Yinmin (Morris) Wang

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Web of Science: F-2249-2010 (~10725 citations, as of 5/31/2018, h-index=42)
Google Scholar: (~14105 citations, as of 5/31/2018, h-index=46)

PROFESSIONAL PREPARATION

Johns Hopkins University	Materials Science and Engineering	**Ph.D.** May 2003
Johns Hopkins University	Computer Science	**M.S.** May 2003
Johns Hopkins University	Materials Science and Engineering (*Thesis in Mechanical Engineering*)	**M.S.** May 1999
Shanghai Jiao Tong University	Materials Science and Engineering	**M.S.** April 1994
National University of Defense Technology	Materials Engineering and Applied Chemistry	**B.S.** July 1991

APPOINTMENTS

Deputy Group Leader (Jan 2017-present)
Nanoscale Integration Science group, Materials Science Division, Lawrence Livermore National Laboratory, Livermore, CA

Career Staff Scientist (indefinite career, Sept 2008 – present)
Physical and Life Sciences Directorate, Lawrence Livermore National Laboratory, Livermore, CA

Adjunct Faculty (Jun 2015 – May 2016)
Materials Science and Engineering Program, School for Engineering of Matter, Transport and Energy, Arizona State University, Phoenix, AZ

Staff Scientist (flexible term, Jan 2006 – Aug 2008)
Nanoscale Synthesis and Characterization Lab, Chemistry, Materials, Earth, and Life Sciences Directorate, Lawrence Livermore National Laboratory, Livermore, CA

Guest Scientist (Sept 2004 – Aug 2009)
National Center for Electron Microscopy, Lawrence Berkeley National Laboratory, Berkeley, CA

Distinguished Harold Graboske Jr. Fellow (Inaugural recipient, Jan 2004 – Dec 2005)
Chemistry, Materials and Life Sciences Directorate, Lawrence Livermore National Laboratory, Livermore, CA.

Graduate Research Assistant (June 1999 – May 2003)
Department of Materials Science and Engineering, Johns Hopkins University (*with Dr. Evan Ma*), Baltimore, MD.

Graduate Research Assistant (Sept 1997 – May 1999)
Department of Mechanical Engineering (with *Dr. Kevin J. Hemker*), Johns Hopkins University, Baltimore, MD.

Teaching Assistant (Jan 2000 – Dec 2002)
Department of Materials Science and Engineering, Johns Hopkins University, Baltimore, MD.

Teaching Assistant (Jan 2000 – May 2003)
Department of Computer Science, Johns Hopkins University, Baltimore, MD.

AWARDS AND RECOGNITIONS

- **LLNL Director's S&T Award** for *Development and Fabrication of Liquid-DT-Filled, Wetted-Foam ICF Targets*, Sept 2016, Lawrence Livermore National Laboratory, Livermore, CA.
- ***Fellow*** of American Physical Society (2014, elected by Materials Physics Division).
- **LLNL Director's S&T Award** for *Ramp Compression of Diamond to Five Terapascals*, Sept 2014, Lawrence Livermore National Laboratory, Livermore, CA.
- **PLS Directorate Award** for *Excellence in Publication*, Sept 2014, Lawrence Livermore National Laboratory, Livermore, CA.
- **LLNL Director's S&T Award** for *Development of High-Density Carbon Capsules*, Nov 2013, Lawrence Livermore National Laboratory, Livermore, CA.
- **PLS Directorate Award** for *Excellence in Publication* (twice), Jun 2011, Lawrence Livermore National Laboratory, Livermore, CA.
- **NIF Directorate Performance Award**, Aug 2010, Lawrence Livermore National Laboratory, Livermore, CA.
- Selected top five reviewers of 2008, *Scripta Materialia*, Jun 2009.
- Excellent reviewer, *Metallurgical and Materials Transactions A*, Jul 2009.
- Marquis Who's Who (2007, 2008, 2009 edition).
- **Nano 50 "Innovator" Awards** (NASA Nanotech Briefs), Nov 2008, Boston, MA.
- Associate Director ***Exceptional Service Award*** (twice, 2008), Lawrence Livermore National Laboratory, Livermore, CA.
- Associate Director Award for *Excellence in Publication* (six times, 2004-2008), Lawrence Livermore National Laboratory, Livermore, CA.
- **Frost & Sullivan Emerging Technology** of the Year Award (2006), San Antonio, TX.
- **Distinguished Harold Graboske Jr. Fellowship** (2004-2005), Lawrence Livermore National Laboratory, Livermore, CA.
- Materials Research Society (MRS) Graduate Student Medal (2002), Boston, MA.

PUBLICATIONS

Nature 3, Science 4, Nat Mater 2, Nat Energy 1, PNAS 3, PRL 4, Nano Lett 6, ACS Nano 1, Adv Mater 3, JACS 1, Acta Mater 9 (flagship journal for metals), APL 18, PRB 4, POP 2, JAP 2, Chem Mater 5, Chem Comm 1, JMR 5, Langmuir 3, MSEA 4, Scr Mater 6, others 20. 6 Patents (granted)

Subject Area: *Nanostructured metals*: ~60%; *Semiconductors*: ~20%; *CNT/graphene/diamond*: ~20%.

Patents

- M.A. Worsley, T. Baumann, J. Biener, Y.M. Wang, J.C. Ye, E. Tylski, M. Biener, "*Graphene-supported metal oxide monolith*", US Patent# 9,543,569 B2 (issued on Jan 10, 2017)
- Y.M. Wang, X.Y. Wang, A.V. Hamza, "*Nanodevices for generating power from molecules and batteryless sensing*", US Patent# 9,537,157 B2 (issued on Jan 3, 2017)
- H.B. Radousky, F. Qian, Y.M. Wang, "*Harvesting mechanical and thermal energy by combining nanowires and phase change materials*", US Patent provisional application no. 62/149,901 (Apr 20, 2015).
- Y.M. Wang, X.Y. Wang, A.V. Hamza, "*Nanodevices for generating power from molecules and batteryless sensing*", US Patent# 9,052,283 B2 (2015).
- Y.M. Wang, X.Y. Wang, A.V. Hamza, "*Nanodevices for generating power from molecules and batteryless sensing",* US Patent# 8,778,563 (2014).
- D.J. Sirbuly, X.Y. Wang, Y.M. Wang, "*Matrix-assisted energy conversion in nanostructured piezoelectric arrays",* US Patent # 8,344,597 (2013).
- Y.M. Wang, E. Ma, M.W. Chen, "*High performance nanostructured materials and methods of making the same",* US Patent #20040060620 (2004).

