Milad Abolhasani

ALCOA Professor & University Faculty Scholar

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Education and Training

10/2014 – 08/2016	**NSERC Postdoctoral Fellow, Chemical Engineering** Massachusetts Institute of Technology
09/2010 – 08/2014	**Ph.D., Mechanical Engineering** University of Toronto
09/2008 – 08/2010	**M.A.Sc., Mechanical Engineering** University of British Columbia
09/2004 – 08/2008	**B.Sc., Mechanical Engineering** Sharif University of Technology

Research Interests

- Accelerated Materials Development
- Self-Driving Labs, Autonomous Experimentation
- Flow Chemistry and Microfluidics
- Microreaction Engineering

Professional Experience

10/2024 – Present	**Director of Accelerated Technologies,** Integrative Sciences Initiative, NC State University
08/2024 – Present	**ALCOA Professor,** Chemical & Biomolecular Engineering Department, NC State University
07/2023 – Present	**Director of Graduate Program** Chemical & Biomolecular Engineering Department, NC State University
07/2023 – 08/2024	**ALCOA Scholar,** NC State University
08/2021 – 08/2024	**Associate Professor,** Chemical & Biomolecular Engineering Department, NC State University
07/2021 – 06/2023	**Director of Graduate Admission and Recruiting** Chemical & Biomolecular Engineering Department, NC State University
06/2021 – Present	**University Faculty Scholar,** NC State University
08/2016 – 08/2021	**Assistant Professor,** Chemical & Biomolecular Engineering Department, NC State University
10/2014 – 08/2016	**Postdoctoral Fellow,** Chemical Engineering Department Novartis-MIT Center for Continuous Manufacturing **Advisor:** *Prof. Klavs F. Jensen*
09/2010 – 08/2014	**Graduate Research Assistant** Chemistry and Mechanical & Industrial Engineering Departments, University of Toronto **Advisors:** *Prof. Eugenia Kumacheva* and *Prof. Axel Guenther*
09/2008 – 08/2010	**Graduate Research Assistant** Mechanical Engineering Department, University of British Columbia

Awards and Achievements

2025
- ACS Sustainable Chemistry & Engineering Lectureship Award
- Digital Discovery Emerging Investigator
- ACS Principal Investigator Development in Sustainability Grant Awardee
- National Academy of Engineering, Japan-America Frontiers of Engineering, Invited Attendee
- Senior Fellow, Collegium Helveticum, ETH Zurich

2024
- The White House Roundtable on Semiconductor Materials Acceleration, Invited Panelist
- AIChE Catalysis and Reaction Engineering (CRE) Early Career Investigator Award

2023
- Elected to the Board of Directors, Flow Chemistry Society
- Scialog Fellow, Automated Chemical Laboratories
- ALCOA Foundation Research Achievement Award
- Nanoscale Journal Emerging Investigator
- Invited Panelist, NSF Workshop on AI-Enabled Scientific Revolution
- ALCOA Scholar

2022
- AIChE NSEF Young Investigator Award
- Reaction Chemistry & Engineering Outstanding Reviewer

2021
- Dreyfus Foundation Award for Machine Learning in Chemical Sciences & Engineering
- The John C. Chen Young Professional Leadership Scholarship from AIChE
- Chancellor's Innovation Fund
- I&EC Research 2021 Class of Influential Researchers (*American Chemical Society*)
- Goodnight Early Career Innovator Award
- University Faculty Scholar

2020
- AIChE 35 under 35
- Reaction Chemistry & Engineering Outstanding Reviewer

2019
- National Science Foundation (NSF) CAREER Award
- Journal of Flow Chemistry Emerging Investigator

2018
- Reaction Chemistry & Engineering Emerging Investigator
- AIChE *Futures* Scholar
- Selected as the Editor's Choice of the inaugural *Futures issue* of the AIChE Journal
- American Chemical Society Petroleum Research Fund (ACS PRF), Doctoral New Investigator Award

2017
- Lab on a Chip Emerging Investigator

2015
- Natural Sciences and Engineering Research Council of Canada (NSERC) Postdoctoral Fellowship

2014
- Canadian Society for Mechanical Engineering (CSME) Best Graduate Student Paper

2013
- CBMS Travel Grant, MicroTAS 2013
- Bert Wasmund Graduate Fellowship in Sustainable Energy Research, University of Toronto

2012
- Russell A. Reynolds Graduate Fellowship in Thermodynamics, University of Toronto
- CMC Microsystems Microfabrication MNT Financial Grant

2011
- CMC Microsystems Best Poster Award, 6th Ontario-On-a-Chip, Toronto

2010
- Bert Wasmund Graduate Fellowship in Sustainable Energy Research, University of Toronto

Selected Funding

2016-2025 Raised **$19M** external R&D funding from federal funding agencies as well as Global and Fortune 500 Companies.

- **30 Funded Research Projects (Aug 2016 – Present):** Served as a lead PI on **24** and a co-PI on **6** projects
- 4 Selected Funded Projects as the lead PI:
  - **UNC-ROI, 2023-2026**: AMBI: Accelerated Molecular and Biological Innovation Enabled by Integrated Engineering & Sciences
  - **Samsung Electronics, 2020-2026**: Accelerated Synthesis of Inorganic Nanomaterials in Flow
  - **NSF-CBET #1940959, 2021-2026**: CAREER: Intelligent Synthesis of Colloidal Nanocrystals Enabled by Microreaction Engineering in Flow
  - **Eastman Chemical Company, 2022-2028**: Autonomous Catalysis

Teaching Experience

NC State University

2020 *Microscale Flow Chemistry: From Process Intensification Principles to Continuous Manufacturing* (CHE 596-038)

2016-2025 *Chemical Process Principles* (CHE 205)

2018 *Transport Processes I* (CHE 311)

2019 *Transport Processes II* (CHE 312)

Massachusetts Institute of Technology

2015 *Kaufman Teaching Certificate Program* (KTCP)

Supervisory and Mentoring Experience *(Award)*

Current Group Members

- **Postdocs:** Jeffrey A. Bennett, Richard B. Canty, Arup Ghorai
- **Graduate Students:** Pragyan Jha (PhD), Junbin Li (PhD), Daniel Addinton (PhD), Alireza Velayati (PhD), Fernando Delgado Licona (PhD), Jinge Xu (PhD), Sina Sadeghi (PhD), Negin Orouji (PhD, *2024 AIChE Travel Award*), Nikolai Mukhin (PhD), Hicham Moran (PhD), Aarti Tallam (PhD), Abdulrahman Alsaiari (MS)
- **Undergraduate Students:** Zachary Dubisky, Hayden Perry, Jashua Lawhorne, Woojin Bae

Alumni

- **Postdocs:** Cheng Zhu (*2018 Postdoc Professional Development Award*), Keshav Raghuvanshi, MarjanAlsadat Kashfipour, Mahdi Ramezani, Malek Y. S. Ibrahim, Robert W. Epps, Muzammil Khan, Tiago Fernandes Lins
- **Graduate Students:** Robert W. Epps (PhD, *2020 MicroTAS Best Presentation Award, 2020 Schoenborn Graduate Research Symposium Best Oral Presentation Award, 2019 GSA Travel Award*), Jeffrey A. Bennett (PhD), Suyong Han (PhD, *2021 ACS I&EC Division Graduate Student Award Symposium*), Kameel Antami (PhD), Zachary S. Campbell (PhD, *2019 Fulbright Scholarship, 2020 Vivian T. Stannett Graduate Award for Outstanding Early Publication*), Amanda A. Volk (PhD), Matthew Parker (MS), Bradley A. Davis (PhD, *2022 Schoenborn Graduate Research Symposium Second Best Oral Presentation Award*), Fazel Bateni (PhD, *2021 Schoenborn Graduate Research Symposium 2nd Best Poster Presentation Award, 2020 Vivian T. Stannett Graduate Award for Outstanding Early Publication*), Hamed Morshedian (MS), Rami Awad (MS)
- **Undergraduate Students:** Michael Bowen (*2019 Astronaut Scholarship, 2019 NCSU Undergraduate Research Symposium Presentation Award*), Steven Crouse, Jacob Lustik (*2019 AIChE Presentation Award*), Corwin Kerr (*2019 Outstanding Capstone Award, 2018 AIChE Presentation Award*), Jacob Faulkner, Sultan Al-Ismaili, Julia Tan (*2018 NAE Grand Challenges Scholarship*), Albaraa Kamal, Kobi Felton (*2018 Marshall Scholarship*), Andrew Kristof (*2018 NSF Graduate Fellowship*), Bryce Gaither, Daniel Devane, Tyler Williams, Rokas Dargis, Ethan Basinger, Owen York, Christine Stark, Hannah Dickerson, Koray Latif, Andrew Cahn
- **Visiting Students:** Vishal Vasudevan, Yiqing Xu, Chen Shi
- **High School Students:** Ethan Ng, Tashroom Ahsan, Sophia Zhu, Lior Politi

