

Zhengtao Zhu (朱正涛)

Associate Professor
Department of Chemistry and Applied Biological Sciences
South Dakota School of Mines & Technology
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Education

- Ph.D.** Materials Chemistry, State University of New York at Binghamton, Binghamton, NY, 2002.
Dissertation: Spectroscopic Studies of Charge-Density-Wave Bronzes and Fullerene Polymers.
Advisor: Janice L. Musfeldt.
- M.S.** Polymer Chemistry and Physics, Fudan University, Shanghai, P. R. China, 1995.
Thesis: Miscibility of Polyester-urethane/Poly(styrene-co-acrylonitrile) Blends and Effects of Introducing Specific Interactions. Advisor: Jingwei Xie.
- B.S.** Materials Chemistry, Fudan University, Shanghai, P. R. China, 1992
Honor thesis: Synthesis and Characterization of Polyacrylate/Polyurethane Interpenetrating Polymer Networks. Advisor: Lingyun Xu.

Professional Experience

- South Dakota School of Mines and Technology, Rapid City, SD** **August 2006 – present**
Associate Professor, Department of Chemistry and Applied Biological Sciences July 2012 – present
Assistant Professor, Department of Chemistry August 2006 – June 2012
Nanomaterials for solar energy conversion and electrochemical energy storage. Conjugated polymer/nanoparticle nanocomposites. Electronic and optical properties of nanomaterials. Flexible/wearable electronics and sensors. Unconventional techniques (electrospinning, soft-lithography, and transfer printing) for fabrication and assembly of nanomaterials.
- Soochow University, Suzhou, China** **January 2016 – May 2016**
Sabbatical (Guest Professor), College of Chemistry, Chemical Engineering and Materials Science
- University of Illinois at Urbana-Champaign, Urbana, IL** **May 2004 – July 2006**
Postdoctoral Research Associate, Department of Materials Science & Engineering
Advisor: John A. Rogers
Design and fabrication of flexible electronics based on novel electronic materials. Studies of contact effects between metals and microstructured silicon. Soft-lithography for transferring microscale and nanoscale electronic materials to flexible substrate such as plastics. Near-field lithography. Carbon nanotube devices. Field-effect transistors.
- Cornell University, Ithaca, NY** **December 2001 – April 2004**
Postdoctoral Research Associate, Department of Materials Science & Engineering
Advisor: George Malliaras

Fabrication and characterization of organic electronic materials and devices. Organic thin film transistors. Structure-property relationships in organic semiconductors and conducting polymers. Application of organic semiconducting materials and devices for chemosensors and biosensors.

State University of New York at Binghamton, Binghamton, NY **January 1997 – November 2001**

Research Assistant, Department of Chemistry

January 1998 – November 2001

Teaching Assistant, Department of Chemistry

January 1997 – December 1997

Advisor: Janice L. Musfeldt

Infrared and optical studies of low dimensional electronic materials. Inorganic transition metal oxides, organic conductors and superconductors, and Fullerene polymers. Solid state phase transitions at cryogenic temperatures. Structure-property relationships in low-dimensional solids. Magnetic field effects on the optical response of transition metal oxides.

Yong-Sheng Company, Shanghai, P. R. China

July 1995 – December 1996

Engineer

Improvement of polymer blend miscibility.

Fudan University, Shanghai, China

September 1992 – May 1995

Research Assistant, Department of Macromolecular Science

Advisor: Jingwei Xie

Characterization of polymer blends with infrared and thermal analysis. Interactions in multicomponent polymeric systems. Chemical modification of polymer structure. Structure-property relationships. Synthesis and characterization of water-soluble coatings and interpenetrating polymer networks.

Professional Affiliations

Member, American Chemical Society

Member, Materials Research Society

Member, American Association for the Advancement of Science

Teaching Experience

South Dakota School of Mines and Technology, Rapid City, SD

August 2006 – present

Associate Professor, Department of Chemistry and Applied Biological Sciences July 2012 – present

Assistant Professor, Department of Chemistry

August 2006 – June 2012

Undergraduate Courses

CHEM 112 : General Chemistry I (3 credits)

CHEM 112L: General Chemistry I Laboratory (1 credit)

CHEM 252 : Descriptive Inorganic Chemistry (3 credits)

CHEM 452 : Inorganic Chemistry (3 credits)

CHEM 452L: Inorganic Chemistry Laboratory (1 credit)

CHEM 290/490: Undergraduate Seminar (1 credit)

Graduate Courses

CHEM 552: Inorganic Chemistry (3 credits)

MES 604: Chemistry of Materials (4 credits)

NANO 715: Polymeric Nanomaterials (3 credits)

NANO 717: Nanochemistry (3 credits)

BME/NANO/MES 719: Nanomaterials for Biosensors (3 credits)

Thesis and Dissertation Research Supervision

- Yichun Ding, “Multi-functional flexible/stretchable sensors for human motion, temperature, UV light, and bioanalyte detection,” Ph.D. Dissertation, Biomedical Engineering, South Dakota School of Mines and Technology, June 2018 (expected).
- Fan Zheng, “Electrospun materials for flexible dye-sensitized solar cell,” Ph.D. Dissertation, Nanoscience and Nanoengineering, South Dakota School of Mines and Technology, May 2018.
- Xiaoxu Wang, “Investigation of materials effects and charge transport properties in the photoanode of dye-sensitized solar cells,” Ph.D. Dissertation, Nanoscience and Nanoengineering, South Dakota School of Mines and Technology, June 2014.
- Kezhen Yin, “Preparation and optical properties of electrospun conjugated polymer/polyethylene oxide nanofibers and conjugated polymer/nanoparticle composites,” Master Thesis, Materials Engineering and Science, South Dakota School of Mines and Technology, July 2010.

Non-thesis M.S. Student Research Supervision

- Fan Zheng, “Facile synthesis of Au/TiO₂ and Au/SiO₂ nanocomposites via a one-step electrospinning route,” M.S., Materials Engineering and Science, South Dakota School of Mines and Technology, August 2016
- Casey Clegg, “Selective growth of zinc-oxide nanowires and nanorods through microcontact printing,” M.S., Materials Engineering and Science, South Dakota School of Mines and Technology, May 2014.
- Rachael Jetson, “Optical properties of surface-capped zinc oxide nanoparticles and conjugated polymer nanocomposites,” M.S., Materials Engineering and Science, South Dakota School of Mines and Technology, May 2008.

Undergraduate Research Project Supervision

- Amanda Nelson, “Synthesis and patterning of ZnO nanorods,” Fall 2010, Spring, Summer and Fall 2011.
- Ahn Pham, “‘One-pot’ synthesis of PEDOT/Pd nanocomposite,” Summer and Fall 2010.
- Katrina Donovan, “Synthesis of ZnO nanoparticles,” Summer 2009 and Spring 2010.
- Jordan Speidel, “UV nanosensors based on electrospun ZnO nanofibers,” Fall 2007 to Spring 2008.
- Cameron Thompson, “PEDOT/PSS conducting polymer nanostructures for electrochromic devices,” Spring 2008.