Book Chapter

- Y.M. Wang*, E. Ma, "*Mechanical properties of bulk nanostructured metals",* Willey-VCH publisher, in *"Bulk nanostructured Materials"(ed. by M.J. Zehetbauer and Y.T. Zhu),* chapter 19, 425-453, 2009.

Refereed journal Articles (114 published)

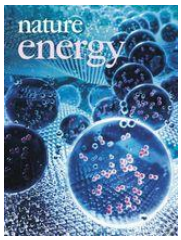
2018 (5)

1) J.B. In, K.R. Cho, T.X. Tran, S.M. Kim, Y.M. Wang, C.P. Grigoropoulos, A. Noy, F. Fornasiero, "Effect of enhanced thermal stability of alumina support layer on growth of vertically aligned single-walled carbon nanotubes and their application in nanofiltration membranes", ***Nanoscale Research Letters***, in press (2018).
2) Y.M. Wang*, C. Kamath, T. Voisin, Z. Li, "A processing diagram for high-density Ti-6Al-4V by selective laser melting", ***Rapid Prototyping Journal***, in press (2018).
3) Y.M. Wang*, T. Voisin, J.T. McKeown, J.C. Ye, N.P. Calta, Z. Li, Z. Zeng, Y. Zhang, W. Chen, T.T. Roehling, R.T. Ott, M.K. Santala, P.J. Depond, M.J. Matthews, A.V. Hamza, T. Zhu, "Additively manufactured hierarchical stainless steels with high strength and ductility", ***Nature Materials*** 17(1), 63-71 (2018). *Highlighted by Science News, Nature Review Materials, Lab Headline news.*

4) H. Xu, H. Huang, J. Walker, C. Kong, N.G. Rice, M.P. Mauldin, J.D. Vocke, J.H. Bae, W. Sweet, F.H. Elsner, M.P. Farrell, Y.M. Wang, C. Alford, T. Cardenas, E. Loomis, "Progress in developing novel double-shell metal targets via magnetron sputtering", ***Fusion Science and Technology*** 73(3), 354-362 (2018).
5) T. Caradenas, D. W. Schmidt, E. N. Loomis, R. B. Randolph, C. E. Hamilton, J. Oertel, B. M. Patterson, K. Henderson, D. C. Wilson, E. Merritt, D. Montgomery, W. Daughton, E. Dodd, S. Palaniyappan, J. Kline, S. Batha, H. Huang, M. L. Hoppe, M. Schoff, N. Rice, A. Nikroo, Y.M. Wang, R. Seugling, D. Bennett, S. Johnson, C. Castro, ***Fusion Science and Technology*** 73(3), 344-353 (2018).

2017 (4)

6) E. Holland, Y.J. Rosen, N. Materise, N. Woollett, T. Voisin, Y.M. Wang, S.G. Torres, J. Mireles, G. Carosi, J.L. DuBois, "High-Kinetic Inductance Additive Manufactured Superconducting Microwave Cavity", ***Applied Physics Letters*** 111, 202602 (2017).
7) Y.Y. Liu, J.J. Wu, K.P. Hackenberg, J. Zhang, Y.M. Wang, Y.C. Yang, K. Keyshar, J. Gu, T. Ogitsu, R. Vajtai, J. Lou, P.M. Ajayan, B.C. Wood, B.I. Yakobson, "Self-optimizing, highly surface-active layered metal dichalcogenide catalysts for hydrogen evolution", ***Nature Energy*** 2(9), 17127 (2017) (Cover article).



8) A.N. Simakov, D.C. Wilson, S.A. Yi, E.N. Loomis, J.L. Kline, G.A. Kyrala, A.B. Zylstra, E.L. Dewald, R. Tommasini, J.E. Ralph, D.J. Strozzi, A.G. MacPhee, J. L. Milovich, J.R. Rygg, S.F. Khan, T. Ma, L.C. Jarrott, S.W. Haan, P.M. Celliers, M.M. Marinak, H.G. Rinderknecht, H.F. Robey, J.D. Salmonson, M. Stadermann, S. Baxamusa, C. Alford, Y.M. Wang, A. Nikroo, N. Rice, C. Kong, J. Jaquez, M. Mauldin, K. P. Youngblood, H. Xu, H. Huang, and H. Sio, "Performance of beryllium targets with full-scale capsules in low-fill 6.72-mm hohlraums on the National Ignition Facility", ***Physics of Plasmas*** 24(5), 052704 (2017).
9) H. Radousky, F. Qian, Y.H. An, Z. Zeng, G.M. Wang, Y. Li, L. Qu, G. Zemanyi, Y.M. Wang, "Harvesting mechanical and thermal energy by combining ZnO nanowires and NiTi shape memory alloy", ***Advanced Nanomaterials and Technologies for Energy Sector*** 1(1) 13-20 (2017).

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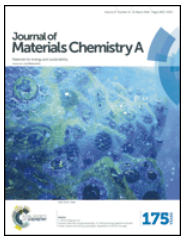
10) J. Kline, S. Yi, A. Simakov, R. Olson, D. C. Wilson, G. Kyrala, T. Perry, S. Batha, A. Zylstra, E. Dewald, R. Tommasini, J. Ralph, D. Strozzi, A. MacPhee, D. Callahan, D. Hinkel, O. Hurricane, J. Milovich, J. Rygg, S. Khan, S. Haan, P. Celliers, D. Clark, B.A. Hammel, B. Kozioziemski, M. Schneider, M. Marinak, H. Rinderknecht, H. Robey, J. Salmonson, P. Patel, T. Ma, M. J. Edwards, M. Stadermann, S. Baxamusa, C. Alford, Y.M. Wang, A. Nikroo, N. Rice, D. Hoover, K. Youngblood, H. Xu, H. Huang, H. Sio, "First beryllium capsule implosions on the National Ignition Facility", ***Physics of Plasma*** 23, 056310 (2016).