Service and Professional Activities

- **NC State University**
  - *Director of Accelerated Technologies, Integrative Sciences Initiative (2024-present)*
  - *Member of the AI Advisory Group, NCSU Office of the Provost (2024-present)*
  - *Member of the Applied AI Initiative Advisory Group, NCSU College of Engineering (2024-present)*
  - *Director of Graduate Programs, Department of Chemical & Biomolecular Engineering (2023-present)*
  - *Director of Graduate Admissions and Recruiting, Department of Chemical & Biomolecular Engineering (2021-2023)*
  - *Member of the Graduate Program Committee, Department of Chemical & Biomolecular Engineering (2021-present)*
  - *Co-Chair of Faculty Search Committee, Department of Chemical & Biomolecular Engineering (2022-2023)*
  - *Co-Chair of the Annual Schoenborn Graduate Research Symposium, Department of Chemical & Biomolecular Engineering (2019-2022)*
  - *Member of the Integrative Sciences Initiative Faculty Research Advisory Committee (2023-present)*
- **External**

– **Associate Editor**, The Royal Society of Chemistry Journal *Digital Discovery* (2025-present)

– **Committee Member**, National Academies of Sciences, Engineering, and Medicine Chemical Sciences Roundtable (2024-2027)

– **Advisory Committee Member,** The Adaptive Tunability for Synthesis/Control via Autonomous Learning on Edge (*AT SCALE*), Pacific Northwest National Laboratory (2025-present).

– **Invited Panelist**, MGI-NSF Workshop on Accelerating Materials Solutions to Meet National and Global Challenges (2024)

– **Workshop Chair**,

  - Future Labs Workshop (Jan 2024)
    - *Co-Sponsored by NSF TIP Directorate and Eastman Chemical Company at NC State University*

– **Workshop Scientific Organizing Committee Member**,

  - Cloud and Self-Driving Labs Workshop at Carnegie Mellon University (Oct 2023)

– **Symposium Co-Chair**,

  - 2023 Materials Research Society (MRS) Fall Meeting
    - *DS01–Accelerating Materials Research with AI-Assisted Experimentation*
  - 2025 American Chemical Society (ACS) Fall Meeting
    - *Bridging Theory and Experiment with AI*

– **Session Chair**,

  - The Annual Meetings of the Materials Research Society (MRS)
    - *Materials Computing and Data Science (2021)*
  - The Annual Meetings of the American Institute of Chemical Engineers (AIChE)
    - *Reaction Chemistry and Engineering (2017-present)*
    - *Microreaction Engineering (2017-present)*

– **NSF Panelist:** CBET, CMMI, SBIR, CAREER, SSMC, CCI (2017-present)

– Member of the **RAPID Institute** Road-Mapping Team, (Summer 2017)

– Member of the **RAPID Institute Technical Advisory Board Sub-Committee** (Module Manufacturing), 2018-2023

– **External Proposal Reviewer:** *NSERC Collaborative Research and Development Grant* (Canada, 2017), *NSERC CIF* (Canada, 2022), *NSERC Discovery Grant* (Canada, 2022), *NSERC Mitacs and Elevate Program* (Canada, 2018-2020), *French National research Agency* (2018), *Alberta Innovates* (2019), *ARO* (2020), *European Research Council* (2020-2022), *Dutch Research Council* (2021), *CASIS* (2021), *Novo Nordisk Foundation* (Denmark, 2023), *Singapore National Research Foundation* (2022-2024), *Simons Foundation* (2023)

– **Chair,** External review committee of the Energy Materials and Surface Sciences Unit, OIST (2022)

– **Guest Editor:** Journal of Flow Chemistry (2020), European Journal of Organic Chemistry (2022), Chemistry-Methods (2022), MRS Bulletin (2022), Machine Learning: Science and Technology (2025)

- **Reviewer for:** *Nature, Nature Materials, Nature Chemistry, Nature Synthesis, Nature Communications, Nature Chemical Engineering, Nature Reviews Chemistry, Science, Science Advances, Science Robotics, Advanced Materials, Advanced Energy Materials, Advanced Functional Materials, Advanced Materials Technologies, Advanced Science, Small, Matter, Trends in Chemistry, Angewandte Chemie International Edition, Chemical Reviews, ACS Central Science, ACS Catalysis, ACS Nano, ACS Sustainable Chemistry & Engineering, Analytical Chemistry, Langmuir, Organic Process Research & Development, Industrial & Engineering Chemistry Research, Chemical Science, Green Chemistry, Lab on a Chip, Nanoscale, Reaction Chemistry & Engineering, Chemical Engineering Journal, Chemical Engineering Science, Nano Research, and 25 other Journals.*
- **Senior Member** of *American Institute of Chemical Engineers (**AIChE**), American Chemical Society (**ACS**), Materials Research Society (**MRS**), American Society for Engineering Education (**ASEE**)

Patents and Patent Applications

2022 **11.** **M. Abolhasani**, R. W. Epps, T. Kim, H. Yang, S A. Jun "Apparatus and Method for Accelerated Multi-Stage Synthesis of Quantum Dots", US Patent App. 17853857, North Carolina State University and Samsung Electronics.

10. N. M. West, M. E. Janka, A. J. M. Miller, E. J. Alexanian, **M. Abolhasani**, A. M. Veatch, J. A. Bennett, M. Y. S. Ibrahim, and D. Cunningham "Catalytic Carboxycarbonylation of Alkenes to From Anhydrides", US Prov. Patent App. 63355407, North Carolina State University and UNC Chapel Hill.

9. M. Y. S. Ibrahim and **M. Abolhasani**, "Low Temperature Hydrogen Production and Storage in Liquid Carrier", US Prov. Patent App. 63323214, North Carolina State University.

8. **M. Abolhasani**, K. C. Felton, R. W. Epps, "Devices and Methods of Use Thereof", US Patent No. US 11,499,948 B2, North Carolina State University.

2021 **7.** M. Y. S. Ibrahim and **M. Abolhasani**, "Intensified Hydroaminomethylation in Flow", US Prov. Patent App. 63256132, North Carolina State University.

6. M. Y. S. Ibrahim and **M. Abolhasani**, "On-Demand Tuning of Aldehyde Branching with a Cyclic Fluorophosphite Ligand", US Prov. Patent App. 63219213, North Carolina State University.

5. **M. Abolhasani** and M. Ramezani, "Modular Flow Reactors for Accelerated Synthesis of Indium Phosphide Quantum Dots", US Patent App. 17932447, North Carolina State University.

4. **M. Abolhasani**, K. Raghuvanshi, C. Zhu, M. Ramezani, S. Menegatti, and E. E. Santiso, "Aldehyde Generation via Alkene Hydroformylation", US Patent App. PCT/US2021/023224, North Carolina State University.

2020 **3.** T. Theis, **M. Abolhasani**, P. TomHon, S. Lehmkuhl, and S. Han, "Parahydrogen Hyperpolarization Membrane Reactor", US Prov. Patent App. 63006129, North Carolina State University.

2. **M. Abolhasani** and R. W. Epps, "Reduced Pathlength Flowcell for Inline Sample Characterization in Modular Fluoropolymer Tubing Microfluidics", US Patent App. PCT/US2020/057045, North Carolina State University.

2019 **1.** **M. Abolhasani**, C. W. Coley, and K. F. Jensen, "Multi-Phase Oscillatory Flow Reactor", US Patent No. US10252239B2, Massachusetts Institute of Technology.

Invited Talks

2025 **107.** Automation for Chemistry, ***Nature Conference***, Sep 2025, Hefei, China.

106. 6th Artificial Intelligence for Materials Science (AIMS) Workshop, ***NIST***, July 2025, Rockville, MD.

105. ***WCCE 12 & APCChE 2025***, July 2025, Beijing, China.

104. ***American Conference On Inorganic Nanoscience***, July 2025, Dover, VT.

