

CURRICULUM VITAE

LEI ZHU, Ph.D.

Professor

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EDUCATION

- Ph.D., Department of Polymer Science, University of Akron, Akron, Ohio, 2000
Thesis title: "Phase and Crystallization Behaviors Determined by Self-Organization, Crystallization, and Vitrification in Crystalline-Amorphous Diblock Copolymers"
Advisor: Stephen Z. D. Cheng
- M.S., Department of Macromolecular Science, Fudan University, Shanghai, China, 1996
Thesis title: "Miscibility and Intermacromolecular Complexation in Polymer Blends due to Specific Interactions"
Advisor: Ming Jiang
- B.S., Materials Chemistry, Fudan University, Shanghai, China, 1993
Thesis title: "Melt Rheology of Compatibilized Polystyrene/Low Density Polyethylene Blends"
Advisor: Ming Jiang

PROFESSIONAL EXPERIENCE

- 07/2013 – present, Professor
Department of Macromolecular Science and Engineering, Case Western Reserve University
Department of Chemistry (secondary appointment), Case Western Reserve University
- 01/2009 – 06/2013, Associate Professor
Department of Macromolecular Science and Engineering, Case Western Reserve University
- 08/2007 – 01/2009, Associate Professor
Polymer Program of Institute of Materials Science and Department of Chemical, Materials and Biomolecular Engineering, University of Connecticut
- 08/2002 – 08/2007, Assistant Professor
Polymer Program of Institute of Materials Science and Department of Chemical, Materials and Biomolecular Engineering, University of Connecticut
- 09/2000 – 07/2002, Postdoctoral Fellow
Maurice Morton Institute and Department of Polymer Science, University of Akron

RESEARCH INTERESTS

- Dielectric/ferroelectric polymers and polymer nanocomposites for electrical applications
- Ordered polymer structure, morphology, and their phase transitions at nanoscales
- Supramolecular self-assembly of discotic liquid crystals and liquid crystalline polymers

AWARDS AND HONORS

- NSF Award for Special Creativity Extension, 2012
- Polymer Program Director's Award for Faculty Excellence, 2008
- Rogers Teaching Excellence Award, 2005
- DuPont Young Professor Award, 2005
- 3M Non-tenured Faculty Award, 2004

- NSF CAREER Award, 2004
- Gencorp University Signature Award for Outstanding Academic and Research Work, University of Akron, 1999
- Guanghua Graduate Student Award, Fudan University, China, 1995
- Baogang Award, Fudan University, China, 1992

GRADUATE RESEARCH AND STUDENTS

Ph.D. Students (current students underlined)

University of Connecticut

1. Lu Sun, Synthesis and Self-Assembly of Biodegradable Polylactide Containing Block Copolymers, 11/2002 – 04/2007, currently ConocoPhillips/Lubrizol Specialty Product, Inc., Oklahoma
2. Jianjun Miao, Supramolecular Self-Assembly of Discotic Liquid Crystalline Supermolecules, 11/2003 – 08/2009, currently Specialty Materials, New Jersey
3. Fangxiao Guan, Confined Ferroelectric Properties in Poly(vinylidene fluoride) (PVDF)-Based Random Copolymers and Graft Copolymers for Electric Energy Storage Applications, 11/2006 – 08/2010, currently Align Technology, San Jose, CA
4. Weiqiang Cao, Synthesis of Amphiphilic Biodegradable Dendrimer-Like Star Polymers for Cancer Diagnosis and Therapy, 11/2006 – 08/2011, currently Momentive Performance Materials Shanghai, China

Case Western Reserve University

5. Lianyun Yang, Novel Ferroelectric Behavior in Poly(vinylidene fluoride-co-trifluoroethylene)-Based Random Copolymers, 08/09-04/15, currently Tremco, Inc., Beachwood, OH
6. Imre Treufeld, I. Polymer Films for High Temperature Capacitor Applications; II. Differential Electrochemical Mass Spectrometer, 10/12-08/16, currently Academic training
7. Saide Tang, Self-Assembly of Polymer Brush-Grafted Silica Nanoparticles, 08/10-12/15, currently Colgate Palmolive Research Center, Piscataway, NJ
8. Guoqiang Zhang, The Synthesis and Electrical Properties of Functional Polymer Nanocomposites, 05/12-08/17, currently Laird Technologies, Inc., Cleveland, OH
9. Zhongbo Zhang, Understanding Ferroelectricity in Nylon Homopolymers, Copolymers and Terpolymers, 01/13-05/18, currently a postdoc in University of Chicago
10. Xinyue Chen, Multilayer Polymer Films for Capacitors, 08/15-present
11. Qiong Li, High Dielectric Constant Relaxor Ferroelectric Nanoparticles, 09/15-present
12. Tianxiang Ju, High Dielectric Constant Dipolar Glass Polymers, 09/17-present
13. Guanchun Rui, Piezoelectric Polymers, 09/18-present
14. Yucen Shen, Thermally Conductive Multilayer Polymer Nanocomposites, 09/19-present

M.S. Students

University of Connecticut

1. Yuxiu Liu, Organic/Inorganic Composite Materials for High Temperature PEM Fuel Cells, 08/02 – 08/05, currently works at Univ. of Rochester/GM Electrochemical Energy Research Lab.
2. Brian Elolampi, Design, Fabrication and Analysis of a Planarized Micro Polymer Electrolyte Membrane Fuel Cell, 08/04 – 03/06, currently works as an Sr. Process Development Engineer at MC10.

Case Western Reserve University

1. Qingmeng Tang, Polymer/Graphene Oxide Nanocomposites for Multilayer Coextrusion, 01/12-12/13
2. Nasly Jimenez, Multilayered Polymer Actuators, 10/12-02/14
3. Michelle Song, Multilayer Dielectric Films, 01/14-12/14
4. Peng Peng, Preparation and Characterization of Polymer/Ferroelectric Ceramic Particle Composites for Electroactive Actuation, 01/14-10/15

5. Jung-Kai Tseng, Enhanced Dielectric Properties of Multilayer Capacitor Films via Interfacial Polarization, 08/09-12/15
6. Minghuan Wang, Pebax Polymers for Electrostriction, 09/16-12/18
7. Yichun Yuan, Dipolar glass polymers, 09/17-05/19
8. Lingyu Yang, Metallic nanoparticles from nanoreactors, 09/17-05/19
9. Haoyang Qi, Ferroelectric polymer foams, 09/18-present

POST DOCTORAL FELLOWS/VISITING SCIENTISTS

1. Prof. Qiaolong Yuan (East China University of Science and Technology), Wheat Gluten/Natural Clay Nanocomposites, 03/04 - 8/04
2. Prof. Xiuling Zhu (Dalian University of Science and Technology), 1) Organic/Inorganic Composite PEM Fuel Cells and 2) Planarized Micro Fuel Cells, 08/05-08/06
3. Dr. Li Cui, 1) Synthesis of Novel Asymmetric Discotic Liquid Crystals and 2) Molecular and Nanocomposite for High Energy Density Capacitors, 06/04-09/06 (currently at Saint-Gobain, Shanghai)
4. Dr. Zhongzhe Yuan, Molecular and Nanocomposites for High Energy Density Capacitors, 09/06-11/07 (currently at Mitsubishi Corp.)
5. Dr. Dunliang Jian, Molecular and Nanocomposites for High Energy Density Capacitors, 03/07-12/07 (currently at Shanghai University)
6. Dr. Jing Wang, Polymer-Ceramic Nanocomposites for High power Capacitors, 09/07-08/30/09
7. Prof. Mingwang Pan (Hebei University of Technology), Core-Shell PVDF Nanoparticles, 08/09-08/10
8. Dr. Bing Guan, Polymer Janus Particles and Their Self-Assembly, 10/01/09-09/30/11 (currently at Sabic Plastics)
9. Dr. Longxiang Tang (Hefei University of Technology), Polymer Nanocomposites for Electric Energy Storage, 12/09-12/10
10. Mr. Ganji Zhong (Sichuan University), Electrospinning of PVDF/PSF Blends, 10/08-11/10
11. Dr. Xiaoliang Wei, Polymer Nanocomposite Multilayer Films as Active Materials, 02/10-03/11 (currently at PNNL)
12. Dr. Fafu Yang (Fujian Normal University), Synthesis of discotic liquid crystalline molecules, 07/10-01/11
13. Mr. Run Su, Mixed polymer brushes, 09/10-09/11 (currently at DuPont Shanghai)
14. Prof. Zaijun Lu (Shandong University), Polymer electrolyte membranes for fuel cells, 01/11-01/12
15. Prof. Aixiang Li (Shandong University of Science and Technology), Polymer Nanocomposite Multilayer Films as Active Materials, 09/11-08/12 and 02/14-07/14
16. Prof. Juan Chen (Jinan University), Polymer/Graphene Oxide Nanocomposites, 02/12-08/12
17. Prof. Ruifang Guan (Jinan University), PVDF-g-PS Graft Copolymers, 05/12-08/12
18. Dr. Daxuan Dong, High Energy Density Nanodielectrics for Commercial Pulsed Power Applications, 02/12-06/13
19. Dr. Feng Laughlin, Composite nanoparticle latexes via seeded emulsion polymerization, 09/12-10/13
20. Prof. Haiquan Wang (Weifang University of Technology), Silver Nanoparticle Nanodielectrics, 11/12-04/13
21. Prof. Huili Ding (Hebei University of Technology), Polymer/Graphene Oxide Nanocomposites, 12/12-11/13
22. Prof. Elshad Allakhyarov (Heinrich-Heine-Universität Düsseldorf and Joint Institute for High Temperatures, Russian Academy of Sciences), Theoretical Aspects of Polymer Dielectrics, 03/13-12/13, 03/15-09/15, 01/18-present
23. Mr. Worarin Meesorn, Electrospun SEBS nanofibers for deformable electrodes, 01/14-03/14
24. Mr. Jianchuan Wang, Nonlinear dielectric properties of PVDF and copolymers, 09/13-09/14
25. Mr. Junji Wei, Dielectric properties of dipolar glasses, 09/13-09/14
26. Prof. Jun Lei, Polymer nanocomposites for actuation, 08/14-08/15
27. Dr. Yufeng Zhu, High polarization ferroelectric liquid crystalline polymers, 10/14-present
28. Mr. Zhe Liu, High dielectric constant elastomers, 11/14-10/15

