

## ANSON W. K. MA Ph.D.

Assistant Professor,  
Department of Chemical and Biomolecular Engineering  
Polymer Program, Institute of Materials Science  
University of Connecticut

**Work Address:** 97 N. Eagleville Road Unit 3136, Storrs, CT 06269-3136, USA  
**Office:** (860)-486-4630; **E-mail:** [anson.ma@uconn.edu](mailto:anson.ma@uconn.edu); **Website:** [ma.engr.uconn.edu](http://ma.engr.uconn.edu)

### RESEARCH SUMMARY

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The common theme of Ma's research lab at UConn is to understand the microstructure and rheology (flow behavior) of complex fluids, thereby developing novel, scalable techniques for processing these fluids into useful articles. Of particular interest are fundamental rheology problems with technological importance:

- Study **interfacial rheology** of particle-decorated interfaces to improve the stability of particle-stabilized foams and emulsions through varying particle size and shape (NSF-funded)
- Understand the flow dynamics of **particles in blood flow** for improved cancer therapy (NSF-funded)
- Investigate **suspension jet breakup** to improve the reliability and resolution of inkjet and 3D printing (industry-funded)

Funding and Awards: Since 2011, Ma serves as the principal investigator (PI), co-PI, and named investigator on external grants exceeding **US \$3.29 million** in total (actual PI or co-PI share: \$1.35 million). He is the recipient of **2012 Distinguished Young Rheologist Award** from TA Instruments, **NSF CAREER Award** from the U.S. National Science Foundation in 2013, **2015 Arthur B. Metzner Early Career Award** from the Society of Rheology, and **3M Non-tenured Faculty Award** in 2016.

Publications: He has filed **2 patents**, published **2 book chapters** and **22 journal articles**, and has given **23 invited seminars**. Ma's research has also been featured in the local newspaper and on TV News. As of July 2016, he has an **h-index of 12** and an i-10 index of 13, with 732 citations.

Education: Ma currently serves as the major advisor for **5 PhD students** and **1 Master student**. He has hosted **3 postdoctoral fellows**, 24 undergraduate students, 1 visiting PhD student, 3 visiting Master students, 3 high school teachers, and 12 high school students in his lab since Fall 2011.

Professional Services: Ma serves on the **Technical Council** of US \$171-million America's Flexible Electronics Manufacturing Innovation (NextFlex) Institute. He has also chaired and co-chaired technical sessions for **Society of Rheology** and **American Institute of Chemical Engineers (AIChE)** annual meetings. He is serving on the Editorial Board of 7 journals and as a peer-reviewer for more than 20 journals.

### EDUCATION

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- 2009 Ph.D. in Chemical Engineering, University of Cambridge (UK)**  
*Advisor: Prof. Malcolm Mackley*  
*Thesis title: The Microstructure and Rheology of Carbon Nanotube Suspensions*
- 2005 M.Phil. in Chemical Engineering, The Hong Kong University of Science and Technology**  
*Advisors: Prof. Ka Ming Ng and Prof. Shihe Yang*  
*Thesis title: Carbon Nanotube: Manufacturing Process Design and its Use in Gas Sensors*
- 2003 B.Eng. in Chemical and Environmental Engineering, The Hong Kong University of Science and Technology**  
*GPA: 11.24 (Equivalent to 4.1 on a 4-point scale)*  
*First-Class Honors and Academic Achievement Model*

## APPOINTMENTS

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- Aug 2011 – **Assistant Professor**, Department of Chemical and Biomolecular Engineering  
Present & Institute of Materials Science, University of Connecticut, USA.
- 2009 – 11 **J. Evans Attwell-Welch Postdoctoral Fellow**, Rice University, USA
- 2008 – 09 **Technical Consultant**, Paramata Ltd. (UK) – Nanoholdings LLC (USA)
- 2003 **Summer Intern**, CLP Research Institute, Hong Kong
- 2001 **Summer Assistant**, Air Products Asia Inc., Hong Kong