103. ***ACS Sustainable Chemistry & Engineering Lectureship Webinar***, June 2025, Virtual event.

102. ***NanoSeries 2025***, June 2025, Valencia, Spain.

101. ***1st Advancing Autonomous Scientific Discovery Workshop (A2SD-2025)***, June 2025, Hamburg, Germany.

100. Collegium Helveticum, ***ETH Zurich***, May 2025, Zurich, Switzerland.

99. Autonomous Research for Real-World Science (ARROWS) Workshop, ***NREL***, May 2025, Golden, CO.

98. Brockhouse Institute for Materials Research Workshop, ***McMaster University***, May 2025, Virtual event.

97. MT01:Integrating AI-Assisted Computation and Experimentation for Autonomous Laboratories, ***2025 MRS Spring Meeting***, April 2025, Seattle, WA.

96. Institute of Materials Research & Engineering, ***A*STAR***, March 2025, Virtual event.

95. ***BASF***, March 2025, Houston, TX.

94. Department of Chemistry, ***UNC-CH***, Feb 2025, Chapel Hill, NC.

93. ***2025 North American Symposium for Chemical Reaction Engineering***, Feb 2025, Houston, TX.

92. ***TorontoTalk Series***, Feb 2025, University of Toronto, Canada.

91. ***RSC Americas Emerging Investigators Desktop Seminar***, Jan 2025, Virtual event.

2024 **90.** ***NSF Nano-AI Convergence Conference***, Dec 2024, Alexandria, VA.

89. BI01:Democratizing AI in Materials Science–A Pathway to Broaden the Impact of Materials Research, ***2024 MRS Fall Meeting***, Dec 2024, Boston, MA.

88. MT02: Machine Learning in Action–Automated and Autonomous Experiments, ***2024 MRS Fall Meeting***, Dec 2024, Boston, MA.

87. ***Chemical Reaction Engineering Symposium***, *CSIR-National Chemical Laboratory,* Dec 2024, Virtual event.

86. ***Takeda Pharmaceuticals***, Dec 2024, Boston, MA.

85. Department of Chemical Engineering, ***Seoul National University***, Nov 2024, Seoul, Korea.

84. ***Korea Institute of Science and Technology***, Nov 2024, Seoul, Korea.

83. ***ENGE 2024***, Nov 2024, Jeju Island, Korea.

82. ***2024 Sustainable Energy Research Conference: Future Fuels and Breakthrough Batteries***, Nov 2024, Chapel Hill, NC.

81. ***The International Conferences on Microreaction Technology (IMRET 17)***, Oct 2024, Graz, Austria.

80. ***AI for Multidisciplinary Exploration and Discovery (AIMED) Workshop***, Oct 2024, Chicago, IL.

79. ***AIChE CRE Webinar***, Oct 2024, Virtual event.

78. ***In silico Drug Discovery Workshop***, ***National Center for Advancing Translational Sciences***, Oct 2024, Virtual event.

77. Department of Chemistry, ***UCLA***, Sep 2024, California, CA.

76. Data Analytics and AI for Manufacturing and Healthcare, ***2024 ACS Fall Meeting***, Aug 2024, Denver, CO.

75. ***2024 Accelerate Conference***, Aug 2024, Vancouver, Canada.

74. ***45th International Conference on Coordination Chemistry***, July 2024, Fort Collins, CO.

73. ***MARSS 2024***, July 2024, Delft, Netherlands.

72. ***ARPA-E Accelerating Catalyst Development Workshop***, June 2024, Washington DC.

71. ***CIMTEC 2024***, June 2024, Montecatini Terme, Italy.
70. ***PASC24***, June 2024, Zurich, Switzerland.
69. Institute of Chemical and Bioengineering, ***ETH Zurich***, June 2024, Zurich, Switzerland.
68. ***Materials Square***, May 2024, virtual event.
67. ***Nature Communications and MRS Communications Workshop on Artificial Intelligence and Materials Science***, May 2024, Virtual event.
66. EL02:Towards Atomically Precise Colloidal Materials for Conventional and Quantum Optoelectronics, ***2024 MRS Spring Meeting***, April 2024, Seattle, WA.
65. ***MMLI Symposium***, March 2024, Chicago, IL.
64. Exploring Catalytic Materials for Conversion of Co/Co2 to Value-Added-Products, ***2024 ACS Spring Meeting***, March 2024, New Orleans, LA.
63. ***The Materials for Sustainable Development Conference (MATSUS24)***, March 2024, Barcelona, Spain.
62. ***Pittcon 2024***, Feb 2024, San Diego, CA.
61. ***Electronic Materials and Applications (EMA 2024)***, Feb 2024, Denver, CO.
60. ***Pfizer***, Feb 2024, Virtual event.
59. NST Colloquium, ***Argonne National Laboratory***, Jan 2024, Chicago, IL.

2023

58. INTERSECT Seminar Series, ***Oakridge National Lab***, Nov 2023, Virtual event.
57. Data Science & Machine Learning Approaches to Catalysis, ***2023 AIChE Fall Meeting***, Nov 2023, Orlando, FL.
56. Accelerated Discovery of Inorganic Materials: High-Throughput Experiments, Modeling, and Data Science, ***2023 AIChE Fall Meeting***, Nov 2023, Orlando, FL.
55. In Honor of Klavs Jensen's 70th Birthday, ***2023 AIChE Fall Meeting***, Nov 2023, Orlando, FL.
54. ACS Presidential Symposium on Machine Learning for the Chemical Sciences and Engineering, ***2023 ACS Fall Meeting***, Aug 2023, Sn Francisco, CA.
53. ***FQRNT Center in Green Chemistry and Catalysis***, April 2023, Montreal, Canada.
52. AI-Accelerated Scientific Workflow, ***2023 ACS Spring Meeting***, March 2023, Indianapolis, IN.
51. Workshop on AI-Enabled Scientific Revolution, ***National Science Foundation***, March 2023, Alexandria, VA.
50. Department of Chemical & Life Science Engineering, ***Virginia Commonwealth University***, Feb 2023, Richmond, VA.
49. Molecular Foundry Seminar Series, ***Lawrence Berkley National Lab,*** Feb 2022, Virtual event.
48. Department of Chemical Engineering and Applied Chemistry, ***University of Toronto***, Jan 2023, Toronto, Canada.
47. Department of Chemical and Materials Engineering, ***New Jersey Institute of Technology***, Jan 2023, Newark, NJ.

2022

46. NSEF Young Investigator Award Plenary, ***2022 AIChE Fall Meeting***, Nov 2022, Phoenix, AZ.
45. Next-Gen Manufacturing Topical Conference, ***2022 AIChE Fall Meeting***, Nov 2022, Phoenix, AZ.
44. Department of Chemical and Biomolecular Engineering, ***Rice University***, Sep 2022, Houston, Tx.
43. ***2022 Acceleration Conference***, Aug 2022, Toronto, Canada.
42. ***Samsung Forum***, July 2022, Virtual event.
41. ***Samsung Advanced Institute of Technology***, June 2022, Virtual event.

40. "***Machine Learning in Material Development: Innovations, Start-Ups, Applications***, June 2022, Virtual event.
39. ***Advanced Manufacturing & Processing Conference***, June 2022, Bethesda, MD.
38. ***LG Display America***, March 2022, Virtual Visit.
37. ***Flow Chemistry Summit 2022***, March 2022, Boston, MA.
36. ***Enabling Technologies for Organic Chemistry Symposium***, Feb 2022, Virtual event.
35. Department of Chemical and Biomolecular Engineering, ***University of Houston***, Feb 2022, Houston, Tx.

2021

34. School of Chemical and Biomolecular Engineering, ***Georgia Institute of Technology***, Dec 2021, Atlanta, GA.
33. ***Innovative Flow Chemistry Summit***, Dec 2021, Munich, Germany.
32. DS01, Accelerating Experimental Materials Research with Machine Learning, ***2021 MRS Fall Meeting***, Dec 2021, Boston, MA.
31. ***Flow Chemistry Summit 2021***, Sep 2021, Boston, MA.
30. ***MLMR2021 Workshop on Advanced Machine Learning Techniques for Materials Discovery***, July 2021, Virtual event.
29. ***2nd Commercializing Flow Chemistry Summit***, Aug 2021, Virtual event.
28. ***TCI Webinar Series***, May 2021, Virtual event.
27. ***Microfluidics & Energy Symposium***, April 2021, Virtual event.
26. ***French Chemical Society Section in Paris***, March 2021, Virtual event.

