ANNA MARIE LACHANCE, PHD

LECTURER, DEPARTMENT OF CHEMICAL & BIOMOLECULAR ENGINEERING
UNIVERSITY OF MASSACHUSETTS AT AMHERST

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DEGREES & CERTIFICATES

University of Connecticut, Storrs, CT

PhD, Chemical Engineering — May 2022
Advisors: Dr. Luyi Sun, Dr. Montgomery T. Shaw

Graduate Certificate in College Instruction — May 2020
Advisor: Dr. Robin S. Grenier

BS, Chemical Engineering — May 2017
Minor in Mathematics
Minor in Materials Science & Engineering

TEACHING EXPERIENCE AT THE UNIVERSITY OF MASSACHUSETTS AMHERST

Process Dynamics and Control (ChE 446), Fall 2022 & Fall 2023
Lecturer, Department of Chemical Engineering

- Integrated practical process control examples into existing course for 62 students
- Introduced in-class problem solving, weekly feedback quizzes, "think pair share" activities, and other active learning methods
- Developed modules on design justice and environmental justice as they relate to chemical engineering, and integrated these subjects into course deliverables
- Converted standard project grading system to an "ungrading" system that emphasized feedback and student progress

Polymer Processing & Sustainability (ChE 597D), Spring 2023
Lecturer, Department of Chemical Engineering

- Created an original course in polymer processing
- Integrated elements of green chemical engineering and sustainability
- Developed modules on social justice themes such as colonialism, environmental injustice, greenwashing, and more
- Promoted culturally relevant pedagogy through in-class demos and discussions of modern topics surrounding plastics (i.e. fast fashion, bioplastic food packaging, etc.)
- Utilized labor-based grading and novel assessment strategies such as semester learning portfolios and collaborative life cycle assessments

Plastics in Society (ChE 290STB), Summer 2023

- Developed a version of Polymer Processing & Sustainability for a non-ChemE audience, with an emphasis on the broader implications of plastic pollution
- Produced 6 video lectures connecting polymer processing to issues of colonialism, ableism, feminist science & technology studies, toxicology, and more

TEACHING EXPERIENCE AT THE UNIVERSITY OF CONNECTICUT

Unit Operations and Process Simulation (CHEG 4142), Fall 2020 & Fall 2021
Instructor, Department of Chemical & Biomolecular Engineering

- Adapted existing course for distance learning (synchronous w/ asynchronous option) for undergraduate chemical engineering seniors, 63 students (F20) / 70 students (F21)
- Guided co-generative dialogues ("cogens") with 4 students, introducing modules on anti-racism and environmental justice principles
- Prepared a syllabus & assignments, implementing ABET accreditation standards
- Developed weekly homework assignments, weekly quizzes, and a semester-long project
- Presented weekly lectures on core engineering concepts & ASPEN Plus V12 software
- Guided weekly computer lab sessions in a Zoom breakout room environment (F20) and computer labs in-person (F21)
- Coordinated grading of assignments with 1-2 other teaching assistants
- Topics covered: Chemical separations, flowsheet optimization, reactor design, heat exchanger design, pressure changers, environmental justice principles

Heat and Mass Transfer (CHEG 3124), Spring 2021
Teaching Assistant, Department of Chemical & Biomolecular Engineering

- Graded quizzes (4) and exams (3) for ~75 Junior engineering students
- Provided quick feedback to students during weekly live lectures via Zoom chat
- Attended twice-weekly office hours to provide homework and conceptual assistance
- Coordinated & delegated responsibilities for 4 undergraduate TAs

Foundations of Engineering (ENGR 1166), Spring 2018
Teaching Assistant, Department of Chemical & Biomolecular Engineering

- Served as a teaching assistant for ~100 freshmen engineering students
- Facilitated hands-on project development in various engineering sub-fields
- Graded homework assignments and distributed project materials
- Delegated leadership responsibilities with 4 undergraduate teaching assistants
- Evaluated student projects using a detailed rubric, organized project grades

