

# Curriculum Vitae

**Boxin Zhao, Ph.D**

## 1. PERSONAL DATA

Dr. Boxin Zhao  
Associate Professor  
Department of Chemical Engineering  
University of Waterloo  
Phone: (519) 888-4567 x 38666  
Fax: (519) 746-4979  
Email: [zhaob@uwaterloo.ca](mailto:zhaob@uwaterloo.ca)

## Academic Background

2004	Ph.D. in Chemical Engineering, Department of Chemical Engineering, McMaster University
1999	Master of Engineering in Chemical Technology, Institute of Process Engineering, Chinese Academy of Sciences
1996	Bachelor of Engineering in Mineral Processing Department of Mineral Processing Engineering, Central South University, China

## Employment and Professional Experience

Position and Institution	Department	Period
<b>Associate Professor, University of Waterloo</b>	<b>Chemical Engineering</b>	<b>07/2014 – present</b>
Visiting Professor, University of California at Santa Barbara (UCSB)	Bimolecular Science and Engineering	09/2015 – 12/2015
Assistant Professor, University of Waterloo	Chemical Engineering	09/2008 – 06/2014
Member Appointment, University of Waterloo	Waterloo Institute for Sustainable Energy	06/2017- present
Member Appointment, University of Waterloo	Waterloo Institute for Polymer Research	10/2011 – present

Member Appointment, University of Waterloo	Waterloo Institute for Nanotechnology	11/2008 – present
Postdoctoral Researcher, University of California at Santa Barbara	Chemical Engineering	08/2005 – 08/2008
Visiting Scientist, Monash University, Australia	Australian Pulp and Paper Institute	03/2005 – 04/2005
Postdoctoral Researcher, McMaster University	Chemical Engineering	05/2004 – 08/2005
Research Assistant, McMaster University	Chemical Engineering	01/2000 – 05/2004
Teaching Assistant, McMaster University	Chemical Engineering	01/2000 – 05/2004
Research Assistant, Chinese Academy of Sciences	Institute of Process Engineering	07/1997 – 12/1999

## Awards and Honours

2017 ReMap (Refined Manufacturing Acceleration Process) Network Commercialization Finalist Award, Toronto, Canada

2016 Best Oral Presentation Award, 2016 Global Conference on Polymer and Composite Materials, May 20-23, Hangzhou, China

2015 Fulbright Visiting Research Chair at the University of California of Santa Barbara

2012 Early Researcher Awards (ERA) from the Ministry of Economic Development and Innovation of Ontario, Canada

2007 – 2008 IMMS (the Institute for Multiscale Materials Studies) Research Fellow, an honorary position held jointly at the University of California at Santa Barbara and the Los Alamos National Research Laboratory, U.S.A.

2005 – 2007 NSERC (Natural Sciences and Engineering Research Council of Canada) Postdoctoral Fellowship, Canada

2003 Graduate Student Poster Award, Departmental Seminar Day, Department of Chemical Engineering, McMaster University, Canada

2001– 2003 Clifton W. Sherman Graduate Scholarship for doctoral study in science and engineering, McMaster University, Canada

1999 Masters Thesis Award for best dissertations, Chinese Academy of Sciences

1996 IET (International Engineering Technology Inc., USA) Scholarship (20 out of 10000) from the Central South University of Technology (CSU), China

## 2. Research Publications

<b>Total number of publications</b>	<b>176</b>
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<b>Total citations ( Google scholar) 1825 ( 1464 since 2012)</b>	
<b>h-Index: 23 ; i10-Index: 41</b>	
	<b>number</b>
Refereed Journal Papers ( published or accepted)	83
Refereed Journal Papers (submitted)	3
Book chapter	1
Patent Application	3
Refereed Conference Proceedings	9
Invited Talks/Lectures	23
Conference Presentations (oral)	41
Conference Presentations (posters)	13

## SELECTED RESEARCH PUBLICATIONS

### Materials

Hamed Shahsavan\*, Seyyed Muhammad Salili, Antal Jáklit, and Boxin Zhao†, “Thermally Active Liquid Crystal Network Gripper Mimicking the Self-peeling of Gecko Toe Pads”, *Advanced Materials* [IF = 18.960], Accepted, Oct 2016.

Wei Zhang, Yikang Zhou, Kun Feng, Josh Trinidad, Aiping Yu and **Boxin Zhao**, “Morphologically Controlled Bio-Inspired Dopamine-Polypyrrole Nanostructures With Tunable Electrical Properties” **Advanced Electronic Materials**, Accepted, Sept 2015

Hamed Shahsavan\*, Seyyed Muhammad Salili, Antal Jáklit, and **Boxin Zhao**, "Smart Muscle-driven Self-cleaning of Biomimetic Microstructures from Liquid Crystal Elastomers", **Advanced Materials**, Accepted, Aug 2015

Zihe Pan, Tianchang Wang, Shaofan Sun, Boxin Zhao, “Durable Multifunctional Microstructures: Combining Electrical Conductivity and Superoleophobicity”, **ACS Applied Materials and Interfaces**, Accepted, November 2015

