2005-8/2007

Assistant Professor, School of Materials Engineering, 8/1998-7/2004

Kyoto University, Kyoto, Japan

Assistant Professor, Department of Materials Science and Engineering, 1996-1998

Postdoctoral position (JSPS), Department of Materials Science and Engineering, 1994-1996

Scholarly Research

Focuses on high-temperature structural materials, solidification processing, and microstructural development, with applications in aerospace, automotive, and power-generation materials.

Research also includes collaborations through Purdue's industrial consortia, including the Heat Treating Consortium (PHTC) and the Center for Metal Casting Research (PCMC).

Teaching

Teaches undergraduate and graduate courses in materials processing, deformation, fracture, solidification, and structure-property relationships. The courses emphasize fundamentals, laboratory experience, and the use of computational tools such as nanoHUB simulations and Thermo-Calc.

Service and Engagement

Chaired the MSE graduate committee from 2004 to 2007; has chaired the undergraduate committee since 2011. Advised the MSE Co-Op program, participated in Purdue's Technical Assistance Program, mentored industrially sponsored senior design projects, and supported the MSE industrial consortia. Served as technical chair for ICSP15, held at Purdue in September 2025.

Honors and Awards

CoE Faculty Excellence Award for Impact on Industry, team award related to work with the MSE heat treating industrial consortia (PHTC). Team: K.H. Sandhage, M.J.M. Krane, J.P. Youngblood, and M.S. Titus, **2025**

Purdue Seed for Success Award, awarded annually by the Executive Vice President for Research and Partnerships at Purdue to PIs of \$1M-plus research awards, for Keck Foundation: 200 Million Mobility 2DEGs: Pushing Materials to the Extreme (with M.J. Manfra, G.A. Csathy, and K.P. Trumble), **2013**

Purdue Seed for Success Award, for North American Die Casting Association's Hypercast Program (with Q. Han, K.J. Bowman, M.J.M. Krane, R.W. Trice, and K.P. Trumble), **2010**

Purdue MSE Reinhardt Schuhmann Teaching Award, **2000** and **2003**

Purdue Teaching for Tomorrow Award (recognizes up to 12 assistant professors across campus for demonstrated talent for teaching), **2000**

Postdoctoral research fellowship from the Japan Society for the Promotion of Science and the National Science Foundation, **1995**

Outstanding Teaching Assistant, Department of Materials Science and Engineering, University of Tennessee, **1993**

Journal Publications

1. J.H. Tien, M. Reger, D.R. Johnson, D.F. Bahr, (2024). "Hydrogen charging can relax compressive residual stresses caused by shot peening," *International Journal of Hydrogen Energy*. doi:10.1016/j.ijhydene.2024.06.215
2. D. Huang, M.J.M. Krane, D. Johnson, "Stress Development During Cooling of Continuously Cast Boron-Containing Steel Slabs," *Journal of Materials Engineering and Performance*, 31(8), 6637-6646 (2022). (<https://doi.org/10.1007/s11665-022-06642-6>)
3. S. Matsunaga, D. Huang, S.B. Inman, J.C. Mason, D. Konitzer, D.R. Johnson, M.S. Titus, "Planar Front Growth of Single Crystal Ni-Based Superalloy René N515," *JOM*, 72, 1794–1802 (2020). (<https://doi.org/10.1007/s11837-020-04091-x>)
4. D. Wen, C.-H. Chang, S. Matsunaga, G. Park, L. Ecker, S.K. Gill, M. Topsakal, M.A. Okuniewski, S. Antonov, D.R. Johnson, M.S. Titus, "Structure and tensile properties of Mx (MnFeCoNi)100-x solid solution strengthened high entropy alloys," *Materialia*, 9, 100539 (2020). (<https://doi.org/10.1016/j.mtla.2019.100539>)

5. K. Luitjohan, M.J.M. Krane, D.R. Johnson, "Effect of Solute Elements on Boron Segregation in Boron-Containing Steels," *ISIJ International*, 60(1), 92–98 (2020). (<https://doi.org/10.2355/isijinternational.ISIJINT-2019-258>)
6. Y. Sun, X. Bai, D. Klenosky, K. Trumble, D.R. Johnson, "A Study on Peripheral Grain Structure Evolution of an AA7050 Aluminum Alloy with a Laboratory-Scale Extrusion Setup," *Journal of Materials Engineering and Performance*, 28(8), 5156–5164 (2019). (<https://doi.org/10.1007/s11665-019-04208-7>)
7. A. Nicolas, A.W. Mello, Y. Sun, D.R. Johnson, M.D. Sangid, "Reconstruction methods and analysis of subsurface uncertainty for anisotropic microstructures," *Materials Science and Engineering: A*, 760, 76–87 (2019). (<https://doi.org/10.1016/j.msea.2019.05.089>)
8. A.B. Kustas, D.R. Johnson, K.P. Trumble, S. Chandrasekar, "Enhancing workability in sheet production of high silicon content electrical steel through large shear deformation," *Journal of Materials Processing Technology*, 257, 155–162 (2018). (<https://doi.org/10.1016/j.jmatprotec.2018.02.027>)
9. K.E. Luitjohan, M.J.M. Krane, V. Ortalan, D.R. Johnson, "Investigation of the metatectic reaction in iron-boron binary alloys," *Journal of Alloys and Compounds*, 732, 498–505 (2018). (<https://doi.org/10.1016/j.jallcom.2017.10.238>)
10. P. Priya, D.R. Johnson, M.J.M. Krane, "Precipitation during cooling of 7XXX aluminum alloys," *Computational Materials Science*, 139, 273–284 (2017). (<https://doi.org/10.1016/j.commatsci.2017.08.008>)
11. P. Priya, D.R. Johnson, M.J.M. Krane, "Modeling phase transformation kinetics during homogenization of aluminum alloy 7050," *Computational Materials Science*, 138, 277–287 (2017). (<https://doi.org/10.1016/j.commatsci.2017.06.043>)
12. Y. Sun, D.R. Johnson, K.P. Trumble, "Effect of Zr on recrystallization in a directionally solidified AA7050," *Materials Science and Engineering: A*, 700, 358–365 (2017). (<https://doi.org/10.1016/j.msea.2017.06.026>)
13. P. Priya, D.R. Johnson, M.J.M. Krane, "Numerical study of microstructural evolution during homogenization of Al-Si-Mg-Fe-Mn alloys," *Metallurgical and Materials Transactions A*, 47, 4625–4639 (2016). (<https://doi.org/10.1007/s11661-016-3610-8>)
14. M. Heiden, S. Huang, E. Nauman, D.R. Johnson, L. Stanciu, "Nanoporous metals for biodegradable implants: Initial bone mesenchymal stem cell adhesion and degradation behavior," *Journal of Biomedical Materials Research Part A*, (2016). (<https://doi.org/10.1002/jbm.a.35707>)
15. D.R. Johnson, C. McCleary, M.J.M. Krane, K.P. Trumble, "Measuring Thermomechanical Properties of AA7050 Near the Solidus Temperature," *International Journal of Metalcasting*, 10(2), 147–156 (2016).

