

## CHARLES E. DIESENDRUCK

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Professor

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### RESEARCH INTERESTS

The Diesendruck group does research in numerous fields in which macromolecules play key roles using chemical tools to design, prepare and characterize polymers, and then physical methods to study how changes in the macromolecular structure affect different macroscopic properties and function. The two main focuses in the group are polymer mechanochemistry, in which chemical reactions are induced in polymer through mechanical force (a tool for developing mechanoresponsive materials) and anion-exchange membranes for electrochemical devices, the key component missing to advance the H<sub>2</sub> technology towards dominance in the energy market. In addition, the group also carries out research on polymer electrolytes for batteries, polymer additives for cement and other construction materials, self-healing polymers and composites, the effect of electrical fields on polymer properties, rheology, and the effect of polymer folding on different properties. All this is done mostly using experimental approaches, but also with guiding and understanding through molecular modelling both at the quantum level or using molecular dynamics, in collaboration with different groups around the world.

### EDUCATION

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| 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

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| Since 2025  | Professor, Schulich Faculty of Chemistry, Technion, Israel.                                                                                   |
| Since 2025  | Vice-program head for Chemistry, Guandong-Technion IIT, China.                                                                                |
| 2022 – 2023 | Visiting Professor, Department of Chemistry, Stanford University, CA, USA                                                                     |
| 2020 – 2025 | 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

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|------------|---------------------------------------------------------------------------------------------|
| 2025       | Ray & Miriam Klein Prize for Excellence in Research, Israel                                 |
| 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

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|------------------------------|----------------------------------------------|
| 2006 – 2010                  | Advanced Organic Lab                         |
| 2015, 2017, 2019, 2021, 2024 | Polymers: From synthesis to architectures    |
| 2015 – 2022, 2025-6          | Structure Determination by Physical Methods  |
| 2016 – 2017, 2022, 2025-6    | General Chemistry (Non-Chemistry students)   |
| 2017 – 2020                  | Principles of Chemistry (Chemistry students) |
| 2016, 2017, 2021, 2022       | Organic Laboratory 1 and 2                   |
| 2022, 2025                   | Environmental Chemistry                      |

## GRANTS

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|-----------|----------------------------------------------------------------|
| 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                                      |

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| 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 | 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                                                                         |
| 2024-2025 | Directorate of Defense, Research, & Development, 100k NIS                                           |
| 2024-2026 | Magnetron (with Prof. Dekel) 550k NIS                                                               |
| 2024-2026 | GTEP Nevet (with Prof. Brandon), 40k USD                                                            |
| 2024-2025 | Tstart (with Prof. Dekel), 250k NIS                                                                 |
| 2024-2026 | Technion Sustainability Frontier (with Prof. Tarazi), 27k USD                                       |
| 2025-2026 | Industrial supported research (Wonderful Co.) (with Prof. Yehezkeli), 700k USD                      |
| 2025-2027 | The National Institute for Energy Storage (with Prof. Zitoun (BIU) and Prof. Segev (TAU)), 765k NIS |
| 2025-2029 | 2025-2029 Vatat Excellence Center (co-leader, with 17 other members), 17,000k NIS                   |
| 2026-2029 | Ministry of Science (with Prof. Zitoun (BIU) and Prof. Sapir (BIU)), 500 k NIS                      |
| 2026-2029 | Ministry of Science Israel-Taiwan (with Prof. Chia-Chih Chang, Taiwan), 500k NIS                    |

## SCIENTIFIC PUBLICATIONS

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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 Benzylienes: 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-Trigged 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. "BF<sub>3</sub>-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.; Kopr, 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. Mezhev, 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
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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.
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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.*, **2023**, e202314781. (*highlighted as hot paper*)
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91. Zhang, H.; Diesendruck, C.E.\* "Linear vs. Helical Sidechains in Bottlebrush Polymers: Morphology and Mechanochemistry", *Macromolecules*, **2024**, *57*, 3664-3670. (*Feature cover article*).
92. 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", *Composites Part A*, **2024**, *185*, 108271.
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96. Zhang, H.; Diesendruck, C.E.\* "Mechanochemical Diversity in Block Copolymers", *Chem. Eur. J.*, **2024**, *30*, e202402632.
97. Schwarz, R.; Manor Armon, A.; Diesendruck, C.E.\* "Stereochemical Impacts on Acyclic Mechanochemical Carbon-Carbon Bond Activation", *Angew. Chem. Int. Ed.*, **2025**, *64*, e202414849.
98. Agami, I.; Mendelson, O.; Diesendruck, C.E.\* "Chain-folding Effects on Polymer

