Curriculum Vitae

ZHONG, Wei-Hong (Katie)

Professor, US Fulbright Scholar
School of Mechanical and Materials Engineering
Washington State University, Pullman, WA 99164, USA
Email: katie_zhong@wsu.edu Tel: 509-335-7658

Dr. Zhong received her Ph.D. degree in 1994 in Materials Science and Engineering at Beihang University of China. In 1999 Dr. Zhong was promoted to full professor. From 2002 to 2003, Dr. Zhong worked as a research associate at Vanderbilt University doing research on nanocomposite materials. Dr. Zhong began her faculty career at North Dakota State University in August 2003. In August 2007, Dr. Zhong joined Washington State University, in which she was an endowed chair professor (Westinghouse Distinguished Professor). Dr. Zhong received two NASA Technical Awards. She was an honored Fulbright Scholar. She has been an instructor for the Boeing Nanotechnology Curriculum for the Engineering and Scientific staff. Dr. Zhong received numerous awards/honors including the *Dow® Chemical Composites Educator* of the Year 2011 by SPE, selected one of the 15 World's Best Scholars to University British Columbia, Vancouver, BC, Canada, in 2012. Dr. Zhong is an honored Fellow of American Association for the Advancement of Science (AAAS). In addition, she was awarded the *Excellent Academic Advisor* at WSU in 2013, as she has graduated a number of outstanding PhD students with international rewards/global honors, such as *Boeing FlightGlobal Awards/Boeing Engineering Student of the Year* 2010 (2nd place) and 2011 (1st place), and Worldwide Top 50 PhD/post-docs by MRS. Dr. Zhong has had over 350 publications in polymer composites and energy materials, including 276 peer-reviewed journal papers, 3 books, 5 book chapters, more than 90 conference papers, and a number of US patents.

EDUCATION

Ph.D., 1994	Composite Materials Science and Engineering, Beihang University, Beijing, China
	Dissertation: *Studies on Residual Stress of ARALL, and the Effects on Properties of the Laminates by Residual Stresses and Adhesive*
M.S., 1991	Materials Science and Engineering, Beihang University, Beijing, China
	Thesis: A *Study on the Thermal Expansion Coefficient and the Design for Zero-Expansion of Single and Hybrid Multi-Directional Composites*
B.S., 1988	Materials Science and Engineering, Beihang University, Beijing, China

PROFESSIONAL EXPERIENCES AND APPOINTMENT

Academic

08/10-present:	Professor, School of Mechanical and Materials Engineering, Washington State University, Pullman, WA
08/12—01/20:	Westinghouse Distinguished Professor, School of Materials Science and Engineering, Washington State University, Pullman, WA
12/19—03/20:	Honored Fulbright Scholar, visiting professor, Nanyang Technological University Singapore
09/12—05/13:	Sabbatical leave, Honored International Scholar, University of British Columbia, Vancouver, BC, Canada
08/07—08/10:	Associate Professor, School of Mechanical and Materials Engineering, Washington State University, Pullman, WA

08/07--present: Affiliated faculty, Doctoral Program in Materials Science and Engineering, Washington State University.

08/08-present: Affiliated faculty, Composites Science and Engineering Center, Washington State University.

08/03—08/07: Associate Professor, Department of Mechanical Engineering and Applied Mechanics, North Dakota State University, Fargo, ND

05/02—08/03: Research Associate, Vanderbilt Institute for Nano-scale Science and Engineering, Vanderbilt University, Nashville, TN

06/01—04/02: Visiting Scholar, Department of Mechanical Engineering, Tuskegee University, Tuskegee, AL

08/99—08/01: Professor, Department of Materials Science and Engineering, Beihang University, Beijing, China

09/95—08/99: Associate Professor, Department of Materials Science and Engineering, Beihang University, Beijing, China

04/96—05/97: Visiting Scholar, Materials Engineering Program, Department of Mechanical Engineering, Auburn University, Auburn, AL

03/94—08/95: Lecture, Department of Materials Science and Engineering, Beihang, Beijing, China.

HONORS, AWARDS AND APPOINTMENTS

- International Vebleo Fellow, 2021-present
- Westinghouse Distinguished Professor, 2012-2020, WSU
- Fellow of American Association for the Advancement of Science (AAAS), 2016-present
- Excellence as an Academic Advisor, WSU, 2013
- Outstanding Researcher Award, School of Mechanical and Materials Engineering, WSU, 2011 & 2013
- Selected one of the 15 World's Best Scholars to University British Columbia (UBC), Vancouver, BC, Canada, 2012;
- The Dow Chemical Composites Educator of the Year 2011 by SPE;
- 2 NASA Technology Awards, March 2011:
  Innovation "Fiber-Reinforced Reactive Nano-Epoxy Composites" NASA MFS-32666-1
  Innovation "Modifying Matrix Material to Increase Wetting and Adhesion" NASA MFS-32665-1
- Honored instructor for the Boeing Company in Nanotechnology, 2006-2011.
- Researcher of the Year Award, NDSU College of Engineering and Architecture, 2004-2005
- NSF Summer Institute on Nano and Biotechnology Fellowship, 2005
- Panelist of NSF Graduate Research Fellowship Program (GRFP), 2008
- Panelist of NSF DMI (Nanomanufacturing and Innovation of Nanocomposites), 2006
- Co-chair of the *Airplane Composites* session for SAMPE'06, Dallas, TX, 2006
- Chair of *Nanocomposites and Processing Technology* session of 16th International Conference on Composite Materials (ICCM-16), Kyoto, Japan, July 2007
- Judge Chair, Engineering and Corrosion session, 56th North Dakota Science and Engineering Fair, April 7, 2006.
- Influential Faculty Member, listed by a graduate alumni Kimberly Gedde (2004), indicating her work as an instructor truly impacted life of her students stated by NDSU Alumni Association

- Reviewer of Books, Grant Proposals and Journal Papers, including:

  Books:

  "biopolymer-based composites for drug delivery and biomedical applications", Elsevier, Linacre House, Jordan Hill, Oxford OX2 8DP, UK

  "The New UHMMPE Handbook" (2nd Ed), Edited by S.M. Kurtz, Elsevier, Linacre House, Jordan Hill, Oxford OX2 8DP, UK

  "Fundamental Principles of Polymeric Materials", by S. L. Rosen, A Wiley-Interscience Publication, John Wiley & Sons, Inc., New York

  "Organic/Inorganic Nanoparticles for Advanced Composite Materials" DES*tech* Publications, Inc. Lancaster, PA USA

  "Electromagnetic Composite Materials: Applications, Analysis and Design", DES*tech* Publications, Inc. Lancaster, PA USA

  "Graphene and Its Applications to Composites and Advanced Materials", DES*tech* Publications, Inc. Lancaster, PA USA

  "New Frontiers in Ferroelectric Polymers", DES*tech* Publications, Inc. Lancaster, PA USA

  Grant Proposals, including

  In areas of Lithium Battery Materials, submitted to DoE and NSF;

  In the areas of Nanomanufacturing and Innovation of Nanomaterials, submitted to NSF (National Science Foundation);

  -NSF Engineering Research Center Proposal;

  -Panelist of NSF (Nanomanufacturing and Innovation of Nanocomposites);

  In the areas Nanocomposites and Polymers, submitted to AFOSR (Air force of Scientific Research);

  In the areas of Nanomaterials and Nanocomposites submitted to American Chemical Engineering PRF;

  In the areas of Energy Storage Materials, submitted to Global Climate and Energy Project (GCEP) at Stanford University

  Journals: Include:

  Nature Materials
  Nature Communications
  Advanced Materials
  Advanced Energy Materials
  Advanced Functional Materials
  Polymers
  Macromolecules
  Macromolecular Materials and Engineering
  Mechanics of Advanced Materials and Structures
  Journal of Materials Science and Technology
  Composite Materials
  Journal of Biomedical Materials Research, Part A
  New Carbon Materials
  Journal of Composite Materials
  Langmuir

Materials Science and Engineering A
Journal of Materials Science
Small
Carbon
Composites, Part A
European Polymer Journal
Journal of Materials Chemistry
Journal of Nanomaterials
Journal of Physical Chemistry
Nanotechnology
Smart Materials Structures
Macromolecular Materials and Engineering
ASME Journal of Engineering Materials and Technology
Materials Physics and Chemistry

ADVISEES' HONORS:

- Bin Li, PhD (2008-2012), Post-doctoral fellow (2012-2013):
  - Worldwide Top 50 PhD students/post-docs in the fields of energy and environmental materials**,** Material Research Society, invited to attend 2011 World Materials Summit Student Congress, Washington D.C., October 8-12, 2011.
  - 2nd place, Boeing Flightglobal Achievement Awards/Boeing Engineering Student of the Year, 2010.
  - WSU Graduate School Doctoral Scholarship, Washington State University, 2010.
  - Outstanding PhD Student Researcher Award, Washington State University, School of Mechanical and Materials Engineering, 2010.
- Western Wood, PhD (2008-2012):
  - Outstanding Student PhD Researcher Award, Mechanical and Materials Engineering, 2011
  - SAMPE Graduate Student Award Finalist (2010). At the SAMPE Student Symposium held in Seattle WA, May 17th, 2010.
  - NASA Space Grant 2010. "Mechanical and tribological properties of ultrahigh molecular weight polyethylene nanocomposites with silane-treated carbon nanofibers."
  - NASA Space Grant 2009 "Processing and tribological properties of ultrahigh molecular weight polyethylene nanocomposites with carbon-based nanofillers."
- Jianying Ji, PhD (2009-2013)
  - 1st place, Boeing Flightglobal Achievement Awards/Boeing Engineering Student of the Year 2011.
  - Worldwide Top 50 PhD students/post-docs in the fields of energy and environmental materials**,** Material Research Society, invited to attend 2011 World Materials Summit Student Congress, Washington D.C., October 8-12, 2011.
  - Global Winner of the Singularity University Scholarship, 2012, prize $30,000.
- Brooks Lively, PhD (2009-2013)
  - Best PhD Researcher Award, School of Mechanical and Materials Engineering, Washington State University, 2013.
- Tian Liu, MS (2009-2011), PhD (2011-2015), Post-doctoral (2015-2016)
  - Outstanding Student MS Researcher Award, Mechanical and Materials Engineering

Washington State University, 2011.

- Yu Wang, PhD (2012-2015), Post-doctoral fellow (2015-2018)
  - Best PhD graduate, Materials Science and Engineering, Washington State University, 2015.
  - Exceptional Ph.D. Thesis Performance, Washington State University, 2014-2015.
  - Excellent Research Assistant, (top 2% @WSU), Washington State University, 2014.

- Xuewei Fu, PhD (2015-2019)
  - Best PhD Researcher Award, Materials Science and Engineering, Washington State University, 2018.

- Chenxu Wang, PhD (2020-2023)
  - Best PhD Researcher Award, Mechanical Engineering, Washington State University, 2023.
  - Best PhD Dissertation Award, Mechanical Engineering, Washington State University, 2023.

RESEARCH INTERESTS

- Advanced Lithium Battery Materials: bio-solid electrolytes, gum-like electrolytes with safety design for high performance lithium batteries, foldable/bendable electrolytes, interface of electrodes/electrolytes;
- Bio-Air Filtering Materials: processing technologies, functionalities including filtering effects for particular and toxic chemicals;
- Nanotechnology and Multifunctional Nanocomposites: processing, structural design, mechanical properties, and functionalities including electrical, damping and thermal properties;
- Quantitative Quality Evaluation for Nanocomposites: quantitative evaluation technique, non-destructive evaluation technology for industry nanocomposite products;
- Polymer and Composite Materials: manufacturing technologies; interface issues; mechanical properties; repairing;

RESEARCH EXPERIENCES

08/03-present:

- Protein-based Battery Materials for Development of Advanced Batteries: electrode binders, electrolytes, interlayers and electrodes.
- Solid Polymer Electrolytes for Safe Li-ion Battery Technology; Bio-based electrolytes, ultra-flexible electrolytes for lithium battery applications; multifunctional binders of electrodes, interlayers of batteries;
- Environmental materials: natural polymers for functional applications: soy protein, corn protein, gelatin, cellulose fibers, etc. for making air filters,
- Capacitor/supercapacitor Materials and Dielectric Performance of Nanocomposites;
- Tribological Performance of Nanocomposites: wear resistance, friction, etc.;
- Total Joint Replacement Materials: UHMWPE nanocomposites;
- Electrically and Thermally Conductive Polymer Nanocomposite Materials:

  Investigate the electrical and thermal conductivities and dielectric properties of

nanocomposite materials; develop conductive nanocomposites used for airplane structures and fuel cell applications.

- Hybrid Composites with Reactive Nano-Matrix for Cosmic Radiation Shielding:

  Investigate more reliable multifunctional high performance shielding materials, i.e., ultrahigh molecular weight polyethylene (UHMWPE) fiber/graphite fiber hybrid composites with reactive nano-matrix.

- Reactive Graphitic Carbon Nanofiber-Reinforced Polymers as Advanced Composite Matrices or Structural Adhesives:

  Investigate unified super molecular structure, nanofiber-polymer that can be used advanced composite matrix or structural adhesive materials with extremely high mechanical properties.

- Improvement of Fiber/Matrix Interface of Composites Using Reactive Nano-matrix:

  Investigated the improvement of interfacial adhesion in continuous fiber/polymer composites using reactive nano-matrix.

05/02-08/03:

- Graphitic Carbon Nanofiber/Polymer Composites with Superior Mechanical Properties:

  Investigated processing of the graphitic carbon nanofiber/polymer composite materials, mechanical properties measurements and characterization of nano-structure and failure mechanism

06/01-04/02:

- Durability Assessment of Composite Repairs Bonded to Aircraft Structures:

  Investigated the interface between composite patch and aluminum substrate, effects of parameters on fatigue crack growth rates, fatigue lifetime testing and prediction, and fatigue design guidelines to the repaired structures

- Field Testing Flood-Damage-Resistive Residential Envelope Systems:

  Evaluated the performance of residential envelope systems subjected to static flooding. Developed a systematic approach to testing the systems; determined the extent of the system's flood damage resistance

07/97-05/01:

- Resin Matrix Systems and the Composites Cured by Electron Beam Technology:
  Examined electron beam curing method as a potentially cost-effective for manufacturing composite structures; developed epoxy and bismaleimide resin systems for Electron Beam curing

- Resin Matrix and the Composites for Infrastructures Application:
  Investigated glass fiber and carbon fiber composite materials application for reinforcing concrete constructions such as buildings and bridges

- Cost-effective Manufacturing Technology of Advanced Polymer Composites:
  Investigated resin Transfer Molding (RTM) as an outstanding cost-effective technology of curing advanced polymer composites

- Fiber Reinforced Composites by Rapid Prototyping Manufacturing (RP&M) Technology:
  Investigated short fiber and continuous fiber reinforced composite materials by Rapid Prototyping Technology

04/96-05/97:

- Quasi-Carbon Fibers and Composite Materials:

Examined conductive properties and pyrolysis processing method of PAN quasi-carbon fiber and the resulted composite materials

04/94-03/96:

- Smart Composite Materials and Systems:
  Investigated processing and properties of smart composite materials and systems with optical fibers
- A New Hybrid Composite Reinforced with Different Diameter Fibers:
  Investigated a new hybrid composite reinforced with different diameter fibers with superior comprehensive mechanical properties
- Comprehensive Evaluation of Advanced Polymeric Composites:
  Developed fuzzy theory to evaluate advanced polymeric composite materials with comprehensive properties
- High-Speed Impact Property of Polymer Composite Materials:
  Developed composite structure with excellent high-speed impact properties
- Hybrid Composites of Aramid-Aluminum Laminates (ARALL) Processing and Properties:
  Examined the mechanical properties and processing feasibility of super-hybrid composites (ARALL)
- Ultra-High Molecular Weight Polyethylene (UHMWPE) Fiber and Composite Materials:
  Determined the structure and properties of the UHMWPE fiber and resulted composite materials;

TEACHING EXPERIENCE

Courses responsible for:

Washington State University:

1. Polymeric Materials (for undergraduate students)
2. Materials Science (for undergraduate students)
3. Engineering Composites (for undergraduate students)
4. Nanocomposites and Functionalities (for graduate students and The Boeing Co.)

