Matthew Suss
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***Highlights**: Prof. Matthew Suss heads the Energy & Environmental Innovations Laboratory in the Faculty of Mechanical Engineering at Technion, and is affiliated with the Grand Technion Energy Program and Grand Water Research Institute. His lab has attracted >7 M ILS (>2 M USD) in external research funding since opening in October 2014. Prof. Suss has published or submitted 45 papers in scientific journals, holds an h-index of 25, and invited to deliver 14 plenary, keynote, and invited lectures at leading international scientific conferences.*

Academic Degrees

2009-2013: PhD, Department of Mechanical Engineering, Stanford University, Advisor Prof. Juan Santiago,
2007-2009: M.Sc. Department of Mechanical Engineering, Stanford University
2002-2007**:** B.Eng. Department of Mechanical Engineering, McGill University

Academic Appointments

10/20-today: Associate Professor, Faculty of Mechanical Engineering, Technion – IIT, Haifa, Israel
9/14-9/20**:** Assistant Professor, Faculty of Mechanical Engineering, Technion – IIT, Haifa, Israel
2013-2014**:** Postdoctoral Associate, Dept. of Chemical Engineering, MIT, USA, Advisor Prof. Martin Bazant
2010-2013: Lawrence Scholar, Lawrence Livermore National Laboratory, California, USA

Research Interests

Experimental: Electrochemical Systems, capacitive deionization, redox flow batteries, electroosmotic micropumps, electrochemical impedance spectroscopy, fluidized bed electrodes, rapid prototyping.

Theoretical: Porous electrode theory, nanopore electric double layer theory, analytical solutions of transport equations, flow battery theory with homogeneous reactions, surface transport in porous electrodes.

Teaching Experience

Mechanical Engineering: Thermodynamics 2 (undergraduate level), 2015-present.
Advanced thermodynamics (graduate level), 2017-present.
Heat & Mass Transfer (graduate level), 2016-present.
Flow electrochemical systems (graduate level), 2016-present, (***new course***).
Fluid Mechanics 2 (undergraduate level), 2020-present.

Grand Technion Energy Program: Clean Energy Technologies (graduate level), 2017-present.

Departmental Activities

Activities performed for Mechanical Engineering and Grand Technion Energy Program

- Developed a series of three lectures introducing fuel cell and battery technologies for a course in the interdisciplinary Grand Technion Energy Program, beyond regular teaching duties (2017, 2019).
- Lecturer responsible for the Grand Technion Energy Program course (2017).
- Served on the Faculty of Mechanical Engineering undergraduate program committee (2019), safety committee (2018-2019), Faculty representative to T-Hub (2019-2020), and responsible for Faculty seminars (2018-2019)

- Served on several MSc defense (13), PhD preliminary exam (10), and PhD defense committees (4 – including MIT & Wageningen University candidates)

Public Professional Activities

Reviewer for scientific journals: 2010-present, Journals: Nature Communications, NPJ Clean Water, Energy & Environmental Science, Physical Review Letters, Joule, Advanced Energy Materials, Journal of Materials Chemistry A, Physics of Fluids, Environmental Science & Technology, Environmental Science & Technology Letters, Water Research, Electrochimica Acta, Sensors & Actuators A, ACS Applied Materials and Interfaces, Separation & Purification Technology, Ionics, Desalination, Journal of Applied Electrochemistry.

Conference organization:

- Co-chair**,** The 2nd International Conference on Capacitive Deionization and Electrosorption, Saarbrucken, Germany, 2015.
- Co-chair, The 67th Annual Meeting of the International Society of Electrochemistry (ISE), symposia #9, "Capacitive Electrodes for Environmental Technologies", The Hague, Netherlands, 2016.
- Co-chair, Material Research Society (MRS), Symposium ES09: Advanced Materials for the Water-Energy Nexus, Phoenix, USA 2019.
- Co-organizer, Dead Sea Water Workshop: Nanomaterials at the Energy-Water Nexus, Ein Gedi, Israel, 2019.

National and international scientific leadership activities

- 2020: scientific advisory committee member, 12th European Symposium on Electrochemical Engineering (ESEE), Leeuwarden, Netherlands, June 13-17th 2020 (postponed to June 2021 due to pandemic).
- 2015-present: delegate member, representing Israel in the European Federation of Chemical Engineering (EFCE), Working Group of Electrochemical Engineering.
- 2014-present: member (2014-present) & Chair (2015-2019): the International Working Group for Capacitive Deionization and Electrosorption
- 2015-2016: Sole guest editor, Journal of Physics: Condensed Matter, special issue entitled: "Physics of Emerging Desalination Techniques"
- 2016: Guest editor, Electrochimica Acta, special issue entitled: "International Society of Electrochemistry (ISE) Focus Issue"
- 2014-present: Team leader, the Israel National Research Center for Electrochemical Propulsion (INREP)

Membership in Professional Societies

Current or lapsed: Electrochemical Society (ECS), American Chemical Society (ACS), Materials Research Society (MRS), International Society of Electrochemisty (ISE)

