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### RESEARCH INTERESTS

Fundamental processing-microstructure-property-performance relationships in metallic and composite materials. Specific areas of interest include 1) ultrafine-grained and nanostructured materials by severe plastic deformation, 2) processing and consolidation of metastable particulate materials, 3) microstructural optimization of lightweight/high-specific strength metals and refractory metals, 4) tailored nanocrystalline microstructures with high thermal stability, 5) deformation mechanisms in nanocrystalline metallic alloys, 6) high-rate mechanical response of fine-grained materials, and 7) computational materials simulation and design.

### EDUCATION

Ph.D.	Texas A&M University Research Area: Mechanical Engineering	August 2006
M.S.	Texas A&M University Research Area: Mechanical Engineering	December 2001
B.S.E	Walla Walla University	June 1998

### EXPERIENCE

Assistant Professor – Step III (7/14 – 9/15), Step V (9/15 – Present)	July 1, 2014 – Present
Mechanical Engineering Department, University of California – Riverside	
Materials Science and Engineering Program, University of California - Riverside	
Chief Scientist / Scientist 5	May 2015 - Present
Applied Materials Team, Energy and Environment Directorate	
Pacific Northwest National Laboratory (via Joint Appointment with UCR)	
Adjunct Assistant Professor	November 2009 - Present
Materials Science and Engineering, North Carolina State University	
Program Officer – Synthesis and Processing	October 2010-June 2014
Materials Science Division, U.S. Army Research Office	
Materials Engineer	April 2008 – October 2010
Weapons and Materials Research Directorate, U.S. Army Research Laboratory	
ORISE Post-Doctoral Fellow	September 2006 – April 2008
Weapons and Materials Research Directorate, U.S. Army Research Laboratory	
Research/Teaching Assistant	August 1998 – August 2006
Texas Engineering Experimentation Station, Texas A&M University	

### HONORS AND AWARDS

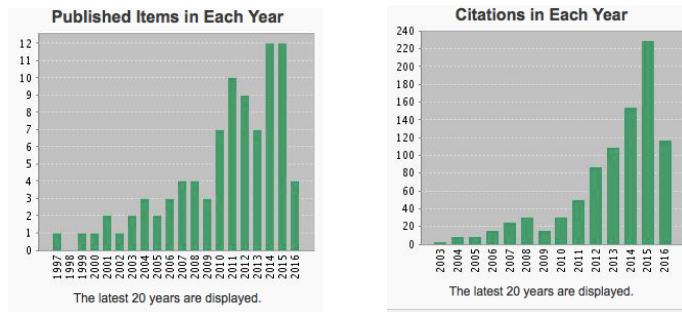
NSF CAREER Awardee 2016  
 Elected ASM International Fellow, 2015  
 AAES Norm Augustine Award for Outstanding Achievement in Engineering Communication, 2015  
 Certificate of Commendation, ARL Materials in Extreme Dynamic Environments Cooperative Research Agreement Development and Source Selection, 2012  
 Commander Coin, U.S. Army Chief Scientist, 2011  
 Commander Coin, Israeli Ministry of Defense, 2011  
 Distinguished Performance Ratings, 2010, 2011  
 Certificate of Commendation, 2010 Army Sagamore Conference, 2010  
 Certificate of Commendation, 2008 Army Science Conference, 2008  
 Distinguished Teaching Assistance, Department of Mechanical Engineering, Texas A&M University, 2004

## RESEARCH AND PUBLICATIONS

### CITATION METRICS

1) Data based on ISI Citation Index, apps.webofknowledge.com (August 2, 2016)

- Total number of citations: 886
- Total number of citations without self-citations: 796
- Average citation per item: 10.07
- h-index: 17



2) Data based on Google Scholar (August 2, 2016)

- Total number of citations: 1317
- h-index: 21

### PUBLICATIONS

#### 1. Edited Books and Journal Special Issues

1. "Symposium on High-Entropy Alloys", P.K. Liaw, G. Wang, M.C. Gao, **S.N. Mathaudhu** and X. Xie, guest Eds. Special issue of *Metallurgical and Materials Transactions, A.*, Vol. 47, Num. 7, 2016. 3305-3305
2. "Thermal Stability of Nanostructured Materials", **S.N. Mathaudhu** and B.L. Boyce, guest Eds. Special section of *JOM*, Vol. 67, December 2015
3. "Symposium on High-Entropy Alloys", P.K. Liaw, G. Wang, M.C. Gao and **S.N. Mathaudhu**, guest Eds. Special issue of *Metallurgical and Materials Transactions, A.*, Vol. 46, Num. 4, 2015. 1467-1467
4. "Multiscale Perspectives on Plasticity in HCP Metals", B.M. Morrow, E.K. Cerreta, **S.N. Mathaudhu**, J.P. Escobedo-Diaz and D.R. Trinkle, guest Eds., Special Issue of *Metallurgical and Materials Transactions, A.*, Vol. 45, Num. 13, December 2014. 5876-5905
5. "Ultrafine Grained Materials", **S.N. Mathaudhu**, Y. Estrin, Z. Horita, E.J. Lavernia, X.Z. Liao, L. Lu, Q.M. Wei, G. Wilde and Y.T. Zhu, guest Eds., Special Issue of *Journal of Materials Science*, Vol. 49, Num. 19, October 2014. 6485-6695
6. "Essential Readings in Magnesium Technology", **S.N. Mathaudhu**, A. Luo, E.A. Nyberg, W. Sillekens, N. Neelameggham, Eds, John Wiley and Sons, February 2014.
7. "Symposium on High-Entropy Alloys", P.K. Liaw, G. Wang, M.C. Gao and **S.N. Mathaudhu**, guest Eds. Special issue of *Metallurgical and Materials Transactions, A.* Vol. 45, Num. 5, May 2014.
8. "Phase Transformations and Deformation in Magnesium Alloys", J.-F. Nie, S.R. Agnew and **S.N. Mathaudhu**, guest Eds. Special issue of *Metallurgical and Materials Transactions, A.* Vol. 44A, Num. 7, 2013.
9. "Magnesium Technology 2013", N. Hort, **S.N. Mathaudhu**, N.R. Neelameggham and M. Alderman, Eds., The Minerals, Metals and Materials Society/Wiley, March 2013.

10. "Ultrafine Grained Materials" **S.N. Mathaudhu**, Y.T. Zhu, H.S. Kim, R.Z. Valiev, T.G. Langdon, M. Zehetbauer, Xiaoxu Huang, guest Eds., Special Issue of *Journal of Materials Science*, Vol. 47, Num. 22, 2012
11. "Magnesium Technology 2012", **S.N. Mathaudhu**, W.H. Sillekens, N.R. Neelameggham and N. Hort, Eds., The Minerals, Metals and Materials Society/Wiley, March 2012
12. "Magnesium Technology 2011", W.H. Sillikens, S.R. Agnew, N.R. Neelameggham and **S.N. Mathaudhu**, Eds., The Minerals, Metals and Materials Society/Wiley, March 2011
13. "Ultrafine Grained Materials" Y.T. Zhu, **S.N. Mathaudhu**, M. Goken, T.G. Langdon, T.C. Lowe, S.L. Semiatin, N. Tsuji and Y.H. Zhao, guest Eds., Special Issue of *Journal of Materials Science*, Vol. 45, Num. 17, 2010

## II. Peer Reviewed Journal Publications

### 2016

1. "Synergetic strengthening far beyond rule of mixtures in gradient structured aluminum rod", J.A. Moering, X.L. Ma, J. Malkin, M.X. Yang, Y.T. Zhu and **S.N. Mathaudhu**, *Scripta Materialia*, Vol. 122, pp. 106-109, September 2016
2. "Microstructure and mechanical properties of a novel rapidly solidified, high-temperature Al-alloy", N.R. Overman, **S.N. Mathaudhu**, J.P. Choi, T.J. Roosendaal, S. Pitman, *Materials Characterization*, Vol. 112, pp. 142-148, February 2016
3. "Effect of strain rate on the mechanical properties of magnesium alloy AMX602", J. Shen, K. Kondoh, T.L. Jones, **S.N. Mathaudhu**, L.J. Kecskes, Q. Wei, *Materials Science and Engineering: A*, Vol. 649, pp. 338-348, January 2016

### 2015

4. "Thermal Stability: The Next Frontier for Nanocrystalline Materials", **S.N. Mathaudhu** and B.L. Boyce, *JOM*, Vol. 67, pp. 2785-2787, December 2015
5. "Processing and properties of magnesium containing a dense uniform dispersion of nanoparticles", L.Y. Chen, J.Q. Xu, H. Choi, M. Pozuelo, X.L. Ma, S. Bhowmick, J.M. Yang, **S.N. Mathaudhu**, X.C. Li, *Nature*, Vol. 528, pp. 539-543, December 2015
6. "The role of shear strain on texture and microstructural gradients in low carbon steel processed by surface mechanical attrition treatment", J. Moering, X. Ma, G. Chen, P. Miao, G. Li, G. Qian, **S.N. Mathaudhu**, Y.T. Zhu, *Scripta Materialia*, Vol. 108, pp. 100-103, November 2015
7. "Atomic-scale investigation of creep behavior in nanocrystalline Mg and Mg-Y alloys", M.A. Bhatia, **S.N. Mathaudhu**, K.N. Solanki, *Acta Materialia*, Vol. 99, pp. 382-391, October 2015
8. "Solid-solution hardening in Mg-Gd-TM (TM = Ag, Zn, and Zr) alloys: an integrated density functional theory and electron work function study", W.Y. Wang, S.L. Shang, Y. Wang, H.Y. Kim, K.A. Darling, L.J. Kecskes, **S.N. Mathaudhu**, X.D. Hui, Z.K. Liu, *JOM*, Vol. 67, pp. 2433 – 2441, October 2015
9. "Anomalous structural dynamics in liquid Al 80 Cu 20: An ab initio molecular dynamics study", W.Y. Wang, J.J. Han, H.Z. Fang, J. Wang, Y.F. Liang, S.L. Shang, Y. Wang, X.J. Liu, L.J. Kecskes, **S.N. Mathaudhu**, X. Hui, Z.K. Liu, *Acta Materialia*, Vol. 97, pp. 75-85, September 2015
10. "Effect of Ag on interfacial segregation in Mg-Gd-Y-(Ag)-Zr alloy", H. Zhou, G.M. Cheng, X.L. Ma, W.Z. Xu, **S.N. Mathaudhu**, Q.D. Wang, Y.T. Zhu, *Acta Materialia*, Vol. 95, pp. 20-29, August 2015
11. "Lattice distortion induced anomalous ferromagnetism and electronic structure in FCC Fe and Fe-TM (TM = Cr, Ni, Ta and Zr) alloys", W.Y. Wang, S.L. Shang, Y. Wang, Y.J. Hua, K.A. Darling, L.J. Kecskes, **S.N. Mathaudhu**, X.D. Hui, Z.K. Liu, *Materials Chemistry and Physics*, Vol. 162, pp. 748-756, May, 2015
12. "An integrated fast-Fourier transform-based phase-field and crystal plasticity approach to model recrystallization of three dimensional polycrystals", L. Chen, J. Chen, R.A. Lebensohn, Y.Z. Ji, T.W. Heo, S. Bhattacharyya, K. Chang, **S.N. Mathaudhu**, Z.K. Liu and L.-Q. Chen, *Computer Methods in Applied Mechanics and Engineering*, Vol. 285, pp. 829-848, 2015.
13. "A model for <c+a> dislocation transmission across nano-spaced parallel basal stacking faults in a HCP alloy", P. Gu, Y.T. Zhu and **S.N. Mathaudhu**, *Philosophical Magazine Letters*, DOI:10.1080/09500839.2015.1008066, 2015.

14. "Impact of W on structural evolution and diffusivity of Ni-W melts: an *ab-initio* molecular molecular dynamics study, W.Y. Wang, S.L. Shang, Y. Wang, H.Z. Fang, **S.N. Mathaudhu**, X.D. Hui and Z.K. Liu, *Journal of Materials Science*, Vol. 50, pp. 1071-1081, 2015.

