UNIVERSITY OF MASSACHUSETTS LOWELL
Personnel Form #6

COMPREHENSIVE PROFESSIONAL VITAE
Appointment Date: September 2018 DATE: Sep. 07, 2024

NAME: Chen, Grace Wan-Ting
Department(s): Dept. of Plastics Engineering
College(s) or Service Unit(s): College of Engineering
Rank or Title: Associate Professor
Field(s): Plastics Recycling, Multilayer Packaging, Microplastics, Biodegradable Material, Safer Chemical and Solvent Design, Hydrothermal Processing

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A. EDUCATION AND ACADEMIC QUALIFICATIONS

1. *Education*

2017	Ph.D.	University of Illinois at Urbana-Champaign Department of Agricultural & Biological Engineering Concentrations: Biomass Conversion Dissertation: Upgrading Biocrude Oil Converted from Wet Biowaste via Hydrothermal Liquefaction
2013	M.S.	University of Illinois at Urbana-Champaign Department of Agricultural & Biological Engineering
2011	B.S.	National Taiwan University, Taipei, Taiwan Department of Chemical Engineering

2. *Academic Experience*

2024-present	Associate Professor Department of Plastics Engineering University of Massachusetts Lowell, Lowell, MA
2018-2024	Assistant Professor Department of Plastics Engineering University of Massachusetts Lowell, Lowell, MA
2017-2018	Post-doctoral Research Associate School of Chemical Engineering Purdue University, West Lafayette, IN
2011-2017	Graduate Research Assistant Department of Agricultural and Biological Engineering University of Illinois at Urbana-Champaign, Urbana, IL

3. *Additional Roles*

Summer 2016	Instructor College of Agriculture, Consumer, and Environmental Sciences University of Illinois at Urbana-Champaign, Urbana, IL

B. PROFESSIONAL ACTIVITIES

1. *Professional Association Participation*

2012-present	Member, American Institute of Chemical Engineers (AIChE)
2013-present	Member, American Chemical Society (ACS)
2019-present	Member, Society of Plastic Engineers (SPE)
2022-present	Member, Women in Defense (WID)
2021-present	Member, Institute of Packaging Professionals (IoPP)
2011-2020	Member, American Society of Agricultural & Biological Engineers (ASABE)
2011-2019	Member, Society of Women Engineers (SWE)
2013-2017	Member, Gamma Sigma Delta (the Honor Society of Agriculture)
2017-2020	Member, American Society of Engineering Education (ASEE)

2. *Professional Licenses and Certifications*

2024-present	NSF CMMI Panel Fellow (Game Changer Academies training ongoing)
2017	Energy and Sustainability Engineering Certificate (University of Illinois)
2017	Graduate Teacher Certificate (University of Illinois)

3. *Professional Honors and Awards*

2024	ACS PMSE Early Investigator Award
2022	Department Teaching Excellence Award
2017-2018	Outstanding contribution in reviewing for *Bioresource Technology* and *Algal Research*
2018	Finalist for Purdue Lillian Gilbreth Postdoctoral Fellowship (withdraw due to Faculty Position)
2017	Purdue Postdoctoral Association (PPDA) Travel Grant Award
2017	Outstanding Student Research Award, Chinese American Chemical Society
2017	Finalist for a Volunteer Service Recognition Award, UIUC
2016-2017	Dissertation Completion Fellowship, UIUC
2017-2017	Mavis Future Faculty Fellowship (MF3 Fellowship), UIUC
2016	AIChE's Women's Initiatives Committee (WIC) Travel Award
2016	Selected participants of AIChE Education Division's Future Faculty Program
2016	Selected participants of Purdue Prospective Faculty Workshop (Invited workshop)
2016	First place of Collegiate Technical Poster Competition in SWE Region H Conference
2015	Ben & Georgeann Jones Graduate Student Teaching Scholarship, ABE, UIUC
2014	First place of Collegiate Technical Poster Competition in SWE14 Annual Conference
2014	Scholarship Awarded by Phi Tau Phi Scholastic Honor Society of America
2014	Second place of Boyd-Scott Graduate Research Award (MS category), ASABE
2014	Second prize of Research Presentation, Chinese American Chemical Society
2013-2015	Studying Abroad Scholarship Awarded by Ministry of Education, Taiwan
2012-2016	ACES' Office of Research Travel Grants, UIUC
2013	ERM Foundation Sustainable Fellowship

4. *Non-Teaching Activities*

2019-2024	**Founder and Coordinator of Plastic & Environment Journal Club** Facilitated discussion session for literature study in plastic recycling and plastic degradation every other week; Coordinated meetings for a group of 10-15 graduate and undergraduate students at UMass Lowell.
2017-2018	**Coordinator for Purdue Future Faculty Preparation Club** Facilitated peer-review session and led discussion about how to prepare faculty job application materials; Planned tentative schedules for job talk practice.
2017-2018	**Member of Purdue Postdoctoral Association (PPDA), West Lafayette, IN** Distributed annual dinner event information to different departments at Purdue University; Communicated with departmental heads to raise funding for PPDA.
2015-2017	**Coordinator for iFEAT (Illinois Female Engineering Students in Academia**

Training)
Facilitated peer-review session; Led discussion for 15-20 participants; Invited and hosted speakers from different departments and universities; Distributed meeting information to UIUC campus; Planned tentative schedules for a year-round program; Submitted proposals to related research grants; Applied presentation opportunities in the Society of Women Engineering National Meetings and ASEE annual conference.

2015-2018 **Founder and Coordinator of Biomass Conversion and Bioenergy Journal Club**
Facilitated discussion session for literature study in biomass conversion, biocrude oil upgrading and wastewater treatment every other week; Coordinated meeting for a group of 10-15 graduate students and visiting scholars at UIUC and Purdue University.

5. *Editorial/Reviewer*

2018-present **Associate Editor, Journal of Renewable Materials**
Coordinated peer-review processes between reviewers and the authors.
Led special issues about microplastic pollutant mitigation and plastic waste management; recruited guest editors for special issues; invited scholarly manuscripts from worldwide experts in plastic and sustainability area.

2021-present **Editorial Board Member, Communications Engineering (Nature Publishing)**
Pre-review assigned manuscripts; provided feedback to planned perspective articles.
Coordinated peer-review processes between reviewers and the authors.

2021-present **Editorial Board Member, Scientific Reports (Nature Publishing)**
Pre-review assigned manuscripts.
Coordinated peer-review processes between reviewers and the authors.

2022-2023 **Guest Editor; Scientific Reports (Nature Publishing)**
Pre-review assigned manuscripts.
Coordinated peer-review processes between reviewers and the authors.

2021-present **Guest Editor; MDPI Recycling**
Pre-review assigned manuscripts.
Coordinated peer-review processes between reviewers and the authors.

2020-2023 **Guest Editor, MDPI Processes**
Led a special issue about converting plastic waste info useful products; invited scholarly manuscripts from worldwide experts in plastic and sustainability area.

2024 **Reviewer for United States Department of Energy – ARPA-E**
Reviewed 5 concept papers for the solicited proposals submitted to the Vision OPEN program.

2024 **Ad-hoc Reviewer for Natural Sciences and Engineering Research Council of Canada (NSERC)**
Reviewed 1 proposal for the solicited proposals submitted to NSERC for the Alliance grants.

2024 **Ad-hoc Reviewer for Dutch Research Council (NWO)**
Reviewed 1 proposal for the solicited proposals submitted to the program of NGF - Circular Plastics Making plastics circular: technical innovations

2024 **Reviewer for United States Geological Survey (USGS)**
Reviewed 4 proposals for the solicited proposals submitted to the 104b Program.

2024 **Invited Panelist for NSF (CBET/Engineering)**
Reviewed 4 proposals for the solicited proposals submitted to the program of Environmental Engineering (1440) Engineering Research Initiation (ERI) program.

2023 **Ad-hoc Reviewer for Natural Sciences and Engineering Research Council of Canada (NSERC)**
Reviewed 1 proposal for the solicited proposals submitted to NSERC CREATE grant.

2023 **Ad-hoc Reviewer for American Chemical Society (ACS)**
Reviewed 1 proposal for the solicited proposals submitted to ACS PRF grant.

2023 **Invited Panelist for United States Department of Energy- SBIR/STTR program (AMMTO FY23 Phase I FOA, DE-FOA-0002903)**

Reviewed 4 proposals submitted to the SBIR program.

2023 **Invited Panelist for NSF (CBET/Engineering)**
Reviewed 7 proposals for the unsolicited proposals submitted to the program of Catalysis (1401/1403) and Engineering Research Initiation (ERI) program.

2022 **Ad-hoc Reviewer for ISS National Lab Sustainability Challenge: Beyond Plastics**
Reviewed 1 proposal for the solicited proposals submitted to ISS.

2022 **Ad-hoc Reviewer for Environmental Research & Education Foundation (EREF)**
Reviewed 1 proposal for the solicited proposals submitted to the program of EREF.

2022 **Ad-hoc Reviewer for NSF (EPSCoR R-II program)**
Reviewed 1 proposal for the solicited proposals submitted to the program of EPSCoRE R-II program.

2021 **Invited Panelist for United States Department of Energy- Advanced Manufacturing Office (AMO FY21 MT FOA, DE-FOA-0002553)**
Reviewed 7 proposals submitted to the program of AMO (Sustainable Chemistry area).

2021 **Ad-hoc Reviewer for NSF**
Reviewed one proposal submitted to the Chemical Catalysis program in the Division of Chemistry.

2021 **Invited Reviewer for NSF**
Reviewed 2 pre-proposals for the solicited proposals submitted to the program of EPSCoRE program in the state of Mississippi

2021 **Invited Panelist for the REMADE Institute (Manufacturing USA Institute)**
Reviewed one proposal submitted to the program of Polymer Recycling (declined due to time of conflict).

2021 **Invited Reviewer for a Book Proposal**
Reviewed a book proposal about *Microplastics: Footprints on the Earth and Environmental Management* for *Springer*

2021 **Invited Panelist for United States Department of Energy- Basic Science program.**
Reviewed 3 proposals for BES Program (SGP).

2020 **Invited Panelist for United States Department of Agriculture- National Institute of Food and Agriculture (USDA-NIFA)**
Being contacted to review 12 applications for Sun Grant Program (SGP).

2020 **Invited Panelist for United States Geological Survey (USGS)**
Reviewed 10 proposals submitted to the program of 104G.

2020 **Invited Panelist for the REMADE Institute (Manufacturing USA Institute)**
Reviewed one proposal for the solicited proposals submitted to the program of Manufacturing Materials Optimization.

2019 **Invited Panelist for NSF (EFRI-DCheM)**
Invited to review pre-proposals for the solicited proposals submitted to the program of Distributed Chemical Manufacturing. Declined the invitation due to the conflict of interest.

2019 **Invited Panelist for NSF (CBET/Engineering)**
Reviewed 5-7 proposals for the unsolicited proposals submitted to the program of Process Systems, Reaction Engineering and Molecular Thermodynamics.

2019 **Invited Reviewer, Nanyang Technological University (NTU), Singapore**
Reviewed an academic research fund tier 1 proposal (~$200K for three years) about bioconversion of lignocellulose biomass for high-value food ingredient.