- Film Gas Permeabilities”, *Macromol. Chem. Phys.*, **2025**, 226, e2400329.
99. Nijem, S.; Kaushansky, A.; Pucovski, S.; Ivry, E.; Colacino, E.; Halasz, I.; Diesendruck, C.E.\* "Chemoselectivity switch by mechanochemistry in the base-catalysed dione-acylation", *RSC Mechanochemistry*, **2025**, 2, 419-425.
  100. Sasson, G.; Welch, B.C.; Zhang, H.; Diesendruck, C.E.; Segal-Peretz, T. "Enhancing the Solvent Resistance of Random Copolymer Films via Sequential Infiltration Synthesis: Low Functional Group Density Can Make a Large Impact", *Polym. Adv. Technol.* **2025**, 36, e70125.
  101. Zhang, H.; Diesendruck, C.E.\* "Mechanochemical Retro-Diels–Alder–Heteroatom Radical Stabilization of a Two-Step Mechanism?", *Macromolecules* **2025**, 58, 4819-4825.
  102. Mezhev, A.; Goncharov, A.; Zhutovsky, S.; Kovler, K.; Diesendruck, C.E.\* "DNA as a chemical admixture for cementitious materials", *Adv. Mater. Technol.*, **2025**, 36, e70125.
  103. Mathur, A.; Nijem, S.; Uwayid, R.; Sahray, Z.; Shocron, A.N.; Suss, M.E.; Diesendruck C.E.\* " Phosphorylated Carbon Cathodes Achieves Perfect Monovalent Cation Selectivity in Capacitive Deionization", *J. Mater. Chem. A*, **2025**, in press.
  104. Douglin, J.C.; Notsu, H.; Nagata, S.; Willdorf-Cohen, S.; Zhong, J.; Zahan, S.M.; Godoy, A.O.; Wang, C.; Jankovic, J.; Diesendruck, C.E.; Nabae, Y.; Dekel, D.R. "Template-Free Fabrication of Single Atom Fe-Based Cathode Catalysts for High-Performance Anion-Exchange Membrane Fuel Cells", *Adv. Sci.*, **2025**, 12, e01016.
  105. Willdorf-Cohen, S.; Li, S.; Srebnik, S.; Diesendruck, C.E.\*; Dekel, D.R. "Does the Presence of CO<sub>2</sub> Affect the Alkaline Stability of Anion-Exchange Membranes?", *J. Mater. Chem. A*, **2025**, 13, 35316-35328.

## MANUSCRIPTS IN REVIEW

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1. Aharonovich, S.; Ivry, E.; Diesendruck, C.E.\* "High Concentration Synthesis of Single-Chain Polymer Nanoparticles via Acyloin Condensation", *submitted*.
2. Bouketov, A.; Davidovich-Pinhas, M.; Diesendruck, C.E.\* "Intermolecular surface-to-surface hydrogen-bonding interactions between single-chain polymer nanoparticles", *submitted*.
3. Patrascu, M.; Meuti, D.; Galant, O.; Nijem, S.; Diesendruck, C.E.; Casagrande, A.; Colacino, E.; Felderhoff, M.; Spataru, S. "Towards Sustainable Pharmaceutical Manufacturing: A Life Cycle Assessment of Ibuprofen–Nicotinamide Cocrystallization Routes", *submitted*.
4. Levy, F.; Buzaglo, R.A.; Mendelson, O.; Diesendruck, C.E.\* " An aromatic thermoplastic epoxy-amine: synthesis and properties", *submitted*.

## BOOK CHAPTERS

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1. Diesendruck, C.E.; Moore, J.S. "Mechanophores for Self-healing Applications". In *Self-Healing Polymers*, **2013** Ed. W. H. Binder. Wiley-VCH, Weinheim.
2. 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.
3. 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.
- Diesendruck, C.E. "Polymer mechanochemistry and its relation to green chemistry". In *Encyclopedia of Green Chemistry*, **2024** Ed. B. Torok, E. Colacino. Elsevier.

## PATENTS

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- "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.
- "Capacitive ion-exchanger and uses thereof" U.S. Provisional Patent Application No. 63/515,600, 2023.
- "Mechanophoric matrices and methods of preparing same" US Provisional Patent Application No. 63/532,401, 2023.

