Shing-Chung Josh Wong

United States Citizen

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Biosketch

Dr. 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. Later he joined the group of Yiu-Wing Mai, 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 in Nanyang Technological University. He has since graduated 11 masters, 5 PhDs and 7 postdocs. In addition to pursuing bio-inspired materials research, he has worked on mechanical behavior and functional properties of polymers, electrospinning, processing-structure-property relationships, coatings, bio- and nano-materials and composites. Dr. Wong has authored and coauthored over 70 research articles in books, journals and patent literatures, with additional papers in conference proceedings and refereed abstracts. There were a total of 1904 citations and a h-index = 22, according to Google Scholar, as of August 2013. Three recent publications were additionally featured in (i) the February 13, 2012 issue of *Virtual Journal of Nanoscale Science & Technology*, American Institute of Physics; (ii) Lab Talk, nanotechweb.org on June 2, 2011; and (iii) the *Top 25 Hottest Articles* by *Composite Science and Technology.* In 2007 he received an NSF CAREER award entitled "Electrospinning-Enabled Bio-Inspired Materials Research and Education" from the ***Program of Materials Processing and Manufacturing***. His research is funded by Fortune 500 companies such as Delphi Corporation, the Timken Company, Owens Corning, Industrial Consortium of the NSF I/UCRC Center for Tire Research. He served as the Chair of the Engineering Properties and Structures Division (EPSDIV) of the Society of Plastics Engineers (SPE) in 2012-2013 and presently the Vice-Chair of Polymer Technical Committee of the American Society of Mechanical Engineers (ASME). He was promoted to full professor (2013 -) with tenure (2009 -) at the University of Akron.

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
Co-founder (2012-), Akron Ascent Innovations, LLC - a UARF Company

9/2011 **Nanyang Technological University, Singapore**
Visiting Professor and Guest Speaker, School of Materials Science and Engineering

6/2010	**City University of Hong Kong** Academic Visitor, Department of Physics and Materials Science
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
1999 – 2002	**Nanyang Technological University (NTU)**, Singapore Assistant Professor, School of Materials Science and Engineering
11/2000	**City University of Hong Kong** Academic Visitor, Department of Manufacturing and Engineering Management
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) **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"

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

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

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

- Assistant Professor at **Singapore University of Design and Technolog**y
- 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)

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

- Senior Polymer Scientist, 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)

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

- Senior Research Engineer, Shandong Linglong Tyre Co., Ltd
- Thesis Title: A Preliminary Discourse on Adhesion of Nanofibers derived from Electrospun Polymers
- Interdisciplinary Committee Members: 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)

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

- Proposed Thesis Title: " Electrospun Polymer Nonwovens for Adhesion"

(7) **Shuwen Chen** (2012 - present) (B.S. M.E. Wuhan University of Technology, China)

- Proposed Thesis Title: "Rolling Resistance of Smart Fabrics for Smart Tires "

Directly Supervised Master Theses

(8) **Vishal Bhimrao Zade** "Rolling Resistance of Electrorheological Composites" (B.E. India)

(9) **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

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

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

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

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

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

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

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

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

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

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

(20) **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.

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

Postdoctoral Supervision:

- **Dr. Xiaomin Zhang** (PhD. from Lingbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences) - Confidential Project (2012 -)
- **Dr. Kitchaporn Nartetamrongsutt** (Ph.D. in Chemical Engineering, University of Akron) - under Akron Ascent Innovations, LLC (2013-)
- **Dr. Yu Fu** (Ph.D. in Mechanical Engineering, Washington State University, Pullman) - under Akron Ascent Innovations, LLC (2013 -)
- **Dr. Haining Na** (Ph.D. 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
- **Dr. Qiang Shi** (Ph.D. 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)
- **Dr. Xiaofan Wei** (Ph.D. from University of Akron) - University of Akron on Mechanics Modeling of Electrospun Nanofibers
- **Dr. Vardhan Bajpai** (Ph.D. from University of Akron) in collaboration with Seldon Laboratories LLC, Windsor, Vermont
- **Dr. Fawn M. Uhl** (Ph.D. from University of Wisconsin Milwaukee) - now at Owens Corning, Granville, Ohio
- **Dr. W. Zheng** (Ph.D. 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)
- **Dr. Guoxin Sui** (Ph.D. Institute of Metal Research, Chinese Academy of Sciences) - now as Professor at Institute of Metal Research, Chinese Academy of Sciences, P.R. China)

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
    - 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
    - Thesis Title: The Generation and Thermo-Mechanical Characterization of Advanced Polyamide-6,6 Nanocomposites Using Interfacial Polycondensation
3. **Mohammad Karim** - Department of Mechanical Engineering
    - Thesis Title: Constitutive Modeling and Failure Criteria of Carbon-Fiber Reinforced Polymers Under High Strain Rates
4. **Guillermo Jimenez** – Department of Polymer Engineering
    - Thesis Title: Characterization of Poly(Methyl Methacrylate) and Thermoplastic Polyurethane-Carbon Nanofiber Composites Produced by Chaotic Mixing
5. **Vardhan Bajpai** – Department of Polymer Engineering
    - Thesis Title: Syntheses, Characterization and Applications of Micro-/nano-structured Conducting Polymers and Carbon Nanotubes
6. **Jianguo Zhou** – Department of Polymer Engineering
    - Thesis Title: Processing of Generic Circuits by Conductive Adhesives: Geometrical and Rheological Considerations
7. **Haifeng Shan** – Department of Polymer Engineering
    - 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
    - Thesis Title: Highly Conductive Epoxy/Graphite Polymer Composite Bipolar Plates in Proton Exchange Membrane (PEM) Fuel Cells
10. **Jackapon Sunthornvarabhas** – Department of Chemical Engineering
    - 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
    - Thesis Title: Excimer Laser Ablation of Polymer-Clay Nanocomposites
13. **Ali A. Al-Quraishi** – Department of Mechanical Engineering
    - Thesis Title: The Deformation and Fracture Energy of Natural Rubber Under High Strain Rates