2018 **Invited Reviewer for a Book Proposal**
Reviewed a book proposal about PHA for *CRC Press*

2011-present **Guest Peer-Reviewer**
Served as peer-reviewers for journals of
ACS Publications: *ACS Sustainable Chemistry & Engineering*, *Energy & Fuels, Industrial & Engineering Chemistry Research, ACS Omega, ACS Engineering Au.*

Elsevier Publications: *Fuel, Energy, Algal Research, Applied Energy, Bioresource Technology, Bioresource Technology Reports, Biochemical Engineering, Environmental Pollution, Chemical Engineering Journal, Journal of Cleaner Production, Resources Conservation & Recycling, Waste Management, Journal of Hazardous Materials, Chemosphere, Journal of Molecular Liquids, Journal of Environmental Chemical Engineering, Energy Conversion & Management*
Springer Nature Publication: *Environmental Science and Pollution Research, Scientific Reports, npj Materials Degradation, npj Science of Food, Nature Reviews Bioengineering, Nature Sustainability*
RSC Publications: *Green Chemistry, Sustainable Energy & Fuels.*
Wiley Publications: AIChE Journal, ChemSusChem, Environmental Progress
SAGE Journals: *Energy and Environment, Textile Research Journal*
Taylor & Francis Publications*: International Journal of Sustainable Energy, Desalination and Water Treatment,*
MDPI Publications: *Sustainability, Water, Polymers, Energies, Processes, Fuels, Applied Sciences, Resources, Molecules, Recycling, Clean Technologies*
Other Publications: *Frontiers in Energy Research, Frontiers in Sustainable Food Systems, Water Science and Technology, Journal of Renewable Materials, REMADE conference.*

C. RESEARCH

C1. Grants and Contracts

Secured over $5.89M, including $4.58M in external funding, since joining UMass Lowell in 2018

C1a. External Grants and Contracts

#	Year	Amount	Awarded Grants and Contracts	PI	Co-PI
G1	2024-2027	$400,000	**Wan-Ting Chen,** "Statistically Rigorous Deep Dive Nationwide Characterization of Municipal Solid Waste and Selection of Technologies Enabling Production of Conversion-Ready Feedstocks," Department of Energy BETO Office.	X	
G2	2024-2026	$600,456	Meg SobkowiczKline, David Kazmer, and **Wan-Ting Chen** "Remaking of Recyclable Multilayer Barrier Films," REMADE Institute.		X
G3	2024-2025	$25,000	**Wan-Ting Chen (PI)**, "*Continuous Aspirations in Turning Abundant Landfill-destined Substances to Treasure (CATALiST),"* 2024 OTCV Technology Development Fund.	X	
G4	2023-2024	$50,000	**Wan-Ting Chen,** "Co-Hydrothermal Conversion of Microplastic Pollutants and Harmful Algal Bloom into Biocrude Oil," Massachusetts Water Resources Research Center/United States Geological Survey (USGS).	X	
G5	2023	$20,000	**Wan-Ting Chen**, *"*Identify and Screen Polymer Blends with Soy Biomass for Horticultural Applications*,"* Soybean Tech LLC.	X	
G6	2022-2023	$160,000	**Wan-Ting Chen**, "The Effect of Pretreatment on Hydrothermal Processes of Polyolefins - Phase II," Braskem USA	X	
G7	2022-2024	$110,000	**Wan-Ting Chen**, "Chemical Recycling of Bio-pharmaceutical Multilayer Film Waste," EDM Millipore	X	
G8	2022-2024	$720,000	**Wan-Ting Chen**, Amy Peterson, and Jo Ann Ratto Ross, "Investigation of Performance Metrics for Meals, Ready-to-Eat (MRE) Ration Packaging with Sustainable Packaging Options," Defense Logistics Agency.	X	

G9	2022-2025	$1,600,276	Hsi-Wu Wong, **Wan-Ting Chen**, and Juan Pablo Trelles, "Integrated Chemolytic Delamination and Plasma Carbonization for the Upcycling of Single-Use Multi-layer Plastic Films," Department of Energy AMO Office.		X
G10	2021-2022	$12,500	**Wan-Ting Chen,** "The Effect of Pretreatment on Hydrothermal Processes of Polyolefins - Phase I," Braskem USA	X	
G11	2021-2022	$90,000	**Wan-Ting Chen** "Chemical Recycling of ABS from Toy Waste Using a Solvent-based Process, Phase II," Hasbro Inc.	X	
G12	2021-2022	$45,000	**Wan-Ting Chen** and Meg SobkowiczKline "Aramid Copolymers as Reinforcing Compatibilizers for Mixed Plastics Recycling," Department of Energy SBIR Phase I/Luna Innovations.	X	
G13	2021-2022	$268,000	**Wan-Ting Chen**, Amy Peterson, and Jo Ann Ratto Ross, "Identification of Critical Performance Properties for Barrier Materials in Hot Sauce Packaging for Meals, Ready-to-Eat (MRE) Rations (Phase II)," Defense Logistics Agency.	X	
G14	2020-2021	$59,514	**Wan-Ting Chen**, "Chemical Recycling of ABS from Toy Waste Using a Solvent-based Process, Phase I" Hasbro Inc.	X	
G15	2020-2021	$25,000	**Wan-Ting Chen**, "Safer Solvents to Replace Methylene Chloride in Pharmaceutical Manufacturing," Toxic Use Reduction Institute (TURI) Academic Research Grant.	X	
G16	2020-2021	$40,000	**Wan-Ting Chen** and Joey Mead "Melt Processing Ocean Plastics Using the Compatibilizer," Department of Energy SBIR Phase I/Luna Innovations.	X	
G17	2020-2021	$5,000	**Wan-Ting Chen** and Sheree Pagsuyoin "Microplastic Pollution in Freshwater Systems: Impacts of Biofilm Formation on Microplastic Surfaces," Massachusetts Water Resources Research Center.	X	
G18	2019-2021	$182,708	**Wan-Ting Chen**, Amy Peterson, and Joey Mead "Identification of Critical Performance Properties for Barrier Materials in Hot Sauce Packaging for Meals, Ready-to-Eat (MRE) Rations (Phase I)" Defense Logistics Agency.	X	
G19	2019-2020	$40,000	**Wan-Ting Chen** and Joey Mead "Mulch Films from Soy Waste," United Soybean Board/FIICZA Inc..	X	
G20	2019	$15,000	**Wan-Ting Chen**, "Biocrude oil and Biobased Polymer Production from Sewage Sludge via Hydrothermal Liquefaction," Massachusetts Technology Transfer Center.	X	
G21	2019-2020	$24,785	**Wan-Ting Chen**, "Safer Coating Strippers: Substitution of Methylene Chloride," Toxic Use Reduction Institute (TURI) Academic Research Grant.	X	
G22	2019-2020	$89,977	**Wan-Ting Chen**, "Chemical Recycling of Mixed Plastics and Precious Metals in the Electronic Wastes Using Solvent-based Processing," REMADE Institute.	X	
	Total	**$4,583,216**			

C1b. Congressional Funds

#	Year	Amount	Awarded Grants and Contracts	PI	Co-PI
G23	2024-2025	$147,133	**Wan-Ting Chen**, "Valorizing Military Plastic Waste through Integrated Chemolytical Transformation to Optimize Reusable Fuel and Chemical Yield (VICTORY)" HEROES US Army Natick Soldier RD&E Center ASPIRE-II cooperative agreement.	X	

G24	2023-2024	$290,659	Meg SobkowiczKline, David Kazmer, and **Wan-Ting Chen**, "Packaging with Aqueous Dissolution and Enzymatic Disposal (PADED)" HEROES US Army Natick Soldier RD&E Center ASPIRE-II cooperative agreement.		X
G25	2021-2024	$591,508	Ramaswamy Nagarajan, Jayant Kumar, Michael Ciuchta, and **Wan-Ting Chen,** "Durable Flame Retardant, Multifunctional Coatings for Nyco Fabric" HEROES US Army Natick Soldier RD&E Center SLIMMER Project.		X
G26	2019-2021	$214,720	**Wan-Ting Chen**, Ramaswamy Nagarajan, and Jayant Kumar "Flame Retardant Textile Finishes" HEROES US Army Natick Soldier RD&E Center SLIMMER Project.	X	
	Total	**203,361**			

C1c. Internal Grants

#	Year	Amount	Awarded Grants and Contracts	PI	Co-PI
G27	2024	$8,000	**Wan-Ting Chen** and Daniel Lachos-Perez, "Formulating "pumpable" waste plastics and biomass feedstocks for a continuous hydrothermal processing" UML NSF I-Corps program.	X	
G28	2023-2024	$500	Kelilah Wolkowicz, Yanfen Li, Chiara Ghezzi, Dimitra Papagiannopoulou, Xinfang Jin and **Wan-Ting Chen,** "ADVANCE Mentoring Engineering Womxn (MEW) Phase II" UMass Lowell ADVANCE Office Collaborative Mentoring Grants.		X
G29	2022-2023	$1,000	Kelilah Wolkowicz, Yanfen Li, Chiara Ghezzi, Dimitra Papagiannopoulou, and **Wan-Ting Chen,** "ADVANCE Mentoring Engineering Womxn (MEW) Phase I" UMass Lowell ADVANCE Office Collaborative Mentoring Grants.		X
G30	2021	$2,500	**Wan-Ting Chen**, "Biodegradable Mulch Film from Agricultural Waste," Independent University Alumni Association at Lowell, Inc.	X	
G31	2021-2023	$10,000	**Wan-Ting Chen**, Frederic Chain, and Sheree Pagsuyoin, "Investigating Methods for Microplastic Pollution Assessment and Characterization (IM^2PAC): Focus on Coastal Ecosystems," University of Massachusetts Lowell Seed Grant	X	
G32	2019-2020	$2,500	**Wan-Ting Chen**, "Impacts of Biofilm Formation on Microplastic Surface," Independent University Alumni Association at Lowell, Inc.	X	
	Total	**$24,500**			

C1d. Equipment Consignments

#	Year	Amount	Awarded Grants and Contracts	PI	Co-PI
G3	2020 prese	~$80,000 consignmet	**Wan-Ting Chen,** "Using pyrolysis Gas Chromaography Mass Spectrometer (py-GCMS) to Characterize nvironmental Microplastics," Frontier Laboratory Consignment	X	
	otal				

Total Awards: $5,891,077 (including both external, internal, and consignment awards)

C1e. Pending Grant Applications

#	Year	Amount	Pending Grant Applications
1	2025-2030	$613,793	**Wan-Ting Chen (PI)**, "CAREER: Unlocking Hydrothermal Liquefaction Mechanisms for Enhanced Deconstruction of Hard-to-Recycle Multilayer Packaging Waste*"* NSF CAREER Program.
2	2025-2028	$360,000	**Wan-Ting Chen (PI)**, "*Environmental Chemistry: Investigating the Role of Biofilm in Aging Commodity Plastics: Mechanisms and Implications for Environmental Degradation"* ARO Early Career Program.
3	2025-2028	$2,500,000	**Wan-Ting Chen,** Meg SobkowiczKline, Yanfen Li, Vivek Bhardwaj, Bennett Addison, and Nicholas Rorrer "Engaging Minorities and Promoting Opportunities with Education and Research for Circular Initiatives in Polymer Science (EMPOWER)," U.S. Department of Energy RENEW Program.
4	2025-2027	$400,000	**Wan-Ting Chen (leading PI of UML),** "Development of an integrated process for agricultural mulch film production from algae and CO2" U.S. Department of Energy.
5	2025-2029	$831,871	Jinde Zhang and **Wan-Ting Chen ,** "Establishing a multiregional sustainable agriculture system: Biochar-centered climate-smart practices to boost low-carbon circular bioeconomy" USDA
6	2024-2025	$289,585	**Wan-Ting Chen,** Hsi-Wu Wong, and Nese Orbey "Repurposing Combat Ration Packaging Waste for Sustainable Solutions (RePack)," HEROES US Army Natick Soldier RD&E Center ASPIRE-III cooperative agreement.
7	2025-2027	$90,000	**Wan-Ting Chen (leading PI of UML),** "Programmable future of plastics - Building terrestrial and extraterrestrial innovation loop" ISS National Laboratory/Xheme Inc.

C2. Publications and Presentations

Since 2018, UMass Lowell-based research has produced 21 published 21 peer-reviewed articles, another 6 articles under review, 3 book chapters, and 1 patent. I have delivered 33 invited technical presentations, and my group has produced another 31 oral conference presentations (without publications) and 17 conference posters (without publications). In total, my publications lead to over 3800 citations with an h-index of 28 and i10-index of 39 (as of Sep 07, 2024). Below provides a detailed list of my publications and presentations.