## ORAL PRESENTATIONS

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- "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.
- "Proton-coupled mechanochemical transduction – mechanogenerating acids", Nanohour, Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign, USA, 2012.
- "Proton-coupled mechanochemical transduction – mechanogenerating acids", The 78th Meeting of the Israeli Chemical Society, Israel, February 2013.
- "Proton-coupled mechanochemical transduction – mechanogenerating acids", 4<sup>th</sup> International Symposium on Self-Healing Materials, Belgium, June 2013.
- "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", 5<sup>th</sup> 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", 5<sup>th</sup> 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).
  80. "Mechanochemical Degradation and Recycling of Synthetic Polymers" Apple Inc., Cupertino, USA, August 2023 (invited).
  81. "Productive Chemistry Adapted from Undesirable Materials Degradation" Chemistry Seminar, North Carolina State University, Raleigh, USA, September 2023 (invited).
  82. "Self-healing Polymers" Mafat Workshop on Energetic Materials, Haifa, Israel, May 2024 (invited).
  83. "The destructive and constructive aspects of polymer mechanochemistry" Brightland Polymer Days, Maastricht, Holland, May 2024 (keynote).
  84. "The Chemical Stability of Anion-Exchange Membranes for Alkaline Fuel Cells" Chemistry Seminar, Ariel University, Ariel, Israel, June 2024 (invited).
  85. "The Chemical Stability of Anion-Exchange Membranes for Alkaline Fuel Cells" Organic Chemistry Seminar, Tel-Aviv University, Tel-Aviv, Israel, June 2024 (invited).
  86. "Mechanochemistry in small and big molecules" South China Polymer Summer Workshop, Guangzhou, China, July 2024 (invited).
  87. "The role of water on the stability of anion-exchange membranes for alkaline fuel cells" South China Polymer Summer Workshop, Guangzhou, China, July 2024 (invited).
  88. "Addressing Electrochemical Device Challenges with a Chemical Approach" Technion-Inti Fuel Cell Workshop, Buenos Aires, Argentina, September 2024 (keynote).
  89. "Multifunctional Mechanophores: Detecting Mechanical Damage in Polymers" Polymer for Advanced Technologies Conference, Herzliya, Israel, December 2024 (invited).
  90. "Breaking Covalent Bonds with Mechanical Force" Chemistry Colloquium, Technion, Haifa, Israel, December 2024 (invited).
  91. "Breaking Covalent Bonds with Mechanical Force" Chemistry Seminar, Bar-Ilan

- University, Ramat-Gan, January 2025 (invited).
92. "New Insights into Synthetic and Natural Polyphosphates as Superplasticizers" 6th International Conference on Polycarboxylate Superplasticizers, Bangkok, Thailand, July 2025 (invited).
93. "Breaking Covalent Bonds with Mechanical Force" 20th European Symposium on Organic Reactivity, Padua, Italy, September 2025 (invited).

## RESEARCH STUDENTS

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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, 2019-2025.
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, 2019-2024.
14. Rony Schwartz, "Mechanochemical activation of strong bonds in small molecules", Ph.D. in Chemistry, 2020-2024.
15. Faran Levy, "Thermoplastic epoxy polymers", M.Sc. in Polym. Eng., 2020-2025.
16. Yonatan Amit, "Composite phase-change materials", M.Sc. in Polym. Eng., 2021-2025.
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-
20. Raz-Azar Buzaglo, "Mechanochemistry in epoxy materials", M.Sc. in Polym. Eng.,

2024-2025.

21. Keren Mizrahi, "Hypergolic propellants based on polyolefins", Ph.D. in Aerospace Eng., 2024-
22. Layla Namaa "Bidirectional transport in copolymer membranes", M.Sc. in Chem. Eng., 2024-
23. Nawal Fahoum, "Hydrogen-bonding in Mechanophores", M.Sc. in Chemistry, 2024-
24. Sandra Idelman, "FROMP in self-healing", M.Sc. in Chemistry, 2024-
25. Avigdor Yankelevitch, "Novel light-triggered self-healing formulation for epoxy composites" M.Sc. in Polym. Eng. 2025-
26. Cheli Kotler, "Self-healing energetic materials", M.Sc. in Chemistry, 2025-
27. Chenhao Zhao, "Thermal PE depolymerization", M.Sc. in Chemistry, 2025-

## POST-DOCTORAL RESEARCHERS

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1. Feng Wang, China, 2014-2017. Currently: Assoc. Prof. Chemical Engineering, Qingdao University of Technology, China
2. Shubhendu Dhara, India, 2015-2017. Currently: Assoc. Prof. Chemistry, West-Bengal State University, India.
3. Sinai Aharonovich, Israel, 2016-.
4. Ying Song, China 2018. Currently: Assoc. Prof. Chemical Engineering, Nanning Normal University, China.
5. Alexander Mezhov, Israel, 2019. Currently: Senior Scientist Civil Engineering, Bundesanstalt für Materialforschung und -prüfung (BAM), Germany.
6. Elisa Ivry, Israel, 2019-2024.
7. Hang Zhang, China, 2020-2024. Currently: Prof. Chemical Engineering, Xi'an Jiao-Tong University, China.
8. Ankita Mathur, India, 2023-2024. Currently: Assoc. Edito at Wiley-VCH.
9. Amit Sochron, Israel, 2023. Currently: Assist. Prof. The Zuckerberg Institute for Water Research, Ben-Gurion University of the Negev, Israel.
10. Lixin Yang, China, 2024-
11. Inbar-Haya Magid-Gold, 2025-