29. Ms. Yue Li, Effects of biaxial stretching on dielectric properties of polymer films, 12/14-present
30. Dr. Bing Qin, Nanoparticles for lubrication applications, 06/15-05/16
31. Prof. Guo Yao, Polymer/graphene oxide nanocomposites, 06/15-05/16
32. Prof. Guo Jiang, Polymer/graphene nanocomposites, 06/15-05/16
33. Prof. Yuanming Zhang, 09/15-03/16
34. Mr. Zhongqiang Zhao, High dielectric constant polymers in GHz range, 11/15-12/16
35. Mr. Leipeng Liu, High dielectric constant elastomers, 10/16-10/17
36. Ms. Yanfei Huang, Multilayer film-foam electrets, 10/16-10/18
37. Dr. Huadong Huang, High temperature multilayer films for electric vehicles, 08/16-08/17
38. Mr. Xiyang Dai, Electrostrictive and piezoelectric polymers, 01/18-01/19
39. Dr. Patrick (Man-Hin) Kwok, Ferroelectric liquid crystalline polymers, 06/18-present
40. Dr. Yongfang Yang, High k MOFs, 07/18-present
41. Dr. Wei Yang, Magnetic nanowires, 08/18-present
42. Ms. Xiao Wei, Thermally conductive polymer nanocomposites, 09/18-present
43. Mr. Xin Huang, Ferroelectric polymers, 10/18-present
44. Dr. Ling Weng, Quantum tunneling polymer composites, 10/18-present

UNDERGRADUATE STUDENTS

NSF REU Students

University of Connecticut

1. Alyssa Wiley, Lafayette College, Block Copolymer/Clay Nanocomposites, 06/03 - 08/03
2. Adam Mayernick, University of Rochester, Synthesis of Biodegradable ABC Triblock Copolymers, 06/04 - 08/04
3. Henry Lau, Columbia University, Synthesis and Characterization of Coil-Coil-Sphere Triblock Copolymers, 06/04 - 08/04.
4. Steven Viel, Bucknell University, "Mechanical Property of Wheat Gluten/Clay Nanocomposites," (co-advise with Richard Parnas), 06/04 - 08/04.
5. Jorge E. Ginorio, Universidad de Puerto Rico, Recinto Universitario Mayagüez, "Synthesis and Characterization of Well-defined Polylactide Block Copolymers and Their Stereocomplexes," 06/05 - 08/05.
6. Amanda Feldman, Western New England College, Dielectric Breakdown Properties of P(VDF-HFP)/SiO₂ Nanocomposites, 06/06-08/06
7. Christine Ricci, Smith College, Synthesis and Characterization of Asymmetric Heme Discotic Molecules, 06/06-07/06 and 06/08-08/08

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8. Chad Houghton, Penn State University at Erie, Homogeneous Crystallization of PEO in Electrospun PS/PEO Nanofibers, 05/09-07/09
9. Neville Green, City College at New York, CUNY, NY, Synthesis of Polymer Brushes on BaTiO₃ Nanoparticles and their Polymer Nanocomposites, 05/10-07/10
10. Gloria Boxell, Rose-Hulman Institute of Technology, IN, Dielectric Properties of Poly(vinylidene fluoride)/Polysulfone Multilayer Films, 05/10-07/10
11. Melanie Hutnick, New Jersey College, NJ, Dielectric Properties of Poly(vinylidene fluoride)/Polysulfone Multilayer Films, 05/11-07/11
12. Andy Gong, University of Michigan, MI, Ferroelectric Properties of P(VDF-TrFE-CTFE)-g-PS(14%) Graft Copolymers, 06/11-08/11
13. Myela Paige, University of Maryland, Electroactive TPU Elastomers, 06/12-08/12
14. Andy Gong, University of Michigan, MI, Electroactive TPU Elastomers, 07/12-08/12
15. Emanuel Zlibut, Fisk University, TN, Polymer/Silver Nanoparticle Composites, 07/13-08/13
16. Brady Tyburski, Central Michigan University, MI, Relaxor Ferroelectric P(VDF-TrFE-CTFE) Terpolymers, 06/14-08/14

17. Rhett Thompson, Central Michigan University, MI, Novel Ferroelectric Nylons, 06/15-08/15 and 06/16-08/16
18. Karl Codweis, Le Moyne College, PA, Polymer Nanodielectrics, 06/15-08/15
19. Joseph Müller, Stony Brook University, NY, Electrostriction from Pebax Elastomer, 06/17-08/17

Undergraduate Independent Research Students

University of Connecticut

1. Ethan Ertel, Morphology of PEO/Organoclay Nanocomposites, 08/03-12/03
2. Phillip Baker, Single-walled Carbon Nanotube/RNA Interactions, 01/04-05/04
3. Jeffrey P. Collet, Synthesis of Mixed Discotic Star Molecules, 09/04-12/04
4. Masarath Ghiasuddin, RNA Degradation in Single-walled Carbon Nanotube/RNA Complex, 09/04-12/04
5. Janet Grezlik, Synthesis of Discotic Phthalocyanine Supermolecules, 01/05-05/05
6. Brian R. Fuller, Construction of a Preparative Scale GPC, 08/05-12/05
7. Josh Sherwood, Synthesis of Triphenylene-C₆₀ Dyad Molecules, 08/05-12/05
8. Michael J. Heinzer, Jr, Silica-based High Temperature PEM Fuel Cells, 08/05-12/05
9. Jennifer Cileli, 1) Single Crystals from Biodegradable Polylactide Stereocomplexes, 08/05-05/06; 2) Synthesis of C₆₀-Triphenylene Dyad Molecules, 01/06-05/06
10. Matthew Morin, Micro Fuel Cells, 01/07-05/07
11. James Steffes, Asymmetric Heme molecules, 01/07-05/07
12. Jason White and Alison Chen, Grafting PET from Magdiite Nanoclays, 01/07-05/07
13. Jennifer Lucatino, Miscibility study of PEO, PLLA and PDLA Blends, 08/07-05/08
14. Nathan Barlow, DNA-POSS Bionanomaterials for Gene Delivery, 01/08-08/08
15. Michaël Prévost, University of Rouen, French trainee student, Synthesis and Characterization of Triphenylene Lipids and Triphenylene- C₆₀ Dyad Molecules, 04/03/05-08/02/05
16. Simon Wong, Cornell University, Design and Fabrication of Planarized Micro Fuel Cells, 05/06-08/06