UMass Lowell student and postdoc authors underlined

C2a. Peer-reviewed Articles - submitted (*corresponding author)

SJ1. Kerry Candlen, Pongkhun Prommart, Caralyn Conrad, Jo Ann Ratto, Robina Hogan, and **Wan-Ting Chen***, "Biodegradation Study of Poly(butylene adipate-co-terephthalate)/ Poly(lactic) Acid/Soy Waste Multilayer Mulch Film," *Journal of Environmental Chemical Engineering*, submitted, 2024. (IF: 7.4)

SJ2. Md. Akiful Haque, Amy Peterson, Danielle Froio-Blumsack, Jo Ann Ratto, and **Wan-Ting Chen***, "Exploring Acidic Sauce Permeation on High Barrier Packaging Film Properties," *Packaging Technology and Science*, submitted, 2024. (IF: 2.8).

SJ3. Kalsoom Jan, Taofeng Lu, Ana Paula de Azeredo, Regina Funck Nonemacher, Raquel dos Santos Mauler, and **Wan-Ting Chen***, "Hydrothermal Liquefaction of Post-Consumer

Recycled Linear Low-Density Polyethylene with Different Molar Mass in Supercritical Water," *Industrial & Engineering Chemistry Research,* submitted, 2024. (IF: 3.8)

SJ4. Cindy Matuch, **Wan-Ting Chen,** Mary Ellen Ternes, and Jeffrey Seay**,** "Navigating the Complexities of Advanced Recycling: Processes, Feedstock, and Public Health Connections in the Context of the Global Plastic Pollution Crisis" *Environmental Progress & Sustainable Energy*, submitted, 2024. (IF: 2.1)

SJ5. Daniel Lachos-Perez, Kalsoom Jan, Evan Yu, Akash Patel, and **Wan-Ting Chen***, "Effect of polymer concentration and pressure on polyethylene depolymerization under superheated steam and supercritical water," *Energy Conversion & Management,* submitted, 2024. (IF: 9.9)

SJ6. Kalsoom Jan, Taofeng Lu, Christian Ayafor, Hsi-Wu Wong, and **Wan-Ting Chen***, "Two-step chemolytic delamination of multilayer laminated packaging films into valuable chemicals," *Chemical Engineering Journal,* submitted, 2024. (IF: 13.3)

C2b. Peer-reviewed Articles at UMass Lowell (*corresponding author)

J1. David Trung Nguyen, Evan Yu, Carol Barry, and **Wan-Ting Chen***, "A Review and Perspective on Advancing Life Cycle Assessment to Injection Molding," *Journal of Cleaner Production*, 142229, 2023. (IF: 9.7; Citations:2)

J2. Kerry Candlen, Gregory Reimonn, Md. Akiful Haque, Olivia Hosterman, and **Wan-Ting Chen***, "Biofilm-influenced Weathering of Polypropylene in Various Aqueous Environments," *Journal of Environmental Chemical Engineering*, 12 (2), 112284, 2024. (IF: 7.4; Citations:1)

J3. Shawn Martey, Mansoureh Jamalzadeh, **Wan-Ting Chen***, and Margaret Sobkowicz* "The role of nanoclay in processing immiscible polypropylene and poly(ethylene terephthalate) waste blends using twin screw extrusion," *Composites Part B: Engineering*, 276, 111320, 2024. (IF: 12.7; Citations:2)

J4. Md. Akiful Haque, Kerry Candlen, Danielle Froio-Blumsack, Amy Peterson, Jo Ann Ratto, and **Wan-Ting Chen***, "Degradation Behavior of Multilayer Pouches Containing Liquid and Powder Hot Sauce for Meal, Ready-to-Eat (MRE) Rations," *Food Packaging and Shelf Life*, 40, 101209, 2023. (IF: 8.5).

J5. Evan Yu, Kalsoom Jan, and **Wan-Ting Chen***, "Separation and Material Recycling of Polycarbonate from Electronic Waste Using Safer Solvents," *ACS Sustainable Chemistry & Engineering,* 11 (34), 12759-12770, 2023 (*Invited*). (IF: 7.1; Citations:5)

J6. Shawn Martey, Andrew Traywick, Jesse C. Kelly, Margaret Sobkowicz, and **Wan-Ting Chen***, "Polymer grafted aramid nanofiber reinforces immiscible waste PP/PET," *Journal of Applied Polymer Science*, 2023, e54534. (IF: 2.7)

J7. Taofeng Lu and **Wan-Ting Chen*,** "Material Recycling of Acrylonitrile Butadiene Styrene (ABS) from Toy Waste Using Density Separation and Safer Solvents," *Resource, Conversation, & Recycling*, 197, 107090, 2023. (IF: 11.2; Citations:9)

J8. Md. Akiful Haque, Kerry Candlen, Amy Peterson, Jo Ann Ratto, and **Wan-Ting Chen***, "Degradation of Multilayer Food Packaging in the Presence of Highly Acidic Food," *Journal of Food Engineering*, 340, 111318, 2022. (IF: 5.5; Citations:7)

J9. Taofeng Lu, Kalsoom Jan, and **Wan-Ting Chen***, "Hydrothermal Liquefaction of Pretreated Polyethylene-Based Ocean-Bound Plastic Waste in Supercritical Water," *Journal of Energy Institute*, 105, 282-292, 2022. (IF: 5.7; Citations:24)

J10. Madison Reed and **Wan-Ting Chen***, "Plastics Crash Course: A Website for Teaching Plastics Recycling and Microplastics Prevention through Infographics," *Recycling*, 7(5), 65, 2022. (IF: 4.6; Citations:3)

J11. Alessandro Rizzo, Damien Querlioz, Liwen Sang, **Wan-Ting Chen**, Carmine Galasso, Thanh Nho Do, and Liangfei Tian, "Inspiring Engineers," *Communications Engineering*, 1, 12, 2022 *(Invited to celebrate International Women in Engineering Day).* (IF: N/A)

J12. Shawn Martey, Keith Henderen, Nicholas Farfaras, Jesse C. Kelly, Matthew Newsome, Izabela Ciesielska-Wrobel, Margaret Sobkowicz, and **Wan-Ting Chen***, "Mechanical Recycling of Ocean-bound Plastic Waste by Incorporating Clay and Rubber," *Recycling*, 7(2),

25, 2022 *(Invited)*. (IF: 4.6; Citations: 11)

J13. Ren-Xuan Yang, Kalsoom Jan, Ching-Tien Chen, **Wan-Ting Chen***, and Kevin C.-W. Wu, "Catalytic Thermochemical Conversion of Plastic Waste into Fuels, Chemicals, and Value-Added Materials: A Critical Review and Outlooks," *ChemSusChem*, 2022, 15 (11), e202200171. (IF: 7.5; Citations: 36)

J14. Areeb Hossain, Onur Apul, Mary Jo Kirisits, Subhabrata Dev, Shalini Das, Sabiq Islam, Ching-Yao Lai, Henry Huntington, Schery Umanzor, **Wan-Ting Chen**, Srijan Aggarwal, Navid Saleh, "A symbiotic Engineering Approach for Microplastic Remediation in Mariculture Systems," *ACS ES&T Engineering*, 2(4), 606-616, 2022. (IF: 7.1; Citations: 2)

J15. Kerry Candlen, Md. Akiful Haque, Nicholas Farfaras, Shawn Martey, Peter Perez, Jo Ann Ratto, Ron Pulis, Robina Hogan, **Wan-Ting Chen***, "Biodegradable Mulch Films Produced from Soy-Filled Polymer Resins," *Materials Today Communications*, 31, 103331, 2022. (IF: 3.7; Citations: 16)

J16. Lester Anderson, Evan Yu, and **Wan-Ting Chen***, "Chemical Recycling of Mixed Plastics in Electronic Waste Using Solvent-Based Processing," *Processes*, 10(1), 66, 2022 *(Invited)*. (IF: 2.8; Citations: 20)

J17. Apekshya Sharma, Evan Yu, Gregory Morose, David Trung Nguyen, **Wan-Ting Chen***, "Designing Safer Solvents to Replace Methylene Chloride in Chromatography Application for Pharmaceutical Manufacturing," *Separations*, 8(10), 172, 2021. (IF: 2.5; Citations: 10)

J18. Taofeng Lu, Gregory Reimonn, Gregory Morose, Evan Yu, **Wan-Ting Chen***, "Removing Acrylic Conformal Coating with Safer Solvents for Re-Manufacturing Electronics," *Polymers,* 13(6), 937, 2021. (IF: 4.7; Citations: 10)

J19. Neeti Gandhi, Nicholas Farfaras, Nien-Hwan Linda Wang, and **Wan-Ting Chen***, "Lifecycle Assessment of High-Density Polyethylene Plastic Waste Recycling," *Journal of Renewable Materials,* 9(8): 1463-1483, 2021. (CiteScore: 4.1; Citations: 33)

J20. **Wan-Ting Chen***, Md. Akiful Haque, Taofeng Lu, Aersi Aierzhati, and Gregory Reimonn, "Hydrothermal Processing of Biosolids," *Current opinion in Environmental Science & Health*, 14: 63-73, 2020 *(Invited)*. (CiteScore: 13.3; Citations: 90)

J21. Gregory Reimonn, Taofeng Lu, Neeti Ghanti, and **Wan-Ting Chen***, "Review of Microplastic Pollution in the Environment and Emerging Solutions," *Journal of Renewable Materials*, 7(12):1251-1268, 2019 *(Invited).* (CiteScore: 4.1; Citations: 53)

C2c. Peer-reviewed Articles - published after joining UMass Lowell

Research performed for as Ph.D. or as post-doctoral researcher

J22. Rowena Carpio, Yuanhui Zhang, Chih-Ting Kuo, **Wan-Ting Chen**, Lance Schideman, Rizalinda de Leon, "Effects of Reaction Temperature and Reaction Time on the Hydrothermal Liquefaction of Demineralized Wastewater Algal Biomass", *Bioresource Technology Reports,* 14:100679, 2021. (CiteScore: 7.8; Citations: 35)

J23. Ziming Yang, Timothy Lee, Yikai Li, **Wan-Ting Chen**, and Yuanhui Zhang, "Spray and Combustion Characteristics of Pure Hydrothermal Liquefaction Biofuel and Mixture Blends with Diesel," *Fuel*, 294:120498, 2021. (IF: 7.4; Citations: 13)

J24. Jin Kai, Petr Vozka, Gozdam Kilaz, Wan-Ting Chen, and Nien-Hwa Linda Wang, "Conversion of polyethylene waste into clean fuels and waxes via hydrothermal processing (HTP)," Fuel, 273:117726, 2020. (IF: 7.4; Citations: 69)

J25. Timothy Lee, Ziming Yang, Yuanhui Zhang, and **Wan-Ting Chen**, "Investigation of Combustion and Spray of Biowaste Based Fuel and Diesel Blends," *Fuel*, 286: 117382, 2020. (IF: 7.4; Citations: 16)

J26. **Wan-Ting Chen,** Zhenwei Wu, Buchun Si, and Yuanhui Zhang, "Renewable Diesel Blendstocks and Biopriviliged Chemicals Distilled from Algal Biocrude Oil Converted via Hydrothermal Liquefaction," *Sustainable Energy & Fuels,* 4(10): 5165-5178, 2020. (IF: 5.6; Citations: 11)

J27. Jamison Watson, Tengfei Wang, Buchun Si, **Wan-Ting Chen,** and Yuanhui Zhang, "Valorization of Hydrothermal Liquefaction Aqueous Phase: Pathways Towards Commercial

Viability," *Progress in Energy and Combustion Science*, 77:100819, 2020. (IF: 29.5; Citations: 279)

J28. Timothy Lee, Ziming Yang, Gang Li, **Wan-Ting Chen**, Yuanhui Zhang, Tonghun Lee, and Alan Hansen, "Combustion Characteristics in a Constant Volume Chamber of Diesel Blended with HTL," *SAE Technical Paper*, 2019-01-0578. (IF: N/A; Citations: 2)

