

# Kaiyan Qiu, Ph.D. | Curriculum Vitae

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School of Mechanical and Materials Engineering, Washington State University, Pullman, WA 99164

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## ACADEMIC APPOINTMENTS & EDUCATIONS

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**Washington State University**, Pullman, WA (08/20-Present)

➤ **Berry Family Assistant Professor** in School of Mechanical and Materials Engineering.

**Princeton University**, Princeton, NJ (09/14-06/15)

& **University of Minnesota**, Minneapolis, MN (07/15-06/20)

➤ **Postdoctoral Associate** in Mechanical (& Aerospace) Engineering. **Postdoc Advisor:** [Michael C. McAlpine](#)

**Dartmouth College**, Hanover, NH (06/13-08/14)

➤ **Research Associate** in Thayer School of Engineering. **Advisor:** [Ulrike U.G. Wegst](#)

**Cornell University**, Ithaca, NY (08/07-06/13).

➤ **Ph.D.** in Fiber Science with Polymers & Biological Engineering. **PhD Advisor:** [Anil N. Netravali](#)

❖ **Ph.D. Thesis:** Biobased and biodegradable polymer nanocomposites

**Donghua University**, Shanghai, China (09/00-03/07).

➤ **B.S.** in Light Chemical Engineering (Chemical Engineering)

➤ **M.S.** in Textile Chemistry and Dyeing & Finishing Engineering (Chemical Engineering)

**Shanghai Jiaotong University**, Shanghai, China (02/02-07/04).

➤ Undergraduate Secondary Major Diploma in Business Administration

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## PAPER PUBLICATIONS (CITATION 1250 & H-INDEX 13 & I10 INDEX 15)

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[20] Z. Lyu, S. Ding, D. Du, **K. Qiu**, J. Liu, X. Zhang, Y. Lin. 'Recent advances in biomedical applications of 3D nanomaterials with peroxidase-like properties.' *Advanced Drug Delivery Review*, 2022, 185, 114269

[19] **K. Qiu**, U. G. K. Wegst. 'Excellent mechanical and electrical properties of anisotropic freeze-cast native and carbonized bacterial cellulose-alginate foams.' *Advanced Functional Materials*, 2022, 32(1), 2105635

(Online 2021)

❖ Featured in [WSU Insider](#)

[18] (\*: **Contributed Equally**) G. Haghiashtiani\*, **K. Qiu\***, J. D. Zhingre Sanchez, Z. J. Fuenning, P. Nair, S. E. Ahlberg, P. A. Iaizzo, M. C. McAlpine. '3D printed patient-specific aortic root models with internal sensors for minimally invasive applications.' *Science Advances*, 2020, 6(35), eabb4641

❖ Featured in [WSU Insider](#), [Medical News](#), [MedicalXpress](#), [Science Daily](#), and numerous other news outlets

[17] M. E. Kupfer\*, W.-H. Lin\*, V. Ravikumar, **K. Qiu**, L. Wang, L. Gao, M. Lenz, D. B. Bhuiyan, J. Ai, R. R. Mahutga, D. Townsend, J. Zhang, M. C. McAlpine, E. G. Tolkacheva, B. M. Ogle. 'In situ expansion, differentiation and electromechanical coupling of human cardiac muscle in a 3D bioprinted, chambered organoid.' *Circulation Research*, 2020, 127(2), 207-224

❖ Selected as the [Cover](#) and the Best Manuscript Award in *Circ. Res.*

[16] S. H. Park\*, R. Su\*, J. Jeong, S.-Z. Guo, **K. Qiu**, D. Joung, F. Meng, M. C. McAlpine. '3D printed polymer photodetectors.' *Advanced Materials*, 2018, 30(40), 1803980

❖ Featured in [Nature News](#), [Newsweek](#), [National Geographic](#), and numerous other news outlets

[15] **K. Qiu**, Z. Zhao, G. Haghiashtiani, S.-Z. Guo, M. He, R. Su, Z. Zhu, D. B. Bhuiyan, P. Murugan, F. Meng, S. H. Park, C.-C. Chu, B. M. Ogle, D. A. Saltzman, B. R. Konety, R. M. Sweet, M. C. McAlpine. '3D printed organ models with physical properties of tissue and integrated sensors.' *Advanced Materials Technologies*, 2018, 3(3), 1700235

