Shing-Chung Josh Wong, PhD, Fellow, ASME, Fellow, SPE

United States Citizen

Department of Mechanical Engineering (Primary)
Department of Biomedical Engineering (Joint)
University of Akron
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Contents

Biosketch

Professor Wong began his graduate training in 1993 in mechanics and mechanisms of fracture of polymer blends with and without glass fiber reinforcements at UMass Amherst, working with Shanti V. Nair and Lloyd A. Goettler. Later he joined the group of Yiu-Wing Mai, AM, FRS, at University of Sydney on identifying the roles of maleated block copolymers as a sequence of events in toughening nylon polypropylene blends. He later pursued an academic career in Singapore, teaching in the School of Materials Science and Engineering (ranks #3 in Materials Science in QS World Universities Ranking) in Nanyang Technological University (NTU). He has since graduated numerous graduate students and many postdocs, a few of whom such as Dr. Avinash Baji, Professor Qiang Shi, Professor Wenge Zheng and Professor Guixin Sui have become leading researchers in their own fields. Professor Wong has **four issued patents** and more pending from US Patent and Trademark Office under his name. In addition, Professor Wong has authored and coauthored over 90 research articles in books, journals and patent literatures, with additional papers in conference proceedings and refereed abstracts covering harvesting fresh water from atmospheric airborne particles, bio-inspired advanced manufacturing, materials science and engineering, adhesion and composite sciences, and biomaterials. Professor Wong's research on bio-inspired dry adhesives and harvesting water from air was widely covered by a press conference at the American Chemical Society: and media across the world. There were over 5000 citations, a Hirsh-index = 32 and i-10 > 60, according to Google Scholar, as of 2019. Two papers on graphite nanocomposites and electrospinning, were cited >500 times and >650 times, respectively. In 2007 he was selected for an **National Science Foundation Faculty Early CAREER Award** entitled "Electrospinning-Enabled Bio-Inspired Materials Research and Education" from the ***Program of Materials Processing and Manufacturing***. He is an elected ***Fellow of American Society of Mechanical Engineers*** (F.ASME) in 2014 and an elected ***Fellow of the Society of Plastics Engineers*** (F.SPE) in 2015. Prior to this, he served as the Polymer Technical sub-committee Chair in 2010 and the Nadai Awards Committee member of ASME in 2014. He was also the Chair-Elect and Chair of the Engineering Properties and Structures Division of the SPE in 2011-2013. Professor Wong is a frequent invited and keynote speaker for a number of conferences including the American Chemical Society National Meeting (2018), Adhesion Society Annual Meeting and multinational industrials including the Owens Corning, Granville, OH (2018), 3M Corporate R&D in St. Paul, MN (2017) and Avery Dennison, Mentor, Ohio (2014). He was promoted to **full professor** (2013 -) with **tenure** (2009 -) at the University of Akron. In this capacity, he is the **Co-founder, Vice President and Chief Technology Officer** of Akron Ascent Innovations, a high-tech adhesives manufacturer.

Education

1999 **Ph.D. (Engineering) – Center for Advanced Materials Technology**
School of Aerospace, Mechanical and Mechatronic Engineering
University of Sydney, Sydney, Australia
Thesis title: "**Structure-property relationship of novel multi-component polymeric materials**" – Advisor: Prof. Yiu-Wing Mai

1995 **M.S.M.E.- Mechanical Engineering**
University of Massachusetts, Amherst, USA
Thesis title: "**Mechanics and mechanisms of fracture for Nylon6,6/ABS blends with and without fiber reinforcements**" – Advisor: Prof. Shantikumar V. Nair

1993 **B.S. magna cum laude – Engineering Physics**
West Virginia Wesleyan College, Buckhannon, USA

Appointment

2004 - Present **University of Akron**, Akron, OH 44325-3903, USA
Professor (2013 -), Associate Professor (2008 -2013), Assistant Professor (2004-2008)
Department of Mechanical Engineering
Professor of Biomedical Engineering – joint appointment (2018 -)
Faculty Member, Integrated Bioscience Ph.D. Program, Department of Biology

Achievements:

∗ Performed research sponsored by industry (Owens Corning, Timken, Delphi Corporation, Industrial Consortium of the NSF I/UCRC Center for Tire Research (CenTire) and many others), federal and state governments on bio-inspired materials, mechanical behavior and functional properties of polymers, electrospinning, processing-structure-property relationships, composite and adhesion sciences.

∗ Authored and coauthored an accumulated 150 research articles in books, journals, conference proceedings and patent literatures, with over 4400 research citations. Contributed 20 SPE's ANTEC papers from 1994 - 2017. He was an invited speaker in many conferences and industrial companies, and selected as summer faculty fellows in the Air Force Research Laboratory in Wright-Patterson Air Force Base, Dayton, Ohio and the US Naval Research Laboratory in Washington, DC.

∗ Taught undergraduate and graduate courses (2 courses per semester) in engineering, mechanical behavior of polymers, nanomaterials and composite science and technology. Graduated 15 masters, 6 PhDs and 13 postdocs. A visiting and honorary professor in many institutions of higher learning including University of Sydney, City University of Hong Kong, Chinese Academy of Sciences and Nanyang Technological University (NTU), Singapore.

∗ Served as a member in over 30 interdisciplinary thesis committees across Department of Polymer Science, Department of Polymer Engineering (16), Departments of Chemical and Biomolecular Engineering, Mechanical Engineering, Civil Engineering and Biomedical Engineering in addition to own students.

∗ Service to Society of Plastics Engineers: serving as local Topcon Organizing Chair in 2006 in Akron, twice as Technical Program Co-Chair and Chair, respectively, in 2004 and 2009, of ANTEC for EPSDIV, and served as the Chair of EPSDIV in 2012-2013. Served as SPE's Akron local section director in 2005, and SPE's EPSDIV director in 2005 – present.

∗ Performed consulting and testing to industry including commercial product development.

∗ Received the prestigious National Science Foundation CAREER award from the *Materials Processes and Manufacturing Program* of the Engineering Directorate, Arlington, Virginia.

∗ Served in numerous search committees most notably for the University-wide Achieving Distinction Directors of Proof of Concept Center and Innovation Practice

Center in 2012-2014. Served twice as Chair for Tenure, Retention and Promotion in Mechanical Engineering (2010, 2014).

Co-founder, Vice President and Chief Technology Officer
Akron Ascent Innovations (http://www.akronascent.com/)
Products: www.sheargrip.com, www.thepinless.com

Achievements: ∗ In the capacity as the co-founder, I developed the patented technologies that supported a broad range of adhesives products for rolled goods and an extraordinary manufacturing sampling program with industrial participants.

2008 **Senior Faculty Fellow**, Office of Naval Research (ONR)-American Society of Engineering Education (ASEE) Summer Faculty Research Program, **U.S. Naval Research Laboratory**, Washington, D.C.

2007 **International Visiting Research Fellow**, University of Sydney, Australia

2006 **Summer Faculty Fellow** (AFOSR-ASEE), Materials and Manufacturing Directorate, **US Air Force Research Lab**, Wright Patterson Air Force Base, Ohio

2002 – 2004 **North Dakota State University (NDSU)**, Fargo, ND 58105, USA
Assistant Professor, Department of Mechanical Engineering
Adjunct Assistant Professor, Department of Polymers and Coatings
Faculty Associate, Center for Nanoscale Science & Engineering and Center of Excellence for Microsensors and their Fabrication with NanoBlock and Fluidic Self Assembly Technology

Achievements: ∗ Research, teaching and service to university and profession. Established an SPE Student Chapter in NDSU as the founding faculty member

∗ Supervisor for 3M sponsored Injection Molding Program and Polymers and Coatings Option in Mechanical Engineering Department

1999 – 2002 **Nanyang Technological University (NTU)**, Singapore
Assistant Professor, School of Materials Science and Engineering

Achievements: ∗ Supervisor, Polymer Processing Facility (NTU)
∗ Subject Coordinator for Materials Science and Engineering for 2000 common engineering students. Curriculum development for MSE undergraduates at NTU.

1995 – 1999 **University of Sydney**, Sydney, Australia
Tutor, Lab Demonstrator, School of Aerospace, Mechanical and Mechatronic Engineering

1995 **Hong Kong University of Science & Technology**, Hong Kong
Staff Research Assistant, Center for Advanced Engineering Materials

1993 - 1995 **University of Massachusetts**, Amherst
Graduate Research Assistant, Advanced Composites Lab

Supervised Graduate Theses

Directly Supervised PhD Dissertations:

(1) **Arturo MacHado** (2018 – Finite Element Modeling of Electric Vehicles)

(2) **Jiawei Wu** (2015- , graduated with a master of science in Polymer Engineering, University of Akron)

(3) **Xiaoxiao Liu** (2016 - , defended master's thesis in polymer engineering, University of Akron)

(4) **Jian Zhao** (2017 -) B.S. Shandong University, China

(5) **Zhaoxia Huang** (2015 – 2017) graduate from South China University of Technology, Guangzhou China)

(6) **Sreekumar Pisharath** (2000-2004, graduated, PhD in Materials Science and Engineering, Nanyang Technological University) (M.S. from Indian Institute of Technology, Madras)

- Research Fellow at Energetics Research Institute (EnRI-NTU) Singapore
- Thesis Title: " Elastomer Toughened LCP Hybrid Composites"

(7) **Erwin Merijn Wouterson** (2002 - 2007, graduated, PhD in Materials Science and Engineering, Nanyang Technological University) (M.S. from Delft University of Technology, The Netherlands)

- Senior Lecturer, **Singapore Polytechnic**
- Previously Principal Engineer, Vestas Technology R&D Singapore
- Thesis Title: Toughening of Low Weight Foam-based Composites for Defense Applications

(8) **Avinash Baji** (2004 - 2008, graduated, PhD in Mechanical Engineering, University of Akron) (M.S. University of Akron, Ohio)

- Lecturer at **Latrobe University**
- Thesis Title: Development of High Toughness Bioactive Composites using Electrospinning Techniques
- Interdisciplinary Committee Members: Dr. Shing-Chung Wong (Mechanical Engineering), Dr. Sadhan Jana (Polymer Science and Polymer Engineering), Prof. Todd A. Blackledge (Biology), Prof. Zhenhai Xia (Mechanical Engineering, Prof. Xiaosheng Gao (Mechanical Engineering)

(9) **Johnny F. Najem** (2009 - 2012, graduated in August, 2012, PhD in Mechanical Engineering, University of Akron) (B.S., M.S. University of Akron)