North Dakota State University:

1. Engineering Mechanics I: Statics (for undergraduate students)
2. Polymer Materials and Processing (for Senior undergraduates students and graduate students)
3. Composite Materials and Manufacturing Technologies (for Senior undergraduates students and graduate students)
4. Nanocomposites and Functionalities (for graduate students)

Graduate Students Advised (@) Washington State University)**:**

Justin Zhong, PhD student, 01/2025 - present
Ying Guo, PhD student, 01/2024 - present
Chenxu Wang, PhD graduated, 08/2020-08/2023
Shengnan Lin, PhD graduated, 08/2020-08/2023
Juejing Liu, PhD student, 08/2018-05/2020
Xuewei, Fu, PhD, graduated, 08/2015-07/2019
Hamid Souzandeh, PhD, graduated, 09/2013-08/2017
Yu Wang, PhD, graduated, 08/2012-07/2015
Bin Li, PhD, graduated, 08/2008 – 05/2012

Weston Wood, PhD, graduated, 08/2008 – 08/2012
Jianying (Tracy) Ji, PhD, graduated, 08/2009 – 05/2013
Brooks Lively, PhD, graduated, 08/2009 – 12/2013
Tian Liu, PhD graduated, 08/2011-05/2014
Allen Eyler, MS graduated, 08/2013-01/2016
Xiaolin Wang, MS, graduated, 08/2014-01/2016
Tian Liu, MS, graduated, 08/2009 – 05/2011,
Michael Pierce, MS, graduated, 08/2011-05/2013
Zack Tang, MS, graduated, 08/2010 – 12/2011
Brady Deacon, MS, graduated, 01/2011-05/2012
Yu Fu, MS, graduated, 08/2008 – 07/2010
Lu Chen, MS student, 08/2014-01/2016
Lanee Snow, PhD, student (part time), 08/2008 – 01/2011
Soumen Jana, PhD student, 08/2007 – 08/2008
Lili Sun, visiting PhD student, (dissertation advising), 09/2008 – 10/2010, graduated,
Min Chen, visiting PhD student, (dissertation advising) 08/2018-05/2010, graduated
Chenfeng Ding, visiting PhD student, (dissertation advising), 02/2019-01/2020, graduated
Jing Wang, visiting PhD student, (dissertation advising), 05/2017-04/2018, graduated
Lushi Kong, vising PhD student, (dissertation advising), 10/2017-10/2018, graduated
Xin Fan, vising PhD student, (dissertation advising), 09/2017-01/2019, graduated

Post-Doctors/visiting professors/visiting scientists (@)Washington State University)**:**

Dr. Chenxu Wang (post-doc, 08/2023 – present)
Dr. Lulu Ren, (post-doc, 08/2023 – present)
Dr. Shengnan Lin ((post-doc, 08/2023 – 12/2023)
Dr. Sireesha Pedaballi (post-doc, 11/2022 – 10/2023)
Dr. Xuewei (Ella) Fu (post-doc, 08/2019-08/2021)
Dr. Tian Liu (post-doc, 05/2013- 01/2015)
Dr. Yu Wang (post-doc, 08/2015-08/2018)
Dr. Bin Li, (post-doc, 08/2012-08/2013)
Dr. Jianying (Tracy) Ji, (post-doc, 05/2013-07/2013)
Dr. Yichao Li (post-doc, 03/2017-02/2018)
Dr. Yunming Wang (visiting professor, 07/2019-07/2020)
Dr. Cuige Zhang (visiting professor, 08/2019-08/2020)
Dr. Huafeng Tian (visiting professor, 03/2017-08/2017)
Dr. Yun Huang (visiting professor, 01/2016-12/2016)
Dr. Bing Geng (visiting professor, 09/2013-08/2014)
Dr. Yunhua Yu (visiting professor, 01/2011-01/2012)
Dr. Yugang Duan (visiting professor, 01/2010-01/2011)
Dr. Sandeep Kumar (post-doc, 02/2009-08/2010)
Dr. Gang Sui (post-doc, 09/2007-10/2007 and visiting professor 04/2008-08/2008)

MAIN RESEARCH FUNDINGS

Washington State University, 08/2007-present:

1. PI, USDA NIFA, "Advanced Li-S Batteries from Abundant Natural Proteins toward Practical

Applications", $650,000, 10/01/2022-09/30/2026, co-PI: Jin Liu.

2. PI, USDA SunGrant, "Abundant Plant Protein for Fabrication of Bio-Air Filters Capable of Simultaneously Capturing Particulate and Gaseous Pollutants", $149,998, 09/2021-08/31/2023.
3. PI, NSF, "Decoupled Ion-Conduction Mechanism of Protein-based Electrolytes: Simulation and Experimental Studies", $523,732, 10/01/2019-09/30/2023, co-PI: Jin Liu.
4. PI, WA-JCATI: Joint Center for Aerospace Technology and Innovation of WA, "A Gummy Electrolyte with Damage-tolerance and Thermal-protection Capabilities for Safer Li-ion Batteries", 07/01/2017-06/30/2018, $94,457.
5. PI, NSF, "A Gum-like Multifunctional Composite for High-performance Electrolyte: Processing, Structures and Performances", $350,000, 08/16/2015-08/15/2019.
6. Co-PI, USDA: "Applying Abundant Plants to Develop Battery Materials and Benefits to the Agricultural Economy", $494,805, PI: H.W. Lei, other Co-PIs: L. Scudiero and T. Harsh, 01/01/2015-12/31/2018.
7. PI, WA-JCATI: Joint Center for Aerospace Technology and Innovation of WA, "Bio-based Solid Polymeric Electrolytes for a Safer Higher Performance Lithium Ion Battery", 02/01/2013- 06/30/2014, $71,479.
8. PI, WSU Research Advancement Challenge Grant, "Advanced Lithium-ion Batteries Incorporating Bio-and Nano-materials and the Effects on the Agricultural Economy", Co-PIs: M. G. Norton, L. Scudiero, T.L. Marsh, and H.W. Lei, 10/01/2012-09/30/2013, $100,000
9. PI, Boeing & SABIC-IP: "Multi-functional Polymeric Materials (MPM) for Reduced Weight of Airplane Interior Materials, Improved Fuel Efficiency and Decreased Fabrication Costs: Materials, Modeling and Processing", 03/01/2011-02/28/15, (in collaboration with KAUST), $841,045.
10. PI, NSF: "Interfacial Wetting and Adhesion Enhancement in Advanced Organic-Fiber/ Polymer Matrix Composites through "Nano-nectar" with Reactive Nanofibers", 09/16/2010-09/15/2013, $302,303.
11. PI at WSU: NSF Collaborative: "Tribologically Durable UHMWPE Nanocomposites or Total Joint Replacements:Nano-mechanics & Bio-tribological Modeling", 07/2009-07/2012, (in collaboration with North Dakota State Univ: A. Tangpong (PI), and I. Akhatov (Co-PI), total: $370,000), Zhong/WSU: $162,350,.
12. PI, Boeing Co., "Multifunctional Nanofoamed Thermoplastic Nanocomposites for Reduced Profusion of Airplane Interior Materials and Improved Fuel Efficiency", 05/2008-12/2009, Boeing/UW/WSU collaboration, $150,806, Zhong: $88,709.
13. PI at WSU: NSF GOALI, "Fabrication of Multifunctional Nanofoams from Polymer Nanocomposites", 09/16/2007-09/15/2010, $300,000, (in collaboration with Univ. of Wash and Boeing Co.), Zhong's part: $120,000.
14. Co-PI, NSF NIRT, "Total Chemical Synthesis, Property and Modeling Studies of Nanoparticle/Polymer Hybrid Materials", 08/01/2005 -- 07/30/2009, $1,199,479, (in collaboration with North Dakota State Univ of W.F. Sun (PI), Univ. of Central Florida of J. Brennan (co-PI) and Q. Huo (co-PI)), Zhong's part: $290K.

North Dakota State University, 08/2003 – 07/2007:

15. PI, NASA: "Hybrid Composites with Reactive Nano-fibers for Cosmic Radiation Shielding", 07/01/2004 -- 06/30/2007, $393,343.
16. Co-PI, NSF NIRT: "Total Chemical Synthesis, Property and Modeling Studies of Nanoparticle/Polymer Hybrid Materials", 08/01/2005 -- 07/30/2009, $1,199,479 (PI: W.F. Sun, other Co-PIs: J. Brennan and Q. Huo)
17. PI, NSF: "Acquisition of a Twin Screw Extruder for Polymer/Bio Nanocomposites", 08/01/2004 -- 07/31/2006, $103,308 (Co-PIs: K. Katti, D. Katti) (Original PI was Dr. J. Wong and then was Dr. B.Z. Jang; I was the PI from 08/2005 -- 07/2006).

18. PI, The Spirit Aerosystems Co: "Mechanical Property Enhancement to CFRP Composites Using Reactive Nano-Matrix for Application to Next-Gen Commercial Aircraft Primary Structure", 11/01/2006- 04/30/2007, $55,000.

19. PI, ND EPSCoR: "Acquisition of a Dielectric Spectrometer for Polymer Nanocomposites", 02/01/2006 -- 04/15/2006, $49,800.

20. PI, DOE EPSCoR: "Ultra-lightweight Polymer Composites for Wind Energy System-Turbine Bladed Structures", 05/15/2007-12/31/2008, $49,770.

21. Co-PI, NSF GOALI: "Fabrication of Multifunctional Nanofoams from Polymer Nanocomposites", 09/16/2007-09/15/2010, $300,000. (Collaboration with Univ. of Washington and Boeing Co.), Zhong's part: $120,000.