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17. Curtis Obert, Electrospinning of PVDF/PAN Blend Nanofibers, 09/09-12/09
18. Mao-Sheng (Allen) Lu, Seeded Emulsion Polymerization of PVDF/PS Core-Shell Latexes, 12/09-07/11
19. Shawn Rupp, Electrospinning of PVDF/PSF Blend Nanofibers, 01/10-04/10
20. Julia Lai, Dielectric Properties of PVDF/PSF Multilayer Films, 01/10-04/10
21. Craig Lewis, Dielectric Properties of PVDF/PMMA Blend Films, 09/10-present
22. Anise Grant, Mixed Polymer Brushes, 09/11-present
23. Yuan Yao, Ferroelectric Property of P(VDF-TrFE-CTFE)-g-PS(14%) Graft Copolymers, 09/11-present
24. Yixin Feng, Dielectric Properties of PVDF/PSF Multilayer Films, 09/11-12/11
25. Henry Brown, Ferroelectric Properties of Polymer Blends, 01/13-05/13
26. Neil He, Polymer/Silver Nanoparticle Composites, 09/13-12/13
27. Michelle Song, Multilayer dielectric films, 09/13-12/13
28. Stephen Rodriguez, Comparison of breakdown strength of multilayer and blend films, 01/14-05/14
29. Jielei Li, Polymer dielectric elastomers, 01/14-05/14
30. Maren Waldner, Ferroelectric nylons, 09/14-12/14
31. Anthony Fernando, Breakdown strength of multilayer films, 01/15-05/15
32. Jiawen Wang, Lifetime study of multilayer films, 09/15-03/16
33. Colby Saxton, Ferroelectric property of nylons, 09/15-12/15
34. Leticia Dornfeld, Ferroelectric nylons, 01/16-05/16
35. Jeehoon Bae, Ferroelectric nylons, 09/16-12/16
36. Drake Cai, Piezoelectric Pebax, 01/18-05/18
37. Justin Yun, Dipolar glass polymers of intrinsic microporosity, 09/18-12/18

38. Michaela Wright, Piezoelectric polymers, 09/18-present
39. Michel'le Wright, Piezoelectric polymers, 09/18-present
40. Licheng Yang, Piezoelectric polymers, 09/18-05/19
41. Andrea Mael, Piezoelectric foams, 01/19-present
42. Puwaner Guo, Piezoelectric foams, 01/19-present

OUTREACH TO K-12 EDUCATION

- 2004-present, Taught Somers Middle and High School technical classes, 1-2 classes per semester
- 07/2004, participated in the SoE DaVinci project with Patrick Mather, one-week workshop for three High School teachers [Janice Gregori (Torrington High School), Sandra Pratt (Woodstock Academy), and Mathieu Freeman (Greens Farms Academy)]: "Polarized Optical Microscopy Study of Shape Memory Polymer Crystallization".
- 07/2005-08/2005, RET supplement to the PI's NSF CAREER Award, Dr. Richard Wilson (Somers High School science teacher) worked in the PI's lab on "Synthesis and characterization of asymmetric discotic heme molecules."
- 07/2006-08/2006, RET supplement to the PI's NSF CAREER Award, Mr. Robert Pirrie (E. O. Smith High School) and worked Ms. Christine Ricci (senior student at Somers High School) in the PI's lab on "Synthesis and characterization of asymmetric discotic heme molecules."
- 06/2006, contributed a fuel cell/solar cell car to the pre-engineering curriculum at Somers High School (collaboration with Mr. Raymond McCarthy, technical teacher, and Dr. Richard Wilson)
- 07/17/2006-07/21/2006, SoE DaVinci project, one-week workshop for three high school teachers [Dale Gregorich, Bryan McCauley, and Jeffrey Sutherland]: "Polymers in Liquid Crystal Displays."
- Fall 2006, co-developing a pre-engineering curriculum at Somers High School with Mr. Raymond McCarthy
- Mrs. Jeannette Martus, biology teacher, E. O. Smith High School, Synthesis and Characterization of Asymmetric Heme Discotic Molecules, 07/23/07-08/22/07
- Rhiannon McCarthy, Tantasqua Regional High School, MA, Polymer-ceramic Nanocomposites for High power Capacitors, 07/07/07-07/27/07
- 06/2010, Melanie Qiang, Western Reserve Academy, DNA/Polymer Self-assembly
- 08/2011 and 07/2012, ACS SEED Program, Jonathan Rodriguez, Multilayer Dielectric Films
- 05/2012, Kevin Ye, Solon High School Senior project, Multilayer Dielectric Films
- 07/2013, ACS SEED Program, Julie de La Pena, Multilayer Dielectric Films
- 09/2010-present, CLiPS Envoys Students (Cassidy Steve and John Ferguson), Multilayered High Temperature Dielectric Films
- 07/2014, ACS Seed Program, Anson Hiew, Multilayer Dielectric Films
- 07/2014, Daniel Huang (Hudson High School), Novel Ferroelectric Polymers
- 07/2014, Yiyi Wang (Hudson High School), Novel Ferroelectric Polymers
- 05/2014, Amogh Iyer, Solon High School Senior project, Multilayer Dielectric Films
- 07/2014, Amogh Iyer (Solon High School), Multilayer Films for Capacitors
- 05/2016, Achuth Nair, Solon High School Senior project, Multilayer Dielectric Films
- 05/2016, Rohin Devanathan, Solon High School Senior project, Multilayer Dielectric Films

TEACHING EXPERIENCE

- 03,05 fall CHEG355 *Polymer Structure and Morphology*
- 03, 04, 05, 07 spr CHEG256 *Polymeric Materials*
- 04 spr and fall CHEG393 *Chemical Engineering Seminar*
- 05 spr CHEG239W *Chemical Engineering Laboratory (II)*
- 05, 06, 07 fall CHEG237W *Chemical Engineering Laboratory (I)*
- 06, 07, 08 spr CHEM384 *Polymer Characterization II*

- 05 spr & fall, 06 spr ENGR100 *Orientation to Engineering*
- 09, 10 spr EMAC404 *Polymer Engineering*
- 10, 11,12 spr EMAC415 *Polymers Plus Structure and Morphology*
- 11-14 EMAC425 *Polymers Plus Energy*
- 10-14 EMAC677 *Colloquium in Macromolecular Science*
- 12-14 EMAC403 *Polymer Physics*
- 17-present EMAC405 *Polymer Characterization Lab*
- 18-present EMAC355 *Polymer Analysis Lab*

UNIVERSITY SERVICES

- EMAC Facility Safety Committee, 01/09-06/14
Faculty Search Committee, 09/09-09/12
Graduate Committee, 09/09-01/13
Associate Director for Research of CLiPS, 01/11-present
ABET Director, 09/12-present
- Case School of Engineering CSE Graduate Committee, 01/09-09/11
Strategic Hiring Committee, 09/11-08/14
SCSAM Executive Committee, 01/11-present
CSE Budgetary Committee, 09/13-present
- Case Western Reserve Univ. Faculty Senate Committee on Women Faculty, 02/13-present
- CHEG Program Graduate admission committee chair, 09/06-12/08
Space, facilities and safety, 8/04-12/08
Undergraduate education committee, 08/04-08/06
Faculty search committee, 04, 05, 06, 07
- Polymer Program & IMS Graduate admission committee, 08/04-12/08
Curriculum review committee, 05
Faculty search committee, 05
- School of Engineering Scholarship committee, 04-06
Curriculum committee, 08/07-12/08
E-Course committee, 04/08-12/08

PROFESSIONAL SYNERGISTIC ACTIVITIES

Professional Society Membership

American Chemical Society (ACS), American Physical Society (APS), Materials Research Society (MRS 02-07, 18-19), IEEE member (2009 and 2014), North American Thermal Analysis Society (NATAS, 01-05), North American Membrane Society (NAMS, 2006), and International Society of Optics and Photonics (2011)

Industrial Consultant

Atotech, Inc. (2012-2015), PolymerPlus, LLC (2011-present)

Journal Editorial Board

Polymer, 08/2014 - present
Macromolecules and ACS Macro Letters, 01/2015 – 12/2017

Reviewer Service

NSF Panel Reviews, NSF proposal, ACS Petroleum Research Fund (PRF), NSF-China proposal, National Synchrotron Light Source Soft Matter Scattering Review Panel, Hong Kong CERG proposal, Singapore Research Council proposal, Portuguese FCT, U.S. Civilian Research and Development Foundation proposal, External thesis reviewer/committee