- Polymer Expert, INDEVCO Flexible Packaging, Lebanon
- Thesis Title: Gecko-Inspired Electrospun Flexible Fiber Arrays for Adhesion
- Interdisciplinary Committee Members: Dr. Shing-Chung Wong (Mechanical Engineering), Dr. Gregory N. Morscher (Mechanical Engineering), Dr. Darrell H. Reneker (Polymer Science and Polymer Engineering), Dr. Peter H. Niewiarowski (Biology), Dr. Erol Sancaktar (Polymer Engineering), Dr. Tirumalai S. Srivatsan (Mechanical Engineering)

(10) **Pei Chen** (2009 - 2012, graduated in May 2013) (M.S. University of Akron, B.S. Xiamen University, P.R. China)

- Lecturer, College of Mechanical Engineering and Applied Electronics Technology, Beijing University of Technology
- Senior Research Engineer, Shandong Linglong Tyre Co., Ltd (2012-2014)
- Thesis Title: A Preliminary Discourse on Adhesion of Nanofibers derived from Electrospun Polymers

- Interdisciplinary Committee Members: Dr. Shing-Chung Wong (Mechanical Engineering), Dr. Gregory N. Morscher (Mechanical Engineering), Dr. Shengyong Wang (Mechanical Engineering), Dr. George G. Chase (Chemical Engineering), Dr. Todd A. Blackledge (Biology), Dr. Gunjin Yun (Civil Engineering)

(11) **Shuwen Chen** (2012 – 2015, defended PhD dissertation in October, 2015 and graduating in December, 2015) (B.S. M.E. Wuhan University of Technology, China)

- Thesis Title: "A preliminary discourse on tunable rolling resistance of electrorheological fluid containing polymer composites"
- Interdisciplinary Committee Members: Dr. Shing-Chung Wong (Mechanical Engineering), Dr. Gregory Morscher (Mechanical Engineering), Dr. Ernian Pan (Civil Engineering), Dr. Darrell H. Reneker (Polymer Science), Dr. Xiaosheng Gao (Mechanical Engineering)

Directly Supervised Master Theses

(12) **Adekunle Falola** (2018 – Fatigue Testing of Electrospun Polymer Nanofibers)

(13) **Chapin Hutama** "Polymer Composites" B.S.M.E. University of Akron (2017 -)

(14) **Omar Ali Blandon Cruz** "Mechanisms of Delamination Mechanisms of Electrospun Adhesives" (B.E. Nicaragua) 2014 – 2015 graduated in 2015. Now mechanical engineer of Akron Ascent Innovations.

(15) **Guang Ji (2011 - 2015)** (B.S., M.E. Dalian University of Technology, China)

- **Proposed Thesis Title: " Electrospun Polymer Nonwovens for Adhesion"Qian Li** "Study of Mechanical Properties of Electrospun Polyethylene Fibers with and without Graphene Reinforcements Processed under High Temperature Conditions" (B.S. Xiamen University, P.R. China) - graduated in August 2012

(16) **Vishal Bhimrao Zade** "Rolling Resistance of Electrorheological Composites" (B.E. India) 2013 – 2015, admitted to be a PhD student at University of California.

(17) **Rabih Mansour** "Structure-property Relationship of Fiber Reinforced Polymers" (B.S. Damascus University, Syria) - graduated in spring 2012.

(18) **Pei Chen** "Strain Fatigue Lives of Nylon and Polypropylene" (B.S. Xiamen University, P.R. China) - graduated in spring 2010.

(19) **Dan Forpahl** "Effect of Specimen Thickness on Strain Fatigue Lives of Insulation Plastics" Mr. (B.S. University of Akron)

(20) **Johnny F. Najem** "Effect of Take Up Velocity on Tensile Properties of Electrospun Nanofibers" (B.S. University of Akron) - graduated in fall 2009.

(21) **Shane Hague** "Piezoelectric Polymer Nanofibers" (B.S. University of Akron)

(22) **Deepthi Das Varadi Jasline** "Modeling and Experimentation of Scratch Behavior of Polymers" (B.S. Sri Krishnadevaraya University, Anantapur, India) - graduated in fall 2009.

(23) **Sunil Kumar Reddy** "Deformation and Durability Studies of Polymers" Mr. (B. Tech, Jawaharlal Nehru Technological University- Hyderabad, India) – graduated in 2008

(24) **Eric Sutherland** "Cost-effective Substitutes for Carbon Nanotubes - Fabrication of Graphene-based Nanocomposites" (B.S. North Dakota State University) - graduated in 2004.

(25) **Siva Prashanth Davuluri** "Microstructural Control of UV-curable Nanocomposites for Flexible Plastic Substrates" (B. Tech, Jawaharlal Nehru Technological University, India) - graduated in 2004

(26) **Jason Holm** "Fracture Behavior of Soft and Microporous Chitosan Tissue Scaffolds" (B.S. North Dakota State University) - graduated in 2004

(27) **Ling Chen** "Microstructure and Fracture Behavior of Polypropylene/Nanoclay Composites"– (B.S. from Tongji University, Shanghai) graduated. Worked at Institute of Materials Research and Engineering (IMRE), Singapore. - graduated in 2002, now at University of Akron for PhD.

(28) **Gary Huang** "Detection of Incipient Rubber Cavitation in Impact Modified Polymer Blends Containing Short Glass Fiber – A ternary composite", graduated in 2002.

Postdoctoral Supervision:

1. **Dr. Cen Lan (2017),** Associate Professor, Guangzhou University of Science and Technology, China (2017) Non-executive director, Guangdong Sunlite Science and Technology Company
2. **Dr. Fei Wang** (Ph.D. in Polymer Science, Beijing Institute of Chemistry, Chinese Academy of Sciences) – (2015 -)
3. **Dr. Yu Fu** (Ph.D. in Mechanical Engineering, Washington State University, Pullman) - under Akron Ascent Innovations, LLC (2013 - 2014)
4. **Dr. Xiaomin Zhang** (PhD. in Polymer Science from Lingbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences) - Confidential Project (2012 - 2014)
5. **Dr. Xiaojing Ma** (PhD in Physical Chemistry and Associate Professor, State Key Laboratory of Polymer Physics and Chemistry, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, China) - project on adhesives (2013 - 2014)
6. **Dr. Kitchaporn Nartetamrongsutt** (Ph.D. in Chemical Engineering, University of Akron) - under Akron Ascent Innovations, LLC (2013), now at Intel Corporation, Portland, Oregan
7. **Dr. Haining Na** (Ph.D. in Polymer Science from Tianjin University) 2010-2012 - University of Akron on Electropun Polymer Fibers, presently an Associate Professor, Lingbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences
8. **Dr. Qiang Shi** (Ph.D. in Polymer Physics from Jilin University) (2009-2010) - University of Akron on Deformation of Electrospun Nanofibers - now as Associate Professor, Changchun Institute of Applied Chemistry, Chinese Academy of Science, China)
9. **Dr. Xiaofan Wei** (Ph.D. in Mechanical Engineering from University of Akron) - University of Akron on Mechanics Modeling of Electrospun Nanofibers
10. **Dr. Vardhan Bajpai** (Ph.D. in Polymer Engineering from University of Akron) in collaboration with Seldon Laboratories LLC, Windsor, Vermont
11. **Dr. Fawn M. Uhl** (Ph.D. from University of Wisconsin Milwaukee) – now R&D Director at Owens Corning, Granville, Ohio
12. **Dr. W. Zheng** (Ph.D. in Polymer Chemistry in Beijing Institute of Chemistry, Chinese Academy of Sciences) - now as Professor at Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, P.R. China)
13. **Dr. Guoxin Sui** (Ph.D. in Metallurgy in Institute of Metal Research, Chinese Academy of Sciences) - now as Professor at Institute of Metal Research, Chinese Academy of Sciences, P.R. China)

Research Experience for Undergraduates

- Kenneth Smith - Center for Tire Research – 2014
- Vishal Chaurasia – 2014-2015
- A. J. Oyers - 2005
- Nathan Spencer - 2005

Visiting Graduate Students:

- Ing. **Florencia Montini Ballarin**, División Polímeros, INTEMA, University of Mar del Plata -CONICET, Argentina
- **Yoshika Ikeda**, Department of Advanced Fibro-Science, Kyoto Institute of Technology, Japan

Interdisciplinary Thesis Committee Member at University of Akron (since 2004 -):

PhD Committees

1. **Suneel Battula** – Department of Biomedical Engineering - 2007
    - Thesis Title: Experimental and Numerical Evaluation of the Pullout Strength of Self-tapping Bone Screws in Normal and Osteoporotic Bone.
2. **Zehra Kalkan** – Department of Polymer Engineering -2006
    - Thesis Title: The Generation and Thermo-Mechanical Characterization of Advanced Polyamide-6,6 Nanocomposites Using Interfacial Polycondensation
3. **Mohammad Karim** - Department of Mechanical Engineering - 2005
    - Thesis Title: Constitutive Modeling and Failure Criteria of Carbon-Fiber Reinforced Polymers Under High Strain Rates
4. **Guillermo Jimenez** – Department of Polymer Engineering - 2007
    - Thesis Title: Characterization of Poly(Methyl Methacrylate) and Thermoplastic Polyurethane-Carbon Nanofiber Composites Produced by Chaotic Mixing
5. **Vardhan Bajpai** – Department of Polymer Engineering - 2005
    - Thesis Title: Syntheses, Characterization and Applications of Micro-/nano-structured Conducting Polymers and Carbon Nanotubes
6. **Jianguo Zhou** – Department of Polymer Engineering - 2007
    - Thesis Title: Processing of Generic Circuits by Conductive Adhesives: Geometrical and Rheological Considerations
7. **Haifeng Shan** – Department of Polymer Engineering - 2006
    - Thesis Title: Structure Development in Melt Spinning, Cold Drawing and Cold Compression of Poly(ethylene-co-octene) with Different Octene Content
8. **Ravindrabharathi Narayanan** – Department of Chemical Engineering
9. **Ling Du** - Department of Polymer Engineering - 2008
    - Thesis Title: Highly Conductive Epoxy/Graphite Polymer Composite Bipolar Plates in Proton Exchange Membrane (PEM) Fuel Cells
10. **Jackapon Sunthornvarabhas** – Department of Chemical Engineering - 2009
    - Thesis Title: Study of Methods to Create and Control Electrospun Liquid Jets