16. A. Coughlan, H.A. Diefes-Dux, K.A. Douglas, T.A. Faltens, D. Johnson, "The Continuing Effort to Enhanced Learning of Mechanical Behavior of Materials via Combined Experiments and nanoHUB Simulations: Learning Modules for Sophomore MSE Students," *MRS Advances*, 1(56), 3721-3726 (2016). doi:10.1557/adv.2016.231
17. M. Heiden, D. Johnson, L. Stanciu, "Surface modifications through dealloying of Fe Mn and Fe Mn Zn alloys developed to create tailorable, nanoporous, bioresorbable surfaces," *Acta Materialia*, 15(103), 115-127 (2016). doi:10.1016/J.ACTAMAT.2015.10.002
18. S.L. Zhang, D.R. Johnson, M.J.M. Krane, "Influence of riser design on macrosegregation in static castings," *International Journal of Cast Metals Research*, 28(1), 28–38 (2015).
19. M. Heiden, A. Kustas, K. Chaput, E. Nauman, D.R. Johnson, L. Stanciu, "Effect of microstructure and strain on the degradation behavior of novel bioresorbable iron–manganese alloy implants," *Journal of Biomedical Materials Research Part A*, 103, 738–745 (2015).
20. S. Zhang, J. Yanke, D.R. Johnson, M.J.M. Krane, "Modeling defects in castings using a Volume-of-Fluid method," *International Journal of Numerical Methods for Heat & Fluid Flow*, 24(2), 468–482 (2014).
21. M. Acosta, T.D. Reynolds, D.R. Johnson, E.P. Kvam, "Characterization of two-phase B2-HCP alloys in the Ru-Al-Cr system," *Intermetallics*, 18, 2281–2288 (2010).
22. M.J.M. Krane, D.R. Johnson, S. Raghavan, "The development of a cellular automata-finite volume model for dendritic growth," *Applied Mathematical Modeling*, 33, 2234–2247 (2009).
23. T.D. Reynolds, M. Acosta, D.R. Johnson, "Processing and Mechanical Properties of RuAl Based Alloys," *Materials Science Forum*, ISSN: 1662-9752, Vols. 539-543, pp 1469-1474 doi:10.4028/www.scientific.net/MSF.539-543.1469
24. V.S. Dheeradhada, D.R. Johnson, M.A. Dayananda, "Diffusional Analysis of a Multiphase Oxide Scale Formed on a Mo-Mo₃Si-Mo₅SiB₂ Alloy," *Journal of Phase Equilibria and Diffusion*, 27, 582–589 (2006). doi:10.1007/BF02736559
25. D.R. Johnson, H. Inui, S. Muto, Y. Omiya, T. Yamanaka, "Microstructural development during directional solidification of α -seeded TiAl alloys," *Acta Materialia*, 54, 1077–1085 (2006).
26. V. Supatarawanich, D.R. Johnson, C.T. Liu, "Oxidation behavior of multiphase Mo-Si-B alloys," *Intermetallics*, 12, 721–725 (2004).
27. T.D. Reynolds, D.R. Johnson, "Microstructure and mechanical properties of Ru-Al-Mo alloys," *Intermetallics*, 12, 157–164 (2004).
28. V. Supatarawanich, D.R. Johnson, C.T. Liu, "Effects of microstructure on the oxidation behavior of multiphase Mo-Si-B alloys," *Materials Science and Engineering: A*, A344, 328–339 (2003).

29. H.N. Lee, D.R. Johnson, H. Inui, M.H. Oh, D.M. Wee, M. Yamaguchi, "Directional Solidification and Creep Deformation of a Ti-46Al-1.5Mo-0.2C (at.%) Alloy," *Intermetallics*, 10, 841–850 (2002).
30. S. Muto, T. Yamanaka, D.R. Johnson, H. Inui, M. Yamaguchi, "Effects of refractory metals on microstructure and mechanical properties of directionally-solidified TiAl alloys," *Materials Science and Engineering: A*, A329–A331, 424–429 (2002).
31. H.N. Lee, D.R. Johnson, H. Inui, M.H. Oh, D.M. Wee, M. Yamaguchi, "A composition window in the TiAl-Mo-Si system suitable for lamellar structure control through seeding and directional solidification," *Materials Science and Engineering: A*, A329–A331, 19–24 (2002).
32. D.R. Johnson, H.N. Lee, S. Muto, T. Yamanaka, H. Inui, M. Yamaguchi, "Microstructure and Creep Behavior of Directionally Solidified TiAl-base Alloys," *Intermetallics*, 9, 923–927 (2001).
33. S. Muto, T. Yamanaka, H.N. Lee, D.R. Johnson, H. Inui, M. Yamaguchi, "Directional solidification of TiAl-based alloys and properties of directionally solidified ingots," *Advanced Engineering Materials*, 3, 391–394 (2001).
34. H.N. Lee, D.R. Johnson, H. Inui, M.H. Oh, D.M. Wee, M. Yamaguchi, "Microstructural control and lamellar stability in TiAl alloys containing Mo and C," *Acta Materialia*, 48, 3221–3233 (2000).
35. M. Yamaguchi, D.R. Johnson, H.N. Lee, H. Inui, "Directional solidification of TiAl-base alloys," *Intermetallics*, 8, 511–517 (2000).
36. D.R. Johnson, Y. Masuda, H. Inui, M. Yamaguchi, "Creep deformation of TiAl-Si alloys with aligned lamellar microstructures," *Metallurgical and Materials Transactions A*, 31A, 2463–2473 (2000).
37. D.R. Johnson, "Intermetallic-based Composites," *Current Opinion in Solid State and Materials Science*, 4, 249–253 (1999).
38. T. Yamanaka, D.R. Johnson, H. Inui, M. Yamaguchi, "Directional solidification of TiAl-Re-Si alloys with aligned γ/α_2 lamellar microstructures," *Intermetallics*, 7, 779–784 (1999).
39. D.R. Johnson, K. Chihara, H. Inui, M. Yamaguchi, "Microstructural control of TiAl-Mo-B alloys by directional solidification," *Acta Metallurgica et Materialia*, 46, 6529–6540 (1998).
40. K. Kishida, D.R. Johnson, Y. Masuda, H. Umeda, H. Inui, M. Yamaguchi, "Deformation and fracture of PST crystals and directionally solidified ingots of Ti-Al-based alloys," *Intermetallics*, 6, 679–683 (1998).
41. D.R. Johnson, H. Inui, M. Yamaguchi, "Crystal growth of TiAl alloys," *Intermetallics*, 6, 647–652 (1998).