Conference Session Chair/Significant Committee Membership

- Session chair, Thin Films, APS national meeting, Austin, TX, March 6, 2003
- Session chair, Nanotechnology (II), Emerging Information Technology Conference (IETC-2003), Princeton, NJ, November 1, 2003
- Session chair, Crystallization of Polymers, APS national meeting, Montreal, QC, Canada, 2004
- Session organizer/chair, Nanotechnology, Emerging Information Technology Conference (IETC-2004), Princeton, NJ, October 29, 2004
- Co-chair a session with Patrick Mather, Liquid Crystalline Polymers, APS national meeting, Los Angeles, CA, March 22, 2005
- Session chair, Semicrystalline Polymers in Scattering from Polymers Symposium, ACS national meeting, Washington, DC, August 30, 2005
- North American Thermal Analysis Society (NATAS) membership chair, 11/2003-03/2005
- NSF DMR Polymers Program proposal review committee member, October, 2005
- NSF CMMI Nanomanufacturing review panel member, May, 2007
- Session chair, Nanotechnology (II), Emerging Information Technology Conference (IETC-2007), Princeton, NJ, August 9, 2007
- Session chair, 50 Years after the Discovery of Polymer Single Crystals Symposium, ACS national meeting, Boston, MA, August 21, 2007
- NSF CBET Chemical and Biological Separations review panel member, April, 2008
- Session chair, Polymers and Energy: Photovoltaics, Fuel Cells, Batteries II, APS meeting, Pittsburgh, PA, March 16, 2009
- Session chair, Liquid Crystalline Polymers and Anisotropic Particles, APS meeting, Pittsburgh, PA, March 17, 2009
- Organizer (with Q. Wang at Penn State), Symposium on Functional Polymer Nanocomposites for Energy Storage and Conversion, 237th ACS meeting, Salt Lake City, UT, March 23-24, 2009
- NSF IGERT Preproposal review panel member, June, 2009
- Editor, ACS Symposium Series, Vol. 1034, Functional Polymer Nanocomposites for Energy Storage and Conversion, Washington, DC: American Chemical Society, March 11, 2010
- Session chair, Symposium of Polymer Membranes and Thin Films for Energy Applications, 239th ACS meeting, San Francisco, CA, March 24, 2010
- Organizer, CWRU-Chinese Academy of Science Changchun Institute of Applied Chemistry Symposium, March 29, 2010
- Organizer and Session chair, Symposium on Chemistry and Materials for Alternative Energy, CerMACS, Dayton, OH, June 18, 2010
- NSF DMR Polymers Program proposal review committee member, October, 2010
- Session chair, Symposium in Memory of Professor Anne Hiltner, 242th ACS National Meeting, Denver, CO, August 31, 2011
- NSF CMMI Nanomanufacturing review panel member, December, 2011
- Session chair, Focus session: Crystallization in Multicomponent and Hybrid Systems, APS National Meeting, Boston, MA, March 1, 2012
- NSF DMR Materials World Network review panel member, March, 2012
- Guest Editor, Focus Issue on Crystallization Processes in Polymer-Based Materials, Journal of Materials Research, May, 2012
- Organizer and session chair, Polymers in Optics and Photonics Workshop, Cleveland, OH, May 16-17, 2012
- NSF CMMI Nanomanufacturing review panel member, August, 2012
- Session chair, International Symposium on Polymer Physics (PP'2012), Chengdu, China, June 5, 2012

- Session chair, IUPAC Macro2012: Energy, Optics, and Optoelectronics, Blacksburg, VT, June 27, 2012
- Organizer, DPOLY/DMP Focus Session on Dielectric and Ferroelectric Polymers for Electrical Applications, APS National Meeting, Baltimore, MD, March 2013
- Organizer, ACS PMSE symposium, Polymer Brushes and Brush-Grafted Nanoparticles, ACS National Meeting, Indianapolis, IN, September 8-9, 2013
- Session chair (with Mitsuhiro Shibayama), Polymer Structure and Property, the 13th Pacific Polymer Conference, Kaohsiung, Taiwan, November 19, 2013
- Session chair, International Symposium on Polymer Physics (PP'2014), Nanjing, China, June 9, 2014
- External Reviewer for Kazakhstan National Center of Science and Technology Evaluation, October-December, 2014
- External dissertation reviewer, Quaid-I-Azam University, Islamabad, Pakistan, 2014, 2015, 2016
- Session chair, International Symposium on Polymer Physics (PP'2016), Guiyang, China, June 11, 2016
- Session chair, PMSE: Polymer & Polymer Hybrid Electronics & Biosensors, ACS National Meeting, Philadelphia, PA, August 23, 2016
- NSF DMR review panel member, September, 2016
- NSF DMR Polymers Program review panel member, September, 2016
- NSF IIP SBIR Phase I and Phase II review panel member, February and May, 2017
- NSF IIP review panel member, April and September, 2019

REFEREED PUBLICATIONS

1. Zhu, L.; Liu, L.; Jiang, M. Synthesis of monodispersed hydroxyl-containing polystyrene via chemical modification. *Macromol. Rapid Comm.* **1996**, *16*, 37-42.
2. Li, M.; Jiang, M.; Zhu, L.; Wu, C. Novel surfactant-free stable colloidal nanoparticles made of randomly carboxylated polystyrene ionomers. *Macromolecules* **1997**, *30*, 2201-2203.
3. Jiang, M.; Li, M.; Liu, L.; Xiang, M.; Zhu, L. Macromoleular aggregation: Complexation due to hydrogen bonding and hydrophobic association. *Macromol. Symp.* **1997**, *124*, 135-146.
4. Li, M.; Zhang, Y. B.; Jiang, M.; Zhu, L.; Wu, C. Studies on novel surfactant-free polystyrene nanoparticles formed in microphase inversion. *Macromolecules* **1998**, *31*, 6841-6844.
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39. Cao, W.; Zhou, J.; Wang, Y.; Zhu, L. Synthesis of folate functionalized biodegradable amphiphilic dendrimer-like star polymer for targeted cancer cells. *PMSE Preprint* **2010**, *103*, 31-32.
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41. Cao, W.; Zhou, J.; Wang, Y.; Zhu, L. Folate-functionalized unimolecular micelles based on a biodegradable amphiphilic dendrimer-like star polymer for tumor-targeted drug delivery. *PMSE Preprint* **2011**, *104*.
42. Tseng, J.-K.; Lewis, C.; Zhu, L. Crystallinity effect on electric energy storage in miscible poly(vinylidene fluoride-co-hexafluoropropylene)/poly(methyl methacrylate) blend films. *PMSE Preprint* **2011**, *105*.
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45. Su, R.; Yang, L.; Tseng, J.-K.; Fu, Q.; Zhu, L. Paraelectric and relaxor ferroelectric behaviors in poly(vinylidene fluoride-co-trifluoroethylene)-based copolymers. *PMSE Preprint* **2012**, *107*.
46. Tseng, J.-K.; Lewis, C.; Mackey, M.; Carr, J.; Baer, E.; Zhu, L. Polysulfone/poly(vinylidene fluoride) multilayer films for high temperature electric energy storage. *PMSE Preprint* **2012**, *107*.

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PRESENTATIONS

Invited Presentations

1. "Nano-confined polymer crystallization in crystalline-amorphous diblock copolymers," Invited presentation at Ohio Chinese American Professional Association (OCAPA) 2001 Annual Meeting, Kent State University, Kent, OH, June 2, 2001.
2. "Nano-structured Morphology of Block Copolymers," invited presentation, Annual Institute of Materials Science Advisory Board Meeting, November 19, 2002.
3. "From Block Copolymer Nano-structures to Nano-templates," invited presentation, Rogers Corp., Rogers, CT, March 19, 2003.
4. "Nano-structure and Morphology in Polymeric Materials," invited presentation, Annual Associate Program Advisory Board Meeting, May 28, 2003.
5. "Ionomeric Materials Fabrication and Characterization," invite presentation, UTC Fuel Cells/UConn Seminar Series at UTC Fuel Cells, South Windsor, CT, August 11, 2003.
6. "Crystallization in Various Nano-confined Environments," Invited talk at the 3rd Annual Emerging Information Technology Conference, Nov. 1, 2003.
7. "Self-assembly and Crystallization Behaviors in Crystalline Block Copolymers," invited talk at Chemistry Department, SUNY at Binghamton, February 27, 2004.
8. "Self-assembly and Crystallization Behaviors in Crystalline Block Copolymers," invited talk at Chemistry Department, University of Sherbrooke, March 26, 2004.
9. "Structure and Morphology of Crystalline Polymer/Clay Nanocomposites," invited presentation, Annual Associate Program Advisory Board Meeting, May 26, 2004.
10. "Self-assembly and Crystallization of Ethylene and Ethylene Oxide Oligo-copolymers," Invited talk at International Symposium on Polymer Physics, Dali, China, June 3, 2004.
11. "Epitaxial Phase Transformation in Diblock Copolymers," invited talk at the Third East-Asian Polymer Conference (EAPC-3), Chengdu, China, June 9, 2004.
12. "Phases and phase transitions in a coil-coil-disk triblock copolymer," invited presentation at 4th Emerging Information Technology Conference, Princeton, NJ, October 29, 2004.
13. "Molecular Ordering in Oligomeric Crystalline and Liquid Crystalline Polymers," invited talk at Chemistry Department, Staten Island College (City University of New York), New York, NY, April 7, 2005.
14. "Molecular Ordering in Oligomeric Crystalline and Liquid Crystalline Polymers," invited talk at Physics Department, Tufts University, Boston, MA, April 8, 2005.
15. "Discotic Liquid Crystals from Molecular Complexes with DNA," invited talk at the Polymer Program Annual Advisory Board Meeting, Storrs, CT, May 17, 2005.
16. "Molecular and Nanocomposites for High Energy Density Capacitors for Pulsed Power Applications," invited talk at 2005 ONR Capacitor Kickoff Meeting, Washington DC, June 9, 2005.
17. "Discotic Liquid Crystals from Molecular Complexes with DNA," invited talk, School of Material Science & Engineering, East China University of Science and Technology, Shanghai 200237, June 21, 2005.
18. "Discotic Liquid Crystals from Molecular Complexes with DNA," invited talk, Macromolecular Science Department, Fudan University, Shanghai, 200433, June 24, 2005.
19. "Discotic Liquid Crystals from Molecular Complexes with DNA," invited talk, Department of Polymer Science and Engineering, College of Chemistry, Peking University, Beijing 100871, June 27, 2005.
20. "Supramolecular Self-assembly in Novel Asymmetric Discotic Liquid Crystals," invited talk at 3M, St. Paul, MN, September 12, 2005.