## SELECTED HONORS & AWARDS

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- 2016 3M Non-tenured Faculty Award (US \$45,000)**  
This award recognizes outstanding junior faculty members who are selected based on their research, experience, and academic leadership.
- 2015 Arthur B. Metzner Early Career Award, Society of Rheology**  
The award is given by the Society of Rheology to a young person who has distinguished him/herself in rheological research, rheological practice, or service to rheology.
- 2013 NSF CAREER award, US National Science Foundation (US \$400,000 for 5 years)**  
NSF's most prestigious award for junior faculty, reserved for those who embody the role of "teacher-scholars" by seamlessly integrating outstanding research and excellent education.
- 2012 Distinguished Young Rheologist Award, TA Instruments (Instrument grant: US \$50,000)**  
TA Instruments established this award to recognize product innovation and research into new materials and applications that expand the field of rheology.
- 2009 J. Evans Attwell-Welch Fellowship, Rice University (US \$140,000 for 2 years)**
- 2007 Messel Travel Bursary, The Society of Chemical Industry**
- 2006 Fellow, Cambridge Philosophical Society**
- 2005 Croucher Foundation Scholarship (US \$123,800 for 3 years)**
- 2005 Honorary Scholar, Cambridge Overseas Trust**
- 2005 Fellow, Cambridge Overseas Society**
- 2005 Overseas Research Students Awards Scheme (ORSAS) Scholarship (UK)**

## PUBLICATIONS (Citations: 732; h-index: 12; i-10 index: 13)

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### PATENTS

- 2) M. Otto, J. Jong De, R. F. ter Waarbeek, R. E. Hoogerwerf, **A. W. K. Ma**, N. Behabtu, D. Tsentelovich, C. Young, M. Pasquali. Carbon nanotubes fiber having low resistivity. WO 2013034672.
- 1) M. Pasquali, **A. W. K. Ma**, N. Behabtu, M. Majumder, J. Nam, F. Mirri, T. Hsu. Carbon nanotube films processed from strong acid solutions and methods for production thereof. WO 2013040224.

### BOOK CHAPTERS

- 2) **A. W. K. Ma**, S. Vora. Understanding the dispersion and rheology of carbon nanotube suspensions, in W.I. Milne, M. Cole, S. Mitura (eds.) *Carbon Nanotechnology*, One Central Press, Manchester, UK (2016).
- 1) **A. W. K. Ma**, F. Chinesta, Chapter 8 – Carbon nanotube composite reinforcements, in P. Boisse (ed.) *Composite reinforcements for optimum performance: fundamentals, properties and modeling*, Woodhead publishing, Cambridge, UK (2011).

### JOURNAL ARTICLES (with impact factor, IF)

- 25) Y. Guo, H. Patanwala, B. H. Bognet, **A. W. K. Ma**. The physics of inkjet and inkjet-based 3D printing. *Rapid Prototyping*, Accepted. (IF = 2.031)
- 24) E. J. Carboni, B. H. Bognet, G. M. Bouchillon, A. L. Kadilak, L. M. Shor, M. D. Ward, **A. W. K. Ma**. Direct tracking of particles and quantification of margination in blood flow. Submitted to *Biophysical Journal*. (IF = 3.972)