Fellowships, Honors and Awards

Year	*Awarding Organization*	*Honor/Award*
2019	Israelectrochemistry conference	Baruch Zinger poster award (presenter: Eilon Miara)
2019	Drexel University	Louis and Bessie Stein Family Fellowship (with Prof. Ekaterina Pomerantseva)
2019	Dead Sea Water Workshop	Nature Nanotechnology Poster Prize (presenter: Amit Shocron)

2018	The Umbrella Alliance: RWTH Aachen, Forschungszentrum Jülich, & Technion	Umbrella Award for 2018 for research in Energy Conversion and Energy Storage
2018	Calcalist daily newspaper	Named one of the top 36 under 36 in Israel
2017	Capacitive deionization & electrosorption conference (South Korea)	Excellent Poster Presentation Award (presenter: Eric Guyes)
2017	Ben Gurion University	The Strage-BGU Award for Excellence in Environmental Sciences
2017	Federal German Ministry for Education and Research (BMBF)	ARCHES award (Award for Research Cooperation and High Excellence in Science)
2016	Technion – Israel Institute of Technology	Uzi & Michal Halevy Award for Innovative Applied Engineering
2015	Calcalist daily newspaper	One of the top 6 young researchers to watch in Israel
2015	Israel's Council for Higher Education	Alon Fellowship
2014	Technion – Israel Institute of Technology	Named "Leader in Energy Science" for the Grand Technion Energy Program
2014	Technion - Israel Institute of Technology	Horev Fellowship, Leaders in Science & Technology (LIST) Program
'13 & '12	Lawrence Livermore National Laboratory	Physical & Life Sciences Directorate Excellence in Publication award
2010	Lawrence Livermore National Laboratory	Lawrence Scholar fellowship
2009	Canadian government	NSERC PGS-D Doctoral scholarship
2009	Quebec government	FQRNT Doctoral scholarship (declined)
2007	Quebec government	FQRNT Master's scholarship
2007	McGill University	Graduated with Distinction and on the Dean's Honour list
2005	University of Sydney	Clean Air Society of Australia and New Zealand Prize in Air Pollution
2004	McGill University	Mr. & Mrs. T.R. McLagan Memorial Scholarship

Publications

(Suss lab members denoted in **bold,** Suss lab graduate and undergraduate students **underlined**)

Thesis

1. **ME Suss.** "Capacitive water desalination with hierarchical porous electrodes." PhD Dissertation, Stanford University, California, 2013. Advisor: Prof. Juan Santiago.

Refereed papers in professional journals

(h-index = 25, total times cited = 3775, per Google Scholar)

1. A Persat*, **ME Suss***, JG Santiago. "Basic principles of electrolyte chemistry for microfluidic electrokinetics. Part II: Coupling between ion mobility, electrolysis, and acid–base equilibria." *Lab Chip*, 9, 2454 – 2469, 2009.
   **Authors contributed equally to this work*

2. DG Strickland, **ME Suss**, TA Zangle, JG Santiago. “Evidence shows concentration polarization and its propagation can be key factors determining electroosmotic pump performance.” *Sensors and Actuators B*, 143, 795-798, 2010.
3. S Litster, **ME Suss**, JG Santiago. “A two-liquid electroosmotic pump requiring low applied voltage and power.” *Sensors and Actuators A*, 163, 311-314, 2010.
4. **ME Suss**, A Mani, TA Zangle, JG Santiago. “Electroosmotic pump performance is affected by concentration polarizations of both electrodes and pump.” *Sensors and Actuators A*, 165, 310-315, 2010.
5. J Biener, M Stadermann, **M Suss**, MA Worsley, MM Biener, KA Rose and TF Baumann. “Advanced carbon aerogels for energy applications.” *Energy and Environmental Science*, 4, 656-667, 2011.
6. **ME Suss**, TF Baumann, WL Bourcier, CM Spadaccini, KA Rose, JG Santiago, M Stadermann. “Capacitive desalination with flow-through electrodes.” *Energy and Environmental Science*, 5, 9511-9519, 2012.
7. MA Worsley, SO Kucheyev, HE Mason, MD Merrill, BP Mayer, J Lewicki, CA Valdez, **ME Suss**, M Stadermann, PJ Pauzauskie, JH Satcher, TF Baumann. “Mechanically Robust 3D Graphene Macroassembly with High Surface Area.” *Chemical Communications*, 48, 8428-8430, 2012.
8. RK Kalluri, MM Biener, **ME Suss**, MD Merrill, M Stadermann, JG Santiago, TF Baumann, J Biener, A Striolo. “Unraveling the potential and pore-size dependent capacitance of slit-shaped graphitic carbon pores in aqueous electrolytes.” *Physical Chemistry Chemical Physics*, 15, 2309-2320, 2013.
9. **ME Suss**, TF Baumann, MA Worsley, KA Rose, TF Jaramillo, M Stadermann, JG Santiago. “Impedance-based study of capacitive porous carbon electrodes with hierarchical and bimodal porosity.” *Journal of Power Sources*, 241, 266-273, 2013.
10. **ME Suss**, PM Biesheuvel, TF Baumann, M Stadermann, JG Santiago. “In situ spatially and temporally resolved measurements of salt concentration between charging porous electrodes for desalination by capacitive deionization.” *Environmental Science & Technology*, 48, 2008-2015, 2014.
11. D Deng, W Aouad, WA Braff, S Schlumpberger, **ME Suss**, MZ Bazant. “Water Purification by shock electrodialysis: desalination, filtration, separation, and disinfection.” *Desalination*, 357, 77-83, 2015.
12. **ME Suss***, S Porada, X Sun, PM Biesheuvel, J Yoon, V Presser*. “Water desalination via capacitive deionization: What is it and what can we expect from it?” *Energy & Environmental Science*, 8, 2296-2319, 2015.
    *Invited perspective article, *Co-corresponding authors*
13. S Schlumpberger, NB Lu, **ME Suss**, MZ Bazant. “Scalable and continuous water deionization by shock electrodialysis.” *Environmental Science & Technology Letters*, 2, 367-372, 2015.
14. PM Biesheuvel, HVM Hamelers, **ME Suss**. "Theory of water desalination by porous electrodes with immobile chemical charge.” *Colloid and Interface Science Communications*, 9, 1-5, 2015.
15. S Porada, G Feng, **ME Suss**, V Presser. “Capacitive deionization in organic solutions: case study using propylene carbonate.” *RSC Advances*, 6, 5865-5870, 2016.
16. **G.J. Doornbusch**, J Dykstra, PM Biesheuvel, **ME Suss**. “Fluidized bed electrodes with high carbon loading for water desalination by capacitive deionization.” *Journal of Materials Chemistry A*, 4, 3642-3647, 2016.