21. "Molecular and Nanocomposites for High Energy Density Capacitors for Pulsed Power Applications," invited talk at 2006 ONR Capacitor Review Meeting, San Diego, March 7, 2006.
22. "Supramolecular Self-assembly in Novel DNA-Cationic Lipid Complexes," invited talk at MS&E, Drexel University, Philadelphia, PA, March 17, 2006.
23. "Development of Nafion[®]/SiO₂/Phosphotungstic Acid Nanocomposite Membranes for High Temperature Proton Exchange Membrane (PEM) Fuel Cells," invited talk at North American Membrane Society 2006 meeting, Chicago, IL, May 16, 2006.
24. "Supramolecular Self-assembly in Novel DNA-Cationic Lipid Complexes," invited talk at Department of Chemical Physics, University of Science and Technology of China, Hefei, China, August 3, 2006.
25. "Supramolecular Self-assembly in Novel DNA-Cationic Lipid Complexes," invited talk at Department of Polymer Science and Engineering, College of Chemistry, Peking University, Beijing, China, August 22, 2006.
26. "Role of Noncentrosymmetry in Supramolecular Self-assembly," invited talk at Department of Chemistry, State University of New York at Stony Brook, Stony Brook, November 21, 2006.
27. "Nano Onions From Biodegradable Polylactide Block Copolymers," invited talk at ACS West Connecticut Section, Sacred Heart University, January 23, 2007.
28. "Role of Noncentrosymmetry in Liquid Crystalline and Block Copolymer Self-assemblies," invited talk at University of Massachusetts at Amherst, February 16, 2007.
29. "Molecular and Nanocomposites for High Energy Density Capacitors for Pulsed Power Applications," invited talk at 2007 ONR Capacitor Review Meeting, Baltimore, March 1, 2007.
30. "Tailoring Onion-like Morphology in Polylactide-containing Block Copolymers," invited talk at Suzhou University, China, July 10, 2007.
31. "Supramolecular Self-assembly in Novel DNA-Cationic Lipid Complexes," invited talk at Nanjing University, China, July 12, 2007.
32. "Inorganic Nanoparticles as New Platform for Functional Polymer Composites," invited talk at Alcatel-Lucent, Inc., Murray Hill, NJ, August 8, 2007.
33. "Tailoring Onion-like Morphology in Polylactide-containing Block Copolymers," invited talk at 50 Years after the Discovery of Polymer Single Crystals Symposium, ACS meeting, Boston, MA, August 20, 2007.
34. "Role of Noncentrosymmetry in Supramolecular Self-assemblies," invited talk at Rensselaer Polytechnic University, September 24, 2007.
35. "Self-Assembled Biodegradable Block Copolymers and DNA Lipoplexes as Potential Delivery Systems," invited talk at Northeastern University, January 25, 2008.
36. "Molecular and Nanocomposites for High Energy Density Capacitors for Pulsed Power Applications," invited talk at 2008 ONR Capacitor Review Meeting, Hilton Head Island, March 4, 2008.
37. "Self-Assembled Biodegradable Block Copolymers as Potential Nanomedicines and Polymer Dielectric Films for High Energy Density Capacitors," invited talk at Department of Macromolecular Science and Engineering, Case Western Reserve University, Cleveland, OH, April 1, 2008.
38. "Self-Assembled Biodegradable Block Copolymers and DNA Lipoplexes as Potential Nanomedicines," invited talk at Department of Chemical Engineering and Materials Science, University of California, Irvine, Irvine, CA, April 11, 2008.
39. "DNA Lipoplexes and RNA Aptamer-Polymer Conjugates as Potential Nanomedicines," invited talk at Shuang Qing Forum, Beijing, China, May 28, 2008.
40. "Tailoring Onion-Like Morphology in Polylactide-Containing Block Copolymers," invited presentation at 5th East-Asian Polymer Conference (EAPC-5), Shanghai, China, June 5, 2008.
41. "Mesophase Transformations in DNA Complexes with Cationic Lipids," invited presentation at International Symposium of Polymer Physics, Xiamen, China, June 11, 2008.

42. "Self-Assembled Biodegradable Block Copolymers and DNA Lipoplexes as Potential Nanomedicines," invited talk at Department of Polymeric Materials Science and Engineering, Hebei Industrial University, Tianjin, China, June 28, 2008.
43. "Tailoring Noncentrosymmetric Morphology in Polylactide-Containing Block Copolymers," invited colloquium at 32nd Annual Symposium of Macromolecular Science and Engineering Center, University of Michigan, Ann Arbor, MI, October 23, 2008.
44. "Achieving high dielectric constant polymer/BaTiO₃ nanocomposites at low filling ratios," invited presentation at the 237th ACS National Meeting, Salt Lake City, UT, March 22-26, 2009.
45. "Nanoscale polymer morphology and its applications in electrical energy storage," invited talk at 2009 Advisory Board Meeting, Department of Macromolecular Science and Engineering, CWRU, April 27, 2009.
46. "Three-phase polymer nanocomposites as high electric energy storage materials," invited talk at Wright Patterson Air Force Base, Dayton, OH, June 12, 2009.
47. "Supramolecular self-assembly of discotic liquid crystal LEGOs," invited talk at National Chiao Tung University, Hsinchu, Taiwan, July 13, 2009.
48. "Nanoconfined polymer ferroelectricity and its application in electric energy storage," invited talk at National Taiwan University, Taipei, Taiwan, July 14, 2009.
49. "Crystal orientation effect on dielectric properties of poly(vinylidene fluoride-*co*-hexafluoropropylene) copolymers," invited talk at Beijing University, Beijing, China, July 28, 2009.
50. "Crystal orientation effect on dielectric properties of poly(vinylidene fluoride-*co*-hexafluoropropylene) copolymers," invited talk at Chinese University of Science and Technology, Hefei, China, August 6, 2009.
51. "Dielectric properties and applications of poly(vinylidene fluoride)-based copolymers," invited talk at Shanghai Jiaotong University, August 12, 2009.
52. "Nanoconfined polymer ferroelectricity," invited talk at International Discussion Meeting on Polymer Crystallization 2009, Shanghai, China, August 13, 2009.
53. "Ferroelectric polymer nanocomposites for high electric energy storage," invited talk at School of Materials Engineering, Purdue University, IN, September 28, 2009.
54. "Ferroelectric polymer nanocomposites for high electric energy storage," invited talk at Department of Polymer Science, University of Akron, October 2, 2009.
55. "Electric energy storage in polymers," invited talk at Physics Department, John Carroll University, March 11, 2010.
56. "Nanoconfined ferroelectricity in poly(vinylidene fluoride-*co*-chlorotrifluoroethylene)-*graft*-polystyrene copolymers," invited talk at the ACS Award in Applied Polymer Science: Symposium in Honor of Andrew J. Lovinger, the 239th ACS National Meeting, San Francisco, CA, March 23, 2010.
57. "Crystal orientation effect on electric energy storage in poly(vinylidene fluoride-*co*-hexafluoropropylene) copolymer films," invited talk at the Polymer Membranes and Thin Films for Energy Applications Symposium, the 239th ACS National Meeting, San Francisco, CA, March 24, 2010.
58. "Ferroelectric polymers and nanocomposites for high electric energy storage," invited talk at the Materials Science and Engineering, Iowa State University, April 29, 2010.
59. "Ferroelectric polymers and nanocomposites for high electric energy storage," invited talk at Shanghai Dow Chemical Company, May 25, 2010.
60. "Electric energy storage in ferroelectric polymers," invited talk at International Symposium on Polymer Physics (PP'2010), Jinan, Shandong Province, China, June 8, 2010.
61. "Ferroelectric polymers and nanocomposites for high electric energy storage," invited talk at Shandong University, June 9, 2010.
62. "Tailoring Onion-Like Morphology in Polylactide-Containing Block Copolymers," invited talk at The 3rd International Symposium on Polymer Morphology and Microscopy, Changchun, China, June 14, 2010.

