

## Moran Bercovici

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Scholar: [https://scholar.google.com/citations?user=Pr3Q\\_cAAAAJ](https://scholar.google.com/citations?user=Pr3Q_cAAAAJ)

### ACADEMIC DEGREES

- 09/2006 - 12/2010: Ph.D., GPA: 4.0/4.0  
Department of Aeronautics and Astronautics  
*Research in Mechanical Engineering's Microfluidics Laboratory*  
Stanford University, CA, USA
- 03/2003 - 06/2006: M.Sc., *summa cum laude*, GPA: 94.4/100  
Faculty of Aerospace Engineering  
Technion - Israel Institute of Technology, Haifa, Israel
- 10/1998 - 06/2001: B.Sc., *summa cum laude*, GPA: 92.6/100  
Faculty of Aerospace Engineering  
Technion - Israel Institute of Technology, Haifa, Israel

### ACADEMIC APPOINTMENTS

- 01/2023 – present: Professor, Faculty of Mechanical Engineering  
Technion – Israel Institute of Technology, Haifa, Israel
- 10/2017 – 12/2022: Associate Professor, Faculty of Mechanical Engineering  
and Faculty of Biomedical Engineering (by courtesy, since 10/2019).  
Technion – Israel Institute of Technology, Haifa, Israel
- 09/2018 – 05/2019: Harrington Faculty Fellow, Department of Mechanical Engineering  
University of Texas at Austin
- 10/2011 – 09/2017: Assistant Professor, Faculty of Mechanical Engineering  
Technion – Israel Institute of Technology, Haifa, Israel
- 01/2011 – 09/2011: Postdoctoral Research Fellow, Department of Urology  
School of Medicine, Stanford University, CA, USA  
*Developed microfluidic assays for rapid detection of bacterial infections.*

### PROFESSIONAL EXPERIENCE

- 09/2006-12/2010: Graduate Research Assistant  
Department of Mechanical Engineering, Stanford University, CA, USA
- 09/2001-09/2006: Research Engineer  
R&D Directorate, RAFAEL, Advanced Defense Systems, Israel

06/2000-07/2001: Student Position  
R&D Directorate, RAFAEL, Advanced Defense Systems, Israel

## AWARDS AND HONORS

'12 - '23 **Elected 12 times as Technion excellent lecturer (top 4% of Technion)**  
2023 Crown van Guard Award for Science and Technology, Technion  
2023 Hershel Rich Technion Innovation Award, Technion  
2022 **ERC Consolidator Grant**  
2021 Hershel Rich Technion Innovation Award, Technion  
2021 **SPIE 2021 3D Printing, Fabrication, and Manufacturing Award**  
2020 Ray and Miriam Klein Fund Research Prize  
2019 Selected as one of 100 young scientists worldwide to participate in the 2<sup>nd</sup> World Laureates Association (WLA) Forum, Shanghai.  
2019 Selected by JSPS as one of 150 'Young Leaders' to participate in the 16<sup>th</sup> Science and Technology in Society (STS) Forum, Kyoto.  
2019 **Blavatnik Award for Young Scientists in Israel**  
2018 **Harrington Faculty Fellowship, University of Texas at Austin**  
2018 Hershel Rich Technion Innovation Award  
2016 **ERC Starting Grant**  
2015 Yanai Prize for Excellence in Academic Education  
2015 **Krill Prize for Excellence in Scientific Research, Wolf Foundation**  
2015 Elected to the "40 under 40" list of The Marker magazine.  
2015 Daniel Shiran Memorial Prize for an outstanding research in Bio-Medicine  
2013 The Henri Gutwirth Prize for the Promotion of Research  
2012 Horev Fellow, Leaders in Science and Technology – Taub Foundation  
2010 LabAutomation 2010 best poster award (of 170)  
2006-2010 Stanford Graduate Fellowship in Engineering and Science  
2006-2008 Fulbright Doctoral Fellowship  
2002 Best Students' Project Award, 42<sup>nd</sup> Israel Conference on Aerospace Sciences  
1998-2001 Technion's president list for academic achievements

## MILITARY SERVICE

08/2004 - 02/2006 Research Engineer at RAFAEL - Advanced Defense Systems, Israel.  
Enlisted Service, Israel Defense Forces  
08/2001 - 08/2004 Research Engineer at RAFAEL - Advanced Defense Systems, Israel.  
Mandatory Service, Israel Defense Forces.

## TEACHING EXPERIENCE

2012- present: Lecturer, Technion – Israel Institute of Technology  
*034013 Fluid Mechanics 1, undergraduate level.*  
*Elected three times as Technion excellent lecturer, top 4%.*  
*036086 Flow and transport in microdevices, graduate level.*  
*New course developed.*

035013 *Computational methods in Mechanical Engineering, undergraduate. Course redesigned.*

2008-2009: Teaching Assistant, Stanford University  
*ME 457 (graduate) - Flow in Microdevices, Spring '08,'09*  
*ME 354 (graduate) - Experimental Methods in Fluid Mechanics, Fall '09,'10*  
*Held weekly office hours, provided homework solutions, gave several guest lectures, and served as instructor for final projects.*

1999: Lecturer, ASAT, Technion Student Association  
*"Classical Mechanics" course. Lectured a three months course in classical mechanics, preparing students for Technion's classification exams in physics. Presented all lectures and was solely responsible for the development of the course syllabus, lecture notes, and homework assignments.*

## **PUBLIC PROFESSIONAL ACTIVITIES**

### **Editorial**

- Editorial advisory board member, Biomicrofluidics, American Institute of Physics (AIP), 2017-2018.