Current and Former Students

- Dr. Xiaoxu Wang, Ph.D. Student, Nanoscience and Nanoengineering, 2010-2014; Research Scientist, 2014-2015. Current position: Associate professor at Beijing University of Chemical Technology.
- Ms. Fan Zheng, Ph.D. Student, Nanoscience and Nanoengineering, 2012-present.
- Mr. Yichun Ding, Ph.D. Student, Biomedical Engineering, 2014-present.
- Mr. Casey Clegg, M.S. in Materials Engineering and Science, 2013-2014. Current position: Application Engineer in Moxtek.
- Mr. Kezhen Yin, M.S. in Materials Engineering and Science, 2008-2010. Current position: Ph.D. student in Case Western Reserve University.
- Ms. Rachael Jetson, M.S. in Material Engineering and Science, 2007-2008. Current position: Postdoctoral Research Associate at Purdue University.
- Ms. Amanda Nelson, B.S. in Chemistry, graduated in 2012, in my group from Fall 2010 to Fall 2011. Current position: Quality Technician III, ConAgra Foods.
- Mr. Cameron Thompson, B.S. in Chemistry, graduated in 2012, in my group in Spring 2008. Current position: n/a.
- Ms. Ahn Pham, B.S. in Chemistry/Chemical Engineering, in my group in Fall 2010. Current position: Student in University of Arkansas.
- Mr. Jordan Speidel, B.S. in Chemistry, graduated in 2008. Current position: Ph.D. student in the University of Texas Medical Branch.
- Ms. Katrina Donovan, B.S. in Chemistry, graduated in 2010. Current position: Ph.D. student in University of Oregon.

Students Awards under My Supervision

- Fan Zheng, the best poster award at the 2nd Global Nanotechnology Congress and Expo, Las Vegas, December, 2016.
- Xiaoxu Wang, National Award for Outstanding Self-financed Chinese Students Study Abroad, 2014.
- Xiaoxu Wang, 1st place Ph.D. graduate student award, SDSM&T, 2014.
- Xiaoxu Wang, 1st place poster award, Nano Expo, SDSM&T, 2014.
- Amanda Nelson, undergraduate student in my group, Student Fellowship/Scholarship Stipend Program from South Dakota Space Grant Consortium in Spring and Fall 2011.
- Amanda Nelson, undergraduate student in my group, Undergraduate Award in Inorganic Chemistry, ACS Division of Inorganic Chemistry, 2011.
- Katrina Donovan, undergraduate student in my group, Undergraduate Award in Inorganic Chemistry, ACS Division of Inorganic Chemistry, 2009.
- Kezhen Yin, graduate student in my group, Ivanhoe Fellowship, SDSM&T, 2008-2009.

State University of New York at Binghamton, Binghamton, NY **January 1997 – December 1997**
Teaching Assistant, Department of Chemistry
General chemistry discussion section and instructional laboratory. Responsible for instruction and safety of 45 students. High marks from Lab Director and students.

Research Experience

Research Interests

My research seeks to understand and exploit interesting properties of multi-functional hybrid materials of conjugated polymer and inorganic nanostructure. Our group focuses on developing novel synthesis and fabrication methods, understanding the structure-property relations of the hybrid materials at the nanometer scale, and exploring the applications of these materials in flexible electronics and biomedical sensors. The research scope covers the multidisciplinary fields of chemistry, materials, applied physics, and nanotechnology. Current research projects include flexible/wearable electronic devices and sensors for human health monitoring and nanomaterials and device physics of dye-sensitized solar cells and photocatalytic environmental remediation.

Research Funding

- “Wireless body area network in space: Development of wireless health monitoring system with flexible and wearable sensors.”
Administrative PI: Edward F. Duke; Science PI: Yanxiao Zhao; Co-PIs: Zhengtao Zhu, Hao Fong, Charles Tolle, Moses Ikiugu, Hyeun Joong Yoon, Manki Min.
Total Award Amount: \$750,000.
Source of Support: NASA EPSCoR.
Total Award Period Covered: 01/01/2018–12/31/2020.
- “Center for advanced sensors (CAS).”
Principal Investigator (PI): Qiquan Qiao; Co-PIs: David Aaron, Hao Fong; Aaron Franzen; Timothy Hansen, Dennis Helder, Huitian Lu, Zhen Ni, Yunpeng Pan, Sung Shin, Alevitina Smirnova, Songxin Tan, Reinaldo Tonkoski, Myounggyu Won, Hyeun Joong Yoon, Zhengtao Zhu.
Total Award Amount: \$65,350.
Source of Support: SDBOR.
Total Award Period Covered: 07/01/2016–05/31/2017.
- “Flexible electronics for space applications: Development of new materials and device processing technologies.”
Administrative PI: Edward F. Duke; Science PI: Zhengtao Zhu; Co-PIs: Steve Smith, Phil Ahrenkiel, Haeyeon Yang, Qiquan Qiao, Cheng Zhang, David Galipeau.
Total Award Amount: \$750,000.
Source of Support: NASA EPSCoR.
Total Award Period Covered: 01/01/2013–12/31/2016.
- “Fluoride-ion battery prototype development.”
PI: David Salem; Co-PIs: Steve Smith, Haiping Hong, Phil Ahrenkiel, Zhengtao Zhu.
Total Award Amount: \$25,000/month.
Source of Support: Trion (formerly Waterford Energy Solutions Corporation.)
Total Award Period Covered: 03/01/2015–12/31/2016.
- “MRI: Development of novel instrumentation to probe nanoscale charge carrier dynamics with high temporal and spatial resolution.”
PI: Qiquan Qiao; Co-PIs: Zhengtao Zhu, Cheng Zhang, and David Galipeau.
Total Award Amount: \$450,065.

Source of Support: National Science Foundation.

Total Award Period Covered: 09/01/2014–08/31/2017.