- 23) S. Hawes, A. Wentworth, **A. W. K. Ma**. Prosthesis development utilizing thermoplastic additive manufacturing and low-cost electronics. Submitted To *Rapid Prototyping*. (IF = 2.031)
  - 22) J. Chen, X. Ma, Q. Dong, D. Song, D. Hargrove, S. Vora, **A. W. K. Ma**, X. Lu, Y. Lei. Self-healing of thermal-induced, biocompatible and biodegradable protein hydrogel. *RSC Advances*, Accepted. (IF = 3.289)
  - 21) D. E. Tsentlovich, **A. W. K. Ma**, J. A. Lee, N. Behabtu, E. A. Bengio, A. Choi, J. Hao, Y. Luo, R. J. Headrick, M. J. Green, Y. Talmon, M. Pasquali. Relationship of extensional viscosity and liquid crystalline transition to length distribution in carbon nanotube solutions. *Macromolecules*, **49(2)**, 681 –689 (2016). (IF = 5.800)
  - 20) B. Bognet, Y. Guo, **A. W. K. Ma**. Controlling system components with a sound card: An affordable inkjet fluid testing platform. *Rev. Sci. Instrum.*, **87**, 015101 (2016). (IF = 1.336)
  - 19) S. R. Vora, B. Bognet, H. S. Patanwala, F. Chinesta, **A. W. K. Ma**. Surface pressure and microstructure of carbon nanotubes at an air–water interface. *Langmuir*, **31(16)**, 4663 – 4672 (2015). (IF = 4.457)
  - 18) C.-H. Kuo, W. Li, W. Song, Z. Luo, A. S. Poyraz, Y. Guo, **A. W. K. Ma**, S. L. Suib, J. He. Facile synthesis of Co<sub>3</sub>O<sub>4</sub>@CNT with high catalytic activity for CO oxidation under moisture-rich conditions. *ACS Appl. Mater. Interfaces*, **6(14)**, 11311 – 11317 (2014). (IF = 7.145)
  - 16) E. Carboni, K. Tschudi, J. Nam, X. Lu, **A. W. K. Ma**. Particle margination and its implications on intravenous anticancer drug delivery. *AAPS PharmSciTech*, **15(3)**, 762 – 771 (2014). (IF = 1.641)
  - 15) **A. W. K. Ma**, J. Nam, N. Behabtu, F. Mirri, C. C. Young, B. Dan, D. Tsentlovich, M. Majumder, L. Song, Y. Cohen, P. M. Ajayan, M. Pasquali. Scalable formation of carbon nanotube films containing highly aligned whiskerlike crystallites. *Ind. Eng. Chem. Res.*, **52**, 8705 – 8713 (2013). (IF = 2.587)
  - 14) M. K. Hudait, Y. Zhu, D. Maurya, S. Priya, P. K. Patra, **A. W. K. Ma**, A. Aphale, I. Macwan. Structural and band alignment properties of Al<sub>2</sub>O<sub>3</sub> on epitaxial Ge grown on (100), (110), and (111) GaAs substrates by molecular beam epitaxy. *J. Appl. Phys.*, **113**, 134311 (2013). (IF = 2.183)
  - 13) N. Behabtu, C. C. Young, D. E. Tsentlovich, O. Kleinerman, X. Wang, **A. W. K. Ma**, E. A. Bengio, R. F. ter Waarbeek, J. J. De Jong, R. E. Hoogerwerf, S. B. Fairchild, J. B. Ferguson, B. Maruyama, J. Kono, Y. Talmon, Y. Cohen, M. J. Otto, M. Pasquali. Strong, light, multifunctional fibers of carbon nanotubes with ultrahigh conductivity. *Science*, **339**, 182 – 186 (2013). \**AICHE Best Paper Award*\* (IF = 34.661)
  - 12) F. Mirri, **A. W. K. Ma**, T. T. Hsu, N. Behabtu, S. L. Eichmann, C. C. Young, D. E. Tsentlovich, M. Pasquali. High-performance carbon nanotube transparent conductive films by scalable dip coating. *ACS Nano*, **6**, 9737 – 9744 (2012). (IF = 12.881)
  - 11) B. Dan., **A. W. K. Ma**, E. H. Hároz, J. Kono, M. Pasquali. Nematic-like alignment in SWNT thin films from aqueous colloidal suspensions. *Ind. Eng. Chem. Res.*, **51**, 10232 – 10237 (2012). (IF = 2.587)
- Before joining UConn in Aug 2011*
- 10) **A. W. K. Ma**, K. M. Yearsley, F. Chinesta, M. R. Mackley. A review of the microstructure and rheology of carbon nanotube suspensions. *Proc. IMechE Part N: J. Nanoengineering And Nanosystems*, **222**, 71-94 (2009). \**Best Paper Award*\* (IF = N/A)
  - 9) **A. W. K. Ma**, F. Chinesta, M. R. Mackley. The rheology and modeling of chemically treated carbon nanotube suspensions. *J. Rheol.*, **53**, 547 – 573 (2009). (IF = 3.358)
  - 8) **A. W. K. Ma**, F. Chinesta, A. Ammar, M. R. Mackley. Rheological modeling of carbon nanotube aggregate suspensions. *J. Rheol.*, **52**, 1311 – 1330 (2008). (IF = 3.358)
  - 7) Cueto E., **A. W. K. Ma**, F. Chinesta, M. R. Mackley. Numerical simulation of spin coating processes involving functionalized carbon nanotube suspensions. *Int. J. Mat. Form.*, **2**, 89 – 99 (2008). (IF = 1.081)
  - 6) **A. W. K. Ma**, M. R. Mackley, F. Chinesta. Rheological modeling of carbon nanotube (CNT) in steady shear flows. *Int. J. Mat. Form.*, **2**, 83 – 88 (2008). (IF = 1.081)
  - 5) **A. W. K. Ma**, M. R. Mackley, F. Chinesta. The microstructure and rheology of carbon nanotube suspensions. *Int. J. Mat. Form.*, **2**, 75 – 81 (2008). (IF = 1.081)
  - 4) **A. W. K. Ma**, F. Chinesta, T. Tuladhar, M. R. Mackley. Filament stretching of carbon nanotube suspensions. *Rheol. Acta*, **47**, 447 – 457 (2008). (IF = 1.869)
  - 3) **A. W. K. Ma**, M. R. Mackley, S. S. Rahatekar. Experimental observation on the flow-induced assembly of carbon nanotube suspensions to form helical bands. *Rheol. Acta*, **46**, 979 – 987 (2007). (IF = 1.869)