2020

25. ***Nanosys***, Dec 2020, Virtual event.
24. ***BASF***, Dec 2020, Virtual event.
23. Department of Chemistry, ***Fordham University***, Nov 2020, Virtual event.
22. ***Merck (Medicinal Chemistry)***, Aug 2020, Virtual event.
21. F.MT07: Data Science and Automation to Accelerate Materials Development and Discovery, ***2020 MRS Fall Meeting***, Nov 2020, Virtual event.
20. ***EMD Serono***, June 2020, Virtual event.
19. Department of Chemical Engineering, ***Eindhoven University of Technology***, April 2020, Virtual event.
18. School of Chemical and Biomolecular Engineering, ***Georgia Institute of Technology***, April 2020, Virtual event.

2019

17. ***Annual Samsung Tech Fair***, Nov 2019, Seoul, Korea.
16. ***Manufacturing of Materials in Flow***, Sep 2019, University of Cambridge, UK.
15. ***Samsung Advanced Institute of Technology***, Aug 2019, Seoul, Korea.
14. Supercritical Fluids Group, ***Institut de Chimie de la Matière Condensée de Bordeaux (ICMCB)***, July 2019, Bordeaux, France.

2018

13. AIChE Journal Futures: New Directions in Chemical Engineering Research, ***2018 AIChE Fall Meeting***, Oct 2018, Pittsburgh, PA.
12. Department of Chemical & Life Science Engineering, ***NC A&T State University***, Feb 2018, Greensboro, NC.

2017

11. Department of Chemical & Life Science Engineering, ***Virginia Commonwealth University***, Nov 2017, Richmond, VA.

2016

10. Department of Mechanical Engineering, ***University of Alberta***, March 2016, Edmonton, Canada.

9. Department of Mechanical and Aerospace Engineering, ***The State University of New York at Buffalo***, Feb 2016, Buffalo, NY.

8. Department of Chemical and Biological Engineering, ***The State University of New York at Buffalo***, Feb 2016, Buffalo, NY.

7. Department of Chemical and Biomolecular Engineering, ***University of Maryland***, Feb 2016, College Park, MD.

6. Department of Chemical and Biomolecular Engineering, ***North Carolina State University***, Feb 2016, Raleigh, NC.

5. Department of Mechanical Engineering, ***York University***, Feb 2016, Toronto, Canada.

4. Department of Chemical Engineering, ***University of Waterloo***, Jan 2016, Waterloo, Canada.

2015 **3.** School of Engineering, ***The University of British Columbia***, Oct 2015, Kelowna, British Columbia, Canada.

2013 **2.** Dynamics of Complex Fluids Seminar Series, ***Max Planck Institute***, Oct 2013, Gottingen, Germany.

1. Thermo-Fluids & Interfaces Seminar Series, ***Technical University of Darmstadt***, Oct 2013, Darmstadt, Germany.

Publications

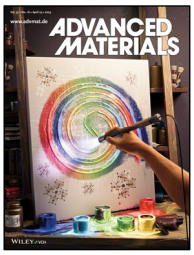
Graduate Student Authors; Undergraduate Student Authors

2025 **103.** F. Delgado-Licona, A. Alsaiari, H. Dickerson, P. Klem, A. Ghorai, R. B. Canty, J. A. Bennett, P. Jha, N. Mukhin, J. Li, E. Lopez-Guajardo, S. Sadeghi, and **M. Abolhasani**, "Flow-Driven Data Intensification to Accelerate Autonomous Materials Discovery", ***Nature Chemical Engineering***, 2025, Accepted.

102. F. Delgado-Licona, A. Alsaiari, D. Addington, and **M. Abolhasani**, "Engineering Principles for Self-Driving Laboratories", ***Nature Chemical Engineering***, 2025, Accepted.

101. S. Sadeghi, K. Mattsson, J. Glasheen, V. Lee, C. Stark, P. Jha, N. Mukhin, J. Li, A. Ghorai, N. Orouji, C. H. J. Moran, A. Velayati, J. A. Bennett, R. B. Canty, K. G. Reyes, and **M. Abolhasani**, "A Self-Driving Fluidic Lab for Data-Driven Synthesis of Lead-Free Perovskite Nanocrystals", ***Digital Discovery***, 2025, Accepted.

100. P. Jha, N. Mukhin, A. Ghorai, H. Morshedian, R. B. Canty, F. Delgado-Licona, E. E. Brown, A. J. Pyrch, F. N. Castellano, and **M. Abolhasani**, "Photo-Induced Bandgap Engineering of Metal Halide Perovskite Quantum Dots in Flow", ***Advanced Materials***, 2025, 37(16), 2419668.
Highlight: *Selected for the front cover of the issue.*
Featured in Science Daily, CEP Magazine, NC State News, EurekAlert!, and 10 other news outlets.



99. N. Mukhin, P. Jha, and **M. Abolhasani**, "The Role of Flow Chemistry in Self-Driving Labs", ***Matter***, 2025, Accepted.

98. R. B. Canty, J. A. Bennett, K. A. Brown, T. Buonassisi, S. V. Kalinin, J. Kitchin, B. Maruyama, R. G. Moore, J. Schrier, M. Seifrid, S. Sun, T. Vegge, and **M. Abolhasani**, "Science Acceleration and Accessibility with Self-Driving Labs", ***Nature Communications***, 2025, 16, 3856.

97. T. Wu, S. Kheiri, R. Hickman, H. Tao, T. Wu, Z. Yang, X. Ge, W. Zhang, **M. Abolhasani**, K. Liu, A. Aspuru-Guzik, and E. Kumacheva, "Self-Driving Lab for the Photochemical Synthesis of Metal Nanoparticles with Targeted Dimensions, Shapes, and Compositions", ***Nature Communications***, 2025, 16, 1473.

96. A. Veatch, S. Bhattachraya, M. Faculak, D. Cunningham, J. A. Bennett, M. Ibrahim, M. Janka, D. Mason, J. Grajeda, **M. Abolhasani**, N. West, E. Alexanian, and A. Miller, "Synthesis of Acid Anhydrides via the Thermal or Photochemical Catalytic Hydrocarbonylation of Alkenes", ***ACS Catalysis***, 2025, 15 (3), 2576–2583.

2024 **95.** R. B. Canty and **M. Abolhasani**, "Reproducibility in Automated Chemistry Laboratories using Computer Science Abstractions", ***Nature Synthesis***, 2024, 3, 1327-1339.

94. J. A. Bennett, N. Orouji, M. Khan, S. Sadeghi, J. A. Rodgers, and **M. Abolhasani**, "Autonomous Reaction Pareto-Front Mapping with a Self-driving Catalysis Laboratory", ***Nature Chemical Engineering***, 2024, 1, 240-250.

93. J. A. Bennett and **M. Abolhasani**, "A Self-Driving Lab for Accelerated Catalyst Development", ***Nature Chemical Engineering***, 2024, 1, 206–207.

92. J. A. Bennett and **M. Abolhasani**, "Machine-Learning Optimization of 3D-Printed Flow-Reactor Geometry", ***Nature Chemical Engineering***, 2024, 1, 501–503.

91. A. A. Volk and **M. Abolhasani**, "Performance Metrics to Unleash the Power of Self-Driving Labs in Chemistry and Materials Science", ***Nature Communications***, 2024, 15, 1378.

90. J. A. Bennett and **M. Abolhasani**, "Robotic Synthesis Decoded Through Phase Diagram Mastery", ***Nature Synthesis***, 2024, 3, 565-567.