11) J.C. Ye, Y.H. An, E. Montalvo, P.G. Campbell, M.A. Worsley, I.C. Tran, Y.Y. Liu, B.C. Wood, J. Biener, H.Q. Jiang, M. Tang, Y.M. Wang*, "Solvent-directed solgel assembly of 3-dimensional graphene-tented metal oxides and strong synergistic disparities in lithium storage", ***Journal of Materials Chemistry A*** 4, 4032-4043 (2016) (*inside cover article*).
12) A.Y. Chen, J.B. Liu, H.T. Wang, J. Lu, Y.M. Wang*, "Gradient twinned 304 stainless steels for high strength and high ductility", ***Materials Science & Engineering A*** 667, 179-188 (2016).
13) D.C. Bufford, Y.M. Wang*, Y. Liu, L. Lu, "Synthesis and microstructure of electrodeposited and sputtered nanotwinned FCC metal films", ***MRS Bulletin*** 41(4), 186-191 (2016) (invited review article).

2015 (6)

14) J.C. Ye, M.T. Ong, T.W. Heo, P.G. Campbell, M.A. Worsley, Y.Y. Liu, S.J. Shin, S. Charnvanichborikarn, M. J. Matthews, M. Bagge-Hansen, J. R. I. Lee, B.C. Wood*, Y.M. Wang*, "Universal roles of hydrogen in electrochemical performance of graphene: high rate capacity and atomistic origins", ***Scientific Reports*** 5, 16190 (2015). DOI: 10.1038/srep16190.
15) R.T. Ott, J. Geng, M.F. Besser, M.J. Kramer, Y.M. Wang, E.S. Park, R. LeSar, A.H. King, "Optimization of strength and ductility in nanotwinned ultra-fine grained Ag: twin density and grain orientations", ***Acta materialia*** 96, 378-389 (2015).
16) Y.H. An, B.C. Wood, J.C. Ye, Y.M. Chiang, Y.M. Wang, M. Tang, H.Q. Jiang, "Mitigating mechanical failure of crystalline silicon electrodes for lithium batteries by morphological design", ***Physical Chemistry Chemical Physics*** 17, 17718-17728 (2015).

17) X.Q. Huang, Z.P. Zhao, L. Cao, Y. Chen, E.B. Zhu, Z.Y. Lin, M.F. Li, A.M. Yan, A. Zettl, Y.M. Wang, X.F. Duan, T. Mueller, Y. Huang, "High-performance transition metal-doped PtNi Octahedra for oxygen reduction reaction", ***Science*** 348 (6240), 1230-1234 (2015).
18) J.C. Ye, S. Charnvanichborikarn, M.A. Worsley, S.O. Kucheyev, B.C. Wood, Y.M. Wang*, "Enhanced electrochemical performance of ion-beam-treated 3D graphene aerogels for lithium ion battery", ***Carbon*** 85, 269-278 (2015).
19) J.C. Ye, A. Baumgaertel, Y.M. Wang, J. Biener, M.M. Biener, "Structural optimization of 3D porous electrodes for high-rate performance lithium ion batteries", ***ACS Nano*** 9(2), 2194-2202 (2015).

2014 (5)

20) J. Geng, K. Kim, J. Zhang, A. Escalada, R. Tunuguntla, L.R. Comolli, F.I. Allen, A.V. Shnyrova, K.R. Cho, D. Munoz, Y.M. Wang, C.P. Grigoropoulos, C.M. Ajo-Franklin, V.A. Frolov, A. Noy, "Stochastic transport through carbon nanotubes in lipid bilayers and live cell membranes", ***Nature*** 514 (7524), 612-615 (2014).
21) Y.Y. Liu, Y.M. Wang, B.I. Yakobson, B.C. Wood, "Assessing carbon-based anodes for lithium-ion batteries: a universal description of charge-transfer binding", ***Physical Review Letters*** 113 (2), 028304 (2014).

22) M.M. Biener, J.C. Ye, T.F. Baumann, Y.M. Wang, S. Shin, J. Biener, A.V. Hamza, "Ultra-strong and low-density nanotubular bulk materials with tunable feature sizes", ***Advanced Materials*** 26 (28), 4808-4813 (2014) (*Front Cover article*).
23) M.D. Merrill, T. Baumann, M. Stadermann, P.G. Campbell, Y.M. Wang, M.A. Worsley, "Optimizing supercapacitor electrode density: achieving the energy of organic electrolytes with the power of aqueous electrolytes", ***RSC Advances*** 4, 42942-42946 (2014).
24) J.C. Ye, Y.H. An, T.W. Heo, M.M. Biener, R.J. Nikolic, M. Tang, H. Jiang, Y.M. Wang*, "Enhanced lithiation and fracture behavior of silicon mesoscale pillars via atomic layer coatings and geometry design", ***Journal of Power Sources*** 248, 447-456 (2014).

2013 (13)

25) M.M. Biener, J. Biener, Y.M. Wang, S.J. Shin, I.C. Tran, T.M. Willey, F.N. Perez, J.F. Poco, S.A. Gammon, K.B. Fournier, A.W. van Buuren, J.H. Satcher, A.V. Hamza, "Atomic layer deposition-derived ultra-low-density composite bulk materials with deterministic density and composition", ***ACS Applied Materials & Interfaces*** 5 (24), 13129-13134 (1013).
26) C. Dawedeit, S.O. Kucheyev, T.M. Willey, M. Hagge-Hansen, T. Braun, Y.M. Wang, N.E. Teslich, E.F. Lindsey, B.S. El-Dasher, M.M. Biener, J.C. Ye, L. Kirste, C.C. Roehling, M. Wolfer, E. Woerner, A.W. van Buuren, A.V. Hamza, C. Wild, J. Biener, "Grain size dependent physical and chemical properties of thick CVD diamond films for high energy density physics experiments", ***Diamond and related materials*** 40, 75-81 (2013).