42. R. Reviere, G. Sauthoff, D.R. Johnson, B.F. Oliver, "Microstructure of directionally solidified eutectic based Fe(Al,Ta)/Fe₂Ta(Al) alloys as a function of processing conditions," *Intermetallics*, 5, 161–172 (1997).
43. J.D. Whittenberger, R.D. Noebe, D.R. Johnson, B.F. Oliver, "Compressive and tensile creep of a directionally solidified NiAl-14.5(at%) Ta alloy," *Intermetallics*, 5, 173–183 (1997).
44. D.R. Johnson, Y. Masuda, H. Inui, M. Yamaguchi, "Alignment of the TiAl/Ti₃Al lamellar microstructure in TiAl alloys by growth from a seed material," *Acta Metallurgica et Materialia*, 45, 2523–2533 (1997).
45. D.R. Johnson, Y. Masuda, H. Inui, M. Yamaguchi, "Alignment of the TiAl/Ti₃Al lamellar microstructure in TiAl alloys by directional solidification," *Materials Science and Engineering: A*, 239–240, 577–583 (1997).
46. M. Yamaguchi, H. Inui, S. Yokoshima, K. Kishida, D.R. Johnson, "Recent progress in our understanding of deformation and fracture of two-phase and single-phase TiAl alloys," *Materials Science and Engineering: A*, A213, 25–31 (1996).
47. D.R. Johnson, H. Inui, M. Yamaguchi, "Directional solidification and microstructural control of the TiAl/Ti₃Al lamellar microstructure in TiAl-Si alloys," *Acta Metallurgica et Materialia*, 44, 2523–2535 (1996).
48. T.S. Newport, B.F. Oliver, D.R. Johnson, R.D. Noebe, "Containerless automated processing of high-purity intermetallic compounds and composites," *Materials and Manufacturing Processes*, 11, 119–136 (1996).
49. S.M. Joslin, D.R. Johnson, B.F. Oliver, R.D. Noebe, J.D. Whittenberger, "Containerless automated processing of single crystal NiAl and intermetallic polyphase composites," *Journal of Advanced Materials*, 27, 19–25 (1996).
50. D.R. Johnson, B.F. Oliver, R.D. Noebe, J.D. Whittenberger, "NiAl-based polyphase in-situ composites in the NiAl-Ta-X (X=Cr, Mo, or V) systems," *Intermetallics*, 3, 493–503 (1995).
51. D.R. Johnson, X.F. Chen, B.F. Oliver, R.D. Noebe, J.D. Whittenberger, "Directional solidification and mechanical properties of NiAl-NiAlTa alloys," *Intermetallics*, 3, 141–152 (1995).
52. D.R. Johnson, X.F. Chen, B.F. Oliver, R.D. Noebe, J.D. Whittenberger, "Processing and mechanical properties of in-situ composites from the NiAl-Cr and the NiAl-(Cr,Mo) eutectic systems," *Intermetallics*, 3, 99–113 (1995).
53. X.F. Chen, D.R. Johnson, R.D. Noebe, B.F. Oliver, "Deformation and fracture of a directionally solidified NiAl-28Cr-6Mo eutectic alloy," *Journal of Materials Research*, 10, 1159–1170 (1995).
54. D.R. Johnson, B.F. Oliver, "Ternary peritectic solidification in the NiAl-Ni₂AlTa-NiAlTa system," *Materials Letters*, 20, 129–133 (1994).

55. X.F. Chen, D.R. Johnson, B.F. Oliver, "Microstructures from a directionally solidified NiAl-Cr eutectic deformed at room temperature," *Scripta Metallurgica et Materialia*, 30, 975-980 (1994).
56. D.R. Johnson, W.T. Becker, "Toughness of tempered upper and lower bainitic microstructures in a 4150 steel," *Journal of Materials Engineering and Performance* 2 (1993) 255-263.

Refereed conference papers

1. K. Min, D. Johnson, K. Trumble, "Gallium Evaporation Behavior for Purification in Molecular Beam Epitaxy," in *Materials Processing Fundamentals 2017*, Springer, 73-83 (2017). (doi:10.1007/978-3-319-51580-9_8)
2. K. Luitjohan, M.J.M. Krane, V. Ortalan, D. Johnson, "Investigation of boron segregation in commercial steel alloys," In *AISTech - Iron and Steel Technology Conference Proceedings* Vol. 2, 1951-1960 (2017)
3. Aisling Coughlan, Tanya A. Faltens, Heidi A. Diefes-Dux, Kerrie Anna Douglas, David R. Johnson, "Integrating a Research Grade Simulation Tool in a Second Year Materials Science Laboratory Course," in *ASEE Conference & Exposition*. (2016). doi:10.18260/P.27317
4. P. Priya, M.J.M. Krane, D.R. Johnson, "Precipitation of Al₃Zr dispersoids during homogenization of Al-Zn-Cu-Mg-Zr alloys," in *TMS Light Metals* Vol. 2016-January, 213-218 (2016).
5. D.R. Klenosky, D.R. Johnson, S. Chandrasekar, K.P. Trumble, "Characterization of Large Strain Extrusion Machining (LSEM) of AA7050," in *Light Metals 2017*, Springer, 301-304 (2017). (doi:10.1007/978-3-319-51541-0_40)
6. Heidi A. Diefes-Dux, Aisling Coughlan, David R. Johnson, Kerrie A. Douglas, Tanya Faltens, "Students' Struggles to Explain the Atomic Behavior of Metals in a Tensile Test Lab Supported by a Molecular Dynamics Simulation," in *ASEE Conference and Exposition*, (2015). doi:10.18260/P.24774
7. A. Coughlan, D. Johnson, H.A. Diefes-Dux, K.A. Douglas, K. Erk, T.A. Faltens, A. Strachan, "Enhanced Learning of Mechanical Behavior of Materials via Combined Experiments and nanoHUB Simulations: Learning Modules for Sophomore MSE Students," *MRS Symp. Proc.*, Vol. 1762 (2015). (doi:10.1557/opl.2015.152)
8. Y. Sun, D.R. Johnson, K. Trumble, P. Priya, M.J.M. Krane, "Effect of Mg₂Si Phase on Extrusion of AA6005 Aluminum Alloy," in *Light Metals 2014*, J. Grandfield, ed., TMS, 429-433 (2014).
9. P. Priya, M.J.M. Krane, D.R. Johnson, "A Numerical and Experimental Study of Homogenization of Al-Si-Mg Alloys," in *Light Metals 2014*, J. Grandfield, ed., TMS, 423-428 (2014).