Wei Zhang\*, Zihe Pan\*, Fut K. Yang, and **Boxin Zhao**, “A Facile In-Situ Approach to Polypyrrole Functionalization through Bio-Inspired Catechols”, **Advanced Functional Materials**, 2015, 25(10), 1588-1597

**Boxin Zhao**, Hongbo Zeng, Yu Tian, and Jacob Israelachvili, "Adhesion and Detachment Mechanisms of Sugar Surfaces from the Solid (glassy) to Liquid (viscous) States", **Proc Natl Acad Sci USA**, 103(52), 9624 - 9629, 2006

### Macromolecules/Polymers

Jeffrey d'Eon, Wei Zhang, Li Chen, Richard M. Berry, and Boxin Zhao†, “Coating nanocrystalline cellulose on polypropylene and its film adhesion and mechanical properties”, **Cellulose** [IF = 3.195], Accepted, Jan 2017

Fatemeh Ferdosian\*\*, Zihe Pan\*\*, Guchuhan Gao and Boxin Zhao†, “Bio-Based Adhesives and Evaluations for Wood Composite Application”, **MDPI Polymers** [IF =3.876], Accepted, Feb 2017

Shahsavan, Hamed; Zhao, Boxin, “Bio-inspired Functionally Graded Adhesive Materials: Synergetic Interplay of Top Viscous-elastic Layers with Base Micropillars”, **Macromolecules**, 2013, 47(1), 353-364

Wei Zhang, Fut K. Yang, Yougun Han, Ravi Gaikwad, Zoya Leonenko and **Boxin Zhao** (2013), “Surface and Tribological Behaviors of the Bio-inspired Polydopamine Thin Films in Dry and Wet Conditions”, **Biomacromolecules**, 2013, 14, 394–405.

Wei Zhang, Fut K. Yang, Zihe Pan, Jian Zhang, and **Boxin Zhao**, “Bio-Inspired Dopamine Functionalization of Polypyrrole for Improved Adhesion and Conductivity” **Macromolecular Rapid Communications**, 2014, 35(3), 350-354

Hongbo Zeng, **Boxin Zhao**, Jacob N. Israelachvili, and Matthew Tirrell, "Liquid- to Solidlike Failure Mechanism of Thin Polymer Films at the Micro- and Nano-scale", **Macromolecules**, 43, 538-542, 2010

### **Nanotechnology**

Zeinab Jahed, Hamed Shahsavan, Mohit S. Verma, Jacob L. Rogowski, Brandon B. Seo, Boxin Zhao, Ting Y. Tsui, Frank X. Gu, Mohammad R.K. Mofrad, “Bacterial Networks on Hydrophobic Micropillars” **ACS Nano** [IF=13.334], Accepted, Jan 3, 2017

Ehsan Marzbanrad, Boxin Zhao, Norman Zhou, “Porous silver nanosheets: a novel sensing material for nanoscale and microscale gas flow sensors”, **Nanotechnology**, Accepted, Sept, 2015.

Yun-Seok Jun, Serubbabel Sy, Wook Ahn, Hadis Zarrin, Lathankan Rasen, Ricky Tjandra, Behnam Meschi Amoli\*, **Boxin Zhao**, Gordon Chiu, Aiping Yu, “Highly Conductive Interconnected Graphene Foam Based Polymer Composite”, **Carbon**, Accepted Aug 2015, 10.1016/j.carbon.2015.08.079

Behnam Meschi Amoli\*; Josh Trinidad\*; Geoffrey Rivers\*; Abel Sy; Paola Russo; Aiping Yu; Norman Y Zhou; Boxin Zhao, “SDS-stabilized graphene nanosheets for highly electrically conductive adhesives”, **Carbon**, 2015, 91, 188-199

Wenjie Wang\*, Sarang P. Gumfekar\*, Qingjie Jiao, and Boxin Zhao† “Ferrite-grafted Polyaniline Nanofibers as Electromagnetic Shielding Materials”, **Journal of Materials Chemistry C**, 2013, 1 (16), 2851 – 2859

### **Physical Chemistry and Interfaces**

Dhamodaran Arunbabu, Hamed Shahsavan, Wei Zhang and **Boxin Zhao**, (2013) “Poly(AAc-co-MBA) Hydrogel Films: Adhesive and Mechanical Properties in Aqueous Medium” **J. Physical Chemistry B** 2013, 117 (1), pp 441–449.

Zihe Pan\*, Wei Zhang\*, Andrew Kowalski, Boxin Zhao, "Oleophobicity of Biomimetic Micro-patterned Surface and Its Effect on the Adhesion of Frozen Oil" **Langmuir**, Accepted, August 2015, 10.1021/acs.langmuir.5b02884

Fut Kuo Yang, Wei Zhang, Yougun Han, Serge Yoffe, Yungchi Cho, and **Boxin Zhao**, (2012) "Contact" of Nanoscale Stiff Films, **Langmuir**, 2012 28 (25), pp 9562–9572.