Chemical Engineering Thermodynamics (CHEG 5301), Fall 2018 & Fall 2019
Teaching Assistant, Department of Chemical & Biomolecular Engineering

- Graded homework assignments and facilitated class presentations
- Administered and graded closed-book final examinations

Unit Operations and Process Simulation (CHEG 4142), Fall 2017
Teaching Assistant / Instructor, Department of Chemical & Biomolecular Engineering

- Designed course for undergraduate chemical engineering seniors, 84 students

- Prepared a syllabus & assignments, implementing ABET accreditation standards
- Developed weekly homework assignments, weekly quizzes, and a midterm exam
- Presented weekly lectures on core engineering concepts & ASPEN Plus V9 software
- Guided weekly computer lab sessions in a flipped classroom environment
- Coordinated grading and lab sessions with 1 other teaching assistant

PEDAGOGICAL PUBLICATIONS & PRESENTATIONS

Research Interests: abolitionist engineering education, liberative feminist pedagogies, culturally-relevant pedagogy, co-generative dialogs, science/technology studies, active learning

Conference Publications

LaChance, A.M., Light, E., McDougal, J., DiMarco-Crook, C. "Student Use of Chat GPT: Cheaters or Active Learners?" SOTL Summit, September 2023.

LaChance, A.M., Pascal, J., Gan, D., Welsh, J.J.P., Pauly, T., Paul, P. "Teaching Environmental Justice Principles to Chemical Engineering Seniors: An Anti-Racist, Collaborative Approach," Proceedings of the American Society for Engineering Education, 2021. Paper ID #33189.

Workshops, Lectures, and Speaking Engagements

Speaker, "Why Trans Inclusion Leads to Better Science", Evonik EQaALS Speaker Series, August 23rd, 2023. (Invited)

Presentation, "Sustainable Chemical Engineering", UMass Summer Engineering Institute (SENGI), August 11th, 2023. (Invited)

Workshop, "2SLGBTQIA+ Allyship Training", Vergnano Institute for Inclusion BRIDGE Program, June 23rd, 2023. (Invited)

Panelist, "Creating Gender Inclusive Research Spaces", BIO-SENS Professional Development Seminar Series, June 22nd, 2023. (Invited)

Guest Speaker & Volunteer, Queer Science @ UConn, June 4th, 2023. (Invited)

Guest Lecturer, "Bioplastics Processing & Sustainability", ENVS 398 hosted by Dr. Sasha Adkins, School of Public Health & Health Sciences, University of Massachusetts, Amherst, MA, April 25th, 2023. (Invited)

Presentation, "Trans Inclusion Leads to Better Science", Midnight Sun Science Symposium, Fairbanks, AK, April 14th, 2023. (Invited)

Panel Speaker, "Being a Trans* Adult Panel Discussion", UConn Rainbow Center, University of Connecticut, Storrs, CT, March 24th, 2023. (Invited)

Presentation, "Contemplating Our Grading Methods", Contemplative Pedagogy Group, University of Massachusetts Amherst, Amherst, MA, March 24th, 2023. (Invited)

Presentation, "Why Trans Inclusion Leads To Better Science", Department of Molecular and Cell Biology DEI Seminar, University of Connecticut, Storrs, CT, March 3rd, 2023. (Invited)

Panel Discussion, "Gender Affirmation Symposium: Trans In Academia", oSTEM National Conference, Boston, MA, November 13th, 2022. (Invited)

Presentation, "My #TransInSTEM Journey and Working Towards Abolitionist Engineering Education", MoSMed CDT, Newcastle University, May 10, 2022. (Invited)

Presentation, "My #TransInSTEM Journey and Working Towards Abolitionist Engineering Education", STEM, LGBTQ & You Conference, February 23, 2022. (Invited)

Presentation, "Student-Centered Learning: Education as Transformative", UConn Spring 2022 New Teaching Assistant Orientation, January 11, 2022.