- 2) J. Lu, **A. Ma**, S. Yang, K. M. Ng. Surfactant assisted solid-state synthesis and gas sensor application of a SWCNT/SnO<sub>2</sub> nanocomposite. *J. Nanosci. Nanotechnol.* **7**, 1589 – 1595 (2007). (IF = 1.556)
- 1) **A. Ma**, J. Lu, S. Yang, K. M. Ng. Quantitative non-covalent functionalization of carbon nanotubes. *J. Cluster Sci.* **17**, 599 – 608 (2006). (IF = 1.302)

#### **INVITED TALKS AND SEMINARS**

- 23) **A. W. K. Ma**. "The rheology of carbon nanotubes at an air-water interface. Keynote presentation, The XVIIth International Congress on Rheology (ICR2016), August 8 – 13, 2016, Kyoto, Japan.
- 22) **A. W. K. Ma**. CT flexible electronics initiative (NextFlex). Invited talk, Industrial Affiliates Program Annual Meeting, Institute of Materials Science, UConn, 25 May 2016, Storrs, CT, USA.
- 21) **A. W. K. Ma**. NextFlex initiative and printing electronics. Invited talk, TTM Technologies, 9 May 2016, Stafford Springs, CT, USA.
- 20) **A. W. K. Ma**. Inkjet and 3D printing for manufacturing flexible electronics. Invited presentation, Connecticut Symposium on Microelectronics & Optoelectronics (CMOC), 25<sup>th</sup> Annual Symposium, 6 Apr 2016, Storrs, CT, USA.
- 19) **A. W. K. Ma**. The rheology of carbon nanotube suspensions: from the bulk to the edge. Invited seminar, Brown University, 27 October 2015, Providence, RI, USA.
- 18) **A. W. K. Ma**, The rheology and microstructure of carbon nanotube suspensions. Metzner Award presentation, 87<sup>th</sup> Society of Rheology Annual Meeting, 11 – 15 October 2015, Baltimore, MA, USA.
- 17) **A. W. K. Ma**. 3D printing for biomedical applications. Invited talk, Nephrology, UConn Health, 11 August 2015, Farmington, CT, USA.
- 16) R. Hebert, **A. W. K. Ma**. UConn's additive manufacturing initiative. Invited talk, Middlesex Chamber of Commerce Special Meeting, 27 May 2015, Chester, CT.
- 15) **A. W. K. Ma**. An engineering perspective: from nanoparticle-based drug delivery to inkjet and 3D printing for biomedical applications. Invited talk, Molecular medicine, UConn Health, 25 February 2015, Farmington, CT, USA
- 14) **A. W. K. Ma**. The applications of nanoparticles for foam stabilization and drug delivery. Invited seminar, University of Maine, 7 November 2014, Orono, ME, USA.
- 13) **A. W. K. Ma**. Rheology workshop, ALTANA Innovation Conference, 22 October 2014, Wallingford, CT, USA.
- 12) **A. W. K. Ma**. Wettability and surface energies of solids. Invited talk, Rogers Corporation, 13 August 2014, Rogers, CT, USA.
- 11) **A. W. K. Ma**. Complex Fluids Laboratory (CFL): Research overview. Invited talk, DuPont, 13 June 2014, Wilmington, DE, USA.
- 10) **A. W. K. Ma**. Research Highlights of Complex Fluids Laboratory @ UConn. Invited talk, Unilever, 16 January 2014, Trumbull, CT, USA.
- 9) **A. W. K. Ma**. The microstructure and rheology of carbon nanotube suspensions. Invited lecture, University of Rhode Island, 21 November 2013, Kingston, RI, USA.
- 8) **A. W. K. Ma**. Complex Fluids Laboratory @ UConn. Invited talk, Stanley Black and Decker, 18 November 2013, New Britain, CT, USA.
- 7) **A. W. K. Ma**. The microstructure and rheology of carbon nanotube suspensions. Invited lecture, NCS Workshop, Rutgers University, 25 October 2013, Piscataway, NJ.
- 6) **A. W. K. Ma**. Complex flow behavior of nanoparticle-based fluids: from composite processing to inkjet printing. Invited presentation, Air Force Research Laboratory (RX), 28 May 2013, Dayton, OH, USA.
- 5) **A. W. K. Ma**. The microstructure, rheology, and processing of carbon nanotube suspensions. Invited Seminar, Levich Institute, City College of CUNY, 7 May 2013, New York, NY, USA.
- 4) **A. W. K. Ma**. Complex Fluids Laboratory @ UConn: Past, current, and future. Invited seminar, Henkel Loctite Corp., 17 January 2013, Rocky Hill, CT, USA.
- 3) **A. W. K. Ma**. Complex Fluids Laboratory: Research interests. Invited talk, Jonal Laboratories, 28 November 2012, Meriden, CT, USA.