17. **ME Suss**, K Conforti, L Gilson, CR Buie, MZ Bazant. "Membraneless flow battery leveraging flow-through heterogeneous porous media for improved power density and reduced crossover." *RSC Advances*, 6, 100209-100213, 2016.
18. **H Cohen, S Ein Eli, M Jogi, ME Suss**. "Suspension electrodes combining slurries and upflow fluidized beds." *ChemSusChem,* 9, 3045-3048, 2016.
19. S Rubin, **ME Suss**, PM Biesheuvel, M Bercovici. "Induced-charge capacitive deionization: the electrokinetic response of a porous particle to an external electric field." *Physical Review Letters*, 117, 234502, 2016.
20. S. Pattarachai, F. Kaasik, B. Krüner, A. Tolosa, S. Fleischmann, N. Jäckel, M. Aslan, **ME Suss**, and V. Presser. "MXene as a novel intercalation-type pseudocapacitive cathode and anode for capacitive deionization." *Journal of Materials Chemistry A*, 4, 18265-18271, 2016.
21. HK Mutha, Y Lu, IY Stein, HJ Cho, **ME Suss**, T Laoui, CV Thompson, BL Wardle, EN Wang. "Porosimetry and packing morphology of vertically aligned carbon nanotube arrays via impedance spectroscopy." *Nanoscale*, 28, 05LT01, 2016.
22. **AN Shocron, ME Suss**. "The effect of surface transport on water desalination by porous electrodes undergoing capacitive charging." *Journal of Physics: Condensed Matter*, 29, 084003, 2017.
23. P Srimuk, M Zeiger, N Jäckel, A Tolosa, B Krüner, S Fleischmann, I Grobelsek, M Aslan, **B Shvartsev**, **ME Suss**,* V Presser.* "Enhanced performance stability of carbon/titania hybrid electrodes during capacitive deionization of oxygen saturated saline water." *Electrochimica Acta*, 224, 314-328, 2017.
    **Co-corresponding authors*
24. **EN Guyes, A Simanovski, ME Suss**. "Several orders of magnitude increase in hydraulic permeability of flow-through capacitive deionization electrodes via laser perforations." *RSC Advances*, 7, 21308-21313, 2017.
25. **EN Guyes, A Shocron, A Simanovski**, PM Biesheuvel, **ME Suss**. "A one-dimensional model for water desalination by flow-through electrode capacitive deionization." *Desalination*, 415, 8-13, 2017.
26. **ME Suss**. "Size-based ion selectivity of micropore electric double layers in capacitive deionization electrodes." *Journal of the Electrochemical Society*, 164, E270-E275, 2017.
27. **ME Suss**, V Presser. "Water desalination with energy storage materials." *Joule*, 2, 10-15, 2018.
    Invited "Futures Energy" article.
28. EM Remillard, **AN Shocron**, J Rahill, **ME Suss**, CD Vecitis. "A direct comparison of flow-by and flow-through capacitive deionization." *Desalination*, 444, 169-177, 2018.
29. **A Golovnev, ME Suss**. "Percolation probability in a system of cylindrical particles." *Journal of Chemical Physics*, 149, 144904, 2018.
30. **R Ronen, I Atlas, ME Suss**. "Theory of flow batteries with fast homogeneous chemical reactions." *Journal of the Electrochemical Society*, 165, A3820-A3827, 2018.
31. SA Hawks, A Ramachandran, S Porada, PG Campbell, **ME Suss**, PM Biesheuvel, JG Santiago, M Stadermann. "Performance metrics for the objective assessment of capacitive deionization systems." *Water Research*, 152, 126-137, 2019.
32. P Ratajczak, **ME Suss**, F Kaasik, F Béguin. "Carbon electrodes for capacitive technologies." *Energy Storage Materials*, 16, 126-145, 2019.
33. **E Halfon, ME Suss**. "Measurements of the electric conductivity of an electrode as it transitions static and flowable modes." *Electrochemistry Communications*, 99, 61-64, 2019.