#### 2014

15. "Enhancement of properties in cast Mg-Y-Zn rod processed by severe plastic deformation", R. Lapovok, X. Gao, J.F. Nie, Y. Estrin and **S.N. Mathaudhu**, *Materials Science and Engineering A*, Vol. 615, pp. 198-207, 2014.
16. "Nucleation and growth mechanism of Ag precipitates in CuAgZr alloy", W. Piyawit, W.Z. Xu, **S.N. Mathaudhu**, J. Freudenberger, J.M. Rigsbee and Y.T. Zhu, *Materials Science and Engineering A*, Vol. 610, pp. 85-90, 2014.
17. "A new metastable precipitate phase in Mg-Gd-Y-Zr alloy", H. Zhou, W.Z. Xu, W.W. Jian, G.M. Cheng, X.L. Ma, W. Guo, **S.N. Mathaudhu**, Q.D. Wang and Y.T. Zhu, *Philosophical Magazine*, Vol. 94(21), pp. 2403-2409, 2014.
18. "Multiple extended shear band formation in MgCuGd metallic glass during high pressure torsion", B. Zheng, Y. Zhou, **S.N. Mathaudhu**, R.Z. Valiev, C.Y.A. Tsao, J.M. Shoenung and E.J. Lavernia, *Scripta Materialia*, Vol. 86, pp. 24-27, 2014
19. "Dynamic void growth and shrinkage in Mg under electron irradiation", W.Z. Xu, Y.F. Zhang, G.M. Cheng, W.W. Jian, P.C. Millett, C.C. Koch, **S.N. Mathaudhu**, Y.T. Zhu, *Materials Research Letters*, Vol. 2, pp. 176-183, 2014.
20. "The dynamic flow and failure behavior of magnesium and magnesium alloys", K.E. Prasad, B. Li, N. Dixit, M. Shaffer, **S.N. Mathaudhu**, K.T. Ramesh, *JOM*, Vol. 66, pp. 291-304, 2014.
21. "A rate dependent constitutive model for ECAE Cu based on instrumented nanoindentation studies", J. Su, W.G. Gu, L.J. Kecskes, **S.N. Mathaudhu**, Q. Wei, *Materials Science and Engineering A*, Vol. 597, pp. 279-287, 2014.
22. "Generalized stacking fault energy, ideal strength, and twinnability of dilute Mg-based alloys: A first-principles study of shear deformation", S. L. Shang, W. Y. Wang, B. C. Zhou, Y. Wang, K. A. Darling, L. J. Kecskes, **S. N. Mathaudhu**, and Z. K. Liu, *Acta Materialia*, Vol. 67, pp. 168-180, 2014.
23. "Electronic structure of long periodic stacking orders in Mg: A first-principles study", W. Y. Wang, S. L. Shang, Y. Wang, K. A. Darling, L. J. Kecskes, **S. N. Mathaudhu**, X. Hui and Z. K. Liu, *Journal of Alloys and Compounds*, Vol. 586, pp. 656-662, 2014
24. "Influence of Mn solute content on grain size reduction and improved strength in mechanically alloyed Al-Mn alloys", K.A. Darling, A.J. Roberts, L. Armstrong, D. Kapoor, M.A. Tschopp, L.J. Kecskes and **S.N. Mathaudhu**, *Materials Science and Engineering A*, Vol. 528, pp. 57-65, 2014.

#### 2013

25. "Spall properties of Aluminum 5083 plate fabricated using equi-channel angular extrusion and rolling", R. Whelchel, N. Thadhani, T. Sanders, **S. Mathaudhu** and L. Kecskes, *Bulletin of the American Physical Society*, Vol. 58, 2013.
26. "Physics and model of strengthening by parallel stacking faults", W.W. Jian, G.M. Cheng, W.Z. Xu, C.C. Koch, Q.D. Wang, Y.T. Zhu and **S.N. Mathaudhu**, *Applied Physics Letters*, Vol. 103, pp. 133108, 2013.
27. "Effects of alloying elements on stacking fault energies and electronic structures of binary Mg alloys: A first-principles study", W. Y. Wang, S. L. Shang, Y. Wang, Z. G. Mei, K. A. Darling, L. J. Kecskes, **S. N. Mathaudhu**, X. Hui and Z. K. Liu, *Materials Research Letters*, Vol. 2, pp. 29-36, 2013.
28. "Nanotwins in nanocrystalline Mg-Al alloys: an insight from high-resolution TEM and molecular dynamics simulation", M. Pozuelo, **S.N. Mathaudhu**, S. Kim, B. Li, W.H. Kao, J.-M. Yang, *Philosophical Magazine Letters*, Vol. 93, pp. 640-647, 2013.
29. "In-situ atomic-scale observation of irradiation-induced void formation", X. Wu, Y. Zhang, G. Cheng, W. Jian, P.C. Millett, C.C. Koch, **S.N. Mathaudhu**, Y.T. Zhu, *Nature Communications*, doi: 10.1038/ncomms3288, 2013.
30. "Twinning in cryomilled nanocrystalline Mg powder", B. Zheng, Y. Li, X. Wu, Y. Zhang, **S.N. Mathaudhu**, Y.T. Zhu, E.J. Lavernia, *Philosophical Magazine Letters*, Vol. 93, pp. 457-464, 2013.

31. "Grain Size Stabilization of Nanocrystalline Copper at High Temperatures by Alloying with Tantalum", K.A. Darling, A.J. Roberts, Y. Mishin, **S.N. Mathaudhu** and L.J. Kecskes, *Journal of Alloys and Compounds*, Vol. 573, pp. 142-150, 2013.
32. "Influence of Mechanically Milled Powder and High Pressure on Spark Plasma Sintering of Mg-Cu-Gd Metallic Glasses", B. Zheng, D. Ashford, Y.Z. Zhou, S.N. Mathaudhu, J.-P. Delplanque and E.J. Lavernia, *Acta Materialia*, Vol. 61, pp. 4414-4428, 2013.
33. "Ultrastrong Mg-alloy via nano-spaced stacking faults", W.W. Jian, G.M. Cheng, W.Z. Xu, H. Yuan, M.H. Tsai, Q.D. Wang, C.C. Koch, Y. T. Zhu and **S. N. Mathaudhu**, *Materials Research Letters*, Vol. 1, pp. 61-66, 2013.

#### 2012

34. "Electron localization morphology of the stacking faults in Mg: A first-principles study", W.Y. Wang, S.L. Shang, Y. Wang, K.A. Darling, **S.N. Mathaudhu**, X.D. Hui and Z.K. Liu, *Chemical Physics Letters*, Vol. 551, pp. 121-125, 2012.
35. "Effective elastic properties of polycrystals based on phase-field description", G. Sheng, S. Bhattacharya, H. Zhang, S.L. Shang, K. Chang, **S.N. Mathaudhu**, Z.K. Liu and L.Q. Chen *Materials Science and Engineering, A.*, Vol. 554, pp. 67-71, 2012.
36. "Effect of grain size on prismatic slip in Mg-3Al-1Zn alloy", S.M. Razavi, D.C. Foley, K.T. Hartwig, O. Duygulu, L.J. Kecskes, **S.N. Mathaudhu**, and V.H. Hammond, *Scripta Materialia*, Vol. 67, pp. 439-442, 2012.
37. "Microstructure evolution and mechanical properties of niobium processed by equal channel angular extrusion up to 24 passes", Z. Pan, F. Xu, **S.N. Mathaudhu**, L.J. Kecskes, W.H. Yin, Y.Z. Guo, X.Y. Zhang, K.T. Hartwig and Q. Wei, *Acta Materialia*, Vol. 60, pp. 2310-2323, 2012.
38. "Amorphous Hf-based foams with aligned, elongated pores", M.E. Cox, L.J. Kecskes, **S.N. Mathaudhu**, and D.C. Dunand, *Materials Science and Engineering: A*, Vol. 533, pp. 124-127, 2012.

#### 2011

39. "Effect of composition on atomic structure, diffusivity and viscosity in liquid Al-Zr alloys", W.Y. Wang, S.L. Shang, H.Z. Fang, H. Zhang, Y. Wang, **S.N. Mathaudhu**, X. Hui and Z.K. Liu, *Metalurgical and Materials Transactions, A*, pp. 1-10, 2011
40. "Continuum investigation of the influence of microcracking on shear localization", D.H. Warner and **S.N. Mathaudhu**, *ASCE Journal of Engineering Mechanics*, Vol. 137, pp. 691-698, 2011.
41. "High hardness in a nanocrystalline Mg<sub>97</sub>Y<sub>2</sub>Zn<sub>1</sub> alloy", K.M. Youssef, Y.B. Wang, X.Z. Liao, **S.N. Mathaudhu**, L.J. Kecskes, Y.T. Zhu and C.C. Koch, *Materials Science and Engineering: A*, Vol. 528, pp. 7494-7499, 2011.
42. "Microstructure, crystallographic texture and plastic anisotropy evolution in an Mg alloy during equal channel angular extrusion processing", M. Al-Maharbi, I. Karaman, I.J. Beyerlein, D.C. Foley, K.T. Hartwig, L.J. Kecskes and **S.N. Mathaudhu**, *Materials Science and Engineering: A*, Vol. 528, pp. 7616-7627, 2011.
43. "Atomic structure and diffusivity in liquid Al<sub>80</sub>Ni<sub>20</sub> by *ab initio* molecular dynamics simulations", W.Y. Wang, H.Z. Fang, S.L. Shang, H. Zhang, X. Hui, **S.N. Mathaudhu** and Z.K. Liu, *Physica B: Condensed Matter*, Vol. 406, pp. 3089-3097, 2011.
44. "Stabilized nanocrystalline iron-based alloys: guiding efforts in alloy selection", K.A. Darling, B.K. VanLeeuwen, J.E. Semones, C.C. Koch, R.O. Scattergood, L.J. Kecskes and **S.N. Mathaudhu**, *Materials Science and Engineering: A*, Vol. 528, pp. 4365-4371, 2011.
45. "High strength, nano-structured Mg-Al-Zn alloy", B.L. Zheng, O. Ertorer, Y. Li, **S.N. Mathaudhu**, C.Y.A. Tsao, and E.J. Lavernia, *Materials Science and Engineering: A*, Vol. 528, pp. 2180-2191, 2011.
46. "Deformation twinning in a nanocrystalline hcp Mg alloy", X.L. Wu, K. Youssef, C.C. Koch, **S.N. Mathaudhu**, L.J. Kecskes, Y.T. Zhu, *Scripta Materialia*, Vol. 64, pp. 213-216, 2011.
47. "Dislocation-twin interactions in nanocrystalline fcc metals", Y.T. Zhu, X.L. Wu, X.Z. Liao, J. Narayan, L.J. Kecskes and **S.N. Mathaudhu**, *Acta Materialia*, Vol. 59, pp. 812-821, 2011.
48. "Grain refinement vs. crystallographic texture: mechanical anisotropy in a magnesium alloy", D.C. Foley, M. Al-Maharbi, K.T. Hartwig, L.J. Kecskes and **S.N. Mathaudhu**, *Scripta Materialia*, Vol. 64, pp. 193-196, 2011.

## 2010

49. "Computational modeling of effects of alloying elements on elastic coefficients", Z.K. Liu, H. Zhang, S. Ganeshan, Y. Wang and **S.N. Mathaudhu**, *Scripta Materialia*, Vol. 63, pp. 686-691, 2010.
50. "First-principles calculations of twin-boundary and stacking-fault energies in magnesium", Y. Wang, L. Q. Chen, Z. K. Liu, and **S. N. Mathaudhu**, *Scripta Materialia*, Vol. 62, pp. 646-649, 2010.

## 2009

51. "Fabrication of tantalum sheet for superconductor diffusion barriers", S. Balachandran, K.T. Hartwig, D.C. Baars, **S.N. Mathaudhu**, T.R. Bieler, T. Pyon and R.E. Barber, *IEEE Transactions on Applied Superconductivity*, Vol. 19, pp. 2606-2609, 2009.
52. "Amorphous Zr-based foams with aligned, elongated pores", M. Cox, **S.N. Mathaudhu**, K.T. Hartwig and D. Dunand, *Metallurgical and Materials Transactions: A*, Vol. 41, pp. 1706-1713, 2009.
53. "Twinning partial multiplication at grain boundary in nanocrystalline fcc metals", Y.T. Zhu, X.L. Wu, X.L. Liao, J. Narayan, **S.N. Mathaudhu** and L.J. Kecskes, *Applied Physics Letters*, Vol. 95, pp. 031909, 2009.
54. "Microstructures and recrystallization behavior of severely hot-deformed tungsten", **S.N. Mathaudhu**, A.J. deRosset, K.T. Hartwig and L.J. Kecskes, *Materials Science and Engineering: A*, Vol. 503, pp. 28-31, 2009.

## 2008

55. "Ultrafine and nanostructured refractory metals processed by SPD: microstructure and mechanical properties", Q. Wei, L.J. Kecskes, **S.N. Mathaudhu**, and K.T. Hartwig, *Materials Science Forum*, Vol. 579, pp. 75-90, 2008.
56. "Dynamic behaviors of body-centered cubic metals with ultrafine grained and nanocrystalline microstructures", Q. Wei, B.E. Schuster, **S.N. Mathaudhu**, K.T. Hartwig, L.J. Kecskes, R.J. Dowding and K.T. Ramesh, *Materials Science and Engineering: A*, Vol. 493, pp. 58-64, 2008.
57. "Quasi-static and dynamic mechanical properties of commercial-purity tungsten processed by ECAE at low temperatures", Z. Pan, Y.Z. Guo, **S.N. Mathaudhu**, L.J. Kecskes, K.T. Hartwig and Q. Wei, *Journal of Materials Science*, Vol. 43, pp. 7379-7384, 2008.

## 2007

58. "Processing/microstructure/property relationships in severely deformed tantalum" **S.N. Mathaudhu**, and K.T. Hartwig, *Materials Science and Engineering: A*, Vol. 463, pp. 94-100, 2007.
59. "Consolidation of blended powders by severe plastic deformation to form amorphous metal matrix composites" **S.N. Mathaudhu**, K.T. Hartwig and I. Karaman, *Journal of Non-Crystalline Solids*, Vol. 353, pp. 185-193, 2007.
60. "Fine grained Tantalum for composite Nb<sub>3</sub>Sn superconductor diffusion barrier sheet", **S.N. Mathaudhu**, K. T. Hartwig and R.E. Barber, *IEEE Transactions on Applied Superconductivity*, Vol. 17, pp. 2660-2663, 2007.
61. "Microstructural refinement of niobium for superconducting RF cavities", K. T. Hartwig, D.C. Baars, T.R. Biehler, **S.N. Mathaudhu** and R.E. Barber, *IEEE Transactions on Applied Superconductivity*, Vol. 17, pp. 1305-1309, 2007.

## 2006

62. "Grain refinement and recrystallization of heavily worked Ta", **S.N. Mathaudhu** and K.T. Hartwig, *Materials Science and Engineering: A*. Vol. 426, pp. 128-142, 2006.