22. Co-PI, USDA: "Acquisition of Dynamic Mechanical Analyzer to Upgrade Research Infrastructure", Cooperative State Research, Education, and Extension Service (CSREES)/United Department of Agriculture (USDA) – National Research Initiative (NRI) Competitive Grants Program (PI: Dr. C.A. Ulven, Co-PIs: D. P. Wiesenborn and W.H. Zhong), 10/01/2007-09/30/2008, $32,650.

23. PI, NDSU Research Foundation: "Reactive Graphitic Carbon Nanofiber-Reinforced Polymers as Advanced Composite Matrices or Structural Adhesives", 02/01/2004 -- 01/31/2005, $ 10,000.

24. PI, NASA EPSCoR: "Improvement of Fiber/Matrix Interface Using Reactive Nano-matrix for Cosmic Radiation Shielding Composites", 01/15/2004 -- 07/15/2004, $18,100.

PATENTS ACHIEVED/FILED

- US Patent US 10,364,141 B2, Y. Wang, W. H. Zhong, "Block Copolymer Nanostructures Formed by Disturbed Self-assembly and Uses Thereof", published, July 30, 2019.
- US Patent US 10,347,915 B2, W. H. Zhong, Y. Wang, Multi-functional Binders for Forming Integrated Electrodes, Published, July 9, 2019.
- US Patent -62505230, "Surface Coating of Porous Nanocomposites for Regulation of Charge Transport in Electrochemical Devices" Y. Wang, W. H. Zhong, and X.W. Fu, filed provisional patent, May, 2017.
- US patent PCT/US 10,525,398 B2, "Protein Nanofiber Air Filter Materials and Methods", W. H. Zhong, Y. Wang and H. Souzandeh, published, January 7, 2020.
- US Patent US2017/ 04242017, "Protein-based Nanofabrics as Multi-functional "Green" Air Filtering Materials for High Efficiency Particulate and Toxic Chemical Filtration", W. H. Zhong, H. Souzandeh, Y. Wang, provisional filed in 2015; non-provisional filed in April 2017
- US Patent US069995, "A Dual-Conductive Adhesive and Its Use as Matrix Binder for Integrated Electrodes", Y. Wang and W. H. Zhong, 2015.
- US Patent US 2016/0028112 A1, PCT No.: PCT/US14/12727, US-864369-05-CN-NAT, WO2014/149181 A1 (International Patent Publication): "Gum-like Electrolytes and Methods of Making the Same", Y. Wang, W. H. Zhong, and B. Li, WSU, (US patent published on Jan 28, 2016; published in China on Dec 23, 2016)
- US Patent US 8,722,254 B2: W.H. Zhong, J. Y. Ji and B. Li, "Flexible Solid-State Conductors Including Polymer Mixed with Protein", WSU, Feb 2014;
- US Patent 8,048,940 B2: C.M. Lukehart, W.H. Zhong, J. Li, and E.D. Mowles, "Reactive Graphitic Carbon Nanofiber Reinforced Epoxy Composites Showing Enhanced Flexural Strength", 2011.
- US Patent 6,401,002: J. Jang, W. C. Huang, W.H. Zhong, "Layer Manufacturing Apparatus and Process", 2002.
- US Patent Provisional: 880619-01-US-Pro, Y. Wang, W. H. Zhong*, and B. Li, "Functionalized Porous Polymer Nanocomposites and Methods Thereof", 2015.
- US Patent provisional: 61/902,117-US-Pro, W. H. Zhong, "A Method for Conversion of Dry Nanomaterials into Liquid Nano-Agents for Fabrication of Polymer Nanocomposites and Fiber Reinforced Composites", 2015.

- US Patent Provisional: 62073871-01-US-Pro, Y. Wang and W.H. Zhong, "Adhesive Conductive Binders for Battery Electrodes", non-Provisional application filed, 2014;
- US Patent provisional: Y. Wang, T. Woodland, D. Mackay, and W.H. Zhong, "Sealed Battery Electrodes by Adhesive Electrolyte", WSU, 1389--CEA-OC, 2013.
- US Patent provisional: 61/371,229-US-Pro, W.H. Zhong, T. Liu and W. Wood, "Dielectric Properties as an Indicator of Structural Integrity in Nanocomposite Materials", WSU, 1143-OIPA-OC, 2010.
- US Patent provisional: 61/424,155B-US-Pro, Li and W.H. Zhong, "Highly Conductive and Damping Capable Polymer/graphitic Carbon Nanofiller Composites via a Novel Flexible Conjugative Copolymer Modification", 1163-OIPA-OC, 2010.
- US Patent provisional: 61/163,144-US-Pro, B. Li, G. Sui and W.H. Zhong, "Nanocomposite Metamaterials", filed, 1026-OIPA-OC, 2009.
- China Patent: No.99,111,576.7, W.H. Zhong, B.Z. Jang, and W. Hung, "Improved Layer Manufacturing Apparatus and Process", 2004.

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

- American Society for Composites (ASC)
- Society for the Advancement of Materials and Process Engineering (SAMPE)
- American Society for Engineering Education (ASEE)
- American Chemical Society (ACS)
- American Association for the Advancement of Science (AAAS)， Honored Fellow, 2016

PUBLICATIONS

Books:

1. C.X. Wang and **W.H. Zhong**, Natural Protein-based Strategies for Batteries, (8 chapters), World Scientific Publisher Inc. ("exclusive publisher for the Nobel Foundation"), 2025. https://www.worldscientific.com/worldscibooks/10.1142/13610#t=aboutBook
2. **W. H. Zhong**, B. Li**,** R. G. Maguire, V.T. Dang, G. Gross, J. Shatkin, M. C. Richey, Nanoscience and Nanomaterials: Synthesis, Manufacturing and Industry Impacts, published in July 2011, DEStech publications, Inc.
3. **W. H. Zhong** and B. Li, Polymer Nanocomposites for Dielectrics, (8 chapters), Pan Stanford Publishing Inc. 2017.

Book Chapters:

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Recently Invited Talks/Seminars/Workshops:

1. **W.H. Zhong**, "Abundant Natural Proteins for Functional Material Applications in Nanocomposites, Energy storage and Environment", keynote speaker, Global Conference on Materials Science and Engineering, Vienna, Austria, virtual attending, July 25, 2026, (keynote talk)
2. **W.H. Zhong**, X. Fu, and J. Liu, Natural Proteins as Functional Materials for Applications in Nanocomposites, Energy storage and Environment**,** keynote talk in International webinar on Science, Engineering and Technology, September 24, 2021.
3. **W.H. Zhong**, Natural Proteins for Functional Applications: Nanocompsosites, Energy storage and Environment, Nanyang Technological University, Singapore, February 14, 2020.
4. **W.H. Zhong**, A "Nano-Nectar" Technology for Energy-efficient Manufacturing Automotive Composites, Nanyang Technological University, Singapore, March 6, 2020
5. **W.H. Zhong** and X.W. Fu, Proteins as Multifunctional Polymers for Sustainable Energy Storage Application, 16th Pacific Polymer Conference, Singapore, December 8-12, 2019. (session chair)
6. **W.H. Zhong** and X.W. Fu, Applications of Natural Protein in Sustainable Energy Storage, Green Energy & Expo, Rome, Italy, October 14-16, 2019. (keynote talk)
7. **W. H. Zhong**, Multifunctional Nanocomposites for Applicable for Aero- and Auto Industry, Huazhong University of Science and Technology, Wuhan, Hubei Province, China, August 2, 2017.
8. **W.H. Zhong**, Natural Materials for Functional Applications, Huazhong Agricultural University, Wuhan, Hubei Province, China, August 1, 2017.
9. **W.H. Zhong**, Gummy Electrolytes for Safe and High Performance Batteries: Adhesive Electrolytes and Multifunctional Binders, March 29030, 2015, Beijing, China
10. **W. H. Zhong**, Natural Protein and Gum-Like Nanocomposites for Energy Storage Applications, Beijing University of Chemical Technology, Beijing, China, November 2, 2016.
11. **W. H. Zhong** and Y. Wang**,** Flexible and Safe Battery Materials for Next Generation Conformable Electronics and Power Sources, , Nanjing University of Science and Technology, Nanjing, Jiangsu Province, China.， June 26, 2015
12. **W. H. Zhong,** Several Nanocomposite Technologies Applicable in Industry, July 10, 2015, Suzhou Institute of Nanotechnology, Suzhou, Jiangsu Province, China.
13. **W. H. Zhong** and Y. Wang**,** Flexible and Safe Battery Materials for Next Generation Conformable Electronics and Power Sources, November 10, 2014, University of Jinan, Jinan, Shandong Province, China.
14. **W. H. Zhong,** Industry Applicable Nanotechnology for Next Generation Composites via Energy Efficient Manufacturing, November 4, 2014, University of Idaho, Moscow, ID
15. **W. H. Zhong**, Industry Applicable Nanotechnology for Next Generation Composites, Advanced Materials Conference, September 19-21, 2014, Xi An, China
16. **W. H. Zhong,** Industry Applicable Nanotechnologies: Approaches to Enhancing Quality and Stability of Nano-systems, Quantitative Assessment Tools and a Gummy Electrolyte for Safe LiBs, SPE Auto Composites Conference and Exhibition (ACCE), September 8-11, 2014, Novi, MI. (Keynote talk)