- “A disposable electrochemical field-effect sensor based conducting polymer hydrogel for detection of tear film MMP-9 inflammatory marker.”
PI: Zhengtao Zhu; Co-PI: Steve Smith.
Total Award Amount: \$38,128.
Source of Support: BioSNTR.
Total Award Period Covered: 03/01/2015–06/30/2016.
- “Electrochemical laboratory for R&D in power generation and storage.”
PI: Alevtina L. Smirnova; Co-PIs: Zhengtao Zhu, Hao Fong.
Total Award Amount: ~\$100,000.
Source of Support: SD BOR FY14 Research and Development Innovation Grant.
Total Award Period Covered: 01/01/2014–01/31/2015.
- “MRI-R2: Acquisition of a thin-film deposition glovebox system for organic electronics and energy-related nanoscience research and education.”
PI: Zhengtao Zhu; Co-PIs: Hao Fong, Rajesh Shende, Steve Smith.
Total Award Amount: \$163,438.
Source of Support: National Science Foundation.
Total Award Period Covered: 03/01/2010–02/28/2012.
- “Probing the interactions between conjugated polymer and ZnO nanostructure through nanostructure surface engineering.”
PI: Zhengtao Zhu.
Total Award Amount: \$40,000.
Source of Support: Research Corporation Cottrell College Science Awards.
Total Award Period Covered: 08/31/2009–06/30/2012.
- “Development of an advanced photovoltaic materials research cluster in South Dakota.”
Administrative PI: Edward F. Duke; Science PI: Steve Smith; Co-PIs: Qiquan Qiao, David Galipeau, Zhengtao Zhu, Phil Ahrenkiel, Xingzhong Yan.
Total Award Amount: \$750,000.
Source of Support: NASA EPSCoR.
Total Award Period Covered: 10/01/2009–09/30/2012.
- “Charge transfer and charge transport in nanofibers of conjugated polymer/ZnO nanoparticles.”
PI: Zhengtao Zhu.
Total Award Amount: \$40,000.
Source of Support: American Chemical Society–Petroleum Research Fund.
Total Award Period Covered: 09/01/2007–08/31/2010.
- “Chemical sensors based on conducting polymer and nanoparticle composites.”
PI: Zhengtao Zhu.
Total Award Amount: \$5,000.
Source of Support: Nelson Research Award.
Total Award Period Covered: 07/01/2007–06/30/2008.
- “Flexible chemical sensors based on nanocomposite of conjugated polymer/ZnO nanoparticle transistors for aeronautic and space applications.”
PI: Zhengtao Zhu.

Total Award Amount: \$10,000.

Source of Support: South Dakota NASA EPSCoR Research Initiation Grant.

Total Award Period Covered: 01/01/2008–08/31/2008.

Other Research Activities

- Projects and student supports related to NSF EPSCoR RII award.
- “NSOM studies on electrospun nanofibers of conjugated polymers/nanoparticles.”
PI: Zhengtao Zhu.
Source of Support: Argonne National Laboratory, User Facilities.
Total Award Period Covered: 07/01/2007–06/30/2009.
- “Novel hydrogen sensors based on Pd/ZnO nanostructures.”
PI: Zhengtao Zhu.
Source of Support: Argonne National Laboratory, User Facilities.
Total Award Period Covered: 06/01/2008–05/31/2009.

Peer-Reviewed Publications

67. F. Zheng and **Z.-T. Zhu***, “Flexible, freestanding, and functional SiO₂ nanofibrous mat for dye-sensitized solar cell and photocatalytic dye degradation,” *ACS Applied Nano Materials*, **1**, 1141 (2018).
66. Y. Ding, W. Xu, Y. Yu, H. Hou, and **Z.-T. Zhu***, “One-step preparation of highly hydrophobic and oleophilic melamine sponges via metal-ion induced wettability transition,” *ACS Applied Materials & Interfaces*, **10**, 6652 (2018).
65. F. Zheng and **Z.-T. Zhu***, “Preparation of the Au@TiO₂ nanofibers by one-step electrospinning for the composite photoanode of dye-sensitized solar cells,” *Materials Chemistry and Physics*, **208**, 35 (2018).
64. H. Wang, W. Wang*, H. Wang, X. Jin, J. Li, and **Z.-T. Zhu**, “One-way water transport fabrics with hydrophobic rough surface formed in one-step electro spray,” *Materials Letters*, **215**, 110 (2018).
63. T. Xu, Z. Wang, Y. Ding, W. Xu, W. Wu*, *Z.-T. Zhu*, and H. Fong*, “Ultralight electrospun cellulose sponge with super-high capacity on absorption of organic compounds,” *Carbohydrate Polymers*, **179**, 164 (2018).
62. W. Xu, Y. Ding, T. Yang, Y. Yu, R. Huang, **Z.-T. Zhu**, H. Fong*, and H. Hou*, “An innovative approach for the preparation of high-performance electrospun poly (p-phenylene)-based polymer nanofiber belts,” *Macromolecules*, **50**, 9760 (2017).
61. T. Xu, Y. Ding, Y. Zhao, W. Wu, H. Fong*, and **Z.-T. Zhu***, “Three-dimensional and ultralight sponges with tunable conductivity assembled from electrospun nanofibers for highly sensitive tactile pressure sensor,” *Journal of Materials Chemistry C*, **5**, 10288 (2017).
60. Y. Ding, W. Xu, W. Wang, H. Fong*, and **Z.-T. Zhu***, “Scalable and facile preparation of highly stretchable electrospun PEDOT:PSS@PU fibrous nonwovens towards wearable conductive textile applications,” *ACS Applied Materials & Interfaces*, **9**, 30014 (2017).
59. Y. Zhao, K. Miao, **Z.-T. Zhu***, and L.-J. Fan*, “Fluorescence quenching of a conjugated polymer by synergistic amine-carboxylic acid and π - π interactions for selective detection of aromatic amines in aqueous solution,” *ACS Sensors*, **2**, 842 (2017).