## 2005

63. "Severe plastic deformation of bulk Nb for Nb<sub>3</sub>Sn superconductors", **S.N. Mathaudhu**, S. Blum, R.E. Barber and K.T. Hartwig, *IEEE Transactions on Applied Superconductivity*, Vol. 15, pp. 3438-3441, 2005.

64. "Microstructural refinement of bulk Tantalum for Nb<sub>3</sub>Sn superconductor diffusion barriers", **S.N. Mathaudhu**, R.E. Barber and K.T. Hartwig, *IEEE Transactions on Applied Superconductivity*, Vol. 15, pp. 3434-3437, 2005.

#### 2004

65. "The effects of temperature and extrusion speed on the consolidation of zirconium-based metallic glass powder using equal-channel angular extrusion", I. Karaman, J. Robertson, J.-T. Im, **S.N. Mathaudhu**, Z.P. Luo and K.T. Hartwig, *Metallurgical and Materials Transactions, A.*, Vol. 35A, pp. 247-256. 2004.

#### 2003

66. "Microstructure and mechanical properties of tantalum after equal channel angular extrusion (ECAE)", Q. Wei, T. Jiao, **S.N. Mathaudhu**, E. Ma, K.T. Hartwig and K. T. Ramesh, *Materials Science and Engineering, A.*, Vol. 358, No. 1-2, pp. 266-272, 2003.

### *III. Peer Reviewed Articles in Conference Proceedings*

#### 2013

1. "Study of Mg-Y-Zn rod produced by ECAP powder compaction", R. Lapovok, H.P. Ng, J.-F. Nie, Y. Estrin, **S.N. Mathaudhu**, *Magnesium Technology Symposium Proceedings*, Materials Science and Technology, Montreal, Canada, October 27-31, 2013.
2. "Dynamic grain refinement in nanostructured Mg and Mg-Y deformed at cryogenic temperatures", B. Zheng, D. Zhang, Y.Z. Zhou, **S.N. Mathaudhu**, D. Kapoor, J. Paras, E.J. Lavernia, in *Advances in Powder Metallurgy & Particulate Materials: Proceedings of the 2013 International Conference in Powder Metallurgy & Particulate Materials*, Chicago, IL, June 24-27, 2013.
3. "Interaction between a Mg<sub>17</sub>Al<sub>12</sub> Precipitate and {1012} <1012> Twin Boundary in Magnesium Alloys", B. Li and S.N. Mathaudhu, *Magnesium Technology 2013*, N. Hort et. al, Eds., The Minerals Metals and Materials Society, Warrendale, PA, 89-94, 2013.

#### 2012

4. "A Rationale for Deformation Twinning in Nanocrystalline Magnesium and Magnesium AZ80 Alloy", **S.N. Mathaudhu**, W. Xu, B. Zheng, Y.T. Zhu and E.J. Lavernia, in *Proceedings of the 9<sup>th</sup> International Conference on Magnesium Alloys and their Applications*, edited by W. Poole and K.U. Kainer, Vancouver, BC, July 8-12, 2012.
5. "A Comparative Study of MgY<sub>m</sub>Zn<sub>n</sub> Rod Produced by Different Routes Using Severe Plastic Deformation", R. Lapovok, Y. Zhu, J.-F. Nie, Y. Estrin and **S.N. Mathaudhu**, in *Proceedings of the 9<sup>th</sup> International Conference on Magnesium Alloys and their Applications*, edited by W. Poole and K.U. Kainer, Vancouver, BC, July 8-12, 2012.
6. "Microstructure of Nano-Structured Mg and Mg-Alloys via Cryomilling", **S.N. Mathaudhu**, E.J. Lavernia, B. Zheng, D. Ashford, Y.-Z. Zhou and J.-P. Delplanque, in *Advances in Powder Metallurgy & Particulate Materials: Proceedings of the 2012 International Conference on Powder Metallurgy & Particulate Materials*, Nashville, TN, June 10-13, 2012
7. "Synthesis of High-Strength Cu-Based Nanocrystalline Alloys", K.A. Darling, **S.N. Mathaudhu** and L.J. Kecskes, in *Advances in Powder Metallurgy & Particulate Materials: Proceedings of the 2012 International Conference on Powder Metallurgy & Particulate Materials*, Nashville, TN, June 10-13, 2012
8. "Thermally-Stabilized Nanocrystalline Mg-Alloys", K.A. Darling, L.J. Kecskes and **S.N. Mathaudhu**, in *Advances in Powder Metallurgy & Particulate Materials: Proceedings of the 2012 International Conference on Powder Metallurgy & Particulate Materials*, Nashville, TN, June 10-13, 2012
9. "Structural Origin of Reversible Twinning, Non-Schmid Effect, Incoherent Twin Boundaries and Texture of Hexagonal Close-Packed Metals", B. Li, X.-Y. Zhang, H. El Kadiri, **S.N. Mathaudhu**, Q.-C. Ma, *Magnesium Technology 2012*, S.N. Mathaudhu et. al, Eds., The Minerals Metals and Materials Society, Warrendale, PA, 105-110, 2012
10. "Mechanical Properties of Newly Developed Mg-Alloys AMX602 AND ZAXE1711 under Quasi-Static and Dynamic Loading" J-H. Shen, W-H. Yin, K. Kondoh, T.L. Jones, **S.N. Mathaudhu**, Z-L.

Pan, L.J. Kecskes, Q.-M. Wei, *Magnesium Technology 2012*, S.N. Mathaudhu et. al, Eds., The Minerals Metals and Materials Society, Warrendale, PA, 371-375, 2012

#### 2011

11. "High-strain-rate behavior of nanostructured niobium processed by severe plastic deformation", Z.L. Pan, W.H. Yin, Q.M. Wei, F. Xu, X.Y. Zhang, K.T. Hartwig, L.J. Kecskes and **S.N. Mathaudhu**, *Proceedings of the 2010 International Conference on Tungsten, Refractory and Hard Metals VIII*, San Francisco, CA May 19-21, 2011.
12. "Thermally-stabilized nanocrystalline magnesium alloys", **S.N. Mathaudhu**, L.J. Kecskes and K.A. Darling, *Magnesium Technology 2011*, W.H. Sillikens et. al, Eds., The Minerals, Metals and Materials Society, Warrendale, PA, 453-456, 2011
13. B.E. Placzankis, C.E. Miller, **S.N. Mathaudhu** and R.D. DeLorme, "Corrosion comparisons among magnesium alloys of interest for DoD systems using laboratory based accelerated corrosion methods", *Corrosion 2010*, paper 10085, 2011

#### 2010

14. "Importance of crystallographic texture of AZ31B on flow stress anisotropy and tension-compression asymmetry", M. Al-Maharbi, D.C. Foley, I. Karaman, I. Beyerlein, K.T. Hartwig, L. J. Kecskes and **S.N. Mathaudhu**, *Magnesium Technology 2010*, S.R. Agnew et. al, Eds., The Minerals, Metals and Materials Society, Warrendale, PA, 445-450, 2010
15. "Mechanical behavior of AZ31 due to texture and microstructure", D.C. Foley, M. Al-Maharbi, I. Karaman, T. Hartwig, L.J. Kecskes and **S.N. Mathaudhu**, *Magnesium Technology 2010*, S.R. Agnew et. al, Eds, The Minerals, Metals and Materials Society, Warrendale, PA, 451-454, 2010
16. "Magnesium alloys in U.S. military applications: past, current and future solutions", **S.N. Mathaudhu** and E.A. Nyberg, *Magnesium Technology 2010*, S.R. Agnew et. al, Eds., The Minerals, Metals and Materials Society, Warrendale, PA, 27-33, 2010

#### 2009

17. "Microstructure and properties of AZ31B Mg alloy processed by equal channel angular extrusion", M. Al-Maharbi, D.C. Foley, I. Karaman, K.T. Hartwig, L. J. Kecskes and **S.N. Mathaudhu**, *Proceedings of the 8<sup>th</sup> International Conference on Magnesium Alloys and their Applications*, edited by K.U. Kainer, Wiley-VCH, 321-325, 2009

#### 2008

18. "Severe plastic deformation processing of refractory metals by equal channel angular extrusion", **S.N. Mathaudhu**, L.J. Kecskes, H.E. Maupin, K.T. Hartwig and Q.-M. Wei, in *Proceedings of the 26<sup>th</sup> Army Science Conference*, December 1-4, 2008
19. "Tantalum sheet with improved copper-tantalum co-deformability" K.T. Hartwig, S. Balachandran, R.B. Griffin, **S.N. Mathaudhu**, T. Pyon and R.E. Barber, *Proceedings of the 2008 International Conference on Tungsten, Refractory and Hard Metals VII*, Washington, D.C., June 8-12, 2008
20. "Processing-microstructure-property relationships in heavily worked and recrystallized pure tungsten" **S.N. Mathaudhu**, Z. Pan, B. Klotz, Q. Wei, K.T. Hartwig and L.J. Kecskes, *Proceedings of the 2008 International Conference on Tungsten, Refractory and Hard Metals VII*, Washington, D.C., June 8-12, 2008
21. "Interface roughness in copper-tantalum wire and Nb<sub>3</sub>Sn superconductor composites", K.T. Hartwig, S. Balachandran, **S.N. Mathaudhu**, R.E. Barber, T. Pyon and R.B. Griffin, *Advances in Cryogenic Engineering Materials*, Vol. 54/986, pp. 325-332, 2008

#### 2006

22. "Microstructural refinement of tantalum by severe plastic deformation", K.T. Hartwig, **S.N. Mathaudhu**, and R.E. Barber, submitted to *Proceedings of the 2006 International Conference on Tungsten, Refractory and Hard Metals VI*, Orlando, Florida, February 7-8, 2006
23. "Tantalum sheet for superconductor diffusion barrier applications", **S.N. Mathaudhu**, K.T. Hartwig, R.E. Barber and T. Pyon, *Advances in Cryogenic Engineering*, Vol. 824, pp. 590-598, 2006

#### 2005



24. "Plans for synthesis of bulk amorphous metal matrix composites", K.T. Hartwig, I. Karaman and **S.N. Mathaudhu**, *Proceedings of 2005 NSF DMII Grantees Conference*, Scottsdale, Arizona, January 3-6, 2005

#### 2004

25. "Microstructural refinement of bulk Nb and Ta by severe plastic deformation for composite superconductor applications", S.N. **Mathaudhu**, R.E. Barber and K.T. Hartwig, *Proceedings of the NATO Workshop on Nanomaterials by High-Pressure Severe Plastic Deformation*, Donetsk, Ukraine, September 22-26, 2004
26. "Grain refinement of niobium by severe plastic deformation", K.T. Hartwig, D.O. Bryant, **S.N. Mathaudhu**, R.E. Barber and J.T. Im, *Advances in Cryogenic Engineering*, Vol. 711, pp. 441-449, 2004

#### 2003

27. "Consolidation of Cu and amorphous Zr-based powders by severe plastic deformation", K.T. Hartwig, I. Karaman, M. Haouaoui and **S.N. Mathaudhu**, in *Proceedings of the 2003 NATO Advanced Research Workshop: Metallic Materials with High Structural Efficiency*, Kiev, Ukraine, September 6-13, 2003
28. "Progress in consolidation of amorphous Zr-based powder into bulk metallic glass", **S.N. Mathaudhu**, J.-T. Im, R.E. Barber, I.E. Anderson, I. Karaman, and K.T. Hartwig, in *Proceedings of the 2002 MRS Fall Meeting Symposium on Supercooled Liquids, Glass Transition, and Bulk Metallic Glasses*, edited by A.L. Greer, T. Egami, A. Inoue, S. Ranganathan, MRS Publications, Vol. 754, pp. 191-198, 2003

#### 2002

29. "Hardness and microstructure changes in severely deformed and recrystallized tantalum", K.T. Hartwig, **S.N. Mathaudhu**, H.J. Maier and I. Karaman, in *Ultrafine Grained Materials II*, edited by Y.T. Zhu, T.G. Langdon, R.S. Mishra, S.L. Semiatin, M.J. Saran and T.C. Lowe, TMS Publishing, pp. 151-160, 2002

#### 2001

30. "Consolidation of metallic powders by equal channel angular extrusion", K.T. Hartwig, H. Zapata, A. Parasiris and **S.N. Mathaudhu**, in *Powder Materials: Current Research and Practices*, edited by F.D.S Marquis, N.N. Thadhani and E.V. Barrera, TMS Publishing, pp. 211-221, 2001

#### *IV. Technical Reports*

1. "A Report on Army Science Planning and Strategy", V.L.H. Bevilacqua, B. Forch, P.J. Franaszczuk, J.N. Mait, **S.N. Mathaudhu**, J. McCauley, S.A. McElhinny, P. Reynolds, B.M. Sadler and A. Swami, March 2014.
2. "Fabrication of High-Strength AA5083 for Armor and Structural Applications Through Large-Scale Equal Channel Angular Extrusion (ECAE) Processing", V. Hammond, T. Jones, L. Kecskes, **S. Mathaudhu**, and V. Segal, ARL-Technical Report (ARL-TR-6815), 2014 – distribution authorized to U.S. Government agencies only
3. "Ultrahigh-Strength Magnesium Alloys for the Future Force: A Final Report on the 5-Year Mission Program, 2009-2013", V. Hammond, **S. Mathaudhu**, K. Doherty, S. Walsh, L. Vargas, B. Placzankis, J. Labukas, M. Pepi, M. Trexler, B. Barnett, T. Jones and L. Kecskes, ARL-Technical Report (ARL-TR-6788) – approved for public release; distribution is unlimited
4. "Deformation Mechanisms and High Strain Rate Properties of Magnesium (Mg) and Mg Alloys", B. Li, L. Shannahan, E. Ma, K.T. Ramesh, **S.N. Mathaudhu**, R.J. Dowding and J.W. McCauley, ARL-Technical Report (ARL-TR-6085), 2012. – approved for public release; distribution is unlimited
5. "Demonstration of Ultra High-Strength Nanocrystalline Copper Alloys for Military Applications", K.A. Darling, **S.N. Mathaudhu**, L.J. Kecskes, Final Report SERDP-ESTCP (ADA568813), 2012 – approved for public release, distribution is unlimited.