### **Conference organization**

- Conference organizer and co-chair, Batsheva de Rothschild Seminar on Physics of Microfluidics, Jan 3-8 2017, Sde-Boker, Israel. <https://2moran.wixsite.com/microfluidics2017>
- Conference organizer and chair, Harrington Symposium on Physics of Microfluidics, June 9-11 2019, Austin, Texas. <https://2moran.wixsite.com/austinmicrofluidics>

### **Reviewer for funding agencies**

- EU Horizon 2020 FETOPEN
- Israel Science Foundation (ISF)
- Binational Science Foundation (BSF)
- Azrieli Fellowships
- Banting Fellowships

### **Reviewer for archived journals**

- Advanced Materials
- Analyst
- Analytical Chemistry
- Angewandte Chemie
- Biomedical Microdevices
- Biomicrofluidics
- Biosensors and Bioelectronics

- Chemical Reviews
- Diagnostics
- Electrophoresis
- Journal of Chromatography A
- Journal of Electrostatics
- Journal of Fluid Mechanics
- Lab on a Chip
- Langmuir
- Microfluidics and Nanofluidics
- Nanoscale
- Physical Review Fluids
- Physical Review Letters
- Physics of Fluids
- PNAS
- Scientific Reports

#### Professional associations

- American Physical Society (APS)
- American Chemical Society (ACS)

#### Scientific board membership

- 2016 – 2019 Scientific board member, Pearls of Wisdom association for the advancement of nanotechnologies in Israel.

### TECHNION ACTIVITIES

- 2019 – 2022, vice dean for graduate studies in the Faculty of Mechanical Engineering.
- 2019 – 2022, member, Faculty of Mechanical Engineering search committee.
- 2018 – 2021, member, Faculty of Mechanical Engineering, committee for curriculum revision.
- 2015 – 2018, member, President's Interdisciplinary Search Committee.
- 2015, member, Faculty of Mechanical Engineering, preparation committee for international evaluation.
- 2013, member, committee for curriculum revision, nanoscience and nanotechnology program.
- 2011-2018, member, the interdepartmental committee for nanoscience and nanotechnology.

### GRADUATE STUDENTS

\* Primary adviser, unless otherwise mentioned

#### Completed M.Sc. theses

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|--|--|-----------|
| 1. Merav Karsenty  | M.Sc.                                    | 2012-2014 |
| 2. Ortal Schwartz  | M.Sc. in Nanoscience and Nanoengineering | 2012-2014 |
| Nanoscience and Nanotechnology graduate program                                  |  |           |
| Awards: Leonard and Diane Sherman Interdisciplinary Graduate School Fellow, 2013 |  |           |

3.	Nethanel Ganor	M.Sc. in Mechanical Engineering	2013-2014
	Awards: Sidney and Beatrice Wolberg Award, 2014		
	Graduated <i>summa cum laude</i>		
4.	Nadya Ostromohov	M.Sc. in Mechanical Engineering	2013-2015
5.	Ofer Dagan	M.Sc. in Mechanical Engineering	2011-2015
	Graduated <i>cum laude</i>		
6.	Rebecca Khalandovsky	M.Sc.	2014-2016
7.	Ayalon Levi	M.Sc. in Mechanical Engineering	2014-2016
8.	Dor Suki	M.Sc. in Mechanical Engineering	2021-2023

### Completed Ph.D. theses

1.	Rita Vilensky		2011-2015
	<i>Primary adviser: Assoc. Prof. Ester Segal</i>		
2.	Tal Zeidman		2012-2017
3.	Jonathan Avesar		2012-2018
	<i>Primary adviser: Prof. Shulamit Levenberg, Biomedical Engineering, Technion.</i>		
4.	Tally Rosenfeld		2012-2018
	<i>Direct track Ph.D., Azrielli Fellow.</i>		
5.	Xander van Kooten		2015-2018
6.	Federico Paratore		2014-2018
7.	Nadya Ostromohov		2015-2019
8.	Evgeniy Boyko		2014-2020
	<i>Direct track Ph.D., Adams Fellow.</i>		
9.	Ran Eshel		2016-2021
	<i>Direct track PhD.</i>		
10.	Baruch Rofman		2017-2022
11.	Vesna Bacheva		2018-2022
	<i>Co-adviser: Dr. Govind Kaigala, IBM Research Zurich.</i>		

### Ph.D. theses in progress

1.	Daniel Widerker	B.Sc., Mechanical Eng., Technion, Israel	2018-
	<i>Direct track Ph.D.</i>		
	<i>Co-adviser: Dr. Govind Kaigala, IBM Research Zurich.</i>		
2.	Israel Gabay	B.Sc., Mechanical Eng., Technion, Israel	2018-
	<i>Direct track Ph.D., Azrielli Fellow, ISEF Fellow.</i>		
	<i>Co-adviser: Assoc. Prof. Amir Gat, Technion.</i>		

## Moran Bercovici - Curriculum Vitae

3. Mor Elgarisi                      B.Sc., Mechanical Eng., Ort Braude, Israel                      2020-  
*Direct track Ph.D., ISEF Fellow, MOST Ilan Ramon Fellow, Clore Fellow.*
4. Jonathan Ericson                      B.Sc. Optical Eng., Ort Braude, Israel                      2021-  
*Direct track Ph.D.,*
5. Erez Hochman                      B.Sc. Mechanical Eng., Ben-Gurion University                      2022-  
*Direct track Ph.D., co-advised by Prof. Aaron Sprecher*

### M.Sc. theses in progress

1. Ofek Efraim                      B.Sc. Civil and Environmental Engineering, Technion                      2022-

### POST DOCTORAL SCIENTISTS

#### Former postdoctoral trainees

1. Chandra Kumar Dixit,                      Postdoc                      2013-2014  
*Ali Kaufman Fellowship*  
*The PBC Fellowship for Outstanding Post-doctoral Researchers from China and India, Council of Higher Education, 2013-2014.*
2. Shimon Rubin,                      Postdoc                      2013-2016  
*Lady Davis Postdoctoral Fellow, 2014-2016*
3. Valeri Frumkin                      Ph.D., Technion, Israel                      2016-2020

### MAJOR RESEARCH GRANTS

PERIOD	TITLE	SOURCE	AMOUNT	PI
2012-2016	Microfluidic assay for rapid multiplexed detection of bacterial urinary tract infections	EU FP7 Marie Curie PCIG9-GA-2011-293576	100K Euro	Moran Bercovici
2012-2016	Accelerated nucleic acid hybridization on surface-based biosensors using isotachopheresis	Israel Science Foundation (ISF), Research grant, 515/12 and 1698/12	2.1M NIS	Moran Bercovici
2013-2014	Electrokinetics in porous media – developing a new toolkit for high sensitivity paper based Immunoassays	German Israel Foundation (GIF), 2287-2235.5/2011	34K Euro	Moran Bercovici
2014-2018	"Virtual vials" for enhanced biomolecular analysis	EU FP7 EID, PITN-GA-2013-607322 (Coordinator)	750K Euro	Moran Bercovici (coordinator) and Govind Kaigala (IBM Research Zurich)