11. **Ruofeng Wang** – Department of Chemical Engineering
12. **I-Ta Chang** – Department of Polymer Engineering -2012
    - Thesis Title: Excimer Laser Ablation of Polymer-Clay Nanocomposites
13. **Ali A. Al-Quraishi** – Department of Mechanical Engineering -2007
    - Thesis Title: The Deformation and Fracture Energy of Natural Rubber Under High Strain Rates
14. **Sughun Bumm** – Department of Polymer Engineering - 2010
    - Thesis Title: Mixing Studies and Simulation of Compounding Chopped Fiber and Silica Filler into Thermoplastics in a Modular Co-Rotating Twin Screw Extruder
15. **Cole S. Hamey** – Department of Civil Engineering - 2007
    - Thesis Title: Mechanics of Bi-Material Beams and Its Application to Mixed-mode Fracture of Wood-FRP Bonded Interfaces
16. **Uday P. Karmarkar** – Department of Polymer Engineering -
17. **Yuanmei Cao** - Department of Polymer Engineering - 2012
    - Thesis Title: Polyimide Based High Performance Film
18. **Byoung Jo Lee** - Department of Polymer Engineering - 2009
    - Thesis Title: Nucleating Agent-Assisted Preparation of Polypropylene (PP)/Polyhedral Oligomeric Silsesquioxane (POSS) Nanocomposites and Their Characterization
19. **Todd Lewis** - Department of Polymer Engineering - 2014
    - Thesis Title: Carbon Nanotube Composites Prepared by Ultrasonically Assisted Twin Screw Extrusion
20. **Sayantan Roy** - Department of Polymer Engineering -2011
    - Thesis Title: Polyhedral Oligomeric Silsesquioxane-Sorbitol Non-Covalent Interactions: Effects on the Reinforement of Isotactic Polypropylene Spun Fibers
21. **Kitchaporn Nartetamrongsutt** - Department of Chemical and Biomolecular Engineering -2013
22. **Laila Shahreen** - Department of Chemical and Biomolecular Engineering - 2013
    - Thesis Title: Palladium Doped Titanium Dioxide Nanofiber Based Catalyst Support for Nitric Oxide Gas reduction with Carbon Monoxide Gas
23. **Jonathan Rajala** - Department of Chemical and Biomolecular Engineering - 2015
24. **Jun Zhou** - Department of Mechanical Engineering - 2014
    - Thesis Title: Numerical Modeling of Ductile Fracture
25. **Sahil Gupta** - Department of Polymer Engineering - 2014
    - Thesis Title: Structure-Property Relationships in Polymers for Dielectric Capacitors
26. **Hyeon Ung Shin** – Department of Chemical Engineering- 2016
    - Thesis Title: Electrospun Ceramic Nanofiber Dissolution Study and Its Applications to Catalytic Decomposition of NO and CO Gases using Fiber Media
27. **Chongwen Huang** – Department of Polymer Engineering -2016
    - Thesis Title: High Temperature Shape Memory Polymer Blends: Preparation, Structure and Properties
28. **Hong Chen** – Department of Chemical and Biomolecular Engineering
    - Thesis Title: Development of Multifunctional Soft Materials
29. **Javier Esquivel** – Department of Corrosion Engineering - 2018

- Thesis Title: Improvement of Corrosion Resistance and Strength of High-Energy Ball Milled Light Alloys by Select Conditions and Alloying Elements

30. **Jianning Liu** – Department of Polymer Science - 2018
    - Thesis Title: Understand the Mechanical Behaviors of Polymer Glasses under Extension and Compression

Master Committees

1. **Ashutosh Agrawal** - Department of Mechanical Engineering
    - Thesis Title: Micro-wear Behavior of Balinite Alcrona Coated and Uncoated Carbide Inserts under High Speed Machining
2. **Jason Kuznicki** – **Department of Polymer Engineering**
    - Thesis Title: Water Uptake and Fracture Behavior of Epoxy-clay Nanocomposites Used for Bonding Granite
3. **Xianjie Ren** – Department of Polymer Engineering – 2016
4. **Saurabh Pathak** – Department of Mechanical Engineering -2016
    - Thesis Title: A Dynamic Model of the Magnetic Head Slider with Contact and Off-Track Motion Due to a Thermally Actuated Protrusion or a Moving Bump Involving Intermolecular Forces

Panelist/Reviewer/Referee

1. Research Grants Council, Hong Kong SAR (2018)
2. National Science Foundation Panelists (2002, 2010, 2013, 2014, 2015, 2017)
3. External Examiner, University of Malaya (2017)
4. External Examiner, Harbin Institute of Technology (2016)
5. External Examiner, Royal Melbourne Institute of Technology (2016)
6. External Examiner, Monash University, Melbourne, Australia (2015)
7. Estonian Science Foundation (2009, 2010, 2011, 2015)
8. External Examiners, MSE and MAE, Nanyang Technological University (NTU), Singapore 2013, 2015, 2018
9. External Examiner, Mechanical and Aerospace Engineering (MAE), Nanyang Technological University (NTU), Singapore, 2012
10. The German Israeli Foundation for Scientific Research and Development (2012)
11. External Examiner, Materials Science and Engineering (MSE), Nanyang Technological University (NTU), Singapore, 2011
12. U.S. Civilian Research and Development Foundation (CRDF) Reviewer
13. American Chemical Society Petroleum Research Fund
14. External Examiner, University of Sydney, 2008
15. *Journals (2004-2016):*
    a. *Materials Chemistry and Physics*
    b. *Nature Nanotechnology,*
    c. *Advanced Materials,*
    d. *Journal of Biomedical Materials Research*
    e. *Advanced Functional Materials,*
    f. *Materials Science and Engineering: A,*
    g. *Composite Science and Technology*

h. *Advances in Polymer Technology*
i. *Journal of Applied Polymer Science,*
j. *Colloids and Surfaces A: Physicochemical and Engineering Aspects,*
k. *Polymer International,*
l. *Journal of Composite Part B: Engineering,*
m. *Journal of Polymer Science Polymer Physics Edition,*
n. *Polymer,*
o. *Macromolecular Materials and Engineering,*
p. *Materials and Manufacturing Processes,*
q. *Journal of Materials Science,*
r. *ASME Journal of Mechanical Design.*
s. ACS Applied Materials & Interfaces
t. Langmuir
u. Journal of Materials Research
v. Polymer Engineering and Science

16. ASME International Mechanical Engineering Congress and Exposition
17. International Conference on Composite Materials (ICCM)
18. MRS International Conference on Materials for Advanced Technologies (ICMAT), Symposium on Advances in Polymers and Composites
19. 5th Asia Pacific Conference on Materials Processing

Selected Research Grant Activities as PI:

Total demonstrable external research funding since becoming an assistant professor from 1999: ~US$2,000,000 as PI and >US$2,233,737 as Co-PI/Co-Owner

Project	**Source and Dates**	**Status**	**Amount**
Evaluation of cut resistance and toughening mechanisms of rubber composites	Syncrude Canada Ltd. July 1, 2019 – June 30, 2021	Funded and Active	**$190,207**
Fresh Water Harvesting for Humanity Research Gift	Dassault Systemes SOLIDWORKS October, 2018	Funded and Active	**$20,000**
Bio-Inspired Reusable Adhesives Using Scalable Electrospinning Techniques	Akron Ascent Innovations 2015-2017	Funded and Completed	**$40,000**
SBIR Phase 2: Prototyping Reusable Dry Adhesives based on Scalable Fiber Spinning Technologies	Akron Ascent Innovations – sub of NSF 3/1/2015 – 2/28/2017	Funded and Completed	**$65,421**
Confidential Project	Owens Corning 12/19/2012-9/30/2014	Funded and Completed	**$125,000**
Reinforced Polymers for Bearings Cages – Phase 3	The Timken Company 8/1/2013-12/31/2013	Funded and Completed	**$34,254**
NSF I/UCRC: Rolling	Year 2 funding awarded on June	Funded and	**$35,000**

Resistance of Smart Fabrics for Smart Tires	4 2013 by the Industrial Advisory Board, Center for Tires Research (CenTire)	Completed	
Bio-Inspired Reusable Adhesives Using Scalable Electrospinning Techniques	awarded by Ohio 3rd Frontier Technology Validation and Start up Grant, Ohio Department of Development	Funded and Completed	**$37,500**
NSF I/UCRC: Rolling Resistance of Smart Fabrics for Smart Tires	awarded on July 26, 2012 by the Industrial Advisory Board, Center for Tires Research (CenTire)	Funded and Completed	**$33,250**
NSF I-Corps: Roadmap to Commercialization of Electrospun Polymer Adhesives	awarded on July 1, 2012 by the National Science Foundation. Award No. IIP 1246773	Funded and Completed	**$50,000**
Enhancement of Toughness and Thermal Stability for Engineering Nylon Components	awarded on July 1, 2012 by the Timken Company	Funded and Completed	**$43,757**
Reinforced Polymers for Bearings Cage – Phase 1	The Timken Company November 2010-October 2011	Funded and Completed	**$44,836**
Embedded Sensors in Injection Moldable Polymer Components	awarded on July 1, 2012 by Center for Advanced Vehicles and Energy Systems (CAVES) – Wright Center for Sensor Systems Engineering (WCSSE)	Funded and Completed	**$10,000**
Diagnostic Engineering Technologies for Evaluating Connective Tissues (DETECT)	Wright Center of Sensor Systems Engineering (WCSSE) –Austen Bioinnovation Institute of Akron (ABIA), State of Ohio, September, 2010 – 2013	Funded and Completed	**$223,035.25**
NSF Supplement	NSF, awarded June 2010	Completed	**$5,658**
Adhesion and Fracture Studies	Koch Knight LLC	Funded and Completed	**$20,000**
Deformation and Durability Studies of Insulation Polymers	awarded on September 1, 2008 by Delphi Corporation.	Funded and Completed	**$100,000**
NSF CAREER Award: Electrospinning-Enabled Bio-Inspired Materials Research and Education	awarded on January 18, 2008 by the National Science Foundation. Award No. CMMI-0746703. FY 2008-2013.	Funded and Completed	**$400,000**
Deformation and Durability Studies of Insulation Polymers	awarded on March 1, 2007 by Delphi Corporation.	Funded and Completed	**$48,000**