## FELLOWSHIPS, GRANTS, CONTRACTS AND GIFT ACTIVITY

### *I. Pending Proposals*

1. Granting Agency: National Science Foundation  
Title: NRT-IGE: Restructuring Graduate Bridges (RGB) – Enhancement of Career Mentoring in STEM Disciplines  
Dates: 07/01/2015 – 06/30/2019  
Total Award: \$499,200  
Role: Lead PI  
Status: Under Review  
UCR Investigators: Guillermo Aguilar and Sharon Walker
2. Granting Agency: Air Force Office of Scientific Research  
Title: Novel Multifunctional Nanolaminate Metal/Metallic Glass Composites for Advanced Aerospace Applications  
Dates: 01/01/2017 – 12/31/2020  
Total Award: \$750,000  
UCR Award: \$375,000  
Role: PI  
Status: Under Review  
Non-UCR Investigator: Irene Beyerlein, UC Santa Barbara
3. Granting Agency: UCOP: UC-National Laboratory Collaborative Research and Training Award  
Title: University of California Alliance for Innovative Metals (UC-AIM)  
Dates: 03/01/2017 – 02/29/2020  
Total Award: \$3,750,000  
UCR Award: \$599,762  
Role: Co-PI  
Status: to be submitted 08/04/16  
Non-UCR Investigators: Irene Beyerlein (PI), Tresa Pollock, Anton Van der Ven (UC Santa Barbara), Kenneth Vecchio (UC San Diego), Mark Asta, Andrew Minor (UC Berkeley)

### *II. Currently Funded Proposals*

1. Granting Agency: Pacific Northwest National Laboratory  
Title: Joint Appointment with Pacific Northwest Laboratory  
Dates: 05/25/2015 – 05/24/2017  
Total Award: \$139,100  
Role: PI  
Status: Current
2. Granting Agency: Particulate Alloy Densification via Current Assisted Processing  
Title: Joint Appointment with Pacific Northwest Laboratory  
Dates: 04/28/2016 – 09/30/2016  
Total Award: \$100,000  
Role: PI  
Status: Current
3. Granting Agency: University of California, Riverside, Collaborative SEED Grant  
Title: Laser-mediated Surface Modification of Hard Biomaterials  
Dates: 07/01/2016 – 6/30/2017  
Total Award: \$60,000

Candidate Amount: \$60,000  
Number of Co-PIs: 3  
Role: Co-PI  
Status: Current  
UCR Investigators: Guillermo Aguilar, Masaru Rao, David Halaney

4. Granting Agency: National Science Foundation, CMMI Materials Engineering and Processing  
Title: CAREER: Extreme Toughening of HCP Metallic Alloys via Nanospaced Stacking Faults  
Dates: 04/01/2016 – 03/31/2021  
Total Award: \$500,088  
Role: PI  
Status: Current
5. Granting Agency: University of California, Riverside, Environmental Health and Safety  
Department  
Title: Explosive Chemical Removal Robot Undergraduate Design Project  
Dates: 11/10/2015 – 12/31/2016  
Total Award: \$9,000  
Role: PI  
Status: Current
6. Granting Agency: Department of Education  
Title: GAANN Fellowship in Mechanical Engineering  
Dates: 10/01/2015 – 09/30/2018  
Total Award: \$885,834  
UCR Award: \$884,834  
Candidate Amount: \$147,472  
Number of Co-PIs: 5  
Role: Co-PI  
Status: Current  
UCR Investigators: Lorenzo Mangolini, Guillermo Aguilar, Elisa Franco, Masaru Rao, Sandeep Kumar
7. Granting Agency: National Science Foundation, CMMI Materials Engineering and Processing  
Title: EAGER: Controllable Synthesis of gradient-microstructured materials from the nanoscale to the macroscale  
Dates: 08/01/2015 – 7/31/2016  
Total Award: \$125,000  
Candidate Amount: \$62,500  
Number of Co-PIs: 1  
Role: Co-PI  
Status: Current  
UCR Investigators: Sandeep Kumar
8. Granting Agency: University of California, Riverside, Collaborative SEED Grant  
Title: Synthesis and Processing of Revolutionary Nanostructured Biomaterials  
Dates: 07/01/2015 – 6/30/2016  
Total Award: \$70,000  
Candidate Amount: \$70,000  
Number of Co-PIs: 5  
Role: PI  
Status: Current  
UCR Investigators: Guillermo Aguilar, David Kisailus, Yasuhiro Koda, Huinan Liu, Masaru Rao
9. Granting Agency: National Science Foundation, CMMI Materials Engineering and Processing

Title: Collaborative Research: Enhancement of Plasticity in Particulate-Route Ultrafine-Grained HCP Alloys: A Theoretical and Experimental Study  
Dates: 07/01/2015 – 6/30/2018  
Total Award: \$485,161  
UCR Award: \$270,611  
Candidate Amount: \$270,611  
Number of Co-PIs: 1  
Role: PI  
Status: Current  
Non-UCR Investigator: Kiran Solanki, Arizona State University

10. Granting Agency: Naval Surface Warfare Center - Corona  
Title: Synthesis, Processing, and Characterization of Amorphous Hollow Spheres  
Dates: 04/23/2015 – 09/30/2015  
Total Award: \$50,000  
Role: PI  
Status: Current

### *III. Expired Proposals*

### *IV. Proposals Not Awarded*

1. Granting Agency: National Science Foundation, CMMI Materials Engineering and Processing  
Title: Collaborative Research: Fatigue Crack Growth Mechanisms in Microstructurally Stable Nanocrystalline Alloys  
Dates: 07/01/2016 – 6/30/2019  
Total Award: \$470,000  
UCR Award: \$240,690  
Candidate Amount: \$240,690  
Number of Co-PIs: 1  
Role: Co-PI  
Status: Not Awarded  
Non-UCR Investigator: Kiran Solanki, Arizona State University
2. Granting Agency: Air Force Office of Scientific Res., HBCU/MI Equipment/Instrumentation Grant  
Title: Procurement of a Tandem System: Cryo-stage with EDS Mapping and 3D-Rendering for Nanoscale Chemical-Structural Analysis  
Dates: 07/01/2016 – 06/30/2017  
Total Award: \$233,000  
Number of Co-PIs: 3  
Role: Co-PI  
Status: Not Awarded  
UCR Investigators: David Kisailus, Krassimir Bozhilov, Cheryl Hayashi
3. Granting Agency: National Science Foundation, CMMI Materials Engineering and Processing  
Title: Deformation Mechanisms in Gradient Nanocrystalline Materials  
Dates: 10/01/2015 – 09/30/2018  
Total Award: \$340,811  
UCR Award: \$304,811  
Candidate Amount: \$170,405  
Number of Co-PIs: 1  
Role: Co-PI  
Status: Not Awarded  
UCR Investigators: Sandeep Kumar
4. Granting Agency: Naval Surface Warfare Center, Naval Engineering Educational Consortium

Title: Fabrication and Characterization of Gas-Filled Hollow Metal Spheres  
Dates: 07/01/2015 – 06/30/2017  
Total Award: \$160,000  
Role: PI  
Status: Not Awarded

5. Granting Agency: U.S. Army Research Office, DOD HBCU/MI Research and Education Program  
Title: Thermodynamic Stabilization and Nanocrystallization via Laser Surface Processing  
Dates: 07/01/2015 – 06/30/2018  
Total Award: \$497,693  
UCR Award: \$497,693  
Candidate Amount: \$248,845  
Number of Co-PIs: 1  
Role: Co-PI  
Status: Not Awarded  
UCR Investigators: Guillermo Aguilar
6. Granting Agency: Office of Naval Research, Young Investigator Program  
Title: Design and processing of gradient-microstructure light steel alloys  
Dates: 06/01/2015 – 05/31/2018  
Total Award: \$506,569  
Role: PI  
Status: Not Awarded

## TECHNICAL PRESENTATIONS AND LECTURES

### PRESENTATIONS AT PROFESSIONAL MEETINGS (35 INVITED, 5 KEYNOTE)

*I. Technical Conference Presentations (Since arriving at UC Riverside in July, 2014) \*indicates a Mathaudhu Group student/post-doc presenter*

#### Future Lectures

1. A. Yu\*, M. Heiden, C. Roach, L. Stanciu and **S.N. Mathaudhu**, "Microstructure and Mechanical Behavior of Nanostructured FeMn Bioresorbable Alloy", TMS 2017 Annual Meeting and Exhibition, Mechanical Behavior of Nanostructured Materials, February-March 2017.
2. (Invited) **S.N. Mathaudhu**, "Ultrahigh-Strength Nanostructured Magnesium Alloys via Mechanical Alloying", TMS 2017 Annual Meeting and Exhibition, Mechanical Behavior of Nanostructured Materials, February-March 2017.
3. (Invited) S. Cao\*, C. Roach, Y.T. Zhu and **S.N. Mathaudhu**, "Novel Contributions to Deformation and Properties in Gradient Materials", TMS 2017 Annual Meeting and Exhibition, Multiscale Architected Materials (MAM II): Tailoring Mechanical Incompatibility for Superior Properties, February-March 2017.
4. C. Roach\*, K.N. Solanki and **S.N. Mathaudhu**, "Microstructural Evolution in Dilute Mg-X Binary Alloys Processed by Mechanical Alloying", TMS 2017 Annual Meeting and Exhibition, Fundamental Aspects and Modeling Powder Metal Synthesis and Processing, February-March 2017.
5. K. Mensink\*, G. Aguilar and **S.N. Mathaudhu**, "Advanced Laser Surface Processing of Thermally-Stable Nanocrystalline Alloys", TMS 2017 Annual Meeting and Exhibition, Nanostructured Surfaces for Improved Functional Properties, February-March 2017.
6. K. Mensink\*, G. Aguilar and **S.N. Mathaudhu**, "Advanced Laser Surface Processing of Thermally-Stable Nanocrystalline Alloys", Pan American Materials Congress: Nanocrystalline and Ultrafine Grain Materials and Bulk Metallic Glasses, February-March 2017.
7. C. Roach\*, L. Oh, X. Hernandez and **S.N. Mathaudhu**, "Mechanical and Microstructural Characterization of a Multi-Axis Forged AZ31 Billet", TMS 2017 Annual Meeting and Exhibition, Magnesium Technology 2017, February-March 2017.
8. S. Shahrezaei\*, I.J. Beyerlein, S. O'Keefe and **S.N. Mathaudhu**, "Laminar Bulk Metallic Glass/Metal Composites Via Accumulative Roll Bonding", TMS 2017 Annual Meeting and Exhibi-

- tion, Multiscale Architected Materials (MAM II): Tailoring Mechanical Incompatibility for Superior Properties, February-March 2017.
9. (Invited) **S.N. Mathaudhu**, "The Continued Quest for Low-Temperature Formability in MgAl- alloys: Historical Developments and Future Opportunities", TMS 2017 Annual Meeting and Exhibition, Magnesium Technology 2017, February-March 2017.
  10. A. Rohatgi, A. Devaraj, R.S. Vemuri, L. Kovarik, G. Nandipati and **S.N. Mathaudhu** "Thermal Stability and Grain-boundary Segregation in Al-Alloy Thin Films ", TMS 2017 Annual Meeting and Exhibition, Mechanical Behavior of Nanostructured Materials, February-March 2017.
  11. (Invited) T. Clark, C. Roach and **S.N. Mathaudhu** "Synthesis and Characterization of Nanostructured Magnetic High Entropy Alloys", TMS 2017 Annual Meeting and Exhibition, High Entropy Alloys V, February-March 2017.
  12. (Invited) S. Shahrezaei, S. O'Keeffe I.J. Beyerlein and **S.N. Mathaudhu**, "Fabrication and Characterization of Roll Bonded, Laminated Bulk Metallic Glass/Metal Composites", TMS 2017 Annual Meeting and Exhibition, Bulk Metallic Glasses XIV, February-March 2017.
  13. T. Clark\*, H. Jiang, N. Overman and **S.N. Mathaudhu**, "Novel Silicon Steel Nanocomposites via Severe Shear Deformation Approaches", TMS 2017 Annual Meeting and Exhibition, Materials Engineering of Soft Magnets for Power and Energy Applications, February-March 2017.
  14. (Invited) S. Shahrezaei, J.A. Moering, Y.T. Zhu and **S.N. Mathaudhu**, "Mechanical Performance and Thermal Stability of Gradient Structured Aluminum Alloys" 2016 Materials Research Society Fall Meeting and Exhibit, Symposium MB2: Materials under Mechanical Extremes, November-December, 2016.
  15. (Invited) **S.N. Mathaudhu**, "High Strength Mg-Alloys via Powder Metallurgy: Current Results and Future Opportunities", Materials Science and Technology 2016, Sintering and Related Powder Processing Science & Technologies Symposium, October 2016.
  16. (Invited) **S.N. Mathaudhu**, "Microstructural Stability: The Next Frontier for Nanocrystalline Materials", Materials Science and Technology 2016, Ultrahigh Performance Metals, Metal Alloys, Intermetallics, and Metal Matrix Composites for Aerospace, Defense and Automotive Applications Symposium, October 2016.
  17. T. Clark\*, H. Jiang, N. Overman and **S.N. Mathaudhu**, "Nanograined Silicon Steel as a Material for Electric Motor Stators", Materials Science and Technology 2016, Sintering and Related Powder Processing Science & Technologies Symposium, October 2016.
  18. G. Nandipati, R.S. Vemuri, **S.N. Mathaudhu** and A. Rohatgi "Self Learning Kinetic Monte Carlo Simulations of Si diffusion in High-Si-steels", Materials Science and Technology 2016, Phase Stability, Diffusion Kinetics, and Their Applications(PSDK-XI) Symposium, October 2016.
  19. C. Roach\*, T. Clark and **S.N. Mathaudhu** "Mechanical Properties of a High Coercivity FeCrCoMnNi High Entropy Alloy", Materials Science and Technology 2016, Ultrahigh Performance Metals, Metal Alloys, Intermetallics, and Metal Matrix Composites for Aerospace, Defense and Automotive Applications Symposium, October 2016.
  20. S. Shahrezaei\* and **S.N. Mathaudhu** "Mechanical Performance and Thermal Stability of Gradient Structured Aluminum Alloys", Materials Science and Technology 2016, Ultrahigh Performance Metals, Metal Alloys, Intermetallics, and Metal Matrix Composites for Aerospace, Defense and Automotive Applications Symposium, October 2016.
  21. K. Mensink\*, G. Aguilar and **S.N. Mathaudhu**, "Advanced Laser Surface Processing of Lightweight Alloys", Materials Science and Technology 2016: Processing and Performance of Materials Using Microwaves, Electric and Magnetic Fields, Ultrasound, Lasers, and Mechanical Work – Rustum Roy Symposium, October 2016.
  22. R.S. Vemuri, L. Kovarik, A. Devaraj, G. Nandipati, **S.N. Mathaudhu** and A. Rohatgi "Thermal stability analysis of nanostructured Mg-Al thinfilms", Materials Science and Technology 2016, Phase Stability, Diffusion Kinetics, and Their Applications(PSDK-XI) Symposium, October 2016.