Moran Bercovici - Curriculum Vitae

2014-2015	Paper-based microfluidic device for high sensitivity biomolecular diagnostics using isotachopheresis	Ministry of Economy, NOFAR 50660	500K NIS	Moran Bercovici
2015-2016	Microfluidic platform for amplification-free detection of pathogens using isotachopheresis and peptide nucleic acids	Mérieux Research Grants	100K Euro	Moran Bercovici
2016-2021	Dynamic Microfluidic Structures for Analysis of Single Cell Systems	European Research Council (ERC) Starting grant #678734	1.75M Euro	Moran Bercovici
2017-2020	Electroosmotic control of flow patterns on superhydrophobic surfaces	German Israel Foundation (GIF), I-1346-401.10/2016	180K Euro	Moran Bercovici and Steffen Hardt (TU Darmstadt)
2019-2022	3D bio-integrated microfluidics for miniaturized medical devices	Ministry of Science and Technology	165K USD	Moran Bercovici
2020-2021	Bidirectional flow filter: microfluidic device for separation of biomolecules	ERC PoC	150K Euro	Moran Bercovici
2020-2021	Exosome separation using bidirectional electroosmotic flow	Merck GmbH	130K Euro	Moran Bercovici
2020-2021	Amplification-free detection of viral RNA using isotachopheresis and morpholino probes	Israel Innovation Authority	440K NIS	Moran Bercovici
2020-2024	Tunable bidirectional electroosmotic flow for diffusion-based separation, with applications to microscale sample preparation and biomolecular analysis	Israel Science Foundation (ISF)	1.2M NIS	Moran Bercovici
2021-2022	Fabrication of optical components in space by Fluidic Shaping	Ministry of Science and Technology	250k NIS	Moran Bercovici

2022-2027	Fluidic shaping of optical components on earth and in space	ERC consolidator grant	2.34M Euro	Moran Bercovici
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## PUBLICATIONS

Throughout, trainees under my supervision are underlined. Presenters in conferences marked in **bold**.

### Theses

T1. Bercovici M., "High resolution simulations of isotachopheresis and experimental studies of indirect detection and identification of analytes using fluorescent carrier ampholytes," Ph.D. dissertation, Stanford University, California, 2010. Adviser: Prof. Juan G. Santiago.

T2. Bercovici M., "Evolution of Forebody Vortices over Slender Bodies at High Angles of Attack," M.Sc. Thesis, Faculty of Aerospace Engineering, Technion, Israel, 2006. Adviser: Prof. Gil Iosilevskii.

### Refereed papers in professional journals

- J1. Bercovici M., Lele S.K., and Santiago J.G. (2009), "Open source simulation tool for electrophoretic stacking, focusing, and separation," *Journal of Chromatography A*, **1216**, 1008–1018. (Featured in Science News, PhysOrg, and Chemical and Engineering News)
- J2. Bercovici M., Lele S.K., and Santiago J.G. (2010), "Compact adaptive-grid scheme for high numerical resolution simulations of isotachopheresis," *Journal of Chromatography A*, **1217**, 588-599.
- J3. Bahga S.S., Bercovici M., and Santiago J.G. (2010), "Ionic strength effects on electrophoretic focusing and separations," *Electrophoresis*, **31**, 910–919. 19
- J4. Bercovici M., Kaigala G.V., Backhouse C.J., and Santiago J.G. (2010), "Fluorescent carrier ampholytes assay for portable, label-free detection of chemical toxins in tap water," *Analytical Chemistry*, **82**, 1858–1866. (Featured as "Toxin detection, in the palm of your hand" in Analytical Chemistry)
- J5. Bercovici M., Kaigala G.V., and Santiago J.G. (2010), "Method for analyte identification using isotachopheresis and a fluorescent carrier ampholytes assay," *Analytical Chemistry*, **82**, 2134–2138.
- J6. Kaigala G .V., Bercovici M., Behnam M., Elliott D., Santiago J.G. (2010), and Backhouse C.J., "Miniaturized system for isotachopheresis assays", *Lab on a Chip*, **17**, 2242.
- J7. Bahga S.S., Kaigala G.V., Bercovici M., and Santiago J.G. (2011), "High sensitivity indirect chemical detection using on-chip isotachopheresis with variable cross-section geometry", *Electrophoresis*, **32**, 563–572.



- J8. Bercovici M., Kaigala G.V., Mach K.E., Han C.M., Liao J.C., and Santiago J.G. (2011), "Rapid detection of urinary tract infections using isotachopheresis and molecular beacons", *Analytical Chemistry*, **83**, 4110-4117.
- J9. Garcia G., Bercovici M., Marshall L.A., and Santiago J.G. (2011), "Sample dispersion in isotachopheresis", *Journal of Fluid Mechanics*, **679**, 455-475.
- J10. Mohan, R., Mach, K.E., Bercovici, M., Pan, Y. (2011), Dhulipala, L., Wong, P.K. and Liao, J.C., "Clinical Validation of Integrated Nucleic Acid and Protein Detection on an Electrochemical Biosensor Array for Urinary Tract Infection Diagnosis" *PLoS ONE*, **6**, e26846.
- J11. Bercovici M. Han C.M., Liao J.C. (2012), and Santiago J.G. "Rapid DNA hybridization using isotachopheresis", *Proceedings of the National Academy of Sciences*, **109**, 11127–11132.
- J12. Bahga S.S., Bercovici M., and Santiago J.G. (2012), "Robust and high-resolution simulations of nonlinear electrokinetic processes in variable cross-section channels", *Electrophoresis*, **33**, 3036-3051.
- J13. Rubin S., Schwartz O., and Bercovici M. (2014), "Sample distribution in peak mode isotachopheresis.", *Physics of Fluids* **26**, 012001.
- J14. Karsenty M., Rubin S., and Bercovici M. (2014), "Accelerated surface hybridization reactions using isotachopheretic focusing", *Analytical Chemistry*, **86 (6)**, 3028–3036.
- J15. Dagan O. and Bercovici M., (2014), "Simulation tool coupling non-linear electrophoresis and reaction kinetics for design and optimization of biosensors", *Analytical Chemistry* **86 (15)**, 7835-7842.
- J16. Schwartz O. and Bercovici M., (2014) "Microfluidic Assay for Continuous Bacteria Detection Using Antimicrobial Peptides and Isotachopheresis", *Analytical Chemistry* **86 (20)**, 10106-10113.
- *Selected as ACS Editors' choice.*
  - *Featured on Chemical and Engineering News.*
  - *Featured on the cover page of Analytical Chemistry*
- J17. Rosenfeld T. and Bercovici M., (2014), "1000-fold sample focusing on paper-based microfluidic devices", *Lab on a Chip*, **14**, 4465-4474.
- *Featured on the cover page of Lab on a Chip*
  - *Featured on Material Research Society*
  - *Chosen as Lab on a Chip highest impact papers (top 10%)*
- J18. Karsenty M., Rosenfeld T., Gommed K., and Bercovici M., (2015) "Current monitoring in microchannel with repeated constrictions for accurate detection of sample location in isotachopheresis", *Analytical Chemistry* **87 (1)**, 388–393.
- J19. Ostromohov N., Schwartz O., and Bercovici M., (2015), "Focused upon Hybridization: Rapid and High Sensitivity Detection of DNA Using Isotachopheresis and Peptide Nucleic Acid Probes", *Analytical Chemistry* **87 (18)**, 9459–9466.
- J20. GanOr N., Rubin S., Bercovici M., (2015), "Diffusion dependent focusing regimes in peak mode counterflow isotachopheresis", *Physics of Fluids* **27**, 072003.