17. **W.H. Zhong**, Reduced Viscosity Nanotechnology Leading to Enhanced Mechanical Properties and Lower Viscosity for Improved Infusion Processing of Composites, SPE Auto Composites Conference and Exhibition (ACCE), September 8-11, 2014, Novi, MI.
18. **W. H. Zhong,** Nanotechnologies Applicable in Industries: Approaches to Enhancing Quality and Stability of Nano-systems and Quantitative Assessment Tools, Beijing University of Chemical Technology, Beijing, China, July 1, 2014
19. **W. H. Zhong**, Industry Applicable Nanotechnology and Energy Efficiently Manufacturing Advanced Composites with Nanomaterials, Tongji University, Shanghai, China, July 7, 2014.
20. **W. H. Zhong,** Nanotechnologies Applicable in Industries: Approaches to Enhancing Quality and Stability of Nano-systems and Quantitative Assessment Tools, Sichuan University, Chengdu, Sichuna Province, China, July 10, 2014.
21. **W. H. Zhong,** R. G. Maguire, B. Li, Nano-Material Technologies for Next Generation Composites Applicable in Aerospace and Automotive Industries, Nanomaterials for Industry, San Diego, CA, April 6-9, 2014. (Keynote talk)
22. **W. H. Zhong,** Ultra-elastic Bio-battery Materials for Next Generation Flexible Electronics and Power Sources, Ningbo Institute of Materials Technology and Engineering, Ningbo, Zhejiang Province, China, December, 25, 2013.
23. **W. H. Zhong**, Polymer Nanocomposites in Energy and Aerospace Applications, Purdue University, West Layette, IN, November 18, 2013
24. **W. H. Zhong,** High Performance Polymeric Electrolytes for Safe Lithium-ion Batteries, 246th ACS International Meeting and Exhibition, Indianapolis, IN, September 8-12, 2013.
25. **W. H. Zhong,** For More Energy Efficient RI Processing of Structural Composites: A "Nano-Nectar" (Liquid Nano-Reinforcement) Technology Leading Epoxy to High Performance and Low Viscosity, Aerospace Engineers Association, Seattle, WA, June 15, 2013.
26. **W. H. Zhong**, Solid Polymeric Electrolytes for Safer Higher Performance Lithium Ion Batteries, Critically Needed for Commercial Aircraft, invited by SAMPE Seattle Chapter, Seattle, March 26, 2013.
27. **W.H. Zhong,** Flexible Bio-battery Materials -Solid polymer electrolytes (SPEs) and Li-ion battery safety issues, University of British Columbia, Vancouver, BC, Canada, February 7, 2013**.**
28. **W. H. Zhong**, Flexible Bio-battery Materials for Next Generation Foldable/Conformable Electronics and Power Sources, Beijing University of Chemical Engineering, January 3, 2013.
29. **W.H. Zhong**, Ultra-elastic Electrolytes for Foldable/Conformable Electronics and Power Sources, Beihang University, Beijing, China, January 4, 2013.
30. **W. H. Zhong**, Enhancing Mechanical Performances while Reducing Manufacturing Cost for Advanced Structural Composites Using "Liquid Nano Reinforcement", Beihang University, Beijing, China, January 4, 2013.
31. **W.H. Zhong**, Nanocomposite Materials for Aerospace and Energy Applications, for WA Legislative Committee on Economic Development & International Relations: Creating New Economic Possibilities through the Development of Innovative Composite Materials, Tacoma, WA 98421, September 21, 2012.
32. **W.H. Zhong**, Simultaneously Enhancing Ionic Conductivity and Mechanical Properties of Solid Polymer Electrolytes via a Copolymer as Multi-Functional Filler, Next Generation Batteries, Boston, MA, July 19-20, 2012.
33. **W.H. Zhong,** Soy Protein-based Ultra Elastic Polymeric Electrolyte, Next Generation Batteries, Boston, MA, July 19-20, 2012.
34. **W. H. Zhong**, Novel Nanotechnology for Boeing Airplane Applications: Nano-nectar Tech for Multifunctional Coatings/Primers/Surfacing/Films; Bi-layer Conductive Nanocomposite Films/Coatings with High Static Dissipation Efficiency; Dielectric Approach for Damage Detection in Composites and Nanocomposite Parts, Everett, WA, January 17, 2012.
35. **W.H. Zhong**, Enabling Faster Resin Infusion Processing of Automotive Composites, invited by ASM Spokane Chapter, Spokane, WA, January 10, 2012.

36. A. Tangpong and **W. H. Zhong**, Tribological and Mechanical Properties of Nanocomposites with PE Materials, Biomedical Engineering Seminar, Mayo Clinic, Rochester, Minnesota, October 21, 2011.
37. **W.H. Zhong,** "Enabling Faster Resin Infusion Processing of Automotive Composites: A "Nano-Nectar" Technology Leading Epoxy to High Performance and Low Viscosity", SPE Automotive Composites Conference and Exhibition, Troy, Michigan, September 13-15, 2011.
38. **W. H. Zhong**, "Enhancing mechanical properties of epoxy resin while reducing viscosity using "liquid nano-reinforcement", 2011 Nanotech International Conference, Boston, June 13-17, 2011
39. **W. H. Zhong**, "Nanocomposites for Industry Application", (2-hour course) invited by the Boeing Co. in Renton and Everett, WA. March 29-30, 2011.
40. **W.H. Zhong**, "Nanofibers (GNF-ODA) for High Performance Structural Composites at Boeing Fiber Workshop: The Importance of the New Fibers in a Composite Function", Everett, WA, July 22-24, 2008.
41. **W.H. Zhong**, "Polymer Nanocomposites and Functionalities", (2-days/16-hour Course) at Boeing Co, Everett, WA, June 2-3, 2008.
42. **W.H. Zhong**, "Challenging Issues for Development of Nanocomposites", at Washington State University (School of Mechanical & Materials Engineering), February 7, 2008.
43. **W.H. Zhong, "**Nanofiber Reinforced Epoxy Composites and Their Ageing Properties", PNNL, Richland, WA, January 25, 2008.
44. **W.H. Zhong**, "Nanotailored Carbon Fibers Interchange -New Generation Carbon Fiber Technology" Workshop, Air Force Institute of Technology Facility, Dayton, OH, November 6-7, 2007.
45. **W.H. Zhong,** "High Temperature BMI Resin, Increased Durability VARTM Composite Parts and Durable Repair Resins", Brainstorming Proposed Projects for AMTAS FAA, Seattle, WA, October 25, 2007.
46. **W.H. Zhong**, "Preparation and Properties of Nano-epoxy as a Composite Matrix for Space Radiation Shielding", at Washington State University (Chemistry Dept), October 5, 2007
47. **W.H. Zhong, "**Multi-functional Nanocomposites and Nanofoam", in Industry Symposium on Micro & Nano Scale Cellular Polymers, at University of Washington, Seattle, WA, August 16-17, 2007.
48. **W.H. Zhong** and J. Miller, "Reactive Nano-Epoxy Matrix and the UHMPWE Fiber Composites for Cosmic Radiation Shielding", Smart Mateials and Nanotechnology in Engineering (SMN 2007)", Harbin, China, July 3, 2007.
49. **W. H. Zhong,** "Processing and Properties of Nanocomposites with high Performance", at Beijing University of Chemical Technology, Beijing, China, June 22, 2007
50. **W.H. Zhong, "**Development of Nanocomposites for Cosmic Radiation Shielding", At University of Alabama, Birmingham, AL, February 7, 2007.
51. **W.H. Zhong,** "Challenging Issues for Development of High Performance Nanocomposites – Preparation of Nano-Epoxy", at North Dakota State University, Fargo, ND, February 21, 2007.
52. **W.H. Zhong,** "Challenging Issues for Development of Nanocomposites – Preparation of Nano-Epoxy", at Workshop on Nanocomposistes and Hybrid Materials, supported by NSF NIRT and North Dakota State University, Fargo, ND, October 6, 2006**.** (Organizer, invited talk)
53. **W. H. Zhong**, "Polymer Nanocomposites and Functionalities", (5-day/30-hour Workshop) at Boeing Co, Renton, WA, July 9-13, 2006.
54. **W. H. Zhong**, "Polymer Nanocomposites and Functionalities", (5-day/30-hour Workshop) at Boeing Co, Everett, WA, July 16-20, 2006.
55. **W.H. Zhong,** "Electrical Conductivity: Nano-Fillers and Nanocomposites", at the Boeing Company, Everett, WA, January 13, 2006**.**
56. **W.H. Zhong,** "Properties of Nano-matrix and Characterization of Wettability and Adhesion for UHMWPE Fiber/Nano-Matrix", at the Boeing Company, Everett, WA, November 3, 2005.
57. **W.H. Zhong,** "Preparation of Nano-Matrix for Enhanced Composite Fiber/Matrix Adhesion & Sensitivity of Properties to Processing Parameters", at the Boeing Company, Everett, WA, November 3, 2005.