#### Past Lectures

1. J.A. Moering\*, X.L. Ma, Y.T. Zhu and **S.N. Mathaudhu**, "Extreme Strengthening in Gradient Structured Aluminum Alloy", TMS 2016 Annual Meeting and Exhibition, Ultrafine Grained Materials IX, February 2016.

2. (Invited) C. Roach\* and **S.N. Mathaudhu**, High Strength Mg-Alloys via Powder Metallurgy: Current Results and Future Opportunities, TMS 2016 Annual Meeting and Exhibition, Bulk Processing of Nanostructured Powders and Nanopowders by Consolidation Symposium, February 2016.
3. (Invited) C. Roach, T. Clark\* and **S.N. Mathaudhu**, "Nanostructured Magnetic High Entropy Alloys", TMS 2016 Annual Meeting and Exhibition, High Entropy Alloys IV Symposium, February 2016.
4. (Invited) **S.N. Mathaudhu**, H. Zhou, G.M. Chen, X.L. Ma, W.Z. Xu, Q.D. Wang and Y.T. Zhu, "Interfacial Segregation Phenomena in Mg-Gd-Y-(Ag)-Zr Alloys" The 22nd International Symposium on Plasticity and Its Current Applications, Interface and Surface-Dominated Plasticity, Fracture, and Fatigue in Metals Symposium, January 2016.
5. (Invited) **S.N. Mathaudhu**, "Fighting Entropy: Strategies for Retention of Nanostructured Material Performance" The 22nd International Symposium on Plasticity and Its Current Applications, Creep, Deformation, Texture, Nano and Nuclear Materials III (in honor of K.L. Murty) Symposium, January 2016.
6. J.A. Moering, X.L. Ma, G.H. Chen, P.F. Miao, **S.N. Mathaudhu**, Y.T. Zhu, "Correlation of Microstructural Evolution and Mechanical Properties with Shear Strain in Deformation Produced Gradient Microstructure Materials", in 2015 Materials Research Society Fall Meeting and Exhibit, Symposium V: Gradient and Laminate Materials, November 30 – December 4, 2015.
7. (Invited) **S.N. Mathaudhu**, "Ultrastrong Nanostructured Mg-Alloys: Enabling a Fuel-Efficient Future", Materials Science and Technology 2015, Ultra High Performance Metals, Metal Alloys, Intermetallics, and Metal Matrix Composites for Aerospace and Defense Applications Symposium, October 4-8, 2015.
8. (Poster) C.J. Roach\*, K.J. Solanki, **S.N. Mathaudhu**, "Collaborative Research: Enhancement of Plasticity in Particulate-Route Ultrafine-Grained HCP Alloys: A Theoretical and Experimental Study" PRISMS Center Annual Workshop, September 1-3, 2015
9. (Invited) **S.N. Mathaudhu**, "There's Plenty of Room at the Bottom... for Mg Alloys", XXIV International Material Research Congress 2015, Nanoscience and Nanotechnology Symposium, Cancun, Mexico, August 16-20, 2015.
10. (Poster) **S.N. Mathaudhu**, Y.T. Zhu, X.C. Li, 2015 Gordon Research Conference on Frontiers in Physical Metallurgy, Biddeford, ME, July 19-24, 2015.
11. (Invited) **S.N. Mathaudhu**, "Suppression of Strain Localization via Gradient Microstructures", ASME 2015 Applied Mechanics and Materials Conference, Symposium 22 Fatigue Damage and Failure Mechanics: Multiscale Experimental Characterization and Modeling, Seattle, WA, June 29 – July 1, 2015.
12. (Keynote) **S.N. Mathaudhu**, "Fighting Entropy: Strategies for Retention of Nanostructured Material Performance", 2015 Nanomaterials Workshop, Nano Structural Materials Center, Nanjing University of Science and Technology, Nanjing, China, June 4-5, 2015.
13. (Keynote) **S.N. Mathaudhu**, "With Great Power Comes Great Responsibility: Lessons from Superheroes (and Super-villains) to the STEM Community", American Association of Engineering Societies Annual Convocation, April 20, 2015.
14. (Invited) **S.N. Mathaudhu**, "Four-Color Communications: Effective Relaying of MSE Concepts via Comic Book Art and Films", TMS 2015 Annual Meeting and Exhibition, Messaging Research to a Broad Audience, March 15-19, 2015.
15. (Invited) **S.N. Mathaudhu**, K.T. Hartwig, I. Karaman, D. Dunand "Fabrication of Amorphous Metal Composites and Foams via Equal Channel Angular Extrusion", TMS 2015 Annual Meeting and Exhibition, Bulk Metallic Glasses XII, March 15-19, 2015.
16. (Invited) **S.N. Mathaudhu**, "Finding Strength in Our Faults: Extreme Strengthening of Mg Alloys via NanoSpaced Stacking Faults", in 2014 Materials Research Society Fall Meeting and Exhibit, Symposium AA: Synthesis, Processing and Mechanical Properties of Functional Hexagonal Materials, Boston, MA Nov. 30 – Dec. 5, 2014.

*II. Technical Conference Presentations (While at US ARL and ARO, August 2006 – June 2014)*

17. (Keynote) **S.N. Mathaudhu**, "Captain America's Shield, Wolverine's Claws and the Future of Materials in Extreme Applications", ASM Eastern New York Chapter 2014 Spring Symposium - Materials for Extreme Environments, Niskayuna, NY, May 12-13, 2014.
18. (Invited) W.W. Jian, Y.T. Zhu, and **S.N. Mathaudhu**, "Finding Strength in Our Faults: Extreme Strengthening of Mg-Alloys via Nano-Spaced Stacking Faults" in the TMS 2014 Annual Meeting and Exhibition, 2014 TMS RF Mehl Medal Symposium on Frontiers in Nanostructured Materials and Their Applications, San Diego, CA, February 16-20, 2014.
19. (Invited) W.W. Jian, Y.T. Zhu and **S.N. Mathaudhu**, "Physics and Modeling of Strengthening of Metals by Parallel Stacking Faults", in the TMS 2014 Annual Meeting and Exhibition, Deformation, Damage and Fracture of Light Metals and Alloys III, San Diego, CA, February 16-20, 2014.
20. (Invited) W.W. Jian, Y.T. Zhu and **S.N. Mathaudhu**, "Finding Strength in our Faults: Ultrastrong Mg-Alloy via Nano-Spaced Stacking Faults" in 2013 Materials Research Society Fall Meeting, Symposium ZZ: Nanostructured Materials in Extreme Environments, Boston, MA, December 2-4, 2013. (Presented by Prof. Q.M. Wei due to Department of the Army conference travel moratorium).
21. (Invited) **S.N. Mathaudhu**, "Lose Yourself: Seizing Opportunities in an Increasingly Competitive World" in Materials Science and Technology 2013, Perspectives for Emerging Materials Professionals Symposium, Montreal, Canada, October 27-31, 2013.
22. W.W. Jian, Y.T. Zhu and **S.N. Mathaudhu**, "Finding Strength in Our Faults: Ultrastrong Mg-alloys via Nano-spaced Stacking Faults", in Materials Science and Technology 2013, Magnesium Technology Symposium: Deformation I, Montreal, Canada, October 27-31, 2013. (Presented by Dr. Benjamin Morrow due to Department of the Army conference travel moratorium).
23. (Invited) **S.N. Mathaudhu**, M.E. Cox, K.T. Hartwig, and D. Dunand, "Fabrication of Bulk Metallic Glass Foams via Severe Plastic Deformation", in 8<sup>th</sup> Pacific Rim International Conference on Advanced Materials and Processing, Symposium M: Bulk Metallic Glasses, Nanocrystalline Materials, and Ultrafine-Grained Materials and Processing, Waikoloa, Hawaii, August 4-9, 2013 (Presented by Prof. Y.T. Zhu due to Department of the Army conference travel moratorium).
24. W.W. Jian, G.M. Cheng, W.Z. Xu, H. Yuan, C.C. Koch, Y.T. Zhu and **S.N. Mathaudhu**, "Ultrastrong Magnesium Sheet via Stacking Fault Engineering", in 8<sup>th</sup> Pacific Rim International Conference on Advanced Materials and Processing, Symposium E: Light Metals and Alloys, Waikoloa, Hawaii, August 4-9, 2013 (Presented by Prof. Y.T. Zhu due to Department of Army conference travel moratorium).
25. (Invited) **S.N. Mathaudhu**, "There's Plenty of Room at the Bottom... for Mg Alloys", in 2013 International Conference on Powder Metallurgy & Particulate Materials", Chicago, IL, June 24-27, 2013 (Presented by Dr. W.W. Jain due to Department of Army conference travel moratorium).
26. (Invited) W.W. Jian, G.M. Cheng, W.Z. Xu, H. Yuan, C.C. Koch, Y.T. Zhu and **S.N. Mathaudhu** "Ultrastrong Mg-Alloy via Nano-Spaced Stacking Faults", in Magnesium Workshop Madrid 2013, Madrid, Spain, May 21-24, 2013 (Presented by Prof. S.R. Agnew due to Department of Army conference travel moratorium).
27. (Invited) W.W. Jian, G.M. Cheng, W.Z. Xu, H. Yuan, C.C. Koch, Y.T. Zhu and **S.N. Mathaudhu**, "Ultrastrong Mg-Alloy Sheet via Nano-Spaced Stacking Faults", in AeroMat 2013 Conference and Exhibition, Bellevue, WA, April 2-5, 2013 (Presented by Dr. W.W. Jian due to Department of Army conference travel moratorium).
28. (Invited) **S.N. Mathaudhu**, "There's Plenty of Room at the Bottom...for Mg-Alloys", in Deformation, Damage, and Fracture of Light Metals and Alloys Symposium, TMS Annual Meeting and Exhibition, San Antonio, TX, March 6, 2013 (Presented by Prof. Y.T. Zhu due to Department of Army conference travel moratorium).
29. (Invited) – **S.N. Mathaudhu**, "There's Plenty of Room at the Bottom... for Mg-Alloys", in 2012 MRS Fall Meeting and Exhibition, Symposium GG: Mechanical Behavior of Metallic Nanostructured Materials - In honor of Prof. Julia Weertman, Boston, MA, November 25-30, 2012. (Presented by Prof. Y.T. Zhu due to Department of Army conference travel moratorium).
30. (Invited) **S.N. Mathaudhu**, "A Rationale for Deformation Twinning in Nanocrystalline Magnesium and Magnesium AZ80 Alloy", in the 9<sup>th</sup> International Conference on Magnesium Alloys and their Applications, Vancouver, BC, Canada, July 8-12, 2012.