❖ Selected as a [Best of 2018](#) article and the [Inside Cover](#) in *Adv. Mater. Technol.*

❖ Featured in [NIH News](#), [Science Daily](#), [Materials Today](#), [Fox News](#), and numerous other news outlets

- [14] **K. Qiu**, G. Haghiashtiani, M. C. McAlpine. '3D printed organ models for surgical applications.' *Annual Review of Analytical Chemistry*, 2018, 11, 287-306
- ❖ Featured in [Annual Reviews News](#), [Knowable Magazine](#), and a few other news outlets
- [13] S.-Z. Guo, **K. Qiu**, F. Meng, S. H. Park, M. C. McAlpine. '3D printed stretchable tactile sensors.' *Advanced Materials*, 2017, 29(27), 1701218
- Featured in [NIH News](#), [Advanced Science News](#), [Materials Today](#), and numerous other news outlets
- [12] **K. Qiu**, A. N. Netravali. 'In situ produced bacterial cellulose nanofiber-based hybrids for nanocomposites.' *Fibers*, 2017, 5(3), 31
- Selected as [Cover](#) in *Fibers* 5(3)
- [11] **K. Qiu**, A. N. Netravali. 'Polyvinyl alcohol based biodegradable polymer nanocomposites.' Chapter 13 In: Biodegradable Polymers, Vol. 1: Advancement in Biodegradation Study and Applications, *Nova Science Publishers, Inc.*, New York, 2015, pp. 325-379
- [10] **K. Qiu**, A. N. Netravali. 'A review of fabrication and applications of bacterial cellulose based nanocomposites.' *Polymer Reviews*, 2014, 54(4), 598-626
- [9] **K. Qiu**, A. N. Netravali. "'Green' composites based on bacterial cellulose produced using novel low cost carbon source and soy protein resin.' Chapter 11 In: Recent Advances in Adhesion Science and Technology in Honor of Dr. Kash Mittal, *CRC Press*, Boca Raton, FL, 2014, pp. 193-208
- [8] **K. Qiu**, A. N. Netravali. 'A composting study of membrane-like polyvinyl alcohol based resins and nanocomposites.' *Journal of Polymers and the Environment*, 2013, 21(3), 658-674
- [7] **K. Qiu**, A. N. Netravali. 'Halloysite nanotubes reinforced biodegradable nanocomposites using noncrosslinked and malonic acid crosslinked polyvinyl alcohol.' *Polymer Composites*, 2013, 34(5), 799-809
- [6] **K. Qiu**, A. N. Netravali. 'Fabrication and characterization of biodegradable composites based on microfibrillated cellulose and polyvinyl alcohol.' *Composites Science and Technology*, 2012, 72(13), 1588-1594
- [5] **K. Qiu**, A. N. Netravali. 'Bacterial cellulose-based membrane-like biodegradable composites using cross-linked and noncross-linked polyvinyl alcohol.' *Journal of Materials Science*, 2012, 47(16), 6066-6075
- [4] F. Hong, **K. Qiu**. 'An alternative carbon source from konjac powder for enhancing production of bacterial cellulose in static cultures by a model strain *Acetobacter aceti* subsp. *xylinus* ATCC 23770.' *Carbohydrate Polymers*, 2008, 72(3), 545-549
- [3] **K. Qiu**, F. Hong. 'Mutation of *Acetobacter xylinum* for high-yield production of bacterial cellulose.' *Journal of Donghua University*, 2008, 34(2), 181-185
- [2] F. Hong, **K. Qiu**, Y. Tan, Q. Chen. 'Production and characterization of bacterial cellulose membranes in static cultivations.' *Proceedings of the 2007 International Conference on Advanced Fiber and Polymer Materials*, Shanghai, China, Oct. 15-17, 2007, Vol. 2: 709-711
- [1] **K. Qiu**, F. Hong. 'Development of an alternate carbon source from konjac powder for high-yield production of bacterial cellulose.' *Proceedings of 2007 International Forum on Biomedical Textile Materials*, Shanghai, China, May 30 -June 2, 2007, pp 235-240