Acquisition of a Nanoindentation System for Nanocomposite and Advanced Materials Research	awarded on July 15, 2005 by the National Science Foundation. Award No. DMI-0520967. FY 2005-2007	Funded and Completed	**$244,645**
NSF Supplemental Request for Research Experiences for Undergraduates	awarded on May 9, 2006 by the National Science Foundation.	Funded and Completed	**$12,000**
Collaborative Postdoctoral Research Fellowship in Nanotechnology	awarded on October 10, 2006 by Seldon Laboratories, LLC.	Funded and Completed	**$94,500**
Sub-recipient Award from Texas Engineering Experiment Station	Texas A&M University July 15, 2006 – June 15, 2007	Funded and Completed	**$10,000**
Cost-Effective Substitutes for Carbon Nanotubes and Other Nanocomposites	awarded by the National Science Foundation. Award No. CMI-0335390. FY 2003-2004	Funded and Completed	**$63,415**
Development of Graphene-based Nanocomposite Films	North Dakota State NSF EPSCoR IIP SEED award	Funded and Completed	**$17,500**
Acquisition of a Twin Screw Extruder for Polymer/Bio Nanocomposite Research and Education	awarded by the National Science Foundation. Award No. DMR-0413967. FY 2004-2005	Funded and Completed	**$103,308**
Modeling of a nanoscale graphene reinforced polymer and its effect on radiation shielding	NASA-EPSCoR Seed Award on February 15, 2003	Funded and completed	**$25,890**
Microstructural Control of Polymer Nanocomposites for Microelectronic Packaging and Static Dissipation	Defense Microelectronics Activity under contract DMEA90-02-C-0224 on November 15, 2002	Funded and completed	**$21,640**
Toughening mechanisms of fiber containing polymer blends	Academic Research Fund, Ministry of Education, Singapore (2000-2002)	Funded and completed	**$216,452**

Principal Investigator for Industrial Donations (2009 – Present):

Source	Equipment	Date and Conditions	Estimated Value
Delphi	MTS (300.05, 312.36, 314.11)High Frequency	9/2009	**$602,552**

Corporation	Servohydraulic Tesing Machines	Fully Upgraded.	Quoted by MTS.
The Timken Company	Morgan Press Injection Molding Machine	2/2011	**$80,000** UA Dept. of Development

Other Multi-Investigator Research Grant Activities (2001 – Present) as Co-PI/Co-Owner

Project	**Source**	**Status**	**Funded Amount**
Akron Ascent Innovations – Reusable Adhesives	National Science Foundation SBIR Phases 1 and 2 and Ohio Department of Development Phase 2 PI: Barry Rosenbaum	Active (2013-2017)	**>$1,000,000**
I/UCRC Phase I: Center for Tire Research	National Science Foundation IIP 1160982 PI: Celal Batur	Funded and Active	**$254,708**
Clean Technology Sensors Support for Ohio Companies to Add Value to their Products and help Move Them to the Market Place at An Accelerated Pace	Ohio Department of Development/Wright Center for Sensors System Engineering Phase 2 2010 Funding Cycle PI: Jose Alexis De Abreu Garcia	Completed	**$316,672**
Acquisition of an AFM/Raman Integrated System for Bio/Nano Functional Materials and Devices Research and Education	National Science Foundation CMMI-0923053 for FY 2009-2011 PI: Zhenhai Xia	Completed	**$372,166**
Acquisition of Scanning Probe Microscopy and Nanoindentation Instrumentation for Nanomaterials and Biomaterials Research and Education	National Science Foundation – DMR Instrumentation for Materials Research for FY 2003 PI: Kalpana Katti	Completed	**$155,150**
Acquisition of fourier transform infrared	National Science Foundation – MRI:	Completed	**$135,041**

microspectroscopy instrumentation for advanced materials and biomaterials research and education	Major Research Instrumentation for FY 2003 PI: Kalpana Katti		
Fracture and toughening of composites of polymers and nanoscale inorganic and organic fillers	AFOSR- Institute of Materials Research and Engineering, Singapore PI: Albert F. Yee	Expired	

Professional Service

- RTP External Referee for Tenure and Promotion, School of Materials Science and Engineering, NTU, Singapore (2017)
- Chair (2014-2015), Polymer Technical Committee, American Society of Mechanical Engineers (ASME), Topic Organizer (2014-): Processing-Structure-Property Relationships of Polymers
- ASME Nadai Award Committee, 2014
- Organizing Committee, Chair of Composite Sessions, Polymer Processing Society Conference (PPS30) – 2014, Cleveland, OH, USA http://www.pps30.com/
- Chair (2012-2013) Engineering Properties and Structures Division, Society of Plastics Engineers, USA
- Chair-Elect (2011-2012) Engineering Properties and Structures Division, Society of Plastics Engineers, USA
- ASME Materials Division, Polymer Technical Committee, Vice-Chair (2010-2011)
- Topic Organizer, "Structure-Property Relationships of Polymers and Composites" 2011 ASME International Mechanical Engineering Congress and Exposition, Denver, Colorado, November 11-17, 2011
- Topic Organizer, "Processing-Structure-Property Relationships of Polymer Micro-/Nano-fibers" 2010 ASME International Mechanical Engineering Congress and Exposition, Vancouver, Canada November 12-18, 2010
- Editorial Board Member, ISRN Mechanical Engineering
- Elected Technical Program Chair, Engineering Properties and Structures Division, SPE Annual Technical Conference, McCormick Place, Chicago, IL, 2009
- Elected Director (2005-2009), Engineering Properties and Structures Division (EPSDIV), Society of Plastics Engineers (SPE), USA. (Number of Voters: 82)
- Elected Director (2005), SPE, Akron Section.
- Appointed Director (2005 – 2008), ASME, Akron Section.
- Symposium Organizer, "Processing and Properties of Multiscale Polymers and Composites" 2007 ASME International Mechanical Engineering Congress and Exposition, Seattle, Washington November 11-15, 2007
- Advisor to Nano-Network, a northeast Ohio organization 2007-present
- Elected Local Organizing Committee Chair for SPE/EPSDIV sponsored Topical Conference on "Recent Advances in Organic and Polymer Display Technologies" University of Akron, OH, October 23-24, 2006

- Session Organizer, "Mechanical Behavior of Nanostructured Polymers and Composites" 2006 ASME International Mechanical Engineering Congress and Exposition, Chicago, IL November 5-10, 2006
- Guest Editor, *Materials and Manufacturing Processes*, 2005
- Session Organizer, "Processing-Structure-Property Relationships of Polymer Nanocomposites", 2005 ASME International Mechanical Engineering Congress and Exposition, Orlando, FL November 5-11, 2005
- Technical Program Co-Chair, Engineering Properties and Structure Division, Society of Plastics Engineers Annual Technical Conference, *ANTEC 2004*, May 16-20, 2004 Chicago, IL.
- Session Moderator – Society of Plastics Engineers 61st Annual Technical Conference, *ANTEC 2003*, Nashville, TN May 4 – 8, 2003, 62nd Annual Technical Meeting, ANTEC 2004, Chicago, Annual Technical Meeting, ANTEC 2005, Boston.
- Organized 7th Asia Pacific Electron Microcopy Conference, Singapore – June 2000
- Organized International Conference on Materials for Advanced Technologies, Singapore, Symposium on Advances in Polymers and Composites – July 2001
- Session chair – 5th Asia Pacific Conference on Materials Processing, Seoul, Korea, June 2001
- Session chair – Symposium on Advances in Polymers and Composites, ICMAT 2001

Research Skills

Summary: 25+ years graduate and postdoctoral research experience in polymers and composites research, 25+ year hands-on experience in electrospinning, plastics processing and composite manufacturing, 15+ year in synthesis of carbon nanomaterials and UV curable thin and thick films for microelectronics and nanotechnology, advocate for a strong interdisciplinary approach, strong interpersonal skills, a proactive team worker

Instrumental: Experienced in polymer and composite fabrication techniques (curing kinetics, radiation curing, extrusion compounding, injection molding, autoclave, pultrusion, filament winding, ball milling), fracture characterization of polymers, thermoplastic composites and metallic alloys, INSTRON and MTS mechanical testing devices, computer-controlled thermal analysis instruments (DSC, TGA, DMA, DEA), ultramicrotomy, TEM, SEM with EDX, TOM, electron probe microanalysis, atomic force microscopy, nanoindenter, THIN sectioning system, automatic grinding and polishing equipment

Computer: Experienced in Windows, System administration, MSOffice, Internet, webpage maintenance, Sigma-Plot, Sigma-Scan, SAS, FORTRAN, Matlab, FEM/ANSYS

Languages: Fluent in English and Chinese (Both Mandarin and Cantonese). Excellent verbal communication and presentation skills

Educational Development

- Supervised PhD, M.S. Meng, Beng students and postdoctoral researchers in research projects and industrial attachments
- Courses Developed: (1) Deformation and Failure of Polymers and Soft Materials; (2) Mechanical Behavior of Nanostructured Materials and Composites; (3) Fundamentals of Composite Processing and Mechanics.
- Instructor for Materials Science at Nanyang Technological University (NTU), Singapore (Class enrollment: 914 engineering students in one lecture theatre. Teaching tools included MS Powerpoint, online Blackboard platform involving online submission of assignments, discussion, quiz and assessment, lecture notes and tutorials.)

- Materials Science Subject Coordinator for ~2000 common engineering students

- Use of Personal Response System (PRS), Blackboard/Springboard/Moodle to administer quizzes in teaching engineering classes at NDSU/Akron.

Teaching (Courses)

Semester	Course	Level	Students	Credits
Summer 2019	Introduction to Materials Science and Engineering	Undergraduate	36	2
Spring 2019	Engineering Analysis I	Undergraduate	80	2
Spring 2019	Fundamentals of Composite Processing and Mechanics	Graduate/Undergraduate	5	3
Fall 2018	Mechanical Behavior of Nanostructured Materials	Graduate	12	3
Fall 2018	Engineering Analysis 1	Undergraduate	14	2
Spring 2018	Deformation and Failure Analysis of Polymers and Soft Materials	Graduate	8	3
Spring 2018	Engineering Analysis I	Undergraduate	14	2
Fall 2017	Engineering Analysis II	Undergraduate	46	2
Fall 2017	Engineering Analysis II	Undergraduate	45	2
Summer 2017	Mechanical Metallurgy	Undergraduate	61	2
Spring 2017	Engineering Analysis I	Undergraduate	57	2
Spring 2017	Fundamentals of Composite Processing and Mechanics	Undergraduate and Graduate	7	3
Fall 2016	Engineering Analysis II	Undergraduate	50	2
Fall 2016	Mechanical Behavior of Nanostructured Materials and Composites	Graduate	14	3
Summer	4600:380 Mechanical Metallurgy	Undergraduate	46	2
Spring 2016	4600:260 Engineering Analysis 1	Undergraduate	42	2
Spring 2016	4600:694:801 Deformation and Failure of Polymers and Soft Materials	Graduate	6	3
Fall 2015	4700:422:801 Polymer Processing	Undergraduate	1	3
Fall 2015	4700:451:001 Polymer Engineering Lab	Undergraduate	1	
Spring 2015	4600:486/696:008 Fundamentals of Composite Processing and Mechanics	Graduate	7	3
Spring 2015	4600:260 Engineering Analysis I	Undergraduate	46	2
Fall 2014	4600:360 Engineering Analysis II	Undergraduate	45	2
Fall 2014	4600:658:001 Mechanical Behavior of Nanostructured Materials and Composites	Graduate	5	3