- J21. Vilensky R., Bercovici M., Segal E., (2015), "Oxidized porous silicon nanostructures enabling electrokinetic transport for enhanced DNA detection", *Advanced Functional Materials* **25**, 6725–6732
- *Featured on the cover page of Advanced Functional Materials*
- J22. Boyko E., Rubin S., Gat A.D., and Bercovici M., (2015), "Flow Patterning in Hele-Shaw Configurations using Non-Uniform Electroosmotic Slip", *Physics of Fluids* **27**, 102001.
- J23. Ostromohov N., Bercovici M., and Kaigala G. V., (2016), "Delivery of Minimally Dispersed Liquid Interfaces for Sequential Surface Chemistry", *Lab on a Chip* **16**, 3015-3023.
- *Featured on the back cover of Lab on a Chip*
- J24. Boyko E., Bercovici M., and Gat A.D., (2016), "Flow of Power-Law Liquids in a Hele-Shaw Cell Driven by Non-Uniform Electroosmotic Slip in the Case of Strong Depletion", *Journal of Fluid Mechanics*, vol. **807**, 235-257.
- J25. Rubin S., Suss M., Bieshaveul M., and Bercovici M., (2016) "Induced-Charge Capacitive Deionization: The Electrokinetic Response of a Porous Particle to an External Electric Field", *Physical Review Letters*, **117**, 234502.
- J26. Rubin S., Tulchinsky A., Gat A.D., and Bercovici M., (2017), "Elastic deformations driven by non-uniform lubrication flows", *Journal of Fluid Mechanics*, **812**, 841-865.
- J27. Paratore F., Zeidman-Kalman, T., Rosenfeld T., Kaigala G.V., and Bercovici M., (2017) "Isotachoporesis-based surface immunoassay", *Analytical Chemistry* **89**, 7373-7381.
- *Featured on the front cover of Analytical Chemistry.*
- J28. Avesar J., Dado D., Truman M., Geffen Y., Bercovici M., Levenberg S., (2017) "Rapid phenotypic antimicrobial susceptibility testing using Stationary Nanoliter Droplet Arrays", *Proceedings of the National Academy of Sciences*, **114**, E5787–E5795.
- J29. Boyko E., Bercovici M., and Gat A.D., (2017), "Viscous-elastic dynamics of power-law fluids within an elastic cylinder ", *Physical Review Fluids* **2**, 73301.
- J30. van Kooten X.F., Truman-Rosentsvit M., Kaigala G.V., and Bercovici M., (2017), "Focusing analytes from 10 uL into 500 pL: on-chip processing of large volumes using isotachophoresis", *Scientific Reports*, **7**, 10467.
- J31. Arshavsky-Graham S., Massad-Ivanir N., Paratore F., Scheper T., Bercovici M. and Segal E. (2017), On Chip Protein Pre-Concentration for Enhancing the Sensitivity of Porous Silicon Biosensors, *ACS Sensors*, **2** (12), 1767–1773 .
- J32. Zeidman Kalman T., Khalandovsky R., Tenenbaum E., and Bercovici M., (2018) "Monitoring Dissociation Kinetics during Electrophoretic Focusing to Enable High-Specificity Nucleic Acid Detection ", *Angewandte Chemie International Edition*, **57**, 3343-3348.
- *Selected as a 'Hot Paper'*
- J33. Rosenfeld T., Bercovici M., (2018) "Amplification-free detection of DNA in a paper-based microfluidic device using electroosmotically balanced isotachophoresis", *Lab on a Chip*, **18**, 861-868.
- *Featured on the cover of Lab on a Chip*

