

CHARLES E. DIESENDRUCK

Associate Professor

Schulich Faculty of Chemistry,
Technion – Israel Institute of Technology,
Technion City, Haifa 3200008, Israel
email: charles@technion.ac.il
phone: +972-4-829-3752

EDUCATION

- 2007-2011 Ph.D. in Organometallic Chemistry, Ben-Gurion University of the Negev, Israel. Advisor: Prof. N. Gabriel Lemcoff.
- 2008 Visiting Student, Heidelberg University, with Prof. Dr. Bernd F. Straub.
- 2005-2007 M.Sc. in Organic Chemistry, Ben-Gurion University of the Negev, Israel. Advisor: Prof. N. Gabriel Lemcoff.
- 2000-2003 B.Sc. in Analytical and Environmental Chemistry, Ben-Gurion University of the Negev, Israel.

PROFESSIONAL EXPERIENCE

- 2022 – 2023 Visiting Professor, Department of Chemistry, Stanford University, CA, USA
- Since 2020 Associate Professor, Schulich Faculty of Chemistry, Technion, Israel.
- Since 2015 Associate Editor – Israel Journal of Chemistry
- 2014 – 2020 Assistant Professor, Schulich Faculty of Chemistry, Technion, Israel.
- 2011 – 2014 Post-Doctoral Researcher with Prof. Jeffrey S. Moore, Beckman Institute for Advanced Science and Technology, University of Illinois, IL, USA.
- 2004 – 2006 Project Manager, Chemada Fine Chemicals, Israel.
- 2003 – 2004 Officer, Materials Department, Israel Navy, Israel.
- 1999 – 2003 Analytical Research Assistant at Chemada Fine Chemicals, Israel.

FELLOWSHIPS AND AWARDS

- 2023 Stanford Science Visiting Professor, USA
- 2023 Rechler Prize for Excellence in Research, Technion, Israel
- 2021 Crown-Vanguard Award, Technion, Israel
- 2019 The ICS Prize for Outstanding Young Scientist, Israel
- 2018 Austria-Israel Academic Network Innsbruck Lecturer, Austria
- 2018 Krill Prize (Wolf Foundation), Israel
- 2018 JSP Award (Bürgenstock Conference) from the Swiss Chemical Society, Switzerland
- 2018 Blavatnik Awards for Young Scientists in Israel
- 2016, 2020 Schulich Prize for Excellence in Enhancing the Understanding of Chemistry, Technion, Israel
- 2014 Women's Division Advancement Chair, American Technion Society, Israel
- 2010 The Ruth and Milton Orchin Prize for excellent graduate student, Israel

- 2010 The Hyman and Irene Kreitman Prize for excellent academic achievements, Israel
 2010 Best Poster Award at "Highs in Chemistry", Israel
 2008 Minerva Short-term Grant for Israeli Ph.D. students for research in Germany

TEACHING

- 2006 – 2010 Advanced Organic Lab
 2015, 2017, 2019, 2021 Polymers: From synthesis to architectures
 2015 – 2022 Structure Determination by Physical Methods
 2016 – 2017, 2022 General Chemistry (Non-Chemistry students)
 2017 – 2020 Principles of Chemistry (Chemistry students)
 2016, 2017, 2021, 2022 Organic Laboratory 1 and 2
 2022 Environmental Chemistry

GRANTS

- 2014-2017 Technion Start-up Grant 1980k NIS.
 2015-2019 Israel Science Foundation: Individual Research Grant 1280k NIS
 2015-2017 Israel Science Foundation: New Faculty Equip. Grant 1100k NIS
 2016-2017 Kamin 418k NIS
 2016-2017 Israel Science Foundation: Instit. Equip. Grant 675k NIS
 2017 German-Israel Foundation 20k EUR
 2017-2018 Ministry of Energy (with Prof. Dekel) 700k NIS
 2017-2020 Ministry of Science (with Prof. Dekel) 1200k NIS
 2018-2020 Department of Defense (USA) (with Prof. Dekel) 200k USD
 2019-2021 Ministry of Energy 750k NIS
 2019-2022 Magnet (CIRCLE) 1100k NIS
 2019-2023 Israel Science Foundation: Individual Research Grant 1080k NIS
 2021-2023 Ministry of Energy Start-up Grant (with Prof. Dekel) 1120k NIS
 2021-2023 Industrial supported research (Rivulis Ltd.) 1311k NIS
 2021-2025 PAZY 1400 NIS
 2022-2024 Magneton (with Prof. Dekel) 1100k NIS
 2022-2024 Nofar (with Prof. Suss) 1500k NIS
 2022-2023 RBNI Nevet (with Prof. Grolman) 40k USD
 2022-2023 Cochvei Magnet 500k NIS
 2022-2023 Ministry of Science (with Prof. Dekel) 68k NIS
 2023-2026 Ministry of Science (with Prof. Dekel) 750k NIS
 2023-2027 Israel Science Foundation: Individual Research Grant 1080k NIS
 2023-2025 Technion-GTIIT Seed collaboration grant (with Prof. Stavrou) 60k USD
 2023-2025 Ministry of Energy 675k NIS