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## PATENT PUBLICATIONS

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- [4] M. C. McAlpine, **K. Qiu**, G. Haghiashtiani, R. M. Sweet (University of Minnesota). '3D printed organ model with integrated electronic device.' *US Patent Appln. No.: 16/162,627*, 2019
- [3] A. N. Netravali, **K. Qiu** (Cornell University). 'Bacterial cellulose based 'green' composites.' *US 9499686 B2*, 2016
- [2] U. G. K. Wegst, D. Herron, M. Kretschmar, S. Bauer, **K. Qiu** (Dartmouth College). 'Material and method of manufacture of electrodes and porous filters formed of ice-templated graphene-oxide and carbon nanotube composite, and applications thereof.' *WO 2015109272 A1*, 2015

[1] F. Hong, **K. Qiu**. (Donghua University). 'Preparation of a carbon source from konjac flour for producing bacterial cellulose.' *CN 100595271 C*, 2010

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## FUNDED GRANTS & SUBMITTED/PREPARED PROPOSALS

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### Pending Proposals

- [13] NIH NIBIB R21 (PI: Kaiyan Qiu) *Expected Submission in Oct. 2022*  
❖ 3D-printed patient-specific dynamic cardiac system models with dynamic and sensing functions
- [12] NSF CCSS (PI: Kaiyan Qiu; CO-PI: Yuehe Lin) *Submitted in Sept. 2022*  
❖ 3D-printed wearable flexible biosensors based on microfluidic channels and single-atom catalysts
- [11] Commercialization GAP Fund (PI: Kaiyan Qiu; CO-PI: Annie Du) *Submitted in Aug. 2022*  
❖ 3D-printed wearable flexible biosensors.

### Funded Grants at WSU

- [10] Working with Industry 101 (PI: Kaiyan Qiu) *Funded in May 2022*
- [9] WSU New Faculty Seed Grant (PI: Kaiyan Qiu) *Funded in May 2022*  
❖ 3D-Printed biomimetic sharkskin for underwater applications & Featured in [WSU Insider](#)
- [7] NIH NIAID R21AI69225 (PI: Wen-ji Dong; CO-I: Kaiyan Qiu; CO-I: Cornelius Ivory) *Funded in Feb. 2022*  
❖ Paper-based nucleic acid amplification test for rapid diagnosis of hepatitis C viral (HCV) infection
- [8] WSU Industrial Engagement (PI: Kaiyan Qiu; CO-PI: Yuehe Lin) *Confirmed to be funded in 2022*  
❖ 3D-printed wearable flexible biosensors
- [7] Cougar Cage (PI: Kaiyan Qiu) *Funded in July 2021*  
❖ 3D-printed dynamic aortic organ models & Featured in [WSU Insider](#)
- [6] JCATI (PI: Wen-ji Dong; CO-PI: Kaiyan Qiu; Industry Partner: Altek) *Funded in Fall 2020*  
❖ Mask-based sensor for real time monitoring SARS-CoV-2 infection
- [5] WSU Startup (PI: Kaiyan Qiu) *Funded in Fall 2020*

### Proposal Experience before WSU

- [4] Contributed partial content for NIH NIBIB progress report *2015-2019*  
❖ 3D printed nano-bionic organs (NIH NIBIB, 2015-2020, Award No.: 1DP2EB020537)
- [3] Contributed partial content for NIH NHLBI progress report *2018*  
❖ Extracellular matrix regulation of differentiation via modulation of ILK: application to 3D bioprinting of cardiac tissue. (NIH NHLBI, 2017-2021, Award No.: R01HL137204)
- [2] Contributed partial content for a proposal for 3D printed aortic root models *2017*  
❖ Granted, \$50,000 from Medtronic, Inc.; \$50,000 from MnDRIVE RSAM Initiative (2018-2019)
- [1] Wrote a full proposal for Ph.D. Research Support, Cornell University *2008*  
❖ Investigation of bacterial cellulose (BC) based 'green' composites and development of inexpensive carbon sources for BC production. As Principle Investigator, Granted, \$2,500, 2009-2011)

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## INVITED TALKS, GUEST LECTURES & CONFERENCES

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- [27] K. Qiu. '3D printed functional devices for healthcare and engineering applications.' Poster Presentation, for *Gordon Research Conference: Additive Manufacturing of Soft Materials*, Ventura, CA, August 7-12, 2022
- [26]. '3D printed artificial organs and smart electronics for biomedical applications.' Invited Talk for *NextFlex*, June 2022