J29. **Wan-Ting Chen**, Jin Kai and Nien-Hwa Linda Wang, "The Use of Supercritical Water for the Liquefaction of Polypropylene into Oil", *ACS Sustainable Chemistry & Engineering*, 7(4): 3749-3758, 2019. (IF: 8.4; Citations: 174)

J30. Rowena Carpio, Yuanhui Zhang, Chih-Ting Kuo, **Wan-Ting Chen,** Lance Schideman, Rizalinda de Leon, "Characterization and Thermal Decomposition of Demineralized Wastewater Algae Biomass", *Algal Research,* 38:101399, 2019. (IF: 5.1; Citations: 28)

J31. Buchun Si, Libin Yang, Jamison Watson, Giovana Tommaso, **Wan-Ting Chen**, Na Duan, Zhidan Liu, and Yuanhui Zhang, "Intensified Anaerobic Digestion of High-strength Hydrothermal Liquefaction Wastewater with Granule Activated Carbon Addition/Ozone Pretreatment," *Green Chemistry*, 21(6): 1305-1318, 2019. (IF: 9.8; Citations: 92)

J32. **Wan-Ting Chen**, Yuanhui Zhang, Timothy Lee, Zhenwei Wu, Buchun Si, Chia-Fon Lee, Alice Lin, and B.K. Sharma "Renewable Diesel Blendstocks Produced by Hydrothermal Liquefaction of Wet Biowaste," *Nature Sustainability*, 1(11): 702-710, 2018. (IF: 27.6; Citations: 128)

C2d. Peer-reviewed Articles - published before joining UMass Lowell

J33. Jamison Watson, Yuanhui Zhang, Buchun Si, **Wan-Ting Chen**, Raquel de Souza, "Gasification of Biowaste: A Critical Review and Outlooks," *Renewable and Sustainable Energy Reviews*, 83:1-17, 2018. (IF: 15.9; Citations: 296)

J34. **Wan-Ting Chen**, Wanyi Qian, Yuanhui Zhang, Zachary Mazur, Chih-Ting Kuo, Karalyn Scheppe, Lance Schideman, B.K. Sharma, "Effect of ash on hydrothermal liquefaction of high-ash content algal biomass" *Algal Research*, 25:297-306, 2017. (IF: 5.1; Citations: 87)

J35. Mingxia Zheng, Lance Schideman, Giovana Tommaso, **Wan-Ting. Chen**, Yan Zhou, Ken Nair, Wanyi Qian, Yuanhui Zhang, Kaijun Wang, "Anaerobic Toxicity Assay and Detoxification of Wastewater Generated from Hydrothermal Liquefaction of *Spirulina* during Anaerobic Digestion," *Energy Conversion and Management*, 141: 420-428, 2017. (IF: 9.8; Citations: 130)

J36. **Wan-Ting Chen**, Liyin Tang, Wanyi Qian, Karalyn Scheppe, Ken Nair, Zhenwei Wu, Chao Gai, Peng Zhang, Yuanhui Zhang, "Extract Nitrogen-Containing Compounds in Biocrude Oil Converted from Wet Biowaste via Hydrothermal Liquefaction," *ACS Sustainable Chemistry & Engineering*, 4 (4): 2182-2190, 2016. (IF: 8.4; Citations: 42)

J37. Heena Dhasmana, Hasan Ozer, Imad Al-Qadi, Yuanhui Zhang, Lance Schideman, B.K. Sharma, **Wan-Ting Chen**, Mitchell Minarick, Peng Zhang, "Rhelogical and Chemical Characterization of Biobinders from Different Biomass Resources," *Transportation Research Record Journal of the Transportation Research Board,* 2505:121-129, 2015. (IF: 1.7; Citations: 41)

J38. Chao Gai, Yuanhui Zhang, **Wan-Ting Chen**, Peng Zhang, Yuping Dong, "An Investigation of Reaction Pathways of Hydrothermal Liquefaction Using *Chlorella pyrenoidosa* and *Spirulina platensis*," *Energy Conversion & Management*, 96:330-339, 2015. (IF: 10.4; Citations: 260)

J39. Chao Gai, Yuanhui Zhang, **Wan-Ting Chen**, Lance Schideman, Peng Zhang, Yan Zhou, Giovana Tommaso, Chih-Ting Kuo, Yuping Dong, "Characterization of Aqueous Phase from the Hydrothermal Liquefaction of Chlorella Pyrenoidosa," *Bioresource Technology*, 184:328-335, 2015. (IF: 11.4; Citations: 289)

J40. Giovana Tommaso, **Wan-Ting Chen**, Peng Li, Lance Schideman, Yuanhui Zhang, "Chemical Characterization and Anaerobic Biodegradability of Aqueous Products Generated from Hydrothermal Liquefaction of Mixed-Culture Algae from Wastewater Treatment System," *Bioresource Technology*, 178:139-146, 2015. (IF: 11.4; Citations: 182)

J41. **Wan-Ting Chen,** Junchao Ma, Yuanhui Zhang, Gai Chao, Wanyi Qian, "Physical Pretreatments of Wastewater Algae to Reduce Ash Content and Improve Thermal Decomposition Characteristics," *Bioresource Technology*, 169: 816-820, 2014. (IF: 11.4; Citations: 75)

J42. **Wan-Ting Chen,** Yuanhui Zhang, Jixiang Zhang, Lance Schideman, Guo Yu, Peng Zhang, Mitchell Minarick, "Co-liquefaction of Swine Manure and Mixed-culture Algal Biomass from a Wastewater Treatment System to Produce Bio-crude Oil," *Applied Energy*, 128: 209-216, 2014. (IF: 11.2; Citations: 242)

J43. Chao Gai, Yuanhui Zhang, **Wan-Ting Chen**, Peng Zhang, Yuping Dong, "Energy and Nutrient Recovery Efficiencies in Biocrude Oil Produced via Hydrothermal Liquefaction of Chlorella Pyrenoidosa," *RSC Advances*, 33: 16958-16967, 2014. (IF: 3.9; Citations: 122)

J44. **Wan-Ting Chen,** Yuanhui Zhang, Jixiang Zhang, Peng Zhang, Guo Yu, Lance Schideman, Mitchell Minarick, "Hydrothermal Liquefaction of Mixed-culture Algal Biomass from Wastewater Treatment System into Bio-crude Oil," *Bioresource Technology*, 152: 130-139, 2014. (IF: 11.4; Citations: 380)

J45. Chao Gai, Yuanhui Zhang, **Wan-Ting Chen**, Peng Zhang, Yuping Dong, "Thermogravimetric and Kinetic Analysis of Thermal Decomposition Characteristics of Low-Lipid Microalgae," *Bioresource Technology*, 150: 139-148, 2013. (IF: 11.4; Citations: 187)

J46. Mai Pham, Lance Schideman, Brajendra K Sharma, Yuanhui Zhang, **Wan-Ting Chen**, "Effects of Hydrothermal Liquefaction on the Fate of Bioactive Contaminants in Manure and Algal Feedstocks," *Bioresource Technology*, 149: 126-135, 2013. (IF: 11.4; Citations: 67)

J47. Jixiang Zhang, **Wan-Ting Chen**, Peng Zhang, Yuanhui Zhang, Zhongyang Luo, "Hydrothermal Liquefaction of *Chlorella pyrenoidosa* in Sub- and Supercritical Ethanol with Heterogeneous Catalysts," *Bioresource Technology*, 133: 389-397, 2013. (IF: 11.4; Citations: 190)

J48. **Wan-Ting Chen**, Chiao-Wen Lin, Po-Kong Shih, Wen-Lian Chang, "Adsorption of Phosphate into Waste Oyster shell: Thermodynamic Parameters and Reaction Kinetics," *Desalination and Water Treatment,* 47: 86-95, 2012. (IF: 1.23; Citations: 57)

C2e. Book Chapters published at UMass Lowell

BC1. Daniel Lachos-Perez, Taofeng Lu, and **Wan-Ting Chen*,** "Hydrothermal Liquefaction of Polyethylene and Polypropylene: Recent Advances and Future Perspectives," Sustainable Green Chemistry in Polymer Research. Volume 1. Biocatalysis and Biobased Materials, ACS Symposium Series, H.N. Cheng & R.A. Gross ed., 2023. ***(Invited).***

BC2. Muhammad Assad Munawar, Pan Li, Qiulin Ma, Md. Akiful Haque, and **Wan-Ting Chen*,** "Thermochemical Conversions of Municipal Solid Waste to Fuels and Chemicals," Advances in Bioenergy, Elsevier S&T Books, Y. Li ed., 2023. ***(Invited).*** (CiteScore: 6.3; Citations: 6)

BC3. Kalsoom Jan, Md. Akiful Haque, Shaoqing Cui, Taofeng Lu, Gregory Reimonn, and **Wan-Ting Chen*,** "Thermosets from Renewable Sources," Handbook of Thermoset Plastics, Elsevier S&T Books, H. Dodiuk, ed., 2021. ***(Invited).***

C2f. Book Chapters published before joining UMass Lowell

BC4. Yuanhui Zhang and **Wan-Ting Chen**, "Hydrothermal liquefaction of protein-containing feedstocks," Direct Thermochemical Liquefaction of Biomass for Energy Applications, Elsevier S&T Books, L. Rosendahl ed., 2017. ***(Invited).*** (Citations: 44)

C2g. Patents published after joining UMass Lowell (research performed during postdoc training)

P1. **Wan-Ting Chen**, Nien-Hwa Linda Wang, and Jin Kai, "Methods of Converting Plastic Waste into Useful Stock," US 2019/0322832 A1, Oct.24, 2019 (Citations: 5).

C2h. Invited Technical Presentations after joining UMass Lowell (without publications)

I1. Exploring Microplastics: Impacts, Solutions, and Policy Perspectives, *Massachusetts Water Resources Research Center Microplastics Symposium, Virtual,* Apr 2024

I2. Exploring Interactions of Mild Acids with Multilayer Packaging: From Degradation to Chemical Recycling, Adhesion CoP Seminar Series, Dow, *Virtual,* Mar 2024

I3. Advanced Recycling of Plastic Waste in Medical Industries, *Spotlight Medical Extrusion &*

Secondary Operations Conference, Lowell, MA, Sep 2023.

I4. Hydrothermal liquefaction of polyethylene with different molecular weights in supercritical water**,** *27th ACS Green Chemistry & Engineering Conference,* Long Beach, CA, Jun 2023.

I5. Upcycling Plastic Waste for a Circular Economy, *National Central University (Taiwan),* Graduate Institute of Network Learning Technology, Virtual Seminar, Apr 2023.

I6. Upcycling Food Waste into Useful Products*, ACS Zero Hunger Summit*, Virtual Seminar, December 2022.

I7. Upcycling Plastic Waste for a Circular Economy*, The State University of New York (SUNY) at Buffalo Department of Chemical Engineering*, Virtual Seminar, December 2022.

I8. Biodegradable Mulch Film Produced from Soy-filled Polymer Resins*, ACS Southeastern Regional Meeting (SERMACS)*, San Juan, PR, October 2022.

I9. Hydrothermal Liquefaction of Pretreated Polyethylene-based Ocean-Bound Plastic Waste in Supercritical Water, *Taipei International Conference on Catalysis*, Virtual Seminar, July 2022.

I10. Weathering and Degradation of Polymeric Films in Acidic Food and Aqueous Environments: Focus on Surface Effects, *U.S. Army Research Lab Environmental Films Workshop*, Virtual Workshop, May 2022.

I11. Biofilm-Influenced Weathering of Polypropylene Films in Various Aqueous Environments*, ACS Spring Conference (Innovation Materials & Technologies for Environmental Sustainability Symposium)*, Virtual Seminar, May 2022.

I12. Investigation of Multilayer Film Structures and their Performance Properties for Meal-Ready-to-Eat Hot Sauce Packaging*, Research & Development Associates for Military Food & Packaging Systems (R&DA) Spring Meeting*, Hershey, PA, March 2022.