- J34. Ostromohov N., Huber D., Bercovici M., and Kaigala G.V. (2018), "Real-time monitoring of fluorescence in situ hybridization kinetics", *Analytical Chemistry*, **90**, 11470–11477.
- *Featured on the cover of Lab on a Chip*
- J35. Avesar, J.; Blinder, Y.; Aktin, H.; Szklanny, A.; Rosenfeld, D.; Savir, Y.; Bercovici, M.; and Levenberg, S (2018), "Nanoliter Cell Culture Array with Tunable Chemical Gradients", *Analytical Chemistry*, **90**, 7480-7488.
- J36. van Kooten, X.F., Bercovici, M., and Kaigala, G.V. (2018), Extraction of electrokinetically separated analytes with on-demand encapsulation, *Lab on a Chip*, **18**, 3588-3597.
- *Selected as 'Hot Paper'*
- J37. Rosenfeld T., Bercovici M., (2019) "Dynamic control of capillary flow in porous media by electroosmotic pumping", *Lab on a Chip*, **19**, 328-334.
- J38. Boyko E., Eshel R., Gommed K., Gat A.D., and Bercovici M., (2019) "Elastohydrodynamics of a pre-stretched finite elastic sheet lubricated by a thin viscous film with application to microfluidic soft actuators", *Journal of Fluid Mechanics*, **862**, 732-752.
- J39. Paratore F., Boyko E., Kaigala G. V. and Bercovici M. (2019), "Electroosmotic flow dipole: Experimental observation and flow field patterning", *Physical Review Letters*, **122**, 224502.
- J40. Paratore F., Bacheva V., Kaigala G. V. and Bercovici M. (2019), "Dynamic microscale flow patterning using electrical modulation of zeta potential", *Proceedings of the National Academy of Sciences*, **116**, 10258-10263.
- J41. Frumkin V. and Bercovici M., (2019), "Dipolar thermocapillary motor and swimmer", *Physical Review Fluids*, **4**, 074002.
- J42. Van Kooten X.F., Petrini L.F.T., Kashyap A., von Voithenberg L.V., Bercovici M., and Kaigala G.V. (2019), "Spatially resolved genetic analysis of tissue sections enabled by microscale flow confinement retrieval and isotachophoretic purification", *Angewandte Chemie International Edition* **58**, 1–5.
- J43. Ostromohov N., Rofman B., Bercovici M., and Kaigala G.V. (2019), "Electrokinetic Scanning Probe", *Small* **2019** 1904268.
- J44. Boyko E., Eshel R., Gat A.D, and Bercovici M. (2020), "Non-uniform electro-osmotic flow drives fluid-structure instability", *Physical Review Letters*, **124**, 024501.
- J45. Bacheva V., Paratore F., Kaigala G.V., and Bercovici M. (2020), "Tunable bidirectional electroosmotic flow for diffusion-based separation", *Angewandte Chemie International Edition*, **132**, 2-8.
- *Selected as 'Very Important Paper'*
- J46. Dehe S., Rofman B., Bercovici M., and Hardt S., (2020), "Electroosmotic flow enhancement over superhydrophobic surfaces", *Physical Review Fluids*, **5**, 053701.
- J47. Rofman B., Dehe S., Hardt S., and Bercovici M., (2020), "Intermediate states of wetting on hierarchical superhydrophobic surface", *Langmuir*, **36**, 20, 5517-5523.

- J48. Boyko E., Bercovici M., and Gat A.D. (2020), "Interfacial instability of thin films in soft microfluidic configurations actuated by electro-osmotic flow", *Physical Review Fluids*, 5, 104201.
- J49. Spitzberg, J., D.; van Kooten, X., F.; Bercovici, M.; and Meller, A., (2020) "Microfluidic device for coupling isotachophoretic sample focusing with nanopore single-molecule sensing", *Nanoscale*, **12(34)**: 17805-17811.
- J50. Gordon R., Weiss L.E., Eshel R., Ferdman B., Nehme E., Bercovici M., and Shechtman Y., (2020) "Dynamic Three-Dimensional Microscopic Surface Profiling by Point-Spread-Function Engineering", *Science Advances*, **6** (44), eabc0332.
- J51. Widerker D., Paratore F., Bercovici M., and Kaigala G.V., (2020) "Biointegrated fluidic milling", *Advanced Materials Technologies*, 200843.
- J52. Frumkin V., Bercovici M., (2021), "Fluidic shaping of optical components", *Flow*, 1 E1.
  - *Inaugural paper of the journal.*
- J53. Boyko E., Bacheva V. Eigenbrod M., Paratore F., Gat A.D., Hardt S., and Bercovici M., (2021) "Microscale Hydrodynamic Cloaking and Shielding via Electro-Osmosis", *Physical Review Letters*, 126, 184502.
  - *Selected as Editors' Suggestion, featured on APS Magazine and phys.org.*
- J54. Elgarisi M., Frumkin M., Luria O., and Bercovici M., (2021) "Fabrication of freeform optical components by fluidic shaping", *Optica*, Vol. 8, Issue 11, 1501-1506.
  - *Featured on Optica Optics and Photonics News, AAAS.*
- J55. Gabay I., Paratore F., Boyko E., Ramos A., Gat A.D., and Bercovici M., (2021) "Shaping liquid films by dielectrophoresis", *Flow*, 1 E13.
- J56. Paratore F., Bacheva V., Bercovici M., and Kaigala G.V., (2021) "Reconfigurable microfluidics", *Nature Reviews Chemistry*, 6, 70-80.
- J57. Bacheva V., Paratore F., Dolev M.B., Rofman B., Kaigala G.V., and Bercovici M., (2022) "Selective extraction of biomolecules using a bidirectional flow filter", *Analytical Chemistry*, 94, 30, 10584-10588.
- J58. Rofman B., Naddaf R., Bar-Dolev M., Gefen T., Ben-Assa N., Gev-Zatorsky N., and Bercovici M., (2022) "Automated device for multi-stage paper-based assays enabled by an electroosmotic pumping valve", *Lab on a Chip*, <https://doi.org/10.1039/D2LC00572G>.
  - *Selected as HOT article*
- J59. Eshel R., Frumkin F., Nice M., Luria O., Ferdman B., Opatovski N., Gommed K., Shusteff M., Shechtman Y., and Bercovici M., (2022) "Programmable thermocapillary shaping of thin liquid films", *Flow*, 2 E27.
- J60. Bacheva V., Firouzeh A., Leroy E., Balciunaite A., Davila D., Gabay I., Paratore F., Bercovici M., Shea H., Kaigala G., (2023) "Dynamic control of high-voltage actuator arrays by light-pattern projection on photoconductive switches", *Microsystems and Nanoengineering* 9, 59.

- J61. Gabay I., Bacheva V., Ilisar D., Bercovici M., Ramos A., and Gat A.D., (2023) "Dynamics of fixed-volume pinned films—dealing with a non-self-adjoint thin-film problem", *Journal of Fluid Mechanics*, 969, A17.
- J62. Luria O., Elgarisi M., Frumkin V., Razin A., Ericson J., Gommed K., Widerker D., Gabay I., Belikov R., Bookbinder J., Balaban E., and Bercovici M., (2023) "Fluidic Shaping and in-situ Measurement of Liquid Lenses in Microgravity", *npj Microgravity* 9 (1), 74.
- J63. Widerker D., Kaigala G.V., Bercovici M., (2023) "Additive manufacturing of multi-metal microstructures by localized electrochemical deposition under hydrodynamic confinement", *Advanced Material Technologies*, 2301290.