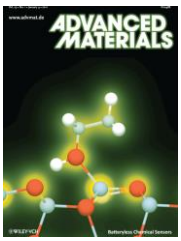
27) Y.M. Wang*, F. Sansoz, T.B. LaGrange, R.T. Ott, J. Marian, T.W. Barbee, Jr., A.V. Hamza, "Defective twin boundaries in nanotwinned metals", ***Nature Materials*** 12(8), 697-702 (2013).
28) I.C. Choi, Y.J. Kim, Y.M. Wang, U. Ramamurty, J. Jang, "Nanoindentation behavior of nanotwinned Cu: influence of indenter angle on hardness, strain rate sensitivity, and activation volume", ***Acta materialia*** 61(19), 7313-7323 (2013).
29) X.Y. Wang, S.F. Xie, J. Liu, S.O. Kucheyev, Y.M. Wang*, "Focused-ion-beam assisted growth, patterning, and narrowing the size distributions of ZnO nanowires for variable optical properties and enhanced non-mechanical energy conversion", ***Chemistry of Materials*** 25(14), 2819-2827 (2013).
30) S. Cheng, S.Y. Lee, L. Li, C.H. Lei, J. Almer, X.L. Wang, T. Ungar, Y.M. Wang*, P.K. Liaw, "Uncommon deformation mechanisms during fatigue-crack propagation in nanocrystalline alloys", ***Physical Review Letters*** 110, 135501 (2013).
31) Y. Ilsun, S.E. Baker, K. Kim, N. Fischer, D. Heineck, Y.M. Wang, S.C. Esener, D.J. Sirbuly, "Nanofiber near-field light-matter interactions for enhanced detection of molecular level displacements and dynamics", ***Nano Letters*** 13, 1440-1445 (2013).
32) Y.K. Li, F. Liu, G.P. Zheng, D. Pan, Y.H. Zhao, Y.M. Wang*, "Strength scaling law, deformation kinetics and mechanisms of nanostructured Ti", ***Materials Science & Engineering A*** 573, 141-147 (2013).

33) I. Yoon, S.E. Baker, K. Kim, Y.M. Wang, S.C. Esener, D.J. Sirbuly, "Profiling the evanescent field of nanofiber waveguides using self-assembled polymer coatings", ***Nanoscale*** 5(2), 552-555 (2013).
34) H. Xu, K.P. Youngblood, H. Huang, J.J. Wu, K.A. Moreno, A. Nikroo, S.J. Shin, Y.M. Wang, A.V. Hamza, "Characterization of thin copper diffusion barrier layer in beryllium capsules", ***Fusion Science and Technology***, 63 (2), 202-207 (2013).
35) K.P. Youngblood, H. Huang, H.W. Xu, J. Hayes, K.A. Moreno, J.J. Wu, A. Nikroo, C.A. Alford, A.V. Hamza, S.O. Kucheyev, Y.M. Wang, K.J. Wu, "Thin oxides as a copper diffusion barrier for NIF beryllium ablator capsules", ***Fusion Science and Technology*** 63 (2), 208-212 (2013).
36) I.C. Choi, Y.J. Kim, M.Y. Seok, B.Y. Yoo, J.Y. Kim, Y.M. Wang, J. Jang, "Nanoscale room temperature creep of nanocrystalline nickel pillars at low stresses", ***International Journal of Plasticity*** 41, 53-64 (2013).
37) H. Huang, H.W. Xu, K.P. Youngblood, D.R. Wall, R.B. Stephens, K.A. Moreno, A. Nikroo, K.J. Wu, Y.M. Wang, A.V. Hamza, "Inhomogeneous copper diffusion in NIF beryllium ablator capsules", ***Fusion Science and Technology*** 63(2), 190-201 (2013).

2012 (5)

38) J.C. Ye, Y.M. Wang*, T.W. Barbee, Jr., A.V. Hamza, "Orientation-dependent hardness and strain rate sensitivity in nanotwin copper", ***Applied Physics Letters***, 100 (26), 261912 (2012).
39) Y.M. Wang*, R.T. Ott, M.F. Besser, A.V. Hamza, "Temperature-dependent competing deformation mechanisms in nanocrystalline metals", ***Physical Review B*** 85(14), 144122 (2012).
40) Y.M. Wang*, R.T. Ott, T. van Buuren, T.M. Willey, M.M. Biener, A.V. Hamza, "Controlling factors in tensile deformation of nanocrystalline cobalt and nickel", ***Physical Review B*** 85(1), 014101 (2012).
41) J. Biener, C. Dawedeit, S.H. Kim, T. Braun, M.A. Worsley, A.A. Chernov, C.C. Walton, T.M. Willey, S.O. Kucheyev, S.J. Shin, Y.M. Wang, M.M. Biener, T. van Buuren, K.J. Wu, J.H. Satcher, Jr., A.V. Hamza, "Fabrication of aerogel-lined indirect-drive NIF ignition targets", ***Nuclear Fusion*** 52 (6), 062001 (2012).
42) H.W. Xu, C. Alford, E. Chason, A. Detor, T. Fuller, A.V. Hamza, J. Hayes, K. Moreno, A. Nikroo, T. van Buuren, Y.M. Wang, J.J. Wu, H. Wilkens, K. Youngblood, "Thick beryllium coatings by ion-assisted magnetron sputtering", ***Journal of Materials Research*** 27 (5), 822-828 (2012).