SCIENTIFIC PUBLICATIONS

1. Ben-Asuly, A.; Tzur, E.; Diesendruck, C.E.; Sigalov, M.; Goldberg, I.; Lemcoff, N.G. "A Thermally Switchable Latent Ruthenium Olefin Metathesis Catalyst", *Organometallics*, **2008**, 27, 811-813.
2. Tzur, E.; Ben-Asuly, A.; Diesendruck, C.E.; Goldberg, I.; Lemcoff, N.G. "Homodinuclear Ruthenium Catalysts for Dimer Ring-Closing Metathesis", *Angew. Chem. Int. Ed.*, **2008**, 47, 6422-6425.
3. Diesendruck, C.E.; Vidavsky, Y.; Ben-Asuly, A.; Lemcoff, N.G. "A Latent S-Chelated Ruthenium Benzylidene Initiator for ROMP", *J. Polym. Sci. Part A: Chem.*, **2009**, 47, 4209-4213.
4. Ben-Asuly, A.; Aharoni, A.; Diesendruck, C.E.; Vidavsky, Y.; Goldberg, I.; Straub, B.F.; Lemcoff, N.G. "Photoactivation of Latent Ruthenium Olefin Metathesis Catalysts", *Organometallics*, **2009**, 28, 4652-4655.
5. Diesendruck, C.E.; Tzur, E.; Lemcoff, N.G. "The Versatile Alkylidene Moiety in Ruthenium Olefin Metathesis Catalysts", *Eur. J. Inorg. Chem.*, **2009**, 28, 4185-4203 (Featured cover article).
6. Diesendruck, C.E.; Tzur, E.; Ben-Asuly, A.; Goldberg, I.; Straub, B.F.; Lemcoff, N.G. "Predicting the Cis-Trans Dichloro Configuration of Group 15-16 Chelated Ruthenium Olefin Metathesis Complexes: A DFT and Experimental Study", *Inorg. Chem.*, **2009**, 48, 10819-10825.
7. Diesendruck, C.E.; Iliashevsky, O.; Tzur, E.; Vidavsky, Y.; Ben-Asuly, A.; Goldberg, I.; Lemcoff, N.G. "Latent and Switchable Olefin Metathesis Catalysts", *Macr. Symp.*, **2010**, 293, 33-38.
8. Diesendruck, C.E.; Ben-Asuly, A.; Goldberg, I.; Lemcoff, N.G. "Dimer Ring-Closing Metathesis", *Chimica Oggi*, **2010**, 28, 15-18.
9. Aharoni, A.; Vidavsky, Y.; Diesendruck, C.E.; Ben-Asuly, A.; Goldberg, I.; Lemcoff, N.G. "Ligand Isomerization in Chelated Ruthenium Benzylidenes: Effects on the Olefin Metathesis Activity", *Organometallics*, **2011**, 30, 1607-1615.
10. Ginzburg, Y.; Anaby, A.; Vidavsky, Y.; Diesendruck, C.E.; Ben-Asuly, A.; Goldberg, I.; Lemcoff, N.G. "Widening the Latency Gap in Chelated Ruthenium Olefin Metathesis Catalysts", *Organometallics*, **2011**, 30, 3430-3437.
11. Diesendruck, C.E.; Steinberg, B.D.; Sugai, N.; Silberstein, M.N.; Sottos, N.R.; White, S.R.; Braun, P.V.; Moore, J.S. "Proton-Coupled Mechanochemical Transduction: A Mechanogenerated Acid", *J. Am. Chem. Soc.*, **2012**, 134, 12446-12449 (Highlighted by JACS highlights, C&EN news, Angew. Chem. Int. Ed. and Synfacts).
12. Levin, E.; Anaby, A.; Diesendruck, C.E.; Berkovich-Berger, D.; Fuchs, B.N.; Lemcoff, N.G. "Oligomerisation Reactions of Beta Substituted Thiols in Water", *RSC Advances*, **2013**, 3, 1735-1738.
13. Sudheendran, M.; Diesendruck, C.E.; Amir, L.; Linde, S.; Shikler, R.; Lemcoff, N.G. "Synthesis and Properties of Organometallic Nanoparticles of Rhodium (I)", *Angew. Chem. Int. Ed.*, **2013**, 52, 5767-5770 (Featured inside cover article).
14. Kaitz, J.A.; Diesendruck, C.E.; Moore, J.S. "End Group Characterization of Poly(phthalaldehyde): Surprising Discovery of a Reversible, Cationic Macrocyclization Mechanism", *J. Am. Chem. Soc.*, **2013**, 135, 12755-12761.
15. Kaitz, J.A.; Diesendruck, C.E.; Moore, J.S. "Dynamic Covalent Macrocyclic Polymers:

- Poly(phthalaldehyde) Scrambling to Produce Multi-Block and Random Cyclic Copolymers”, *Macromolecules*, **2013**, *46*, 8121-8128.
16. Patrick, J.F.; Hart, K.R.; Krull, B.P.; Diesendruck, C.E.; Moore, J.S.; Sottos, N.R.; White, S.R. “Self-healing in Fibre Reinforced Composites via Bioinspired Microvascular Networks”, *Adv. Mat.*, **2014**, *26*, 4189-4396 (*Featured cover article*).
 17. Diesendruck, C.E.; Peterson, G.I.; Kulik, H.J.; Kaitz, J.A.; Mar, B.D.; May, P.A.; White, S.R.; Martínez, T.J.; Boydston, A.J.; Moore, J.S. “Mechanically-Triggered Heterolytic Unzipping of a Low Ceiling Temperature Polymer”, *Nat. Chem.*, **2014**, *6*, 623-628.
 18. Kaitz, J.A.; Possanza, C.E.; Song, Y.; Diesendruck, C.E.; Spiering, J.; Meijer, E.W.; Moore, J.S. “Depolymerizable, Adaptive Supramolecular Polymer Nanoparticles and Networks”, *Polym. Chem.*, **2014**, *5*, 3788-3794.
 19. Shiraki, T.; Diesendruck, C.E.; Moore, J.S. “Mechanochemical Production of Phenyl Cations Through Heterolytic Bond Scission”, *RSC Faraday Discussions*, **2014**, *170*, 385-394.
 20. Lee, C.K.; Diesendruck, C.E.; Lu, E.; Picket, A.; May, P.A.; Moore, J.S.; Braun, P.V. “Solvent Swelling Activation of a Mechanophore in a Polymer Network”, *Macromolecules*, **2014**, *47*, 2690-2694.
 21. Tzur, E.; Ivry, E.; Diesendruck, C.E.; Vidavsky, Y.; Goldberg, I.; Lemcoff, N.G. “Stability and Activity of cis-Dichloro Ruthenium Olefin Metathesis Precatalysts Bearing Chelating Sulfur Alkylidenes”, *J. Organomet. Chem.*, **2014**, *769*, 24-28.
 22. Kaitz, J.A.; Diesendruck, C.E.; Moore, J.S. “Divergent Macrocyclization Mechanisms in the Cationic Polymerization of Ethyl Glyoxylate”, *Macromolecules*, **2014**, *47*, 3603-3607.
 23. Diesendruck, C.E.; Zhu, L.; Moore, J.S. “Alkyne Mechanochemistry: Putative Activation by Transoidal Bending”, *Chem. Commun.*, **2014**, *50*, 13235-13238.
 24. Keinan, E.; Diesendruck, C.E.; Reetz, M. “A 50-year long lesson”, *Isr. J. Chem.*, **2015**, *55*, 1154-1155.
 25. Carino, E.V.; Diesendruck, C.E.; Moore, J.S.; Curtiss, L.A.; Assary, R.S.; Brushett, F.R. “BF₃-promoted Electrochemical Properties of Quinoxaline in Propylene Carbonate”, *RSC Advances*, **2015**, *5*, 18822-18831.
 26. Diesendruck, C.E.; Sottos, N.R.; Moore, J.S.; White, S.R. “Biomimetic Self-healing”, *Angew. Chem. Int. Ed.*, **2015**, *54*, 10428-10447.
 27. Levin, E.; Ivry, E.; Diesendruck, C.E.; Lemcoff, N.G. “N-Heterocyclic Carbene - Metal Catalysts for Reactions in Water”, *Chem. Rev.*, **2015**, *115*, 4607-4692.
 28. Jirkovsky, J.S.; Subbaraman, R.; Strmcnik, D.; Harrison, K.L.; Diesendruck, C.E.; Assary, R.; Frank, O.; Kobr, L.; Wiberg, G.K.H.; Genorio, B.; Stamenkovic, V.R.; Curtiss, L.; Moore, J.S.; Zavadil, K.R.; Markovic, N.M. “Water as Promoter and Catalyst in Dioxygen Electrochemistry in Aqueous and Organic Media”, *ACS Catalysis*, **2015**, *5*, 6600-6607 (*ACS Editor’s Choice*).
 29. Diesendruck, C.E.; Rubin, G.; Bertke, J.A.; Gray, D.L.; Moore, J.S. “Crystal structure of 1,3-bis(2,3-dimethylquinoxalin-6-yl)benzene”, *Acta Crystallogr. Sect. E.*, **2015**, *E71*, 1429-1432.
 30. Hirsch, M.; Dhara, S.; Diesendruck, C.E.* “Arylation of tertiary amines to N-aryl quaternary ammonium salts”, *Org. Lett.*, **2016**, *18*, 980-983.

31. Genorio, B.; Staszak-Jirkovský, J.; Assary, R.S.; Connell, J.D.; Strmcnik, D.; Diesendruck, C.E.; Lopes, P.P.; Stamenkovic, V.R.; Moore, J.S.; Curtiss, L.A.; Markovic, N.M. "Superoxide (electro)chemistry on well-defined surfaces in organic environments", *J. Phys. Chem. C.*, **2016**, *120*, 15909–15914.
32. Wang, F.; Burck, M.; Diesendruck, C.E.* "Following Mechanochemical Kinetics with a Pyrenyl Nitron Spin-Trap", *ACS Macro Letters* **2017**, *6*, 42-45.
33. Dhara, S.; Diesendruck, C.E.* "Olefination of N-Sulfinylimines under Mild Conditions", *Eur. J. Org. Chem.* **2017**, 1184-1190.
34. Bae, S.; Galant, O.; Diesendruck, C.E.; Silberstein, M. "Tailoring Single Chain Polymer Nanoparticle Thermo-Mechanical Behavior by Cross-link Density", *Soft Mater.* **2017**, *13*, 2808-2816.
35. Levy, A.; Wang, F.; Lang, A.; Galant, O.; Diesendruck, C.E.* "Intramolecular Cross-Linking: Addressing Mechanochemistry with a Bioinspired Approach", *Angew. Chem. Int. Ed.* **2017**, *56*, 6431-6434.
36. Dekel D. R.*; Amar, M.; Willdorf, S.; Kosa, M.; Dhara, S.; Diesendruck, C.E.* "The effect of water on the stability of quaternary ammonium groups for anion exchange membrane fuel cell applications", *Chem. Mater.* **2017**, *29*, 4425-4431.
37. Arava, S.; Diesendruck, C.E.* "Strategies for the Synthesis of N-aryl ammonium salts", *Synthesis* **2017**, *49*, 3535-3545.
38. Wang, F.; Diesendruck, C.E.* "Advantages and Limitations of Diisocyanates in Intramolecular Collapse", *Polym. Chem.* **2017**, *8*, 3712-3720.
39. Galant, O.; Bae, S.; Wang, F.; Levy, A.; Silberstein, M.; Diesendruck, C.E.*; "Mechanical and thermomechanical characterization of glassy thermoplastics with intrachain cross-links", *Macromolecules* **2017**, *50*, 6415-6420.
40. Levy, A.; Gaver, E.; Wang, F.; Galant, O.; Diesendruck, C.E.* "Effect of Intramolecular Cross Links on the Mechanochemical Fragmentation of Polymers in Solution", *Chem. Commun.* **2017**, *53*, 10132-10135.
41. Wang, F.; Diesendruck, C.E.* "Polyphtalaldehyde: Synthesis, derivatives and applications", *Macromol. Rapid Commun.* **2018**, *39*, 1700519.
42. Dekel, D.; Willdorf, S.; Ash, U.; Amar, M.; Pusara, S.; Dhara, S.; Srebnik, S.; Diesendruck, C.E. "The critical relation between chemical stability of cations and water in anion exchange membrane fuel cells environment", *J. Power Sources* **2018**, *375*, 351-360.
43. Aharonovich, S.; Gjineci, N.; Dekel, D.; Diesendruck, C.E.* "An effective synthesis for N,N-diphenyl carbazolium salts", *Synlett* **2018**, *29*, 1314-1318.
44. Mezhov, A.; Ulka, S.; Diesendruck, C.E.; Gendel, Y.; Kovler, K.* "Rheological Behaviour of Cement Pastes with Low Amounts of Polynaphthalene Sulfonate Plasticizer", *ACI SP* **2018**, *326*, 13.1-13.10.
45. Diesendruck, C.E.*; Dekel, D.* "Water – a key parameter in the stability of anion exchange membrane fuel cells", *Curr. Opin. Electrochem.* **2018**, *9*, 173-178.
46. Galant, O.; Davidovich-Pinhas, M.*; Diesendruck, C.E.* "The effect of intramolecular cross-linking on polymer interactions in solution", *Macromol. Rapid Commun.* **2018**, *39*, 1800407.
47. Aharonovich, S.; Diesendruck, C.E.* "Viscosity modifiers with intramolecular cross-links", *React. Funct. Polym.*, **2018**, *131*, 237-242.