I13. Chemical Recycling of Plastic Waste: Current State-of-the-art and Industrial Applications*, Texas A&M University Society of Plastic Engineers Student Chapter*, Virtual Seminar, February 2022.

I14. EWD Short Course Presentation: Chemical Recycling 101*, REMADE Institute Member Meeting,* Virtual Workshop, November 2021.

I15. Chemical Recycling of Challenging Plastic Waste Streams*, the 3rd Global Symposium on Waste Plastic*, Virtual Seminar, November 2021.

I16. Chemical Recycling of Plastic Waste: Current State-of-the-art and Industrial Applications*, University of Oxford Materials Colloquium Talk*, Virtual Seminar, May 2021.

I17. Biodegradable Mulch Films Produced from Soy-filled Polymer Resins*, ACS Spring Conference (ACS Presidential Symposium: Sustainability: Advances and Applications),* Virtual Seminar, April 2021.

I18. Material Attributes of MSW that Impact the Quality for Hydrothermal Processes (HTP), *Environment-Enhancing Energy Workshop*, Virtual Workshop, January 2021.

I19. Chemical Recycling of Plastic and Plastic Additives: Perspective on Industrial Applications*, AICHE Annual Meeting (Waste Plastics Plenary),* Virtual Panel, November 2020.

I20. Chemical Recycling of Plastic Waste: Current State-of-the-art and Industrial Applications, *University of Massachusetts Lowell Department of Chemistry*, Virtual Seminar, October 2020.

I21. Waste Valorization for a Circular Economy, *ACS Fall Conference (Sustainable Green Chemistry: Bench to Market Symposium)*, Virtual Seminar, August 2020.

I22. Plastic Waste Valorization for a Circular Economy: Perspective on Chemical Recycling and Industrial Applications*, Braskem USA*, Virtual Seminar, August 2020.

I23. Chemical Recycling of Plastic Waste: Current State-of-the-art and Industrial Applications*, REMADE Institute Short Course Series*, Recorded Seminar, June 2020.

I24. Microplastic Pollution and Emerging Solutions*,* University of Massachusetts Lowell Department of Environment, Earth & Atmospheric Sciences, Virtual Seminar, April 2020.

I25. Fundamental material attributes of MSW that impact the quality necessary for various conversion pathways and feedstock end-uses*,* U.S. DOE BETO Municipal Solid Waste Workshop, Arlington, VA, February 2020.

I26. *Plastic Waste Valorization for a Circular Economy: Perspective on Chemical Recycling,* REMADE Institute Webinar Series, Recorded Webinar, January 2020.

I27. Plastic Waste Valorization for a Circular Economy: Perspective on Chemical Recycling*, French-American Workshop—Responding to Plastic Pollution through Science: from research to action,* Le Mans and Paris, France, December 2019.

I28. Valorization of Textile Waste for a Circular Economy: Perspective on Chemical Recycling*, 19th Annual Sukant Tripathy Memorial Symposium*, Lowell, MA, December 2019.

I29. Waste Valorization for a Circular Economy*, U.S. Army Combat Capabilities Development Command Soldier Center (DEVCOM SC)*, Natick, MA, November 2019.

I30. Converting Wet, Bio, and Solid Waste into Liquid Fuels*, Innovative Conceptual Engineering Design (ICED) Epic Challenge program for high school student from the USA*, Upton, MA November 2019.

I31. Waste Valorization for a Circular Economy: Status in Textile Recycling*, University of Massachusetts Lowell FAHS.2200 Designing the Future World*, September 2019.

I32. Microplastic Pollution and Emerging Solutions*, University of Massachusetts Lowell Department of Civil & Environmental Engineering*, April 2019.

I33. *Circular Economy and Waste Valorization,* University of Massachusetts Lowell Department of Plastic Engineering, March 2019; March 2020; March 2021 Mar.

C2i. Contributed Oral Conference Presentations after joining UMass Lowell

Without publications; speaker indicated with asterisk*

Pr1. Daniel Lachos-Perez* and Wan-Ting Chen, Tuning Hydrothermal Liquefaction to Produce Valuable Aromatic Chemicals from Multilayer Films, *American Chemical Society Fall Meeting*, Denver, CO, Aug. 2024.

Pr2. Kalsoom Jan*, Daniel Lachos-Perez, and W.-T. Chen, Probing the Role of $CaCO_3$ on Hydrothermal Liquefaction of Polyethylene in the Presence of Supercritical Water, *American Chemical Society Fall Meeting*, Denver, CO, Aug. 2024.

Pr3. Taofeng Lu*, and W.-T. Chen, Catalytic Hydrothermal Liquefaction of Polyethylene with Pt/C to Tune Product Selectivity, *American Chemical Society Fall Meeting*, Denver, CO, Aug. 2024.

Pr4. Kalsoom Jan, Andrew Halloran, Daniel Lachos-Perez, and W.-T. Chen*, Unlocking hydrothermal liquefaction mechanisms for enhanced deconstruction of polyethylene polymer blends, *American Chemical Society Fall Meeting*, Denver, CO, Aug. 2024.

Pr5. Kerry Candlen*, Pongkhun Prommart, Caralyn Conrad, Jo Ann Ratto, Robina Hogan, and Wan-Ting Chen, Biodegradation Study of Poly(butylene adipate-co-terephthalate)/ Poly(lactic) Acid/Soy Waste Multilayer Mulch Film*, American Chemical Society Fall Meeting*, Denver, CO, Aug. 2024.

Pr6. Kerry Candlen*, Sandeep Tripathi, Danielle Froio-Blumsack, Jo Ann Ratto, Amy Peterson, and Wan-Ting Chen, Preliminary Investigation of Performance Metrics for Meals, Ready-to-Eat (MRE) Ration Packaging towards Sustainable Packaging Options*, Research & Development Associates for Military Food & Packaging Systems (R&DA) Spring Meeting*, Tucson, AZ, May 2024.

Pr7. Kerry Candlen*, Sandeep Tripathi, Md. Akiful Haque, Danielle Froio-Blumsack, Jo Ann Ratto, Amy Peterson, and Wan-Ting Chen, Investigation of Performance Metrics for Meals, Ready-to-Eat (MRE) Ration Packaging towards Sustainable Packaging Options*, the 39th International Conference of the Polymer Processing Society (PPS-39),* Cartagena de Indias, Columbia, May 2024.

Pr8. Kalsoom Jan*, Taofeng Lu, Christian Ayafor, H.-W. Wong, and W.-T. Chen, Two-step Chemolytic Delamination of Multilayer Laminated Packaging Films into Valuable Chemicals, *REMADE Circular Economy Tech Summit & Conference*, Washington D.C., Apr. 2024.

Pr9. Daniel Lachos-Perez*, Kalsoom Jan, Akash Patil, and Wan-Ting Chen, "The effects of pressure and polymer to water ratio on polyethylene depolymerization under superheated steam or supercritical water," *REMADE Circular Economy Tech Summit & Conference*, Washington D.C., Apr. 2024.

Pr10. Kerry Candlen*, Gregory Reimonn, Md. Akiful Haque, Hosterman Olivia, and Wan-Ting Chen, Biofilm-influenced weathering of polypropylene films in various aqueous environments, *the 38th International Conference of the Polymer Processing Society (PPS-38),* St. Gallen, Switzerland, May 2023.

Pr11. Kerry Candlen*, Md. Akiful Haque, Sandeep Tripathi, Tahamina Nasrin, Danielle Froio-Blumsack, Jo Ann Ratto, Amy Peterson, and Wan-Ting Chen, Preliminary Investigation of Performance Metrics for Meals, Ready-to-Eat (MRE) Ration Packaging towards Sustainable Packaging Options*, Research & Development Associates for Military Food & Packaging Systems (R&DA) Spring Meeting*, Lexington, KY, April 2023.

Pr12. Evan Yu and Wan-Ting Chen*, Material Recycling of Polycarbonate from Electronic Waste Using Density Separation and Safer Solvents, *AICHE Annual Meeting*, Phoenix, AZ, Nov. 2022.

Pr13. Shawn Martey*, Nicholas Farfaras, Keith Hendren, Jesse Kelly, Izabela Ciesielska-Wrobel, Margaret Sobkowicz, and Wan-Ting Chen**,** Recycling of Pretreated Polyolefin-Based Ocean-Bound Plastic Waste by Incorporating Clay and Rubber, *ACS Fall 2022 National Conference*, Chicago, IL, August 2022.

Pr14. Taofeng Lu*, Kalsoom Jan, and Wan-Ting Chen, Material Recycling of Acrylonitrile Butadiene Styrene (ABS) from Toy Waste Using Safer Solvents, *2022 International Conference on Resource Sustainability*, Virtual Conference, August 2022.

Pr15. David Nguyen*, Evan Yu, Carol Barry, and Wan-Ting Chen, A Perspective on Applying Life Cycle Analysis to Injection Molding, *2022 International Conference on Resource Sustainability,* Virtual Conference, August 2022.

Pr16. Evan Yu*, and Wan-Ting Chen, Density Separation for the Recycling of Electronic Waste Plastics, *ACS Rubber Division New England area meeting*, Virtual Meeting, November 2021.

Pr17. Taofeng Lu*, and Wan-Ting Chen, Hydrothermal Process of the Ocean-Bound Plastic Waste into Value-Added Aromatic Chemicals, *AICHE Annual Meeting*, Boston, MA, November 2021.

Pr18. Fatemeh Lessan*, Shiran Yu, Ramaswamy Nagarajan, and Wan-Ting Chen, A Novel Flame-Retardant Finish for Nylon/Cotton Fabric, *AICHE Annual Meeting,* Boston, MA, November 2021.

Pr19. Kerry Candlen*, Gregory Reimonn, and Wan-Ting Chen, Identification of Environmental Microplastics Using Pyrolysis Gas Chromatography Mass Spectrometry (Py-GC/MS), *AICHE Annual Meeting*, Boston, MA, November 2021.

Pr20. Md. Akiful Haque*, Kerry Candlen, Amy Peterson, Jo Ann Ratto, and Wan-Ting Chen, "Degradation Behavior of Flexible Packaging Films in Acidic Environments," *AICHE Annual Meeting*, Boston, MA, November 2021.

Pr21. Madison Reed* and Wan-Ting Chen, Plastics Crash Course: An Online Database for Teaching Plastics Recycling Through Graphics, *ASEE Northeast Section Conference*, Worcester, MA, October 2021.

Pr22. Shawn Martey*, Nicholas Farfaras, Keith Hendren, Jesse Kelly, Izabela Ciesielska-Wrobel, Margaret Sobkowicz, and Wan-Ting Chen, Mechanical Recycling of Ocean Plastic Waste Using Nanoclay and Compatibilizers, *ACS Green Chemistry & Engineering Conference*, Virtual Conference, June 2021.

Pr23. Apekshya Sharma*, Evan Yu, Gregory Morose and Wan-Ting Chen, Finding Safer Solvents to Replace Methylene Chloride in Pharmaceutical Manufacturing, *ACS Green Chemistry & Engineering Conference*, Virtual Conference, June 2021.

Pr24. Nicholas Farfaras*, MdAkiful Haque, Shawn Martey, Peter Perez, Jo Ann Ratto, Robina Hogan, Ron Pulis, and Wan-Ting Chen, Biodegradable Mulch Films Produced from Soy-Filled Polymer Resins, *ACS Green Chemistry & Engineering Conference*, Virtual Conference, June 2021.

Pr25. Lester Anderson* and Wan-Ting Chen, Chemical Recycling of Mixed Plastics in the Electronic Waste Using Solvent-Based Processing, *AICHE Annual Meeting*, Virtual Conference, November 2020.

Pr26. Wan-Ting Chen*, Valorization of Textile Waste for a Circular Economy: Perspective on Chemical Recycling, *Polymers and Textiles Conference*, Lowell, MA, November 2019.