Conferences (papers/presentations/posters)

1. C. Wang, X.W. Fu, S. Lin, J. Liu, and **W.H. Zhong**, A Protein-enabled Protective Film for Stabilizing Lithium-metal Batteries, *Advanced Automotive Battery Conference*, San Diego, CA, Dec 5-8, 2022. (poster)
2. X.W. Fu and **W.H. Zhong**, Proteins as Multifunctional Polymers for Sustainable Energy Storage Application, 16th Pacific Polymer Conference, Singapore, December 8-12, 2019. (session chair)
3. J.J. Liu and **W.H. Zhong**, Multi-functional Air-filters Made From Abundant Natural Proteins, 16th Pacific Polymer Conference, Singapore, December 8-12, 2019. (poster)
4. X. Fu, Y. Wang, X. Wang, F. Dunne and **W.H. Zhong**, Gum-like Nanocomposites as Interfacial Materials for Energy Storage Devices, ASME 2019 International Mechanical Engineering Congress and Exposition, Salt Lake City, November 8-14, 2019.
5. X. Fu and **W.H. Zhong**, Applications of Natural Protein in Sustainable Energy Storage, Green Energy & Expo, Rome, Italy; October 14-16, 2019 (keynote talk, abstract).
6. X. Fu, Y. Wang, C. Li, Y. Jewel, J. Liu, L. Scudiero and **W.H. Zhong**, Manipulating Protein Configuration for High-performance Solid Poliymer Electrolytes, 233rd Electrochemical Society (ECS) Meeting, Seattle, WA, May 13-17, 2018. (Poster)
7. X. Fu, X.; Y. Jewel, Y.Wang, J. Liu, **W. H. Zhong**, A Protein Solid Electrolyte with Decoupled Ion Transport, *Bioenvironmental Polymer Society 24th Annual Meeting 2017*, Sep. 20 – 22, Berkeley, CA. (Outstanding poster award).
8. X. Fu, J. Yead, Y. Wang, J. Liu and **W.H. Zhong**, Molecular Mechanisms of Ion Transport in a Soy Protein-based Solid Ion Conductor, the 253rd ACS National Meeting, San Francisco, CA, April 2-6, 2017.
9. X. W. Fu, L. Kovatch, L. Scudiero, Y. Wang and **W. H. Zhong**, Hybrid Nanofillers of Soy Protein and TiO_2 for Enhanced Electrochemical Performance of Poly(ethylene oxide) Composite Electrolyte, 2016 Symposium of the Pacific Northwest Chapter of the AVS, September 14-16, 2016, Richland, WA.
10. X. Fu, Y. Jewel, Y. Wang, J. Liu, **W. H. Zhong**, A Natural Pathway to Advanced Solid Polymer Elctrolytes: Adjustable Ion Transportation in Denatured Soy Protein, *MSEP Research Exposition 2016*, WSU. (Best poster award).
11. Y. Wang, S. Nesaei, **W.H. Zhong** and A. Gozen, "3D Printing of Micro-engineered Flexible Lithium-Ion Batteries Using Gummy Conductors", Poster Presentation, ASME AM3D2015 conference, Boston, MA, August 2-5, 2015.
12. **W. H. Zhong,** Industry Applicable Nanotechcnologies: Approaches to Enhancing Quality and Stability of Nano-systems, Quantitative Assessment Tools and a Gummy Electrolyte for Safe LiBs, SPE Auto Composites Conference and Exhibition (ACCE), Detroit, MI. (Keynote talk and paper), September 8-11, 2014
13. **W.H. Zhong**, Reduced Viscosity Nanotechnology Leading to Enhanced Mechanical Properties and Lower Viscosity for Improved Infusion Processing of Composites, SPE Auto Composites Conference and Exhibition (ACCE), Detroit, MI. (Invited talk), September 8-11, 2014.
14. H. Souzandeh, Y. Wang, A.W. Eyler, **W. H. Zhong,** Protein-Based Nanocomposites: A Study on the Interactions Between Denatured Soy Protein and Poly(Ethylene Oxide), SAMPE, June 2-5, 2014, Seattle, WA.
15. A.W. Eyler, Y. Wang, H. Souzandeh, **W.H. Zhong**，Control of the Morphology Structures of Protein-Based Nanocomposites, SAMPE, June 2-5, 2014, Seattle, WA.
16. **W. H. Zhong,** R. G. Maguire, B. Li, Nano-Material Technologies for Next Generation Composites Applicable in Aerospace and Automotive Industries, Nanomaterials for Industry, San Diego, CA, April 6-9, 2014. (Abstract and Presentation/Keynote talk)
17. S. Xu, A. Akchurin, T. Liu, W. Wood, X.W. Tangpong, I. Akhatov, and **W. H. Zhong**, "Thermal and

Wear Analysis of HDPE/CNF Nanocomposites in Dry Sliding Contact With a Steel Ball," IMECE2013-64963, 2013 ASME International Mechanical Engineering Congress and Exposition, San Diego, CA, November 15-21, 2013. (Presentation)

18. S. Xu, A. Akchurin, T. Liu, W. Wood, X.W. Tangpong, I. Akhatov, and **W. H. Zhong,** "An Energetic Approach for Wear Prediction of HDPE/CNF Nanocomposites In Dry Sliding Contact with A Steel Ball," IMECE2013-67010, Poster presentation, Society-Wide Micro and Nanotechnology Forum, 2013 ASME International Mechanical Engineering Congress and Exposition, San Diego, CA, November 15-21, 2013 (Poster)
19. B. Deacon, **W.H. Zhong** and B. Lively (presenter), Mechanical Performance of Kevlar Fabric/carbon Nanofiber Modified Epoxy Composites Made via Vacuum Assisted Resin Transfer Molding, SAMPE, Wichita, KS, Oct 20-24. 2013.
20. A. Akchurin, S. Xu, X.W. Tangpong, T. Liu, W. Wood, and **W. H**. **Zhong**, "Nanoscale Characterization of Wear Particles Produced from CNF-Reinforced HDPE Composites," IMECE2012-86149, ASME International Mechanical Engineering Congress and Exposition, Houston, TX, November 9-15, 2012.
21. S. Xu, A. Akchurin, X.W. Tangpong, T. Liu, W. Wood, and **W. H. Zhong**, "Comparison of Tribological Performances of High Density Polyethylene Enhanced with Carbon Nanofibers," IMECE2012-86150, ASME International Mechanical Engineering Congress and Exposition, Houston, TX, November 9-15, 2012.
22. J. Y. Ji and **W.H. Zhong**, Simultaneously Enhancing Ionic Conductivity and Mechanical Properties of Solid Polymer Electrolytes via a Copolymer as Multi-Functional Filler, Next Generation Batteries, Boston, MA, July 19-20, 2012. (abstract and invited talk)
23. J. Y. Ji and **W.H. Zhong,** Soy Protein-based Ultra Elastic Polymeric Electrolyte, Next Generation Batteries, Boston, MA, July 19-20, 2012. (abstract and invited talk)
24. B. Lively, P. Smith and **W.H. Zhong**, Stereological Macrodispersion Analysis: Industry Applicable Quality Assessment of Nanocomposite Materials and Parts, SAMPE, Baltimore, MD May 21-24, 2012, (Student Research Symposium 2012 Finalist – Oral Competition Honorable Mention)
25. W. Wood and **W. H. Zhong**, Effect of paraffin concentration on dispersion, mechanical, and tribological properties of extruded UHMWPE-CNF composites, *SPE-ANTEC 2012 Meeting*, Orlando, FL, April 2nd, 2012. (Abstract)
26. **W.H. Zhong,** "Enabling Faster Resin Infusion Processing of Automotive Composites: A "Nano-Nectar" Technology Leading Epoxy to High Performance and Low Viscosity", SPE Automotive Composites Conference and Exhibition, Troy, Michigan, September 13-15, 2011.
27. B. Li and **W.H. Zhong**, Flexible Sulfonated Poly(etherketoneketone) Foam for Energy Efficient Applications, World Materials Summit, organized by MRS, October 8-12, 2011, Washington DC. (B. Li was selected as one of the top 50 PhD students/postdocs in the world to attend the conference; poster)
28. E. Olson, B. Li and **W.H. Zhong**, Effect of Surface Treatment of Graphite Nanoplatelet on Damping Properties of Polyetherimide Nanocomposites, 161st Conference of the Acoustical Society of America, May 23-25, 2011, Seattle, WA. (Invited: abstract and oral presentation).
29. J. Y. Ji, B. Li and **W.H. Zhong**, A Solid Polymer Electrolyte with Comprehensively Enhanced Performance for Lithium Ion Battery, 2011 AlChE Annual Meeting, Minneapolis, MN, October 16-21, 2011. (poster)
30. J.Y. Ji, J. Keen and **W.H. Zhong**, Improvement in Ionic Conductivity and Mechanical Properties Observed In Multi-Functional Block Copolymer Modified Solid Polymer Electrolytes for Li+ Ion Batteries, 2011 AlChE Annual Meeting, Minneapolis, MN, October 16-21, 2011. (oral presentation)
31. J. Y. Ji and **W. H. Zhong**, A Solid Polymer Electrolyte with Comprehensively Enhanced Performance for Lithium Ion Battery, World Materials Summit, organized by MRS, October 8-12, 2011, Washington DC. (J.Y. Ji was selected as one of the top 50 PhD students/postdocs in the world to attend the conference; poster)
32. B. Li and **W. H. Zhong**, Porous Sulfonated Poly(etherketoneketone) with Extremely High Dielectric Constant and Low Loss, ANTEC (Society of Plastic Engineers) 2011, May 1-5, Boston, MA.