48. Bae, S.; Galant, O.; Diesendruck, C.E.; Silberstein, M. "The Effect of Intra-chain Crosslinking on the Thermo-mechanical Behavior of Bulk Polymers Assembled Purely from Single Chain Polymer Nanoparticles", *Macromolecules* **2018**, *51*, 7160-7168.
49. Willdorf-Cohen, S.; Mondal, A.N.; Dekel, D.*; Diesendruck, C.E.* "Chemical stability of poly(phenylene oxide)-based ionomers for anion exchange-membrane fuel cells", *J. Mater. Chem. A* **2018**, *6*, 22234-22239.
50. Fan, J.; Willdorf-Cohen, S.; Schibli, E.; Paula, Z.; Li, W.; Skalski, T.J.G.; Sergeenko, A.T.; Hohenadel, A.; Frisken, B.; Magliocca, E.; Mustain, W.E.; Diesendruck, C.E.; Dekel, D.R.; Holdcroft, S. "Poly(arylimidazoliums) Possessing High Hydroxide Ion Exchange Capacity and High Alkaline Stability", *Nat. Commun.*, **2019**, *10*, 2306.
51. Levy, A.; Feinstein, R.; Diesendruck, C.E.* "Mechanical Unfolding and Thermal Refolding of Single-Chain Nanoparticles Using Ligand-Metal Bonds", *J. Am. Chem. Soc.*, **2019**, *141*, 7256-7260.
52. Vidavsky, Y.; Yang, S.; Abel, B.; Agami, I.; Diesendruck, C.E.; Coates, G.; Silberstein, M. "Enabling Room Temperature Mechanochromic Activation in a Glassy Polymer: Synthesis and Characterization of Spiropyran Polycarbonate", *J. Am. Chem. Soc.*, **2019**, *141*, 10060-10067.
53. Galant, O.; Bae, S.; Silberstein, M.; Diesendruck, C.E.* "Highly Stretchable Polymers: Mechanical Properties Improvement by Balancing Intra- and Intermolecular Interactions", *Adv. Funct. Mater.*, **2020**, 1901806.
54. Lemcoff, N.G.; Diesendruck, C.E.; Keinan, E. "100 years of macromolecular science", *Isr. J. Chem.*, **2020**, *60*, 6-8.
55. Wang, F.; Diesendruck, C.E.* "Effect of disulfide-bond positioning on structural stability", *Chem. Commun.*, **2020**, *56*, 2143-2146.
56. Mezhev, A.; Ulka, S.; Gendel, Y.; Diesendruck, C.E.; Kovler, K. "The working mechanisms of low molecular weight polynaphthalene sulfonate superplasticizers", *Constr. Build. Mater.*, **2020**, *240*, 117891.
57. Gjineci, N.; Aharonovich, S.; Willdorf-Cohen, S.; Dekel, D.R.; Diesendruck, C.E.* "The Reaction Mechanism Between Tetraarylammonium Salts and Hydroxide", *Eur. J. Org. Chem.*, **2020**, *21*, 3161-3168. (*highlighted as VIP*)
58. Levy, A.; Goldstein, H.; Brenman, D.; Diesendruck, C.E.* "Effect of intramolecular crosslinker properties on the mechanochemical fragmentation of covalently folded polymers", *J. Polym. Sci.*, **2020**, *58*, 692-703. (*featured cover article*)
59. Horowitz, Y.; Schmidt, C.; Yoon, D.H.; Rigger, L.M.; Katzenmeier, L.; Bosch, G.M.; Noked, M.; Ein-Eli, Y.; Janek, J.; Zeier, W.G.; Diesendruck, C.E.*; Golodnitsky, D. "Between liquid and all solid - a prospect on electrolyte future in lithium ion batteries for electric vehicles", *Energy Techn.*, **2020**, *8*, 2000580.
60. Kobernik, V.; Berkovich, I.; Levy, A.; Lemcoff, N.G.; Diesendruck, C.E.* "Chemical Communication Between Organometallic Single-Chain Polymer Nanoparticles", *Chem. Eur. J.*, **2020**, *26*, 15835-15838. (*highlighted as hot paper*).
61. Gjineci, N.; Aharonovich, S.; Dekel, D.R.; Diesendruck, C.E.* "Increasing the Alkaline Stability of N,N diaryl-carbazolium salts using substituent Electronic Effects", *ACS Appl. Mater. Interfaces* **2020**, *12*, 49617-49625.
62. Zhegur, A.; Gjineci, N.; Willdorf-Cohen, S.; Mondal, A.N.; Diesendruck, C.E.; Gavish,