**Boxin Zhao**, Kenny Rosenberg, Noshir Pesika, Patricia McGuiggan, Kellar Autumn, and Jacob Israelachvili, "Adhesion and Friction Force Coupling of Gecko Setal Arrays: Implications for Structured Adhesive Surfaces", **Langmuir**, 24, 1517 - 1524, 2008

### **Adhesives and coatings**

Brendan McDonald\*, Poonam Patel, Boxin Zhao, "Droplet Freezing and Ice Adhesion Measurement on Super-cooled Hydrophobic Surfaces", **J. Adhesion**, Accepted, 2015.

Alek Cholewinski\*, Josh Trinidad\*, Brendan McDonald\*, Boxin Zhao, "Bio-inspired Polydimethylsiloxane-Functionalized Silica Particles - Epoxy Bilayer as a Robust Superhydrophobic Surface Coating", **Surface and Coatings Technology**, 2014, 254, 230-237

Boxin Zhao† and Hyock Ju Kwon, "Adhesion of Polymers in Paper Products from the Macroscopic to Molecular Levels - an Overview", **Journal of Adhesion Science and Technology**, 2011, 25, 557-579

Boxin Zhao, Luis Anderson, Alison Banks, and Robert Pelton†, "Paper Properties Affecting Tape Adhesion", **Journal of Adhesion Science and Technology**, 2004, 18(14), 1625 – 1642

## **3. TEACHING ACTIVITIES**

### **Students and Postdocs Research Supervision**

	Current	Past	Total
Post-doc	2	2	4
PhD	7	4	11
Master's	4	5	9
Undergraduate	2	>40	>40

### **Courses Taught in the past 3 years**

Course	Title and Level	Term/Year	Class Size
CHE 612	Interfacial Phenomena, Graduate-level	W2014	51
		S2013	35
		W2012	20
CHE 312	Heat and Mass Transfer II, Third-year undergraduate	W2013	53
		W2012	55
		W2011	49

CHE 101	Chemical Engineering Concepts, First-year undergraduate	W2014	83
		S2013	76
		S2012	63

#### 4. SERVICE

##### To the Department

2016 – Present      Departmental merit review committee  
2015 – Present      Departmental tenure and promotion committee  
2013– 2015          Departmental Outreach committee  
2009 –2014          Graduate Studies Review Committee  
2008–2009          Undergraduate Review Committee  
2012                  4th Year Design Project Seminar, Session co-chair  
2011                  Faculty Representative at Ontario University Fair

##### To the Faculty

2012                  Chair of a PhD Comprehensive Exam  
2012                  Graduate Student Research Conference, Faculty evaluator  
2009 –2011      Engineering Faculty Council, Member

##### Other University Services

2015                  External Examiner of PhD thesis defence, University of Ottawa  
2012                  External Examiner of PhD thesis defence, University of Alberta  
2011                  Presiding Officers for the first-year final exams

#### 5. PROFESSIONAL ACTIVITIES

##### Society memberships

2008–Present      Canadian Society for Chemical Engineering (CSCHE )  
2009–present      The Materials Research Society (MRS)  
2012–present      The American Nano Society  
2010–present      The America Adhesion Society

##### Conference Organization

2017 Session co-organizer, Chemistry of Bioadhesion, 2017 Annual meeting of the Adhesion Society  
2017 Session co-organizer, Macromolecular Sciences and Engineering, 67th Canadian Chemical Engineering Conference, Oct 2017  
2016 Session chair, Catalysis and Surface Functionality, 2016 Global Conference on Polymer and Composite Materials, Huangzhou, China, May 20-23, 2016  
2014 Session co-organizer, Macromolecular Science and Complex Fluids, 64<sup>th</sup> Chemical Engineering Conference, Niagara Falls, Ontario, October 19-22, 2014  
2013 Symposia co-organizer, Surface Science of Biomimetic Films, "Green" Materials and Sustainable Nanocomposites, the 96th Canadian Chemistry Conference, Quebec, May 26-30, 2013

**Scientific Journals Reviewer**

Science  
Advanced Materials  
Soft Matter  
Langmuir  
J Royal Society Interface  
J Adhesion Science and Technology  
J Adhesion  
Proc Natl Acad Sci USA

J Colloid and Interface Science  
Micromachines  
Applied Surface Science  
ACS Applied Materials and Interface  
Macromolecular Reaction Engineering  
Composites Science and Technology  
Macromolecular Materials and  
Engineering

**Book proposal reviewer**

Elsevier Book Proposal: Interfacial Phenomena: Fundamentals and Applications

**Editorial Board**

Chemical Engineering & Process Techniques

**Grant Application Reviewer**

NSERC-Discovery Grant application  
NSERC-Strategic Projects application  
ISF(Israel Science Foundation) Research  
Grant Application

NSERC-CRD  
FNRS(Belgium) Post-doc Fellowship  
application