Spring 2014	4700:281:001 Introduction of Polymer Science to Engineers	Undergraduate	1	2
Spring 2014	4600:694:801 Deformation and Failure of Polymers and Soft Materials	Graduate	6	3
Fall 2013	4600:360 Engineering Analysis II (2 sessions)	Undergraduate	64	2+2
Spring 2013	4600:486/696:008 Fundamentals of Composite Processing and Mechanics	Graduate	7	3
Spring 2013	4600:260 Engineering Analysis I	Undergraduate	40	2
Fall 2012	4600:360 Engineering Analysis II	Undergraduate	40	2
Fall 2012	4600:658:001 Mechanical Behavior of Nanostructured Materials and Composites	Graduate	22	3
Spring 2012	4600:694:801 Deformation and Failure of Polymers and Soft Materials	Graduate	10	3
Spring 2012	4600:260 Engineering Analysis I	Undergraduate	30	2
Fall 2012	Professional Development Leave			
Spring, 2011	4600:486/696:008 Fundamentals of Composite Processing and Mechanics	Undergraduate/Graduate	19	3
Spring, 2011	4600:260 Engineering Analysis I	Undergraduate	70	2
Fall, 2010	4600:360 Engineering Analysis II	Undergraduate	24	2
Fall, 2010	4600:658:001/:486:802 Mechanical Behavior of Nanostructured Materials and Composites	Graduate/Undergraduate	9	3
Spring 2010	4600:260 Engineering Analysis I	Undergraduate	69	2
Spring 2010	4600:694:801 Deformation and Failure of Polymers and Soft Materials	Graduate	10	3
Fall, 2009	4600:360 Engineering Analysis II	Undergraduate	31	2
Fall, 2009	4600:696:804/4600:486:802 Mechanical Behavior of Nanostructured Materials and Composites	Graduate	8	
Spring 2009	4600:260 Engineering Analysis I	Undergraduate	63	2
Spring 2009	4600:696:803 Deformation and Failure of Polymers and Soft Materials	Graduate	6	3
Fall 2008	4600:360 Engineering Analysis II	Undergraduate	15	2
Fall 2008	4600:696:804/4600:486:802	Graduate	6	3

	Mechanical Behavior of Nanostructured Materials and Composites			
Spring 2008	4600:260 Engineering Analysis I	Undergraduate	20	2
Spring 2008	4600:696:803 Deformation and Failure of Polymers and Soft Materials	Graduate	11	3
Summer 2007	4600:260 Engineering Analysis I	Undergraduate	14	2
Spring 2007	4600:696:803 Deformation and Failure of Polymers and Soft Materials	Graduate	5	3
Spring 2007	4600:260 Engineering Analysis I	Undergraduate	27	2
Fall 2006	4600:360 Engineering Analysis	Undergraduate	25	3
Fall 2006	4600:696:804/4600:486:802 Mechanical Behavior of Nanostructured Materials and Composites	Graduate	11	3
Spring 2006	4600:696:804/4600:486:802 Mechanical Behavior of Nanostructured Materials and Composites	Graduate	6	3
Fall 2005	4600:696:803 Deformation and Failure of Polymers and Soft Materials	Graduate	10	3
Spring 2005	4600:460 Concept of Design – Engineering Economy	Undergraduate	40	(3)
Fall 2004	4700:425, 9841:425/525 Introduction to Blending and Compounding	Senior/Graduate	12	3
Spring 2004	ME474/674: Composite Materials and Mechanics	Senior/Graduate	15	3
Spring 2004	ME221: Engineering Mechanics I Statics	Freshman/Sophomore	100	3
Fall 2003	ME221: Engineering Mechanics I Statics	Freshman/Sophomore	100	3
Spring 2003	ME474/674: Composite Materials and Mechanics	Senior/Graduate	15	3
Spring 2003	ME221: Engineering Mechanics I Statics	Freshman/Sophomore	100	3
Fall 2002	ME473: Engineering Plastics for Design	Senior/Graduate	21	3
Spring 2002	G169: Intro to Materials Science	Freshman	914	3
Spring 2002	ME454: Composite Materials	Honors Year (Senior)	10	3
Fall 2001	ME202: Analytical Techniques	Sophomore	180	3
Spring 2001	ME454: Composite Materials	Senior	15	3

Fall 2000	ME443: Fracture Mechanics and Failure Analysis	Senior	10	3
Fall 2000	M6133: Mechanics of Composites	Graduate	30	3
Spring 2000	ME106: Materials Structures and Mechanical Behavior	Freshman	20	3
Spring 2000	ME454: Composite Materials	Senior	15	3
Fall, 1999	ME106: Materials Structures and Mechanical Behavior	Freshman	180	3
Fall, 1999	ME443: Fracture Mechanics and Failure Analysis	Senior	20	3
Fall 1999	M6133: Mechanics of Composites	Graduate	30	3

Undergraduate research/laboratory/design projects

Year	Title	Level	Students	Credits
2007/2008	Design of a rotational collector for electrospinning of nanofibers		4	2
2005/2006	Design of a testing apparatus to conduct peel testing of a polymer-ceramic interface	Senior	3	3
2005/2006	Design for self-sensing piezoelectric polymer nanocomposites	Senior	2	2
2004/2005	Design for a processing method to prepare bone substitute	Senior	4	2
2004/2005	Design for high toughness tissue scaffolds	Senior	1	3
2003/2004	Design for scratch tester for scratch-resistant plastics	Senior	3	6
2002/2003	Design of a polymeric battlebot	Senior	4	6
2002/2003	Mechanics and materials considerations for a composite bicycle frame	Senior	4	6
2001/2002	Polycarbonate nanocomposites	Honors (Senior)	1	12
2001/2002	Thermal characterization of clay filled polyamide/polypropylene blends	Honors (Senior)	1	12
2001/2002	Structure-property relationships of natural fiber composites	Honors (Senior)	1	12
2000/2001	Processing and characterization of natural fiber composites	Junior	2	12
1999/2000	Processing and properties of liquid crystalline polymer blends	Junior	2	12
1999/2000	Failure mechanisms of rubber toughened nylons with and without fiber reinforcements	Sophomore	2	6

University Services

- College-Wide Retention, Tenure and Promotion (RTP) Committee Member (2018 -)
- Search Committee Member for Materials, Department of Mechanical Engineering (2018 -)
- Chair, Mechanical Engineering Full Professor Promotion Committee (2014)

- University-Wide Achieving Distinction, Proof-of-Concept Director, Search Committee (2012 - 2014)
- University-Wide Achieving Distinction, Executive Director, Innovation Practice Center, Search Committee (2012 - 2014)
- Search Committee, Assistant Professor, System Engineering, Department of Mechanical Engineering (2012- 2013)
- Search Committee, Assistant Professor, Aerospace Engineering, Department of Mechanical Engineering (2012 - 2013)
- Search Committee, Assistant Professor, Thermofluids, Department of Mechanical Engineering (2012 - 2013)
- Chair, Retention, Tenure and Promotion Committee, Department of Mechanical Engineering, University of Akron 2010-2011
- Search Committee, Department of Biomedical Engineering, University of Akron, Spring, 2010.
- Established a student chapter of the Society of Plastics Engineers at NDSU in 2003 - serving as the founding faculty advisor
- Supervisor for 3M sponsored Injection Molding Program and Polymers and Coatings Option in Mechanical Engineering Department, NDSU
- Honors Year (NTU) and Plastic Senior Design Coordinator (NDSU) – coordinated senior design projects and honors year thesis projects, syllabus review, technical seminars, essays and exam matters
- NTU Subject Coordinator for Year 2 Engineering Materials (Class enrollment: 1800 engineering students)
- Polymer Processing Facility (NTU)– Supervisor
- Curriculum committee (NTU)- Member: developed undergraduate curriculum for common engineering students and subject syllabi for Polymer Science and Engineering, Mechanical Behavior of Materials, Engineering Materials
- NDSU Graduate Committee - Member
- NDSU Undergraduate Committee - Member
- NDSU Faculty Search Committee - Member
- Junior College Liaison Officer, President's Office, Nanyang Technological University
- NTU Career Guidance Committee: Member
- NTU Technology and Engineering Research Program: Coordinator
- NTU Inter-semester Program Coordinator, Division of Materials Technology

Awards/Honors

- Fellow, Society of Plastics Engineers, elected 2015
- Fellow, American Society of Mechanical Engineers, elected 2014
- CAS President's International Visiting Professor, Chinese Academy of Sciences, 8/2016
- Keynote Speaker, Coating Session, Adhesion Society Annual Meeting 2016
- Visiting Professor, Nanyang Technological University, Singapore 2016-2018
- Distinguished Guest Speaker, Beijing University of Technology, 2015
- Visiting Professor and Guest Speaker, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, 2014
- Visiting Professor, State Key laboratory of Polymer Physics and Chemistry, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, China, June, 2013.