14. **Sughun Bumm** – Department of Polymer Engineering
    - 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
    - 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
    - Thesis Title: Polyimide Based High Performance Film
18. **Byoung Jo Lee** - Department of Polymer Engineering
    - Thesis Title: Nucleating Agent-Assisted Preparation of Polypropylene (PP)/Polyhedral Oligomeric Silsesquioxane (POSS) Nanocomposites and Their Characterization
19. **Todd Lewis** - Department of Polymer Engineering
20. **Sayantan Roy** - Department of Polymer Engineering
    - 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
22. **Laila Shahreen** - Department of Chemical and Biomolecular Engineering
    - 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
24. **Jun Zhou** - Department of Mechanical Engineering
    - Thesis Title: Numerical Modeling of Ductile Fracture

Master Committees

1. **Ashutosh Agrawal** - Department of Mechanical Engineering
    - Thesis Title: Micro-wear Behavior of Balinit 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

Panelist/Reviewer/Referee

1. National Science Foundation CAREER Panels (2010, 2013)
2. National Science Foundation (NSF) Materials Processing and Manufacturing Program, Civil, Mechanical, Manufacturing and Innovation Division (CMMI) Panel (2010)
3. National Science Foundation (NSF) SBIR Phase I Panel (2002)
4. Estonian Science Foundation (2009, 2010, 2011)
5. The German Israeli Foundation for Scientific Research and Development (2012)

6. U.S. Civilian Research and Development Foundation (CRDF) Reviewer
7. American Chemical Society Petroleum Research Fund
8. External Examiner, University of Sydney, 2008
9. External Examiner, MSE, Nanyang Technological University (NTU), Singapore, 2011
10. External Examiner, MAE, Nanyang Technological University (NTU), Singapore, 2012
11. External Examiner, MSE, Nanyang Technological University (NTU), Singapore 2013
12. *Journals (2004-2012):*
    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

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

<u>Selected Research Grant Activities as PI:</u>
Total demonstrable external research funding since becoming an assistant professor from 1999: >US$1,800,000 as PI and US$1,233,737 as Co-PI

Project	**Source and Dates**	**Status**	**Amount**
NSF I/UCRC: Rolling Resistance of Smart Fabrics for Smart Tires	Year 2 funding awarded on June 4 2013 by the Industrial Advisory Board, Center for Tires Research (CenTire)	Funded and Active	**$29,250**
Bio-Inspired Reusable Adhesives Using Scalable	awarded by Ohio 3rd Frontier Technology Validation and Start	Funded and Active	**$37,500**

Electrospinning Techniques	up Grant, Ohio Department of Development		
Confidential Project	awarded on December 19, 2012 by Owens Corning	Funded and Active	**$64,500**
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 Active	**$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 Active	**$50,000**
Enhancement of Toughness and Thermal Stability for Engineering Nylon Components	awarded on July 1, 2012 by the Timken Company	Funded and Active	**$43,757**
Reinforced Polymers for Bearings Cage	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 Active	**$27,000**
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 Active	**$223,035.25**
NSF Supplement	NSF, awarded June 2010	Active	**$5,658**
Adhesion and Fracture Studies	Koch Knight LLC	Funded and Active	**$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 Active	**$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	awarded on July 15, 2005 by the National Science Foundation. Award No. DMI-0520967. FY	Funded and Completed	**$244,645**

Materials Research	2005-2007		
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 Corporation	MTS (300.05, 312.36, 314.11)High Frequency Servohydraulic Tesing Machines	9/2009 Fully Upgraded.	**$602,552** Quoted by MTS.

The Timken Company	Morgan Press Injection Molding Machine	2/2011 As new.	**$80,000** UA Dept. of Development

Other Multi-Investigator Research Grant Activities (2001 - Present): Wong's Role: Co-PI

Project	**Source**	**Status**	**Funded Amount**
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	Funded and Active	**$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 microspectroscopy instrumentation for advanced materials and biomaterials research and education	National Science Foundation - MRI: Major Research Instrumentation for FY 2003 PI: Kalpana Katti	Completed	**$135,041**
Fracture and toughening of composites of polymers	AFOSR- Institute of Materials Research and Engineering, Singapore	Expired	

and nanoscale inorganic and organic fillers	PI: Albert F. Yee		

Professional Service

- Organizing Committee, Polymer Processing Society Conference (PPS30) - 2014, Akron, OH, USA
- 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-) http://divisions.asme.org/Materials/Technical_Committees.cfm
- 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- present), 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 sponsored 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: 20+ years graduate and postdoctoral research experience in polymers and composites research, 15+ year hands-on experience in electrospinning, plastics processing and composite manufacturing, 13+ 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. 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
Fall 2013	4600:360 Engineering Analysis II (2 sessions)	Undergraduate	61	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 Mechanical Behavior of Nanostructured Materials and Composites	Graduate	6	3
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
Fall 2005	4600:460 Concept of Design – Engineering Economy	Undergraduate	40	(3)
Spring 2005	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

- 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

- Visiting Research 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 Research 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 (Corporate Member, elected 1999)
- Society of Plastics Engineers (Member, since 1994),
- Materials Research Society
- Society for the Advancement of Material and Process Engineering (SAMPE, 2010)
- American Society for Composites (Member, since 2003)
- Institution of Engineers, Australia (Graduate member and Professional Engineer)