33. E. Olsen, B. Li and **W.H. Zhong**, Study on Damping Properties and Static Dissipation Properties of Polyetherimide/Graphite Nanoplatelets Nanocomposites, ANTEC (Society of Plastic Engineers) 2011, May 1-5, Boston, MA.

34. **W. H. Zhong, "**Enabling Faster Resin Infusion Processing of Automotive Composites: A "Nano-Nectar" Technology Leading Epoxy to High Performance and Low Viscosity", SPE Automotive Composites Conference and Exhibition, September 13-15, 2011, Troy, Michigan. (Best Paper Award)

35. **W. H. Zhong**, Enhancing Mechanical Properties of Epoxy Resin While Reducing Viscosity Using "Liquid Nano-Reinforcement", Nanotech 2011, June 13-17, 2011, Boston, MA.

36. S. Xu, S., A. Akchurin, X.W. Tangpong, I. Akhatov, T. Liu, W. Wood and **W.H. Zhong**, Tribological behavior of High density polyethylene nanocomposites with Silane Treated Carbon Nanofibers, *ASME International Mechanical Engineering Congress and Exposition*, Denver, CO, November 11-17, 2011.

37. S. Xu, A. Akchurin, X.W. Tangpong, I. Akhatov, I., T. Liu, W. Wood and **W.H. Zhong**, Mechanical Characterization of Friction and Wear Properties of Nanocomposites, 2011 Annual American Institute of Chemical Engineers, Minneapolis, MN, October 16-21, 2011.(Poster and abstract)

38. T. Liu, W. Wood, B. Li, B. Lively and **W.H. Zhong**, Morphological Study and Quantitative Analysis on Wear Debris of Carbon Nanofiber/High Density Polyethylene Composites, *2011 Annual American Institute of Chemical Engineers*, Minneapolis, MN, October 16-21, 2011.

39. W. Wood, T. Liu and **W.H. Zhong**, Preparation and Characterization of Vinyl and Organosilane-treated Carbon Nanofibers for Tribological Enhancement of Polyethylene Nanocomposites, *MRS Meeting Spring 2011,* San Fransico, CA, April 25th, 2011. (Abstract and Poster)

40. A. Akchurin, S. Xu, S., X.W. Tangpong, I. Akhatov, I., T. Liu, W. Wood and **W.H. Zhong**, Morphological and Quantitative Characterization of Wear Particles Generated From Nanocomposites, 2011 Annual American Institute of Chemical Engineers, Minneapolis, MN, October 16-21, 2011. (Poster and abstract)

41. M. G. Smith, B. Lively, B. Li and **W.H. Zhong**, Examination of Multi-walled Carbon Nanotubes and Graphite Nanoplatelets Interactions in Polymcarbonate, SAMPE 2011 Spring, May 23-26, 2011, Long Beach, CA.

42. E. Olson, B. Li and **W.H. Zhong**, Effect of Surface Treatment of Graphite nanoplatelet on Damping Properties of Polyetherimide Nanocomposites, 161st meeting of the Acoustical Society of America, May 23-27 2011, Seattle, WA.

43. B. Lively, S. Kumar, B. Li, Z. Ren and **W.H. Zhong**, Relationship of Mixing Method-Dispersion-Property of Oxidized Carbon Nanofiber Composites, SAMPE'10 Spring, May 17-20, 2010, Seattle, WA. (Graduate Student Award Finalist)

44. W. Wood and **W.H. Zhong**, Wear and Mechanical Properties of Organosilane-treated Carbon Nanofiber Reinforced Polyethylene Nanocomposites, SAMPE'10 Spring, May 17-20, 2010, Seattle, WA. (Graduate Student Award Finalist)

45. L.L. Sun, **W.H. Zhong**, Y. Zhao, Dielectric Properteis of Sandwich-Structured CNF/PVDF Composites, SAMPE'10 Spring, May 17-20, 2010, Seattle, WA.

46. B. Li, G. Sui and **W.H. Zhong**, Investigation on Mechanisms of Negative Permittivity in Polyetherimide/Carbon Nanofiber Composites, SAMPE'10 Spring, May 17-20, 2010, Seattle, WA.

47. B. Li, W. Wood, G. Sui, L. Baker and **W.H. Zhong**, Flexural and Tribological Properties of Carbon Nanofiber Reinforced Polyetherimide Composites, SAMPE'10 Spring, May 17-20, 2010, Seattle, WA.

48. B. Li and **W.H. Zhong**, Negative Permittivity in Polymer Nanocomposites: Influences of Size Distribution of Carbon nanofiber Networks, TMS 2010 Annual Meeting & Exhibition, February 14-18, 2010, Seattle WA.

49. A. Perugini, B.Li and **W.H. Zhong**, Study on Damping Properties of Polyetherimide/Graphite Nano-Platelet Composites, TMS 2010 Annual Meeting & Exhibition, February 14-18, 2010, Seattle WA. (extended abstract).

50. L.L. Sun, B. Li, **W.H. Zhong** and Y. Zhao, Study of the AC Conductivity Affected by Crystallization

and CNFs for PVDF/CNF Composite Thin Films, TMS 2010 Annual Meeting & Exhibition, February 14-18, 2010, Seattle WA. (extended abstract).