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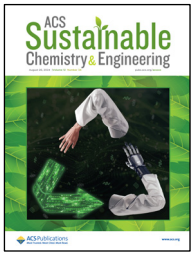

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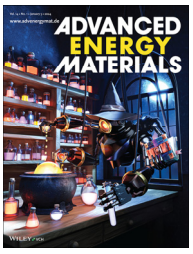

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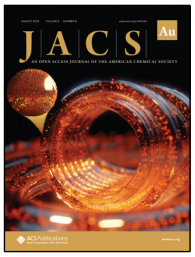

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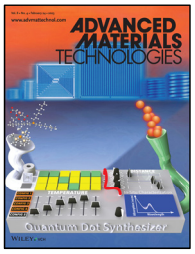

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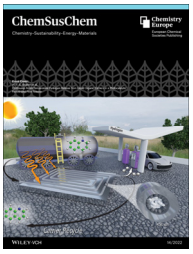

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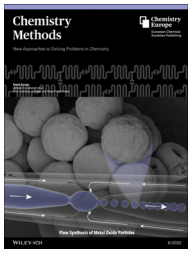

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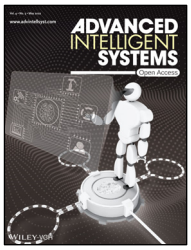

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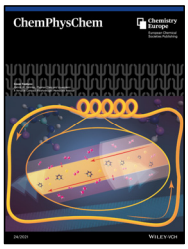

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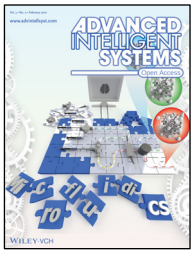

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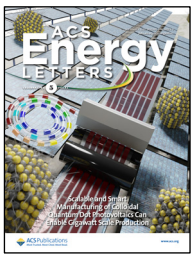

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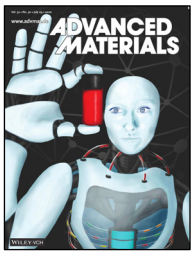

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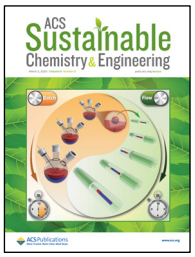

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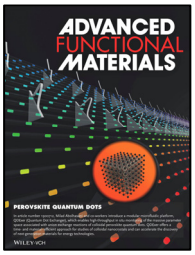

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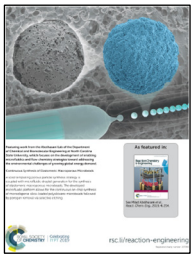

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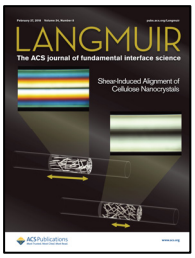

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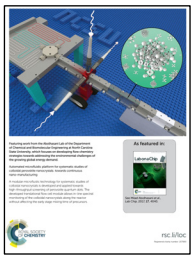
2017 **26.** **M. Abolhasani***, Y. Shen*, Y. Chen, L. Xie, L. Yang, C. W. Coley, M. G. Bawendi, and K. F. Jensen, "In-Situ Microfluidic Study of Biphasic Nanocrystal Ligand-Exchange Reactions Using an Oscillatory Flow Reactor", ***Angewandte Chemie International Edition***, 2017, 56 (51), 16333-16337. ** Authors contributed equally.*

25. R. W. Epps, K. C. Felton, C. W. Coley, and **M. Abolhasani**, "Automated Microfluidic Platform for Systematic Studies of Colloidal Perovskite Nanocrystals: Towards Continuous Nano-Manufacturing", ***Lab on a Chip***, 2017, 17 (23), 4040-4047.
Lab on a Chip ***Emerging Investigators*** *series.*
Highlight: *Selected for the back cover of the issue.*
Featured in NC State News, Phys.org, EurekAlert!, Photonics, and Technology Networks.



24. C. W. Coley**, M. Abolhasani**, H. Lin, and K. F. Jensen, "Material-Efficient Microfluidic Platform for Exploratory Studies of Visible-Light Photoredox Catalysis", ***Angewandte Chemie International Edition***, 2017, 56 (33), 9847–9850.

23. S. Lazzari, **M. Abolhasani**, and K. F. Jensen, "Modeling of the Formation Kinetics and Size Distribution Evolution of II-VI Quantum Dots", ***Reaction Chemistry & Engineering***, 2017, 2 (4), 567-576.

22. Y. Hwang, C. W. Coley, **M. Abolhasani**, A. Marzinzik, G. Koch, C. Spanka, H. Lehmann, and K. F. Jensen, "Segmented Flow Platform for On-Demand Medicinal Chemistry and Compound Synthesis in Oscillating Droplets", ***Chemical Communications***, 2017, 53 (49), 6649-6652.

21. G. Lestari, M. Alizadehgiashi, **M. Abolhasani***, and E. Kumacheva*," A Study of Extraction and Recycling of Switchable Hydrophilicity Solvent in an Oscillatory Microfluidic Platform", ***ACS Sustainable Chemistry & Engineering***, 2017, 5 (5), 4304-4310. ** Co-corresponding author*

2016 **20.** **M. Abolhasani** and K. F. Jensen, "Oscillatory Multiphase Flow Strategy for Chemistry and Biology", ***Lab on a Chip***, 2016, 16 (15), 2775-2784.

19. G. Lestari, A. Salari, **M. Abolhasani***, and E. Kumacheva*, "A Microfluidic Study of Liquid-Liquid Extraction Mediated by Carbon Dioxide", ***Lab on a Chip***, 2016, 16 (14), 2710-2718. ** Co-corresponding author*

Prior to NCSU

2015 **18.** **M. Abolhasani**, C. W. Coley, and K. F. Jensen, "Multiphase Oscillatory Flow Strategy for *in Situ* Measurement and Screening of Partition Coefficients", ***Analytical Chemistry***, 2015, 87 (21), 11130–11136.

17. **M. Abolhasani**, C. W. Coley, L. Xie, O. Chen, M. G. Bawendi, and K. F. Jensen, "Oscillatory Microprocessor for Growth and *in Situ* Characterization of Semiconductor Nanocrystals", ***Chemistry of Materials***, 2015, 27 (17), 6131–6138.
Highlight: *Selected for the virtual issue between ACS Combinatorial Science and Chemistry of Materials: ACS Materials Genomics.*

16. **M. Abolhasani**, N. C. Bruno, and K. F. Jensen, "Oscillatory Three-Phase Flow Reactor for Studies of Bi-Phasic Catalytic Reactions", ***Chemical Communications***, 2015, 51 (43), 8916-8919.
Highlight: *Selected for the front cover of the issue.*

15. L. Yang, Y. Shi, **M. Abolhasani** and K. F. Jensen "Characterization and Modeling of Multiphase Flow in Structured Microreactors: A Post Microreactor Case Study", ***Lab on a Chip***, 2015, 15 (15), 3232-3241.

14. **M. Abolhasani**, E. Kumacheva, and A. Guenther, "Peclet Number Dependence of Mass Transfer in Microscale Segmented Gas-Liquid Flow", ***Industrial & Engineering Chemistry Research***, 2015, 54 (36), 9046–9051.

13. V. Rajendra, H. Therien-Aubin, **M. Abolhasani**, M. Villalabos, and E. Kumacheva**,** "An Exploratory Microfluidic Approach to Photopolymerized Polymer-Inorganic Nanocomposite Films", ***Macromolecular Materials and Engineering***, 2015, 300 (11), 1071-1078.

2014

12. **M. Abolhasani**, A. Guenther, and E. Kumacheva, "Microfluidic Studies of Carbon Dioxide", ***Angewandte Chemie International Edition***, 2014, 53(31), 7992-8002.

11. **M. Abolhasani***, G. Lestari*, D. Bennett, P. Chase, A. Guenther, and E. Kumacheva, "Switchable Water (SW): Microfluidic Investigation of CO_2-Mediated Liquid-Liquid Phase Separation", ***Journal of the American Chemical Society***, 2014, 136 (34), 11972–11979. ** Authors contributed equally; Featured in Phys.org and WaterOnline.*

10. M. Chau, **M. Abolhasani**, H. Thérien-Aubin, Y. Li, Y. Wang, D. Velasco, E. Tumarkin, A. Ramachandran, and E. Kumacheva, "Microfluidic Generation of Composite Biopolymer Microgels with Tunable Compositions and Mechanical Properties", ***BioMacromolecules***, 2014, 15 (7), 2419–2425.

9. **M. Abolhasani**, A. Oskooei, A. Klinkova, E. Kumacheva, and A. Guenther, "Shaken and Stirred: Oscillatory Segmented Flow for Controlled Size-Evolution of Colloidal Nanomaterials", ***Lab on a Chip***, 2014, 14 (13), 2309-2318.

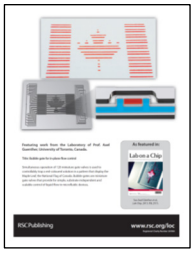
8. **M. Abolhasani***, D. Voicu*, R. Choueiri, G. Lestari, C. Seiler, G. Menard, J. Greener, A. Guenther , D. W. Stephan, and E. Kumacheva, "Microfluidic Studies of CO_2 Sequestration by Frustrated Lewis Pairs", ***Journal of the American Chemical Society***, 2014, 136 (10), 3875-3880. ** Authors contributed equally*

7. J. Cheng, **M. Abolhasani**, L. Beltran, Y. M. Buys, and G. E. Trope, "Evaluation of Priming the Ahmed Glaucoma Valve: Pressure Required and Effect of Over-Priming", ***Journal of Glaucoma***, 2014, 24 (4), e34-e35.