- N.; Dekel, D.R. "Changes of Anion Exchange Membrane Properties During Chemical Degradation", *ACS Appl. Polym. Mater.*, **2020**, *2*, 360-367.
63. Zhang, X; Vidavsky, Y.; Aharonovich, S.; Yang, Y.J.; Buche, M.R.; Diesendruck, C.E.; Silberstein, M.N. "Bridging experiments and theory: isolating the effects of metal-ligand interactions on viscoelasticity of reversible polymer networks", *Soft Matter*, **2020**, *16*, 8591-8601
64. Galant, O.; Donmez, H.B.; Barner-Kowollik, C.; Diesendruck, C.E.* "Flow Photochemistry in Single-Chain Polymer Nanoparticle Synthesis", *Angew. Chem. Int. Ed.*, **2021**, *60*, 2042-2046. (*highlighted as hot paper*)
65. Guyes, E.N.; Shocron, A.N.; Chen, Y.; Diesendruck, C.E.; Suss, M.E. "Long-lasting, monovalent selective capacitive deionization electrodes", *npj clean water*, **2021**, *4*, 22.
66. Burshtein, T.Y.; Agami, I.; Sananis, M.; Diesendruck, C.E.*; Eisenberg, D. "Template-Free Formation of Regular Macroporosity in Carbon Materials Made from a Folded Polymer Precursor", *Small*, **2021**, *17*, 2100712.
67. Aggarwal, K.; Bsoul, S.; Li, S.; Dekel, D.R.; Diesendruck, C.E.* "Ligand Valency Effects on the Alkaline Stability of Metallopolymer Anion-Exchange Membranes", *Macromol. Rapid Commun.*, **2021**, *42*, 2100238. (*featured cover article*)
68. Yassin, K.; Rasin, I.G.; Willdorf-Cohen, S.; Diesendruck, C.E.; Brandon, S.; Dekel, D.R. "A surprising relation between operating temperature and stability of anion exchange membrane fuel cells", *J. Power Sources Adv.*, **2021**, *11*, 100066.
69. Aggarwal, K.; Bsoul, S.; Douglin, J.C.; Li, S.; Dekel, D.R.; Diesendruck, C.E.* "Alkaline Stability of Low Oxophilicity Metallopolymer Anion-Exchange Membranes", *Chem. Eur. J.*, **2022**, e202103744.
70. Zhang, H.; Diesendruck, C.E.* "Accelerated Mechanochemistry in Helical Polymers", *Angew. Chem. Int. Ed.*, **2022**, e202115325. (*highlighted as hot paper, featured cover article*)
71. Aggarwal, K.; Gjineci, N.; Kaushansky, A.; Bsoul, S.; Douglin, J.C.; Li, S.; Salam, I.; Aharonovich, S.; Varcoe, J.R.; Dekel, D.R.; Diesendruck, C.E.* "Isoindolinium groups as stable anion conductors for anion-exchange membrane fuel cells and electrolyzers", *ACS Materials Au*, **2022**, *2*, 367-373.
72. Uwayid, R.; Diesendruck, C.E.; Suss, M. "A comparison of strong and weak-acid functionalized carbon electrodes in capacitive deionization", *Environ. Sci.: Water Res. Technol.*, **2022**, *8*, 949-956. (*featured cover article*)
73. Xiao, Z.; Diesendruck, C.E.; Freger, S.; Dekel, D.R. "Electropolymerization of Anion-Conducting Polymer Films", *J. Electrochem. Soc.*, **2022**, *169*, 064506.
74. Aggarwal, K.; Li, S.; Ivry, E.; Dekel, D.R.; Diesendruck, C.E.* "N-Heterocyclic Carbene Ligands Electronic Effects on Metallopolymer Anion-Exchange Membranes", *Organometallics*, **2022**, *41*, 1419-1425.
75. Nijem, S.; Song, Y.; Schwarz, R.; Diesendruck, C.E.* "Flex-activated CO Mechanochemical Production for Mechanical Damage Detection", *Polym. Chem.*, **2022**, *13*, 3986-3990. (*featured cover article*)
76. Mezhov, A.; Schimdt, W.; Zhang, H.; Diesendruck, C.E. "The Effect of the Charge Density of a Comb Polyphosphate Superplasticizer on the Structural Build-Up of Cement Paste", *ACI SP*, **2022**, *354*, 255-262
77. Bhowmick, D.; Das, T.K.; Santra, K.; Mondal, A.J.; Tassinari, F.; Schwarz, R.;

- Diesendruck, C.E.; Naaman, R. "Spin-Induced Asymmetry Reaction – The Formation of Asymmetric Carbon by Electropolymerization", *Sci. Adv.*, **2022**, 8, aqb2727.
78. Mezhov, A.; Ben-Shir, I.; Schmidt, A.; Kovler, K.; Diesendruck, C.E.* "Retardation mechanism of a comb polyphosphate superplasticizer", *Const. Build. Mater.*, **2022**, 352, 128698.
79. Snyder, A.D.; Phillips, Z.J.; Diesendruck, C.E.; Nakshatrala, K.B.; Patrick, J.F. "Perpetual self-healing in structural composites", *Nat. Commun.*, **2022**, 13, 6511.
80. Willdorf-Cohen, S.; Kaushansky, A.; Dekel, D.R.; Diesendruck, C.E.* "Hydroxide Chemoselectivity Changes with Water Microsolvation", *J. Phys. Chem. Lett.*, **2022**, 13, 10216-10221.
81. Agami, I.; Gjineci, N.; Li, S.; Srebnik, S.; Dekel, D.; Diesendruck, C.E.* "Chemically Folded Polyelectrolytes with Superior Alkaline Stability", *ACS Appl. Polym. Mater.*, **2022**, 6, 1085-1092.
82. Zhang, H.; Diesendruck, C.E.* "Off-center Mechanophore Activation in Block Copolymers", *Angew. Chem. Int. Ed.*, **2023**, 62, e202213980.
83. Willdorf-Cohen, S.; Zhegur-Khais, A.; Ponce-González, J.; Bsoul-Haj, S.; Ziv, N.; Varcoe, J.R.; Diesendruck, C.E.*; Dekel, D.R. "Alkaline Stability of Anion-exchange Membranes", *ACS Appl. Energy Mater.*, **2023**, 6, 1085-1092.
84. Diesendruck, C.E.* "How Polymers Dance to the Pulses of Ultrasound", *Nat. Chem.*, **2023**, 15, 1199-1201.
85. Rozental, L.; Leontev, A.; Diesendruck, C.E.; Freger, V. "Preparation, nano-mechanics and particle deposition behavior of thin, antifouling hydrogel coatings", *Coll. Surf. C*, **2023**, 1, 100018.
86. Sahray, Z.; Shocron, A.N.; Uwayid, R.; Diesendruck, C.E.; Suss, M.E. "Extreme Monovalent Ion Selectivity Via Capacitive Ion Exchange", *Water Res.*, **2023**, 246, 120684.
87. Schwarz, R.; Diesendruck, C.E.* "Semi-telechelic Polymers from Mechanochemical C-C Bond Activation", *Adv. Sci.*, **2023**, 10, 2304571.
88. Zhang, H.; Zoubi, A.Z.; Silberstein, M.N.; Diesendruck, C.E.* "Mechanochemistry in Block Copolymers: New Scission Site due to Dynamic Phase Separation", *Angew. Chem. Int. Ed.*, **2024**, e202314781. (*highlighted as hot paper*)
89. Galant, O.; Diesendruck, C.E.; Spatari, S. "Differences in environmental impact for batch and flow chemistry: case study for SCNPs production", *Org. Process Res. Dev.*, **2024**, *in press*.