Presentation, "Engaged. Connected. Respected: An Introduction to Effective Undergraduate Teaching", UConn Fall 2020 New Teaching Assistant Orientation, Asynchronous Training Module to be taken August, 2020. Recorded talk was used for Fall 2021 training sessions as well. Co-presenter Kristi Kaeppel. (Invited)

Presentation, "Engaging Students: A Brief Exploration of Active Learning and Teaching Conceptions", UConn Spring 2020 New Teaching Assistant Orientation, January 16, 2019. Co-presenter Kristi Kaeppel. (Invited)

Presentation, "Engaging Students: A Brief Exploration of Active Learning and Teaching Conceptions", UConn Fall 2019 New Teaching Assistant Orientation, August 20, 2019. Co-presenter Kristi Kaeppel. (Invited)

Workshop, "Positions in Academia: Finding Your Institutional and Job Fit," John Lof Leadership Academy/UConn Center for Career Development Workshop, March 14th, 2019. Co-presenter Kay Gruder.

Online Publications

LaChance, A.M., Content Creator (2021 – Present) *@ThatAnnaMarie TikTok & Substack.*
A series of accessible essays on topics ranging from the transgender experience, feminist science and technology studies, intersectionality, higher education, and politics.
Video essays available at: https://www.tiktok.com/@thatannamarie/
Weekly newsletter available at: https://thatannamarie.substack.com/

LaChance, A.M. & Perrier, D.J. Host (2019 – Present) *The Rule 63 Podcast*.
A monthly audio podcast discussing science, technology, pedagogy, politics, and media from a transfeminist perspective. Available at: therule63podcast.com

Season of the Bitch Podcast. Episode, "Radical STEM With Anna Marie LaChance", April 7th, 2023. Podcast appearance discussing my teaching philosophy. Available at: https://soundcloud.com/seasonofthebitch/episode-253-radical-stem-with-anna-marie-la-chance

Milagros Castillo-Montoya & Omar Romandia. *Higher Education Anti-Racist Teaching (H.E.A.R.T.) Podcast*. Episode, "Building Community Oriented Research Labs", Nov 4th, 2022. Podcast appearance discussing abolitionist engineering education. Available at: https://heartuconn.podbean.com/e/building-community-oriented-research-labs/

Milagros Castillo-Montoya & Omar Romandia. *Higher Education Anti-Racist Teaching (H.E.A.R.T.) Podcast*. Episode, "Collectivity & Solidarity in Antiracist Teaching", May 13th, 2022. Podcast appearance discussing abolitionist engineering education. Available at: https://heartuconn.podbean.com/e/collectivity-solidarity-in-antiracist-teaching/

Christie Idiong, M.S. *Cornerstone Conversations*. Episode 20, "CENTER THE JOY | ANNA MARIE LACHANCE, PHD(c)", March 24th, 2021. Podcast appearance discussing my life, experience, and teaching philosophy. Available at: https://www.cornerstoneconvoswellness.com/post/center-the-joy-anna-marie-lachance-phd-c

Felix Berrios & Annabel Gong *LGBTQ+ STEM Cast*. "Engineering a New Future: Abolitionist Engineering Education with Anna Marie LaChance", March 8th, 2021. Podcast appearance discussing my life, experience, and teaching philosophy. Available at: https://anchor.fm/lgbtqstemcast/episodes/Engineering-a-New-Future-Abolitionist-Engineering-Education-with-Anna-Marie-LaChance-erudq9

LaChance, A.M. "A Short Pause Goes A Long Way: Using The Pause Procedure in Teaching." *That Wasn't on the Syllabus Blog*. Neag School of Education, University of Connecticut. 22 March 2019. Available at: https://gcci.uconn.edu/2019/03/22/a-little-pause-goes-a-long-way-using-the-pause-procedure-in-teaching/

LEADERSHIP, SERVICE, AND OUTREACH AT THE UNIVERSITY OF CONNECTICUT

DEI Program Creation & Evaluation

Vergnano Institute for Inclusion (fka. UConn Engineering Diversity & Outreach Center)
Program Coordinator, Dec 2021 – July 2022

- Founded, directed, and evaluated the "Queer Science @ UConn" outreach event for LGBTQ+ youth interested in STEM subjects. Learn more at: https://inclusion.engr.uconn.edu/queer-science-2/