- 2) **A. W. K. Ma**, F. Chinesta, M. R. Mackley. The rheology and microstructure of carbon nanotube suspensions, Keynote presentation, 10<sup>th</sup> European Scientific Association for Material Forming (ESAFORM), 18 – 20 April 2007, Zaragoza, Spain
- 1) **A. W. K. Ma**, F. Chinesta, M. R. Mackley. The rheology and microstructure of carbon nanotube suspensions, Invited presentation, Laboratoire de Mécanique des Systèmes et des Procédés (LMSP), 26 October 2006, ENSAM, Paris.

### **SELECTED PRESENTATIONS**

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- 28) Y. Guo, B. Bognet, H. Patanwala, **A. W. K. Ma**. High-resolution Inkjet and 3D printing. Poster presentation, International Microelectronics Assembly and Packaging Society New England Chapter 43<sup>rd</sup> Symposium and Expo, 3 May 2016, Boxborough, MA, USA.
- 27) **A. W. K. Ma**, I. El-Ali. Hydrodynamics-assisted Renal Replacement Therapy (HARRT), UConn SPARK Technology Commercialization Fund finalist presentation, 5 Apr 2016, Storrs, CT, USA.
- 26) Y. Guo, **A. W. K. Ma**, G. A. Sotzing. Flexible and stretchable electronics: from materials to fabrication Invited oral presentation, Society of Plastic Engineers UCONN Chapter Seminar Series, 9 March 2016, Storrs, CT, USA.
- 25) Y. Guo, **A. W. K. Ma**, G. A. Sotzing. Flexible and stretchable electronics. Oral presentation, Duracell Batteries, 20 January 2016, Bethel, CT, USA.
- 24) B. Bognet, G. Song, **A. W. K. Ma**, L. Sun, B. Huey, S-W Lee, M. Accorsi, J-H Kim, Composite manufacturing and testing technology. Oral presentation, Pratt and Whitney Annual Review Meeting, 10 December 2015, East Hartford, CT.
- 23) H. S. Patanwala, B. Bognet, S. R. Vora, **A. W. K. Ma**. Mechanical and electrical properties of 3D-printed polymer nanocomposites. Oral presentation, 2015 MRS Fall Meeting, 29 November – 4 December 2015, Boston, MA.
- 22) Y. Guo, B. Bognet, H. Patanwala, S. Vora, **A. W. K. Ma**. Inkjet printing of carbon nanotube suspensions. Oral presentation, 87<sup>th</sup> Society of Rheology Annual Meeting, 11 - 15 October 2015, Baltimore, MD, USA.
- 21) Y. Guo, H. Patanwala, B. Bognet, S. Vora, **A. W. K. Ma**. Drop dynamics of carbon nanotube dispersions for inkjet printing. Poster presentation, Industrial Affiliate Program Annual Meeting, 27 May 2015. Storrs, CT, USA.
- 20) E. Carboni, Y. Guo, G. Bouchillon, A. Kadilak, L. Shor, **A. W. K. Ma**. The rheology of nanoparticles in blood for improved cancer therapy. Oral presentation, 87<sup>th</sup> The Society of Rheology Annual Meeting, 11 – 15 October 2015, Baltimore, MD, USA.
- 19) S. R. Vora, B. Bognet, H. Patanwala, F. Chinesta, **A. W. K. Ma**. Surface properties of carbon nanotubes at an air-water interface. Oral Presentation, 2014 AIChE Annual Meeting, 16 – 21 November 2014, Atlanta, GA, USA.
- 18) E. Carboni, Y. Guo, G. Bouchillon, A. Kadilak, L. Shor, **A. W. K. Ma**. The rheology of nanoparticles in blood for improved cancer therapy Oral Presentation, 86<sup>th</sup> Society of Rheology Annual Meeting, 6 - 9 October 2014, Philadelphia, PA, USA.
- 17) S. R. Vora, B. Bognet, H. Patanwala, F. Chinesta, **A. W. K. Ma**. Interfacial rheology and microstructure of carbon nanotubes at an air-water interface. Oral Presentation, 86<sup>th</sup> Society of Rheology Annual Meeting, 6 - 9 October 2014, Philadelphia, PA, USA.
- 16) M. Ward\*, D. Evans\*, E. Carboni, G. Bouchillon, L. Shor, S. Torti, **A. W. K. Ma**. A microfluidic study of nanoparticles in simulated blood flows: understanding the effect of margination. Poster Presentation, 2014 AIChE Northeast Student Regional Conference, 4 – 5 April 2014, University of Connecticut, CT, USA. (\* = undergraduate)
- 15) E. Carboni, G. Bouchillon, L. Shor, S. Torti, **A. W. K. Ma**. A microfluidic study of nanoparticles in simulated blood flows: Understanding the effect of margination. Poster presentation, 2013 MRS Fall Meeting, 1 – 6 December 2013, Boston, MA, USA.
- 14) H. Patanwala, S. Vora, Y. Guo, **A. W. K. Ma**. Carbon nanotube aerogels through functionalization and cross-linking. Poster presentation, 2013 MRS Fall Meeting, 1 – 6 December 2013, Boston, MA, USA.
- 13) S. R. Vora, H. Patanwala, Y. Guo, **A. W. K. Ma**. Interface-driven assembly of carbon nanotubes at the air-