2011 (4)



43) X.Y. Wang, Y.M. Wang*, D. Aberg, P. Erhart, N. Misra, A. Noy, A.V. Hamza, J.H. Yang, "Batteryless chemical detection with semiconductor nanowires", ***Advanced Materials*** 23(1), 117-121 (2011). (*Inside Front Cover*, featured in Sciencedaily, Esciencenews, Smartplanet, Youtube video)
44) P.J. Pauzauskie, J.C. Crowhurst, M.A. Worseley, T.A. Laurence, A.L.D. Kilcoyne, Y.M. Wang, T.M. Willey, K.S. Visbeck, S.C. Fakra, W.J. Evans, J.M. Zaug, J.H. Satcher, Jr., "Synthesis and characterization of a nanocrystalline diamond aerogel", ***Proceedings of National Academy of Science of the United States of America*** 108(21), 8550-8553 (2011). (featured in *Nature*, *Nature Chemistry*, *Discovery News*, *MSNBC*, *Royal Society of Chemistry*)

45) I.C. Choi, B.G. Yoo, Y.J. Kim, M.Y. Seok, Y.M. Wang, J. Jang, "Estimating stress exponent of nanocrystalline nicke: sharp versus spherical indentation", ***Scripta Materialia*** 65(4), 300-303 (2011).
46) S.O. Kucheyev, Y.M. Wang, A.V. Hamza, M.A. Worsley, "Light-ion-irradiation-induced thermal spikes in nanoporous silica", ***Journal of Physics D: Applied Physics*** 44, 085406 (2011).

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47) Y.M. Wang*, R.T. Ott, A.V. Hamza, M.F. Besser, J. Almer, M.J. Kramer, "Achieving large uniform tensile ductility in nanocrystalline metals", ***Physical Review Letters*** 105(21), 215502 (2010). (*Physics Synopsis "Finding strength in small places",* Nov. 19, 2010).
48) X.Y. Wang, K. Kim, Y.M. Wang*, M. Stadermann, A. Noy, A.V. Hamza, J.H. Yang, D.J. Sirbuly, "Matrix-assisted energy conversion in nanostructured piezoelectric arrays", ***Nano Letters*** 10(12), 4901-4907 (2010).
49) M.A. Worsley, M. Stadermann, Y.M. Wang, J.H. Satcher Jr., T.F. Baumann, "High surface area carbon aerogels as porous substrates for direct growth of carbon nanotubes", ***Chemical Communications*** 46(48), 9253-9255 (2010).
50) F. Fornasiero, J.B. In, S. Kim, H.G. Park, Y.M. Wang, C.P. Grigoropoulos, A. Noy, O. Bakajin, "PH-tunable ion selectivity in carbon nanotube pores", ***Langmuir*** 26(18), 14848-14853 (2010).
51) S. Cheng, Y.H. Zhao, Y.M. Wang, Y. Li, X.L. Wang, P.K. Liaw, E.J. Lavernia, "Structure modulation driven by cyclic deformation in nanocrystalline NiFe", ***Physical Review Letters*** 104(25), 255501 (2010).
52) M.M. Biener, J. Biener, S.O. Kucheyev, Y.M. Wang, B. El-Dasher, N.E. Teslich, A.V. Hamza, H. Obloh, W. Mueller-Sebert, M. Wolfer, T. Fuchs, M. Grimm, A. Kriele, C. Wild, "Controlled incorporation of mid-to-high Z transition metals in CVD diamond", ***Diamond & Related Materials*** 19, 643-647 (2010).

2009 (7)

53) L.A. Zepeda-Ruiz, E. Chason, G.H. Gilmer, Y.M. Wang, A.V. Hamza, "Understanding the relation between stress and surface roughness in sputtered films: kinetic Monte Carol simulations and experimental measurements", ***Applied Physics Letters*** 95 (15), 151910 (2009).
54) N. Misra, J. Martinez, S.C. Huang, Y.M. Wang, P. Stroeve, C. Grigoropoulos, A. Noy, "Bioelectronic Silicon Nanowire Devices Utilizing Functional Membrane Proteins", ***Proceedings of National Academy of Science of the United States of America*** 106 (33), 13780-13784 (2009). (Highlighted in "From the Cover")
55) J. A. Martinez, N. Misra, Y.M. Wang, P. Stroeve, C. P. Grigoropoulos, A. Noy, "Highly efficient biocompatible single Silicon nanowire electrodes with functional biological pore channels", ***Nano Letters*** 9, 1121-1126 (2009).
56) S. Ghosal, T. Baumann, J. King, S. Kucheyev, Y.M. Wang, M. Worsley, J. Biener, S. Bent, A.V. Hamza, "Controlling atomic layer deposition of TiO_2 in aerogels through surface functionalization", ***Chemistry of Materials*** 21, 1989-1992 (2009).

57) C. D. Grant, J. C. Crowhurst, T. Arsenlis, E. M. Bringa, Y. M. Wang, J. A. Hawreliak, P. J. Pauzauskie, S. M. Clark, "X-ray diffraction of electrodeposited nanocrystalline Ni under high pressure", ***Journal of Applied Physics*** 105, 084311 (2009).
58) M. Stadermann, S. Sherlock, J. In, F. Fornasiero, H. Park, A. Artyukhin, Y.M. Wang, J. De Yoreo, O. Bakajin, C. P. Grigoropoulos, A. Chernov, A. Noy, "Mechanism and kinetics of growth termination in controlled CVD growth of multi-wall carbon nanotube arrays", ***Nano Letters*** 9, 738-744 (2009).A. Detor, A. M. Hodge, E. Chason, Y. M. Wang, H. W. Xu, M. Conyers, A. Nikroo, A. V. Hamza, "Residual stress and microstructure of thick hexagonal films", ***Acta materialia*** 57, 2055-2065 (2009).