63. "Electric energy storage in ferroelectric polymers," invited talk at CerMACS, Dayton, OH, June 18, 2010.
64. "Effects of polymorphism on dipolar reorientation in poly(vinylidene fluoride-*co*-hexafluoropropylene) random copolymers," invited talk in WCU International Symposium on Energy Storage and Conversion, the 240th ACS National Meeting, Boston, MA, August 23, 2010.
65. "Nanoconfined ferroelectricity in polymers," Symposium on Polymer Crystal Physics in Honor of Dr. Freddy Khoury's 80th Birthday, Akron, OH, September 25, 2010.
66. "High energy density polymer dielectrics and novel DNA-cationic lipid complexes," invited talk at Wright Patterson Air Force Base, September 29, 2010.
67. "Supramolecular self-assembly of discotic liquid crystal LEGOs," invited talk at PPG Industries, Inc., Monroeville, PA, October 11, 2010.
68. "Nanoconfined ferroelectric polymers as high energy density and low loss dielectrics," plenary talk at Ohio Section APS meeting, John Carroll University, University Heights, OH, April 16, 2011.
69. "Nanoconfined ferroelectric polymers as high energy density and low loss dielectrics," keynote talk at ANTEC 2011 meeting, Boston, MA, May 4, 2011.
70. "Nanoconfined ferroelectric polymers as high energy density and low loss dielectrics," invited talk at Fudan University, Shanghai, July 11, 2011.
71. "Confined ferroelectricity in polymers for electric energy storage," invited talk at International Discussion Meeting on Polymer Crystallization, Beijing, August 3, 2011.
72. "Novel DNA-Cationic Lipid Complexes and Their Applications as Gate Dielectrics," invited talk at SPIE 2011 Optics + Photonics, San Diego, CA, August 21, 2011.
73. "Confinement-induced high-field antiferroelectric-like behavior in a P(VDF-TrFE-CTFE)-*g*-PS graft copolymer," invited talk at Symposium in Memory of Professor Anne Hiltner, 242th ACS National Meeting, Denver, CO, August 31, 2011.
74. "Nanoconfined ferroelectric polymers as high energy density and low loss dielectrics," invited departmental colloquium at University of Southern Mississippi, February 1, 2012.
75. "Nanoconfined ferroelectric polymers as high energy density and low loss dielectrics," invited seminar at Penn State University, February 21, 2012.
76. "Novel dielectric films for next generation capacitors," invited seminar at GE Global Research Center, March 2, 2012.
77. "Janus and raspberry-like composite latexes based on fluoropolymer and inorganic seeds," invited seminar at Sherwin-Williams Company, Cleveland, OH, March 13, 2012.
78. "Novel ferroelectric polymers as high energy density and low loss dielectrics," invited talk at Polymers in Optics and Electronics Workshop, Cleveland, OH, May 16, 2012.
79. "Novel ferroelectric polymers as high energy density and low loss dielectrics," invited talk at Nankai University, Tianjin, China, May 31, 2012.
80. "Novel ferroelectric polymers as high energy density and low loss dielectrics," invited talk at International Symposium on Polymer Physics (PP'2012), Chengdu, China, June 5, 2012.
81. "Janus and raspberry-like composite latexes based on fluoropolymer and inorganic seeds," invited seminar at Lubrizol Company, Cleveland, OH, June 20, 2012.
82. "Novel ferroelectric polymers as high energy density and low loss dielectrics," invited talk at IUPAC Macro2012, Blacksburg, VA, June 27, 2012.
83. "Paraelectric and relaxor ferroelectric behaviors in poly(vinylidene fluoride-*co*-trifluoroethylene)-based copolymers," invited talk in Field Responsive Polymeric Materials Symposium, ACS 244th National Meeting, Philadelphia, PA, August 22, 2012.
84. "DNA lipoplexes and dendrimer-like star polymers as potential nanomedicines," invited talk at Mahidol University, Bangkok, Thailand, September 5, 2012.
85. "Novel ferroelectric polymers for high energy density and low loss dielectrics," invited talk at 2012 Fluoropolymer Conference, Las Vegas, NV, October 16, 2012.
86. "High k polymers for high energy density and low loss dielectrics," invited talk at Lubrizol Company, Advanced Materials, November 1, 2012.

87. "High k polymers for high energy density and low loss dielectrics," invited talk at Fraunhofer Institute of Applied Polymer Science, Potsdam, Germany, November 7, 2012.
88. "High k polymers for high energy density and low loss dielectrics," invited talk at Department of Chemistry, Case Western Reserve University, January 24, 2013.
89. "High k polymers for high energy density and low loss dielectrics," invited talk at Frontier Polymer Science Workshop, Kentucky State University, Frankfort, KY, February 7, 2013.
90. "Advanced multilayer polymer films for high energy density and low loss dielectric capacitors," invited talk at the Celebrating 50 Years of Polymer Science at Case Western Reserve Symposium, the 245th ACS National Meeting, New Orleans, LA, April 7, 2013.
91. "Converting ferroelectric polymers into high energy density and low loss dielectrics," invited talk at the Advanced Materials for Clean Energy Second ACS-PMSE/Chinese Chemical Society-Polymer Division (CCS-PD) Joint Symposium on Polymers, the 245th ACS National Meeting, New Orleans, LA, April 10, 2013.
92. "Novel polymer ferroelectric behaviors via crystal isomorphism and nanoconfinement effect," invited talk at Department of Polymer Engineering, University of Akron, Akron, OH, April 19, 2013.
93. "Multilayer polymer films as next generation polymer dielectrics," invited talk at Macro Frontiers 2013 Symposium, Cleveland, OH, June 7, 2013.
94. "Multilayer polymer films as next generation polymer dielectrics," invited talk at Beijing University of Chemical Technology, Beijing, China, August 15, 2013.
95. "SCFT study of mixed polymer brushes grafted nanoparticle," with Prof. Feng Qiu, invited talk at the 246th ACS National Meeting, Indianapolis, IN, September 8, 2013.
96. "3D TEM imaging of polystyrene/poly(tert-butyl acrylate) mixed brushes grafted on silica nanoparticles," invited talk at the 246th ACS National Meeting, Indianapolis, IN, September 9, 2013.
97. "Multilayer polymer films as high energy density and low loss dielectrics," invited talk in Polymer Capacitor Dielectrics Symposium, the 246th ACS National Meeting, Indianapolis, IN, September 11, 2013.
98. "Multilayer polymer films as next generation polymer dielectrics," invited talk at the 13th Pacific Polymer Conference, Kaohsiung, Taiwan, November 19, 2013.
99. "High k polymers as next generation capacitor films," invited talk at Frontiers in Polymer Science, CLiPS Workshop in Bowie State Univ., Bowie, MD, Feb. 28, 2014.
100. "Novel Polymer Ferroelectric Behavior via Crystal Isomorphism and Nanoconfinement Effect," invited talk at Focus Session: Directed Assembly of Hybrid Materials, APS March meeting, Denver, CO, March 5, 2014.
101. "High k & Low Loss Polymer Dielectrics via Crystal Isomorphism and Nanoconfinement Effect," invited talk at Beijing University of Chemical Technology, Beijing, China, June 3, 2014.
102. "High k & Low Loss Polymer Dielectrics via Crystal Isomorphism and Nanoconfinement Effect," invited talk at Hebei University of Technology, Tianjin, China, June 4, 2014.
103. "Multilayer polymer films as next generation polymer dielectrics," invited talk at International Symposium on Polymer Physics (PP'2014), Nanjing, China, June 9, 2014.
104. "Multilayer polymer films as next generation polymer dielectrics," invited talk at International Symposium on Electrets 15, Baltimore, MD, August 11, 2014.
105. "Novel ferroelectric polymers for high energy density and low loss dielectrics," invited talk at 2014 Fluoropolymer Conference, San Diego, CA, October 14, 2014.
106. "Mixed homopolymer brush-grafted SiO₂ Nanoparticles," invited talk at Lubrizol Company, Brecksville, OH, November 20, 2014.
107. "Mixed homopolymer brush-grafted SiO₂ Nanoparticles," invited talk at Lubrizol Company, Wycliffe, OH, February 12, 2015.
108. "Novel ferroelectric polymers for high energy density and low loss dielectrics," invited talk at University of Montpellier, Montpellier, France, April 1, 2015.