- water interface. Poster presentation, 2013 MRS Fall Meeting, 1 – 6 December 2013, Boston, MA, USA.
- 12) Y. Guo, **A. W. K. Ma**. Inkjet printing of functional materials: Fluid property requirements and printing performance. Oral presentation, 2013 MRS Fall Meeting, 1 – 6 December 2013, Boston, MA, USA.
  - 11) S. Vora, H. Patanwala, Y. Guo, **A. W. K. Ma**. The structure and rheology of carbon nanotubes adsorbed at an air-water interface. Oral presentation, 2013 AIChE annual meeting, 3 – 8 November 2013, San Francisco, CA, USA.
  - 10) M. Sullivan\*, V. Patel\*, M. Ward\*, D. Evans\*, E. Carboni, G. Bouchillon, L. Shor, S. Torti, **A. W. K. Ma**. Understanding the flow dynamics of nanoparticles for improved cancer therapy. Poster presentation, 2013 AIChE annual meeting, 3 – 8 November 2013, San Francisco, CA, USA. (\* = undergraduate)
  - 9) S. R. Vora, H. Patanwala, Y. Guo, B. Bognet, **A. W. K. Ma**. Interfacial rheology and microstructure of carbon nanotubes at the air-water interface. Poster presentation, 85<sup>th</sup> Society of Rheology Meeting, 13 – 17 October 2013, Montreal, Canada.
  - 8) E. Carboni, G. Bouchillon, L. Shor, S. Torti, **A. W. K. Ma**. A microfluidic study of nanoparticles in simulated blood flows. Poster presentation, 84<sup>th</sup> Society of Rheology meeting, 10 – 14 Feb. 2013, Pasadena, CA, USA.
  - 7) **A. W. K. Ma**. The rheology and processing of carbon nanotube for polymer composite applications. Oral presentation and short article. TechConnect 2013, 12 – 16 May 2013, Washington DC, USA
  - 6) F. Chinesta, M. Mahuad, **A. W. K. Ma**, A. Leygue, E. Cueto. Rheological modeling of carbon black aggregate suspensions. Oral presentation, ASME ESDA 2012, 11<sup>th</sup> Biennial Conference on Engineering Systems Design and Analysis, 2 – 4 July 2012, Nantes, France
  - 5) **A. W. K. Ma**, J. Nam, C. Y. Young, B. Dan, N. Behabtu, D. Tsentalovich, M. Pasquali. Dip coating of carbon nanotube films containing highly aligned whisker-like crystallite. Oral presentation, 2010 AIChE Meeting, 7 – 12 Nov. 2010, Salt Lake City, UT, USA
  - 4) **A. W. K. Ma**, C. Y. Young, N. Behabtu, A. N. G. Parra-Vasquez, D. Tsentalovich, A. Bengio, F. Mirri, M. Pasquali. Fiber spinning from liquid crystalline solutions of carbon nanotubes in superacids. Oral presentation, Materials Research Society (MRS) Meeting, 29 Nov. – 3 Dec. 2010, Boston, MA, USA
  - 3) **A. W. K. Ma**, F. Chinesta, M. R. Mackley. The rheology of carbon nanotube (CNT) suspensions: Experiments and Modeling, Oral presentation, The XVth International Congress on Rheology (ICR), 3 – 8 August 2008, Monterey, CA, USA
  - 2) **A. W. K. Ma**, F. Chinesta, M. R. Mackley. The rheology and microstructure of carbon nanotube suspensions, Oral presentation, The Polymer Processing Society (PPS) 24<sup>th</sup> Annual Meeting, 15 – 19 June 2008, Salerno, Italy
  - 1) **A. W. K. Ma**, M. R. Mackley (2006). The rheology of carbon nanotube suspensions, Oral presentation, Non-Newtonian Club Meeting, 6 June 2006, University of Nottingham, United Kingdom \*Best presentation award\*