34. **S Abu Khalla, ME Suss**. "Desalination via chemical energy: An electrodialysis cell driven by spontaneous electrode reactions." *Desalination*, 467, 257-262, 2019.
35. **EN Guyes, T Malka, ME Suss**. "Enhancing the ion-size-based selectivity of capacitive deionization electrodes." *Environmental Science & Technology*, 53, 8447-8454, 2019.
36. **I Atlas, ME Suss**. "Theory of simultaneous desalination and electricity generation via an electrodialysis cell driven by spontaneous redox reactions." *Electrochimica Acta*, 319, 813-821, 2019.
37. **R Gloukhovski**, **ME Suss**, "Measurements of the electric conductivity of MWCNT suspension electrodes with varying potassium bromide electrolyte ionic strength." *Journal of the Electrochemical Society*, 167, 020528, 2020.
38. J Ma, C Zhang, F Yang, X Zhang, **ME Suss**, X Huang, L Peng. "Carbon black flow-electrode enhanced electrochemical desalination using single cycle operation." *Environmental Science & Technology*, 54, 1177-1185, 2020.
39. **AN Shocron, ME Suss,** "Should we pose a closure problem for capacitive charging of porous electrodes?" *EPL (Europhysics Letters)*, 130, 34003, 2020.
40. **I Atlas, S Abu Khalla, ME Suss**. "Thermodynamic energy efficiency of electrochemical systems performing simultaneous water desalination and electricity generation." *Journal of the Electrochemical Society,* 167, 134517, 2020.
41. **R Uwayid**, N Seraphim, **EN Guyes**, D Eisenberg, **ME Suss**. "Characterizing and mitigating the degradation of oxidized cathodes during capacitive deionization cycling." *Carbon*, 173, 1105-1114, 2021.
42. **L Amit**, **D Naar**, **R Gloukhovski**, GJ la O', **ME Suss**. "A single flow battery with multiphase flow." *Accepted & in press, ChemSusChem*, 2021.
43. **EN Guyes**, **A Shocron**, **Y Chen**, C Diesendruck, **ME Suss**. "Long-lasting, monovalent selective capacitive deionization electrodes." *Accepted & in press, NPJ Clean Water*, 2021.
44. JG Gamaethiralalage, K Singh, S Sahin, J Yoon, M Elimelech, **ME Suss**, P Liang, PM Biesheuvel, RL Zornitta, LCPM de Smet, "Recent advances in ion selectivity with capacitive deionization", *Accepted & in press, Energy & Environmental Science*, 2021

Book Chapters

1. J Biener, M Stadermann, **M Suss**, MA Worsley, MM Biener, TF Baumann. "Advanced Carbon Aerogels for Energy Applications." Carbon-based Nanomaterials and Hybrids: Synthesis, Properties, and Commercial Applications, H.-J. Fecht, K. Bruehne, P. Gluche, CRC Press, 2014

Conferences, Workshops and Seminars

(Suss lab members in **bold**, presenters in conferences are underlined)

Plenary, keynote, & prize lectures

1. **ME Suss**. "Emerging water desalination technologies.", *Keynote lecture*, MicroTAS 2020, October 8, 2020, online conference due to global pandemic.
2. **ME Suss**. "Towards Devices which Combine Energy Storage and Water Desalination." *Umbrella Symposium prize lecture*, April 22, 2018, Haifa, Israel.
3. **ME Suss**. "Flow-through electrode and flowable electrode capacitive deionization." *Plenary Lecture*, Capacitive Deionization & Electrosorption 2017 (CDI&E 2017), Seoul, South Korea, July 3-6, 2017.

4. **ME Suss**. "A perspective on water desalination by capacitive deionization (CDI)." *Strage-BGU prize lecture*, Ben Gurion University, Beersheba, Israel, May 18, 2017.
5. **ME Suss**, V Presser. "Fluidized bed electrodes for water desalination and energy storage." *ARCHES prize lecture*, presented at the Federal German Ministry for Education and Research (BMBF), Berlin, Germany, April 5, 2017.
6. **ME Suss**. "Perspectives on water desalination via capacitive deionization." *Keynote Lecture*, Capacitive Deionization & Electrosorption (CDI&E) 2015, Saarbrucken, Germany, Oct 26-29, 2015.
7. **ME Suss**. "Flow-through electrode capacitive desalination and experimental characterizations of desalination electrodes." *Keynote Lecture*, Interfaces against Pollution (IAP), Leeuwarden, Netherlands, May 23-25, 2014.
8. **ME Suss**. "Novel electrochemical systems for energy storage and water desalination leveraging flow-through porous media." *Keynote Lecture*, 11th International Symposium on Electrokinetic Phenomena (ELKIN), Ghent, Belgium, May 20-23, 2014.