## Patents

(Only granted patents are listed. Additional patents pending.)

- P1. Frumkin, Valeri, Moran Bercovici, Shimon Rubin, and Carmel Rotschild. "Thermally-actuated devices and use thereof." US-11,294,205.
- P2. Meller, Amit, Moran Bercovici, Xander Frank Van Kooten, and Joshua Spitzberg. "Devices and methods for improved single-molecule detection." US-11,364,499.
- P3. Kaigala G., Paratore F., Gokce O, Bercovici M., van Kooten X., Electrokinetically separating, encapsulating and extracting analytes on a microfluidic device, US-11117131-B2, 2021.
- P4. Bercovici M., Kaigala G., van Kooten X.F., Ostromohov N., Paratore F., *Device and method for isotachophoretic focusing large sample volumes*, US-11119068-B2.
- P5. Bercovici M. and Karsenty M., *Method and device for accelerated surface-based reactions*, US-10890559-B2, 2021.
- P6. Kaigala G.V., Ostromohov N., Bercovici M., *Electro-kinetic device for species exchange*, US-10710079-B2, 2020.
- P7. Bercovici G., Kaigala G.V., van Kooten X.F, Ostromohov N., Paratore F., *Characterizing kinetic responses of a ligand-functionalized surface*, US-10564158-B2, 2020.
- P8. Bercovici M., Schwartz O., *Continuous cell detection by isotachophoresis*, US-10527584-B2, 2020.
- P9. Bercovici M., Ostromohov N., Schwartz O., *Detection of genetic sequences using PNA probes and Isotachophoresis*, US-10301669-B2, 2019.
- P10. Bercovici M., Karsenty M., Rosenfeld T., *Methods of isotachophoresis detection*, US-10281427-B2, 2019.
- P11. Chambers R.D., Santiago J.G., Bercovici M., *Non-focusing tracers for indirect detection in electrophoretic displacement*, US-8721858-B2, 2014.
- P12. Santiago J.G., Bercovici M., Kaigala G.V., Chambers R.D., *Fluorescent finger prints for indirect detection in isotachophoresis*, US-8562804-B2, 2013.

## INVITED LECTURES

### Invited lectures at conferences

- IL1. **Bercovici M.** Han C.M., Santiago J.G. and Liao J.C., “10,000 fold acceleration of DNA hybridization using isotachopheresis, and applications to rapid disease diagnostics”, *Annual conference of the Israel Institute of Chemical Engineers*, Tel Aviv, May 1<sup>st</sup> 2013.
- IL2. **Bercovici M.**, “Isotachopheresis based biosensors”, *The second conference of The Israel Society for Biotechnology Engineering (ISBE)*, Tel Aviv, Dec 1<sup>st</sup> 2013.
- IL3. **Bercovici M.**, “Isotachopheresis based biosensors”, *Nano-Israel*, Tel Aviv, Mar 24<sup>th</sup> 2014.
- IL4. Rosenfeld T., Paratore F., Zeidman T., and **Bercovici M.**, “Electrokinetically Enhanced Microfluidic Paper-Based Analytical Devices,” 33<sup>rd</sup> IVS Annual Conference, Weizmann Institute, Israel, September 9 2015.
- IL5. Rosenfeld T. and **Bercovici M.**, “Boosting the sensitivity of paper-based biosensors using isotachopheresis,” Negev Global Issues, Ben-Gurion University, Beer Sheva, May 27 – June 1, 2015.
- IL6. Bercovici M., “Enhanced biomolecular analysis using isotachopheresis”, Israeli Geneticists Conference, Rambam Healthcare campus, Haifa, November 20 2015.
- IL7. **Bercovici M.**, “Virtual Vials – Microfluidic devices for rapid bimolecular diagnostics”, Israel Society for Clinical Laboratory Sciences (ISCLS), Tel Aviv, Israel March 29-30 2016. ([plenary](#))
- IL8. F. Paratore, X. van Kooten, N. Ostromohov, T. Rosenfeld, T. Zeidman, R. Khalandovsky, G.V. Kaigala, and **M. Bercovici**, “Biosensing using isotachopheresis”, Batsheva de Rotshchild Seminar on New Concepts in Biosensing, Ein Bokek, Feb 12-16, 2017.
- IL9. **M. Bercovici**, Lab on a Chip and Microfluidics World Congress, San-Diego, Oct 2-4, 2017. ([keynote](#))
- IL10. **M. Bercovici**, SPIE Photonics West, San Francisco, Jan 27 – Feb 1, 2018. ([keynote](#))
- IL11. **M. Bercovici**, 34<sup>th</sup> international Symposium on Microscale Separations and Bioanalysis (MSB2018), Rio de Janeiro, Brazil, Feb 18-22, 2018. ([keynote](#))
- IL12. **M. Bercovici**, Lab on a Chip and Microfluidics Europe, Rotterdam, June 5-6, 2018. ([plenary](#))
- IL13. **M. Bercovici**, 17th Brazilian Congress of Thermal Sciences and Engineering (ENCIT2018), Águas de Lindóia, State of Sao Paulo, Brazil, Nov 25-28, 2018. ([keynote](#))
- IL14. **M. Bercovici**, 16<sup>th</sup> International Interdisciplinary Conference on Bioanalysis (CECE2019), Gdansk, Poland, Sep 24-26, 2019. ([keynote](#))
- IL15. **M. Bercovici**, Micro-swimmers and soft-robotics, Haifa, Israel, Feb 2-4, 2020.
- IL16. **M. Bercovici**, 2nd Annual Conference on Chemical Sensors for Wearable Devices invitation, Haifa, Israel, Feb 4-5, 2020.

- IL17. **M. Bercovici**, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, IL, Mar 2-5, 2020.
- IL18. **M. Bercovici**, 37th International Symposium on Microscale separation and Bioanalysis (MSB 2021), Virtual Edition, July 13, 2021. ([keynote](#))
- IL19. **M. Bercovici**, 14<sup>th</sup> International Symposium on Electrokinetics (ELKIN 2022), July 4-6 2022.
- IL20. **M. Bercovici**, Gordon Research Conference (GRC) - Physics and Chemistry of Microfluidics, Lucca, Italy, June 2023.