List of Publications and Products

Patent Applications

1. **S.-C. Wong** and J.F. Najem " Fabrication of Flexible Fiber Arrays as Adhesives and Applications of the Same" **Non-Provisional Full Patent Application**, United State Patent and Trademark Office, Patent Application Number: 16515655 Priority Date: August 6, 2012

2. **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

3. **S.-C. Wong** "Electrospun Microtubes and Nanotubes Containing Rheological Fluid" **Non-Provisional Full Patent Application**, United States Patent and Trademark Office, Patent Application Number: 13359020 filed on January 22, 2012

4. **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

5. **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

6. 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

7. **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: (60) (Citations for Publications > 1904 H-Index > 22 http://scholar.google.com/citations?user=L_IkR24AAAAJ&hl=en /)

2013

1. W. Ye, Q. Shi, **S.-C. Wong**, J. Hou, H. Shi, J. Yin "Patterning Surfaces for Controlled Platelet Adhesion and Detection of Dysfunctional Platelets" *Macromolecular Bioscience Communication* (2013) DOI: 10.1002/mabi.201200463 2013 pp. 1-6

2. F. Montini Ballarin, T.A. Blackledge, N. L. Capitos Davis, P.M. Frontini, G.A. Abraham, **S.-C. Wong** "Study of Effect of Topology on the Adhesive Forces Between Electrospun Polymer Fibers Using a T-peel Test" *Polymer Engineering and Science*, DOI: 10.1002/pen.23474 (2013) pp. 1-9

2012

3. H. Na, P. Chen, K.T. Wan, **S.-C. Wong**, Q. Li, Z. Ma "Measurement of Adhesion Work of Electrospun Polymer Membrane by Shaft-Loaded Blister Test" *Langmuir* Vol. 28 (2012) 6677-6683 DOI: 10.1021/la300877r

4. H. Na, P. Chen, **S.-C. Wong**, S. Hague, Q. Li "Fabrication of PVDF/PVA Microtubules by Coaxial Electrospinning" *Polymer* Vol. 53 (2012) 2736-2743 DOI: http://dx.doi.org/10.1016/j.polymer.2012.04.021

5. X. Wang, J. F. Najem, **S.-C. Wong**, K.T. Wan "A Nano-Cheese-Cutter to Directly Measure Interfacial Adhesion of Freestanding Nano-Fibers" *Journal of Applied Physics* Vol. 111, (2012)

024315 DOI: 10.1063/1.3677947, featured in the February 13, 2012 issue of *Virtual Journal of Nanoscale Science & Technology*, American Institute of Physics

6. Q. Shi, **S.-C. Wong**, W. Ye, J. Hou, J. Zhao, J. Yin "Mechanism of Adhesion Between Polymer Fibers at Nanoscale Contacts" *Langmuir* Vol. 28 (2012) 4663-4671

7. A. Baji, Y.-W. Mai, X. S. Du, **S.-C. Wong** "Improved Tensile Strength and Ferroelectric Phase Content of Self-assembled Polyvinylidene Fluoride Fiber Yarns using Electrospinning Technique" *Macromolecular Materials and Engineering* DOI: 10.1002/mame.201100176, Vol. 297 (2012) 209-213

2011

8. A. Baji, Y.-W. Mai, **S.-C. Wong** "Effect of Fiber Diameter on the Deformation Behavior of Self-Assembled Carbon Nanotube Reinforced Electrospun Polyamide 6,6, Fibers" *Materials Science and Engineering A* Vol. 528 (2011) 6565-6572

9. A. Baji, Y.-W. Mai, Q. Li, **S.-C. Wong**, Y. Liu, Q.W. Yao "One-dimensional Multiferroic Bismuth Ferrite Fibers Obtained by Electrospinning Techniques" *Nanotechnology* Vol. 22 (2011) 235702 - 234708 DOI: 10.1088/0957-4484/22/23/235702 Excerpt from Article: "Multiferroic Nanofibers Spun Out for Nanoscale Sensing and Actuation" featured in Lab Talk, *nanotechweb.org* June 2, 2011 URL: http://nanotechweb.org/cws/article/lab/46178

10. P. Chen, **S.-C. Wong** "Strain Controlled Fatigue Life and Modeling of Conduit Polymers" *Journal of Materials Science* Vol. 46 (2011) 1902-1912

2010

11. Q. Shi, K.-T. Wan, **S.-C. Wong**, P. Chen, T.A. Blackledge "Do Electrospun Polymer Fibers Stick?" *Langmuir*, Vol. 26 (2010) 14188–14193 (Impact factor = 4)

12. A. Baji, Y.-W. Mai, **S.-C. Wong**, M. Abtahi, P. Chen "Electrospinning of Polymer Nanofibers: Effects on Oriented Morphology, Structures and Tensile Properties" *Composites Science and Technology* Vol. 70 (2010) 703-718 (Selected as the **Top 25 Hottest Articles** by *CST* http://top25.sciencedirect.com/subject/materials-science/15/journal/composites-science-and-technology/02663538/archive/26)

13. A. Baji, Y.-W. Mai, **S.-C. Wong**, M. Abtahi, X Du "Mechanical Behavior of Self-Assembled Carbon Nanotube Reinforced Nylon 6,6 Fibers" *Composites Science and Technology*, Vol. 70 (2010) 1401-1409

14. X. Wei, **S.-C. Wong**, S. Bandaru "A Semi-Empirical Unified Model of Strain Fatigue Life for Insulation Plastics" *Journal of Materials Science* Vol. 45 (2010) 326-333