Invited lectures

1. **ME Suss**. "Selective ion storage in capacitively charged nanopore electric double layers." *Invited Lecture*, 14th International Symposium on Electrokinetics (ELKIN 2021), Haifa, Israel, to be delivered June 2021.
2. **ME Suss**. "Selective ion removal by capacitive deionization." *Invited Lecture,* 2021 Capacitive Deionization & Electrosorption Conference (CDI&E), Atlanta, USA, to be delivered between May 11-14th 2021.
3. **ME Suss**. "Co-generation of electricity and desalted water using chemical energy." *Invited Lecture*, 12th European Symposium on Electrochemical Engineering (ESEE), Leeuwarden, Netherlands, to be delivered June 14th 2020 (postponed to June 2021 due to pandemic).
4. **ME Suss**. "Flowable electrodes for metal deposition batteries." *Invited Lecture*, 10th International Conference on Materials for Advanced Technologies (ICMAT), Singapore, June 23-28, 2019.
5. **ME Suss**. "Desalination via electrochemical systems." *Invited Lecture*, Gordon Research Conference (GRC): Physics and Chemistry of Microfluidics, Hong Kong, June 16-21, 2019.
6. **ME Suss**. "Advanced electric double layer models for water desalination by capacitive deionization." *Invited Lecture*, Capacitive Deionization & Electrosorption 2019 (CDI&E 2019), Beijing, China, May 23-28, 2019.
7. **ME Suss**. "Advanced electric double layer models for water desalination by capacitive deionization." *Invited Lecture*, International Materials Research Conference (IMRC 2018), Cancun, Mexico, August 19-24, 2018.
8. **ME Suss**. "Upflow fluidized bed electrodes for water desalination and energy storage applications." *Invited Lecture*, Material Research Society (MRS) 2016 Fall Meeting & Exhibit, Boston, USA, Nov 27-Dec 2, 2016.
9. **ME Suss**. "Water desalination by capacitive deionization: new trends and directions." *Invited Lecture*, 252nd American Chemical Society National Meeting & Exposition (ACS), Philadelphia, USA, Aug 21-25, 2016.
10. **ME Suss**. "Perspective on Flow Batteries." *Invited Lecture*, The 11th Conference on Advanced Power Sources, Tel-Aviv, Israel, Feb 5, 2015.
11. **ME Suss**. "A cyclable membraneless flow battery." *Invited Lecture*, Israelectrochemistry 2014, Haifa, Israel, September 16, 2014.

Invited tutorial lectures

1. **ME Suss**. "Basics of capacitive deionization I." *Invited tutorial lecture,* Capacitive Deionization & Electrosorption 2019 (CDI&E 2019), Beijing, China, May 23-28, 2019.
2. **ME Suss**. "Basics of capacitive deionization I." *Invited tutorial lecture,* Capacitive Deionization & Electrosorption 2017 (CDI&E 2017), Seoul, South Korea, July 3-6, 2017.
3. **ME Suss**. "Basics of capacitive deionization I." *Invited tutorial lecture,* Interfaces Against Pollution (IAP), Lleida, Spain, Sept 4-7, 2016.
4. **ME Suss**. "Basics of capacitive deionization I." *Invited tutorial lecture*, Capacitive Deionization & Electrosorption (CDI&E) 2015, Saarbrucken, Germany, Oct 26, 2015.
5. **ME Suss**. "Introduction to electrochemical devices for energy storage and water desalination: fundamentals and applications." *Invited Lecture*, 11th 7th European Summer School on Electrochemical Engineering, Leeuwarden, Netherlands, June 21-25, 2015.
6. **ME Suss**. "Principles of electro-microfluidics." *Invited Tutorial Lecture*, 11th International Symposium on Electrokinetic Phenomena (ELKIN), Ghent, Belgium, May 20-23, 2014.