51. N.J. Vaccaro, W. Li, B. Li and **W.H. Zhong**, The Effects of Mixing and Loading of Carbon Nanofiber on Mechanical Properties of Polyetherimide Nanofoams, 38th North American Manufacturing Research Conference, May 25-28, 2010. Kingston, Ontario, Canada.
52. B. Li and **W.H. Zhong**, Mechanical and Physical Properties of Polyetherimide/Carbon Nanofiber Composites Fabricated by Different Methods, 17th International Conference on Composites/Nano Engineering (ICCE-17), July 26-August 1, 2009, Honolulu, HI (extended abstract).
53. W. Wood and **W.H. Zhong**, Mechanical and Wear Properties of UHMWPE Nanocomposites Filled with Carbon Nanofillers, 17th International Conference on Composites/Nano Engineering (ICCE-17), July 26-August 1, 2009, Honolulu, HI (extended abstract).
54. X. Ren, X.W. Tangpong and **W.H. Zhong**, Numerical Investigations of Mechanical Responses, Friction and the Formation of Debris of UHMWPE in Total Joint Replacements, DETC2009-86365, ASME Design Engineering Technical Conferences, August 30-September 2, 2009, San Diego, CA.
55. N.J. Vaccaro, W. Li, B. Li and **W. H. Zhong**, Nanofoamed High Performance Polymer Nanocomposites, 37th North American Manufacturing Research Conference, May 19-22, 2009, Creenville, SC.
56. S. Jana and **W. H. Zhong**, Multi-functional Reactive Graphitic Nanofibers (r-GNFs)-Epoxy Resin as Matrix for Composites, 2008 Proceedings of the American Society for Composites (ASC), September 6-9, 2008, Memphis, TN.
57. V. Dang, R. G. Maguire, M. Richey and **W.H. Zhong**, Nanotechnology Training for Boeing Engineers: Tearing Down Traditional Walls, 2008 Proceedings of the American Society for Composites (ASC), September 6-9, 2008, Memphis, TN.
58. **W.H. Zhong**, Wettability and Adhesion of Nano-Epoxies to UHMWPE Fibers, 6th International Symposium on Contact Angle, Wettability and Adhesion, July 14-16, 2008, Orono, ME.
59. S. Jana and **W. H. Zhong**, Property Enhancement of Epoxy matrix by Adding Reactive Graphitic Nanofibers, SAMPE'07, October 29-November 1, 2007, Cincinnati, OH.
60. S. Jana and **W.H. Zhong**, Tensile Properties of UHMPWE/Nanofiber-epoxy Bundle Composites, American Society for Composites' 07 (ASC), September 17-19, 2007, Seattle, WA.
61. S. Jana, A. Salehi-Khojin and **W.H. Zhong**, Nano Fluidic Thermal management for Polymeric Composite Aero Structure, American Society for Composites' 2007 (ASC), September 17-19, Seattle, WA.
62. X.X. Wang, S. Jana, G. Sui, W. Li, V. Kumar and **W.H. Zhong**, Microstructure and Thermal Conductivities of Polymer Nanocomposite Foams, American Society for Composites' 2007 (ASC), September 17-19, Seattle, WA.
63. X. X. Wang, W. Li, V. Kumar, S. Jana and **W.H. Zhong,** Preliminary Study on Solid-State Foaming of PMMA/CNT Nanocomposites, ASME International Mechanical Engineering Congress and Exposition'2007 (IMECE), November 9-12, 2007, Seattle, WA.
64. **W.H. Zhong** and J. Miller, Reactive Nano-Epoxy Matrix and the UHMPWE Fiber Composites for Cosmic Radiation Shielding, Smart Materials and Nanotechnology in Engineering (SMN 2007), July 1-4, 2007, Harbin, China. (Invited)
65. S. Jana nd **W.H. Zhong**, Ageing Effects of Reactive Graphitic Nanofibers on an Epoxy Resin, MRS Fall 2007, November 26-30, 2007, Boston, MA. (Abstract)
66. X. Ren, **W.H. Zhong**, G. Sui, M. A. Fuqua, C.A. Ulven, Processing and Properties of Carbon Nanofibers Composites with UHMWPE using a Twin-screw Extruder, 3rd UHMWPE International Meeting, Madrid, Spain, September 14-15, 2007 (Abstract).
67. M. Fuqua, C.A. Ulven, G. Sui, and **W.H. Zhong**, Biobased Nanocomposites Fabricated Using Twin Screw Extrusion, CANCOM 2007 (Canadian Composites 2007), August 14-16, 2007, Winnipeg, Canada.

68. G. Sui, **W.H. Zhong**, M.A. Fuqua and C.A. Ulven, Properties of Polypropylene Nanocomposites Fabricated Using Twin-screw Extrusion, 16th national Conference on Composite Materials (ICCM-16), July 8-13, 2007, Kyoto, Japan.

69. **W.H. Zhong**, G. Sui, M. A. Fuqua and C. A. Ulven, Conducting Properties of Polypropylene/Carbon Nanofiber Composites, 16th national Conference on Composite Materials (ICCM-16), Kyoto, Japan, July 8-13, 2007.

70. G. Sui, **W.H. Zhong**, M.A. Fuqua and C.A. Ulven, Morphology and Properties of Polypropylene/Carbon Nanofiber Composites Fabricated using Twin-Screw Extruder, SAMPE'07, June 3-7, 2007, Baltimore, MA.

71. S. Jana, **W. H. Zhong**, H. Chen and Q. Huo, Electrical Conductivity of Nanocomposites with Lithium Compound and Gold Nanoparticles, SAMPE'07, June 3-7, 2007, Baltimore, MA.

72. S. Jana and **W.H. Zhong,** Nano-epoxy and UHMWPE fiber/Nano-epoxy Composites under Moisture and UV Conditions, SAMPE'06 November 6-9, 2006, Dallas, TX.

73. **W. H. Zhong**, S. Jana, A. Zhamu, Y.P. Hou, J. J. Stone, J. Li and C. M. Lukehart, Effects of Reactive Graphitic Nanofibers on Mechancial and Thermal Properties of a Nano-epoxy, SAMPE'06 November 6-9, 2006, Dallas, TX.

74. **W. H. Zhong**, S. Jana, A. Zhamu, and J. J. Stone, Tensile Behavior of UHMWPE Fiber/Nano-epoxy Bundle Composites, SAMPE'06, April 30-May 4, 2006, Long Beach, CA.

75. A. Salehi-Khojin, **W.H. Zhong** and A. Zhamu, Interfacial Adhesion in UHMWPE Fiber/Nano-epoxy by Single Fiber Pull-out Test, SAMPE'06, April 30-May 4, 2006, Long Beach, CA.

76. **W.H. Zhong,** A. Zhamu, Y.P. Hou, Y.N. Li and J.J. Stone, Adhesion and Mechanical Properties of Reactive Graphitic Nanofibers Reinforced Epoxy as a Composite Matrix, American Society for Composites, 20th Annual Technical Conference, September 7-9, 2005, Philadelphia, PA.

77. J. J. Stone, **W.H. Zhong** and A. Zhamu, Low Velocity Impact of Engineered Structural Composites, 20th Annual Technical Conference of American Society for Composites (ASC), September 7-9, 2005, Philadelphia, PA.

78. **W.H. Zhong**, A. Zhamu and J. Stone, Fabrication and Interfacial Property Characterization of a Nano-matrix with Reactive Graphitic Nanofibers, 16th Annual NASA Space Radiation Investigators' Workshop, May 15-18, 2005, Port Jefferson, NY.

79. **W.H. Zhong**, A. Zhamu, M. Wingert and J. Stone, Improvement in Wetting and Adhesion Between UHMWPE fiber and Epoxy using Graphitic Nanofibers, SAMPE'05, May 1-5, 2005, Long Beach, CA.

80. J. Li, M. J. Vergne, **W.H. Zhong**, D.M. Hercules, L.R. Xu, and C. M. Lukehart, Surface functionalization of graphitic carbon nanofibers towards GCNF/polymer composites, 227the ACS National Meeting, 2004, Anaheim, CA.

81. M. Wingert, L. Winkenwader and **W.H. Zhong**, Processing and Mechanical Properties of Reactive Graphitic Carbon Nanofiber-Reinforced Epoxy As Composite Matrix, CANEUS 2004 International Conference on Micro- Nano- Technologies for Aerospace Applications, American Institute of Aeronautics and Astronautics (AIAA), Nov. 2004, Monterey, CA.

82. **W.H. Zhong**, L.R. Xu, V. Bhamidipati, J. Li and C.M. Lukehart, Mechanical property characterization of a polymer nanocomposite reinforced by graphitic nanofibers with reative linker, *The 14th International Conference on Composite Materials* (ICCM-14) , 2003, San, Diego.

83. L.R. Xu, **W.H. Zhong**, J. Li, C.M. Lukehart and V. Bhamidipati, Property Characterization of a New Nanofiber/Epoxy Composite Material, SEM Annual Conference & Exposition on Experimental and Applied Mechanics, the Society for Experimental Mechanics, Inc., 2003, Bethel, CT.

84. **W.H. Zhong**, G. Sui and Z.G. Zhang, Study of an Epoxy System Cured by Electron Beam Technology, Japan-China Materials Science and Technology Conf., Oct. 2000, Tokyo, Japan,.

85. H.T. Guo, **W.H. Zhong** and Z.G. Zhang, Friction Resistance Properties of a Hybrid Composite Reinforced with CF/KF, 11th China National Conference on Composite Materials (NCCM-11), Hefei, Anhui Province, China, 2000.

86. Z.Q. Gao and **W.H. Zhong**, Effects of Ti Surface Treatment on the Properties of Super-hybrid Composite Ti/CFRP, 11th China National Conference on Composite Materials (NCCM-11), Hefei, Anhui Province, China, 2000.

87. **W.H. Zhong**, L.R. Xu, V. Bhamidipati, J. Li and C.M. Lukehart, Mechanical Property Characterization of a Polymer Nanocomposite Reinforced by Graphitic Nanofibers with Reactive Linker, 14th International Conference on Composite Materials, July 2003, San Diego, CA.

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