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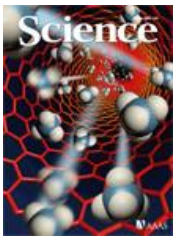

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81) S.O. Kucheyev, T.F. Baumann, C.A. Cox, Y.M. Wang, A.V. Hamza, J.E. Bradby, "Nanoengineering mechanically robust aerogels via control of foam morphology", ***Applied Physics Letters*** 89, 041912 (2006).
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97) S.C.J. Huang, A.B. Artyukhin, Y.M. Wang, J.W. Ju, P. Stroeve, A. Noy, "Persistence length control of the polyelectrolyte layer-by-layer self-assembly on carbon nanotubes", ***Journal of the American Chemical Society*** 127, 14176 (2005).

98) S.O. Kucheyev, T.F. Baumann, P.A. Sterne, Y.M. Wang, T. van Buuren, A.V. Hamza, L.J. Terminello, and T.M. Willey, "Surface electronic states in three-dimensional SnO_2 nanostructures", ***Physical Review B*** 72, 035404 (2005).

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99) Y.M. Wang*, E. Ma, "Three strategies to achieve uniform tensile deformation in a nanostructured metal", ***Acta materialia*** 52 (6), 1699-1709 (2004). (*Research highlight of MaterialsToday 7 (6), p12, 2004; Also selected by ISI as the "hot papers" in Materials Science, July 2005*)

100) Y.M. Wang*, E. Ma, R.Z. Valiev, Y.T. Zhu, "Tough nanostructured metals at cryogenic temperatures", ***Advanced Materials*** 16 (4), 328-331 (2004).

101) Y.M. Wang*, E. Ma, "Strain hardening, strain rate sensitivity, and ductility of nanostructured metals", ***Materials Science & Engineering A*** 375-377, 46-52, 2004. (*Invited article*)

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2003 (PhD and before) (10)

105) M.W. Chen, E. Ma, K.J. Hemker, H.W. Sheng, Y.M. Wang, X.M. Cheng, "Deformation twinning in nanocrystalline aluminum", ***Science*** 300, 1275-1277 (2003).

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107) Y.M. Wang*, K. Wang, D. Pan, K. Lu, K.J. Hemker, E. Ma, "Microsample tensile testing nanocrystalline copper", ***Scripta Materialia*** 48, 1581-1586 (2003).

108) Y.M. Wang*, T. Jiao, E. Ma, "Dynamic processes for nanostructure development in Cu after severe cryogenic rolling deformation", ***Materials Transactions*** 44 (10), 1926-1934 (2003). (*Invited*)

109) Y.M. Wang*, E. Ma, "Strain hardening and strain rate sensitivity of ultrafine-grained metals", ***Journal of Metastable and Nanocrystalline Materials*** 17, 55-64 (2003). (*Invited*)

110) Y.T. Zhu, J.Y. Huang, T. Ungar, Y.M. Wang, E. Ma, R.Z. Valiev, "Nanostructures in Ti processed by severe plastic deformation", ***Journal of Materials Research*** 18 (8), 1908-1917 (2003).

111) Y.M. Wang, M.W. Chen, F.H. Zhou, E. Ma, "High tensile ductility in a nanostructured metal", ***Nature*** 419, 912-915 (2002). (*Selected by ISI as the "hot papers" in Materials Science, 12/03*)

112) Y.M. Wang, E. Ma, M.W. Chen, "Enhanced tensile ductility in nanostructured copper", ***Applied Physics Letters*** 80, 2395-2397 (2002).

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Conference Proceedings (8)

115) M.A. Meyers, H.N. Jarmakani, E.M. Bringa, P. Erhart, B.A. Remington, N.Q. Vo, Y.M. Wang, "Laser compression of nanocrystalline metals", *16th Conference of the APS Topical Group on Shock Compression of Condensed Matter*, 2009, Edited by M. L. Elert, W. T. Buttler, M. D. Furnish, W. W. Anderson, and W. G. Proud, AIP Press 1195, 1051-1056.

116) H.N. Jarmakani, Y.M. Wang**,** E. Bringa, and M.A. Meyers, "Modeling of the Slip-Twinning Transition in Nanocrystalline Nickel and Nickel-Tungsten under Shock Compression", *Proceedings of the Conference of the American Physical Society Topical Group on Shock Compression of Condensed Matter*, 2007, Edited by M. Elert, M. D. Furnish, R. Chau, N. C. Holmes, and J. Nguyen, AIP Press 955, 239-242.

117) J. Yu, Y.M. Wang, A.W. Haberl, H. Bakhru, J.Q. Lu, and R.J. Gutmann, "Mechanisms of low-temperature Ti/Si-based wafer bonding", *Proceedings of MRS Spring Meeting*, Vol.863, B10.7.1 (2005).

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119) T.G. Woodcock, S. Mato, G. Alcala, G. He, Y.M. Wang, E. Ma, O. Dai, M. Sui, W. Loser, J. Eckert, L. Schultz, "Microstructure of Ti-based, Dendrite/Nanostructured-Matrix Composites", *Mat. Res. Soc. Proc. Amorphous and Nanocrystalline Metals*, MM8.11, Vol.806 (2004).

120) Y. M. Wang, R.L. Edwards, K.J. Hemker, "Mechanical properties of Al thin films as measured by bulge testing", *Mat. Res. Soc. Proc. Thin Films – Stress and Mechanical Properties*, 594, 135-140 (1999).

121) Y.M. Wang, Y. Zhang, T.L. Lin, "Ductility response of Ni_3Al-Zr-B base alloys with ternary elements to strain rate and high temperature", *Mat. Res. Soc. Proc. High Temp. Ordered Intermetalllic Alloys*, 460, 511-516 (1997).

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Invited University/Institute Seminars

1) (***Invited***) National Metal and Materials Technology Center, Bangkok, Thailand (May 2018).
2) (***Invited***) SLAC National Accelerator Laboratory, Stanford University, Palo Alto, California (Oct 2017).
3) (***Invited***) Department of Materials Science and Engineering, University of Florida, Gainsville, Florida (Feb 2012).
4) (***Invited***) Division of Materials Science & Engineering, Hanyang University, Seoul, Korea (Aug 2011).
5) (***Invited***) Department of Materials Science & Engineering, University of Pennsylvania (Feb 2008).
6) (***Invited***) Department of Mechanical Engineering, Arizona State University (Feb 2008).
7) (***Invited***) Department of Mechanical Engineering, University of California, Riverside (Mar 2008).
8) (***Invited***) Department of Mechanical Engineering, University of Delaware (Feb 2006).
9) (***Invited***) Chemistry and Materials Science Directorate, Lawrence Livermore National Laboratory (May 2003).
10) (***Invited***) Materials Science and Technology Division, Naval Research laboratory (Feb 2003).