Regular conference lectures, workshop lectures, and seminar lectures

1. **EN Guyes, A Shocron, Y Chen,** C Diesendruck**, ME Suss**. "Sulfonated nanoporous carbon electrodes for long-lasting, monovalent-selective, capacitive deionization." The 71st Annual Meeting of the International Society of Electrochemistry (ISE), Sept 2nd, 2020. (delivered remotely due to pandemic).
2. **ME Suss**. "Unlocking the potential of electrochemical systems for water treatment." Seminar at the School for Engineering of Matter, Transport and Energy, Arizona State University, Phoenix, AZ, USA, March 24th, 2020. (delivered remotely due to pandemic).
3. **ME Suss**. "A tale of three measurements". Seminar at the Chemistry Department Colloquium, Bar Ilan University, November 4th, 2019.
4. **ME Suss**. "Novel electrochemical systems which store energy, convert energy, and desalinate water". Seminar delivered to the Wessling research group, Aachen University, October 14th, 2019.
5. **I Atlas, ME Suss**. "Simultaneous desalination and electricity generation via an electrodialysis cell driven by spontaneous redox reactions." The 13th International Symposium on Electrokinetics (ELKIN), MIT, Cambridge, MA, USA, June 12-14, 2019.
6. **ME Suss**. "Emerging electrochemical water desalination systems: selectivity and novel functionality." Dead Sea Water Workshop: Nanomaterials at the Energy-Water Nexus, Ein Gedi, Israel, February 4-9, 2019.
7. **EN Guyes, T Malka, ME Suss**. "Capacitive Deionization: leveraging the electric double layer for selective water desalination." Taiwan-Israel Bilateral Workshop on Optofluidics and Electrokinetics in Micro and Nanoscale Devices, Haifa, Israel, December 4-5, 2018.
8. **R Ronen, I Atlas, ME Suss**. "Theory of Flow Batteries with Homogeneous Reactions." The 69th Annual Meeting of the International Society of Electrochemistry (ISE), Bologna, Italy, Sept 2-7, 2018.
9. **E Halfon, ME Suss.** "Dual mode electrode with exceptionally high electric conductivity." The 69th Annual Meeting of the International Society of Electrochemistry (ISE), Bologna, Italy, Sept 2-7, 2018.
10. **A Golovnev, ME Suss**. "Percolation probability for a system of cylindrical particles." The 69th Annual Meeting of the International Society of Electrochemistry (ISE), Bologna, Italy, Sept 2-7, 2018.

11. **D Ragonis, I Loiferman, R Gloukhovski, ME Suss**. "A zinc-bromine flow battery with flowable anode." The 69th Annual Meeting of the International Society of Electrochemistry (ISE), Bologna, Italy, Sept 2-7, 2018.
12. **A Shocron, ME Suss**. "Do we need to solve a closure problem to model the capacitive charging of porous electrodes?" The 69th Annual Meeting of the International Society of Electrochemistry (ISE), Bologna, Italy, Sept 2-7, 2018.
13. **EN Guyes, T Malka, ME Suss**. "Boosting size-based selectivity of capacitive deionization electrodes." The 69th Annual Meeting of the International Society of Electrochemistry (ISE), Bologna, Italy, Sept 2-7, 2018.
14. **EN Guyes, T Malka, ME Suss**. "Size-Based Selectivity of Capacitive Deionization Electrodes in Mixtures of Monovalent Ions." The 53rd Annual Meeting of the Israel Institute of Chemical Engineering (IIChE 2018), Tel Aviv, Israel, June 24, 2018.
15. **ME Suss**. "Advanced electric double layer models for water desalination by capacitive deionization." Seminar at the Membrane Science & Technology Cluster, University of Twente, Netherlands June 11, 2018.
16. **ME Suss**. "Advanced electric double layer models for water desalination by capacitive deionization." Seminar at the Department of Electrical Engineering, Universidad de Seville, Seville, Spain, June 7, 2018.
17. **ME Suss**. "Capacitive deionization: advanced electric double layer models and desalination with battery electrodes." Seminar at the Zuckerberg Water Research Institute, Ben Gurion University, Israel, January 31, 2018.
18. **ME Suss**. "Flow-through electrode and flowable electrode capacitive deionization." *Seminar Lecture*, Tsinghua University, Beijing, China, July 10, 2017.
19. K Wolowelsky, **E Guyes**, S Rubin, **ME Suss**, M Bercovici, C Rotschild. "Color control through FRET efficiency modulation using CDI." Advances in Display Technologies VII, San Francisco, CA, USA, April 21, 2017.
20. **ME Suss**. "Water desalination by capacitive deionization: new trends and directions." Seminar at the Department of Civil Engineering, University of Illinois Urbana-Champaign, Champaign, IL, USA, Dec 5, 2016.
21. S Rubin, **M Suss**, M Biesheuvel, M Bercovici. "Induced Charge Capacitive Deionization." 69th Annual Meeting of the American Physical Society (APS) Division of Fluid Dynamics, Portland, OR, USA, November 20, 2016.
22. **ME Suss**, P.M. Biesheuvel. "Water desalination by capacitive deionization: new trends and directions." The 67th Annual Meeting of the International Society of Electrochemistry (ISE), The Hague, Netherlands, August 21-25, 2016.
23. **ME Suss**. "Water desalination by capacitive deionization: new trends and directions." Seminar at the Department of Chemical Engineering, McGill University, Montreal, Canada, August 9, 2016.
24. **EN Guyes, A Simanovski, ME Suss**, "Several orders of magnitude increase in hydraulic permeability of flow-through desalination electrodes via laser perforations." The 34th Israel Conference on Mechanical Engineering (ICME), Haifa, Israel, November 22-23, 2016.
25. **GJ Doornbusch**, J Dykstra, PM Biesheuvel, **ME Suss**. "Fluidized bed capacitive deionization." Capacitive Deionization & Electrosorption (CDI&E) 2015, Saarbrucken, Germany, Oct 26-29, 2015.
26. **A Shocron, ME Suss**. "The effect of surface transport on water desalination by capacitive deionization." Capacitive Deionization & Electrosorption (CDI&E) 2015, Saarbrucken, Germany, Oct 26-29, 2015.