## TEACHING EXPERIENCE

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CHEG/POLY 5352: Polymer Properties	Spring, 2015 – 2016
CHEG 3124: Heat and Mass Transfer	Spring, 2013 – 2016
CHEG 4143: Chemical Engineering Capstone Design I & II – project advisor (formerly, CHEG 4140 Unit Operations and Intro Design)	Fall and Spring, 2013 – 2016
CHEG 4989: Introduction to Research (undergraduates) – project advisor	Fall and Spring, 2011 – 2016
CHEG 5367: Polymer Rheology	Fall 2012, Fall 2014
CHEG 5395: Applied Nanomaterials	Spring 2012, Fall 2013

## ACADEMIC AND PROFESSIONAL SERVICES

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- 2016**      **Session Chair, The XVIIth International Congress on Rheology, Aug. 8 – 13, 2016, Kyoto, Japan**  
• Chair the afternoon session of “*Surface, Interface, and Thin Films*” on 9 August 2016
- 2016 – Present**      **Technical Council Member, NextFlex Institute**  
• NextFlex is the 7<sup>th</sup> institute of the National Network for Manufacturing Innovation (NNMI) initiative launched by the White House.  
• \$75M in federal funds with \$96M non-federal matching funds for next five years
- 2016 – Present**      **Technical Lead, Connecticut Flexible Electronics Initiative**  
• Engage companies to build strong teams to respond to NextFlex project calls  
• Manage up to \$5M cash and equipment commitment from the state of CT and UConn  
• Manage multiple stakeholders (state of CT, companies, UConn, and non-profits)
- 2015**      **Co-organizer and speaker, Connecticut Youth Forum**  
Connecticut Youth Forum is a community outreach program that for the past 24 years has been providing unique opportunities for diverse teenagers to connect and engage with each other across geographic, economic, social and racial divides.
- 2015**      **Course Instructor, Industry Short Courses, Industrial Affiliates Program, UConn**  
• 2 – 3 June 2015: “Introduction to Polymer Science”  
• 22 – 23 September 2015: “Additive Manufacturing and 3D Printing”
- 2014 – Present**      **Technical Lead, Soft Material Additive Manufacturing Initiative, UConn**  
• Engage potential company sponsors with 15 written support letters  
• Identify niche areas and form faculty teams
- 2014**      **Co-organizer, Nanomaterials Workshop at UConn, John Hopkins Center for Talented Youth (CTY)**  
Attended by about a hundred middle school and high school students and their parents from more than 10 home states
- 2013 – Present**      **Undergraduate committee, Dept. Chemical and Biomolecular Engineering, UConn**
- 2013 – Present**      **Editorial Board Member**  
• Journal of Chemical Engineering and Process Techniques      • Austin Chemical Engineering  
• Journal of Materials Science and Chemical Engineering      • Journal of Polymer Sciences  
• Journal of Energy and Chemical Engineering      • Polymer Sciences  
• Nano Open      • Research Journal of Nanotechnology
- 2013**      **Representative, NSF US-Japan Young Scientist Exchange Program**  
• Represented leading US young scientists to visit Japan  
• Program established and sponsored by the National Science Foundation (NSF) and the Ministry of Education, Culture, Sports, Science & Technology in Japan (MEXT).
- 2013**      **Chair, Technical session on Blends and Composites, 84<sup>th</sup> Society of Rheology (SoR) meeting, Pasadena, CA (10 – 14 Feb. 2013)**
- 2012 – Present**      **Co-chair/Chair, AIChE Annual Meetings**  
• 2012 – 2013: Session chair for 22A03 Graphene and Carbon Nanotubes  
• 2013: Session chair for 08A07 Polymer Processing and Rheology  
• 2014 – Present: Area chair for 22A Carbon Nanomaterials
- 2012 – 15**      **Mentor, Mentor Connection Program, UConn**  
Mentor Connection is a residential enrichment program held during the summer at UConn to provide rising juniors and seniors from diverse backgrounds with opportunities to participate in high-level creative projects and research investigations.