Conference/workshop presentations

1) (***Invited***) "*Characterizations of metallic materials obtained by additive manufacturing and optimization of their metallurgical and mechanical properties*", NNSA and CEA Collaboration Workshop Invitee, Paris, May 16-18, 2018.
2) (***Keynote***) "*Tensile properties of additively manufactured 316L stainless steels and Ti-6Al-4V alloys*", International Conference on Plasticity, Damage, and Fracture, San Juan, Puerto Rico, Jan 2-9, 2018.
3) (***Keynote***) "*3D printing high-performance materials for structural applications*", Materials Science Congress 2017, Rome, Italy, Oct 18-20, 2017.
4) (***Invited***) "*Advanced characterizations of additively manufactured metals*", CINT Annual Workshop Invitee, Santa Fe, Sept 25-26, 2017.
5) (***Invited***) "*Additive manufacturing as a transformative technology for fusion energy sciences*", FESAC special invitee, Chicago, Jun 19-22, 2017.
6) "Mechanical property and microstructure variations in additively manufactured Ti-6Al-4V", 3rd Cross-JOWOG, Kansas City, Apr 24-28, 2017.
7) "*Implementation of high power impulse magnetron sputtering (HiPIMS) for metal shell fabrication*", Target Fabrication Conference, Las Vegas, Mar 13-16, 2017.
8) (***Keynote***) "*Plasticity and fracture behavior of additively manufactured metals*", Plasticity 2017, Puerto Vallarta, Mexico, Jan 2-9, 2017.
9) "*Experimental characterization of additively manufactured metals*", 2nd Cross-JOWOG, Livermore, Feb 22-26, 2016.
10) (***Invited***) "*Energy harvesting and battery-less nanosensors*", CIMTEC 2012, 4th International Conference on Smart Materials & Structures Systems, Montecatini Terme, Italy, Jun 10-14 (2012).

11) "*Multifunctional nanoscale energy scavenger*", Nano Korea 2011, Seoul, South Korea, Aug 24-26 (2011).
12) "*Molecule-based battery-less nanosensors*", Nano Korea 2011, Seoul, South Kodrea, Aug 24-26 (2011).
13) "*Energy conversion and batteryless nanosensors*", MRS Spring Meeting, San Francisco, Apr 25-29 (2011).
14) "*Incipient plasticity, strain rate sensitivity, and activation volume of nanostructured materials*", Materials Science and Engineering Congress, Darmstadt, Germany Aug 24-26 (2010).
15) "*Multifunctional energy nanoconverter*", Materials Science and Engineering Congress, Darmstadt, Germany Aug 24-26 (2010).
16) "*Stress- and microstructure-evolution in magnetron sputtering of thick films*", 17th American Conference on Crystal Growth and Epitaxy, the 14th U.S. Biennial Workshop on Organometallic Vapor Phase Epitaxy, 6th International Workshop on Modeling in Crystal Growth, Lake Geneva, WI, Aug 9-14 (2009).
17) (***Invited***) "*High performance nanostructured materials*", National Nano Engineering Conference (Nano50 Innovator Awardee talk), Boston, MA, Nov 12-13 (2008).
18) "*Deformation of nanostructured materials and energy conversion*", World Leader for Young Scientist Workshop, Tsukuba, Japan, Jul 22-25 (2008).
19) "*Mechanical and biological properties of nanostructured Ti*", TMS Annual Meeting, New Orleans, Mar 10-13 (2008).
20) "*Probing the tensile ductility in nanoscale metallic glasses*", TMS Annual Meeting, New Orleans, Mar 10-13 (2008).
21) (***Invited***) "*Mechanisms and strategies to achieve simultaneous strength and ductility in nanostructured materials*", ISOPE 2007, Lisbon, Portugal, Jul 1-6 (2007).
22) "*Deforming nanocrystalline materials at ultrahigh strain rates – microstructural perspective in nanocrystalline nickel*", Dynmat 2006, Dijon, France, Sept 11-15 (2006).
23) *"Effect of copper solution on deformation behavior of nanocrystalline Au",* TMS Annual Meeting, San Antonio, TX, Mar 13-17 (2006).
24) "*Rate controlling mechanism in tensile deformation of nanocrystalline Ni"*, TMS Annual Meeting, San Antonio, TX, Mar 13-17 (2006).
25) "*Deformation twinning in high-strength, nanocrystalline tantalum"*, Materials Research Society Fall Meeting, Nov 28-Dec 3 (2005).
26) "*Rate controlling deformation mechanism in nanocrystalline Ni*", Materials Research Society Fall Meeting, Nov 28-Dec 3 (2005).
27) "*Shock-induced deformation mechanisms in nanocrystalline Ni*", 14PthP APS Topical Conference on Shock Compression of Condensed Matter, Baltimore, Jul 31-Aug 7 (2005).
28) *"Deformation behavior of nanocrystalline BCC metals*", Materials Research Society Spring Meeting, Mar 28-Apr 1 (2005).
29) "*Atomic layer deposition of ZnO on ultra-low-density nanoporous silica aerogel monoliths*", Materials Research Society Spring Meeting, Mar 28-Apr 1, 2005.
30) "*Deformation evidence in high-pressure shocked nanocrystalline Ni*", Materials Research Society Fall Meeting, Nov 29 – Dec 3, 2004.