27. **E Guyes, A Shocron**, PM Biesheuvel, **ME Suss**. "Theory and Experiments of flow-through electrode capacitive deionization." Capacitive Deionization & Electrosorption (CDI&E) 2015, Saarbrucken, Germany, Oct 26-29, 2015.
28. **ME Suss**, S Porada, PM Biesheuvel, V Presser. "A perspective on recent developments in capacitive deionization." The 6th International Conference on Carbon for Energy Storage/Conversion and Environment Protection, Poland, Oct 18-22, 2015.
29. **A Shocron, ME Suss**. "The effect of surface transport on water desalination by capacitive deionization." Israelechtrochemistry 2015, Beersheva, Israel, Oct 15, 2015.
30. **E Guyes, A Shocron**, PM Biesheuvel, **ME Suss**. "Theory and Experiments of flow-through electrode capacitive deionization." Israelectrochemistry 2015, Bersheva, Israel, Oct 15, 2015.
31. **ME Suss**, S Porada, PM Biesheuvel, V Presser. "A perspective on recent developments in capacitive deionization." The 10th European Congress of Chemical Engineering, France, Sept 27-Oct 1, 2015.
32. S Schlumpberger, NB Lu, **ME Suss**, and MZ Bazant. "Water Purification in Porous Media via Shock Electrodialysis." The 228th Meeting of the Electrochemical Society, Phoenix, AZ, USA, October 11-15, 2015.
33. HK Mutha, HJ Cho, N Lachman, **ME Suss**, CV Thompson, BL Wardle, and EN Wang. "In Situ Electrochemical Porosimetry of Vertically-Aligned Carbon Nanotube Carpets through Impedance Spectroscopy." The 227th Meeting of the Electrochemical Society, Chicago, IL, USA, May 24-28, 2015.
34. **ME Suss**, K Conforti, L Gilson, MZ Bazant, CR Buie. "A cyclable, membraneless flow battery." ASME 2014 12th Fuel Cell Science, Engineering and Technology Conference, Boston, MA, USA, June 30-July 2, 2014.
35. **ME Suss**, K Conforti, L Gilson, CR Buie, MZ Bazant. "A cyclable, membraneless flow battery." The 225th Electrochemical Society Meeting, Orlando, FL, USA, May 11-15, 2014.
36. **ME Suss**. "Flow-through electrochemical systems for energy storage and water desalination." Seminar at the Mechanical Engineering Faculty, Technion-Israel Institute of Technology, Haifa, Israel, October 7, 2013.
37. S Schlumpberger, **ME Suss**, D Deng, E McVay, A Mani, MZ Bazant. "Water Purification and Brine Concentration by Shock Electrodialysis." International Symposium on Electrokinetic Remediation (EREM), Boston, MA, USA, June 23-26, 2013.
38. **ME Suss**, TF Baumann, JG Santiago, M Stadermann. "Hierarchical porous electrodes for energy storage and desalination." Seminar at the Mechanical Engineering Faculty, Technion-Israel Institute of Technology, Haifa, Israel, February 20, 2013.
39. **ME Suss**, TF Baumann, WL Bourcier, CM Spadaccini, KA Rose, JG Santiago, M Stadermann. "Capacitive desalination with flow-through electrodes." Seminar at the Condensed Matter and Materials Division (CMMD), Lawrence Livermore National Laboratory, Livermore, CA, USA, August 1, 2012.
40. MA Worsley, M Merrill, **ME Suss**, J. Lee, S. Kucheyev, C Valdez, ... & T Baumann. "Hierarchical Graphene Macroassemblies." The Electrochemical Society Pacific Rim Meeting (PRiME), Honolulu, HI, USA, October, 2012.
41. **ME Suss**, TF Baumann, WL Bourcier, CM Spadaccini, KA Rose, JG Santiago, M Stadermann, "Capacitive desalination with flow-through electrodes." ICREA Symposium for Nanofluidics, Colloids and Membranes, Barcelona, Spain, July 16-18, 2012.
42. **ME Suss**, JG Santiago, T Jaramillo, T Baumann, M Stadermann, KA Rose. "Charging Performance of Carbon Aerogel Electrodes with Hierarchical Porosity for Water Desalination

and Energy Storage Applications." The 219th meeting of the Electrochemical Society, Montreal, Canada, May 3, 2011.