2013

6. Y. Wang, E. Tumarkin, D. Velasco, **M. Abolhasani**, W. Lau, and E. Kumacheva, "Exploring a Direct Injection Method for Microfluidic Generation of Polymer Microgels", ***Lab on a Chip***, 2013, 13 (13), 2547-2553.

5. A. Oskooei, **M. Abolhasani**, and A. Guenther, "Bubble Gate for in-Plane Flow Control" ***Lab on a Chip***, 2013, 13 (13), 2519-2527.
Highlight: *Selected for the back cover of the issue.*



2012

4. **M. Abolhasani**, M. Singh, E. Kumacheva, and A. Guenther, "Cruise Control for Segmented Flow", ***Lab on a Chip***, 2012, 12 (22), 4787-4795.

3. **M. Abolhasani**, M. Singh, E. Kumacheva, and A. Guenther, "Automated Microfluidic Platform for Studies of Carbon Dioxide Dissolution and Solubility in Physical Solvents", ***Lab on a Chip***, 2012, 12 (9), 1611-1618.

2. J. Greener, E. Tumarkin, M. Debono, C. Kwan, **M. Abolhasani**, A. Guenther, and E. Kumacheva, "Development and Applications of a Microfluidic Reactor with Multiple Reconfigurable Probes", ***Analyst***, 2012, 137 (2), 444-450.

2011

1. E. Tumarkin, Z. Nie, J.I. Park, **M. Abolhasani**, J. Greener, B. Sherwood-Lollar, A. Guenther, and E. Kumacheva, "Temperature-Controlled Breathing of Carbon Dioxide Bubbles", ***Lab on a Chip***, 2011, 11 (20), 3545-3550.

Selected Conference Presentations

Oral Presentations

2023 **79.** J. A. Bennett and **M. Abolhasani**, "Autonomous Homogeneous Catalysis Enabled by a Self-Driving Flow Reactor", *Proceedings of the AIChE National Meeting (Fall 2023),* Orlando, USA, Nov. 5-10.

78. S. Sadeghi, F. Bateni, and **M. Abolhasani**, "Autonomous Synthesis of Eco-Friendly Metal Halide Perovskite Nanocrystals", *Proceedings of the AIChE National Meeting (Fall 2023),* Orlando, USA, Nov. 5-10.

77. H. Morshedian and **M. Abolhasani**, "Microfluidic Photodegradation Studies of Quantum Dots", *Proceedings of the AIChE National Meeting (Fall 2023),* Orlando, USA, Nov. 5-10.

2022 **76.** A. A. Volk, R. W. Epps, K. G. Reyes, and **M. Abolhasani**, "Autonomous Colloidal Atomic Layer Deposition", *Proceedings of the 2022 Materials Research Society (MRS) Annual Meeting*, Boston, USA, Nov 27-Dec 2.

75. F. Bateni, K. G. Reyes, and **M. Abolhasani**, "Self-Driving Fluidic Laboratory for Autonomous Development of Metal Halide Perovskite Nanocrystals", *Proceedings of the 2022 Materials Research Society (MRS) Annual Meeting*, Boston, USA, Nov 27-Dec 2.

74. F. D. Licona, R. W. Epps, and **M. Abolhasani**, "Accelerated Synthesis of Colloidal Quantum Dots in Multi-Stage Microfluidic Reactors", *Proceedings of the 2022 Materials Research Society (MRS) Annual Meeting*, Boston, USA, Nov 27-Dec 2.

73. F. Bateni, R. W. Epps, K. Abdel-Latif, R. Dargis, J. A. Bennett, K. G. Reyes, and **M. Abolhasani**, "Autonomous Synthesis of Metal Halide Perovskite Nanocrystals", *Proceedings of the AIChE National Meeting (Fall 2022),* Phoenix, USA, Nov. 13-18.

72. B. A. Davis, J. A. Bennett, J. Genzer, K. Efimenko, and **M. Abolhasani**, "Cyclodextrin Network-Supported Catalysis in Flow", *Proceedings of the AIChE National Meeting (Fall 2022),* Phoenix, USA, Nov. 13-18.

71. J. A. Bennett, M. Y. S. Ibrahim, and **M. Abolhasani**, "Flexible Homogeneous Hydroformylation: On-Demand Tuning of Aldehyde Branching with a Cyclic Fluorophosphite Ligand", *Proceedings of the AIChE National Meeting (Fall 2022),* Phoenix, USA, Nov. 13-18.

70. A. A. Volk, R. W. Epps, D. Yonemoto, B. Masters, F. N. Castellano, and **M. Abolhasani**, "Microfluidic Studies of Colloidal Atomic Layer Deposition", *Proceedings of the AIChE National Meeting (Fall 2022),* Phoenix, USA, Nov. 13-18.

69. K. Antami, F. Bateni, M. Ramezani, and **M. Abolhasani**, "High-Temperature Flow Synthesis of Lead Halide Perovskite Nanocrystals", *Proceedings of the AIChE National Meeting (Fall 2022),* Phoenix, USA, Nov. 13-18.

68. A. A. Volk, R. W. Epps, D. Yonemoto, F. N. Castellano, and **M. Abolhasani**, "Quaternary Phase Segmented Flow Format for Biphasic Reactions", *Proceedings of the AIChE National Meeting (Fall 2022),* Phoenix, USA, Nov. 13-18.

2021 **67.** F. Bateni and **M. Abolhasani**, "Autonomous Microfluidic Synthesis of Metal Cation-Doped Perovskite Quantum Dots", *Proceedings of the 2021 Materials Research Society (MRS) Annual Meeting*, Boston, USA, Nov 29-Dec 2.

66. B. A. Davis, J. A. Bennett, and **M. Abolhasani**, "Continuous Ligand-Free Suzuki-Miyaura Cross-Coupling Reactions in a Packed Bed Flow Reactor Using an Easily Synthesized Siloxane Network-Supported Palladium Catalyst", *Proceedings of the AIChE National Meeting* (Fall 2021), Boston, USA, Nov. 7-11.

65. N. Sitapure, R. W. Epps, **M. Abolhasani**, and K. Kwon, "Controlling the Effect of Slug-to-Slug Variation on the Crystal Size Distribution of Perovskite QDs: A CFD-Based Approach", *Proceedings of the AIChE National Meeting (Fall 2021),* Boston, USA, Nov. 7-11.

64. R. W. Epps and **M. Abolhasani**, "Machine Learning-Guided Quantum Dot Synthesis in Flow", *Proceedings of the ACS National Meeting* (Fall 2021), Virtual ACS 2021.

63. S. Han and **M. Abolhasani**, "CO_2-Triggered Switchable Hydrophilicity Solvents: From Accelerated Screening to Intensified Continuous Extraction", *Proceedings of the ACS National Meeting* (Fall 2021), Virtual ACS 2021.

62. N. Sitapure, R. W. Epps, **M. Abolhasani**, and K. Kwon, "Multiscale CFD modeling and optimal control of a continuous slug flow crystallizer for quantum dot production", *Proceedings of the IEEE Control Systems Society Conference* (Spring 2021), Virtual ACC 2021, USA, May 15-17.

61. R. W. Epps and **M. Abolhasani**, "Data-Driven Quantum Dot Synthesis Development in Flow", *Proceedings of the 2021 Materials Research Society (MRS) Annual Meeting*, USA, April 18-23, Virtual Presentation.

2020 **60.** S. Han, K. Raghuvanshi, and **M. Abolhasani**, "Flow Chemistry-Enabled Investigations of Switchable Hydrophilicity Solvents", *Proceedings of the 2020 American Institute of Chemical Engineers (AIChE) Annual Meeting*, San Francisco, USA, Nov. 10-15.

59. R. W. Epps, A. A. Volk, K. Abdel-Latif, K. G. Reyes, and **M. Abolhasani**, "Machine Learning-Guided Flow Synthesis of Inorganic Metal Halide Perovskite Quantum Dots", *Proceedings of the 2020 American Institute of Chemical Engineers (AIChE) Annual Meeting*, San Francisco, USA, Nov. 10-15.