10. X. Ma, R. Kusuma, S. Kuplin, D. Johnson, K. Trumble, "Development in the 40 vol.% and 20 vol.% AlN+Mg₂Si/Mg Matrix Composites," in *Phase Stability, Diffusion, Kinetics and Their Applications (PSDK-VI), Materials Science and Technology (MS&T)*, 309-315 (2011).
11. X. Ma, S. Kuplin, D. Johnson, K. Trumble, "In situ synthesis of AlN/Mg Matrix Composites," in *140th Annual Meeting and Exhibition, Supplemental Proceedings, Volume 2, Materials Fabrication, Properties, Characterization, and Modeling*, TMS, 851-858 (2011).
12. S. Zhang, D.R. Johnson, M.J.M. Krane, "Effects of Geometric Constraint on Phase Selection and Segregation in Cast TiAl," *MRS Symp. Proc.*, Vol. 1295, 183-188 (2011).
13. Y. Hashimoto, N.L. Okamoto, M. Acosta, D.R. Johnson, H. Inui, "Processing, Microstructure, and Thermal Expansion Measurements of High Temperature Ru-Al-Cr B2 Alloys," *MRS Symp. Proc.*, Vol. 1128, 1128-U05-25 (2009).
14. T.D. Reynolds, M. Acosta, D.R. Johnson, "Processing and Mechanical Properties of RuAl-based alloys," *Materials Science Forum*, 539-543, 1469-1474 (2007).
15. T. Reynolds, D. Johnson, "Solidification Processing and Fracture Behavior of RuAl-Based Alloys," *MRS Symp. Proc.*, Vol. 842, S6.2.1 (2005). (MRS paper: ribbon award)
16. H. Inui, Y. Omiya, D.R. Johnson, "Directional solidification of TiAl alloys with Nb concentrations for aligning lamellar microstructures," in *Niobium High Temperature Applications*, Proceedings of the International Symposium on Niobium for High Temperature Applications, TMS, Warrendale, PA, 265-275 (2004).
17. S. Raghavan, M.J.M. Krane, D.R. Johnson, "A cellular automaton for growth of solutal dendrites: factors influencing artificial anisotropy in growth kinetics," in *Solidification Processes and Microstructures: A Symposium in Honor of Prof. W. Kurz*, M. Rappaz, C. Beckermann, R. Trivedi, eds., TMS, 413-418 (2004).
18. T. Reynolds, D. Johnson, "Processing and Characterizing RuAl Eutectics," *MRS Symp. Proc.*, Vol. 753, BB5.34 (2003).
19. Y. Omiya, S. Muto, T. Yamanaka, D.R. Johnson, H. Inui, M. Yamaguchi, "Alignment of the Lamellar Orientation of Multi-Component TiAl Alloys by Directional Solidification (DS) and Mechanical Properties of DS Ingots," *MRS Symp. Proc.*, Vol. 753, BB5.2 (2003).
20. S. Raghavan, D.R. Johnson, M.J.M. Krane, "Different rule sets for cellular automata modeling of peritectic dendritic growth," in *Modeling of Casting, Welding and Advanced Solidification Processes - X*, D. Stefanescu, J. Warren, M. Jolly, M. Krane, eds., TMS, 107-114 (2003).
21. V. Supatarawanich, D.R. Johnson, M.A. Dayananda, C.T. Liu, "Processing and properties of multiphase Mo-Si-B alloys," *Materials Science Forum*, 426-4, 4301-4306 (2003).
22. H. Inui, D.R. Johnson, M. Yamaguchi, "Directional solidification of TiAl alloys for aligning lamellar microstructures and mechanical properties of directionally-solidified ingots," *Materials Science Forum*, 426-4, 1733-1738 (2003).

23. T. Reynolds, D. Johnson "Processing and Characterizing RuAl Eutectics," *MRS Advances*, 753, bb5.34. (2002). doi:10.1557/proc-753-bb5.34
24. Y. Omiya, S. Muto, T. Yamanaka, D.R. Johnson, H. Inui, M. Yamaguchi, "Alignment of the lamellar orientation of multi-component TiAl alloys by directional solidification (DS) and mechanical properties of DS ingots" *MRS Advances*, 753, bb5.2. (2002). doi:10.1557/proc-753-bb5.2
25. S. Rosset, R. Cefalu, L. Varner, D. Johnson, "Crystal growth of RuAl-base alloys," in *High-Temperature Ordered Intermetallic Alloys IX*, J.H. Schneibel et al., eds., *MRS Symp. Proc.*, Vol. 646, Pittsburgh, PA, N5.28.1-6 (2001).
26. H.N. Lee, M-H. Oh, D.R. Johnson, H. Inui, M. Yamaguchi, D-M. Wee, "Control of lamellar orientation in TiAl alloys by directional solidification using a seed material," *J. Korean Institute of Metals & Materials*, 37(11), 1343-1349 (1999).
27. D.R. Johnson, Y. Masuda, T. Yamanaka, H. Inui, M. Yamaguchi, "Creep deformation of TiAl-Si alloys with aligned lamellar microstructures," in *Gamma Titanium Aluminides-1999*, Y-W. Kim, D.M. Dimiduk, M.H. Loretto, eds., TMS, Warrendale, PA, 627-631 (1999).
28. H.N. Lee, D.R. Johnson, H. Inui, M.H. Oh, D.M. Wee, M. Yamaguchi, "Microstructure control and lamellar stability in a cast TiAl as a function of Mo and C," in *Gamma Titanium Aluminides-1999*, Y-W. Kim, D.M. Dimiduk, M.H. Loretto, eds., TMS, Warrendale, PA, 309-314 (1999).
29. T. Yamanaka, D.R. Johnson, Y. Masuda, H. Inui, M. Yamaguchi, "Directional solidification and creep deformation of TiAl-Si Alloys," in *Gamma Titanium Aluminides-1999*, Y-W. Kim, D.M. Dimiduk, M.H. Loretto, eds., TMS, Warrendale, PA, 295-300 (1999).
30. D.R. Johnson, Y. Masuda, Y. Shimada, H. Inui, M. Yamaguchi, "Directional solidification of TiAl-based alloys," in *Structural Intermetallics 1997*, M.V. Nathal et al., eds., TMS, Warrendale, PA, 287-294 (1997).
31. N. Akiyama, S. Yokoshima, D.R. Johnson, K. Kishida, H. Inui, M. Yamaguchi, "Fracture and fracture toughness of directionally solidified TiAl-based two-phase alloys," in *George R. Irwin Symposium on Cleavage Fracture*, edited by Kwai S. Chan, MRS, Pittsburgh, PA, 293-303 (1997).
32. K. Kishida, D.R. Johnson, Y. Shimada, Y. Masuda, H. Inui, M. Yamaguchi, "Deformation of diffusion-bonded bi-PST and directionally solidified crystals of TiAl," in *High-Temperature Ordered Intermetallic Alloys VII*, C.C. Koch et al., eds., *MRS Symp. Proc.*, Vol. 460, Pittsburgh, PA, 53-63 (1997).
33. M. Yamaguchi, D.R. Johnson, "Intermetallics research in Japan - with particular emphasis on TiAl," in *Processing & Design Issues in High Temperature Materials*, N.S. Stoloff, R.H. Jones, eds., TMS, Warrendale, PA, 175-184 (1996).

34. K. Kishida, S. Yokoshima, D.R. Johnson, H. Inui, M. Yamaguchi, "Mechanical Properties of TiAl-based alloys," in *NATO -Advanced Study Institute on Stability of Materials*, A. Gonis, P.E.A. Turchi, J. Kudrnovsky, eds., Plenum Press, 547-579 (1995).
35. K. Kishida, D.R. Johnson, Y. Shimada, H. Inui, Y. Shirai, M. Yamaguchi, "Characteristics, benefits and applications of PST TiAl crystals," in *Gamma Titanium Aluminides*, Y-W. Kim, R. Wagner, M. Yamaguchi, eds., TMS, Warrendale, PA, 219-229 (1995).
36. D.R. Johnson, B.F. Oliver, R.D. Noebe, J.D. Whittenberger, "Processing and mechanical properties of directionally solidified NiAl/NiAlTa alloys," in *Processing and Fabrication of Advanced Materials for High Temperature Applications-III*, V.A. Ravi, S. Srivatsan, J.J. More, eds., TMS, Warrendale, PA, 619-629 (1994).
37. D.R. Johnson, S.M. Joslin, R.D. Reviere, B.F. Oliver, R.D. Noebe, "Containerless automated processing of intermetallic compounds and composites," in *Processing and Fabrication of Advanced Materials for High Temperature Applications-II*, V.A. Ravi, S. Srivatsan, eds., TMS, Warrendale, PA, 77-90 (1993).
38. D.R. Johnson, S.M. Joslin, B.F. Oliver, R.D. Noebe, J.D. Whittenberger, "High purity NiAl single crystals and composites by containerless automated processing," in *First International Conference on Processing Materials for Properties*, H. Henein, T. Oki, eds., TMS, Warrendale, PA, 865-870 (1993).
39. D.R. Johnson, S.M. Joslin, B.F. Oliver, R.D. Noebe, J.D. Whittenberger, "Intermetallic/Metallic polyphase in-situ composites," in *Intermetallic Matrix Composites II*, D. Miracle et al., eds., *MRS Symp. Proc.*, Vol. 273, Pittsburgh, PA, 87-92 (1992).