43. MA Worsley, M Stadermann, MM Biener, **ME Suss**, KA Rose, TY Olson, PJ Pauzauskie, J Biener, JH Satcher and TF Baumann. "Graphene Aerogels for Energy Storage." Material Research Society (MRS) meeting, San Francisco, CA, USA, April 26-29, 2011.
44. **ME Suss**, J Ramunas, E Junco, JG Santiago. "Optimized electroosmotic pumps for drug delivery applications." The 215th meeting of the Electrochemical Society, San Francisco, USA, May 1, 2009.

Poster presentations

1. **EN Guyes**, **AN Shocron**, **Y Chen**, CE Diesendruck, **ME Suss**. "Long-lasting, monovalent selective capacitive deionization electrodes." The 71st Annual Meeting of the International Electrochemical Society (ISE), Belgrade, Serbia, August 29-September 3, 2020.
2. **S Abu Khalla**, **I Atlas**, **ME Suss**. "A Desalination Fuel Cell", The 71st Annual Meeting of the International Electrochemical Society (ISE), Belgrade, Serbia, August 29-September 3, 2020.
3. **R Uwayid**, N Seraphim, **EN Guyes**, D Eisenberg, **ME Suss**. "Characterizing the degradation of oxidized electrodes during long-term capacitive deionization cycling." The 71st Annual Meeting of the International Electrochemical Society (ISE), Belgrade, Serbia, August 29-September 3, 2020.
4. **E Shalem**, **E Halfon**, **ME Suss**. "Electrodes which can be switched between static and flowable modes". The 71st Annual Meeting of the International Electrochemical Society (ISE), Belgrade, Serbia, August 29-September 3, 2020.
5. **L Amit**, **D Naar**, **R Gloukhovski**, **GJ la O'**, **ME Suss**, "A membraneless and separatorless multiphase flow battery." The 71st Annual Meeting of the International Electrochemical Society (ISE), Belgrade, Serbia, August 29-September 3, 2020.
6. **E Shalem**, **E Halfon**, **ME Suss**. "Electrodes which can be switched between static and flowable modes." Gordon Research Conference (GRC) on Batteries, Ventura, CA, USA, February 16-21, 2020.
7. **A Shocron**, **ME Suss**. "Should we pose a closure problem for capacitive charging of porous electrodes?" Israelectrochemistry 2019, Ben-Gurion University, Israel, September 23, 2019.
8. **Z Sahray**, **E Miara**, **A Shocron**, **ME Suss**. "Agricultural Desalination Using Capacitive Deionization." Israelectrochemistry 2019, Ben-Gurion University, Israel, September 23, 2019.
9. **E Miara**, **Z Sahray**, **A Shocron**, **ME Suss**. "Water Softening Using Capacitive Deionization." Israelectrochemistry 2019, Ben-Gurion University, Israel, September 23, 2019
10. **A Shocron, ME Suss**. "Do we need to solve a closure problem to model the capacitive charging of porous electrodes?." The 13th International Symposium on Electrokinetics (ELKIN), MIT, Cambridge, MA, USA, June 12-14, 2019.
11. **A Shocron, ME Suss**. "Do we need to solve a closure problem to model the capacitive charging of porous electrodes?." Dead Sea Water Workshop: Nanomaterials at the Energy-Water Nexus, Ein Gedi, Israel, February 4-9, 2019.
12. **I Atlas, ME Suss**. "Simultaneous desalination and electricity generation via an electrodialysis cell driven by spontaneous redox reactions." Dead Sea Water Workshop: Nanomatemerials at the Energy-Water Nexus, Ein Gedi, Israel, February 4-9, 2019.
13. **EB Halfon, ME Suss**. "High Conductivity Dual Operation mode Flow Electrode." Taiwan-Israel Bilateral Workshop on Optofluidics and Electrokinetics in Micro and Nanoscale Devices, Haifa, Israel, December 4-5, 2018.

14. **EB Halfon, ME Suss**. "Highly Conductive Intermittently Flowable Electrodes." The 53rd Annual Meeting of the Israel Institute of Chemical Engineering (IIChE 2018), Tel Aviv, Israel, June 24, 2018.
15. **EB Halfon, ME Suss**. "Improved Electric Conductivity of Suspension Electrodes." Capacitive Deionization & Electrosorption 2017 (CDI&E 2017), Seoul, South Korea, July 3-6, 2017.
16. **EN Guyes, A Simanovski, ME Suss**. "Several orders of magnitude increase in hydraulic permeability of flow-through desalination electrodes via laser perforations." Capacitive Deionization & Electrosorption 2017 (CDI&E 2017), Seoul, South Korea, July 3-6, 2017.
17. **ME Suss**, A Mani, TA Zangle, JG Santiago. "Towards highly efficient nanoporous electroosmotic pumps: effects of concentration polarization zones sourced from the pump substrate and electrodes." µTAS, Groningen, Netherlands, October 4, 2010.
18. **ME Suss**, A Mani, TA Zangle, JG Santiago. "Concentration polarization in electroosmotic pumps." Gordon Research Conference (GRC): Physics and Chemistry of Microfluidics, Lucca, Italy, 2009.