2009

15. I. Agnarssona, C. Boutry, **S.-C. Wong**, A. Baji, A. Dhinojwala, A. T. Sensenig, *T. A .Blackledge* "Supercontraction Forces in Spider Dragline Silk Depend on Hydration Rate" *Zoology*, Vol 122 (2009) 325-331

16. T. A. Blackledge, C. Boutry, **S.-C. Wong**, A. Baji, A. Dhinojwala, V. Sahni and I. Agnarsson "How Super is Supercontraction? Persistent Versus Cyclic Responses to Humidity in Spider Dragline Silk" *Journal of Experimental Biology* Vol. 212 (2009) 1981-1989

17. X. Wei, Z. Xia **S.-C. Wong** and A. Baji "Modeling of Mechanical Properties of Electrospun Nanofiber Network" *International Journal of Experimental and Computational Biomechanics*, Vol. 1 (2009) 45-57

18. **S.-C. Wong** and S. Bandaru "Strain Fatigue Lives of Insulation Plastics" *Journal of Materials Science*, Vol. 44 (2009) 365-373.

2008

19. **S.-C. Wong**, A. Baji and **S. Leng** "Effect of Fiber Diameter on Tensile Properties of Electrospun Poly(ε -caprolactone)" *Polymer*, Vol. 49 (2008) 4713-4722

20. **S.-C. Wong** and A. Baji "Fracture Strength and Adhesive Strength of Hydroxyapatite-Filled Polycaprolactone" *Journal of Materials Science Materials in Medicine*, Vol. 19 (2008) 929-936

21. **S.-C. Wong**, A. Baji and **A. N. Gent** "Effect of Specimen Thickness on Fracture Toughness and Adhesive Properties of Hydroxyapatite Filled Polycaprolactone" *Composites Part A Applied Science and Manufacturing* Vol. 39 (2008) 579-587

22. B. Yang, **S.-C. Wong** and S. Qu "A Micromechanics Analysis of Nanoscale Graphite Platelet-Reinforced Epoxy Using Defect Green's Function" *Computer Modeling in Engineering and Sciences*, Vol. 785 (2008) 1-13

2007

23. E. M. Wouterson, F.Y.C. Boey, X. Hu and **S.-C. Wong** "Effect of Fiber Reinforcement on the Tensile, Fracture and Thermal Properties of Syntactic Foam" *Polymer*, Vol 48 (2007) 3183-3191

24. A. Baji, **S.-C. Wong**, T.X. Liu, T. C. Li, S.T. Srivatsan "Morphological and X-ray Diffraction Studies of Crystalline Hydroxyapatite Reinforced Polycaprolactone" *Journal of Biomedical Materials Research Part B: Applied Biomaterials*, Vol 81B (2007) 343-350

25. E. M. Wouterson, F.Y.C. Boey, **S.-C. Wong,** L. Chen and X. Hu "Nano-toughening versus Micro-toughening of Polymer Syntactic Foams" *Composite Science and Technology* Vol. 67 (2007) 2924-2933

26. **S.-C. Wong**, A. Baji and A.N. Gent "Techniques to Assess Adhesive Strength and Toughness of Hydroxyapatite- Filled Poly(ε-Caprolactone)" *Key Engineering Materials*, Vol (2007) 549-552

27. S. Qu and **S.-C. Wong** "Piezoresistive Behavior of Polymer Reinforced by Expanded Graphite" *Composite Science and Technology*, Vol 67 (2007) 231-237

2006

28. **S.-C. Wong,** H. Lee, S. Qu, S. Mall, L. Chen, A Study of Global vs. Local Properties for Maleic Anhydride Modified Polypropylene Nanocomposites" *Polymer*, Vol 47 (2006) 7477-7484

29. S. Pisharath, X. Hu and **S.-C. Wong** "Rheological Properties and Microstructures of Nylon/LCP Hybrid Composites" *Composite Science and Technology*, Vol 66 (2006) 2971-2979

30. F. M. Uhl, D. C. Webster, S. P. Davuluri and **S. C. Wong** "UV Curable Epoxy Acrylate-Clay Nanocomposites" *European Polymer Journal*, Vol 42 (2006) 2596-2605

31. **S.-C. Wong**, E. M. Wouterson and E. M. Sutherland "Dielectric Properties of Graphite Nanocomposites" *Journal of Vinyl & Additive Technology*, Vol 12 (2006) 127-130

32. **S.-C. Wong,** E. M. Sutherland and F. M. Uhl "Materials Processes of Graphite Nanostructured Composites using Ball Milling" *Materials and Manufacturing Processes*, Vol 21 (2006) 159-166

33. L. Chen, I. Y. Phang, **S.-C. Wong**, P.-F. Lv, T. Liu "Embrittlement mechanisms of nylon66/organoclay nanocomposites prepared by melt-compounding process" *Materials and Manufacturing Processes*, Vol 21 (2006) 153-158

34. A. Baji, **S.-C. Wong**, T.S. Srivatsan, G. O. Njus and G. Mathur "Processing Methodologies for Polycaprolactone-Hydroxyapatite Composites: A review" *Materials and Manufacturing Processes*, Vol 21 (2006) 211-218

2005

35. E. M. Wouterson, F.Y.C. Boey, X. Hu and **S.-C. Wong** "Specific properties and fracture toughness of syntactic foam: Effect of foam microstructures" submitted to *Composite Science & Technology*, Vol. 65 (2005) 1840-1850

36. G. X. Sui, **S.-C. Wong**, R. Yang and C. Y. Yue "The effect of fiber inclusions in toughened plastics Part II: Determination of micromechanical parameters" *Composite Science and Technology*, Vol 65 (2005) 221 – 229