- Founded, directed, and evaluated the "Inclusive Excellence for Justice, Equity, & Transformation (JET)" program for School of Engineering faculty. Learn more at: https://inclusion.engr.uconn.edu/faculty-staff/inclusive-jet/
- Mentored and advised under-represented undergraduate & graduate students
- Consulted School of Engineering faculty about inclusive pedagogy, anti-racism, anti-transphobia, and more
- Led workshops related to active learning, incorporating social justice themes in STEM courses, and more
- Facilitated events for Explore Engineering, oSTEM, JET, Queer Science, and other professional development programs within the UConn School of Engineering

Laboratory Management Experience

Prof. Luyi Sun's Research Group
Laboratory Manager, Jan 2018 – Dec 2021

- Served as lab manager and EH&S liaison for graduate research group
- Planned, modified, and executed advanced research techniques, procedures, and tests
- Repaired & maintained laboratory instruments & equipment, including vacuum pumps, computer hardware and software, profilometers, reflectometers, MOCON-series permeability instruments, spin coaters, blade coaters, and more
- Led weekly safety meetings with the PI and 10+ other graduate students & postdocs
- Managed teams of 20+ undergraduate research assistants, which involved assigning them to mentors, ensuring that they completed & maintained their safety training, and leading a biweekly journal club to discuss state-of-the-art scientific literature
- Directly mentored smaller teams of undergraduate students in safe chemical handling, laboratory techniques, data management, scientific writing and engineering principles via hands-on, culturally-relevant pedagogy
- Facilitated annual EH&S laboratory inspections, completed corrective action reports
- Other responsibilities included: ordering research chemicals (including lab supplies and installing gas canisters), managing hazardous waste pickup, inventory management, managing a group meeting presentation schedule, and creating a COVID-19 safety plan for returning to research in summer 2020

Student Organizations

Inclusive Excellence Program for Justice, Equity, & Transformation (JET)
Co-Founder & Instructor, January 2021 – Present

- Developed a program for faculty, staff, graduate students, and postdocs within the School of Engineering at UConn to learn about intersectional anti-racism
- Empowered members to take individual action towards becoming anti-racist, take collective action within their departments, and reflect on their personal growth
- Collaborated with UConn's Center for Excellence in Teaching and Learning (CETL) and Engineering Diversity and Outreach Center (EDOC/VII) to develop program content and guidelines for program assessment

School of Engineering Reads (SoE Reads)
Co-Founder and Event Facilitator, Summer 2020 – Spring 2021

- Founded an anti-racist reading group for members of the SoE community at UConn
- Facilitated biweekly meetings on reading materials (readings include "How to Be an Anti-Racist" by Ibram X. Kendi, "Data Feminism" by Catherine D'Ignazio and Lauren F. Klein, and various short essays by BIPOC authors)
- Connected anti-racist, feminist ideas to tangible action items for faculty, staff, and students to take within their departments, classrooms, and research labs

UConn Graduate School
University Recruiter, Fall 2019 – Fall 2021

- Recruited undergraduate students at the Out in STEM (oSTEM) conference, which serves LGBTQIA+ students and professionals in STEM fields (3 years consecutively)

Chemical & Biomolecular Engineering Graduate Student Association (ChEGSA)
Vice President, Aug 2017 – Dec 2021

- Organized various networking and professional development events for faculty, graduate students, and staff in the Chemical Engineering department at UConn
- Provided mentoring to first-year graduate students in the program

Rainbow Grads & Young Professionals (RGYP)
Member, September 2018 – Dec 2021

- Networked with queer/LGBT+ graduate students and university staff
- Informally mentored numerous trans/gender non-conforming students in STEM fields

John Lof Leadership Academy (JLLA)
Careers in Academia Committee Chair & Selected Member, May 2018 – July 2020

- Created & participated in professional development workshops for academy members
- Assisted JLLA members in exploring post-graduate school career options