MANUSCRIPTS IN PREPARATION OR IN REVIEW

1. Snyder, A.D.; Turicek, J.S.; Diesendruck, C.E., Varley, R.J.; Patrick, J.F. "Chemical and Rheological Tuning of Self-Healing via in situ Thermal Remending in Laminated Fiber-composites", *submitted*.
2. Tiwari, O.S.; Rawat, V.; Zhang, H.; Rencus-Lazar, S.; Diesendruck, C.E.; Gazit, E. "Ring-Opening Polymerization of Lactide Catalyzed Using Metal-Coordinated Amino Acid Assemblies Enzyme Mimic", *submitted*.
3. Nijem, S.; Kaushansky, A.; Pucovski, S.; Ivry, E.; Colacino, E.; Halasz, I.; Diesendruck, C.E.* "Chemoselectivity switch by mechanochemistry in the base-

catylsed dione-acylation", *submitted*.

- Aharonovich, S.; Ivry, E.; Diesendruck, C.E.* "High Concentration Synthesis of Single-Chain Polymer Nanoparticles via Acyloin Condensation", *submitted*.
- Liao, Y.; Le Roi, B.; Zhang, H.; Diesendruck, C.E.; Grolman, J.M. "Dip conjugation of molecular-level mechanoresponsiveness in biologically derived materials via Click Chemistry", *submitted*.

BOOK CHAPTERS

- Diesendruck, C.E.; Moore, J.S. "Mechanophores for Self-healing Applications". In *Self-Healing Polymers*, **2013** Ed. W. H. Binder. Wiley-VCH, Weinheim.
- Diesendruck, C.E. "Enyne Metathesis". In *N-Heterocyclic Carbenes in Catalytic Organic Synthesis Vol. 2*, **2018** Ed. S. Nolan, C.S.J. Cazin. Georg Thieme Verlag.
- Diesendruck, C.E. "Mechanophores for Chemical Function". In *Mechanochemistry in Materials*, **2018** Ed. Y. Simon, S. Craig. Royal Society of Chemistry.
- Schwarz, R.; Diesendruck, C.E. "Fluorinated polymers: synthesis and applications". In *The Chemistry of Organofluorine Compounds*, **2022** Ed. V. Gouverneur, M. Gandelman, I. Marek. Wiley-VCH.
- Spatari, S.; Galant, O.; Diesendruck, C.E. "Life Cycle Assessment: A Tool for Sustainability Evaluation of Emerging Mechanochemical Process Engineering". In *Mechanochemistry and Emerging Technologies for Sustainable Chemical Manufacturing*, **2023** Ed. E. Colacino, F. Garcia. CRC Press.

PATENTS

- "Mechanochemical resistant intramolecular crosslinked polymers and uses thereof" IL 2016-243901; WO 2017-134652; US 2021/0102138.
- "Carbazolium salt and use thereof in anion exchange membranes" US20210322968.
- "Method for selective separation of monovalent ionic species using electrodes functionalized with sulfonic groups" US20220064029
- "Chemically stable ion conductors and uses thereof" WO2022144899.
- "Metal-containing polymer ion conductors" WO 2022/144900.

ORAL PRESENTATIONS

- "Double ring-closing metathesis (DRCM) by di-N-heterocycle carbenes (NHCs): An approach to linear polycatenanes", Organic Chemistry Seminar, Ben-Gurion University of the Negev, Israel, 2006.
- "Theory vs. experiment: DFT calculations of chelated ruthenium olefin metathesis catalysts", Organic Chemistry Seminar, Ben-Gurion University of the Negev, Israel, 2008.
- "Dimer ring-closing (DRC) reactions: Controlling the reactivity of molecules with bimetallic catalysts", Graduate Symposium in Synthetic Organic Chemistry, Technion Israel Institute of Technology, Israel, 2009.
- "Dimer ring-closing (DRC) reactions: Controlling the reactivity of molecules with bimetallic catalysts", Chemistry Departmental Seminar, Ben-Gurion University of the Negev, Israel, 2011.

5. “Proton-coupled mechanochemical transduction – mechanogenerating acids”, Nanohour, Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign, USA, 2012.
6. “Proton-coupled mechanochemical transduction – mechanogenerating acids”, The 78th Meeting of the Israeli Chemical Society, Israel, February 2013.
7. “Proton-coupled mechanochemical transduction – mechanogenerating acids”, 4th International Symposium on Self-Healing Materials, Belgium, June 2013.
8. “New accounts of mechanochemistry”, University of Cambridge, UK, June 2013.
9. “Mechanically-triggered depolymerization”, ACS 246th National Meeting, Indianapolis, USA, September 2013.
10. “Redox active macromolecular structures for nonaqueous flow cell batteries”, JCESR webinar, USA, October 2013.
11. “New accounts of polymer mechanochemistry”, Technion – Israel Institute of Technology, Israel, December 2013.
12. “New accounts of polymer mechanochemistry”, Weizmann Institute of Science, Israel, December 2013.
13. “New accounts of polymer mechanochemistry”, Tel-Aviv University, Israel, December 2013.
14. “New accounts of polymer mechanochemistry”, Ben-Gurion University of the Negev, Israel, December 2013.
15. “New accounts of polymer mechanochemistry”, Hebrew University of Jerusalem, Israel, December 2013.
16. “Mechanochemical production of phenyl Cations through heterolytic bond scission”, Faraday Discussions on Mechanochemistry, Canada, June 2014.
17. “Mechanochemistry as means for recycling acceleration”, Technion-NTU Workshop on Recycling, Israel, November 2014.
18. “Self-healing materials”, Chemada Fine Chemicals (ICL), Israel, January 2015 (invited).
19. “Using polymer architecture to increase the lifespan of lubricating oils”, NTU-Technion Workshop on Recycling, Singapore, February 2015.
20. “Recent advances in biomimetic self-healing polymers”, Mat. Sci. Eng. Colloquium, Technion, Israel, April 2015 (invited).
21. “Depolymerizable polyaldehydes: Dynamic architecture from dynamic chemistry”, Electrochemistry and Materials Science Seminar, Tel-Aviv University, Israel, May 2015 (invited).
22. “Recent advances in biomimetic self-healing polymers”, Biotech. and Food Eng. Colloquium, Technion, Israel, May 2015 (invited).
23. “Mechanochemical pyramidalization of alkynes”, 5th International Symposium on Self-Healing Materials, Durham, USA, June 2015 (invited).
24. “Recent advances in biomimetic self-healing polymers”, ICL, Beer-Sheva, Israel, July 2015 (invited).
25. “New accounts of polymer mechanochemistry”, Chem. Eng. Faculty Seminar, Technion, Israel, November 2015.