58. R. W. Epps, N. Sitapure, A. A. Volk, J. S. Kwon, and **M. Abolhasani**, "Modular Fluidic Microreactor for Fully Decoupled Precursor Mixing and Reaction Times in Mechanistic Studies of Metal Halide Perovskite Quantum Dot Synthesis", *Proceedings of the 2020 American Institute of Chemical Engineers (AIChE) Annual Meeting*, San Francisco, USA, Nov. 10-15.

57. N. Sitapure, R. W. Epps, **M. Abolhasani**, and J. S. Kwon, "Multiscale Modelling and Model Predictive Control of $CsPbBr_3$ Quantum Dots Production: A Step Towards on-Demand Smart-Nanomanufacturing", *Proceedings of the 2020 American Institute of Chemical Engineers (AIChE) Annual Meeting*, San Francisco, USA, Nov. 10-15.

56. Z. S. Campbell, D. Jackson, J. Lustik, A. K. Al-Rashdi, J. A. Bennett, F. Li, and **M. Abolhasani**, "Microfluidic Synthesis of Titania Microparticles with Tunable Morphologies", *Proceedings of the 2020 American Institute of Chemical Engineers (AIChE) Annual Meeting*, San Francisco, USA, Nov. 10-15.

55. **M. Abolhasani**, "Machine Learning-Enhanced Flow Synthesis of Quantum Dots", *Proceedings of the ACS National Meeting* (Spring 2020), ACS 2020, *Virtual Meeting*.

54. **M. Abolhasani**, "Mixing-Controlled Synthesis of Metal Halide Perovskite Nanocrystals", *Proceedings of the ACS National Meeting* (Spring 2020), ACS 2020, *Virtual Meeting*.

53. S. Han and **M. Abolhasani**, "Accelerated Material- and Energy-Efficient Studies of Switchable Hydrophilicity Solvents", *Proceedings of the ACS National Meeting* (Spring 2020), ACS 2020, *Virtual Meeting*.

2019 **52.** R. W. Epps, M. Bowen, K. Abdel-Latif, and **M. Abolhasani**, "Convergence of Microfluidics, Colloidal Synthesis, and Machine Learning: Real-Time Optimization of Halide Exchange Reactions of Colloidal Inorganic Perovskites Quantum Dots", *Proceedings of the 2019 Materials Research Society (MRS) Annual Meeting*, Boston, USA, Dec. 1-6.

51. **M. Abolhasani**, "Continuous Synthesis of Organic/Inorganic Microparticles Using a Low-Cost Flow-Focusing Microreactor", *Proceedings of the 2019 American Institute of Chemical Engineers (AIChE) Annual Meeting*, Orlando, USA, Nov. 10-15.

50. **M. Abolhasani**, "Continuous on-Demand Synthesis of Perovskite Quantum Dots", *Proceedings of the 2019 American Institute of Chemical Engineers (AIChE) Annual Meeting*, Orlando, USA, Nov. 10-15.

49. **M. Abolhasani**, "Microfluidic Studies of Colloidal Perovskite Quantum Dots", *Proceedings of the 2019 American Chemical Society (ACS) Annual Spring Meeting*, Orlando, USA, March 31-April 4.

48. **M. Abolhasani**, "Continuous Flow Synthesis and Anion Exchange of Colloidal Perovskite Quantum Dots", *Proceedings of the 2019 Materials Research Society (MRS) Annual Spring Meeting*, Phoenix, USA, April 22-26.

47. **M. Abolhasani**, "Microfluidic Synthesis of Elastomeric Microparticles: A Case Study in Catalysis of Palladium-Mediated Cross-Coupling", *Proceedings of the 2018 American Institute of Chemical Engineers (AIChE) Annual Meeting*, Pittsburgh, USA, Oct. 27- Nov. 2.

2018 **46.** C. Zhu, K. Raghuvanshi, C. W. Coley, and **M. Abolhasani**, "Single-Droplet Flow Chemistry Platform for High-Throughput Studies of Rhodium-Catalyzed Hydroformylation Reactions", *Proceedings of the 2018 American Institute of Chemical Engineers (AIChE) Annual Meeting*, Pittsburgh, USA, Oct. 27- Nov. 2.

45. Z. Campbell, M. Parker, J. Lustik, D. Jackson, S. Yusuf, F. Li, and **M. Abolhasani**, "Energy Efficient Methane Reforming Enabled by Continuous Manufacturing of Porous Titania Microparticles", *Proceedings of the 2018 American Institute of Chemical Engineers (AIChE) Annual Meeting*, Pittsburgh, USA, Oct. 27- Nov. 2.

44. J. Bennett, J. Genzer, and **M. Abolhasani**, "Monodisperse Elastomeric Microparticle Scaffolds for Heterogeneous Palladium-Mediated Catalysis", *Proceedings of the 2018 American Institute of Chemical Engineers (AIChE) Annual Meeting*, Pittsburgh, USA, Oct. 27- Nov. 2.

43. C. Zhu, K. Raghuvanshi, C. W. Coley, and **M. Abolhasani**, "Single-Droplet Flow Chemistry Platform for High-Throughput Studies of Rhodium-Catalyzed Hydroformylation Reactions", *Proceedings of the 2018 American Chemical Society (ACS) Annual Meeting*, Boston, USA, Aug. 19-22.

42. **M. Abolhasani**, "Microfluidic Studies of Room Temperature Synthesized Perovskite Nanocrystals", *Proceedings of the 2017 American Institute of Chemical Engineers (AIChE) Annual Meeting*, Minneapolis, USA, Oct. 29- Nov. 3.

2017 **41.** **M. Abolhasani**, Y. Shen, C. W. Coley, and K. F. Jensen, "Microfluidic Studies of Bi-Phasic Ligand Exchange of Semiconductor Nanocrystals", *Proceedings of the 21st International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS)*, Savannah, USA, Oct. 22-26.
Highlight: *Selected as one of the 99 oral presentations out of 1061 submissions (9% Acceptance rate).*

40. **M. Abolhasani**, C. W. Coley, H. Lin, and K. F. Jensen, "Automated Oscillatory Photochemical Reactor for High Throughput Studies of Visible-Light Photoredox Catalysis", *Proceedings of the 2016 American Institute of Chemical Engineers (AIChE) Annual Meeting,* San Francisco, USA, Nov. 13-18.

2016 **39.** **M. Abolhasani**, N. C. Bruno, and K. F. Jensen, "Oscillatory Flow Reactor for Studies of Bi-Phasic C-C and C-N Cross-Coupling Reactions", *Proceedings of the 2015 American Institute of Chemical Engineers (AIChE) Annual Meeting,* Salt Lake City, USA, Nov. 8-15.

2015 **38.** **M. Abolhasani**, C. Coley, L. Xie, O. Chen, and K. F. Jensen, "Oscillatory Microprocessor for High-Throughput In-Situ Characterization of Semiconductor Nanocrystals", *Proceedings of the 2015 American Institute of Chemical Engineers (AIChE) Annual Meeting,* Salt Lake City, USA, Nov. 8-15.

37. **M. Abolhasani**, and K. F. Jensen, "Oscillatory Motion of a Bi-Phasic Slug in a Teflon Reactor", *Bulletin of the American Physical Society: 68th Annual Meeting of the APS Division of Fluid Dynamics*, Boston, USA, Nov. 22-24.

36. L. Yang, Y. Shi, **M. Abolhasani**, and K. F. Jensen, "Modelling the Hydrodynamics and Transport in Multiphase Microreactors", *Bulletin of the American Physical Society: 68th Annual Meeting of the APS*, Boston, USA, Nov. 22-24.

35. **M. Abolhasani**, Y. Hassan, E. Kumacheva, G. D. Scholes, and A. Guenther, "Multi-Stage Microfluidic Strategy for High Temperature Nanocrystal Synthesis", *Proceedings of the Canadian Society for Mechanical Engineering (CSME) International Congress*, Toronto, Canada, June 1-4. ***Highlight:*** *Selected as one of the top 10 papers.*

2014 **34.** **M. Abolhasani**, Y. Hassan, E. Kumacheva, G. D. Scholes, and A. Guenther, "Multi-Stage Microfluidic Growth and Shelling of Quantum Dots", *Proceedings of the 2013 American Institute of Chemical Engineers (AIChE) Annual Meeting,* San Francisco, USA, Nov. 3-8.