GRADUATE STUDENT SUPERVISION

M.S. Major Professor

1. Sarvesh Bajaj, Materials Engineering (Co-advised with K. Sandhage and M.J.M. Krane, Dec. 2024)
2. Chris McCleary, Materials Engineering (Co-advised with M.J.M. Krane, Dec. 2017)
3. Kyungjean Min, Materials Engineering, Co-advised with K.P. Trumble, May 2014
4. Elizabeth Heeter, Materials Engineering, "Microstructural Indicators of Transition Mechanisms in Time-Dependent Fatigue Crack Growth in Nickel Base Super Alloys," May 2014.
5. Xiao Ma, Materials Engineering, (Co-advised with K.P. Trumble), "In-situ synthesis of AlN+Mg₂Si/Mg matrix composites and microstructural studies," December 2011.
6. Sailei Zhang, "Modeling solidification microstructure development in TiAl alloys," December 2009 (Co-advised with M.J.M. Krane)
7. Tiffany Sanders, Materials Engineering, "Intermetallic behavior in hot dip aluminized steel" August 2007 (Co-advised with K.P. Trumble)
8. Manuel Acosta, "Phases, structure and strength of Ru-Al-Cr alloys" December 2007 (Co-advised with E.P. Kvam)

9. David Brayshaw, "Determination of residual stress formation in commercial alloys for greater fatigue resistance," December 2006 (Co-advised with M.A. Dayananda)
10. Zeynep Kasapoglu, "Effects of Different Processing Techniques on the Fracture Toughness Behavior of Mo-Mo₃Si-T₂ Multiphase Alloys," August 2004 (Co-advised with M.A. Dayananda)
11. Voramon Supatarawanich, "Effects of Microstructure on the Oxidation Behavior of Multiphase Mo-Si-B Intermetallics," December 2001
12. Sebastien Rosset, "Processing and Characterization of Ruthenium Aluminide Intermetallic Alloys," May 2001.

Ph.D. Major Professor

1. Nathon Tubbs, Co-advised with K. Sandhage (in progress)
2. Juliana Alvarenga Santos Silva, Co-advised with M.J.M. Krane and D. Giedemeister (in progress)
3. Licong An, "Laser-liquid metal interaction and its applications," Co-advised with G. Cheng (August, 2022)
4. Duo Huang, "Thermomechanical modeling of stress development and phase evolution during cooling of continuously-cast boron-containing steel," Co-advised with M.J.M. Krane (August, 2022)
5. Kara E. Luitjohan, "Boron segregation and its effects in advanced high strength steel," August 2018, (Co-advised with V. Ortalan)
6. Daniel Klenosky, "Large Strain Extrusion Machining of AA7050," 2018 (Co-advised with K.P. Trumble).
7. Yiwei Sun, "Microstructure evolution in 6xxx and 7xxx aluminum alloys during extrusion and related heat treatments," December 2017 (Co-advised with K.P. Trumble).
8. Pikee Priya, "Microstructural simulations and homogenization studies in cast aluminum alloys," May 2016 (Co-advised with M.J.M. Krane)
9. Sailei Zhang, "Macrosegregation and shrinkage pipe formation in static castings," May 2013, (Co-advised with M.J.M. Krane)
10. Todd Reynolds, "Solidification Processing, Mechanical Properties and Oxidation of RuAl-Based Alloys," August 2005.
11. Voramon Supatarawanich, "Oxidation Behavior of Multiphase Mo-Mo₃Si-Mo₅SiB₂ Intermetallics," August 2005 (Co-advised with M. A. Dayananda).
12. Srinivasan Raghavan, "A Numerical Model for Dendritic Growth in Binary Alloys," May 2005 (Co-advised with M.J.M. Krane)

UNDERGRADUATE STUDENT SUPERVISION

MSE 499 and Undergraduate Research Projects for credit

1. Megan Reger, "Hydrogen embrittlement in steels," 2022/2023
2. Phillip Gordon, "Reactions in Fe-B alloys," Fall 2016
3. Zhao Li, "High-entropy alloys," Summer 2016
4. Aaron Lichlyter, "Niobium-aluminum alloys," Summer 2016
5. Zhao Li, "Nanomechanics Simulations," Spring 2016

6. Michael Sakano, SURF: NanoHub, modeling of dislocation glide, Summer 2015
7. Matthew Townsend, "Processing of Fe₂Ni₁₆ magnetic materials," Fall 2014
8. Matthew Townsend, "Processing of Fe₂Ni₁₆ magnetic materials," Spring 2014
9. M. Gastelum, "Straightening of Al extrusions," Spring 2013
10. T. Hirvo, "Hot cracking in Al castings," Spring 2013
11. T. Hirvo, "Hot cracking in Al castings," Fall 2012
12. Bo Li, "Processing half-Heusler thermoelectric compounds," Fall 2011
13. Roy Kusuma, "TiC metal-matrix composites," Fall 2011
14. Salin Kunplin, "Mg based composites," Fall 2011
15. Bo Li, "Half-Heusler thermoelectric compounds," Fall 2010
16. Roy Kusuma, "AlN/Mg metal-matrix composites development," Fall 2010
17. Salin Kunplin, "Mg based composites," Fall 2010
18. Zhenyu Bo, "Directional solidification of Ti-Al-Ru eutectic," Spring 2010
19. Nicholas Negyi, "Evaluation Ti-Al-Ru alloys," Spring 2009
20. Nathan Wenning, "Nickel infiltration through CaO preforms," Fall 2008
21. Nicholas Negyi, "Evaluation of Co-W-Al High temperature alloys," Fall 2008
22. Adam Sutton, "Solution growth of RuAl," Fall 2005
23. Dan Cody, "Residual stress measurement in nitrided steels," Spring 2005
24. Kei Yamamoto, "Growth and Characterization of Ru-Al-Cr-Co alloys," Spring 2005
25. Thomas Reynolds, "Casting of Bulk Metallic Glasses," 2004/2005

COURSES TAUGHT

MSE 190: An Introduction to Materials Science and Engineering
MSE 230: Structure and Properties of Materials
MSE 235: Materials Structure and Properties Laboratories
MSE 250: Physical Properties in Engineering Systems
MSE 330: Processing and Properties of Materials
MSE 367: Materials Processing Laboratory
MSE 382: Mechanical Response of Materials
MSE 430-440: Senior Design Project (advisor)
MSE 499: Undergraduate Research
MSE 536: Solidification Processing
MSE 555: Deformation Mechanisms in Crystalline Solids
MSE 556: Fracture of Materials
MSE 597: Steel and Aluminum: Process, Structure and Properties
MSE 697: Materials Engineering Teaching Experience

SCHOOL COMMITTEE ACTIVITIES

Standing Search Committee, 2006, 2014
Graduate Committee, 1998-2007, chair 2004-2007
Computer Committee, 1998-2001.
Millennium Building Committee, 2002-2003
Undergraduate Committee, 2009-present, chair 2011-present

Equipment Committee, 2016-present
Strategic Planning, 2023

ENGINEERING-WIDE COMMITTEES

Junior Faculty Advisory Council, 2003-2005.
Engineering Education Committee, 2003-2006.
Graduate Programs - Internal Assessment Committee, 2006
Advanced Materials and Manufacturing Search Committee, 2006
Presidential Scholarship Committee 2014-2017
Awards Committee, 2010-2019
Undergraduate Committee Advisory Council, 2011-present

UNIVERSITY-WIDE COMMITTEES

Academic Personnel Grievance Committee, 2003-2006.