31. (Keynote) **S.N. Mathaudhu**, "DoD Applications of Magnesium: Historical Thoughts and Future Solutions", in Magnesium Powders and Composites: Technologies and Applications Special Interest Program, 2012 International Conference on Powder Metallurgy & Particulate Materials, Nashville, TN, June 10-13, 2012.
32. (Invited) **S.N. Mathaudhu**, E.J. Lavernia, B. Zheng, D. Ashford, Y. Zhou and J.-P. Delplanque, "Microstructure and behavior of nanostructured Mg and Mg Alloys via cryomilling and spark plasma sintering", in Magnesium Powders and Composites: Technologies and Applications Special Interest Program, 2012 International Conference on Powder Metallurgy & Particulate Materials, Nashville, TN, June 10-13, 2012.
33. (Invited) **S.N. Mathaudhu**, "Fabrication and deformation mechanisms in nanocrystalline Mg alloys", in Phase Transformation and Deformation in Magnesium Alloys Symposium, TMS Annual Meeting and Exhibition, Orlando, FL, March 13, 2012
34. K.A. Darling, L.J. Kecskes, Y.T. Zhu and **S.N. Mathaudhu**, "Processing of ultrahigh-strength, thermally stable Mg-alloys", in Seventh International Symposium on Ultrafine Grained Materials, TMS Annual Meeting and Exhibition, Orlando, FL, March 13, 2012
35. (Invited) **S.N. Mathaudhu**, X.L. Wu, K. Youssef, C. Koch, L.J. Kecskes and Y.T. Zhu, "Fabrication and deformation mechanisms in nanocrystalline Mg alloys", in 2011 Acta Materialia Gold Medal Symposium in honor of Jay Narayan, MS&T Annual Meeting, Columbus OH, October 18, 2011.
36. (Invited) K.A. Darling, B.G. Butler, L.J. Kecskes, **S.N. Mathaudhu**, Y. Mishin, T. Frolov, D. Kapoor and J. Paras, "Grain size stabilization in nanocrystalline Cu-alloys", in 2011 Acta Materialia Gold Medal Symposium in honor of Jay Narayan, MS&T Annual Meeting, Columbus OH, October 19, 2011.
37. **S.N. Mathaudhu**, L.J. Kecskes and K.A. Darling, "Thermally-stabilized nanocrystalline Mg-alloys", in Magnesium Technology 2011, TMS Annual Meeting and Exhibition, San Diego, CA, March 3, 2011.
38. **S.N. Mathaudhu**, Z. Pan, W. Ying, L.J. Kecskes and Q. Wei, "High-strain rate behavior of nanostructure niobium processed by severe plastic deformation to very large strains", in Dynamic Behavior of Materials V: Dynamic Deformation, TMS Annual Meeting and Exhibition, San Diego, CA, March 2, 2011.
39. (Invited) **S.N. Mathaudhu**, E.A. Nyberg and H.E. Maupin, "Magnesium Alloys in Army Applications", in Magnesium in Aircraft Session of the Sixth Triennial International Aircraft Fire and Cabin Safety Research Conference, Atlantic City, NJ, October 26-28, 2010.
40. **S.N. Mathaudhu**, L.J. Kecskes, J.-T. Im, D.C. Foley, M. Al-Maharbi, I. Karaman and K.T. Hartwig, "Superior grain refinement via intelligent ECAE processing of materials", in Sixth International Symposium on Ultrafine-Grained Materials, TMS Annual Meeting and Exhibition, Seattle, WA, February 15, 2010.
41. **S.N. Mathaudhu** and E.A. Nyberg, "Magnesium alloys in Army applications: past, current and future solutions" Magnesium Technology 2010, TMS Annual Meeting and Exhibition, Seattle, WA, February 15, 2010.
42. K.T. Hartwig, S. Balachandran and **S.N. Mathaudhu**, "Improved recrystallized microstructures in Nb and Ta", in Sixth International Symposium on Ultrafine-Grained Materials, TMS Annual Meeting and Exhibition, Seattle, WA, February 17, 2010.
43. **S.N. Mathaudhu**, M. Al-Maharbi, D.C. Foley, I. Karaman, K.T. Hartwig and L.J. Kecskes, "Microstructure and properties of AZ31B Mg alloy processed by equal channel angular extrusion", 8<sup>th</sup> International Conference on Magnesium Alloys and their Applications: Microstructural Evolution Symposium, Weimar, Germany, October 26-29, 2009.
44. (Invited) **S.N. Mathaudhu** "Nanomaterials in Army RDT&E", 48th Navy and Marine Corps Public Health Conference, Emerging Chemicals Session, Hampton, VA, March 26, 2009.
45. **S.N. Mathaudhu**, M.E. Cox, L.J. Kecskes, K.T. Hartwig and D. Dunand, "Bulk metallic glass foams via equal channel angular extrusion", in Bulk Metallic Glasses VI, TMS Annual Meeting and Exhibition, San Francisco, CA, February 16, 2009.
46. **S.N. Mathaudhu**, M. Al-Maharbi, D.C. Foley, B. Li, E. Ma, I. Karaman and L.J. Kecskes, "Low temperature processing of pure Mg by equal channel angular extrusion", in Magnesium Technology 2009: Deformation, TMS Annual Meeting and Exhibition, San Francisco, CA, February 17, 2009.

47. (Invited) **S.N. Mathaudhu**, S.H. McKnight and H.E. Maupin (Invited), "Nanomaterials in Army RDT&E", Tri-Service Environmental Risk Assessment Workshop, Abingdon, MD, May 20, 2008.
48. **S.N. Mathaudhu** (Invited) "Powder processing via equal channel angular extrusion" DEA-A-65-GE-1060 Land Combat Lethality & Survivability Workshop, Aberdeen Proving Ground, MD, April 8, 2008.
49. **S.N. Mathaudhu**, A.J. de Rosset, Q. Wei, L.J. Kecskes and K.T. Hartwig, "Hall-Petch and recrystallization behavior of heavily worked tantalum" in the Fifth International Symposium on Ultrafine-Grained Materials, TMS Annual Meeting and Exhibition, New Orleans, LA, March 9, 2008.
50. **S.N. Mathaudhu**, A.J. de Rosset, L.J. Kecskes, Z. Pan, Q. Wei, K.T. Hartwig, "Processing-microstructure-property relationships in heavily worked and recrystallized pure tungsten", 2008 International Conference on Tungsten, Refractory and Hardmaterials VII, Washington, D.C., July 24, 2008.
51. **S.N. Mathaudhu**, L.J. Kecskes, K.T. Hartwig, "Consolidation of Zr- and Hf-based amorphous metal matrix composites by equal channel angular extrusion", in Bulk Metallic Glasses, 2007 MRS Fall Meeting, Boston, MA, November 27, 2007.
52. **S.N. Mathaudhu**, L.J. Kecskes and K.T. Hartwig, "Fabrication of Hf-based amorphous metal matrix composites by severe plastic deformation", International Symposium on Bulk Nanostructured Metals, Ufa, Russia, August 14, 2007.

*III. Technical Conference Presentations (While at Texas A&M, December 1998 – July 2006)*

53. **S.N. Mathaudhu**, K.T. Hartwig, L.J. Kecskes and I. Karaman, "Microstructure and shear band interactions in amorphous metal matrix composites consolidated by ECAE", in Bulk Metallic Glasses, TMS Annual Meeting and Exhibition, San Antonio TX, March 12-16, 2006.
54. **S.N. Mathaudhu** and K.T. Hartwig, "Processing/Microstructure/Property Relationships in Severely Deformed Tantalum", in Processing and Mechanical Response of Engineering Materials, TMS Annual Meeting, San Antonio TX, March 12-16, 2006.
55. **S.N. Mathaudhu**, K.T. Hartwig and R.E. Barber, "Microstructural Refinement of Tantalum by Severe Plastic Deformation", in Microstructure/Property/Processing Symposium, 2006 International Conference on Tungsten, Refractory and Hard Metals VI, Orlando, FL, February 7-8, 2006.
56. **S.N. Mathaudhu**, K.T. Hartwig, I. Karaman and L.J. Kecskes, "Consolidation of hafnium-based amorphous metal and composites by ECAE", in Bulk Metallic Glasses, TMS Annual Meeting and Exhibition, San Francisco, CA, February 13-17, 2005.
57. **S.N. Mathaudhu**, S. Blum, R.E. Barber and K.T. Hartwig, "Microstructural refinement of Niobium for superconductor applications", in Nb<sub>3</sub>Sn Processing Issues: Poster Session, ASC Annual Meeting, Jacksonville, FL, October 3-8, 2004.
58. **S.N. Mathaudhu**, R.E. Barber and K.T. Hartwig, "Microstructural refinement of Tantalum for diffusion barriers", in Nb<sub>3</sub>Sn Processing Issues: Poster Session, ASC Annual Meeting, Jacksonville, FL, October 3-8, 2004.
59. **S.N. Mathaudhu**, R.E. Barber and K.T. Hartwig, "Microstructural refinement of bulk Nb and Ta by severe plastic deformation for composite superconductor applications", in NATO Advanced Research Workshop: Nanostructured Materials by High-Pressure Severe Plastic Deformation, Donetsk, Ukraine, September, 22-26, 2004.
60. **S.N. Mathaudhu**, J.-T. Im, R.E. Barber and K.T. Hartwig, "Novel equal channel angular extrusion processing schedules for microstructural refinement", in Third International Symposium on Ultrafine Grained Materials, TMS Annual Meeting and Exhibition, Charlotte, NC, March 14-18, 2004.
61. **S.N. Mathaudhu**, J. -T. Im, J.N. Robertson, R.E. Barber, I. Karaman, I.E. Anderson and K.T. Hartwig, "Consolidation of a glassy metal and crystalline powder blend by ECAE", in International Symposium on Intermetallic and Advanced Metallic Materials - A Symposium Dedicated to Dr. C. T. Liu, TMS Annual Meeting and Exhibition, San Diego, CA, March 2-6, 2003.
62. **S.N. Mathaudhu**, D.O. Bryant, J-T. Im and K.T. Hartwig, "Microstructural refinement of pure Nb by severe plastic deformation", in High Temperature Alloys: Processing for Properties, TMS Annual Meeting and Exhibition, San Diego, CA, March 2-6, 2003.

63. **S.N. Mathaudhu** and K.T. Hartwig, "The effects of initial grain size on pure tantalum processed by ECAE", in the Processing of Refractory Metals and Alloys, TMS Annual Meeting and Exhibition, Seattle, WA, February 17-21, 2002.
64. **S.N. Mathaudhu** and K.T. Hartwig, "Recrystallization behavior of VAR tantalum", in General Abstracts: Refractory Metals, TMS Fall Meeting and Exhibition, Indianapolis, IN, November 4-8, 2001.
65. **S.N. Mathaudhu**, J.W. Sinclair, K.T. Hartwig, and R.E. Goforth, "Microstructure and mechanical properties of Aluminum 5083 processed by equal channel angular extrusion", Ultrafine Grained Materials Symposium, TMS Annual Meeting and Exhibition, Nashville, TN, March 15, 2000.

## INVITED TECHNICAL SEMINARS AND LECTURES

1. "Ultrastrong Nanostructured Mg-Alloys: Enabling a Fuel-Efficient Future", Materials Engineering Seminar, Purdue University, West Lafayette, IN, March 4, 2016.
2. "Ultrastrong Nanostructured Mg-Alloys: Enabling a Fuel-Efficient Future", University of California, Los Angeles, Los Angeles, CA, February 12, 2016.
3. "Fighting Entropy: Strategies for Retention of Nanostructured Material Performance", Materials Department Seminar, University of California, Santa Barbara, Santa Barbara, CA, March 26, 2015.
4. "Superior Grain Refinement via Intelligent ECAE Processing of Materials", MSE Seminar, University of California – Riverside, Riverside, CA, November 19, 2014.
5. "There's Plenty of Room at the Bottom... for Mg Alloys", MAE Departmental Seminar, University of California – Irvine, Irvine, CA, November 7, 2014.
6. "Fighting Entropy: Strategies for Retention of Nanostructured Material Performance", ME Departmental Seminar, University of California – Riverside, Riverside, CA, October 10, 2014.
7. "Finding Strength in our Faults: Super-strong Magnesium Alloys via Nano-Spaced Stacking Faults", MSE Departmental Seminar, Texas A&M University, College Station, TX, September 8, 2014.
8. "Fighting Entropy: Strategies for Retention of Nanostructured Material Performance", Pacific Northwest National Laboratory, MS<sup>3</sup> Lecture Series, Richland, WA, April 18, 2014.
9. "There's Plenty of Room at the Bottom... for Magnesium Alloys", University of California - Riverside, Mechanical Engineering Faculty Recruitment Seminar, Riverside, CA, February 21, 2014.
10. "There's Plenty of Room at the Bottom... for Magnesium Alloys", North Carolina State University, MSE Seminar, Raleigh, NC, November 15, 2013.
11. "There's Plenty of Room at the Bottom... for Magnesium Alloys", University of Florida, MSE Faculty Candidate Seminar, Gainesville, FL, October 24, 2013.
12. "There's Plenty of Room at the Bottom... for Magnesium Alloys", Georgia Institute of Technology, MSE Faculty Candidate Seminar, Atlanta, GA, March 18, 2013.
13. "Transforming the Army with Lightweight Materials", Seminar, Purdue University, Center for Materials Processing and Tribology, West Lafayette, IN, November 12, 2012.
14. "There's plenty of room at the bottom... for Mg alloys", Center for Materials at Irradiation and Mechanical Extremes, Los Alamos National Laboratory, Los Alamos, NM, June 19, 2012
15. "ARO Perspective on Transparent Armor Materials", Ceramic, Composite and Optical Materials Center (CCOMC) Armor Ceramics Subgroup Meeting, Daytona Beach, FL, January 26, 2012
16. "ARO Synthesis and Processing of Materials: Transforming the Army with Materials Science Fiction", Mechanical Engineering Seminar Series, University of North Carolina – Charlotte, Charlotte, NC, January 17, 2012.
17. "Fabrication and Deformation Mechanisms in Nanocrystalline Mg Alloys", North Carolina A&T University, Departmental Seminar, ERC/ Biomedical Engineering/Mechanical Engineering Department, Greensboro, NC, February 3, 2012.
18. "ARO Synthesis and Processing of Materials: Transforming the Army with Materials Science Fiction", Departmental Seminar, the Pennsylvania State University, Materials Science and Engineering Department, State College, PA, September 15, 2011.
19. (Keynote) "DoD Perspectives on Mg Science and Technology: The Quest for Lightweight Structure and Armor Materials", National Science Foundation Mg Science and Technology, Arlington, VA, May 19, 2011.