UConn Chemistry Club (SAACS)
Executive Board Member, Aug 2015 – May 2017

- Tutored undergraduate students in general chemistry and calculus I-IV
- Helped chemistry students to get involved in undergraduate research
- Organized educational & social events for the Chemistry department (fundraisers, Relay for Life events, collaborations with UConn's AICHE chapter)

Professional Affiliations

American Society for Engineering Education, Student Member, 2020-Present
American Chemical Society, New Haven Chapter, Member, 2014 - Present
American Institute of Chemical Engineers, UConn Chapter, Member, 2014 - Present

HONORS AND AWARDS

UMass ADVANCE Equitable Practices in Research Collaboration Award June 2023
The EPiC-RC Award & $500 cash prize are given to research teams who can contribute to diversity, equity, & inclusion on campus through excellence in collaborative research practices. The Scholarship of Teaching and Learning (SOTL) Working Group won this award for collaborating on a pilot study on ChatGPT & AI learning tools in education.

UMass Civic Engagement & Service Learning (CESL) Fellow AY 2023-2024
In this year-long program, I will be adapting my polymer processing course to incorporate service learning in collaboration with the CESL office at UMass. Include a $1000 stipend.

Provost's Award for Excellence in Community Engaged Scholarship May 2022
Recognition by UConn for demonstrating a commitment to community engagement, addressing critical issues, and contributing to the improvement of society. Received in the Graduate or Professional Student category.

17th Annual Women of Innovation® Award, CT Technology Council October 2021
Inspiring STEM Equitability category winner. Recognizes women in Connecticut who are leaders in promoting equitability, diversity, & inclusivity in the STEM curriculum. I was the first openly transgender person to win the award across all categories in its 17-year history.

2020-2021 Stephanie H. Shaw Scholarship Award June 2021
Plaque & $3000 cash prize award by the Polymer Program, Institute of Materials Science at the University of Connecticut. Recognizes a female graduate in the field of polymer science and engineering that has excelled in both research and activities in the UConn community.

2021 Spring CBE TA Award May 2021
$800 cash prize awarded by the Department of Chemical and Biomolecular Engineering at the University of Connecticut for outstanding graduate instruction

Excellence in Graduate Polymer Research Award April 2021
Certificate & cash prize awarded by the Division of Polymer Chemistry (POLY) of the American Chemical Society at the 2021 ACS National Conference

Semi-Annual Doctoral Dissertation Fellowship Spring 2021
Graduate Fellowship awarded by the University of Connecticut

PPS Graduate Student Travel Award for 2021 March 2020
Recognition of excellence in graduate polymer research. Cash award to attend the 36th International Conference of the Polymer Processing Society (conference delayed from 2020 to 2021)

2021 General Electric Innovation Fellowship 2020-2021
Graduate Fellowship awarded by the University of Connecticut

2020 GAANN Fellowship 2019 – 2020
Graduate Assistance in Areas of National Need

2019 Navy STEM Fellowship 2018 – 2019
Graduate Fellowship awarded by the Office of Naval Research (ONR)

Engineering Dean's List (Undergraduate) 2014 – 2017
Fall 2014 & 2016, Spring 2015, 2016, & 2017

New England Scholar (Undergraduate) 2016
Awarded for maintaining a semester GPA >3.7 in the 2016 calendar year

STUDENT MENTORING (AS A GRADUATE STUDENT IN DR. LUYI SUN'S GROUP)

Undergraduate Students (15 total, 100% under-represented in STEM)
- Allyson Brogan, Chemical Engineering, 2020 – 2021
- Marina Dabaghian, Chemical Engineering, 2020 – 2021
- Micaela Gagas, Chemical Engineering, 2020 – 2021
- Massita Camara, Chemical Engineering, NSF REU Recipient, 2020 – 2021
- Alysha DeGennaro, Chemistry, 2020
- Yajing "Candice" Zhao, Chemical Engineering, WSRAP Recipient, 2019 – 2020
- Nia Samuels, Chemical Engineering, NSF REU Recipient, 2019 – 2021
- Allyson Barrett, Chemical Engineering, 2019 – Present
- Tessa Morrison, Chemical Engineering, 2019 – 2020
- Megan Hurley, Materials Science & Engineering, 2019
- Jacqueline "Jackie" Kubachka, Chemistry, 2019
- Catherine "Cat" Odendahl, Chemical Engineering, 2019
- Jordan Serrano, Chemical Engineering, 2018
- Maria Farooqui, Chemistry, 2018
- Shantal Carr, Chemical Engineering, McNair Scholar, 2018 – 2019