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58. K. Miao, H. Zhang, L. Sun, Z.-T. Zhu, and L.-J. Fan*, "Detection of glutaraldehyde in aqueous environments based on fluorescence quenching of a conjugated polymer with pendant protonated primary amino groups," *Journal of Materials Chemistry C*, **5**, 5010 (2017).
 57. Y. Ding, J. Yang, C. Tolle, and **Z.-T. Zhu***, "Highly stretchable strain sensor based on electrospun carbon nanofibers for human motion monitoring," *RSC Advances*, **6**, 79114 (2016).
 56. Y. Ding, F. Zheng, and **Z.-T. Zhu***, "Low-temperature seeding and hydrothermal growth of ZnO nanorod on poly(3, 4-ethylene dioxythiophene):poly(styrene sulfonic acid)," *Materials Letters*, **183**, 197 (2016).
 55. Y. Ding, H. Hou*, Y. Zhao, **Z.-T. Zhu**, and H. Fong*, "Electrospun polyimide nanofibers and their applications," *Progress in Polymer Science*, **61**, 67 (2016).
 54. X. Wang, M. Xi, X. Wang, H. Fong*, and **Z.-T. Zhu***, "Flexible composite felt of electrospun TiO₂ and SiO₂ nanofibers infused with TiO₂ nanoparticles for lithium ion battery anode," *Electrochimica Acta*, **190**, 811 (2016).
 53. X. Wang, M. Xi, F. Zheng, B. Ding, H. Fong*, and **Z.-T. Zhu***, "Reduction of crack formation in TiO₂ mesoporous films prepared from binder-free nanoparticle pastes *via* incorporation of electrospun SiO₂ or TiO₂ nanofibers for dye-sensitized solar cells," *Nano Energy*, **12**, 794 (2015).
 52. X. Wang, M. Xi, H. Fong*, and **Z.-T. Zhu***, "Flexible, transferable, and thermal-durable dye-sensitized solar cell photoanode consisting of TiO₂ nanoparticles and electrospun TiO₂/SiO₂ nanofibers," *ACS Applied Materials & Interfaces*, **6**, 15925 (2014).
 51. X. Wang, L. Guo, P. F. Xia, F. Zheng, M. S. Wong*, and **Z.-T. Zhu***, "Effects of surface modification on dye-sensitized solar cell based on an organic dye with naphtho [2,1-b:3,4-b'] dithiophene as the conjugated linker," *ACS Applied Materials & Interfaces*, **6**, 1926 (2014).
 50. M. Xi, X. Wang, Y. Zhao, Q. Feng, F. Zheng, **Z.-T. Zhu***, and H. Fong*, "Mechanically flexible hybrid mat consisting of TiO₂ and SiO₂ nanofibers electrospun *via* dual spinnerets for photo-detector," *Materials Letters*, **120**, 219 (2014).
 49. M. Xi, X. Wang, Y. Zhao, **Z.-T. Zhu***, and H. Fong*, "Electrospun ZnO/SiO₂ hybrid nanofibrous mat for flexible ultraviolet sensor," *Applied Physics Letters*, **104**, 133102 (2014).
 48. C. Lai, Z. Zhou, L. Zhang, X. Wang, Q. Zhou, Y. Zhao, Y. Wang, X.-F. Wu*, **Z.-T. Zhu**, and H. Fong*, "Free-standing and mechanically flexible mats consisting of electrospun carbon nanofibers made from a natural product of alkali lignin as binder-free electrodes for high-performance supercapacitors," *Journal of Power Sources*, **247**, 134 (2014).
 47. X. Wang, L. Guo, P. F. Xia, F. Zheng, M. S. Wong*, and **Z.-T. Zhu***, "Dye-sensitized solar cells based on organic dyes with naphtho [2, 1-b: 3, 4-b'] dithiophene as the conjugated linker," *Journal of Materials Chemistry A*, **1**, 13328 (2013).
 46. X. Wang, G. He, H. Fong*, and **Z.-T. Zhu***, "Electron transport and recombination in photoanode of electrospun TiO₂ nanotubes for dye-sensitized solar cells," *The Journal of Physical Chemistry C*, **117**, 1641 (2013).
 45. G. He, X. Wang, M. Xi, F. Zheng, **Z.-T. Zhu***, and H. Fong*, "Fabrication and evaluation of dye-sensitized solar cells with photoanodes based on electrospun TiO₂ nanotubes," *Materials Letters*, **106**, 115 (2013).
 44. Y. Bao, C. Lai, **Z.-T. Zhu**, H. Fong*, and C. Jiang*, "SERS-active silver nanoparticles on electrospun nanofibers facilitated via oxygen plasma etching," *RSC Advances*, **3**, 8998 (2013).

43. G. He, Y. Cai, Y. Zhao, X. Wang, C. Lai, M. Xi, **Z.-T. Zhu***, and H. Fong*, "Electrospun anatase-phase TiO₂ nanofibers with different morphological structures and specific surface areas," *Journal of Colloid and Interface Science*, **398**, 103 (2013).
42. C. Lai, X. Wang, Y. Zhao, H. Fong*, and **Z.-T. Zhu***, "Effects of humidity on the ultraviolet nanosensors of aligned electrospun ZnO nanofibers," *RSC Advances*, **3**, 6640 (2013).
41. Y. Zhao, X. Wang, C. Lai, G. He, L. Zhang, H. Fong*, and **Z.-T. Zhu***, "Electrospun carbon nanofibrous mats surface-decorated with Pd nanoparticles via the supercritical CO₂ method for sensing of H₂," *RSC Advances*, **2**, 10195 (2012).
40. L. Zhang, X. Wang, Y. Zhao, **Z.-T. Zhu***, and H. Fong*, "Electrospun carbon nano-felt surface-attached with Pd nanoparticles for hydrogen sensing application," *Materials Letters*, **68**, 133 (2012).
39. N. Hedin, V. Sobolev*, L. Zhang, **Z.-T. Zhu**, and H. Fong*, "Electrical properties of electrospun carbon nanofibers," *Journal of Materials Science* **46**, 6453 (2011).
38. X. Wang, S. Karanjit, L. Zhang, H. Fong, Q. Qiao*, and **Z.-T. Zhu***, "Transient photocurrent and photovoltage studies on charge transport in dye sensitized solar cells made from the composites of TiO₂ nanofibers and nanoparticles," *Applied Physics Letters*, **98**, 082114 (2011).
37. K. Yin, L. Zhang, C. Lai, L. Zhong, S. Smith, H. Fong*, and **Z.-T. Zhu***, "Photoluminescence anisotropy of uni-axially aligned electrospun conjugated polymer nanofibers of MEH-PPV and P3HT," *Journal of Materials Chemistry*, **21**, 444 (2010).
36. R. Jetson, K. Yin, K. Donovan, and **Z.-T. Zhu***, "Effects of surface modification on the fluorescence properties of conjugated polymer/ZnO nanocomposites," *Materials Chemistry and Physics*, **124**, 417 (2010).
35. P. Joshi, L. Zhang, D. Davoux, **Z.-T. Zhu**, D. Galipeau, H. Fong*, and Q. Qiao*, "Composite of TiO₂ nanofibers and nanoparticles for dye-sensitized solar cells with significantly improved efficiency," *Energy & Environmental Science*, **3**, 1507 (2010).
34. K. Yin and **Z.-T. Zhu***, "One-pot" synthesis, characterization, and NH₃ sensing of Pd/PEDOT:PSS nanocomposite," *Synthetic Metals*, **160**, 1115 (2010).
33. **Z.-T. Zhu***, L. Zhang, J. Y. Howe, Y. Liao, J. T. Speidel, S. Smith, and H. Fong*, "Aligned electrospun ZnO nanofibers for simple and sensitive ultraviolet nanosensors," *Chemical Communications*, 2568 (2009).
32. **Z.-T. Zhu***, L. Zhang, S. Smith, H. Fong*, Y. Sun, and D. Gosztola, "Fluorescence studies of electrospun MEH-PPV/PEO nanofibers," *Synthetic Metals*, **159**, 1454 (2009).
31. Y. Liao, L. Zhang, Y. Gao, **Z.-T. Zhu***, and H. Fong*, "Preparation, characterization, and encapsulation/release studies of a composite nanofiber mat electrospun from an emulsion containing poly (lactic-co-glycolic acid)," *Polymer*, **49**, 5294 (2008).
30. J.-H. Ahn, **Z.-T. Zhu**, S.-I. Park, J. Xiao, Y. Huang, and J. A. Rogers*, "Defect tolerance and nanomechanics in transistors that use semiconductor nanomaterials and ultrathin dielectrics," *Advanced Functional Materials*, **18**, 2535 (2008).
29. J.-H. Ahn, H.-S. Kim, E. Menard, K. J. Lee, **Z.-T. Zhu**, D.-H. Kim, R. G. Nuzzo, J. A. Rogers*, I. Amlani, V. Kushner, S. G. Thomas, and T. Duenas, "Bendable integrated circuits on plastic substrates by use of printed ribbons of single-crystalline silicon," *Applied Physics Letters*, **90**, 213501 (2007).