20. "Transforming the Army with Lightweight Materials", Departmental Seminar, University of California-Riverside, Department of Mechanical Engineering, Riverside, CA, February 24, 2011.
21. "Lightweighting Strategies in Army Ground Combat Systems", Seminar, GE Global Research, Niskayuna, NY, November 29, 2010.
22. "Lightweighting Strategies for Army Ground Combat Systems", presented to the National Research Council/National Materials Advisory Board sponsored Committee on Benchmarking of the Technology and Application of Lightweighting, Washington, D.C., July 21, 2010.
23. "Army Applications of Magnesium Alloys: Past Lessons and Future Solutions", presented to the National Academies/National Materials Advisory Board/Board on Army Science and Technology sponsored Committee on Opportunities in Protection Materials Science and Technology for Future Army Applications, Aberdeen, MD, June 8, 2010.
24. "Powder Consolidation and Metallic Foams via Severe Plastic Deformation", Seminar, Purdue University, Center for Materials Processing and Tribology, West Lafayette, IN, April 22, 2010.
25. "Multiscale Computational Materials Engineering of Mg-Alloys at ARL", TMS Computational Materials Design Roundtable Luncheon, Materials Science and Technology 2009, Pittsburgh, PA, October 27, 2009.
26. "Superior Grain Refinement via Intelligent ECAE Processing of Materials", Departmental Seminar, North Carolina State University, Department of Materials Science and Engineering, Raleigh, NC, October 1, 2009.
27. "Advanced Materials Processing by Severe Plastic Deformation", Departmental Seminar, Walla Walla College, Engineering Department, College Place, WA, May 19, 2009.
28. "Fabrication of Bulk Metallic Glass Foams via Severe Plastic Deformation", Departmental Seminar, University of Southern California, Aerospace and Mechanical Engineering Department, Los Angeles, CA, April 29, 2009.
29. "Fabrication of bulk metallic glass foams via severe plastic deformation", Institute for Soldier Nanotechnologies, Army Nanotechnologies Series (ANTS), Massachusetts Institute of Technology, Cambridge, MA, October 15, 2008.
30. "Equal channel angular extrusion for advanced material processing", Departmental Seminar, North Carolina State University, Department of Materials Science and Engineering, Raleigh, NC, November 2, 2007.

## **TEACHING AND MENTORING**

### **ADVISING AND THESIS COMMITTEE MEMBER**

#### *I. Undergraduates Advised*

1. Anthony Roberts (2006-2010)  
 Job: Summer Student Researcher  
 Location: U.S. Army Research Laboratory – Weapons and Materials Research Directorate  
 Research Title: Severe Plastic Deformation Processed Mg-Alloys  
 Degree / University: Mechanical Engineering / Frostberg State University  
 Last Seen: Research Technician at ARL-WMRD
2. Armand de Rosset (2006-2007)  
 Job: Summer Student Researcher  
 Location: U.S. Army Research Laboratory – Weapons and Materials Research Directorate  
 Research Title: Recrystallization and Microstructures of ECAE Processed W  
 Degree / University: Civil Engineering / West Virginia University  
 Last Seen: Planning Engineer at the Maryland Department of Transportation
3. Ryan Breneman (2007)  
 Job: Summer Student Researcher  
 Location: U.S. Army Research Laboratory – Weapons and Materials Research Directorate  
 Research Title: Microstructural Characterization of Wrought W  
 Degree / University: Materials Science and Engineering / Massachusetts Institute of Technology  
 Last Seen: Staff Scientist, Pratt and Whitney
4. Jordan (Moore) Moering (2010-2013)

- Job: Student Researcher  
Location: North Carolina State University  
Research Title: Surface Mechanical Attrition Treatment for Nanostructured Metallic Surfaces  
Degree / University: Materials Science and Engineering / NCSU  
Last Seen: Graduate School at NCSU; Ph.D. in MSE
5. AliAsghar Shamsuddin (2014 – 2016)  
Job: Student Researcher  
Location: University of California - Riverside  
Research Title: Mechanical Milling of Thermally Stable Alloys  
Degree / University: Materials Science and Engineering / UCR  
Last Seen: ITT Interconnects
  6. Alexander Jaramillo (2014 – 2016)  
Job: Student Researcher  
Location: University of California - Riverside  
Research Title: Mechanical Testing of Alloys  
Degree / University: Mechanical Engineering / UCR  
Last Seen: Jr. Financial Intelligence Engineer, Meruelo Enterprise, Inc.
  7. Johny Quan (2014 – 2016)  
Job: Student Researcher / Summer Intern at Liquidmetal Technologies, LLC 2015  
Location: University of California - Riverside  
Research Title: Mechanical Testing of Alloys  
Degree / University: Mechanical Engineering / UCR  
Last Seen: Graduate School at UCR; MS in Mechanical Engineering
  8. Adam Arnot (2014 – 2016)  
Job: Student Researcher  
Location: University of California - Riverside  
Research Title: Scanning Electron Microscopy of Advanced Alloys  
Degree / University: Materials Science and Engineering / UCR
  9. Brandon Leu (2014 – 2016)  
Job: Student Researcher  
Location: University of California – Riverside / Naval Research Enterprise Internship Program Scholar, 2015, 2016  
Research Title: Processing and Design of Silicon Glass Microspheres  
Degree / University: Materials Science and Engineering / UCR  
Last Seen: Graduate School at UCSB Materials: Beyerlein Group
  10. Isac Fonseca (2014 – 2016)  
Job: Student Researcher / Summer Intern at POSCO Steel  
Location: University of California – Riverside  
Research Title: Advanced Micromachining of Nanostructured Alloys  
Degree / University: Mechanical Engineering / UCR  
Last Seen: POSCO Steel, Pittsburgh, PA
  11. Jonathan Siguenza (2014 – Present)  
Job: Student Researcher  
Location: University of California – Riverside  
Research Title: Design of Ultrasonic Nanostructuring Machining (USNM) Device  
Degree / University: Materials Science and Engineering / UCR
  12. Lauren Ficarelli (2014 – Present)  
Job: Student Researcher/ Naval Research Laboratory Summer Scholar 2015, 2016  
Location: Microstructure – Property Correlations in Advanced Structural Alloys  
Degree / University: Materials Science and Engineering / UCR
  13. Jocelyn Esparza (2014 – Present)  
Job: Student Researcher / Student Intern at Nanovea, LLC  
Location: University of California - Riverside  
Research Title: Micromechanics of Nano/Microindentation  
Degree / University: Mechanical Engineering / UCR
  14. Lauren Oh (2015 – Present)

- Job: Student Researcher  
 Location: University of California - Riverside  
 Research Title: Characterization of MAF Magnesium Alloy  
 Degree / University: Mechanical Engineering / UCR
15. Steven Herzberg (2015 – Present)  
 Job: Student Researcher  
 Location: University of California - Riverside  
 Research Title: Characterization of FeSi Magnet Alloys  
 Degree / University: Mechanical Engineering / UCR
16. Xavier Hernandez (2015 – Present)  
 Job: Student Researcher  
 Location: University of California - Riverside  
 Research Title: Characterization of Magnetic High Entropy Alloys  
 Degree / University: Mechanical Engineering / UCR
17. Anqi “Angel” Yu (starting Fall 2016)  
 Job: Student Researcher  
 Location: University of California - Riverside  
 Research Title: Mechanical and Microstructural Characterization of Fe<sub>30</sub>Mn Alloy for Use in Biodegradable Implants  
 Degree / University: B.S. Materials Science and Engineering / Zhejiang University of Technology, China  
 Advisor: Prof. Suveen Mathaudhu

*II. Graduate Students Advised*

Current Students Advised

1. Christian Roach (Fall 2014 – Present)  
 Role: Primary Advisor  
 Location: University of California - Riverside  
 Research Title: TBD  
 Degree / University: Ph.D. Materials Science and Engineering  
 Advisor: Prof. Suveen Mathaudhu
2. Kendrick Mensink (Fall 2012 – Present)  
 Role: Co-Advisor  
 Location: University of California - Riverside  
 Research Title: Laser – Materials Interactions  
 Degree / University: Ph.D. Mechanical Engineering / UCR  
 Advisor: Prof. Suveen Mathaudhu, Prof. Guillermo Aguilar
3. Trevor Clark (Summer 2015 – Present)  
 Role: Primary Advisor  
 Location: University of California - Riverside  
 Research Title: TBD  
 Degree / University: Ph.D. Materials Science and Engineering / UCR  
 Advisor: Prof. Suveen Mathaudhu
4. Sina Shahrazaei (Winter 2015 – Present)  
 Role: Primary Advisor  
 Location: University of California - Riverside  
 Research Title: TBD  
 Degree / University: Ph.D. Materials Science and Engineering / UCR  
 Advisor: Prof. Suveen Mathaudhu
5. Anqi “Angel” Yu (starting Fall 2016)  
 Role: Primary Advisor

Location: University of California - Riverside  
Research Title: TBD  
Degree / University: Ph.D. Materials Science and Engineering / UCR  
Advisor: Prof. Suveen Mathaudhu

6. Heather Salvador (starting Fall 2016)  
Role: Primary Advisor  
Location: University of California - Riverside  
Research Title: Stacking Fault Strengthening in HCP Alloys  
Degree / University: Ph.D. Mechanical Engineering / UCR  
Advisor: Prof. Suveen Mathaudhu
7. Johnny Quan (starting Fall 2016)  
Role: Primary Advisor  
Location: University of California - Riverside  
Research Title: Formability of ultrafine grained HCP alloys  
Degree / University: M.S. Mechanical Engineering / UCR  
Advisor: Prof. Suveen Mathaudhu
8. Duncan Ashby (Summer 2015 – TBD)  
Role: M.S. Thesis Committee Member  
Location: University of California - Riverside  
Research Title: TBD  
Degree / University: Mechanical Engineering / UCR  
Advisor: Prof. Masaru Rao  
Last Seen:
9. Christopher Horner (Summer 2015 – TBD)  
Role: Committee Member: Oral Qualifying Exam  
Location: University of California - Riverside  
Research Title: TBD  
Degree / University: Ph.D. Bioengineering / UCR  
Advisor: Prof. Jin Nam
10. Alexander Bryant (Summer 2015 – TBD)  
Role: Ph.D. Dissertation Committee Member  
Location: Georgia Institute of Technology  
Research Title: TBD  
Degree / University: Ph.D. Materials Science and Engineering  
Advisor: Naresh Thadhani  
Last Seen:
11. Aaron Cipriano (Fall 2015 – TBD)  
Role: M.S. Thesis Committee Member  
Location: University of California, Riverside  
Research Title: TBD  
Degree / University: M.S. Materials Science and Engineering  
Advisor: Huinan Liu  
Last Seen:

Prior Graduate Students Advised

1. Marie Cox (Graduated Fall 2012)  
Role: Ph.D. Dissertation Committee Member  
Location: U.S. Army Research Laboratory – Weapons and Materials Research Directorate  
Research Title: Bulk Amorphous Foams with Tailored Pore Geometries

Degree / University: Materials Science and Engineering / Northwestern University  
Advisor: Prof. David Dunand  
Last Seen: Contracting Officer at Air Force Research Laboratory

2. Weiwei Jian (Graduated Fall 2012)  
Role: Ph.D. Dissertation Committee Member  
Location: North Carolina State University  
Research Title: High Strength Mg-Alloys through Stacking Fault Engineering  
Degree / University: Ph.D. Materials Science and Engineering / NCSU  
Advisor: Prof. Carl Koch and Prof. Yuntian Zhu  
Last Seen: Metallurgist at Avalon Precision Metalsmiths
3. Weizhong Xu (Graduate Winter 2014)  
Role: Ph.D. Dissertation Committee Member  
Location: North Carolina State University  
Research Title: Void Nucleation and Growth in HCP Metals  
Degree / University: Ph.D. Materials Science and Engineering / NCSU  
Advisor: Prof. Yuntian Zhu  
Last Seen: Post-Doctoral Researcher at the NCSU under James LaBeau
4. Babak Anasori (Graduated Fall 2014)  
Role: Ph.D. Dissertation Committee Member  
Location: Drexel University  
Research Title: MAX Phase Mg- Composites  
Degree / University: Ph.D. Materials Science and Engineering / Drexel University  
Advisor: Prof. Michel Barsoum  
Last Seen: Post-Doctoral Researcher at the Drexel under Yuri Gogotsi
5. Ricky Whelchel (Graduated Fall 2014)  
Role: Ph.D. Dissertation Committee Member  
Location: Georgia Institute of Technology  
Research Title: Effects of Microstructure on the Spall Behavior of Al-Mg Alloys  
Degree / University: Ph.D. Materials Science and Engineering / Georgia Institute of Technology  
Advisor: Prof. Naresh Thadhani  
Last Seen: R&D Engineer at Constellation
6. William Yi Wang (Graduated Winter 2013)  
Role: Ph.D. Dissertation Committee Member  
Location: The Pennsylvania State University  
Research Title: First Principles Studies of Light Metal Alloys  
Degree / University: Ph.D. Materials Science and Engineering / UCR  
Advisor: Prof. Zi-Kui Liu  
Last Seen: Associate Professor, Northwestern Polytechnical University, Xian, China
7. Adam Montano (Fall 2013 – Summer 2015)  
Role: Primary Advisor  
Location: University of California - Riverside  
Research Title: Mechanical Alloying of High Entropy Alloys  
Degree / University: M.S. Mechanical Engineering / UCR  
Advisor: Prof. Suveen Mathaudhu  
Last Seen: Completed non-thesis M.S.
8. Christopher Morales (Fall 2014 – Fall 2015)  
Role: Primary Advisor  
Location: University of California - Riverside



Research Title: TBD  
Degree / University: M.S. Mechanical Engineering / UCR  
Advisor: Prof. Suveen Mathaudhu  
Last Seen: Completed non-thesis M.S.