High School Students (Jack Kent Cooke Young Scholars Program)
- Mateo Campoverde-Fordon, Evanston Township High School, Evanston, IL, 2019
- Sharil Maredia, Clear Springs High School, League City, TX, 2019
- Gage Roberts, Salina South High School, Salina, KY, 2018

TECHNICAL RESEARCH EXPERIENCE & EXPERTISE

(Former) Research Interests: Thin film transport, vapor barrier properties, nanomaterial characterization, multifunctional nanocomposites, biodegradable/biocompatible plastic films

Dissertation Research, University of Connecticut, Storrs, CT Aug 2018 – Dec 2021
Advisors: Dr. Luyi Sun & Dr. Montgomery T. Shaw
Project focus: Nanocomposite application methods for thin-film oxygen barriers
- Investigation of fundamental polymer rheology & transport in thin-film processing
- Investigation of nanosheet structure-property relationships in thin polymer films

- Creating methodologies for various coating techniques (dip, spin, spray, doctored)
- Optimization of processing parameters for nanosheet orientation & low permeability
- Surface modification of polyolefin substrates for sustainable coatings

Confidential Company & University of Connecticut, Storrs, CT Sept 2016 – May 2017
Senior Capstone Design Project, PTFE Spray & Chemical Thinning Process Optimization

- Conducted literature review of fluoropolymer solvency and dispersion application
- Optimized PTFE removal process via computer simulation (ASPEN Plus, COMSOL)
- Proposed cost-saving designs for a solvent treatment process for consumer products

Hubbard Hall, Waterbury, CT May – Aug 2016 & Dec 2016 – Jan 2017
Quality Control Intern

- Performed quality control tests on chemicals produced onsite
- Developed an environmentally-friendly version of the company's most popular cleaning product under the advisement of a senior researcher

TECHNICAL PUBLICATIONS (WWW.ORCID.ORG/0000-0001-9744-7383)

Peer-Reviewed Publications

Xue, Y., LaChance, A.M., Liu, J., Farooqui, M., Dabaghian, M.D., Ding, F., Sun, L. "Polyvinyl alcohol/α-zirconium phosphate nanocomposite coatings via facile one-step coassembly," *Polymer*, 2023. https://doi.org/10.1016/j.polymer.2022.125580

Wang, Q., Wu, C., LaChance, A.M., Sun, L., Cao, Y. et al. "Interfacial polarization suppression of P(VDF-HFP) film through 2D montmorillonite nanosheets coating," *Progress in Organic Coatings*, 2022. https://doi.org/10.1016/j.porgcoat.2022.107119

Wu, C., LaChance, A.M., Sun, L., Cao, Y. et al. "Scalable self-assembly interfacial engineering for high-temperature dielectric energy storage," *iScience*, 2022. https://doi.org/10.1016/j.isci.2022.104601

Liu, J., Chavez, S.C., LaChance, A.M., Sun, L. et al. "Ultra-transparent nanostructured coatings via flow-induced one-step coassembly," *Nano Materials Science*, 2022. https://doi.org/10.1016/j.nanoms.2021.07.001
LaChance, A.M., Hou, Z., Farooqui, M.F., Sun, L., et al. "Spin Coating for Forming Thin Composite Coatings of Montmorillonite and Poly(vinyl alcohol)," *Industrial & Engineering Chemistry Research*, 2022. https://doi.org/10.1021/acs.iecr.1c04382

LaChance, A.M., Hou, Z., Farooqui, M.F., Sun, L., et al. "Doctor-Blade-Assisted Casting for Forming Thin Composite Coatings of Montmorillonite and Poly(vinyl alcohol)," *Industrial & Engineering Chemistry Research*, 2022. https://doi.org/10.1021/acs.iecr.1c04381