28. J.-H. Ahn, H.-S. Kim, K. J. Lee, **Z.-T. Zhu**, E. Menard, R. G. Nuzzo, and J. A. Rogers*, "High-speed mechanically flexible single-crystal silicon thin-film transistors on plastic substrates," *IEEE Electron Device Letters*, **27**, 460 (2006).
27. Q. Cao, S.-H. Hur, **Z.-T. Zhu**, Y. Sun, C.-J. Wang, M. A. Meitl, M. Shim, and J. A. Rogers*, "Highly bendable, transparent thin-film transistors that use carbon-nanotube-based conductors and semiconductors with elastomeric dielectrics," *Advanced Materials*, **18**, 304 (2006).
26. Q. Cao, **Z.-T. Zhu**, M. G. Lemaitre, M.-G. Xia, M. Shim, and J. A. Rogers*, "Transparent flexible organic thin-film transistors that use printed single-walled carbon nanotube electrodes," *Applied Physics Letters*, **88**, 113511 (2006).
25. S. Mack, M. Meitl, A. Baca, **Z.-T. Zhu**, and J. Rogers*, "Mechanically flexible thin-film transistors that use ultrathin ribbons of silicon derived from bulk wafers," *Applied Physics Letters*, **88**, 213101 (2006).
24. M. A. Meitl, **Z.-T. Zhu**, V. Kumar, K. J. Lee, X. Feng, Y. Y. Huang, I. Adesida, R. G. Nuzzo, and J. A. Rogers*, "Transfer printing by kinetic control of adhesion to an elastomeric stamp," *Nature Materials*, **5**, 33 (2005).
23. **Z.-T. Zhu**, E. Menard, K. Hurley, R. Nuzzo, and J. Rogers*, "Spin on dopants for high-performance single-crystal silicon transistors on flexible plastic substrates," *Applied Physics Letters*, **86**, 133507 (2005).
22. **Z.-T. Zhu**, J. T. Mabeck, C. Zhu, N. C. Cady, C. A. Batt, and G. G. Malliaras*, "A simple poly(3, 4-ethylene dioxythiophene)/poly(styrene sulfonic acid) transistor for glucose sensing at neutral pH," *Chemical Communications*, 1556 (2004).
21. A. C. Mayer, M. L. Swiggers, C. J. Johnson, J. L. Mack, **Z.-T. Zhu**, R. L. Headrick, and G. G. Malliaras, "Pentacene-based field effect transistors," *Thin Film Transistor Technologies VI*, **2002**, 288 (2003).
20. **Z.-T. Zhu**, J. Musfeldt*, K. Kamarás, G. Adams, J. Page, L. Kashevarova, A. Rakhmanina, and V. Davydov, "Far-infrared vibrational properties of linear C₆₀ polymers: A comparison between neutral and charged materials," *Physical Review B*, **67**, 045409 (2003).
19. **Z.-T. Zhu**, J. Musfeldt*, K. Kamarás, G. Adams, J. Page, V. Davydov, L. Kashevarova, and A. Rakhmanina, "Far-infrared vibrational properties of tetragonal C₆₀ polymer," *Physical Review B*, **67**, 045409 (2003).
18. **Z.-T. Zhu**, J. T. Mason, R. Dieckmann, and G. G. Malliaras*, "Humidity sensors based on pentacene thin-film transistors," *Applied Physics Letters*, **81**, 4643 (2002).
17. J. Choi, **Z.-T. Zhu**, J. Musfeldt*, G. Raghianti, D. Mandrus, B. Sales, and J. Thompson, "Local symmetry breaking in K₂V₃O₈ as studied by infrared spectroscopy," *Physical Review B*, **65**, 054101 (2002).
16. J. Musfeldt*, **Z.-T. Zhu**, Z. Teweldemedhin, and M. Greenblatt, "Layered tungsten bronzes: Tuning the optical properties by changing the layer thickness," *Journal de Physique IV*, **12**, 361 (2002).
15. **Z.-T. Zhu**, J. Musfeldt*, H.-J. Koo, M.-H. Whangbo, Z. Teweldemedhin, and M. Greenblatt, "Dimensionality effects on the optical properties of (PO₂)₄(WO₃)_{2m} (m = 2, 4, 6, 7)," *Chemistry of Materials*, **14**, 2607 (2002).

14. **Z.-T. Zhu**, J. Musfeldt*, Z. Teweldemedhin, and M. Greenblatt, "Anisotropic ab-plane optical response of the charge-density-wave superconductor $P_4W_{14}O_{50}$," *Physical Review B*, **65**, 214519 (2002).
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10. **Z.-T. Zhu**, J. Musfeldt*, Y.-J. Wang, H. Negishi, M. Inoue, J. Sarrao, and Z. Fisk, "Far-infrared investigations of η -Mo $_4$ O $_{11}$: Using a magnetic field to open the gap," *Ferroelectrics*, **249**, 51 (2001).
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8. **Z.-T. Zhu**, S. Chowdhary, V. Long, J. Musfeldt*, H.-J. Koo, M.-H. Whangbo, X. Wei, H. Negishi, M. Inoue, J. Sarrao, and Z. Fisk, "Polarized optical reflectance and electronic structure of the charge-density-wave materials β - and γ -Mo $_4$ O $_{11}$," *Physical Review B*, **61**, 10057 (2000).
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5. I. Olejniczak, B. Jones, **Z.-T. Zhu**, J. Dong, J. Musfeldt*, J. Schlueter, E. Morales, U. Geiser, P. Nixon, R. Winter, and G. Gard, "Optical properties of β'' -(ET) $_2$ SF $_5$ RSO $_3$ (R=CH $_2$ CF $_2$, CHF CF_2): Changing physical properties by chemical tuning of the counterion," *Chemistry of Materials*, **11**, 3160 (1999).
4. J. Pigos, **Z.-T. Zhu**, and J. Musfeldt*, "Optical properties of a supramolecular assembly containing polydiacetylene," *Chemistry of Materials*, **11**, 3275 (1999).
3. **Z.-T. Zhu**, V. Long, J. Musfeldt*, X. Wei, J. Sarrao, Z. Fisk, H. Negishi, M. Inoue, H. Koo, and M. Whangbo, "High field optical response of η -Mo $_4$ O $_{11}$," *Journal de Physique IV*, **9**, 251 (1999).
2. **Z.-T. Zhu**, J. Musfeldt*, Y. Wang, J. Sarrao, Z. Fisk, H. Negishi, and M. Inoue, "Infrared study of the broken symmetry ground states in β -Mo $_4$ O $_{11}$," *Synthetic Metals*, **103**, 2238 (1999).
1. **Z.-T. Zhu**, Y. Zhang, J.-W. Xie, and M. Jiang*, "Studies on the specific interaction between the model polymer of polyurethane hard-segment and poly (styrene-co-acrylonitrile)," *Chemical Journal of Chinese Universities*, **18**, 1353 (1997).