Pr27. Wan-Ting Chen*, Kai Jin, Nien-Hwa Linda Wang, The Use of Supercritical Water for the Liquefaction of Polypropylene into Oil, *AICHE Annual Meeting*, Orlando, FL, November 2019.

Pr28. Wan-Ting Chen*, Kai Jin, Nien-Hwa Linda Wang, The Use of Supercritical Water for the Liquefaction of Polypropylene into Oil, *Global Symposium on Waste Plastic*, Lexington, KY, September 2019.

Pr29. Wan-Ting Chen*, Zhenwei Wu, Yuanhui Zhang, and Buchun Si, Renewable Diesel and Biopriviliged Chemicals Distilled from Algal Biocrude Oil, *American Society of Agricultural & Biological Engineers (ASABE) Annual Meeting*, Boston, MA, July 2019.

Pr30. Wan-Ting Chen*, Kai Jin, Nien-Hwa Linda Wang, Plastic Waste Accumulation Problem and Emerging Solutions, *Polymer Processing Society (PPS) Americas Regional Conference*, Boston, MA, November 2018.

Pr31. Wan-Ting Chen, Kai Jin, and Nien-Hwa Linda Wang*, Plastic Waste Accumulation Problem and Emerging Solutions, AICHE Annual Meeting, Pittsburgh, PA, November 2018.

C2j. Contributed Oral Conference Presentations before joining UMass Lowell (speaker*)

Pr32. Wan-Ting Chen*, Yuanhui Zhang, Tim Lee, Zhenwei Wu, Chia-Fon Lee, and Brajendra Sharma, Renewable Transportation Biofuel Converted from Wet Biowaste via Hydrothermal Liquefaction, *AICHE Annual Meeting*, Minneapolis, MN, October 2017.

Pr33. Wan-Ting Chen*, Wanyi Qian, Yuanhui Zhang, Chih-Ting Kuo, Lance Schideman, and Brajendra Sharma, "Hydrothermal Liquefaction of High-ash Algal Biomass: The Effect of Ash Contents in HTL Reactions, *AICHE Annual Meeting*, San Francesco, CA, November 2016.

Pr34. Wan-Ting Chen*, Yuanhui Zhang, Lance Schideman, Brajendra Sharma, "Integrated Bio-Refineries of Biocrude Oil Converted from Wet Bio-Waste Via Hydrothermal Liquefaction into Drop-in Fuel and Value-Added Chemical, *AICHE Annual Meeting*, Salt Lake City, UT, November 2015.

Pr35. Wan-Ting Chen*, Liying Tang, Ken Nair, Yuanhui Zhang, Guo Yu, Chao Gai, Mitigation of Nitrogen-containing compounds in Bio-crude Oils by Serial Extraction, *American Society of Agricultural & Biological Engineers (ASABE) Annual Meeting*, Montreal, Canada, July 2014.

Pr36. Wan-Ting Chen*, Wanyi Qian, Yuanhui Zhang, Lance C. Schideman, Screen Pretreatment for Improvement of Bio-crude oil Quality Converted from Mixed-culture Algal Biomass from Wastewater Treatment System, *American Society of Agricultural & Biological Engineers (ASABE) Annual Meeting*, Montreal, Canada, July 2014.

Pr37. Wan-Ting Chen*, Jixiang Zhang, Yuanhui Zhang, Peng Zhang, Hydrothermal Liquefaction of Wastewater Algae Mixtures into Bio-crude Oil, American Chemical Society, Preprint Paper, Division of Energy & Fuels, 58 (2): 416-417 2013, Indianapolis, IN, 2013.

Pr38. Wan-Ting Chen*, Yuanhui Zhang, Jixiang Zhang, Peng Zhang, "Assessment of Converting Waste-fed Algae into Biocrude Oil via Hydrothermal Liquefaction: Product Distribution, Composition and Characterization," Oral Presentation in American Society of Agricultural & Biological Engineers (ASABE) Annual Meeting, Kansas City, MO, July 2013.

Pr39. Wan-Ting Chen*, Jixiang Zhang, Yuanhui Zhang, Peng Zhang, Yu Guo, Mitchell Minarick, Product Distribution of Hydrothermal Conversion for Two Types of Algae and Mixtures with Swine Manure, American Society of Agricultural & Biological Engineers (ASABE) Annual Meeting, Dallas, TX, August 2012.

C2k. Contributed Conference Posters after joining UMass Lowell

Without publications; speaker indicated with asterisk*

Po1. Kalsoom Jan*, Taofeng Lu, Christian Ayafor, His-Wu Wong, and Wan-Ting Chen, Two-step chemolytic delamination of multilayer packaging films into valuable chemicals, in *Tripathy*

Annual Symposium, Lowell, MA, December 2023.

Po2. Daniel Lachos-Perez*, Kalsoom Jan, and Wan-Ting Chen, Role of Pressure and Solid Content on Polyethylene Depolymerization in the Presence of Superheated Steam or Supercritical water, in *Tripathy Annual Symposium*, Lowell, MA, December 2023.

Po3. Wan-Ting Chen* and Taofeng Lu, Material Recycling of Acrylonitrile Butadiene Styrene from Toy Waste Using Safer Solvents, *AICHE Annual Meeting*, Orlando, FL, November 2023.

Po4. Sandeep Tripathi*, Kerry Candlen, Danielle Froio-Blumsack, Jo Ann Ratto, Wan-Ting Chen, Amy M. Peterson, Preliminary Investigation of Mechanical Properties of Performance Metrics for Meal-ready-to-Eat (MRE) Ration Packaging towards Sustainable Packaging Options, in *2023 Gordon Research Conference (GRC): Science of Adhesion*, South Hadley, MA, July 2023.

Po5. Wan-Ting Chen*, Separation and Material Recycling of Polycarbonate from Electronic Waste Using Solvents, in *2023 Gordon Research Conference (GRC): Plastics Recycling and Upcycling*, Manchester, NH, July 2023.

Po6. Daniel Lachos-Perez*, Kalsoom Jan, and Wan-Ting Chen, The Effect of Pressure on Hydrothermal Processing of Polyethylene, in *2023 Gordon Research Conference (GRC): Plastics Recycling and Upcycling*, Manchester, NH, July 2023.

Po7. Kalsoom Jan*, Taofeng Lu, Ana Paula de Azeredo, Regina Funck Nomemacher, and Wan-Ting Chen, Hydrothermal Liquefaction of Polyethylene with Different Molecular Weights in Supercritical Water, in *2023 Gordon Research Conference (GRC): Plastics Recycling and Upcycling*, Manchester, NH, July 2023.

Po8. Megan Kongable*, Sourabh Kulkarni, Wan-Ting Chen, Ravi Mosurkal, and Ramaswamy Nagarajan, Increasing Durability of Flame Retardants on Cotton Fabric Using Safer Chemicals, in *Global Polymers and Textile Summit*, Lowell, MA, April 2023.

Po9. Kalsoom Jan*, Taofeng Lu, and Wan-Ting Chen, Hydrothermal Liquefaction of Polyethylene with Different Molecular Weights in Supercritical Water, in *Tripathy Annual Symposium*, Lowell, MA, December 2022.

Po10. Taofeng Lu*, Kalsoom Jan, and Wan-Ting Chen, Hydrothermal Liquefaction of Pretreated Polyethylene-based Ocean-Bound Plastic Waste in Supercritical Water, in *Tripathy Annual Symposium*, Lowell, MA, December 2022.

Po11. Md. Akiful Haque*, Kerry Candlen, Amy Peterson, Jo Ann Ratto, and Wan-Ting Chen**,** Degradation Behavior of Flexible Packaging Films in Presence of a Highly Acidic Sauce, *AICHE Annual Meeting*, Phoenix, AZ, November 2022.

Po12. Gregory Reimonn*, Madison Reed, Demetre Fontaine, and Wan-Ting Chen**,** Microplastics: Biodegradation, Community, and Engagement, *New England Water Environment Association Annual Conference*, Virtual Conference, January 2021.

Po13. Evan Yu*, Taofeng Lu, and Wan-Ting Chen, Use of Diffusion Modeler to Help Identify Safer Solvents to Replace Dichloromethane for Conformal Coating Removal, *AICHE Annual Meeting*, Virtual Conference, November 2020.

Po14. Kerry Candlen*, Evan Yu, Md. Akiful Haque, Wan-Ting Chen, Amy Peterson, and Jo Ann Ratto, Identification of Critical Performance Properties for Barrier Materials in Hot Sauce Packaging for Meals Ready-to-Eat (MRE) Rations, *AICHE Annual Meeting*, Virtual Conference, November 2020.

Po15. Wan-Ting Chen*, Chemical Recycling of Mixed Plastics and Valuable Metals in the Electronic Waste Using Solvent-Based Processing, *2019 REMADE Institute Annual Member Meeting*, Rochester, NY, October 2020.

Po16. Wan-Ting Chen*, Organic Waste Valorization for a Circular Economy, *Gordon Research Conference (GRC): Biomass to Biobased Chemicals and Materials*, Newry, ME, July 2019.

Po17. Gregory Reimonn* and Wan-Ting Chen, Microplastic Pollution in the Environment and Emerging Solutions, *America East Undergraduate Research Symposium*, Binghamton, NY, April 2019.

C2l. Other Research or Creative Actives after joining UMass Lowell

OR1. Invited perspective article contributed to AICHE CEP Magazine, *Waste Plastic: Challenges and Opportunities for the Chemical Industry*, Jeff Seay, Wan-Ting Chen, and Mary Ellen Ternes, November 2020 (Citations: 11).

OR2. Invited blog post for Nature Research Sustainability Community, *Transitioning from student to educator: the importance of mentorship to creating a better balance*, equally contributed by Wan-Ting Chen and Yanfen Li, March 2019.

OR3. Invited blog post for Nature Research Sustainability Community, *Waste or resource?*, November, 2018.

D. INSTRUCTION RELATED ACTIVITY

D1. Courses Taught for Basic Teaching Load

- **PLAS.2470 Thermodynamics**
  - Required sophomore level course for Plastics Engineering majors (3 credits)
  - Co-taught with senior faculty member in spring 2019.
- **PLAS.5110 Polymer Blends**
  - Plastics Engineering technical elective for seniors and graduate students (3 credits)
  - Redeveloped this UMass Lowell course, which had not been taught recently.
  - Taught in two modes: 1) face-to-face and 2) HyFlex. HyFlex is a single course mode where some students are in the classroom and other students are online through Zoom.
- **PLAS.5970 Plastics & Environment**
  - Plastics Engineering technical elective for seniors and graduate students (3 credits)
  - Created this course as new elective at UMass Lowell.
  - Taught in two modes: 1) face-to-face and 2) asynchronous online (through GPS and Blackboard Learn). Teaching in these modes requires separate course sections because the "lectures," student interactions, and evaluations are adjusted for the delivery mode. UMass Lowell's Plastics Engineering Department offers 10-12 asynchronous online graduate courses per semester and officially is offering a completely online M.S. Plastics Engineering degree, starting in fall 2023.

Enrollment of the above classes is summarized below:

Semester (COVID Status)	PLAS.2470	PLAS.5110	PLAS.5970 (F2F)	PLAS.5970 (GPS)
Fall 2018			20	
Spring 2019	63			
Fall 2019			19	
Spring 2020 (Half virtual)	36			
Fall 2020 (Virtual)			18	12
Spring 2021 (Virtual)	31	20		
Fall 2021			14	12
Spring 2022	24			
Fall 2022		14*		23
Spring 2023	17			
Fall 2023			7	13
Spring 2024	9			
Fall 2024		6	1	20

*Asterisk indicates HyFlex offering; GPS is online asynchronous delivery

D2. Senior Capstone Projects and Special Topics Courses

In addition to the basic course load, Plastics Engineering faculty advise two-semester senior capstone projects (1 credit per semester). Nine projects and 17 students were advised since fall 2018.