PRESENTATIONS

1. **David Johnson**, "Advanced steel processing with industrial consortia (PCMC & PHTC) at Purdue," Peoria Chapter ASM – AFS Technical Meeting, November 11, 2024
2. **David Bahr**, Jia-Huei Tsai, Megan Reger, David Johnson, "Surface engineering impacts on hydrogen charging and hardness of high strength steels," International Hydrogen Conference: Understanding Hydrogen-Materials Interactions, September 17-21 (2023)
3. **Duo Huang**, David Johnson, Matthew Krane, "Stress Development Simulation in Continuously Cast Steel Slabs during Cooling Process," TMS: Materials Processing Fundamentals (March 2021)
4. **Kara Luitjohan**, Matthew John M. Krane, Volkan Ortalan, David Johnson, "Investigation of Boron Segregation in Commercial Steel Alloys," AIST 2017 (May 2017).
5. **Kara Luitjohan**, Matthew John M. Krane, Volkan Ortalan, David Johnson, "Characterization of the Metatectic Reaction in the Iron-Boron System" symposium Phase Stability, Diffusion Kinetics, and Their Applications (PSDK-XII). MS&T 2017.
6. **Kara Luitjohan**, Matthew John M. Krane, Volkan Ortalan, David Johnson, "Boron Segregation and Its Effects in Boron Containing Steels," MS&T16, October 23-27 (2016).
7. **Yiwei Sun**, Kevin Trumble, David Johnson, "A study on peripheral recrystallization of hot extruded AA6XXX and AA7XXX aluminum alloys," MS&T16, October 23-27 (2016).
8. **Kyungjean Min**, David R Johnson, Kevin P Trumble, "Purification of Ga by distillation during MBE growth" MS&T16, October 23-27 (2016).
9. **Aisling Coughlan**, David Johnson, Heidi A Diefes-Dux, K Anna Douglas, Tanya A Faltens "Integrating a Research Grade Simulation Tool in a Second-Year Materials Science Laboratory Course," 2016 ASEE Annual Conference and Exposition, New Orleans, June 26 - 29 (2016).
10. **Kara Luitjohan**, Matthew John M. Krane, Volkan Ortalan, David Johnson, "Characterization of Boron Segregation During Continuous Casting," AISTech 2016, Pittsburgh, May 16-19 (2016).

11. **Daniel R Klenosky**, Extrusion-Machining as an Analog to Investigate the Deformation Zone Mechanics during the Aluminum Extrusion Process, The 11th International Aluminum Extrusion Technology Seminar & Exposition — ET '16, May 2-6 (2016).
12. **Daniel R Klenosky**, David R Johnson, Kevin P Trumble “Application of Secondary Shear Effects in the Extrusion-Machining Process to Explore Recrystallization Mechanics during Conventional Extrusion of 7050 Aluminum,” The Minerals, Metals, and Materials Society (TMS) Conference. Nashville, TN. February 14-18, 2016.
13. **Aisling Coughlan**, Heidi A. Diefes-Dux, Kerrie A. Douglas, Tanya A. Faltens and David Johnson, Poster: “The Continuing Effort to Enhanced Learning of Mechanical Behavior of Materials via Combined Experiments and nanoHUB Simulations: Learning Modules for Sophomore MSE Students,” 2015 MRS Fall Meeting, Boston, Massachusetts, November 29-December 4, 2015 (Best poster award nomination).
14. **K. Luitjohan**, V. Ortalan, and D. Johnson, Poster: “Boron Segregation and its Effects in Boron Containing Steels. Materials Science and Technology Conference (MS&T). Columbus, OH. October 4-8, 2015.
15. **Kyungjean Min**, David R Johnson, Kevin P Trumble, Michael J Manfra, “Trace Analysis of Ultra-High Purity Ga Used in GaAs/AlGaAs heterostructures by ICP-MS,” MS&T 2015. Columbus, OH. October 4-8, 2015.
16. **Yiwei Sun**, Kevin Trumble, David Johnson, “Effect of Zirconium on Recrystallization in a Directionally Solidified AA7050 Aluminum Alloy,” MS&T2015. Columbus, OH. October 4-8, 2015.
17. **Pikee Priya**, Matthew Krane, David Johnson, Kevin Trumble, “Numerical Study of Phase Transformations during Homogenization of Al-Si-Mg-Fe-Mn alloys,” MS&T 2015. Columbus, OH. October 4-8, 2015.
18. **Lia Stanciu**, Michael Heiden, David R Johnson, “Bioresorbable iron-manganese for orthopedic applications – the effect of microstructure and surface morphology on degradation behavior,” 2015 TMS Annual Meeting & Exhibition: Advanced Materials in Dental and Orthopedic Applications, March 16th, Oral Presentation.
19. **M. Heiden**, S. Huang, E. Nauman, D. Johnson, L. Stanciu, “Development of Hierarchical Porosity in Resorbable, FeMn+HA Biocomposites Using Leaching and Dealloying Techniques,” MS&T2015, Columbus, OH. October 4-8, 2015.
20. **H. A. Diefes-Dux**, A. Coughlan, D.R. Johnson, K. A. Douglas, T. Faltens, “Students’ Struggles to Explain the Atomic Behavior of Metals in a Tensile Test Lab Supported by a Molecular Dynamics Simulation,” paper presented at 2015 ASEE Annual Conference and Exposition, Seattle, Washington. June 2015. 10.18260/p.24774
21. **Aisling Coughlan**, David Johnson, Heidi A. Diefes-Dux, K. Anna Douglas, Kendra Erk, Tanya A. Faltens, and Alejandro Strachan “Enhanced Learning of Mechanical Behavior of Materials via Combined Experiments and nanoHUB Simulations: Learning Modules for Sophomore MSE Students,” MRS Fall Meeting, 2014, Symposium AAA: Undergraduate Research in Materials Science-Impacts and Benefits.
22. **Yiwei Sun**, David R Johnson, Kevin Trumble, Pikee Priya, Matthew John M. Krane, “Effect of Mg₂Si Phase on Extrusion of AA6005 Aluminum Alloy,” 2014 TMS Annual Meeting & Exhibition, February 16-20, 2014: San Diego, CA. Oral Presentation.