2004

37. S. Pisharath, **S.-C. Wong**, and X. Hu "Fracture behavior of nylon hybrid composites" *Journal of Materials Science*, Vol. 39 (2004) 6529-6538

38. L. Chen, **S.-C. Wong**, T. X. Liu, X. H. Lu and C. B. He "Deformation mechanisms of nanoclay-reinforced polypropylene" *Journal of Polymer Science Part B: Polymer Physics*, Vol. 42 (2004) 2759-2768

39. F. M. Uhl, P. Davuluri, **S.-C. Wong**, D. C. Webster "Polymer films possessing nanoreinforcements via organically modified layered silicate" *Chemistry of Materials*, Vol. 16 (2004) 1135-1142

40. F. M. Uhl, P. Davuluri, **S.-C. Wong**, D. C. Webster "Organically modified montmorillonites in UV curable urethane acrylate films" *Polymer*, Vol. 45 (2004) 6175-6187

41. W. Zheng, X. Lu and **S.-C. Wong** "Electrical and mechanical properties of expanded graphite reinforced HDPE" *Journal of Applied Polymer Science*, Vol. 91(2004) 2781-2788

42. L. A. Fasce, P. M. Frontini, **S. C. Wong** and Y. W. Mai "Polypropylene modified with elastomeric metallocene-catalyzed polyolefin blends: Fracture behavior and development of damage mechanisms" *Journal of Polymer Science Part B: Polymer Physics*, Vol. 42 (2004) 1075-1089

43. E. M. Wouterson, F.Y.C. Boey, X. Hu, **S. C. Wong** "Fracture and impact toughness of syntactic foam" *Journal of Cellular Plastics*, Vol. 40 (2004) 145-154

2003

44. S. Pisharath and **S. C. Wong** "Development of morphology and crystalline state due to hybridization of reinforced toughened nylon containing LCP" *Journal of Polymer Science, Part B: Polymer Physics* Vol. 41 (2003) 549-559

45. S. Pisharath and **S. C. Wong** "Processability of LCP/glass/nylon hybrid composites" *Polymer Composites*, Vol 24 (2003) 109-118

46. L. Chen and **S. C. Wong** "Fracture properties of nanoclay-filled polypropylene" *Journal of Applied Polymer Science*, Vol 88 (2003) 3298-3305

2002

47. W. Zheng, **S. C. Wong** and H.-J. Sue "Transport behavior of PMMA/expanded graphite nanocomposites" *Polymer* Vol. 43 (2002) 6767-6773

48. W. Zheng and **S. C. Wong** "Electrical conductivity and dielectric properties of PMMA/expanded graphite composites" *Composite Science and Technology*, Vol 63 (2002) 225 – 235 (Cited >> 140)

49. **S. C. Wong**, G. X. Sui, C. Y. Yue and Y. W. Mai "Characterization of microstructures and toughening behavior of fiber-containing toughened nylon 6,6" *Journal of Materials Science*, Vol. 37 (2002) 2659-2667

50. X. H. Lu, K. Y. Lim, F. Y. Lim, **S. C. Wong** and J. Zhao "Morphology and property of polypropylene/aliphatic polyketone blends", *Plastics, Rubber, Composites-Processing & Applications,* Vol.31 (2002) 147-150

2001

51. G. X. Sui, **S. C. Wong** and C. Y. Yue "Effect of fiber inclusions in toughened plastics Part I: Fracture characterization using essential fracture work" *Composite Science and Technology* Vol. 61 (2001) 2481-2490

52. G. X. Sui, **S. C. Wong** and C. Y. Yue "Effect of extrusion compounding on the mechanical properties of rubber toughened polymers containing short glass fibers", *Journal of Materials Processing Technology* Vol. 113 (2001) 167-171

2000

53. **S. C. Wong** and Y. W. Mai "Effect of Rubber Functionality on Microstructures and Fracture Toughness of Impact Modified Nylon 6,6/PP Blends Part II Toughening Mechanisms", *Polymer* Vol. 41 (2000) 5471-5483

1999

54. **S. C. Wong** and Y. W. Mai "Effect of Rubber Functionality on Microstructures and Fracture Toughness of Impact Modified Nylon 6,6/PP Blends Part I Structure-Property Relationships", *Polymer* Vol. 40 (1999) 1553-1566

55. **S. C. Wong** and Y. W. Mai "Essential Fracture Work of Short Fiber Reinforced Polymer Blends", *Polymer Engineering & Science* Vol. 39 (1999) 356-364

56. S. H. Zhu, C. M. Chan, **S. C. Wong** and Y. W. Mai "Mechanical Properties of PVC/SBR Blends compatibilized by Acrylonitrile-Butadiene Rubber and Covulcanization", *Polymer Engineering & Science* Vol. 39, No. 10 (1999) pp. 1998-2006

1998

57. **S. C. Wong**, Y. W. Mai and Y. Leng "Fiber Reinforcement and Fracture Resistance of PC/PBT/LCP Ternary *In-Situ* Composite," *Polymer Engineering & Science,* Vol. 38 (1998) 156-168

58. **S. C. Wong** and Y. W. Mai "Effect of Rubber Functionality on Mechanical and Fracture Properties of Impact Modified Nylon 6,6/PP Blends", *Key Engineering Materials,* Vol. 137 (1998) 55-62

1997

59. S. V. Nair, **S. C. Wong** and L. A. Goettler "Fracture Resistance of Polyblends and Polyblend Matrix Composites. Part I. Unreinforced and Fiber-reinforced Nylon6,6/ABS Polyblends", *Journal of Materials Science*, Vol. 32 (1997) 5335-5346