LaChance, A.M., Hou, Z., Farooqui, M.F. et al. “Polyolefin films with outstanding barrier properties based on one-step coassembled nanocoatings.” *Adv Compos Hybrid Mater*, 2022. https://doi.org/10.1007/s42114-022-00421-6

Liu, J., Chavez, S.E., Ding, H., Farooqui, M.M., Hou, Z., Lin, S., D'Auria, T.D., Kennedy, J.M., LaChance, A.M., Luyi Sun. "Ultra-transparent nanostructured coatings via flow-induced one-step coassembly," *Nano Materials Science*, 2021, In Press. https://doi.org/10.1016/j.nanoms.2021.07.001

Zhang, B., Liu, J., Ren, M., Wu, C., Moran, T.J., Zeng, S., Chavez, S.E., Hou, Z., Li, Z., LaChance, A.M., Jow, T.R., Huey, B.D., Cao, Y., Sun, L. “Reviving the ‘Schottky’ barrier for flexible polymer dielectrics with a superior 2D nano-assembly coating”, Advanced Materials, adma.202101374R1, Accepted, May 2021.

Jia, L., Zeng, S., Ding, H., Smith, A. T., LaChance, A. M., Farooqui, M. M., Gao, D., Ma, J., Sun, L. “Leather-Based Multi-Stimuli Responsive Chromisms.” *Adv. Funct. Mater.* 2021, 2104427. https://doi.org/10.1002/adfm.202104427

Zhang, S., Liu, Q., Yang, Y., Zhang, H., Liu, J., Zeng, S., LaChance, A.M., Barrett, A.T., Sun, L. "An efficient method to prepare aluminosilicate nanoscrolls under mild conditions," *Chemical Communications*, 2021, Advance Article. https://doi.org/10.1039/D0CC07291E

Xie, D., Zhao, Y., Li, Y., LaChance, A.M., Lai, J., Sun, L., Chen, J., "Rheological, Thermal, and Degradation Properties of PLA/PPG Blends," *Materials*, 2019, 12, 3519. https://doi.org/10.3390/ma12213519

Braga, N.F., LaChance, A.M., Liu, B., Sun, L., & Passador, F.R., “Influence of compatibilizer and carbon nanotubes on mechanical, electrical, and barrier properties of PTT/ABS blends,” *Advanced Industrial and Engineering Polymer Research*, 2, 3, 2019, 121-125. https://doi.org/10.1016/j.aiepr.2019.07.002

Smith, A.T.,* LaChance, A.M.,* Zeng, S., Liu, B., & Sun, L., “Synthesis, properties, and applications of graphene oxide/reduced graphene oxide and their nanocomposites,” *Nano Materials Science*, 1, 1, 2019, pp. 31-47. https://doi.org/10.1016/j.nanoms.2019.02.004 (*equal contribution)

Zhou, Y., Ding, H., Liu, J., LaChance, A.M., Xiao, M., Meng, Y., Sun, L., “Gold nanoparticles immobilized on single-layer α-zirconium phosphate nanosheets as a highly effective heterogeneous catalyst,” Advanced Composites and Hybrid Materials, 2019, 2, 3, pp 520-529. https://doi.org/10.1007/s42114-019-00091-x

Iqbal, M.A., Sun, L., LaChance, A.M., Ding, H., & Fedel, M., “In situ growth of a CaAl-NO3−-layered double hydroxide film directly on an aluminum alloy for corrosion resistance,” *Dalton Transactions*, 2019, Advance Article. https://doi.org/10.1039/C9DT01773A

Zhou, Y., LaChance, A.M., Smith, A.T., Cheng, H., Liu, Q, & Sun, L. "Multifunctional Materials: Strategic Design of Clay-Based Multifunctional Materials: From Natural Minerals to Nanostructured Membranes," Advanced Functional Materials, 2019. 29. 1970101. https://doi.org/10.1002/adfm.201970101

Zhou, Y., LaChance, A. M., Smith, A. T., Cheng, H., Liu, Q., Sun, L., "Strategic Design of Clay-Based Multifunctional Materials: From Natural Minerals to Nanostructured Membranes," *Advanced Functional Materials*, 2019, 29, 1807611. https://doi.org/10.1002/adfm.201807611

Patents

Sun, L.; LaChance, A. M.; Zhou, T.; Lim, Y. Nanocomposite Coating System via One-step Co-assembly. International Patent Publication No. WO 2021/080876, publication date: April 29, 2021.