### Invited lectures at seminars and academic symposia

- IL21. Nanotechnology Symposium, Stanford Institute for Immunity Transplantation and Infection, Aug 2011
- IL22. Nanoscience Symposium, Universitat Autònoma de Barcelona, Nov 2012
- IL23. Jacob Blaustein Institute for Desert Research, Ben-Gurion University, Sede Boker, Dec 2012
- IL24. Medical technological innovation, Rambam Hospital, Feb 2013
- IL25. Department of Chemistry, Heidelberg University, Nov 2013
- IL26. Center for Smart Interfaces, Technical University Darmstadt, Nov 2013
- IL27. Department of Chemical Engineering Seminar, Ben Gurion University, Dec 2013
- IL28. Center for Bioengineering, University of California in Santa Barbara, July 2014
- IL29. Department of Mechanical Engineering, University of Texas in Austin, Oct 2014
- IL30. Innovation forum of the food industry, The Hebrew University, Rehovot, Nov 2014
- IL31. Israel Institute for Biological Research, Ness Ziona, Israel, Feb 2015
- IL32. Researchers conference at Ha'Emek Hospital, Afula, Israel Oct 2015
- IL33. Department of Biomedical Engineering, Ben-Gurion University, Jan 2016
- IL34. *Quo Vadis Chemie* Lecture Series, Charles University, Prague, Mar 2016
- IL35. ICB seminar series, Institute for Chemical and Bioengineering, ETH Zurich, Dec 2016
- IL36. Kohlrausch Seminar, Charles University, Prague, June 2017
- IL37. Department of Mechanical Engineering, University of Texas at Austin, Oct 2018
- IL38. Department of Chemistry, York University, Toronto, Mar 2019
- IL39. Department of Chemistry, University of Toronto, Toronto, Mar 2019
- IL40. Department of Chemistry, University of Texas at Austin, Mar 2019
- IL41. Department of Chemical and Biological Engineering, Colorado State University, May 2019
- IL42. Department of Mechanical Engineering, University of Colorado Boulder, May 2019

- IL43. NASA Goddard Space Center Engineering Colloquium, Sep 2020
- IL44. Department of Chemical Physics, Tel Aviv University, Oct 2020
- IL45. Fluids Under Confinement lecture series webinar at IIT Kharagpur, Mar 2021
- IL46. Cornell Fluids Seminar, Aug 2021
- IL47. Flow Journal Webinar, Oct 2021
- IL48. Department of Mechanical Engineering, Stanford University, Dec 2021
- IL49. The Inter-University Institute for Marine Sciences, March 2023
- IL50. Racademy, Rafael, March 2023
- IL51. Department of Material Science, Ben Gurion University of the Negev, March 2023
- IL52. MicroTAStic Seminar series, May 2023

## CONFERENCES

### Refereed papers in conference proceedings

- C1. **Bercovici M.**, Bachar O., Bendak S., Ben-Oz Y., Brandeis Y., Detinis I., Epshtein O., Landsman Y., Moldavsky Y., Rabinovich S., Usvyatsov Y., and Atir Y., "Design of twin maneuvering microsatellites for research of the dynamics of the magnetic Field", *42<sup>nd</sup> Israel Annual Conference on Aerospace Sciences*, Tel Aviv, Israel, 2002.
- C2. **Bercovici M.**, Arad A., Seifert A., and Yehoshua T., "On the computational modeling of synthetic Jet actuators", *46<sup>th</sup> Israel annual conference on aerospace sciences*, Tel-Aviv, Israel, 2006.
- C3. **Bercovici M.**, Iosilevskii G., and Arad E., "Evolution of forebody vortices over slender bodies at high angles of attack," *47<sup>th</sup> Israel annual conference on aerospace sciences*, Tel-Aviv, Israel, 2007.
- C4. Khurana T., Bercovici M., **Santiago J.G.**, "Indirect fluorescence detection of non fluorescent analytes using isotachophoretic mobility markers," *The Sixth International Conference on Nanochannels, Microchannels, and Minichannels*, Darmstadt, Germany. June 23-25, 2008.
- C5. **Bercovici M.**, Lele S.K. and Santiago J.G., "A fast and accurate isotachopheresis simulation tool", *Proceedings of the 12th International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS2008)*, San Diego, USA, October 12-16, 2008.
- C6. Bercovici M., Kaigala G.V., Behnam M., Elliott D., **Santiago J.G.**, and Backhouse C.J., "Portable instrument and assay for label free detection of toxins in tap water," *Proceedings of the 13th International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS2009)*, Jeju, Korea, November 1-5, 2009.
- C7. **Bahga S.S.**, Kaigala G.V., Bercovici M., and Santiago J.G., "Strongly convergent channels for high sensitivity label-free chemical detection using isotachopheresis," *Proceedings of the 14th*



*International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS2010)*, Groningen, Netherlands, November 3-7, 2010.

- C8. Bercovici M., Kaigala G.V., Liao J.C., and **Santiago J.G.**, "Rapid and high sensitivity detection of urinary tract infections using isotachopheresis," *Proceedings of the 14th International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS2010)*, Groningen, Netherlands, November 3-7, 2010.
- C9. Bercovici M., **Han C.M.**, Liao J.C., and Santiago J.G., "Rapid DNA hybridization reactions using isotachopheresis," *Proceedings of the 15th International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS2011)*, Seattle, Washington, October 2-6, 2011.
- C10. **Dagan O.** and Bercovici M., "Novel simulation tool coupling non-linear electrophoresis and reaction kinetics", *Proceedings of the 16th International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS2012)*, Okinawa, Japan, October 28 – November 1, 2012.
- C11. **Ostromohov N.**, **Schwartz O.**, and Bercovici M., "Leveraging peptide nucleic acid probes and isotachopheresis for on-chip high sensitivity detection of DNA", *Proceedings of the 17th International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS2013)*, Freiburg, Germany, October 27 – 31, 2013.
- C12. **Rosenfeld T.** and Bercovici M., "1000-fold sample focusing on paper-based microfluidic devices", *Proceedings of the 18th International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS2014)*, San Antonio, Texas, October 26 – 30, 2014.
- C13. **Karsenty M.**, **Rosenfeld T.**, Gommed K., and Bercovici M., "1000-fold acceleration of surface biosensors using isotachopheresis", *Proceedings of the 18th International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS2014)*, San Antonio, Texas, October 26 – 30, 2014.
- C14. **Paratore F.**, **Zeidman-Kalman, T.**, **Rosenfeld T.**, Kaigala G.V., and Bercovici M., "Isotachopheresis based surface immunoassay". *Proceedings of the 20th International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS2016)*, Dublin, Ireland, October 9-13, 2016.
- C15. **van Kooten X.F.**, **Truman-Rosentsvit M.**, **Kaigala G.V.**, and **Bercovici M.**, "Focusing analytes from 10 uL into 500pL: on-chip processing of large volumes using isotachopheresis". *Proceedings of the 20th International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS2016)*, Dublin, Ireland, October 9-13, 2016.
- C16. **Ostromohov N.**, Bercovici M., and Kaigala G. V. (2016), "Delivery of Minimally Dispersed Liquid Interfaces for Sequential Surface Chemistry", *Proceedings of the 20th International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS2016)*, Dublin, Ireland, October 9-13, 2016.
- C17. **Ostromohov N.**, Bercovici M., and Kaigala G. V. (2017), "Electrokinetic scanning probe for biomolecular analysis", *Proceedings of the 21th International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS2017)*, Georgia, USA, October 22-26, 2017.