1995

60. **S. C. Wong**, S. V. Nair, L. H. Vestergaard, L. A. Goettler and L. A. Gustafson "Toughening of Nylon 6,6/ABS Alloys", *Plastics Engineering*, January 1995, 23-24

Refereed Conference Proceedings (58)

2013

1. **S.-C. Wong**, S. Chen, A. B. Hegana, G. Ji "A Study of Rolling Resistance of Electrospun Polymer Fabrics" in Proceedings of the Annual Technical Conference of the Society of Plastics Engineers, ANTEC 2013, April 22-24, 2013, Cincinnati, OH

2. **S.-C. Wong**, S. Chen, A. B. Hegana "A Preliminary Investigation of the Relationship between Adhesion and Rolling Resistance of Electrospun Polymer Fabrics" an invited paper in the Proceedings of Society of Plastics Engineers International Polyolefins Conference, February 24-27, 2013, Houston Texas

3. J.F. Najem, **S.-C. Wong**, G. Ji "Electrospun Polymeric Membranes for Adhesion" in Proceedings of the 36th Annual Meeting of the Adhesion Society, March 3-6, 2013, at Hilton Daytona Beach, Daytona Beach, FL

4. **S.-C. Wong**, H. Na, P. Chen "Measurement of Adhesion Energy of Electrospun Polymer Membranes Using a Shaft-loaded Blister Test" in Proceedings of the 13th International Conference on Fracture, June 16-21, 2013, Beijing, China

5. **S. C. Wong**, J. F. Najem, G. Ji, S. Chen "Polymer Fiber Arrays for Adhesion" in Proceedings of the 13th International Conference on Fracture, June 16-21, 2013, Beijing, China

2011

6. **S.-C. Wong**, H. Na "Effect of Multiaxial Electrospinning on Fiber Deformation and Adhesion" in Proceedings of ASME International Mechanical Engineering Congress & Exposition IMECE 2011, November 11-17, 2011, Denver, Colorado, USA

7. X. Wang, K.-T. Wan, **S.-C. Wong** "Direct Adhesion Measurement of Electrospun Microfibers" in Proceedings of ASME International Mechanical Engineering Congress & Exposition IMECE 2011, November 11-17, 2011, Denver, Colorado, USA

8. H. Na, P. Chen and **S.-C. Wong** "Adhesion Energy of Electrospun PVDF" Procedia Materials, Eds. A. Armas and I. Alvarez, 11th International Congress on Metallurgy & Materials SAM/CONAMET 2011, Rosario, Argentina

9. **S.-C. Wong**, H. Na, S. Hague, P. Chen, Q. Shi and K.-T. Wan "Mechanical Deformation and Adhesion of Electrospun Polymer Fibers" in Proceedings of 241th ACS National Meeting, Division of Polymeric Materials: Science and Engineering, March 27-31, 2011, Anaheim, California, USA

10. X. Wang, J.F. Najem, K.-T. Wan, **S.-C. Wong** "Direct Adhesion Measurement of Electrospun Micro-fibers using Atomic Force Microscopy" in Proceedings of the 34th Annual Meeting of the Adhesion Society (2011)

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11. Q. Shi, **S.-C. Wong**, K.-T. Wan, T.A. Blackledge "Dry Adhesion Based on Electrospun Polymer Fibers" in Proceedings of ASME International Mechanical Engineering Congress & Exposition IMECE 2010, November 12-18, 2010, Vancouver, British Columbia, Canada

12. Q. Shi, K.-T. Wan, **S.-C. Wong**, P.Chen, Q. Li, T.A. Blackledge "Bio-Mimicking Dry Adhesives Based on Electrospun Polymer Nanofibers" in Proceedings of SAMPE 2010, Seattle, May 17-20, 2010

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13. Q. Shi, K.-T. Wan, **S.-C. Wong**, P. Chen, Q. Li, T.A. Blackledge "Techniques to Measure Adhesive Forces Between Electrospun Polymer Nanofibers" in Proceedings of MRS Fall Meeting 2009, Boston, November 30-December 4, 2009

14. X. Wei, **S.-C. Wong** and A. Baji. "Hyperelastic Modeling of Enhanced Mechanical Properties of Electrospun Poly(ε-caprolactone) Fibers" in Proceedings of the Annual Technical Conference of the Society of Plastics Engineers, ANTEC 2009, Chicago, June 22-24, 2009

15. J. Najem and **S.-C. Wong**. "Study of Take-Up Velocity in Enhancing Tensile Properties of Aligned Electrospun Nylon 6 Fibers" in Proceedings of the Annual Technical Conference of the Society of Plastics Engineers, ANTEC 2009, Chicago, June 22-24, 2009

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16. A. Baji, **S.-C. Wong**, T.A. Blackledge, S. Leng "Mechanical Properties of Electrospun Composites and Their Crystallinity Measurements using X-ray Diffraction" in Proceedings of the Annual Technical Conference of the Society of Plastics Engineers, ANTEC 2008, Milwaukee, USA May 4-7, 2008

2007

17. **S.-C. Wong**, A. Baji, T.A. Blackledge, S. Tripatanasuwan and D. Reneker "Mechanical Behavior and Toughness of Electrospun Polymer Nanofibers" in Proceedings of 2007 ASME Congress and Exposition , November 11-15, 2007, Seattle, WA

18. **S.-C. Wong**, A. Baji, T.A. Blackledge, S. Tripatanasuwan and D. Reneker "Interfacial Adhesion between Hydroxyapatite and poly(ε-caprolactone) and their Electrospun Composite Toughness" Proceedings of the Annual Technical Conference of the Society of Plastics Engineers, ANTEC 2007, Cincinnati, USA May 5-10, 2007