9. Jordan Moering (Fall 2013 – Winter 2016)  
Role: Co-Advisor  
Location: North Carolina State University  
Research Title: Surface Mechanical Attrition Treatment for Nanostructured Metallic Surfaces  
Degree / University: Ph.D. in Materials Science and Engineering / NCSU  
Advisor: Prof. Suveen Mathaudhu and Prof. Yuntian Zhu  
Last Seen: Director of Marketing, Protochips, LLC.
10. Xiaolong Ma (Fall 2013 – Winter 2016)  
Role: Ph.D. Dissertation Committee Member  
Location: North Carolina State University  
Research Title: Microstructures and Mechanical Properties of Cu and Cu-Zn Alloys  
Degree / University: Ph.D. in Materials Science and Engineering / NCSU  
Advisor: Prof. Yuntian Zhu and Prof. Jagdish Narayan  
Last Seen: Post-Doctoral Researcher, NCSU

## *II. Post-Doctoral Researchers Advised*

1. Kristopher A. Darling  
Location: U.S. Army Research Laboratory – Weapons and Materials Research Directorate  
Research Title: Thermally Stable Nanostructured Metals  
Degree / University: Materials Science and Engineering / NCSU  
Advisor: Prof. Carl Koch  
Last Seen: Materials Engineer at the U.S. Army Research Laboratory
2. Weiwei Jian  
Location: North Carolina State University  
Research Title: High Strength Mg-Alloys through Stacking Fault Engineering  
Degree/ University: Materials Science and Engineering / NCSU  
Advisor: Prof. Suveen Mathaudhu, Prof. Carl Koch and Prof. Yuntian Zhu  
Last Seen: Metallurgist, Avalon Precision Metalsmiths
3. Shan (Cecelia) Cao (starting Fall 2016)  
Location: University of California, Riverside  
Research Title: TBD  
Degree/ University: Ph.D. Materials Science and Engineering, City University of Hong Kong/MIT (advisors: Ming Dao and Subra Suresh)  
Advisor: Prof. Suveen Mathaudhu

## **TEACHING EXPERIENCE**

(Student evaluations available upon request)

1. ENGR 213: Principles of Materials Engineering: Sophomore level course at Texas A&M University, Fall 2003 Average Teaching Score (4.60/5.00), Spring 2004, Average Teaching Score: 4.43/5.00
2. MSE 440/540 Processing of Metallic Materials: Senior and Graduate level course at North Carolina State University, Fall 2011, Average Teaching Score: 4.46/5.00
3. ME114 Introduction to Materials Science and Engineering, Junior level course at University of California-Riverside, Fall 2014, 4.7/5.0, Fall 2015 4.8/5.0
4. ME266 Physics and Mechanics of Materials, Graduate Class at University of California-Riverside, Spring 2015, 4.7/5.0, Spring 2016 4.8/5.0
5. ME302 Teaching Apprenticeship, Graduate Class at University of California – Riverside, Fall 2015, Winter 2016, Spring 2016

## PROFESSIONAL SERVICE AND AFFILIATIONS

### UNIVERSITY SERVICE

1. Mechanical Engineering Undergraduate Committee, Fall 2014 - Present
2. Mechanical Engineering Faculty Search Committee, Fall 2014 – Summer 2015
3. Mechanical Engineering ABET Coordinator, Fall 2015 – Present
4. Materials Science and Engineering Undergraduate Committee, Fall 2014 - Present
5. UCR ME Faculty Hiring Committee, Spring 2015 – Present.
6. UCR Senate Committee on Diversity and Equal Opportunity, Fall 2015 – Present
7. Bourns College of Engineering, Ad-hoc Committee on Implementation of Senior Entrepreneurship Courses, March 2016 - Present

### EDITORIAL BOARD APPOINTMENTS

1. Founding Editor, *Materials Research Letters*, 2012-Present
2. Editorial Advisory Board Member, *Materials Science and Engineering, A*, 2011-Present
3. Board of Review, *Metallurgical and Materials Transactions, A*, 2012 - Present (Vice-Chairman 2012-2013, Chairman, 2013-2014)

### AD-HOC JOURNAL REVIEWER

Acta Materialia, Scripta Materialia, Applied Physics Letters, Journal of Materials and Manufacturing Processes, International Journal of Plasticity, Journal of Non-Crystalline Solids, Physical Review Letters, Philosophical Magazine, Journal of Materials Research, Journal of Materials Science, the Philosophical Magazine, Philosophical Magazine Letters, Materials Characterization, Metallurgical and Materials Transactions, A, Materials Science and Engineering, A, Journal of Materials Engineering and Performance, Computational Materials Science, Intermetallics, Metallurgical and Materials Transactions, E, Materials Research Letters, Intermetallics, Materials Letters, Scientific Reports, Mechanics of Materials

### MEMBERSHIPS IN PROFESSIONAL SOCIETIES

1. The Minerals, Metals and Materials Society (TMS), 2000 - Present
2. The Materials Information Society (ASM International), 2001 - Present
3. Materials Research Society (MRS), 2002-Present
4. American Foundry Society (AFS), 2010-2013
5. American Society of Mechanical Engineers (ASME), 2015 - Present

### PROFESSIONAL SOCIETY COMMITTEE INVOLVEMENT

1. TMS Magnesium Committee, 2008 – Present (2010 Vice-Chair, 2011 Chair, 2012 Past Chair)
2. TMS Nanomaterials Committee, 2010 – 2011
3. TMS Shaping and Forming Committee, 2008 – Present
4. TMS Mechanical Behavior of Materials Committee, 2009 – Present (2011-2013 Vice Chair, 2014-2016 Chair)
5. TMS Nanomechanical Behavior of Materials Committee, 2009 – Present
6. TMS Integrated Computation Materials Engineering Committee, 2012 – Present
7. TMS Light Metals Division Council, 2011 – 2016
8. TMS Structural Materials Division Council, 2011 – 2016
9. TMS Content Development and Dissemination Committee, 2015 - Present
10. MRS Graduate Student Awards Subcommittee, 2012- Present, Subcommittee Chair
11. MRS New Publications and Products Subcommittee, 2013 – 2015

### SYMPOSIUM AND CONFERENCE ORGANIZATION

1. TMS Multiscale Perspectives on Plasticity in HCP Metals (Co-Organizer, 2014)
2. Army Science Planning and Strategy Meeting: Materials in Extreme Environments (Lead Organizer, 2013)

3. 8<sup>th</sup> Pacific Rim International Conference on Advanced Materials and Processes, Light Metals and Alloys Symposium (Lead Organizer, 2013)
4. AeroMat 2013 Conference and Exhibition, Magnesium Alloys in Aerospace Applications (Co-Organizer, 2013, 2014)
5. TMS Symposium on High Entropy Alloys (Organizing Committee, 2013, 2014, 2015, 2016, 2017)
6. TMS Advanced Materials and Reservoir Engineering for Extreme Oil & Gas Environments Symposium (Organizing Committee, 2013)
7. TMS Magnesium Technology Symposium (Organizing Committee, 2011, 2012 (Lead), 2013)
8. TMS Ultrafine Grained Materials Symposium VI, VII, VIII, IX (Lead Organizer, 2010, 2012, 2014, 2016)
9. TMS Phase Transformation and Deformation in Magnesium Alloys Symposium (Organizing Committee, 2012)
10. MRS Graduate Student Awards Symposium (Organizer, 2012 - 2016)
11. MS&T Nanotechnology for Energy Health Care and Industry (Organizing Committee, 2011)
12. TMS Structural and Functional Nanomaterials Symposium (Organizing Committee, 2011)
13. 2010 Army Sagamore Conference – Advances in Lightweight Metals Technology (Conference Co-Organizer)

#### **CONFERENCE AND CENTER ADVISORY BOARDS**

1. Scientific Committee, THERMEC 2013, Las Vegas, NV, December 2-6, 2013
2. International Advisory Board, Magnesium Workshop Madrid, Madrid, Spain, May 21-24, 2013
3. International Scientific Committee, 9<sup>th</sup> International Conference on Magnesium Alloys and their Applications, July 8-12, 2012
4. Government Advisory Committee, Air Force Research Laboratory Foundational Engineering Problems in Integrated Computational Materials Engineering (ICME), 2012 - 2014
5. Invited International Committee, 9<sup>th</sup> International Conference on Magnesium Alloys and their Applications, Vancouver, Canada, July 8-12, 2012
6. Scientific Advisory Board, NSF-ERC for Revolutionizing Metallic Biomaterials, 2012 - Present
7. Member Advisory Board Chairman, NSF/IUCRC Center for Computational Materials Design (2010-2011)

#### **FUNDING PANEL AND PROPOSAL REVIEWER**

1. Multiple Army SBIR Phase I and Phase II Proposals (2008 – Present)
2. U.S. Army Research Laboratory, Materials in Extreme Dynamic Environments (2011-2012)
3. DARPA Young Faculty Awards (2012), *Undisclosed* (2013)
4. Army Directors Research Initiative (2010, 2011)
5. ARPA-E *Undisclosed* (2013)
6. Department of Energy, Energy Efficiency and Renewable Energy Proposals (2011 – 2015)
7. U.S. Army Research Office (Materials Science Division, 2008-2010)
8. National Science Foundation (CMMI: 2009, DMR: 2010, 2013, DMREF, 2015, 2016)
9. National Defense Science and Engineering Graduate Fellowship (2015)
10. Research ND – North Dakota State Funding (2014, 2015)
11. ACS Petroleum Research Fund (2016)

#### **CONSULTING**

1. Terves, Inc, August 2016 - Present
2. Red Line Editorial: The Science of Superheroes Children's Book Content Consultant, January – March, 2016

3. The Copenhagen Institute for Future Studies, December 2013 - current
4. General Cable Corporation, July 2013 - current
5. Institute for Defense Analyses – White House Office of Science and Technology Policy, Emerging Global Trends in Advanced Manufacturing Study and Report, March 2012
6. Defense Production Act Committee – Lightweight Materials Study Group: Metals Subgroup Lead, 2012 - 2014

## **COLLABORATORS AND ADVISORS**

### **COLLABORATORS OVER THE LAST FIVE YEARS**

Long-Qing Chen (Penn State), Kristopher Darling (US ARL), David Dunand (Northwestern University), Yuri Estrin (Monash University), Vincent Hammond (US ARL), Karl Hartwig (Texas A&M University), Laszlo Kecskes (US ARL), Carl Koch (NCSSU), Rimma Lapovok (Monash University), Enrique Lavernia (UC Davis), Bin Li (University of Nevada – Reno), Xiaochun Li (UCLA), Zi-Kui Liu (Penn State), Evan Ma (Johns Hopkins University), Paul Millett (University of Arkansas), Yuri Mishin (James Madison University), Jay Narayan (North Carolina State University), Jianfeng Nie (Monash University), Kaliat T. Ramesh (Johns Hopkins University), Michael Rigsbee (deceased) (North Carolina State University), Ronald Scattergood (North Carolina State University), Julie Schoenung (University of California – Davis), Lia Stanciu (Purdue), Mark Tschopp (U.S. Army Research Laboratory), Ruslan Valiev (Ufa State Aviation Technical University), Qiuming Wei (University of North Carolina – Charlotte), Xiaolei Wu (IMR-China), Jenn-Ming Yang (UCLA), Yuntian Zhu (NCSSU).

### **ACADEMIC ADVISORS**

Post Doctoral Research Topic: Equal Channel Angular Extrusion Processing of Pure W for KEP Applications. US Army Research Laboratory, Advisor: Laszlo J. Kecskes

Dissertation Research Topic: Fabrication of Amorphous Metal Matrix Composites with Plasticity by Severe Plastic Deformation. Texas A&M University, Advisor: K. Theodore Hartwig Jr.

Thesis Research Topic: Grain Refinement of Bulk Tantalum using Equal Channel Angular Extrusion, Texas A&M University, Advisor: K. Theodore Hartwig, Jr.

### **VOLUNTEER SERVICE AND OUTREACH**

1. Co-Curator, COMIC-tanium: The Super Materials of the Superheroes, a major exhibition slated to open at the Toonseum in Pittsburgh, Pennsylvania during the Fall of 2014. The exhibition is envisioned as the first phase of a multi-stage initiative to raise public awareness about the impact of materials science and engineering (MSE) on society, while also inspiring young people to explore the potential of MSE careers. The Toonseum exhibition will present an in-depth exploration of the materials science enabling the powers of specific characters, with their stories told through original comic art, movie props, and educational displays. Concurrent with the exhibition, a series of public lectures, programs, and events will be scheduled highlighting COMIC-tanium's themes and scientific topics. The TMS Foundation is a founding partner of this initiative. 2014 - Present
2. Finalist Judge - Engineering, North Carolina State Science and Engineering Fair, 2012
3. Guest Lecturer, Rancho Verde High School AVID Program, March 11, 2015