23. **Pikee Priya**, Matthew John M. Krane, David R. Johnson "A Numerical and Experimental Study of Homogenization of Al-Si-Mg Alloys," 2014 TMS Annual Meeting & Exhibition, February 16-20, 2014: San Diego, CA. Oral Presentation.
24. Xiao Ma, **David Johnson**, and Kevin Trumble, "Microstructural studies of AlN+Mg₂Si/Mg matrix composites," 2012, TMS 2012 Annual Meeting, Disneyland, FL, March 12- March 15, Symposium: Science and Engineering of Light Metal Matrix Nanocomposites and Composites. Oral Presentation.
25. **S. Zhang**, J. Yanke, D. Johnson, and M.J.M. Krane, "Influence of feeding flow and shrinkage pipe formation on macrosegregation of investment cast TiAl alloys," Symposium on "CFD Modeling and Simulation in Materials Processing," 2011 TMS Annual Meeting, Orlando, FL (3/12).
26. **Xiao Ma**, David Johnson, and Kevin Trumble, "Microstructural control during in situ synthesis of AlN+Mg₂Si/Mg matrix composites," 2011, MS&T 2011 Annual Meeting, Columbus, OH, October 16–20, Symposium: Phase stability, Diffusion, Kinetics, and their Applications (PSDK-VI).
27. **Xiao Ma**, Salin Kuplin, David Johnson, and Kevin Trumble, "In situ synthesis of AlN/Mg Matrix Composites," 2011, TMS 2011 Annual Meeting, San Diego, CA, February 27– March 3, Symposium: Recent Development in the Processing, Characterization, Properties, and Performance of Metal Matrix Composites.
28. **Sailei Zhang**, David R. Johnson, Matthew J.M. Krane, "Effects of Geometric Constraint on Phase Selection and Segregation in Cast TiAl," Symposium N: Intermetallic-Based Alloys for Structural and Functional Applications, MRS 2010 Fall Meeting, Boston, MA. (poster).
29. **Y. Hashimoto**, N.L. Okamoto, M. Acosta, D.R. Johnson, and H. Inui, "Processing, Microstructure, and Thermal Expansion Measurements of High Temperature Ru-Al-Cr B2 Alloys" MRS Fall Meeting, 2008, Symposium U: Advanced Intermetallic-Based Alloys for Extreme Environment and Energy Application, Boston, MA. (poster)
30. **David Johnson**, Manuel Acosta, Todd Reynolds, Eric Kvam, "Microstructure and Mechanical Properties of Ru-Cr-Al alloys" Japan Institute of Metals (JIM), Annual Meeting, Heat-resistance Materials symposium, Tokyo Japan, March 27, 2008.
31. **Voramon S. Dheeradhada**, David R. Johnson, and Mysore A. Dayananda, "Diffusional analysis of a multiphase oxide scale formed on a Mo-Mo₃Si-Mo₅SiB₂ alloy." 2006 TMS Annual meeting, March 14th, San Antonio, TX.
32. Todd Reynolds, David Johnson, "Solidification Processing and Fracture Behavior of RuAl-Based Alloys" MRS Fall Meeting, 2004, Boston, MA.
33. **Srinivasan Raghavan**, Matthew John M. Krane, David R. Johnson, "A cellular automaton for growth of solutal dendrites: factors influencing artificial anisotropy in growth kinetics." 2004 TMS Annual Meeting, March 15-19, Charlotte, NC.
34. **Zeynep Kasapoglu**, David R. Johnson, Mysore, A. Dayananda, "Fracture toughness and hardness of multiphase Mo-Si-B alloys," 2004 TMS Annual Meeting, March 15-19, Charlotte, NC.
35. **Todd Reynolds**, David R. Johnson, "RuAl Eutectics," 2004 TMS Annual Meeting, March 15-19, Charlotte, NC.

36. **Voramon Supatarawanich**, David R. Johnson, M. A. Dayananda, "Oxidation behavior of Multiphase Mo-Si-B alloys," 2004 TMS Annual Meeting, March 15-19, Charlotte, NC.
37. **H. Inui**, Y. Omiya, D.R. Johnson, "Directional solidification of TiAl alloys with Nb concentrations for aligning lamellar microstructures," Proceedings of the International Symposium on Niobium for High Temperature Applications," TMS conference, December 1-3, 2003, Araxa Brazil.
38. **S. Raghavan**, D. R. Johnson, and M.J.M. Krane, "Modeling alloy solidification using a cellular automaton," poster at Modeling of Casting, Welding and Advanced Solidification Processes - X, Destin, FL (5/03).
39. **Voramon Supatarawanich**, David R. Johnson, Chang T. Liu, "Effects of Microstructure on the Oxidation Behavior of Mo-Rich Mo-Si-B Intermetallics," 2003 TMS ANNUAL MEETING, March 2-6, San Diego, California.
40. **Todd Reynolds** and David Johnson, "Processing and Characterizing RuAl Eutectics," presentation given by Todd Reynolds at the local ASM Indianapolis chapter Student Night on March 10, 2003.
41. **Todd Reynolds** and David Johnson, "Processing and Characterizing RuAl Eutectics," MRS Fall Meeting, Dec. 2-6, 2002, Boston, MA (poster).
42. **Y. Omiya**, S. Muto, T. Yamanaka, D.R. Johnson, H. Inui, and M. Yamaguchi, "Alignment of the Lamellar Orientation of Multi-Component TiAl Alloys by Directional Solidification (DS) and Mechanical Properties of DS Ingots," MRS Fall Meeting, Dec. 2-6, 2002, Boston, MA (poster).
43. Srinivasan Raghavan, Matthew John M. Krane, and **David Johnson**, "Experimental and numerical investigations of growth morphologies of peritectic reactions," The 2002 NASA Materials Science Conference, June 25-26, 2002, Huntsville, Alabama. (poster)
44. H. Inui, S. Muto, T. Yamanaka, D.R. Johnson and M. Yamaguchi, "Alignment of the lamellar orientation of multi-component TiAl alloys by directional solidification(DS) and mechanical properties of DS ingots" The 4th KIM-JIM Symposium: Current status of Titanium Aluminide and its alloy, March 29, 2002, Science University of Tokyo, Tokyo, Japan.
45. **Voramon Supatarawanich**, D. R. Johnson, and C.T Liu, "Effects of Microstructure on oxidation behavior of Mo-Si-B Intermetallics," presentation given by Voramon Supatarawanich at the local ASM Indianapolis chapter Student Night on March 18, 2002.
46. S. Rosset, and D. Johnson, "Processing of ruthenium aluminide alloys" in Fundamentals of Structural Intermetallics, TMS annual meeting, Seattle 17-21 2002 (poster).
47. *V. Supatarawanich*, D. R. Johnson, and C.T. Liu, "Effects of Microstructure on oxidation behavior of Mo-Si-B Intermetallics," Gordon Research Conference: High Temperature Corrosion, Colby-Sawyer College, 7/22/01-7/27/01 (poster).
48. **S. Rosset**, R. Cefalu, L. Varner, and D. Johnson, "Crystal growth of RuAl-base alloys," in High-Temperature Ordered Intermetallic Alloys IX, MRS Fall meeting, Boston, MA, 2001 (poster).
49. **T. Murata**, H. Inui, D.R. Johnson, and M. Yamaguchi, "Crystal growth of beta-silicon carbide single crystals from some transition-metal silicide solutions," MRS Fall meeting, Boston, MA, Nov. 29, 1999.