Senior Capstone Projects Advised

1) **Chemically Recycling Analysis of Medical Waste***,* Tucker Carter, Ryan MacNeil, Austin Ribaudo, and Brian Amici (only for 2018 Fall semester), September 2018-May 2019
2) **Chemical Recycling of Polymeric Materials within Electronic Waste Samples,** Brian Amici, January 2019-May 2019
3) **Solubility of Electronic Waste,** David Peterson, John Gaeta, and Matthew Iacoviello, January 2019-December 2019
4) **Microplastic Pollution Prevention***,* Brianna Atwood, Courtney King, Josh Nutter, September 2019-May 2020
5) **Recyclability of Flame Retardants Used in Electronics,** Julia Pryharski, September 2019-May 2020
6) **Electronic Waste Recyclability***,* Bridget McCarthy, January 2020-December 2020
7) **Macro and Micro-Plastic Waste Collection and Characterization,** Gregory Reimonn, Madison Reed, Demetre Fontaine, September 2020 – May 2021
8) **Density Separation for the Recycling of Electronic Waste Plastics,** Evan Yu, September 2021 – December 2021
9) **Development of Greener Flame Retardant for Nylon 6,** David Nguyen, September 2022 – December 2022 (co-advised with Prof. Ram Nagarajan)
10) **Sort and Analyze Plastic Waste to Enable Effective Chemical Recycling,** Olivia Hosterman and Rachel LaLumiere, September 2024 – present

PLAS. 5330 Special Topics (Polymers Derived from Biowaste)

- Plastics Engineering graduate technical elective taught to meet students' interest or need (1 credit).
- Taught one student in spring 2020 (half virtual due to COVID).

D3. Honor College Senior Capstone Projects (3 credits with a bachelor's thesis)

- **Biofilm-Influenced Weathering of Polypropylene Films in Various Aqueous Environments**, Gregory Reimonn, January 2021 – May 2021
  - *NSF Graduate Research Fellowship recipient, 2021, and NDSEG Fellowship recipient, 2021*
  - *PhD student at the University of Michigan Ann Arbor since 2021*
- **Microplastics: Biodegradation, Community, and Engagement**, Madison Reed, January 2021 – May 2021
  - National Women in Defense (WID) Fellowship recipient, 2021
  - First author on peer-reviewed journal article J6 and presenter for Pr.12
  - Awarded 2nd place, Undergraduate Poster Presentation, ASEE Northeast Conference
  - *Ph.D. student at Worcester Polytechnical Institute since 2021*
- **Chemical Recycling of High-Value Plastics from Electronic Waste Using Safer Solvents**, Evan Yu, January 2022 – May 2022
  - *SPE Recycling Division Scholarship recipient, 2022*
  - *MS student at Nanyang Technological University, Singapore since 2022*
- **Development of Greener Flame Retardant for Nylon 6,** David Nguyen, January 2023 – May 2023 (co-advised with Prof. Ram Nagarajan)

D4. Undergraduate Research Projects Advised

UMass Lowell - Honors Research Fellowship Projects (which require up to 100 hours of training)

- Microplastic Pollution: Mini Review*,* Gregory Reimonn, September 2018 – May 2019
- The Processes of Plastic Degradation, Yrvanie Joseph, January 2020 – May 2020

UMass Lowell - UROC Immersive Scholarship Projects (which require up to 235 hours of training)

- Microplastic Pollution: Mini Review*,* Gregory Reimonn, May 2019 – Aug 2019
- Mulch Films from Soy Waste, Drew Tucker, September 2019 – May 2020
- Flame Retardant Textile Finishes, David Nguyen, May 2020 – Aug 2020 (co-advised with Prof. Ram Nagarajan)
- Diffusion Modeling and Characterizations Development of Macroplastic Weathering in Environment, Aidan Kenawell (Mechanical Engineering Major), September 2020 – May 2021
- Characterizations of Environmental Microfiber and Microplastics, Brooklyn Hayden, September 2020 – May 2021
- Characterizations of Ocean Macro- and Micro-plastics, Ryan Webster (Mechanical Engineering Major), May 2021 – Aug 2021
- Interfacial Interactions between Biofilms and Microplastics, Olivia Hosterman, May 2022 – August 2022
- Evaluate Plant Adaptability of Biodegradable Mulch Film Made of Waste Soy Biomass and Polyesters, Caralyn Conrad (Mechanical Engineering Major), September 2022 – May 2023 (co-advised with Prof. Yanfen Li, Biomedical Engineering)
- Hydrothermal Liquefaction of Low-Molecular Weight Low-Density Polyethylene, Andrew Halloran (Chemistry Major), September 2022 – May 2023

D5. Postdoctoral Research Associates Advised

Student Name	Project Title	Duration	Current Position
Dr. Zhiyu Xia (co-advised with Prof. Ramaswamy Nagarajan)	Flame Retardant Textile Finishes for Cotton	2019-2020	Lyndra Therapeutics, MA
Dr. Fatemeh Lessan (co-advised with Prof. Ramaswamy Nagarajan)	Flame Retardant Textile Finishes for Nylon-Cotton Blends	2020-2021	Covestro, MA
Dr. Ren-Xuan Yang	Catalytical Hydrothermal Liquefaction of Plastic Waste into Valuable Chemicals Using MOF-based Catalyst.	2020-2021	Assistant Professor, at National Taipei University of Technology
Dr. Mohammad Irfan Iqbal (co-advised with Prof. Ramaswamy Nagarajan)	Durable Flame-Retardant Textile Finishes	2022-2023	Postdoc at Drexel University
Dr. Taofeng Lu	Catalytical Hydrothermal Liquefaction of Polyolefin Waste	2023-2024	Postdoc at National Renewable Energy Lab (NREL), USDOE
Dr. Antara Sharma (co-advised with Prof. Ramaswamy Nagarajan)	Durable Flame-Retardant Textile Finishes for Nylon-Cotton Fabrics	2023-pres.	NA
Dr. Daniel Lachos-Perez	Hydrothermal Liquefaction of Polyolefin Packaging Waste	2023-pres.	NA
(*American Chemical Society Bridge Program Fellow, 2023*)			

D6. Graduate Students Advised (Thesis & Dissertation)

Student Name	Degree	Thesis or Dissertation Title	Graduation Year
Evan Yu	Ph.D., Plastics	Material Recycling of E-waste Plastics Using	May 2028

	Engineering	Safer Solvents	(anticipated)
Pongkhun Prommart	Ph.D., Plastics Engineering	Material Recycling of PVOH to Enable Recyclable Multilayer Packaging Design	May 2027 (anticipated)
Kalsoom Jan	Ph.D., Polymer Chemistry	Hydrothermal Depolymerization of Polyolefin and Non-polymeric Contaminant	May 2026 (anticipated)
Kerry Candlen	Ph.D., Plastics Engineering	More Sustainable Plastic Packaging Films and their Interactions with Biofilms in Aqueous Environments	May 2025 (anticipated)
(*ORISE Fellow 2022-2025; National Women in Defense Fellow, 2022-2024; NSF SWIMMER Fellow, 2022*)			
Shawn Martey (co-advised with Prof. Margaret Sobkowicz-Kline)	Ph.D., Plastics Engineering	Reactive Processing and Melt Compounding of Plastic Waste by Incorporating Catalysts and Nanoparticles	December 2023
(Dow Best Symposium selected participants; Ph.D. defense on Nov. 17, 2023; currently working at DuPont)			
Taofeng Lu	Ph.D., Plastics Engineering	Advanced Recycling of Mixed Plastic Waste Using Safer Solvents and Supercritical Water	August 2023
(Ph.D. defense on June 9, 2023; currently working at NREL, a national lab of U.S. DOE)			
Md. Akiful Haque	Ph.D., Plastics Engineering	Degradation Behavior of Multilayer Packaging Films in Presence of a Highly Acidic Sauce	August 2023
(Ph.D. defense on May 17, 2023; currently working at Amphastar Pharmaceuticals Inc.)			
Kalsoom Jan	M.S., Plastics Engineering	Hydrothermal Liquefaction of Polyethylene with Different Molecular Weights in Supercritical Water	December 2022
Nicholas Farfaras	M.S., Plastics Engineering	Enhancement of Mechanical Properties of Soy-Filled Biodegradable Mulch Films	January 2022
Kerry Candlen	M.S., Plastics Engineering	Accelerated Degradation of Biodegradable Mulch Films Produced from Soy-Filled Polymer Resins	December 2021
(RIST Institute Graduate Fellowship Recipient, 2021)			
Apekshya Sharma	M.S., Biomedical Engineering & Biotechnology Program	Safer Solvents to Replace Methylene Chloride in Pharmaceutical Manufacturing	May 2021
Lester Anderson	M.S., Plastics Engineering	Chemical Recycling of Mixed Plastics and Precious Metals in the Electronic Wastes Using Solvent-based Processing	December 2020
(GEM Fellowship Recipient, 2022; currently a Ph.D. student at Virginia Tech)			

D7. Graduate Students Advised (Non-Thesis Option but Paid by Research Grants)

Student Name	Degree	Project Title	Graduation Year
Megan Kongable (co-advised with Prof. Ramaswamy Nagarajan)	M.S., Plastics Engineering	Increasing Durability of Flame Retardants on Cotton Fabrics	December 2023
Kathryn Bobek	M.S., Plastics Engineering	Biocrude oil and Biobased Polymer Production from Sewage Sludge via Hydrothermal Liquefaction	August 2020
Peter Perez	M.S., Plastics	Mulch Films from Soy Waste	May 2020

	Engineering		

D8. Graduate Students Thesis or Dissertation Committee Member

D8a. At the University of Massachusetts Lowell

Student Name	Degree	Project Title	Graduation Year
Mihriye Doga Tekbas	Ph.D., Chemical Engineering	Revealing the Role of Mass Transfer and Chemical Kinetics Interplay in Waste Macromolecule Pyrolysis	Dec 2024 (Anticipated)
Tahamina Nasrin	Ph.D., Plastics Engineering	Applying Machine Learning Approaches to Multilayered Polymer Composites	May 2024
Weiqing Xia	Ph.D., Plastics Engineering	Dual Curable Epoxy with Controllable Properties via Gamma Irradiation	May 2022
Ye Wang	Ph.D., Plastics Engineering	Understanding and Controlling Interfacial Interactions in Thermoset Composite Additive Manufacturing	May 2022
Shiran Yu	Ph.D., Plastics Engineering	Phenolics and Phytic Acid as Potential Fire Retardants: Mechanistic Understanding and Applications	December 2020
Zhiyu Xia	Ph.D., Plastics Engineering	Chemically Modified Tannin as Biobased Char-forming Flame Retardant for Polyamides	December 2019
Siwen Bi	Ph.D., Plastics Engineering	Controlled Release of Phosphate by Tuning Degradation of Biobased and Biodegradable Polyesters	December 2019
Jack Bisson	M.S., Plastics Engineering	Mechanical Characterization and Direct Ink Writing of Self-Healing Poly(Dimethyl Siloxane) Elastomers for Reusable Biomedical Tissue Applications	August 2020

D8b. At Other College or Universities

Student Name	Degree	Project Title	Graduation Year
Shiyu Li	Ph.D., Mining & Minerals Engineering, Virginia Tech	Rare-earth Metal Extraction from Biomass	Dec 2024 (anticipated)
Jamison Watson	Ph.D., Agricultural & Biological Engineering, University of Illinois	Towards Bio-Kerosene Production: A Hydrothermal and Upgrading Approach	August 2021

D9. Undergraduate Student Research Advisor (All Paid by Research Grants)

- **Caralyn Conrad** (Mechanical Engineering Major), Plant Adaptability Test with Biodegradable Mulch Films Derived from Waste Soy Biomass, Summer 2023-present
    - *RIST Institute Undergraduate Fellowship Recipient, 2023*
- **Brooklyn Hayden**, Identify and Screen Polymer Blends with Soy Biomass for Horticultural Applications, Spring 2023-Summer 2023
- **Andrew Halloran** (Chemistry Major), Hydrothermal Liquefaction of Polyolefin Waste, Summer 2022-present