109. "Multilayer polymer films as next generation polymer dielectrics," invited talk at University of Montpellier, Montpellier, France, April 2, 2015.
110. "Multilayer polymer films as next generation polymer dielectrics," invited talk at South China University of Technology, Guangzhou, China, April 14, 2015.
111. "Novel ferroelectric polymers for high energy density and low loss dielectrics," invited talk at South China University of Technology, Guangzhou, China, April 17, 2015.
112. "Novel ferroelectric polymers for high energy density and low loss dielectrics," invited talk at University of Savoie, de Bourget du Lac, France, May 7, 2015.
113. "Multilayer polymer films as next generation polymer dielectrics," invited talk at University of Lyon, Lyon, France, May 28, 2015.
114. "Multilayer polymer films as next generation polymer dielectrics," invited talk at University of Grenoble, Grenoble, France, May 28, 2015.
115. "Novel ferroelectric polymers for high energy density and low loss dielectrics," invited talk at University of Rostock, Rostock, Germany, June 2, 2015.
116. "Novel ferroelectric polymers for high energy density and low loss dielectrics," invited talk at Fraunhofer Institute of Applied Polymer Science, Potsdam, Germany, June 5, 2015.
117. "Novel ferroelectric polymers for high energy density and low loss dielectrics," invited talk at University of Dusseldorf, Dusseldorf, Germany, June 12, 2015.
118. "Novel ferroelectric polymers for high energy density and low loss dielectrics," invited talk at Arkema, Inc., King of Prussia, PA, July 22, 2015.
119. "Novel ferroelectric polymers for high energy density and low loss dielectrics," invited talk at Wright Patterson Air Force Research Laboratory, Dayton, OH, August 11, 2015.
120. "Novel ferroelectric polymers for high energy density and low loss dielectrics," invited talk at The First National Dielectric Polymer Nanocomposite Conference, Xi'an, China, November 7, 2015.
121. "High Energy Density and High Temperature Multilayer Polymer Films for Electric Vehicle Applications," invited talk at Pacific Polymer Conference - 14, Kauai, HI, December 12, 2015.
122. "Engineering crystal defects for enhanced ferroelectric properties in functional polymers," invited talk at PacifiChem 2015, Honolulu, HI, December 18, 2015.
123. "High Dielectric Constant Polymers for Advanced Electrical Applications," invited seminar at Colorado State University, Fort Collins, CO, April 14, 2016.
124. "High Temperature, High Energy Density and Low Loss Multilayered Polymer Films," invited talk at Forum on Fundamental and Application Issues of Low-Dimension Materials, East China University, May 27, 2016.
125. "High Temperature, High Energy Density and Low Loss Multilayered Polymer Films," invited talk at CLiPS Annual Meeting, Asilomar Conference Grounds, Monterey, CA, June 2, 2016.
126. "Exploring Strategies for High Dielectric Constant and Low Loss Polymer Dielectrics," invited talk at International Symposium on Polymer Physics (PP'2016), Guiyang, China, June 13, 2016.
127. "High Dielectric Constant Polymers for Advanced Electrical Applications," invited talk at Sichuan University, Chengdu, China, June 16, 2016.
128. "High Dielectric Constant Polymers for Advanced Electrical Applications," invited talk at Fudan University, Shanghai, China, June 23, 2016.
129. "Mixed Homopolymer Brush-Grafted SiO₂ Nanoparticles," invited talk at Nankai University, Tianjin, China, June 28, 2016.
130. "High Dielectric Constant Polymers for Advanced Electrical Applications," invited talk at Beijing University of Chemical Technology, Beijing, China, June 30, 2016.
131. "High Dielectric Constant Polymers for Advanced Electrical Applications," invited talk at Peking University, Beijing, China, July 1, 2016.
132. "Exploring Strategies for High Dielectric Constant and Low Loss Polymer Dielectrics," invited talk at 252nd ACS National Meeting, Philadelphia, PA, August 23, 2016.

133. "Processing Induced Novel Relaxor Ferroelectric Behavior in a P(VDF-TrFE-HFP) Random Terpolymer," invited talk at ACS Workshop: Fluoropolymer 2016, New Orleans, LA, October 3, 2016.
134. "High Dielectric Constant Novel Ferroelectric Polymers," invited talk at Piezotech/Arkema, Lyon, France, November 23, 2016.
135. "High Dielectric Constant Novel Ferroelectric Polymers," invited talk at University of Montpellier, Montpellier, France, November 24, 2016.
136. "High Energy Density and High Temperature Multilayer Polymer Films for Electric Vehicle Applications," invited talk at ACS Workshop: Layered Polymeric Systems, Asilomar Conference Grounds, Pacific Grove, CA, February 24, 2017.
137. "High Energy Density and Low Loss Dielectric Polymers for Electric Energy Storage," invited talk at Hong Kong University of Science and Technology, Hong Kong, China, May 25, 2017.
138. "Dielectric Phenomena in Polymers and Multilayered Dielectric Films," invited talk at South China University of Technology, Guangzhou, China, May 31, 2017.
139. "High Energy Density and Low Loss Dielectric Polymers for Electric Energy Storage," invited talk at Nanjing University, Nanjing, China, June 2, 2017.
140. "Overview of Zhu Group Research at Case Western Reserve University," invited talk at Chulalongkorn University, Bangkok, Thailand, August 23, 2017.
141. "High Energy Density and Low Loss Dielectric Polymers for Electric Energy Storage," invited talk at Chinese University of Hong Kong, Hong Kong, China, December 20, 2017.
142. "High Energy Density and Low Loss Dielectric Polymers for Electric Energy Storage," invited talk at Shenzhen University, Shenzhen, China, December 21, 2017.
143. "High Energy Density and Low Loss Dielectric Polymers for Electric Energy Storage," invited talk at Kent State University, Kent, OH, February 7, 2018.
144. "Dielectric Phenomena in Polymers and Multilayered Dielectric Films," invited talk at MRS Spring Meeting, Denver, CO, April 3, 2018.
145. "Structure-Property Relationships in PVDF Copolymers and Terpolymers," invited talk at Juhua Company, Quzhou, Zhejiang Province, China, June 15, 2018.
146. "Can Relaxor Ferroelectric Behavior be Realized for P(VDF-CTFE) Copolymers by Inclusion of CTFE Units in PVDF Crystals?" invited talk at ACS Workshop: Fluoropolymer 2018, Denver, CO, June 25, 2018.
147. "High Energy Density and Low Loss Dielectric Polymers for Electrical Applications," invited talk at Chulalongkorn University, Bangkok, Thailand, August 8, 2018.
148. "Achieving Relaxor-like Ferroelectric Behavior in Nylon-based Polymers," invited talk at the 256th ACS National Meeting, Boston, MA, August 22, 2018.
149. "High Energy Density and Low Loss Dielectric Polymers for Electrical Applications," invited talk at University of Tennessee, Knoxville, Tennessee, September 13, 2018.
150. "High Energy Density and Low Loss Dielectric Polymers for Electrical Applications," invited talk at ICAPPP 2018, 30th Anniversary of PPC, Chulalongkorn University, Bangkok, Thailand, December 20, 2018.
151. "Advanced Dielectric Materials," invited talk at South China University of Technology, Guangzhou, China, December 27, 2018.
152. "High Energy Density and Low Loss Dielectric Polymers for Electrical Applications," invited talk at Deutsche Physikalische Gesellschaft (DPG) Conference in Regensburg 2019, Germany, April 2, 2019.
153. "High Energy Density and Low Loss Dielectric Polymers," invited talk at Department of Physics, University of Dusseldorf, Germany, April 3, 2019.
154. "High Energy Density and Low Loss Dielectric Polymers," invited talk at Physikalische Chemie, Universität Duisburg-Essen, Germany, April 5, 2019.
155. "Polymer Brush-Grafted Silica Nanoparticles," invited talk at Department of Chemistry, Hong Kong Chinese University, Hong Kong, June 20, 2019.

156. "High Energy Density and Low Loss Dielectric Polymers for Electrical Applications," invited talk at College of Polymer Science and Engineering, Sichuan University, China, July 5, 2019.