26. "Intramolecular crosslinks and mechanics", IMEC17, Israel, February 2016 (invited).
27. "Intramolecular crosslinks and mechanics", ICS81, Israel, February 2016 (invited).
28. "Intramolecular crosslinks and mechanics", College of Chemistry, Peking University, China, March 2016.
29. "Intramolecular crosslinks and mechanics", School of Chemistry and Environment, Beihang University, China, March 2016.
30. "Addressing mechanochemistry in polymers", Department of Chemistry, Tsinghua University, China, March 2016.
31. "Addressing mechanochemistry in polymers", Department of Chemistry, Jilin University, China, March 2016.
32. "Intramolecular crosslinks and mechanics", Technion-Shanghai Jiao Tong University Workshop, China, March 2016.
33. "Addressing mechanochemistry in polymers", Department of Macromolecular Science, Fudan University, China, March 2016.
34. "Addressing mechanochemistry in polymers", Institute of Postharvest & Food Sciences, Volcani Center, Israel, May 2016 (invited).
35. "Addressing mechanochemistry with intramolecular cross-links", Warwick Polymer Conference, UK, July 2016 (invited).
36. "Addressing mechanochemistry in polymers", Teva Pharmaceuticals, Israel, August 2016 (invited).
37. "Addressing mechanochemistry with intramolecular cross-links", Dept. of Chemistry and Chemical Biology, Cornell University, USA, September 2016 (invited).
38. "Addressing mechanochemistry with intramolecular cross-links", ExxonMobil Research, USA, September 2016 (invited).
39. "Addressing mechanochemistry with intramolecular cross-links", Faculty of Chemistry, University of Science and Technology of China, China, October 2016 (invited).
40. "Addressing mechanochemistry with intramolecular cross-links", Israeli Polymer and Plastic Society Conference, January 2017 (invited).
41. "Addressing mechanochemistry with intramolecular cross-links", Institute of Polymer Chemistry, University of Stuttgart, Germany, June 2017 (invited).
42. "Addressing mechanochemistry with intramolecular cross-links", Dept. of Organic Chemistry, University of Heidelberg, Germany, July 2017 (invited).
43. "Addressing mechanochemistry with intramolecular cross-links", DWI - Leibniz-Institute for Interactive Materials, University of Aachen, Germany, July 2017 (invited).
44. "Molecular design consideration in the synthesis and decomposition of quaternary ammonium salts", Young Investigator Workshop of the E, Germany, July 2017 (invited).
45. "Mechanochemical pyramidalization of alkynes", 5th International Symposium on Self-Healing Materials, Durham, USA, June 2015 (invited).
46. "Addressing mechanochemistry with intramolecular cross-links", ACS 254th National Meeting, Washington DC, USA, August 2017 (invited).

47. "Addressing mechanochemistry with intramolecular cross-links", The Dow Chemical Company (Electronic Materials), Marlborough MA, USA, August 2017 (invited).
48. Chemistry and mechanics", Blavatnik Award Ceremony, Jerusalem, Israel, January 2018.
49. "Addressing mechanochemistry with intramolecular cross-links", Multiscale Mechanochemistry & Mechanobiology, Berlin, Germany, October 2017 (invited).
50. "Addressing mechanochemistry with intramolecular cross-links", Dept. of Organic Chemistry, Tel-Aviv University, Israel, March 2018 (invited).
51. "Addressing mechanochemistry with intramolecular cross-links", Institute of Chemistry, University of Sao Paulo, Brazil, April 2018 (invited).
52. "Addressing mechanochemistry with intramolecular cross-links", Institute of Chemistry, University of Campinas, Brazil, April 2018 (invited).
53. "Mechanochemistry of small molecules", JSP presenter, Bürgenstock Conference, Switzerland, April 2018 (invited).
54. "Addressing mechanochemistry with intramolecular cross-links", Institute of Chemistry, Hebrew University of Jerusalem, Israel, May 2018 (invited).
55. "Mechanochemistry of novel polymeric materials", Blavatnik-Science Symposium, New York Academy of Sciences, USA, July 2018 (invited).
56. "Mechanochemistry and frontal polymerization", Scott R. White Memorial Symposium, University of Illinois at Urbana-Champaign, USA, August 2018 (invited).
57. "Addressing mechanochemistry with intramolecular cross-links", Institute of Applied Physics, Innsbruck University, Austria, October 2018 (invited).
58. "The mechanochemistry of folded polymers", International Symposium on Functional Soft Materials, Tianjin University, China, November 2018 (invited).
59. "Selective benzylic H/D exchange using unsolvated hydroxide", ICS84, Israel, February 2019 (contributed).
60. "Effect of disulfide-bond positioning on structural stability", DESY-GIF Young Scientists' Meeting, DESY-Hamburg, Germany, March 2019 (invited).
61. "Chemical decomposition of anion-exchange membranes by unsolvated hydroxide", Technion- Juelich Umbrella Symposium on Energy Conversion and Storage, Juelich, Germany, May 2019 (invited).
62. "Understanding and inhibiting polymer degradation by molecular engineering", Schulich Chemistry Colloquium, Technion, Israel, October 2019.
63. "Understanding and inhibiting polymer degradation by molecular engineering", Chemistry Department Colloquium, Bar-Ilan University, Israel, December 2019 (invited).
64. "Chemically folded thermoplastics: Providing function from structure", Bowei Research Conference, Taiwan, January 2020 (keynote).
65. "Addressing mechanochemistry with intramolecular cross-links", Chemistry Colloquium, National Chiao Tung University, Taiwan, January 2020 (invited).
66. "Addressing mechanochemistry with intramolecular cross-links", Chemistry Colloquium, National Sun Yat-sen University, Taiwan, January 2020 (invited).
67. "The mechanochemistry of intramolecularly cross-linked polymers", ICS85, Israel,