50. **Sebastien Rosset**, D.R. Johnson, "New Materials for High Temperature Structural Applications- Processing of RuAl," AAE & Space Activities Poster Session, Purdue University, West Lafayette, IN, October 22, 1999.
51. **D. R. Johnson**, "Solidification Textures in TiAl Alloys," Workshop on Thermomechanical Processing of Metals & Ceramics," Purdue University, West Lafayette, IN, May 12, 1999.
52. **D.R. Johnson**, Y. Masuda, T. Yamanaka, H. Inui and M. Yamaguchi, "Creep Deformation of TiAl-Si Alloys with Aligned Lamellar Microstructures," 2nd International Symposium On Gamma Titanium Aluminides, TMS Annual Meeting, San Diego, CA, Feb. 28-March 4, 1999.
53. **H. N. Lee**, D.R. Johnson, H. Inui, M.H. Oh, D.M. Wee, M. Yamaguchi, "Microstructure control and lamellar stability in a cast TiAl as a function of Mo and C," TMS 1999 Spring Meeting, San Diego, CA, March 1-3, 1999 (poster: 2nd place finish, Gamma Titanium session).
54. **T. Yamanaka**, D.R. Johnson, Y. Masuda, H. Inui, and M. Yamaguchi, "Directional solidification and creep deformation of TiAl-Si Alloys," TMS 1999 Spring Meeting, San Diego, CA, March 1-3, 1999 (poster).
55. **K. Chihara**, D.R. Johnson, H. Inui and M. Yamaguchi, "Microstructure control of TiAl-Mo-B alloys by directional solidification," MRS 1998 Fall Meeting, Boston, MA, Nov 30-Dec 4, 1998.
56. **K. Chihara**, D.R. Johnson, H. Inui and M. Yamaguchi, "Processing and Microstructural Control of Directionally Solidified TiAl-Mo-B Alloys, Third Pacific Rim International Conference on Advanced Materials and Processing, Honolulu, HI, July 12-16, 1998.
57. **M. Yamaguchi**, D.R. Johnson and H. Inui, "Strengthening of TiAl Alloys by Directional Solidification," TMS Annual Meeting, San Antonio, TX, February 15-19, 1998.
58. **D.R. Johnson**, Y. Masuda, Y. Shimada, H. Inui and M. Yamaguchi, "Directional Solidification of TiAl-based Alloys," International Symposium on Structural Intermetallics at Seven Springs, Seven Springs Resort, Champion, PA, September 21-26, 1997.
59. **D.R. Johnson**, Y. Masuda, H. Inui and M. Yamaguchi, "Alignment of the TiAl/Ti3Al Lamellar Microstructure in TiAl Alloys by Directional Solidification," 4th International Conference on High-Temperature Intermetallics, MRS Spring Meeting, San Diego, CA, April 27-May 1, 1997.
60. **D.R. Johnson**, H. Inui, M. Yamaguchi and B.F. Oliver, "Directional Solidification of NiAl and TiAl Based Intermetallic Alloys," in the Annual Meeting of the Iron and Steel Institute of Japan, Advanced Materials Symposium, March 1997.
61. **D.R. Johnson**, K. Chihara, H. Inui and M. Yamaguchi, "Directional Solidification of TiAl+Mo Alloys," The Japan Institute of Metals, Spring Symposia, March 1997.
62. **D.R. Johnson**, Y. Masuda, H. Inui and M. Yamaguchi, "Directional Solidification and the Growth of Large Aligned TiAl PST-Crystals, The Japan Institute of Metals, Spring Symposia, March 26-28, 1996.
63. **D.R. Johnson**, Y. Masuda, H. Inui and M. Yamaguchi, "Mechanical Properties of Directionally Solidified TiAl Alloys, The Japan Institute of Metals, Fall Symposia, September 28-30, 1996.

64. **D.R. Johnson**, H. Inui and M. Yamaguchi, "Solidification Microstructures in TiAl+Si Alloys and Their Application for Improved Toughness," *The Japan Institute of Metals, Spring Symposia*, April 4-6, 1995.
65. **D.R. Johnson**, B.F. Oliver, R.D. Noebe and J.D. Whittenberger, "Processing and Mechanical Properties of directionally solidified NiAl/NiAlTa Alloys," TMS Fall Meeting, Pittsburgh, PA, 1993.

Invited

1. **D. Johnson**, "Investigation of the metatectic reaction in the Fe-B system," IIT Kanpur, 11/28/2019.
2. S. Zhang, M.J.M. Krane and **D. Johnson**, "Solidification of high temperature intermetallics and effects of geometric constraint on microstructural development," THERMEC'2013 International Conference on Processing and Manufacturing of Advanced Materials, Las Vegas, 12/4/2013.
3. M. Acosta, T.D. Reynolds, E.P. Kvam and **D.R. Johnson**, "Processing and characterization of high temperature intermetallic alloys," A JNCASR-Purdue Workshop on "Basics of nanomaterials and applications in energy conversion, transport, and storage," August 20-21, 2010, Jawaharlal Nehru Centre of Advanced Scientific Research, Bangalore, India.
4. S. Zhang, N. Wenning, M.J.M. Krane, **D.R. Johnson**, "Solidification of TiAl Alloys in Ceramic Preforms," THERMEC '2009 International Conference on Processing and Manufacture of Advanced Materials, August 25-29, 2009, Berlin, Germany.
5. T.D. Reynolds, M. Acosta, and D.R. Johnson, "Processing and mechanical properties of RuAl-based alloys," THERMEC'2006 International Conference on Processing and Manufacturing of Advanced Materials, July 3-9, 2006, Vancouver.
6. T.D. Reynolds, and **D.R. Johnson**, "Solidification Processing and Mechanical Properties of RuAl-Based Alloys," 2006 ASM (Eastern New York Chapter)/TMS (Hudson-Mohawk Chapter) Spring Symposium, "Multi-phase and Composite Materials," May 22-23 at GE Global Research, Niskayuna, NY.
7. V. Supatarawanich, **D.R. Johnson**, M.A. Dayananda, and C.T. Liu, "THERMEC' 2003, International Conference on Processing & Manufacturing of Advanced Materials," Universidad Carlos III de Madrid, Leganés, Madrid, Spain, July 11, 2003.
8. **D.R. Johnson**, H. N. Lee, S. Muto, T. Yamanaka, H. Inui, and M. Yamaguchi, "Microstructure and Creep Behavior of Directionally Solidified TiAl-base Alloys," in International symposium on deformation and microstructure in intermetallics, TMS Annual Meeting, New Orleans, February 2001.
9. **D.R. Johnson**, "Microstructural Control of Gamma Titanium Aluminide," Thermo-Mechanical Treatments of Materials Conference, hosted by The Indiana Department of Commerce, Energy Policy Division, in conjunction with Oak Ridge National Laboratory and Cummins Engine Company, April 18, 2000.
10. **D.R. Johnson**, "Microstructural control and creep deformation of directionally solidified TiAl alloys," Oak Ridge National Laboratory, Oak Ridge, TN, September 10, 1999.
11. **D.R. Johnson**, H. Inui and M. Yamaguchi, "Crystal Growth of TiAl Alloys," Kyoto International Workshop on Intermetallics, Kyoto, Japan, May 1998.

PATENTS

- 1) Patent Name: Single crystals of alloys of Ti-Al-Si system and their production process
Inventors: Masaharu Yamaguchi, Haruyuki Inui and David R. Johnson
Date of submission: June 30, 1998
Submission Number: 10-183979 (Japan)
Awarded spring 2001

- 2) Patent Name: Alloys in Ti-Al system and their production process
Inventors: Masaharu Yamaguchi, Haruyuki Inui and David R. Johnson
Date of submission: 30 June 1998
Submission Number: 10-184384 (Japan)
Awarded spring 2001