31) (***Invited***) "*Cryogenic behavior of nanostructured metals*", Third International Symposium on Ultrafine Grained Materials, TMS 2004, Charlotte, North Carolina, USA, Mar 14-18, 2004.
32) (***Invited***) "*Superior mechanical behavior of nanostructured metals*", 2003 ASM Materials Solutions Conference and Exposition, Pittsburgh, Pennsylvania USA, Oct 13-15, 2003.
33) (***Invited***) "*High tensile ductility in a nanostructured metal*", Materials Research Society Fall Meeting, Boston, Dec 2, 2002.
34) "*Compression behavior and tension instability of ultrafine-grained titanium*", *International ISMANAM conference*, Ann Arbor, Michigan, Jun 24-29, 2001.
35) "*Mechanical properties of aluminum thin films as measured by bulge testing",* Materials Research Society (MRS) fall meeting, Boston, Dec, 1999.
36) "*Ductility response of Ni*B_{3B}*Al-Zr-B base alloys with ternary elements to strain rate and high temperature",* Materials Research Society (MRS) fall meeting, Boston, Dec^{P}, 1996.
37) "*Practical design of Ni*B_{3B}*Al with high hot workability",* Materials Research Society (MRS) fall meeting, Boston, Dec^{P}, 1996.

MENTORSHIP

1) Dr. Alison Engwall (*Postdoc*, from Brown, 1/2018-present).
2) Dr. Thomas Voisin (*Postdoc*, from JHU, 7/2016-present).
3) Dr. Wen Chen (*Postdoc*, from Yale, 10/2017-present).
4) Dr. Nick Calta, (*Postdoc*, from Northwestern, 10/2016-9/2017).
5) Mr. Zan Li (*PhD* exchange student, from Shanghai Jiao Tong Univ., 10/2015-10/2016)
6) Dr. Jianchao Ye (*Postdoc*, from HK Polytechnic, 10/2011-03/2016)
7) Mr. Christopher Chapman (*ACP*, UC Davis, 5/2013-03/2016)
8) Mr. John McCrea (Summer Intern, from ASU, 06/2014-08/2014)
9) Dr. Fang Liu (*Visiting scholar*, from ASU and USST, 01/2014 – 06/2014)
10) Mr. Yonghao An (*Lawrence Scholar*, from ASU, 3/2012-3/2014)
11) Mr. Andreas Baumgaretel (*Visiting student*, Germany, 09/2013-05/2014)
12) Dr. Jing Li (*Visiting scholar*, from USST, 9/2013-12/2013)
13) Dr. Swanee Shin (*Postdoc*, from UC Berkeley, 02/2011-12/2013)
14) Dr. Denise (Zhidan) Zeng (*Visiting scholar*, from ASU and Zhejiang Univ, 11/2011-8/2012)
15) Dr. Kyunghoon Kim (*PhD student*, from UC Berkeley, 08/2010-03/2012)
16) Ms. Ramya H. Tunuguntla (*PhD student*, from UC Davis, 02/2011-03/2012)
17) Dr. Johnny C. Ho (*Postdoc*, from UC Berkeley, 08/2009-02/2010)
18) Dr. Xianying Wang (V*isiting scientist*, from SIT, 01/2007-12/2008)
19) Dr. Andrew Detor (*Postdoc*, from MIT, 08/2007-09/2008)
20) Mr. Peter Bythrow (*Graduate research assistant*, from JHU, 07/2005-06/2006)

SYNERGY

Peer Review Activities:

- **Journals (partial list)**: Nature; Science; Nat. Mater.; Nat. Nanotech.; Nat. Commun.; ACS Nano; Acta Mater.; Adv. Mater.; Adv. Funct. Mater.; Adv. Energy Mater.; Appl.

Phys. Lett.; Chem. Mater.; Carbon; Electrochem. Comm.; JACS; J. Appl. Phys.; J. Mater. Res.; J. Mater. Sci.; J. Mater. Sci. Tech.; JOM; Mater. Char.; Mater. Sci. Eng. A; Mech. Mater.; Mater. Lett.; Met. Mater. Trans. A; Mater. Res. Bullet.; Modelling Simul. Mater. Sci. Eng.; Nanotech.; Nano Res.; Sci. Rep.; Scr. Mater.; Small; Vacuum

- **Proposals**: NSF Review Panel (USA, 2018, 2014, 2008); GIPP (DOE); SERC (Singapore); Kentucky Science & Engineering Foundation; New Zealand Marsden Fund.
- **Editorial Board Member**: Scientific Reports (Nature) (Jan 2017-present).

Other activities:

- **High School Science Judge**: Alameda County Science Fair (2013, 2015, 2016)
- **Graduate Program External Examiner**: Arizona State University (2014); University of Hong Kong (2007)
- Physical and Life Sciences Directorate (PLS) **Workforce Planning Committee** Member (06/2014 – present)
- NIF Directorate **Workforce Committee** Member (05/2016-present).

Conference/workshop Organizer:

- (Co-organizer) Mechanics and Physics of Additively manufactured materials, Jan 3-9, 2018 (San Juan, Puerto Rico).
- (Organizer) Double-shell target fabrication workshop (LLNL), Jun. 30, 2016 (Livermore, CA, USA).
- (Co-organizer) Materials Science & Technology (MS&T 2013), Oct. 27-31, 2013 (Montreal, Canada).
- Energy Materials Nanotechnology International Advisory Committee, Nov. 29 – Dec. 2, 2012 (Las Vegas, USA).
- (Session Chair) Nano Energy and Environment, Nano Korea 2011, Aug. 24-26, 2011 (Seoul, South Korea).
- (Session Chair) Ultra-fine Grained Materials – V, TMS Annual Meeting & Exhibition, Mar. 9-13, 2008 (New Orleans, Louisiana).
- (Session Chair) Nanomaterials for Structural Application, the 17th International Offshore and Polar Engineering Conference, Jul. 1-6, 2007 (Lisbon, Portugal).

Membership/Fellowship:

- Fellow, American Physical Society (2014)
- Member, Materials Research Society (1998-2006, 2011)
- Member, TMS (1998, 2003-2007, 2017)