- February 2020 (invited).
68. "Addressing mechanochemistry with intramolecular cross-links", Organic Chemistry Seminar, Stanford University, USA, March 2020 (invited).
 69. "Chain folding effects on polymer mechanochemistry", Multiscale Mechanochemistry & Mechanobiology, Berlin, Germany, August 2021 (invited).
 70. "Highly stretchable plastics: Effects of folding polymer chains" Controlled Release Society & Polymers for Advanced Technologies Society, Maalot, Israel, October 2021 (invited).
 71. "Mechanochemistry of intramolecular cross-linked polymers" Pacificchem, USA, December 2021 (invited).
 72. "Tuning the mechanical response of synthetic polymers by chemical folding", Mat. Sci. Eng. Colloquium, Technion, Israel, January 2022 (invited).
 73. "Mechanochemistry in polymers" World Plastic Connection Summit, Brazil, November 2022 (keynote).
 74. "Chemical folding of linear polymers: What changes?" ACS 265th National Conference, Indiana, USA, March 2023 (invited).
 75. "Mechanochemistry in small and big molecules" ACS 265th National Conference, Indiana, USA, March 2023 (contributed).
 76. "Chemical stability of anion-exchange membranes for alkaline fuel cells" ACS 265th National Conference, Indiana, USA, March 2023 (contributed).
 77. "Understanding, Inhibiting and Planning Polymer Degradation by Molecular Engineering", Chemistry Seminar, Stanford University, USA, May 2023 (invited).
 78. "Functional Single-chain Polymer Nanoparticles?" ACS 266th National Conference, San Francisco, USA, August 2023 (invited).
 79. "Towards C-C bond activation via polymer mechanochemistry" ACS 266th National Conference, San Francisco, USA, August 2023 (invited).

RESEARCH STUDENTS

1. Maayan Hirsch, "Selective Arylation of Tertiary Amines to N-Aryl Quaternary Ammonium Salts", M.Sc. in Chemistry 2014-2016.
2. Avishai Levy, "Mechanochemistry of Intramolecular Cross-Linked Polymers", Ph.D. in Chemistry 2015-2019.
3. Or Galant, "Intramolecular cross-linking: from single chain to bulk materials", direct Ph.D. in Polymer Engineering 2015-2020.
4. Iris Agami (Melnik), "Catalytic Mechanochemistry", M.Sc. in Chemistry 2015-2017, Ph.D. in Chemistry, 2017-2022.
5. Nansi Gjineci, "New membranes for alkaline fuel cells", Ph.D. in Chemistry, 2016-2020.
6. Simon Ulka, "Superplasticizers in the production of cement", M.Sc. in Civil Engineering, 2017-2018.
7. Sapir Willdorf-Cohen, "Stability of QA salts in alkaline conditions", Ph.D. in Chem. Engineering, 2018-2023.
8. Kanika Aggarwal, "Metalopolymers as membranes for alkaline fuel cells", Ph.D. in Chemistry, 2018-2022.

9. Sally Nijem, "Gas-releasing mechanophores", Ph.D. in Chemistry, 2019-2023.
10. Oleg Gouli, "Is there (regio) selectivity in polymer mechanochemical C-C bond scission?", M.Sc. in Polymer Engineering, 2019-2022.
11. Eden Ovadia, "Photoactivated self-healing ROMP", M.Sc. in Chemistry, 2019-
12. Alisa Bouketov, "SCPNs with hydrogen-bonding side-chains", direct PhD in Chemistry, 2019-
13. Lina Rozental, "Ultra thin, surface bound cross-linked hydrogels", Ph.D. in Chemical Engineering, 2019-
14. Rony Schwartz, "Mechanochemical activation of strong bonds in small molecules", Ph.D. in Chemistry, 2020-
15. Faran Levy, "Frontal polymerization in conductive composites", M.Sc. in Polym. Eng., 2020-
16. Yonatan Amit, "Composite phase-change materials", M.Sc. in Polym. Eng., 2021-
17. Amit Manor-Armon, "New aromatic quaternary ammonium salts with high kinetic stability", Ph.D. in Chemistry, 2021-
18. Dominik Jammal, "Tuning catalysis in SCNP", M.Sc. in Chemistry (Universität Leipzig), 2022-2023.
19. Ranu Satish-Dhale, "Chemistry in electrical fields", Ph.D. in Chemistry, 2023-

POST-DOCTORAL RESEARCHERS

1. Feng Wang, China, 2014-2017. Currently: Assoc. Prof. Chemical Engineering
2. Shubhendu Dhara, India, 2015-2017. Currently: Assist. Prof. Chemistry
3. Sinai Aharonovich, Israel, 2016-
4. Ying Song, China 2018. Currently: Assoc. Prof. Chemical Engineering
5. Alexander Mezhov, Israel, 2019. Currently: Senior Scientist Civil Engineering
6. Elisa Ivry, Israel, 2019-
7. Hang Zhang, China, 2020-
8. Ankita Mathur, India, 2023-
9. Amit Sochron, Israel, 2023-