Book Chapters

1. X. Ma, F. Zheng, Y. Zhao, X. Wang, Z.-T. Zhu*, and H. Fong*, “Nanocomposite structures related to electrospun nanofibers for highly efficient and cost-effective dye-sensitized solar cells,” in *Multi-functional nanocomposites for energy and environmental applications*, Edited by Z. Guo, Y. Chen, and N. Lu, Wiley, *in press* (ISBN: 978-3-527-34213-6).
2. Z.-T. Zhu, and J. A. Rogers, “Organic thin film transistors: fundamental and applied aspects,” in *Handbook of organic electronics and photonics*, Edited by H. S. Nalwa, American Scientific Publishers, 2008 (ISBN: 978-1-58883-095-5).

Patents

1. “Highly hydrophobic and oleophilic melamine resin via metal-ion induced wettability transition, application, and preparation thereof,” Provisional Application 62/710,434, Filed: February 2018. Inventors: Zhengtao Zhu, Yichun Ding, and Daniel Heglund.
2. “Highly stretchable strain sensor based on electrospun carbon nanofibers for human motion monitoring,” Provisional Application PCT/US2017/031756, Filed: May 2016. Inventors: Zhengtao Zhu, Yichun Ding, Jack Yang.
3. “Process of making titanium carbide (TiC) nano-fibrous felts,” US Patent 8932513, Issued on January 13, 2015. Inventors: Hao Fong, Lifeng Zhang, Yong Zhao, Zhengtao Zhu.
4. “Controlled buckling structures in semiconductor interconnects and nanomembranes for stretchable electronics,” US Patent 8729524, Issued: May 20, 2014. Inventors: John A. Rogers, Matthew Meitl, Yugang Sun, Heung Cho Ko, Andrew Carlson, Won Mook Choi, Mark Stoykovich, Hanqing Jiang, Yonggang Huang, Ralph G. Nuzzo, Zhengtao Zhu, Etienne Menard, Dahl-Young Khang.
5. “Methods and devices for fabricating and assembling printable semiconductor elements,” US Patent 8440546 B2, Issued: May 14, 2013. Inventors: Ralph G. Nuzzo, John A. Rogers, Etienne Menard, Keon Jae Lee, Dahl-Young Khang, Yugang Sun, Matthew Meitl, Zhengtao Zhu.
6. “Printable semiconductor structures and related methods of making and assembling,” US Patent 8394706 B2, Issued: March 12, 2013. Inventors: Ralph G. Nuzzo, John A. Rogers, Etienne Menard, Keon Jae Lee, Dahl-Young Khang, Yugang Sun, Matthew Meitl, Zhengtao Zhu, Heung Cho Ko, Shawn Mack.
7. “Pattern transfer printing by kinetic control of adhesion to an elastomeric stamp,” US Patent 7943491, Issued: May 17, 2011. Inventors: Ralph G. Nuzzo, John A. Rogers, Etienne Menard, Keon Jae Lee, Dahl-Young Khang, Yugang Sun, Matthew Meitl, Zhengtao Zhu,

Presentations

1. Zhengtao Zhu, “Flexible, freestanding, and functional electrospun nanomaterials for dye-sensitized solar cell and photocatalytic dye degradation,” 20th World Summit on Nanotechnology and Expo, Los Angeles, California, USA, Oct. 2018.
2. Zhengtao Zhu, “Electrospun flexible metal oxide nanofibrous materials for energy and environmental applications,” Collaborative Conference on Materials Research (CCMR), Seoul, Korea, June 2018.

3. Zhengtao Zhu, "Thermally durable and functional electrospun nanomaterials for flexible electronics," Tianjin Polytechnic University, Tianjin, China, December 2017. (*invited*)
4. Zhengtao Zhu, "Electrospun polymer nanofibers for flexible and stretchable sensors," the Second Jiangnan Symposium of Polymers, Wuxi, China, July 2017. (*invited*)
5. Zhengtao Zhu, "Dye-sensitized solar cells: fundamentals and recent development," Soochow University, Suzhou, China, June 2017. (*invited*)
6. Zhengtao Zhu, "Flexible, stretchable, and soft materials for wearable physical sensors," Emerging-Technology-Showcase, Sioux Falls, April 2017. (*invited*)
7. Fan Zheng and Zhengtao Zhu, "Facile synthesis of Au/TiO₂ and Au/SiO₂ nanocomposites via a one-step electrospinning route," The 2nd Global Nanotechnology Congress and Expo, Las Vegas, December, 2016. Fan presented a poster, and won the best poster award.
8. Zhengtao Zhu, "Nanomaterials for flexible and wearable electronics and sensors," Jiangnan University, Wuxi, China, March 2016. (*invited*)
9. Zhengtao Zhu, "Dye-sensitized solar cell based on electrospun TiO₂ nanomaterials," Southeast University, Nanjing, China, April 2016. (*invited*)
10. Zhengtao Zhu, "Electrospun TiO₂ nanomaterials for dye-sensitized solar cell," the Energy, Materials, and Nanotechnology (EMN) Photovoltaics Meeting, Hong Kong, January 2016. (*invited*)
11. Fan Zheng and Zhengtao Zhu, "Morphological studies of the perovskite CH₃NH₃PbI₃ for high-efficiency solar cells," the 8th International Photonics and OptoElectronics Meetings, Wuhan, China, June 2015.
12. Zhengtao Zhu, "Nanomaterials for flexible and wearable electronics and sensors," Tianjin Polytechnic University, Tianjin, China, June 2015. (*invited*)
13. Zhengtao Zhu, "Dye-sensitized solar cells: materials effects and device physics," Beijing University of Chemical Technology, Beijing, China, June 2015. (*invited*)
14. Fan Zheng, Yichun Ding, and Zhengtao Zhu, "Humidity effects on the methylamine lead iodide perovskite solar cells with TiO₂ mesoporous structure," American Chemical Society National Meeting, Denver, CO, March 2015.
15. Xiaoxu Wang, Min Xi, Hao Fong, and Zhengtao Zhu, "Reducing cracks in photoanode of dye-sensitized solar cells based on binder-free TiO₂ nanoparticles by 1D electrospun metal oxide nanofibers," American Chemical Society National Meeting, Denver, CO, March 2015.
16. Zhengtao Zhu, "Electrospun TiO₂ nanostructures for dye-sensitized solar cell applications," American Chemical Society National Meeting, San Francisco, CA, August 2014.
17. Xiaoxu Wang and Zhengtao Zhu, "Flexible and transferable hybrid mat consisting of electrospun TiO₂ and SiO₂ nanofibers for dye-sensitized solar cell," The 6th Annual SDSM&T NanoExpo, Rapid City, SD, April 2014. The first place poster winner.
18. Fan Zheng and Zhengtao Zhu, "Solid-state solar cell based on ZnO nanorod and CH₃NH₃PbI₃ perovskite sensitizer," The 6th Annual SDSM&T NanoExpo, Rapid City, SD, April 2014.