- Invited Speaker and Visiting Professor, Institute of Metals Research, Chinese Academy of Sciences, Shenyang, China, June 2011
- Invited Speaker, Engineering Properties and Structures Division, SPE ANTEC 2011, Boston, 2011
- Invited Speaker, 11th Bi-National Congress on Metallurgy and Materials SAM/CONAMET 2011 October 18-21, 2011, Rosario – Argentina
- Visiting Professor, State Key laboratory of Polymer Physics and Chemistry, Changchun Institute of Applied Chemistry, Chinese Academy of Science, China, December 16-19, 2010
- Visiting Professor, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Science, China, December 19-21, 2010
- Visiting Professor, School of Materials Science and Engineering, Nanyang Technological University, Singapore, December 13-16, 2010
- Honorary Associate Professor, University of Sydney 2009-
    - (http://sydney.edu.au/camt/about/people/honorary_associate_professors/index.shtml)
- National Science Foundation CAREER Award, 2008
- Senior Faculty Fellow – ONR-ASEE, 2008
- International Visiting Research Fellowship, University of Sydney, 2007
- Summer Faculty Fellow – AFOSR-ASEE, 2006
- Academic Visitor, Fudan University, Shanghai, China, 2005
- Invited Speaker, China Nano Conference, June 2005
- Academic Visitor, Huaqiao University, Fujian, China, 2004
- Researcher of the Year 03-04, College of Engineering & Architecture, North Dakota State University
- First Place Cash Award for Poster Presentation- Annual Meeting and International Coatings Exposition, November 12-14,2003, Federation of Societies for Coatings Technology, USA
- Certificate of Appreciation in recognition of a substantial contribution to the Engineering Properties and Structures Division, Society of Plastics Engineers, USA, 2004
- Australian Postdoctoral Fellowship from Australian Research Council (99-02)
- Certificate of Appreciation in recognition of a substantial contribution to the Failure Analysis and Prevention Special Interest Group, Society of Plastics Engineers, USA, 2002
- Certificate of Appreciation in recognition of a substantial contribution to the Thermoplastic Materials and Foams Division, Society of Plastics Engineers, USA, 2003
- Who's Who in Science and Engineering, 2002, 2005
- Who's Who in America, 2004
- Phi Kappa Phi Member 1992
- Postgraduate Research Scholarship (95-98) funded by ARC, Australia
- Research Assistantship (93-95) funded by National Science Foundation, USA
- Wesleyan Academic Scholarship (90-93) from WVWC, USA
- Dorothy Lee International Scholarship (90-93) from WVWC, USA

Professional Membership

- American Society of Mechanical Engineers (Fellow, elected 2014 - , Corporate Member, elected 1996 -)
- Society of Plastics Engineers (Fellow, elected 2015- , Member, since 1994)
- Adhesion Society – 2013-2015

- Materials Research Society – Membership expired.
- Society for the Advancement of Material and Process Engineering (SAMPE, 2010) – Membership expired.
- American Society for Composites - Membership expired.
- American Chemical Society – Membership expired.
- Institution of Engineers, Australia (Graduate member and Professional Engineer)

List of Publications and Products

Patents and Patent Applications

1. **S.-C. Wong** "Eelectrospun Aligned Nanofiber Adhesives with Mechanical Interlocks" **United States Patent: 10,081,891 B2**, United State Patent and Trademark Office, Granted September 25, 2018. Priority Date: August 6, 2012

2. **S.-C. Wong** "Electrospun Microtubes and Nanotubes Containing Rheological Fluid" **United States Patent: 9,809,908**, United States Patent and Trademark Office, Granted 11/7/2017. Priority Date: January 22, 2012

3. **S.-C. Wong**, J.F. Najem, P. Chen "Fabrication of Nanofibers as Dry Adhesives and Applications of the Same" **United States Patent: US 9,511,528 B2**, United State Patent and Trademark Office, Granted 12/6/2016. International Patent Application Number: PCT/US2013/053807 Priority Date: August 6, 2012

4. **S.-C. Wong** "Electrorheological Fluids Incorporated into Polymeric Articles and Tires" **Non-Provisional Full Patent Application**, United States Patent and Trademark Office, Patent Application Number: 13904369, Priority Date: May 31, 2012

5. **S.-C. Wong** and Y. Fu "Electrospun Aligned Nanofiber Adhesives with Mechanical Interlocks" United State Patent and Trademark Office, Patent Application Number: USPTO Serial No.: 62/015,570, June 23, 2014

6. **S.-C. Wong** "Printable Adhesives Using a Tri-Polar Spinning System of Polymer Solutions Driven by Electrical Forces" United State Patent and Trademark Office, Patent Application Number: USPTO Serial No.: 62/015,570, November 11, 2013

7. **S.-C. Wong**, Chelsea Monty, Jie Zheng, George Chase "Smart Wound Dressings that Identify and Destroy Pathogenic Bacteria", United State Patent and Trademark Office, Patent Application number: USPTO Serial No.: 61/590,449, January 25 2012

8. **S.-C. Wong**, Q. Shi and K.T. Wan, "Dry Adhesives Made by Electrospun Polymer Fibers and the Applications of the Same", 2009, United State Patent and Trademark Office, Serial Number: 61/261110, November 13, 2009

9. B. Z. Jang, L. Yang, **S. C. Wong** and Y. Bai "Process for Producing Nanoscale Graphene Plates" **Non-Provisional Full Patent Application**, United States Patent and Trademark Office, Application 2005271574

10. **S.-C. Wong** and K.T. Wan: UA876 "Micro- and Nano-scale Concentric Tubes Containing Electro-rheological and Magneto-rheological Fluids made by Coaxial and Multiaxial Electrospinning and their Applications for Dry Adhesives and Armor Protection" Patent Application No. USPTO: 61/436,423, January 26, 2011

Refereed Chapters in Books (4)

1. P. Chen and **S.-C. Wong** "Piezoresistive Behavior of Polymers Filled by Carbonaceous Nanoinclusions" in *Physical Properties of Polymer Nanocomposites*, eds. S.-C. Tjong and Y.-W. Mai Woodhead Publishing Ltd. Cambridge, UK, 2010, ISBN 978-1-84569-672-6, Chapter 16, pp. 404-427.

2. **S. C. Wong**, Y. W. Mai and X. H. Chen "Fracture Behavior of Polymer Blends", in *Polymer Characterization Techniques and Their Applications to Blends*, ed. G. P. Simon, American Chemical Society and Oxford University Press, New York, 2003, ISBN 0-8412-3818-9, Chapter 7, pp. 191-234

3. **S. C. Wong** and Y. W. Mai "Performance synergism in Polymer-based Hybrid Materials", in *Advanced Polymeric Materials*, Advani, S. H. and Shonaike, G. O. (editors), CRC Press, Boca Raton, Florida, 2003 ISBN 1-58716-047-1, Chapter 12, pp. 439-477

4. Y. W. Mai, **S. C. Wong** and X. H. Chen "Application of Fracture Mechanics in Characterization of Polymer Blends", in *Polymer Blends: Volume 2: Performance*, eds. D. R. Paul and C. B. Bucknall, John Wiley & Sons, New York, 1999, ISBN 0-471-35280-2, Chapter 20, pp. 17-58

Refereed Journal Publications: (>80) (Citations for Publications >4600, H-Index >32 http://scholar.google.com/citations?user=L_IkR24AAAAJ&hl=en /, i-10 > 60)

2018 *(partial list excluding papers under review)*

81. J. Hou, R. Chen, J. Liu, H. Wang, Q. Shi, Z. Xin, **S.-C. Wong**, J. Yin "Multiple Microarrays of Non-adherent Cells on a Single 3D Stimuli-Responsive Binary Polymer-Brush Pattern" *Journal of Materials Chemistry B*, in press, (2018)

80. Z.-X. Huang, X. Liu, J.-W. Wu, **S.-C. Wong**, J.-P. Qu "Electrospinning water harvesters inspired by spider silk and beetle, *Materials Letters* **211** (2018) 28-31.

79. C. Chen, C. Zhang, C. Liu, Y. Miao, **S.-C. Wong**, Y. Li "Rate-Dependent Tensile Failure Behavior of Short Fiber Reinforced PEEK" *Composites Part B: Engineering* **136** (2018) 187-196.

78. Z.-X. Huang, X. Liu, J.-W. Wu, **S.-C. Wong**, J.-P. Qu, G. Chase, Electrospun poly(vinylidene fluoride) membranes as static charge storage device with controlled crystalline phase by inclusions of nanoscale graphite platelets, *Journal of Materials Science* **53** (2018) 3038–3048.

2017

77. Z.-X. Huang, X. Liu, **S.-C. Wong**, J.-P. Qu, Electrospinning polyvinylidene fluoride/expanded graphite composite membranes as high efficiency and reusable water harvester, *Materials Letters* **202** (2017) 78-81.

76. C. Zhao, J. Hou, R. Chen, Z. Xin, Q. Shi, **S.-C. Wong**, J. Yin, Q. Shi, Cell-inspired biointerfaces constructed from patterned smart hydrogels for immunoassays in whole blood, *Journal of Materials Chemistry B* **5(12)** (2017) 2315-2321.

75. Z.-X. Huang, J.-W. Wu, **S.-C. Wong**, J.-P. Qu, T. Srivatsan "The Technique of Electrospinning for Manufacturing Core-Shell Nanofibers" *Materials and Manufacturing Processes* **33** (2017) 202-219.

74. Z.-X. Huang, X. Liu, X. Zhang, **S.-C. Wong**, G. Chase, J.-P. Qu, A. Baji, "Electrospun polyvinylidene fluoride containing nanoscale graphite platelets as electret membrane and its application in air filtration under extreme environment" *Polymer* **131** (2017) 143-150.

73. X. Wang, **S.-C. Wong**, Y. J. Yung, K.-T.Wan, "Measuring Interfacial Adhesion of Carbon Nanotube Bundles and Electrospun Polymer Fibers" *Lagmuir* **33** (2017) 12592–12595.

72. H. Wang, X. Xu, R. Chen, J. Zhao, L. Cui, G. Sheng, Q. Shi, S.-C. Wong, J. Yin, "Bioinspired Antioxidant Defense System Constructed by Antioxidants-Eluting Electrospun F127-Based Fibers" *ACS Applied Materials & Interfaces* **9** (2017) 38313-38322.

2016

71. Q. Shi, J. Hou, X. Xu, J. Gao, C. Li, J. Jin, **S.-C. Wong**, J. Yin, "Capture and Release Erythrocyte from the Blood with Thermoresponsive and Core‐Sheath PCL/PNIPAAm Nanofibers" *Advanced Materials Interfaces* 3 (5) (2016) DOI: 10.1002/admi.201500652

70. C. Zhao, Q. Shi, J. Hou, Z. Xin, J. Jin, C. Li, **S.-C. Wong**, J. Yin "Capturing red blood cells from the blood by lectin recognition on a glycopolymer-patterned surface" *Journal of Materials Chemistry B, Royal Society of Chemistry* **4** (2016) 4130-4137

69. Q Shi, J Hou, C Zhao, Z Xin, J Jin, C Li, **S.-C. Wong**, J Yin "A smart core–sheath nanofiber that captures and releases red blood cells from the blood" *Nanoscale* **8** (2016) 2022-2029

2015

68. A. Baji, Y.-W. Mai, **S.-C. Wong** "Effect of fiber size on structural and tensile properties of electrospun polyvinylidene fluoride fibers" *Polymer Engineering and Sciences* **55** (2015) 1812-1817.