TECHNICAL PRESENTATIONS AND INVITED LECTURES

Conference Presentation, LaChance, A.M. and Sun, L., "One-Step Co-Assembly of Nanocomposite Coatings on Thin-Film Substrates for Vapor Barrier Applications," Proceedings of the 36th International Conference of the Polymer Processing Society, September 26-29, 2021, Hybrid. (Invited, Graduate Student Travel Award winner)

Conference Presentation, LaChance, A.M. and Sun, L., "Graphene Oxide-Montmorillonite Nanocomposite Films with Exceptional Barrier Properties from Scalable, One-Step Coassembly," Proceedings of American Chemical Society (ACS) Spring National Meeting & Exposition, April 5-19, 2021, Virtual. (Invited, Excellence in Graduate Polymer Research Symposium awardee)

Research Presentation, "One-Step Co-Assembly of Nanocomposite Coatings on Thin-Film Substrates for Vapor Barrier Applications", Guest lecture for EMAT 251 taught by Dr. Joseph Menicucci Jr., Montana State University, November 2nd, 2020. (Invited)

Research Presentation, "One-Step Co-Assembly of Nanocomposite Coatings on Thin-Film Substrates for Vapor Barrier Applications", UConn Rainbow Center Graduate Student Colloquium, April 16th, 2020. (Invited)

Poster, "One-Step Co-Assembly of Nanocomposite Coatings on Thin-Film Substrates for Vapor Barrier Applications", Society of Plastics Engineers (SPE) ANTEC National Conference, March 28-April 3, 2020. (Invited, Virtual Conference)

Poster, "Influence of Processing Method on the Quality of Polymer/Clay Nanocomposite Coatings", Polymer Program Poster Competition, June 11th, 2019. Co-presenter Zaili Hou.

Research Presentation, "Shear-Induced Alignment and Barrier Properties of Multifunctional Nanocomposite Films", UConn Rainbow Center Graduate Student Colloquium, April 18th, 2019. (Invited)

Conference Presentation, LaChance, A.M. and Sun, L., “Nanocomposite coatings for improving the performance of polyolefin films,” Proceedings of American Chemical Society (ACS) Fall National Meeting & Exposition, August 19-23, 2018, Boston, MA.

REFERENCES

Dr. Russell Tessier, Professor
Department of Electrical and Computer Engineering
University of Massachusetts Amherst
134 Marston Hall, 130 Natural Resources Rd, Amherst, MA 01003
Phone: (413) 545-0160
Email: tessier@ecs.umass.edu
Relationship: Acting Department Head of Chemical Engineering at UMass Amherst (AY 2022-2023)

Dr. Luyi Sun, Professor and Director
Polymer Program, Institute of Materials Science
Department of Chemical & Biomolecular Engineering
Department of Biomedical Engineering
University of Connecticut
97 North Eagleville Road, Unit 3136, Storrs, CT 06269
Phone: (860) 486-6895
Email: luyi.sun@uconn.edu
Relationship: PhD Major Advisor

Dr. Stephany Santos, Assistant Professor in Residence, Department of Biomedical Engr
Vergnano Institute for Inclusion (fka. the Engineering Diversity & Outreach Center)
University of Connecticut
Engineering II Room 326, 191 Auditorium Road, Storrs, CT 06269
Phone: (860) 486-8937
Email: stephany.santos@uconn.edu
Relationship: Program Co-Founder (JLLA, JET) and Mentor

Dr. Ranjan Srivastava, Professor and Department Head
Department of Chemical & Biomolecular Engineering
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