- **Olivia Hosterman**, Interfacial Reactions between Biofilm and Microplastics in Estuarine Environment, 2022 Spring – 2023 Fall
    - *Co-author on peer-reviewed journal article J2*
- **David Nguyen**, Lifecycle Analysis of Chemical Recycling of High-Value Plastics, Fall 2021– Spring 2023
    - *Co-author on peer-reviewed journal articles J1 and J17 and presenter for Pr.15*
- **Olivia Widjaja** (co-advised with Prof. Ramaswamy Nagarajan), Develop Durable Flame-Retardant Finishes for Nyco Fabric, Spring 2022
- **Evan Yu**, Designing Safer Solvents to Replace Methylene Chloride in Plastic Recycling, Coating Removal, and Biopharma Manufacturing, Fall 2019-Summer 2022
    - *ACS New England Rubber and Plastics Group Davis Scholarship recipient, 2021*
    - *First author on peer-reviewed journal article J1 and J5, co-author on peer-reviewed journal article J12, J13, and J14, and presenter for Pr.7 and Po.10*
- **Terence Rippon**, Mechanical Recycling of Ocean Plastic Waste Using Nanoclay as a compatibilizer, Spring 2021
- **Aidan Kenawell** (Mechanical Engineering major), Biocrude oil and Biobased Polymer Production from Sewage Sludge via Hydrothermal Liquefaction, Spring 2020–Summer 2020
- **David Nguyen** (co-advised with Prof. Ramaswamy Nagarajan), Flame Retardant Textile Finishes, Winter 2019-Spring 2020
- **Madison Reed** (co-advised with Prof. Ramaswamy Nagarajan), Flame Retardant Textile Finishes, Spring 2020-Summer 2020
- **Nicholas Farfaras,** Mulch Films from Soy Waste, Fall 2019-Fall 2020
    - *IoPP Scholarship Recipient*
    - *Presenter for Pr.15 and co-author on peer-reviewed journal publication J11 and J15*
- **Kerry Candlen,** SEM Analysis of High-Barrier Materials in Hot Sauce Packaging for Meals, Ready-to-Eat (MRE) Rations, Fall 2019-Fall 2020
    - *IoPP Scholarship Recipient*
    - *First author on peer-reviewed journal publication J11 and presenter for Po.11*
- **Gregory Reimonn,** Microplastic Pollution and Plastic Waste Prevention, Fall 2019 – Summer 2021
    - *Northeastern Section of ACS Undergraduate Researcher Travel Award Recipient*
    - *Presenter for Po.9 and Po.14, first author on peer-reviewed journal publication J17, co-author on peer-reviewed journal articles SJ4, J14 and J16, and co-author on book chapters BC3*
- **David Peterson,** Mulch Films from Soy Waste, Fall 2019
- **Tucker Carter,** Hydrothermal Processes of Polyolefin Waste, Spring 2019
- **Diana Perez**, Chemical Recycling of E-waste, Fall 2018-Spring 2019

D10. High School Student Research Advisor

- **Kristen Lopez-Ferreira, Katherine Tamayo, and Akosua Karikari,** Lowell High School (public)**,** Designing Infographics for Mitigating Microplastic Pollutants, Summer 2021
- **Kiley Conlon and Lillyanna Yim**, Lowell High School (public)**,** Designing Infographics for Mitigating Microplastic Pollution, Fall 2021-Spring 2022
- **Aidan Doherty,** MLSC Program Intern, Lowell High School (public)**,** Evaluate Plant Adaptability with Soy-filled Biodegradable Mulch Film, Summer 2023
- **Shafeek Kawuba and Isabella Tamayo,** MLSC Program Intern, Dracut High School (public)**,** Soy-filled Biodegradable Mulch Film, Summer 2024

D11. Seminars for Industry Professionals

- "Plastic and Environment,"
    - Plastics Seminars - One-day-long seminar taught in summer 2019
    - Two-hour long webinar presented in Spring 2022.
    - Plastics Seminars - One-day-long seminar taught in summer 2024

E. MAJOR SERVICE ACTIVITIES

E1. Professional Conference Sessions Organized

- Chair, Catalytic Upcycling of Waste Plastics session, 2023 AIChE Annual Meetings, Orlando, FL, November 2023
- Chair, Catalytic Upcycling of Waste Plastics session; Recycling and upcycling of Plastic Waste session, 2022 AIChE Annual Meetings, Phoenix, AZ, November 2022
- Chair, Reaction in Near Critical and Supercritical Fluids, 2019 AIChE Annual Meeting, Orlando, FL, November 2019
- Steering committee, Global Symposium on Waste Plastic (host by AIChE), 2019 and 2021
- Chair, Sustainability session in the PPS Americas Regional Conference, Boston, MA, September 2018
- Co-Chair, Green Chemical Reaction Engineering for Sustainability session, AIChE Annual Meetings, 2019-2022
- Co-Chair, Polymers for the Environment Symposium, 2021 ACS Spring Meeting (virtual)

E2. Professional Community Outreach

- Technical Advisory Committee, REMADE Institute, 2021-present
  - REMADE Institute is a Manufacturing USA institute focused on the development of innovative technologies and processes to accelerate the transition to a circular economy. This is an elected position with a two-year term. My responsibilities include participation in discussions about the direction of the institute and what it supports/funds.
- Expert Witness, 2019-present
  - Wrote external letters for immigration in support of PhD-level researchers outside UMass Lowell (no extra compensation).
- Participant for NIST Food Waste Reduction and Recovery Workshop, 2023
  - Provided input regarding technologies available to upcycle and characterize food waste.
- Participant for "U.S. research community stakeholders meeting on negotiations of a global agreement on plastic pollution", 2023.
  - Provided input regarding technologies available to upcycle plastic waste to Under Secretary Fernandez's team of U.S. Department of State.
- Committee member for Kuan Chong Ting & Shu Chuang Jung Scholarship Fund, 2021-2022
  - Raise funding over $25,000 to support freshman undergraduate students at Agricultural & Biological Engineering Department at the University of Illinois at Urbana-Champaign.
- Panelist, Listening Session conducted by the U.S. Environmental Protection Agency (EPA), 2021
  - Provided input on EPA's strategy for improving post-consumer materials management and water management (as required under Section 301 of the Save Our Seas 2.0 (SOS 2.0) Act).
- Committee Member, Lowell Sustainability Council, City of Lowell, 2020-2021
  - Remotely participated in the events hosted by the Recycling subcommittee.
- Panelist, Virtual NSF Convergence Accelerator Workshop: Design for a Circular Economy, 2020
  - Remotely participated in the workshop hosted by NSF.
- Panelist, Listening Session conducted by National Science Board (NSB), 2019
  - Presented comments to shape the science and engineering future in the next 10 years.
- Panelist for PBS NOVA at WGBH (Boston, MA), 2019
  - Commented on a peer-reviewed publication about PET recycling methods.
- French American Plastics Pollution Cohort, 2019-2021
  - Co-planned a virtual workshop that would provide an opportunity to cultivate relationships across French and American Scientists and build resources and project ideas that will contribute to the understanding of the global impacts of the COVID-19 pandemic on plastics pollution.

E3. Service to the University

E3a. Activities at the University Level

- Manufacturing USA group REMADE Institute representative, 2019 Fall – 2021 Spring
    - Biweekly hour-long meetings
    - Help coordinate interactions between UMass Lowell and REMADE Institute.
- Faculty Senate, 2022-present
    - Subcommittee for interdisciplinary task force.
    - Reviewed academic and educational policies for different departments and colleges.
- River Hawk Scholar Academy (RHSA) Mentor, 2023-present
    - Meet with RHSA mentee once a month.
- Chancellor's Asia Collaborations Task Force, 2023
    - Introduced and connected potential Taiwanese collaborations with Chancellor's office.
- Panelist for CELT/Honor's College Workshop: Mentoring: Setting Yourself and Your Students Up for Success, 2022 Spring
    - Shared experiences mentoring undergraduate research assistants to advance their careers.
- S-Stem Academic Career Path (NSF funded program) Panelist, 2022 Spring
    - An hour-long meeting
    - Engaged with prospective graduate students.
- Coordinator for Repairing an equipment, Raman Microscope, 2021-2022
    - Coordinated with faculties who are interested in using Raman microscope; Communicated with instrument companies with quotes and on-site service.
- Panelist for Diversity in STEM Panel (host by the Innovation Hub and Women Accelerators), 2021 Spring
    - Shared experiences to help others learn how to tackle challenges to create inclusive STEM environments.
- Host a Speaker for WAVES program (Prof. Linda Broadbelt, 2019 NAE member), 2019 Fall
    - Coordinated meetings, tours, and seminar for Prof. Linda Broadbelt from Northwestern University.

E3b. Activities at the College Level

- **Host Prospective Undergraduate Students, Fall 2018-present**
    - Recruited students.
    - Showcased teaching and research programs in the sustainability area of Plastic Engineering.
    - Showcased math questions and research programs in the sustainability area of Plastic Engineering for AMSA Math Accelerator Academy.
- **Faculty advisor for Information Dinner for Doctoral and Master's degree programs, 2019 Spring**
    - Recruited students.
    - Showcased the research programs, facilities, and labs in the department of Plastic Engineering with prospective graduate students.
- **Panelist for Welcome Day, 2019 Spring**
    - Recruited students.
    - Showcased the program, facilities, and labs in the department of Plastic Engineering.
- **Panelist for GradSWE, 2018 Fall**
    - Co-paneled with Prof. Yanfen Li to share our faculty job-hunting experiences.

E3c. Activities at the Department Level

- **Mentor for C2C interns (Project Learn, Inc.) and MLSC interns, 2021-present**
    - Meet students once a week to design graphics to promote sustainability in plastic industry.
    - Coordinated a tour within Plastics Engineering and Biomedical Engineering.
    - Spent ~1 hour attending the open house event of the Youth Innovation Space in Lowell, MA, and supported mentored students from Lowell High (who was demonstrating a home-made 3D printer).

- **Lab Instrument (Mocon Oxygen Transmission Rate Analyzer and Swagelok Fittings) Coordination/Manager, 2021-present**
    - Developed training materials; coordinated training sessions; managed instruments.
- **Undergraduate and Graduate Student Recruiting Event, 2022-present**
    - Met staff from Taipei Economics & Cultural Office to showcase the program, facilities, and labs in the department of Plastic Engineering.
    - Recruited prospective Taiwanese undergraduate and graduate students.
- **Liaison for River Hawk Scholar, 2019 Fall – present**
    - Mentor first generation college students.
    - Engaged with the first-generation college students in a dinner & trivia night event.
    - Showcased teaching and research programs in Plastic Engineering.
- **MA Science Fair Mentor and/or Judge, 2019 Spring and 2022 Spring**
    - Spent ~1 hour discussing microplastic related sciences with a senior high school student at St. Mark's school in Southborough, MA.
- **NH Tech Fest Exhibitor, 2019 Fall**
    - Recruited students.
    - Led a group of 4 undergraduate students to demonstrate the facilities and labs available in the department of Plastic Engineering.
- **Host External Visitors, Fall 2018-present**
    - Showcased the program, facilities, and labs in the Lin maker space in the Francis College of
      Engineering and the department of Plastic Engineering.
    - Outreached with UML alumni. Engaged with a group of visitors from the President's office at Tamkang University (TKU).
    - Led tours for Plastics Sustainability Forum.
    - Participant of Destination UML event.
    - Led open house events.
- **Plastics Engineering Academic Advisor, Undergraduate Advisor, Fall 2018 – present**
    - Currently advise 5 undergraduates in Plastics Engineering.
    - Fall 2018: 6, Spring 2019: 6, Fall 2019: 11, Spring 2020: 11, Fall 2020: 11, Spring 2021: 9, Fall 2021:7, Spring 2022:3, Fall 2022: 5, Spring 2023: 5, Fall 2023: 4, Spring 2024: 4, Fall 2024: 4
    - Work with the STARS program to identify students at risk of underachieving.