- 2012 – 15**      **Mentor, Joule Fellows Program, UConn**  
 In the Joule Fellows Program, middle and high school teachers are brought to campus for a six-week internship in one of the campus's many labs.
- 2012 –13**      **Seminar Coordinator, Chemical Engineering Program, UConn**
- 2012 –13**      **Seminar Coordinator, Polymer Program, Institute of Materials Science, UConn**
- 2009**            **Co-Organizer, European Community on Computational Methods in Applied Sciences (ECCOMAS) Thematic Conference – @Part 2009**  
 • A 3-day conference (21 – 23 Oct 2009) on multiscale modeling held in Nantes, France
- 2008 – Present**    **Reviewer (non-exhaustive)**
- ACS Macro Letters
  - Rheologica Acta
  - Journal of Rheology
  - Handbook of Nanophysics (Taylor & Francis)
  - J. Nanoengineering and Nanosystems
  - International Journal of Material Forming
  - Polymer Engineering and Science
  - European Polymer Journal
  - Industrial & Engineering Chemistry Research
  - Journal of Chemical Physics
  - Advanced Functional Materials
  - ACS Nano
  - Macromolecules
  - Journal of Colloid and Interface Science
  - Journal of Applied Physics
  - Synthetic Metals
  - Journal of Physical Chemistry
  - Soft Matter
  - Nanoscale Research Letter
  - Carbon
- 2008**            **Guest Editor**  
**International Journal of Material Forming, Springer**  
 • Edited a special issue on the science and application of carbon nanotubes (Vol. 1, number 2)
- 2007**            **Founding Chairman, Cambridge CNT Symposium on the Science and Applications of Carbon Nanotubes and Related Structures**  
 • Secured seed funding (£6,500) from 2 academic institutes and 3 nano-tech companies
- 2006**            **Founding President, Carbon Nanotube Club**  
 • Led to the establishment of the Cambridge CNT Society (<http://www.cambridgecnt.org/>)

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#### CREATIVE ENDEAVORS AND MEDIA COVERAGE

- 2014 – 15**      **Capstone design project on “Reduced-Sugar Ice Cream”**  
 • Collaborated with **UConn Creamery** to develop reduced sugar ice cream for diabetics and health-conscious individuals  
 • Featured on **UConn Today** news  
 • Reached out by a sweetener manufacturer for collaborations
- 2013 – 14**      **Capstone design project on “3D Printing an Artificial Kidney”**  
 • Featured on **UConn Today** and the front page of newspaper “**The Chronicle**”  
 • Prototypes showcased at one of **Google’s** events in New York City to engage women in science and technology  
 • Interviewed by **Channel 3 WFSB news** and **Channel 8 WTNH News**  
 • Served as a panelist for **UConn Science Salon** on “3D Printing: Living tissue to human organ”
- 2015 – 16**      **Undergraduate research on “3D Printing Prostheses for Children without Forearm”**  
 • Supervised Stephen Hawes on 3D printing an affordable, working prosthetic hand  
 • Featured on **UConn Today** news  
 • Manuscript submitted to *Rapid Prototyping* journal