- [25]. '3D printed artificial organs and smart electronics for biomedical and healthcare applications.' Oral Invited Talk for *ACS Spring 2022*, San Diego, CA, March 22, 2022
- [24]. '3D printed artificial organs and smart electronics for biomedical and healthcare applications.' Guest Lecture for *Bioengineering, Washington State University*, February 18, 2022
- [23] '3D printed artificial organs and smart electronics for biomedical and healthcare applications.' Oral Invited Talk for *Mechanical Engineering Program, Washington State University Tri-Cities*, January 28, 2022
- [22] '3D printed presurgical organ models for surgical applications.' Guest Lecture for *University of Nebraska Lincoln*, March 25, 2021
- [21] '3D printed artificial organs and smart electronics for biomedical and healthcare applications.' Guest Lecture for *Bioengineering, Washington State University*, March 5, 2021
- [20] '3D printed artificial organs and smart electronics for biomedical and healthcare applications.' Guest Lecture for *Chemical Engineering and Bioengineering, Washington State University*, November 9, 2020
- [19] '3D printed artificial organs.' Guest Lecture for *MSE 110, Washington State University*, October 8, 2020
- [18] '3D printed smart electronics.' Guest Lecture for *MSE 110, Washington State University*, October 1, 2020
- [17] '3D printed artificial organs and smart electronics for biomedical and healthcare applications.' Oral Invited Talk for *MME, Washington State University*, September 10, 2020
- [16] '3D printed artificial organs and smart electronics for biomedical and healthcare applications.' Oral Invited Talk for *Washington State University*, April 23, 2020
- [15] '3D printed artificial organs and smart electronics for biomedical and healthcare applications.' Oral Invited Talk for *University of Tennessee*, March 31 & April 1, 2020
- [14] '3D printed artificial organs and smart electronics for biomedical and healthcare applications.' Oral Invited Talk for *Florida Institute of Technology*, March 27, 2020
- [13] '3D printed artificial organs and smart electronics for biomedical and healthcare applications.' Oral Invited Talk in *University of Georgia*, Athens, GA, January 23, 2020
- [12] '3D printed organ models and flexible electronics for biomedical applications.' Oral Invited Talk in *Mississippi State University*, Starkville, MS, January 8, 2020
- [11] '3D printed models of the aortic valve.' Oral Invited Talk in *2019 Earl E. Bakken Surgical Device Symposium: Update on Surgical Aortic Disease*, Minneapolis, MN, November 8, 2019
- [10] '3D printed organ models with physical properties of tissue and integrated sensors.' Oral Invited Talk in *Micro- and Nanotechnology Sensors, Systems, and Applications XI* in *SPIE Defense + Commercial Sensing*, Baltimore, MD, April 14, 2019
- ❖ Proceedings Volumes 10982, <https://doi.org/10.1117/12.2518370>
- [9] '3D printed organ models with integrated electronics.' Oral Invited Talk in *University of Georgia*, Athens, GA, February 21, 2019
- [8] **K. Qiu**, M. C. McAlpine. '3D printed organ models with physical properties of tissue and integrated sensors.' Oral Presentation & Poster Presentation (03/20/18 & 03/19/18) in *255th ACS National Meeting & Exposition*, New Orleans, LA, 2018 (Selected as ACS Sci-Mix Poster)
- [7] **K. Qiu**, M. C. McAlpine. '3D printed tissue-simulated organ model using designed synthesized polymeric inks and human organ data.' Oral Presentation (08/23/16) in *252th ACS National Meeting & Exposition*, Philadelphia, PA, 2016
- [6] **K. Qiu**, M. C. McAlpine. '3D printed bionic prostate.' Oral Presentation (04/01/16) in *2016 Spring MRS Meeting & Exhibit*, Phoenix, AZ, 2016
- [5] **K. Qiu**, M. C. McAlpine, R. M. Sweet. 'Patient specific 3D printed prostate with tissue and anatomic fidelity.' Poster Presentation in *Engineering & Urology Society 31th Annual Meeting*, San Diego, CA, 2016