67. Q. Shi, W. Ye, J. Hou, **S.-C. Wong**, X. Xu, J. Yin "Binary Release of Ascorbic Acid and Lecithin from Core-Shell Nanofibers on Blood-Contacting Surface for Reducing Long-Term Hemolysis of Erythrocyte" *Colloid Surface B.* 125 (2015) 28-33

66. J. Hou, Q. Shi, Y. Wei, Q. Fan, H. Shi, **S.-C. Wong**, X. Xu, J. Yin "A Novel Hydrophilic Polymer-Brush Pattern for Site-Specific Capture of Blood Cells from Whole Blood" *Chemical Communications* 2015 DOI: 10.1039/C4CC09096A

2014

65. J. Najem, **S.-C. Wong**, G. Ji "Shear Adhesion Strength of Aligned Electrospun Nanofibers" *Langmuir* **30** (2014) 10410-10418 DOI: 10.1021/la502402y

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48. **S. C. Wong,** G. X. Sui and C. Y. Yue "Mechanical behavior and microstructures of fiber-reinforced nylon 6,6 with and without rubbery inclusions" in Proceedings of ACUN-4 "Composite Systems – Macrocomposites, Microcomposites, Nanocomposites", eds. S. Bandyopadhyay, N. Gowripalan and N. Drayton, University of New South Wales, Sydney, Australia, 21-25 July 2002

49. **S. C. Wong** and L. Chen "Mechanical and fracture properties of nanoclay-filled polypropylene" in Proceedings of the 60th Annual Technical Conference of the Society of Plastics Engineers, ANTEC 2002, USA, Society of Plastics Engineers, vol II, pp. 1466-1469

50. S. Pisharath and **S. C. Wong** "Effect of LCP addition on the properties of hybrid composites" accepted for publication in Proceedings of the 60th Annual Technical Conference of the Society of Plastics Engineers, ANTEC 2002, USA, Society of Plastics Engineers, vol II, pp. 1404-1408

51. **S. C. Wong**, G. X. Sui, C. Y. Yue and Y. W. Mai "Failure behavior of fiber-reinforced toughened polymers" accepted for publication in Proceedings of the 60th Annual Technical Conference of the Society of Plastics Engineers, ANTEC 2002, USA, Society of Plastics Engineers, vol III, pp. 3041-3045

52. G. X. Sui, **S. C. Wong** and C. Y. Yue "Toughening mechanisms in fiber containing impact modified polymers", in Proceedings of the 59th Annual Technical Conference of the Society of Plastics Engineers, ANTEC 2001, USA, Society of Plastics Engineers, May 2001 pp.1567-1570

53. G. X. Sui, **S. C. Wong** and C. Y. Yue "On the essential fracture work of polymers containing short glass fibers" in Proceedings of ACUN-3 "Technology Convergence in Composites Applications", eds. S. Bandyopadhyay, N. Gowripalan and N. Drayton, University of New South Wales, Sydney, Australia, 6-9 Feb. 2001 pp. 215-221

54. Fasce L. A., Frontini P. M., **S. C. Wong**, Mai Y.-W., "Development of damage mechanisms in PP-amorphous PE blends", 11th International Conference on Yield, Deformation and Fracture of Polymers, Churchill College, Cambridge University, Cambridge, UK, 10 Apr 2000 - 13 Apr 2000.

55. Fasce L. A., Frontini P. M., **S. C. Wong**, Mai Y.-W., "Fracture behavior of polypropylene modified with metallocenecatalyzed polyolefins", Proceedings of the 58th Annual Technical Conference of the Society of Plastics Engineers, ANTEC 2000, USA, Society of Plastics Engineers, 2000 pp. 3241-3244

56. Fasce L. A., Frontini P. M., **S. C. Wong**, Mai Y.-W., "Deformation mechanisms of polypropylene modified with metallocene catalyzed polyolefin", Proceedings of the IV Simposio Argentino de Polimeros - SAP99 Los Cocos, Sierras de Cordoba, Argentina, 22 Nov 1999 - 24 Nov 1999

57. **S. C. Wong** and Y. W. Mai "Use of functionalized copolymers to toughen interfaces: An attempt to understand some toughening mechanisms in rubber-modified rigid-rigid blends", Plenary Lecture in *Proceedings of 2nd Asian Polymer Conference*, CHAN, C. M. (editor), Hong Kong University of Science and Technology, Hong Kong, 14-16 January, 1999

58. **S. C. Wong** and Y. W. Mai "Mechanics and Mechanisms of Fracture of Novel Polymer Blends with and without Fiber-reinforcements", in *Proceedings of Australian Fracture Group Conference, Symposium on "Structural Integrity and Fracture 98"* WANG, C. H. (editor), Melbourne, Australia, 21-22 September, 1998, pp.53-62

59. **S. C. Wong** and Y. W. Mai "Fracture Resistance and Microstructures of Unreinforced and Fiber-reinforced PA6,6/PP/SEBS-*g*-MA", in *Proceedings of the 56th Annual Technical Conference of the Society of Plastics Engineers*, Atlanta, 1998, Vol. 3, pp. 3113-3117

60. **S. C. Wong** and Y. W. Mai "On Novel PA6,6/PP/SEBS-*g*-MA Blends", Keynote Paper in *Proceedings of the 5th Japan International SAMPE Symposium and Exhibition*, MIYANO, Y. and YAMABE, M. (editors), Tokyo, Japan, 28-31 October, 1997, pp. 89-94

61. **S. C. Wong**, Y. W. Mai and L. Ye "Reactive Blending and J-Integral Fracture Resistance of PA6,6/PP Blends with SEBS-*g*-MA", in *Proceedings of the 55th Annual Technical Conference of the Society of Plastics Engineers*, Toronto, April, 1997 Vol. 2, pp. 2540-2545

62. **S. C. Wong,** Y-W Mai and Y. Leng "LCP Toughened PC/PBT Blend", in *Progress in Advanced Materials and Mechanics, Proceedings of the International Conference on Advanced Materials*, WANG, T. and CHOU, T.-W. (editors), (Peking University Press, Beijing, China, 1996) pp. 168-173

63. S. V. Nair, **S. C. Wong**, A. Subramaniam, L. A. Goettler and L. A. Gustafson "Adequacy of J-integral to Predict Failure Behavior of Fiber-reinforced and Unreinforced Polymer Alloys", in *Proceedings of the 53rd Annual Technical Conference of the Society of Plastics Engineers*, Boston, 1995 v. 2, 1749-1752

64. **S. C. Wong**, S. V. Nair, L. A. Goettler and L. A. Gustafson "Mechanics of Crack Initiation and Growth in Fiber Reinforced Polymer Alloys", in *Proceedings of Nov. 94 ASME Winter Annual Meeting Symposium on "Recent Advances in Structural Mechanics*, ASME Pressure Vessels & Piping Division" 1994 v. 295, 81-85

65. **S. C. Wong**, S. V. Nair, L. H. Vestergaard, L. A. Goettler and L. A. Gustafson "Fracture Resistance of Unreinforced and Glass Fiber Reinforced Nylon/ABS Alloys", in *Proceedings of the 52nd Annual Technical Conference of the Society of Plastics Engineers*, San Francisco, 1994

Technical Report:

1. "Microsensor Polymer Materials Development" D. C. Webster, **S.-C. Wong**, S. C. Croll, Appendix B.9 in "Center of Excellence for Microsensors and their Fabrication with NanoBlock and Fluidic Self Assembly Technology - Phase I Final Report," G.J. McCarthy, Program Manager, submitted to the Defense Microelectronics Activity, McClellan, CA, under contract DMEA90-02-C-0224, January 2004, 67 pp.57-61

Abstracts of Papers and Talks in International Conferences (38)

1. **S.-C. Wong**, Invited Speaker, 2018, "Water harvesting from atmospheric airborne particles by electrospinning-enabled bio-inspired techniques," Multifunctional Nanocomposites & Surface Damage Phenomena in Polymers, Division of Polymeric Materials Science and Engineering, August 21, 2018, American Chemical Society National Meeting, Boston, MA

2. **S.-C. Wong**, Invited Speaker, 2018, "From Fracture Mechanics to Electrospun Adhesion and Composite Sciences" July 31, 2018, 11th ACCM, Cairns, Australia
3. **S.-C. Wong**, Invited Speaker, 2016 Advanced Technology Track, Adhesives and Sealant Council Spring Convention, April 18-20, 2016, New Orleans, Louisiana
4. **S.-C. Wong**, Keynote Speaker, 2016 Annual Adhesion Society Meeting, San Antonio, TX, February 21-24, 2016
5. **S.-C. Wong**, Invited Speaker, 2015 Annual Adhesion Society Meeting, Savannah, GA, February 20-25, 2015
6. **S.-C. Wong**, G. Ji, Y. Fu, X. Ma, T.A. Blackledge "Electrospinning as a Polymer Blending Technique to Fabricate Adhesives" in Symposium on Novel Developments in Electrospinning and Other Nanofiber Fabrication Technologies, 3rd International Conference on Electrospinning (Electrospin 2014), American Ceramic Society, San Francisco, CA, August 4-8, 2014
7. **S.-C. Wong**, G. Ji, X. Ma, T.A. Blackledge, "Blending of Polymers by Electrospinning for Adhesion" in 5th World Congress on Adhesion and Adhesion-Related Phenomena, Nara, Japan, September 7-11, 2014
8. **S.-C. Wong**, Invited Talk and Speaker "Adhesion of Electrospun Polymer Blends" Advanced Technology Forum, Adhesives and Sealant Council Spring Convention, April 30, 2014, Orlando, Florida
9. **S.-C. Wong**, Invited Talk "Adhesion of Electrospun Polymer Membranes" Don Witenhafer Memorial Session, Society of Plastics Engineers, Annual Technical Meeting, April 29, 2014, Las Vegas, NV
10. **S.-C. Wong** "Polymeric Fiber Arrays for Adhesion" accepted for oral presentation at the 13th International Conference on Fracture (ICF 13), June 16-21, 2013, Beijing, China
11. H. Na, **S.-C. Wong**, P. Chen "Measurement of Adhesion Energy of Electrospun Polymer Membranes using a Shaft-loaded Blister Test" accepted for oral presentation at the 13th International Conference on Fracture (ICF 13), June 16-21, 2013, Beijing, China
12. **S.-C. Wong** "Polymeric Fiber Arrays for Adhesion" an invited talk at the Polymer Technology Consortium, Texas A&M University, November 1-2, 2012, College Station, TX
13. **S.-.C Wong**, S. Chen, A. Hegana "Rolling Resistance of Smart Fabrics for Smart Tires" Presentations at NSF I/UCRC Industrial Advisory Board Meetings: June 4-5, Blacksburg, VA, October 15-16, Fairlawn, OH and mentors meeting on November 22, 2012
14. **S.-C. Wong** "Polymeric Fiber Arrays for Adhesion" 13th International Conference on Fracture, June 16-21, 2013, Beijing, China
15. H. Na, **S.-C. Wong**, P. Chen "Measurement of Adhesion Energy of Electrospun Polymer Membranes using a Shaft-loaded Blister Test" 13th International Conference on Fracture, June 16-21, 2013, Beijing, China