2006

19. **S.-C. Wong**, H. Lee, S. Qu, S. Mall, L. Chen "Instrumented Indentation on Intercalated Clay Reinforced Polypropylene Nanocomposites" Proceedings of 2006 ASME Congress and Exposition, November 5-10, 2006, Chicago, IL

20. **S.-C. Wong** and A. Baji "Fracture Behavior of Hydroxyapatite-Filled Polycaprolactone" Proceedings of 2006 ASME Congress, November 5-10, 2006, Chicago, IL

21. B. Yang and **S.-C. Wong** "A Micromechanics Model of Progressive Particle Debonding in Particle-Reinforced Composites Using Defect Green's Function" Proceedings of 2006 ASME Congress, November 5-10, 2006, Chicago, IL

22. E.M. Wouterson, F.Y.C. Boey, X. Hu, **S.-C. Wong** "The effect of fiber content and fiber length on the tensile and fracture properties of short fiber-reinforced syntactic foam" in Proceedings of ACUN-5 "Developments in Composites: Advanced, Infrastructural, Natural, and Nano-composites", pp. 81-86, UNSW, Sydney, Australia, 11-14 July 2006

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23. **S.-C. Wong** and B. Yang " Piezoresistive behavior and elastic deformation of nanoscale graphite platelet reinforced polymers" in PSME Preprints, American Chemical Society Division of Polymeric Materials: Science and Engineering, 230th ACS National Fall Meeting, Vol: 93 (2005) pp. 210-212 Washington, DC, Aug 28-Sept 1, 2005

24. E. M. Wouterson, F. Y.C. Boey, X. Hu, **S.-C. Wong** "Various techniques to toughen syntactic foam", STEPI7 conference, 9-11 May 2005, Montpellier, France

25. E. M. Wouterson, F. Y.C. Boey, X. Hu, **S.-C. Wong** "Fiber-reinforced syntactic foam: the effect of fiber content on the tensile and fracture properties", in Proceedings of the ICMAT 2005 International Conference on Materials for Advanced Technologies (ICMAT 2005) Singapore International Convention & Exhibition Center, MRS Singapore

26. **S.-C. Wong**, E. M. Wouterson, E. M. Sutherland "Dielectric Properties of Graphite Nanocomposites" in Proceedings of the 63rd Annual Technical Conference of the Society of Plastics Engineers, ANTEC 2005, Boston, USA, Society of Plastics Engineers

2004

27. F. M. Uhl, B. R. Hindeliter, P. Davuluri, S. G. Croll, **S. C. Wong**, D. C. Webster "Enhanced properties of UV curable films containing layered silicates as the nanomaterial" in Proceedings of UV & EB Technology Expo & Conference, Charlotte, NC, United States, May 2-5, 2004, 610-619

28. **S. C. Wong**, E. M. Sutherland, S. Yerramaddu, E. M. Wouterson, F. M. Uhl and D. C. Webster "Processing and Properties of Graphene-based Nanocomposites" in Proceedings of IMECE2004: ASME International Mechanical Engineering Congress, Anaheim, CA, November 13-19, 2004

29. **S. C. Wong**, E. Sutherland, B. Z. Jang "Processing of Graphene Nanoplatelets" in Proceedings of 2004 NSF Design, Service and Manufacturing Grantees and Research Conference, January 5-8, 2004, Southern Methodist University, Dallas, TX

30. **S.-C. Wong**, E. M. Sutherland, F. M. Uhl, D. C. Webster and B. Z. Jang "Graphene nanoplatelet reinforced polymer coatings" in Proceedings of the 62nd Annual Technical Conference of the Society of Plastics Engineers, ANTEC 2004, Chicago, USA, Society of Plastics Engineers

31. F. M. Uhl, S. P. Davuluri, **S.-C. Wong** and D. C. Webster "Properties of UV curable acrylate nanocomposite coatings" in Proceedings of the 62nd Annual Technical Conference of the Society of Plastics Engineers, ANTEC 2004, Chicago, USA, Society of Plastics Engineers

32. **S.-C. Wong**, L. Chen, C. He and X. Lu "Importance of concomitant strengthening and toughening in nanoclay reinforced polymers" in Proceedings of the 62nd Annual Technical Conference of the Society of Plastics Engineers, ANTEC 2004, Chicago, USA, Society of Plastics Engineers

33. F. M. Uhl, S. P. Davuluri, **S.-C. Wong**, D. C. Webster "Nanoclay reinforced UV Curable High-barrier Coatings" in Proceedings of the fourth Asian-Australasian Conference on Composite Materials (ACCM-4) Composites Technologies for 2020, 6th – 9th July 2004, Sydney, Australia

34. **S.-C. Wong**, L. Chen, T. Liu, C. He and X. Lu "Mechanical Properties and Fracture Performance of Nanoclay-reinforced Polypropylene modified with Maleic Anhydride" in Proceedings of the fourth Asian-Australasian Conference on Composite Materials (ACCM-4) Composites Technologies for 2020, 6th – 9th July 2004, Sydney, Australia

35. E.M. Wouterson, F.Y.C. Boey, X. Hu, **S.-C. Wong** " Specific Properties vs. Microstructures for Syntactic Foam" in Proceedings of the fourth Asian-Australasian Conference on Composite Materials (ACCM-4) Composites Technologies for 2020, 6th – 9th July 2004, Sydney, Australia