19. Xiaoxu Wang, Lei Guo, Ping Fang Xia, Fan Zheng, Man Shing Wong, and Zhengtao Zhu, "Effects of silane treatment on charge transport and recombination of dye-sensitized solar cells based on donor- π -acceptor organic dyes," American Chemical Society National Meeting, Indianapolis, IN, August 2013.
20. Xiaoxu Wang, Guangfei He, Hao Fong, and Zhengtao Zhu, "Electron transport and recombination in photoanode of electrospun TiO₂ nanotubes for dye-sensitized solar cells," The 5th Annual SDSM&T NanoExpo, Rapid City, SD, April 2013.
21. Xiaoxu Wang, Sudeep Karanjit, Lifeng Zhang, Hao Fong, Qiquan Qiao, and Zhengtao Zhu, "Enhancement of DSSC performance by incorporating electrospun TiO₂ nanotubes," The 4th Annual SDSM&T NanoExpo, Rapid City, SD, April 2012.
22. Zhengtao Zhu, "Transient photo-current and photo-voltage studies on the charge transport in dye sensitized solar cells made from the composites of TiO₂ nanofibers and nanoparticles," Organic Microelectronics and Optoelectronic Workshop VII, organized by ACS/MRS/IEEE, San Francisco, CA, July 2012.
23. Zhengtao Zhu, "Dye-sensitized solar cells of electrospun nanofibers," Soochow University, Suzhou, China, June 2011. (*invited*)
24. Xiaoxu Wang, Sudeep Karanjit, Lifeng Zhang, Hao Fong, Qiquan Qiao, and Zhengtao Zhu, "Transient photo-current and photo-voltage studies on the charge transport in dye sensitized solar cells made from the composites of TiO₂ nanofibers and nanoparticles," The 3th Annual SDSM&T NanoExpo, Rapid City, SD, April 2011.
25. Zhengtao Zhu, "Conjugated polymer/nanostructure blends for high efficient and flexible organic electronics," Gordon Research Conference (Electronic Processes in Organic Materials), Mount Holyoke College, South Hadley, MA, July 2010.
26. KezhenYin and Zhengtao Zhu, "'One-pot' synthesis of Pd/PEDOT nanocomposite," American Chemical Society National Meeting, Washington DC, August 2009.
27. Zhengtao Zhu, "Optical properties of conjugated polymer/nanoparticle blends," Nanoscience for Energy Research and Development Symposium, Rapid City, SD, April 2008.
28. Rachel Jetson and Zhengtao Zhu, "Optical properties of surface-capped zinc oxide nanoparticles and conjugated polymer nanocomposites," Nanoscience for Energy Research and Development Symposium, Rapid City, SD, April 2008.
29. Zhengtao Zhu, "Fluorescent properties of electrospun MEH-PPV/PEO nanofibers," Organic Microelectronics and Optoelectronics Workshop IV, organized by ACS/MRS/IEEE, San Francisco, CA, August 2008.
30. Zhengtao Zhu, "Organic semiconductor materials: physical properties and applications," Department of Chemistry, South Dakota State University, Brookings, SD, March 2008. (*invited*)
31. Zhengtao Zhu, "Semiconductors for flexible electronics," Nankai University, Chinese University of Science and Technology, and Suzhou Nanotechnology Institute, China, Summer 2007. (*invited*)

32. Zhengtao Zhu, "Semiconductor materials for flexible electronics and sensors," Department of Chemistry, South Dakota School of Mines and Technology, Rapid City, SD, December 2005. (*invited*)
33. Zhengtao Zhu, "Flexible electronics based on inorganic semiconductors," Department of Chemistry, University of Louisville, Louisville, KY, January 2006. (*invited*)
34. Jeff Mason, Zhengtao Zhu, George Malliaras, Carol Batt, Brain Ray, "Biosensors based on organic thin film transistors," Sixth International Symposium on Functional π -Electron Systems, Ithaca, NY, June 2004.
35. Zheng-Tao Zhu, Jeff Mason, Alon Gorodetsky, George Malliaras, Scott Stelick, Sean Higgins, and Joel Tabb, "Organic semiconductor devices for chemical and biological sensing," American Physical Society Meeting, Austin, TX, March 2003.
36. Jeff Mason, Zheng-Tao Zhu, Sanjay Aggarwal, George Malliaras, and Antje Baeumner, "Chemical and biological sensors based on organic thin film transistors," Materials Research Society Meeting, San Francisco, CA, April, 2003.
37. J. L. Musfeldt, Z.-T. Zhu, Z.S. Teweldemedhin, and M. Greenblatt, "Layered tungsten bronzes: tuning the optical properties by changing the layer thickness," ECRYS-2002 International Workshop on Electronic Crystals, St. Flour, France, September 2002.
38. Z.-T. Zhu, J. L. Musfeldt, Z.S. Teweldemedhin, and M. Greenblatt, "Optical studies of quasi-two-dimensional charge density wave compounds $(\text{PO}_2)_4(\text{WO}_3)_{2m}$ ($m = 4, 6$)," American Physical Society Meeting, Seattle, WA, March 2001.
39. Z.-T. Zhu, V. C. Long, J. L. Musfeldt, G. B. Adams, J. B. Page, V. A. Davydov, Y. Iwasa, and W. E. Mayo, "Far-infrared vibrational properties of orthorhombic and tetragonal C_{60} polymers," American Physical Society Meeting, Seattle, WA, March 2001.
40. Z.-T. Zhu, J. L. Musfeldt, Z.S. Teweldemedhin, and M. Greenblatt, "Spectroscopic studies of monophosphate tungsten bronzes – $(\text{PO}_2)_4(\text{WO}_3)_{2m}$ ($m = 4, 6$)," Gordon Research Conference (Solid State Chemistry), New London, NH, August 2000.
41. Z.-T. Zhu, J. L. Musfeldt, Z.S. Teweldemedhin, and M. Greenblatt, "Optical properties of quasi-two-dimensional charge density wave compounds $(\text{PO}_2)_4(\text{WO}_3)_{2m}$," American Physical Society Meeting, Minneapolis, MN, March 2000.
42. G. Y. Rudko, V. C. Long, Z. Zhu, J. L. Musfeldt, X. Wei, A. Revcolevschi, G. Dhalenne, "Spectroscopic investigations of electronic transitions in doped CuGeO_3 ," American Physical Society Meeting, Minneapolis, MN, March 2000.
43. B. R. Jones, I. Olejniczak, J. Dong, J. M. Pigos, Z. Zhu, A. Garlach, J. L. Musfeldt, J. A. Schlueter, B. H. Ward, E. Morales, U. Geiser, H.-J. Koo, M.-H. Whangbo, P. G. Nixon, R. W. Winter, and G. L. Gard, "Optical properties of β "-(ET) $_2$ SF_5RSO_3 where $\text{R} = \text{CH}_2\text{CF}_2$, CHF_2 , and CHF : changing physical properties by chemical tuning of the counterion," American Physical Society Meeting, Minneapolis, MN, March 2000.