16. X. Wang, J.F. Najem, **S.-C. Wong,** K.-T. Wan "Measuring Adhesion of Freestanding Polymer Nano-Fibers" Poster Presentation, American Physics Society, February 27–March 2 2012; Boston, Massachusetts

17. X. Wang, J.F. Najem, **S.-C. Wong,** B. Li, Y. J. Jung, K.-T. Wan "A Nano-Cheese-Cutter to Measure Interfacial Adhesion of Freestanding Nano-Fibers, Presentation at the 35th Annual Meeting of The Adhesion Society, Feb 26-29, 2012, Astor Crowne Plaza, New Orleans, LA

18. **S.-C. Wong**, Plenary Speaker, 11th International Congress on Metallurgy & Materials SAM/CONAMET 2011, Presentation Title "Adhesion Energy of Electrospun Polymer Fibers" Rosario, Argentina (October 19, 2011)

19. **S.-C. Wong,** Keynote Speaker, Symposium organized by Engineering Properties and Structures Division, Society of Plastics Engineers Annual Technical Meeting, May 2, 2011

20. Y. Ikeda, X. Zhang, K. K. H. Chan, C.-C. Tsai, **S.-C. Wong**, M. Kotaki "Structures and Mechanical Properties of Electrospun PLLA Single Nanofibers" International Conference on Materials for Advanced Technologies (ICMAT 2011), June 29-July 1, 2011, Singapore, Symposium Z: Sustainable Biobased Polymers

21. **S.-C. Wong** "Adhesion of Electrospun Polymer Fibers" China Nano Conference, Beijing, China (September 8, 2011)

22. **S. C Wong**, Invited Speaker for 2009 National Polymer Conference, Tianjin, People's Republic of China August 18-23, 2009 "Mechanical Behavior of Aligned Electrospun Nanofibers"

23. **S.-C. Wong**, Invited Speaker for 2009 ASME International Congress, November 13-19, Lake Buena Vista, Florida "Tensile Properties of Aligned Electrospun Polymer Nanofibers"

24. **S.-C. Wong**, Invited Speaker: Nanocomposites 2008 – Enabling Technologies and New Markets Symposium: Novel Preparation and Manufacturing Methods, September 15-17, 2008, San Diego, CA

25. **S.-C. Wong** "Mechanical and Molecular Deformations of Polymer Nanofibers" Invited Talk at the Department of Polymer Engineering Seminar Series, University of Akron, November 30 2007

26. **S.-C. Wong** "Processing and Structure-Property Relationships of Polymer Nanocomposites" Invited Talk at the Department of Mechanical Engineering, Florida Institute of Technology, April 14, 2006

27. **S.-C. Wong** "Cost-effective Substitutes for Carbon Nanotubes: Development of Graphene-based Nanocomposites" Invited Talk in China Nano Conference 2005, June 9-11, Beijing, China

28. **S. C. Wong** "Graphene-based Polymer Nanocomposites" invited presentation at the Society of Plastics Engineers Akron Section Meeting, Martin Center, University of Akron, January 24, 2005

29. **S. C. Wong** "Graphene Nanoplatelet Reinforced Polymer Coatings' Invited Talk at Huaqiao University, Quanzhou, PRC, June, 2004

30. F. M. Uhl, B. R. Hinderliter, S. P. Davuluri, S. C. Croll, **S.-C. Wong** and D. C. Webster, "Organically Modified Layered Silicates in UV Curable Formulations," a poster presented at the International

Coatings Exposition sponsored by the Federation of Societies for Coatings Technology, PA, November 12-14, 2003 - First Place Award

31. S. P. Davuluri, **S.-C. Wong**, F. M. Uhl, D. C. Webster "Development of light weight and cost effective nanocomposites" presented in ND STaR (North Dakota Space Training and Research) Conference "Space on the Prairie" August 10-11, Hilton Garden Inn, Grand Forks, ND

32. **S. C. Wong**, B. Z. Jang, W. Zheng and X. H. Lu, "Processing-property relationship of novel expanded graphite nanocomposites" invited paper in Symposium I: Advanced Polymers, Second International Conference on Materials for Advanced Technologies, 29 June - 4 July 2003, Singapore

33. W. Zheng, X. H. Lu and **S. C. Wong**, "Structures and properties of graphite-reinforced HDPE composites" in Proceedings of Symposium I: Advanced Polymers, Second International Conference on Materials for Advanced Technologies, 29 June - 4 July 2003, Singapore

34. **S. C. Wong**, G. X. Sui, C. Y. Yue and Y. W. Mai, "Characterization of toughening behavior in fiber-containing rubber-toughened nylon 6,6" invited paper in Symposium K: Advances in Polymers and Composites, International Conference on Materials for Advanced Technologies, 1-6 July 2001, Singapore, p.293

35. T. X. Liu, C. B. He, K. X. Ma, Z. H. Liu, **S. C. Wong**, X. Hu, T.S. Chung and A. F. Yee, "Structure, morphology and thermal behavior of polyamide 6/layered silicate nanocomposites: an XRD, AFM and DSC study", in Proceedings of Symposium K: Advances in Polymers and Composites, International Conference on Materials for Advanced Technologies, 1-6 July 2001, Singapore, p. 310

36. **S. C. Wong** and Y. W. Mai, "Essential Fracture Work of Short Glass Fiber Reinforced Polymer Blends," presented in 2nd European Structural Integrity Society Conference on Polymers and Composites, Symposium on "Fracture of Polymers, Composites and Adhesives", 13-15 September, 1999, Les Diablerets, Switzerland

37. **S. C. Wong** and Y. W. Mai, "Reactive Blending and J-Integral Fracture Resistance of PA6,6/PP Blends with SEBS-*g*-MA," presented in the 22nd Australian Polymer Symposium, 2-5 February, 1997, Auckland, New Zealand

38. **S. C. Wong**, S. V. Nair, L. A. Goettler and L. A. Gustafson, "Microstructure-Fracture Toughness Relationship of Polymer Alloys and Blends with and without Fiber Reinforcements", presented in Symposium on Polymer-matrix Composites, 1994 Fall Meeting, Materials Research Society, November 28 - December 2, Boston, Massachusetts, USA

39. **S. C. Wong** "Study of mechanics and mechanisms of fracture in novel polymer blends using electron microscopic techniques" in Proc. of the 7th Asia Pacific Electron Microscopy Conference Singapore, 26 Jun 2000 - 30 Jun 2000 Vol. Physical Science pp. 112-113

Invited Seminars in Research Institutes and Academic Departments (since 2004- only):

1. **S.-C. Wong**, Invited External Expert "From Fracture Mechanics to Nanofiber Adhesives" #M Corporate Research and Development, St. Paul, MN, May 2017
2. **S.-C. Wong**, Invited Speaker "From Fracture Mechanics to Nanofiber Adhesives" Northwestern Polytechnic University, Xian, China, 2017
3. **S.-C. Wong**, Invited Seminar "Electrospun Adhesive Nanofibers" Avery Dennison, Mentor, OH (December 3, 2014)
4. **S.-C. Wong**, Invited Seminar "Next-Generation Bio-Inspired Polymer Fiber Adhesives" DAP Products Inc. Baltimore, MD (June 6, 2013)
5. B. Rosenbaum and **S.-C. Wong**, Invited Talk, "Scalable Electrospinning Techniques to Fabricate Bio-Inspired Reusable Adhesives" MAGNET, Cleveland, Ohio (June 5, 2013)
6. **S.-C. Wong**, S. Chen, A. Hegana "Rolling Resistance of Smart Fabrics for Smart Tires" Presentations at NSF I/UCRC Industrial Advisory Board Meetings: June 4-5, 2012, June 2-4, 2013, Blacksburg, VA, October 15-16, 2012, Fairlawn, OH and mentors meeting on November 22, 2012 and March 2013.
7. **S.-C. Wong**, Invited Seminar, "Polymeric Fiber Arrays for Adhesion" Avery Dennison, Mentor, OH (August 8, 2012)
8. **S.-C. Wong**, Invited Seminar, "Electrospun Fiber Arrays and Random Mats for Adhesion" Department of Mechanical Engineering, Hong Kong Polytechnic University (December 20 2011)
9. **S.-C. Wong** "Adhesion of Electrospun Polymer Fibers and Membranes" School of Materials Science and Engineering, Nanyang Technological University, Singapore, (September 23, 2011)
10. **S.-C. Wong** "Adhesion of Electropsun Polymer Fibers" School of Materials Science and Engineering, Tianjin University, PRC (September 9, 2011)
11. **S.-C. Wong** "Mechanical Behavior and Adhesion of Electrospun Polymer Fibers" Department of Chemical Engineering and Materials Science, University of Alberta, Edmonton, Canada (July 17, 2011)
12. **S.-C. Wong** "Mechanical Behavior and Adhesion of Electrospun Polymer Fibers" Institute of Metals Research, Chinese Academy of Sciences in Shengyang, China (May 30, 2011)
13. **S.-C. Wong** "Electorspinning-Enabled Bio-inspired Materials Research" Society of Women Engineers Seminar, University of Akron (October 27 2010)
14. **S-C. Wong**, Invited Seminar, "Do Electrospun Nanofibers Stick?" Department of Materials Science and Physics, City University of Hong Kong (July 5, 2010)
15. **S.-C. Wong**, Invited Seminar, Technion -Israel Institute of Technology, Haifa, Israel "Dry Adhesion between Electrospun Nanofibers" June 7, 2010
16. **S.-C. Wong**, Invited Seminar, "Piezoresistive Behavior of Nanoscaled Graphene Plates" Department of Mechanical and Aerospace Engineering, Florida Institute of Technology (April 14, 2006)
17. **S.-C. Wong**, Invited Seminar, "Graphite Nanocomposites" Lockheed Martin Defense and Surveillance Systems (February 22, 2006, February 21, 2007)
18. **S.-C. Wong**, Invited Seminar, "Graphite Nanocomposites" The 49th Annual Sink or Swim Symposium, Akron, Ohio (May 24, 2006)

19. **S.-C. Wong**, Invited Seminar, "Nanoscale Graphite Platelets in Polymers" Owens Corning (February 28, 2005 and 2006)
20. Bridgestone-Firestone Center for Research and Technology (July 11, 2005),
21. Goodrich (June 27, 2005)
22. Graftech International (July 2005, December 2006)
23. Cleveland Society for Coatings Technology (2005)
24. SPE Akron Section Technical Meeting (February 21, 2005)