1994 - 2003

36. E. M. Wouterson, F.Y.C. Boey, X. Hu and **S.-C. Wong** "Effect of the Filler Content of Syntactic Foam on the Dynamic Fracture Toughness and Energy Release Rate" in Proceedings of the 61st Annual Technical Conference of the Society of Plastics Engineers, ANTEC 2003, USA, Society of Plastics Engineers

37. E. M. Wouterson, F.Y.C. Boey and **S.-C. Wong** "Dynamic Fracture Toughness and Energy Release Rate of Syntactic Foam" in Proceedings of 2003 SEM Annual Conference & Exposition on Experimental and Applied Mechanics, JUNE 2 - 4, 2003,Charlotte, North Carolina

38. E. M. Wouterson, F.Y.C. Boey and **S.-C. Wong** "Impact Resistance and Fracture Characterization of Syntactic Foam" in Proceedings of the ICMAT 2003 International Conference on Materials for Advanced Technologies (ICMAT 2003) Singapore International Convention & Exhibition Center, MRS Singapore

39. F. M. Uhl, B. R. Hindeliter, P. Davuluri, S. G. Croll, **S. C. Wong**, D. C. Webster "UV-curable montmorillonite acrylate nanocomposites" *Polymer Preprints*, American Chemical Society Division of Polymer Chemistry, Vol. 44 (2003) 247-248

40. F. M. Uhl, B. R. Hindeliter, P. Davuluri, S. G. Croll, **S. C. Wong**, D. C. Webster "UV Curable Polymers with Organically Modified Clay as the Nanoreinforcements" in Proceedings of Materials Research Society Fall Meeting, December 1-5, 2003, Boston, Massachusetts, Vol. 788, 203-208

41. S. Pisharath, **S. C. Wong** and X. Hu "Effect of LCP Inclusion on Processability and Thermal Stability of Glass Fiber-reinforced Hybrid Composites" submitted to the 19th Annual Meeting of the Polymer Processing Society, Melbourne, Australia, July 7-10, 2003

42. **S. C. Wong** and W. Zheng "Electrical conductivity of PMMA/expanded graphite nanocomposites" in Proceedings of American Society for Composites – 17th Annual Technical Conference Purdue University, West Lafayette, IN 21-23 October, 2002

43. **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

44. **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

45. 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

46. **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

47. 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

48. 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

49. 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.

50. 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

51. 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

52. **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

53. **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

54. **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

55. **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

56. **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

57. **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

58. 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

59. **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

60. **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 (30)

1. **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

2. 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

3. **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

4. **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

5. **S.-C. Wong** "Polymeric Fiber Arrays for Adhesion" 13th International Conference on Fracture, June 16-21, 2013, Beijing, China

6. 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

7. 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

8. 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

9. **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)

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

11. 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

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

13. **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"

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

15. **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

16. **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

17. **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

18. **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

19. **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

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

21. 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

22. 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

23. **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

24. 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

25. **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

26. 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

27. **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

28. **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

29. **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

30. **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 Seminar, "Next-Generation Bio-Inspired Polymer Fiber Adhesives' DAP Products Inc. Baltimore, MD (June 6, 2013)
2. B. Rosenbaum and **S.-C. Wong**, Invited Talk, "Scalable Electrospinning Techniques to Fabricate Bio-Inspired Reusable Adhesives" MAGNET, Cleveland, Ohio (June 5, 2013)
3. **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.
4. **S.-C. Wong**, Invited Seminar, "Polymeric Fiber Arrays for Adhesion" Avery Dennison, Mentor, OH (August 8, 2012)
5. **S.-C. Wong**, Invited Seminar, "Electrospun Fiber Arrays and Random Mats for Adhesion" Department of Mechanical Engineering, Hong Kong Polytechnic University (December 20 2011)
6. **S.-C. Wong** "Adhesion of Electrospun Polymer Fibers and Membranes" School of Materials Science and Engineering, Nanyang Technological University, Singapore, (September 23, 2011)
7. **S.-C. Wong** "Adhesion of Electropsun Polymer Fibers" School of Materials Science and Engineering, Tianjin University, PRC (September 9, 2011)
8. **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)
9. **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)
10. **S.-C. Wong** "Electorspinning-Enabled Bio-inspired Materials Research" Society of Women Engineers Seminar, University of Akron (October 27 2010)
11. **S-C. Wong**, Invited Seminar, "Do Electrospun Nanofibers Stick?" Department of Materials Science and Physics, City University of Hong Kong (July 5, 2010)
12. **S.-C. Wong**, Invited Seminar, Technion -Israel Institute of Technology, Haifa, Israel "Dry Adhesion between Electrospun Nanofibers" June 7, 2010
13. **S.-C. Wong**, Invited Seminar, "Piezoresistive Behavior of Nanoscaled Graphene Plates" Department of Mechanical and Aerospace Engineering, Florida Institute of Technology (April 14, 2006)
14. **S.-C. Wong**, Invited Seminar, "Graphite Nanocomposites" Lockheed Martin Defense and Surveillance Systems (February 22, 2006, February 21, 2007)
15. **S.-C. Wong**, Invited Seminar, "Graphite Nanocomposites" The 49th Annual Sink or Swim Symposium, Akron, Ohio (May 24, 2006)
16. **S.-C. Wong**, Invited Seminar, "Nanoscale Graphite Platelets in Polymers" Owens Corning (February 28, 2005 and 2006)
17. Bridgestone-Firestone Center for Research and Technology (July 11, 2005),

18. Goodrich (June 27, 2005)
19. Graftech International (July 2005, December 2006)
20. Cleveland Society for Coatings Technology (2005)
21. SPE Akron Section Technical Meeting (February 21, 2005)