2013 **33.** **M. Abolhasani**, E. Kumacheva, and A. Guenther, "Gas Dissolution in Microscale Segmented Gas-Liquid Flow", *Proceedings of the 2013 American Institute of Chemical Engineers (AIChE) Annual Meeting,* San Francisco, USA, Nov. 3-8.

32. **M. Abolhasani**, A. Oskooei, E. Kumacheva, and A. Guenther, "Shaken, and Stirred!", *Proceedings of the 17th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS),* Freiburg, Germany, Oct. 27-31.

31. **M. Abolhasani**, E. Kumacheva and A. Guenther, "Dynamics of Carbon Dioxide Bubble Shrinkage in Microchannel Flow Determines Mass Transfer in Physical Solvents", *Proceedings of the 23rd International Congress of Theoretical and Applied Mechanics (ICTAM)*, Beijing, China, Aug. 19-24.

2012 **30.** J. Greener, R. Choueiri, E. Tumarkin, **M. Abolhasani**, A. Guenther, and E. Kumacheva, "Spectroscopic Studies of Gas-Liquid Reactions Using Microfluidics for the Study of CO_2 Conversion to High-Value Products", *Proceedings of the 12th Topical Conference on Gas Utilization*; *AIChE 2012 Winter Meeting,* Houston, USA, April 1-5.

29. **M. Abolhasani**, E. Kumacheva, and A. Guenther, "Model-Predictive Strategy for Exploration of Carbon Dioxide Dissolution and Mass Transfer", *Proceedings of the 15th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS)*, Seattle, USA, Oct. 2-6.
Highlight: *Selected as one of the **92** oral presentations out of **1352** submissions (**7%** Acceptance rate).*

2011 **28.** **M. Abolhasani**, E. Kumacheva, and A. Guenther, "Bubble Shrinkage and Growth: An Investigation of Carbon Dioxide Dissolution and Solubility", *Bulletin of the American Physical Society: 64th Annual Meeting of the APS Division of Fluid Dynamics*, Baltimore, USA, Nov. 20-22.

27. **M. Abolhasani**, K. D. Devlin, H. Najjaran, M. Hoorfar, and J. F. Holzman, "Nonlinear Localization for Electrowetting-Based Digital Microfluidic Actuation", *Proceedings of the 8th International Conference on Nanochannels, Microchannels and Minichannels*, Canada, Aug. 1-5.

2010

26. **M. Abolhasani**, K. D. Devlin, H. Najjaran, M. Hoorfar, and J. F. Holzman, "Multiplexed Localization in Bi-Layer Digital Microfluidic Systems", *Proceedings of Tech Connect World Conference & Expo.*, Anaheim, USA, June 21-24.

25. **M. Abolhasani**, K. D. Devlin, H. Najjaran, M. Hoorfar, and J. F. Holzman, "Enhanced Addressability in Digital Microfluidic Multiplexer Systems by Threshold-Based Voltage Actuation and Bi-Polar Voltage Activation," *Proceedings of the Canadian Society for Mechanical Engineering (CSME) International Congress*, Victoria, Canada, June 7-9.

Poster Presentations

2021

24. F. Bateni and **M. Abolhasani**, "Accelerated Microfluidic Studies of Cation-Doped Lead Halide Perovskite Quantum Dots", *Proceedings of the 25th International Conference on Miniaturized Systems for Chemistry and Life Sciences, (MicroTAS),* USA, Virtual Meeting, Oct.10-14.

23. F. Bateni and **M. Abolhasani**, "On-Demand Continuous Manufacturing of Metal Cation-Doped Perovskite Nanocrystals", *1st Microfluidics and Energy Symposium*, April 29 (virtual presentation).

22. R. W. Epps and **M. Abolhasani**, "Self-Driven Quantum Dot Synthesis Enabled by Autonomous Robotic Experimentation in Flow", *1st Microfluidics and Energy Symposium*, April 29 (virtual presentation).

2020

21. S. Han, M. Ramezani, and **M. Abolhasani**, "Accelerated Microfluidic Studies of Switchable Hydrophilicity Solvents", *Proceedings of the 24th International Conference on Miniaturized Systems for Chemistry and Life Sciences, (MicroTAS),* USA, Virtual Meeting, Oct.4-9.

20. R. W. Epps, A. A. Volk, K. Abdel-Latif, K. G. Reyes, and **M. Abolhasani**, "AI-Guided Microfluidic Synthesis of Colloidal Lead Halide Perovskite Quantum Dots", *Proceedings of the 24th International Conference on Miniaturized Systems for Chemistry and Life Sciences, (MicroTAS),* USA, Virtual Meeting, Oct.4-9.
Highlight: *Selected for the CHEMINAS - Young Researcher Poster Award.*

19. S. Han, K. Raghuvanshi, and **M. Abolhasani**, "An Oscillatory Flow Reactor for High-Throughput Studies of CO_2-Mediated Switchable Hydrophilicity Solvents", *Proceedings of the 2020 American Institute of Chemical Engineers (AIChE) Annual Meeting*, San Francisco, USA, Nov. 10-15.

18. Z. S. Campbell, D. Jackson, J. Lustik, A. K. Al-Rashdi, J. A. Bennett, F. Li, and **M. Abolhasani**, "Intensified Flow Reactor for Continuous Synthesis of High Surface Area Titania Microparticles", *Proceedings of the 2020 American Institute of Chemical Engineers (AIChE) Annual Meeting*, San Francisco, USA, Nov. 10-15.

17. S. Han and **M. Abolhasani**, "Switchable Hydrophilicity Solvents: Single-Droplet Studies of CO_2-mediated Solvent Extraction in an Intensified Flow Reactor", *Proceedings of the ACS National Meeting* (Spring 2020), ACS 2020, *Virtual Meeting*.

2019

16. K. Abdel-Latif, R. W. Epps, and **M. Abolhasani**, "Microfluidic Studies of Anion Exchange Reactions of Inorganic Perovskite Quantum Dots", *Proceedings of the 2019 Materials Research Society (MRS) Annual Meeting*, Boston, USA, Dec. 1-6.

2018

15. K. Abdel-Latif, R. W. Epps, and **M. Abolhasani**, "On-Demand Band-Gap Tuning of Colloidal Perovskite Nanocrystals Enabled by Fast Anion-Exchange Reactions", *Proceedings of the 2018 Materials Research Society (MRS) Annual Meeting*, Boston, USA, Nov. 25-30.

14. R. W. Epps and **M. Abolhasani**, "Mass Transfer-Tuned Growth Pathways of Colloidal Perovskite Quantum Dots Revealed by a High-Throughput Microfluidic Strategy", *Proceedings of the 2018 Materials Research Society (MRS) Annual Meeting*, Boston, USA, Nov. 25-30.

13. K. Raghuvanshi, C. Zhu, and **M. Abolhasani**, "Rapid Studies of Rhodium-Catalyzed Hydroformylation Reactions Enabled by an Automated Single-Droplet Flow Reactor", *Proceedings of the 2018 Flow Chemistry Congress*, Miami, USA, Nov. 12-13.

12. C. Zhu, K. Raghuvanshi, C. W. Coley, and **M. Abolhasani**, "Automated Microfluidic Platform for High-Throughput Screening of Rhodium-Catalyzed Hydroformylation", *Proceedings of the 2018 American Institute of Chemical Engineers (AIChE) Annual Meeting*, Pittsburgh, USA, Oct. 27- Nov. 2.

11. M. Parker, Z. Campbell, J. Lustik, D. Jackson, S. Yusuf, F. Li, and **M. Abolhasani**, "Porous Titania Microspheres: Highly-Efficient Catalyst Scaffold for Green Syngas Production", *Proceedings of the 2018 American Institute of Chemical Engineers (AIChE) Annual Meeting*, Pittsburgh, USA, Oct. 27- Nov. 2.

10. J. Bennett, J. Genzer, and **M. Abolhasani**, "Continuous Ligand-Free Palladium-Mediated Carbon-Carbon Cross-Coupling", *Proceedings of the 2018 American Institute of Chemical Engineers (AIChE) Annual Meeting*, Pittsburgh, USA, Oct. 27- Nov. 2.

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8. C. Zhu, K. Raghuvanshi, C. W. Coley, and **M. Abolhasani**, "Flow chemistry platform for high-throughput screening of rhodium-catalyzed hydroformylation of 1-octene", *Proceedings of the 2018 American Chemical Society (ACS) Annual Meeting*, Boston, USA, Aug. 19-22.

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