Contributed Presentations at Conferences

157. "Synthesis of hydroxyl containing monodispersed polystyrene via chemical modification," Contributed oral presentation at First East-Asian Polymer Conference, Shanghai, P. R. China, October 12, 1995.
158. "Simultaneous SAXS and WAXS study on semicrystalline diblock copolymer PEO-*b*-PS," Contributed oral presentation at 3rd National Graduate Polymer Conference, Akron, OH, June 21, 1998.
159. "Competitions among self-organization, vitrification, and crystallization in PEO-*b*-PS block copolymers," Contributed poster at Society for the Advancement of Material and Process Engineering (SAMPE) Local Meeting, Cleveland, OH, March 16, 1999.
160. "Confined crystallization in a lamellar PEO-*b*-PS diblock copolymer," Contributed poster at APS National Meeting, Minneapolis, MN, March 20, 2000.
161. "Molecular ordering within ordered supramolecular structure," Contributed poster at ACS National Meeting, Washington D.C., August 20, 2000.
162. "Confined polymer crystallization in hexagonal perforated layers," Contributed poster at Sponsors' Day, The University of Akron, Akron, OH, October 12, 2000.
163. "Caged polymer crystallization in perforated layers," Contributed poster at APS National Meeting, Seattle, WA, March 12, 2001.
164. "Hard and soft confinement effects on polymer crystallization in microphase separated cylinder-forming PEO-*b*-PS/PS blends," Contributed poster at North-Coast Thermal Analysis Society, Cleveland, OH, March 15, 2001.
165. "Hexagonally perforated layer phase formed under plastic deformation" Contributed oral presentation at APS National Meeting, Indianapolis, IN, March 21, 2002.
166. "Dislocation-controlled hexagonally perforated layer phase in a PEO-*b*-PS diblock copolymer" Contributed oral presentation at ACS National Meeting, Orlando, FL, April 10, 2002.
167. "Hard and soft confinement effects on nano-confined polymer crystallization in cylindrical mesophases" Contributed oral presentation at IUPAC Macro2002 Meeting, Beijing, China, July 10, 2002.
168. "Hexagonally perforated layer phase formed by plastic deformation in a self-assembled PEO-*b*-PS diblock copolymer" Contributed oral presentation at *International Polymer Physics Conference 2002*, Qingdao, China, July 3, 2002.
169. "Hard and soft confinement effects on nano-confined polymer crystallization in cylindrical mesophases" Contributed oral presentation at 30th NATAS Meeting, Pittsburg, PA, Sept. 22-25, 2002.
170. "Comparison of crystallization kinetics in various nano-confinement environments" Contributed oral presentation at the APS meeting, Austin, TX, Mar. 3-7, 2003.
171. "Comparison of Crystallization Kinetics in Various Nano-confined Environments," Contributed talk at 226th ACS National Meeting, New York, NY, September 11, 2003.
172. "Crystallization in Various Nano-confined Environments," Contributed poster at the European Discussion Meeting on Polymer Physics, Waldau, Germany, Sept. 24-27, 2003.
173. "Complex Transformations between Bicontinuous Cubic and Cylinder Phases in a Polystyrene-*block*-Poly(ethylene oxide) Diblock Copolymer," contributed poster at APS meeting, Montreal, QC, Canada, March 22, 2004.
174. "Self-assembly Behavior and Crystallization of a Low Molecular Weight Double Crystalline Polyethylene-*block*-Poly(ethylene oxide) Diblock Copolymer," contributed talk at APS meeting, Montreal, QC, Canada, March 25, 2004.
175. "Self-assembly and Crystallization Behavior in Amphiphilic Star Unimicelles," contributed talk at the 4th New England Polymer Workshop, University of Vermont, Burlington, VT, July 24, 2004.
176. "Complex Transformations between Bicontinuous Cubic and Cylinder Phases in a Polystyrene-*block*-Poly(ethylene oxide) Diblock Copolymer," contributed poster at Gordon Research Conference - Polymer Physics, Connecticut College, New London, CT, August 4, 2004.

177. "Self-assembly and crystalline morphology in polyethylene and poly(ethylene oxide) copolymers," contributed talk at the 228th ACS national meeting, Philadelphia, PA, August 26, 2004.
178. "Epitaxial phase transformation between cylindrical and double gyroid mesophases," contributed oral presentation at 2004 Fall MRS Meeting, Boston, MA, November 29, 2004.
179. "Molecular Architecture Induced Chain-Folding in Polymeric Amphiphilic Unimolecular Micelles," contributed talk, (with J. Miao, G. Xu, L. Tian, K. E. Uhrich, B.S. Hsiao, C.A. Avila-Orta), 2005 APS Meeting, Los Angeles, CA, March 25, 2005.
180. "Confined Discotic Liquid Crystalline Self-Assembly in a Novel Coil-Coil-Disk Triblock Oligomer," contributed talk, 230th ACS national meeting, Washington, DC, August 30, 2005.
181. "Ionic Complex Formed by DNA and Asymmetric Triphenylene Salts," contributed poster at MRS 2005 Fall meeting, Boston, MA, Nov. 29, 2005.
182. "Spacer Length Controlled Lamello-Columnar to Oblique-Columnar Mesophase Transition in Liquid Crystalline DNA - Discotic Cationic Lipid Complexes," contributed talk at APS national meeting, Baltimore, MD, March 16, 2006.
183. "Molecular Shape Directed Self-assembly in Cationic Lipid-DNA Complexes," poster presentation at 3M First Annual Science and Engineering Faculty Event, St. Paul, MN, June 21, 2006.
184. "Lamellar to Inverted Hexagonal Phase Transition in DNA Complexes with Calamitic, Discotic, and Cubic Shaped Cationic Lipids," contributed oral presentation at 232nd ACS National Meeting, San Francisco, CA, September 14, 2006.
185. "Lamellar to Inverted Hexagonal Phase Transition in DNA Complexes with Calamitic, Discotic, and Cubic Shaped Cationic Lipids," contributed poster (with L. Cui), MRS 2006 Fall meeting, Boston, MA, Nov. 27, 2006.
186. "Dielectric Breakdown Properties of Organic-Inorganic Polymer Nanocomposites," contributed poster (with L. Cui, A. Feldman, G. Saha, A. D. Asandei, C. Xu, and S. A. Boggs), MRS 2006 Fall meeting, Boston, MA, Nov. 27, 2006.
187. "Tailor-Made Onion-Like Stereocomplex Crystals in Incompatible Enantiomeric Polylactide Containing Block Copolymer Blends," contributed talk (with L. Sun, L. Rong, B. S. Hsiao), APS national meeting, Denver, CO, March 7, 2007.
188. "Supramolecular Self-Assembly in a Disk-Cube Dyad Molecule Based on Triphenylene and Polyhedral Oligomeric Silsesquioxane (POSS)," contributed poster (with L. Cui and J. P. Collet), 234th ACS meeting, Boston, MA, August 21, 2007.
189. "Self-Assembly and Chain-Folding in Hybrid Coil-Coil-Cube Triblock Oligomers of Polyethylene-*b*-Poly(ethylene oxide)-*b*-Polyhedral Oligomeric Silsesquioxane," contributed talk (with L. Cui and J. Miao), APS national meeting, New Orleans, LS, March 11, 2008.
190. "Self-Assembled Biodegradable Block Copolymers as Potential Delivery Systems," contributed sound-bites at 34th New England Complex Fluids Conference, Yale University, New Haven, CT, March 21, 2008.
191. "Mesophase transformations in a DNA complex with cationic polyhedral oligomeric silsesquioxane lipid," contributed talk (with L. Cui and D. Chen), 236th ACS National Meeting, Philadelphia, PA, August 20, 2008.
192. "Confinement-induced fast discharge and low dielectric losses in ferroelectric PVDF graft copolymers," contributed talk (with F. Guan, Z. Yuan, and E. W. Shu), APS national meeting, Pittsburgh, PA, March 16, 2009.
193. "Achieving high dielectric constant polymer/BaTiO₃ nanocomposites at low filling ratios," contributed talk (with J. Wang, F. Guan, Z. Yuan, Q. Wang; J. Huang; W. Li), 17th IEEE International Pulsed Power Conference, Washington, DC, July 1, 2009.
194. "Nanoconfined ferroelectricity in poly(vinylidene fluoride-*co*-chlorotrifluoroethylene)-*graft*-polystyrene copolymers," contributed talk (with F. Guan and J. Wang), PacifiChem 2010, Honolulu, HI, Dec. 18, 2010.
195. "Nanoconfined ferroelectricity in polymers," contributed talk, APS national meeting, Dallas, TX, March 24, 2011.

196. "Reduction of Dielectric Hysteresis in Multilayered Film via Nanoconfinement," contributed poster, APS national meeting, Boston, MA, February 27, 2012.
197. "Paraelectric crystalline polymers for high energy density and low loss dielectrics," contributed talk, APS national meeting, Boston, MA, March 1, 2012.
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199. "Crystal orientation and temperature effects on the double hysteresis loop behavior of a PVDF-g-PS graft copolymer," contributed talk, APS national meeting, Baltimore, MD, March 18, 2013.
200. "Exploring strategies for high dielectric constant and low loss polymer dielectrics," contributed poster, Frontiers in Polymer Science 2015, Riva del Garda, Italy, May 21, 2015.
201. "Exploring Strategies for High Dielectric Constant and Low Loss Polymer Dielectrics," contributed talk, APS national meeting, Baltimore, MD, March 14, 2016.
202. "Stretching-Induced Novel Relaxor Ferroelectric Behavior in a P(VDF-TrFE-HFP) Random Terpolymer," contributed talk, APS national meeting, New Orleans, LA, March 15, 2017.
203. "Achieving Relaxor Ferroelectric Behavior in Nylon-based Polymers," contributed talk, APS national meeting, Los Angeles, CA, March 5, 2018.
204. "Dielectric Phenomena in Polymers and Multilayer Dielectric Films," contributed talk, APS national meeting, Boston, MA, March 4, 2019.
205. "High κ Polymers of Intrinsic Microporosity: New Class of High-Temperature, Low-Loss Dielectrics for Electronic Applications," contributed talk at 258th ACS National Meeting, San Diego, CA, August 28, 2019.