44. J. M. Pigos, B. R. Jones, Z. Zhu, J. L. Musfeldt, C. C. Homes, J. A. Schlueter, B. H. Ward, U. Geiser, H.-J. Koo, M.-H. Whangbo, P. G. Nixon, R. W. Winter, and G. L. Gard, "Infrared and optical properties of β -(ET)₂SF₅CF₂SO₃: A new spin-Peierls material?," American Physical Society Meeting, Minneapolis, MN, March 2000.
45. V. C. Long, Z. Zhu, J. L. Musfeldt, X. Wei, H.-J. Koo, M.-H. Whangbo, J. Jegoudez, A. Revcolevschi, "Polarized optical reflectance and electronic structure of α -NaV₂O₅," American Physical Society Meeting, Minneapolis, MN, March 2000.
46. Z. Zhu, J. L. Musfeldt, Y.-J. Wang, H. Negishi, M. Inoue, J. Sarrao, Z. Fisk, "Far infrared investigations of η -Mo₄O₁₁: using a magnetic field to open the gap, low energy excitations in solids," Budapest, Hungary, June 1999.
47. Z. Zhu, V. C. Long, J. L. Musfeldt, X. Wei, J. Sarrao, Z. Fisk, H. Negishi, M. Inoue, H.-J. Koo, and M.-H. Whangbo, "High field optical response of η -Mo₄O₁₁," Electronic Crystals (ECRYS99) Conference, Nice, France, June 1999.
48. Z. Zhu, V. C. Long, J. L. Musfeldt, X. Wei, J. Sarrao, Z. Fisk, H. Negishi, and M. Inoue, "Optical properties of γ -Mo₄O₁₁ in high magnetic fields," American Physical Society Meeting, Atlanta, GA, March 1999.
49. Z. Zhu, J. L. Musfeldt, Y.-J. Wang, J. Sarrao, Z. Fisk, H. Negishi, and I. Inoue, "Infrared properties of γ -Mo₄O₁₁ in high magnetic fields," American Physical Society Meeting, Atlanta, GA, March 1999.
50. Z. Zhu, V. C. Long, J. L. Musfeldt, Y.-J. Wang, X. Wei, J. Sarrao, Z. Fisk, H. Negishi, and M. Inoue, "Spectroscopic studies of η -Mo₄O₁₁ as a function of magnetic field," Physical Phenomena at High Magnetic Fields III, Tallahassee, FL, October 1998.

Service

Professional Activities and Service

- Reviewer of manuscripts for numerous scientific journals, including (in the alphabetic order): "Advanced Energy Materials," "ACS Applied Materials & Interfaces," "Biomaterials," "Chemical Communication," "Journal of the American Chemical Society," "Journal of Applied Polymer Science," "Journal of Colloid and Interface Science," "Journal of Energy Chemistry," "Journal of Materials Chemistry A," "Journal of Materials Chemistry C," "Journal of Materials Sciences," "Journal of Micromechanics and Microengineering," "Journal of Nanoparticle Research," "Journal of Photovoltaics," "Journal of Physical Chemistry C," "Journal of Physics-D," "Journal of Power Sources," "Macromolecules Materials and Engineering," "Materials Chemistry and Physics," "Materials Letters," "Materials Today," "Nanoscale," "Nano Energy," "Nanotechnology," "Physical Chemistry Chemical Physics," "Polymer," "Polymer Chemistry," "RSC Advances," "Semiconductor Science and Technology," "Sensors & Actuators," "Smart Materials and Structures," "Synthetic Metals," and "Thin Solid Films."
- Reviewer/Panelist for National Science Foundation Division of Materials Research program (2015).

- Reviewer/Panelist for National Science Foundation Graduate Research Fellowship Program (2014, 2015, 2016).
- Reviewer for Cottrell College Science Award (2013).
- Panelist for NSF PIRE (Partnerships for International Research and Education) Program (2012).
- Reviewer for Department of Energy Office of Science Graduate Fellowship Program (2012).
- Panelist for National Science Foundation, Division of Electrical, Communications and Cyber Systems, Electronics, Photonics, and Magnetic Devices (EPMD) program (2010).
- Reviewer for National Science Foundation, Division of Materials Research, Electronic and Photonic Materials Program (2009, 2010), and Division of Chemistry, Macromolecular/Supramolecular /Nanochemistry program (2010).
- Reviewer for American Chemical Society Petroleum Research Fund (2008, 2011, 2017).
- Book review – Organic Solar Cells: Materials, Devices, Interfaces, and Modeling.
- Editorial Board: Advances in Electronics (Hindawi Publishing Co.), J. of Soft Matters (Hindawi Publishing Co.), JSM Nanotechnology and Nanomedicine.

University/Department Committees

- Faculty Senator representing Department of Chemistry and Applied Biological Sciences, 2014-2016.
- University Research Committee, 2014-present.
- Graduate Education Council, 2013-2014.
- University Curriculum Committee, 2006-2013.
- Chemistry Department Library Liaison, 2006-2012.
- Nanoscience and Nanoengineering Ph.D. Program Committee, 2006-present.
- Chemistry Department Curriculum Committee, 2006-present.

Other Activities

- Outreach activities: working with Science Technology Engineering Preview Summer Camp (STEPS) and the Chemistry Summer Camp to introduce the concept of nanotechnology to middle and high school kids through a 10 minutes fun talk and a hands-on experiment of gold nanoparticle synthesis.
- Give departmental tours to many prospective high school students to help recruit students.
- Judge for the annual Nano Expo, at which our Nanoscience and Nanoengineering doctoral students present their research to the public.
- Presenter to the Rapid City students for the “Career Launch Program” organized by Youth Programs and Continuing Education in 2010, 2011, 2012, 2014.
- Advisor for the “Chinese Student and Scholar Association (CSSA) at SDSM&T,” 2009 to 2013.
- Judge of High Plains Science & Engineering Fair, 2017.

Honors and Awards

- Cottrell College Science Awards, 2009, Research Corporation for Science Advancement.
- The Nelson Research Award, 2007, SDSM&T.
- K. Keith Innes Fellowship, 2000, SUNY Binghamton.

List of References

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