- [4] **K. Qiu**, U. G. K. Wegst. ‘**The structure and performance of freeze-cast bacterial cellulose aerogels.**’ Poster Presentation in *2013 MRS Fall Meeting & Exhibit*, Boston, MA, 2013
- [3] **K. Qiu**, A. N. Netravali. ‘**Biodegradable polymer nanocomposites using polyvinyl alcohol and nanomaterials.**’ Poster Presentation in *2012 Fiber Society Fall Meeting*, Boston, MA, 2012
- [2] **K. Qiu**, A. N. Netravali. ‘**‘Green’ composites using soy protein resin and novel low cost carbon source based bacterial cellulose.**’ Poster Presentation in for *2011 Fiber Society Fall Meeting*, Charleston, SC, 2011
- [1] F. Hong, **K. Qiu**. ‘**Mutation of Acetobacter xylinum for high-yield production of bacterial cellulose.**’ Presentation in *234th ACS National Meeting & Exposition*, Boston, MA, August 19-23, 2007

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## STUDENTS MENTORING

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### Student Mentoring at WSU and Washington State

- WSU ME PhD student (Jin Miao) *Fall 2021-Present*
- WSU MSE PhD student (Chuchu Chen) *Fall 2021-Present*
- WSU ME PhD student (Shihab Ahmed) *Fall 2022-Present*
- WSU MSE PhD student (Lakshmi Surag Singavarapu) *Spring 2023-Present*
- WSU ME undergraduate (Sonja Sargent Sparks, to be PhD student in Fall 2023) *Summer 2021-Present*
- WSU ME undergraduate (Jasper Allan Ellingson) *Spring 2022*
- WSU MSE 425 undergraduates (Petra A. Jonson, co-advised with Dr. Nara Boddeti) *Spring 2022*
- Tesla STEM High School student, Redmond, WA (Rhea Kuppa, 11<sup>th</sup> grade) *Fall 2021*  
 Topic: "3D Printing Bio-Inspired Heart Valves to Increase Efficiency of Pre-operative Care"  
 The first place in Central Sound Regional Research and Engineering Fair (CSRSEF)  
 The first place in Washington State Science and Engineering Fair (WSSEF).
- WSU ME undergraduate (George Sam Eralil) *Spring 2021*
- WSU MSE 425 undergraduates (1. Hilal Al Harmali; 2. Zhuocheng Huang; 3. Badar Al Hosni) *Fall 2020*

### Serving as a Committee Member for Graduate Students at WSU

- Zihui Zhao, IIDP PhD *December 2020-Present*
- WSU Luiz Longo, ME MS *September 2021-April 2022*
- Zhaoyuan Lyu, ME PhD *October 2021-April 2022*
- Shahriar Safaee, MSE PhD *October 2020-August 2021*

### Student Mentoring before WSU

- ME PhD student (UMN Total 1) *2018-2020*
- MSE, ME, ChemE undergraduates (Total 7) *2007-2018*
  - ❖ A. Shortell, A. Wolford, J. Burno (Cornell);
  - ❖ D. Jutras (REU at Cornell, from Mount Holyoke College);
  - ❖ M. Silva, R. Tu (Dartmouth);
  - ❖ K. Levac (UMN)
- High school students (Total 3) *2017-2018*
  - ❖ A. Anderson, S. Ma, and N. Tank (Breck School, MN)
  - ❖ All three high school students received a number of awards based on their work in the lab.

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## TEACHING

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### Teaching at WSU

- Course Instructor for ME 216 Integrated CAD Design at Washington State University *Spring, 2022*
- Course Instructor for ME 216 Integrated CAD Design at Washington State University *Fall, 2021*
- Course Instructor for ME 312 Manufacturing Engineering/ME 310 Manufacturing Processes/ME 311 Manufacturing Processes Laboratories & ME 598 Seminar at Washington State University *Spring, 2021*

- Course Instructor for ME 312 Manufacturing Engineering/ME 311 Manufacturing Processes Laboratories at Washington State University *Fall, 2020*

### **Teaching before WSU**

- A Lecture on Manufactured Regenerated Polymer Fibers for TXMI 3500 (Textiles) at University of Georgia *February 2019*
- A Lecture on Extrusion-based Multi-material 3D Printing for high school juniors with NIH Continuing Umbrella of Research Experience (CURE) Internship, University of Minnesota *Summer, 2018*
- A Lecture on 3D Printing Organ Models in ME 8390 (Introduction to Nanotechnology), University of Minnesota *Fall, 2016*
- TA lectures for FSAD 4660 (Textiles, Apparel, and Innovation), Cornell University *Fall, 2011*
- Lectures on Applying Clickers as an Interactive and Assessment Tool in the Chemistry Class in TA summer institute, Cornell University (a lecture was featured in Cornell Center for Teaching Innovation) *Summer, 2009*
- TA lectures for FSAD 4320 (Product Quality Assessment), Cornell University *Spring, 2009*

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### **FACULTY DEVELOPMENT TRAINING**

- Work with Industry 101 May 17, 19, 24, 26, 2022
- Delta Junior Faculty Institute April 6-8, 2022
- NETI-3E Online June 2-3, 2021
- NETI-3C Online July 30-31, 2020

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### **RESEARCH INTERESTS**

- Advanced 3D Printing
- Artificial Organs
- Smart Electronics
- Soft Robots
- Biomimetic Devices
- Biosensors
- Device Design and Manufacturing
- Polymer Materials and Composites

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### **INDUSTRIAL AND OTHER EDUCATIONAL EXPERIENCE**

- Project Leader in UMN side for Research Collaborations with Medtronic, Inc. *2018-2020*
- Outreach Chair at Translator and Interpreter Program, Cornell University *2011-2012*
- Internship at Shanghai Coastline Co., LTD., Shanghai, China *Spring, 2007*
- Internship at BASF(China), Shanghai, China *Summer, 2004*

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### **AWARDS & HONORS**

- Nominated and selected for attending Delta Junior Faculty Institute *2022*
- The Professorship has been named as Berry Family Assistant Professor of Mechanical Engineering *2021*
- The '3D printed organ models' paper has been selected as a [Best of 2018](#) article by *Adv. Mater. Technol.* *2019*
- Approval of US Permanent Residency through the First Preference Extraordinary Ability EB1A *2015*
- Placed 3<sup>rd</sup> in National Textile Center (NTC) Forum Student Competition, Charleston, SC *2011*
- Placed 1<sup>st</sup> in FSAD student paper competition, Cornell University *2011*
- Liu memorial award scholarship, Cornell University *2010*
- Teaching & Research assistant scholarship, Cornell University *2007-2012*
- College graduate excellence award, Donghua University *2004*
- Several scholarships from Invista (Dupont), Coasts and Sang Ma Trust Fund *2000-2007*

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## PROFESSIONAL AFFILIATIONS

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- Member of American Chemical Society
- Member of Material Research Society
- Member of Fiber Society

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## SEMINAR ORGANIZER SERVICE

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- Serve as a Seminar Organizer for ME598 at WSU to invite speakers and host seminars Spring 2021
  - ❖ The outstanding speakers include John Rogers (Northwestern U), Michael McAlpine (U of Minnesota), Zhenan Bao (Stanford), Robert Shepherd (Cornell), Anil Netravali (Cornell), and Girish Krishnan (UIUC), and Tamas Havar (Blue Origin).

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## GRANT & JOURNAL REVIEWER SERVICE

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- ***Grants***
  - ❖ Serve as an External Reviewer for Research Grant Council of Hong Kong
  - ❖ Serve as an External Reviewer for CATALYST Funding Program, Rowan University
- ***Journals***
  - ❖ Proceedings of National Academy of Sciences of the United States of America (PNAS);
  - ❖ Scientific Reports;
  - ❖ Mechatronics;
  - ❖ Materials & Design;
  - ❖ Sensors;
  - ❖ Trends in Pharmacological Sciences;
  - ❖ ACS Applied Materials & Interfaces;
  - ❖ ACS Sustainable Chemistry & Engineering;
  - ❖ ACS Books
  - ❖ Journal of Materials Chemistry A;
  - ❖ Journal of Materials Chemistry B;
  - ❖ Composites Science and Technology;
  - ❖ Carbohydrate Polymers;
  - ❖ Cellulose;
  - ❖ The Journal of Physical Chemistry;
  - ❖ Composite Part A;
  - ❖ Composite Interfaces;
  - ❖ Polymer Chemistry;
  - ❖ RSC Advances;
  - ❖ Analyst;
  - ❖ Scanning;
  - ❖ Journal of the Brazilian Chemical Society;
  - ❖ ASME Journal of Engineering and Science in Medical Diagnostics and Therapy;
  - ❖ International Journal of Engineering, Science and Technology;
  - ❖ Journal of Renewable Materials;
  - ❖ International Journal of Biological Macromolecules;
  - ❖ Food Biophysics;
  - ❖ Food & Function;
  - ❖ Food Hydrocolloids
  - ❖ Advanced Fiber Materials