- C18. **Paratore F.**, Kaigala G. V., and Bercovici M. (2017), "Patterning electro-osmotic flow using non-uniform surface charge in a Hele-Shaw cell", *Proceedings of the 21th International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS2017)*, Georgia, USA, October 22-26, 2017.
- C19. **Paratore F.**, Bacheva V., Rubin S., Bercovici M. and Kaigala G. V., "Diffusion-Based Separation Using Non-Uniform Electroosmotic Flow", *Proceedings of the 22nd International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS2018)*, Kaohsiung, Taiwan, Nov 11–15, 2018.
- C20. **Paratore F.**, **Boyko E.**, Gat A., Kaigala G. V. and **Bercovici M.**, "Toward Microscale Flow Control Using Non-Uniform Electro-Osmotic Flow", *Proceedings of SPIE 10491, Microfluidics, BioMEMS, and Medical Microsystems XVI, 104910P, SPIE BIOS, San Francisco, California, United States, 2018.*
- C21. **Bacheva, V.**, **Paratore, F.**, Rubin, S., Kaigala, G. V., Bercovici, M., "Size-based biomolecular separation enabled by field-effect electroosmosis", *Proceedings of the 23rd International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS2019)*, Basel, Switzerland, Oct 27–31, 2019.
- C22. **Widerker D.**, Paratore F., Bercovici M., Kaigala G. V., "Biointegrated Subtractive Microfabrication by Hydrodynamic Flow Confinement", *2020 IEEE 33rd International Conference on Micro Electro Mechanical Systems (MEMS), Vancouver, BC, Canada, pp. 102-105, 2020.*
- C23. **Bacheva, V.**, **Paratore, F.**, **Dolev, M. B.**, **Rofman, B.**, Kaigala, G. V., Bercovici, M., "Selective extraction of biomolecules using a bidirectional flow filter", *Proceedings of the 25th International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS2021)*, Palm Springs, California, USA, Oct 10-14, 2021. ([Best talk award](#))
- C24. **Vesna Bacheva**, Amir Firouzeh, Edouard Leroy, Aiste Balciunaite, Diana Davila, **Israel Gabay**, Federico Paratore, Moran Bercovici, Herbert Shea, Govind Kaigala, "Photoconductive switching of a high-voltage actuator array", *2022 IEEE 35th International Conference on Micro Electro Mechanical Systems (MEMS)*, Tokyo, Japan, Jan 9-13 2022.
- C25. **Baruch Rofman** , Rawi Naddaf , Maya Bar-Dolev , Tal Gefen, Nadav Ben-Assa , Naama Geva-Zatorsky, and Moran Bercovici, "Electroosmotic pumping valve for automation of multi-step paper-based assays", *Proceedings of the 26th International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS2022)*, Hangzhou, China, Oct 23-27, 2022.
- C26. **Daniel Widerker**, Govind V. Kaigala, Moran Bercovici, (2023) "Localized electrochemical deposition of multi-metal structures by hydrodynamic flow confinement", *The 22<sup>nd</sup> international conference on solid-states sensors, actuators, and microsystems (Transducers2023)*, Kyoto, Japan, June 25-29, 2023.

## Non-refereed conference presentations and posters

1. **Bercovici M.**, Lele S.K., and Santiago J.G., "Simulation and optimization of isotachophoresis", *Thermal and Fluid Sciences Affiliates and Sponsors Conference*, Stanford, CA, February 6-8, 2008.
2. **Bercovici M.**, Lele S.K., and Santiago J.G., "Simulation and optimization of isotachophoresis", Invited, Department of Applied Chemistry, The University of Tokyo, Tokyo, Japan, March 26, 2008.
3. **Bercovici M.** and Santiago J.G., "Dispersion in isotachophoresis", *61<sup>st</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics*, San Antonio, Texas, November 23-25, 2008.
4. **Kaigala G.V.**, **Bercovici M.**, Chambers R.D., Backhouse C.J., and Santiago J.G., "Portable instrument for label-free toxin detection," *DARPA N/MEMS S&T Fundamentals meeting*, Sun River, Oregon, USA, July 8, 2009.
5. **Kaigala G.V.**, Bercovici M., Chambers R.D., Behnam M., Elliott D., Santiago J.G., and Backhouse C.J., "Portable instrument for label-free toxin detection," *Gordon Research Conference on Physics and Chemistry of Microfluidics*, Lucca, Italy, June 28-July 3, 2009.
6. **Bercovici M.**, Kaigala G.V., Behnam M., Elliott D., Santiago J.G., and Backhouse C.J., "Fluorescent finger prints for toxin detection in untreated tap water," *Gordon Research Conference on Physics and Chemistry of Microfluidics*, Lucca, Italy, June 28-July 3, 2009.
7. **Garcia G.**, Bercovici M. and Santiago J.G., "Numerical and experimental study of dispersion dynamics in isotachophoresis," *62<sup>nd</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics*, Minneapolis, Minnesota, November 22-24, 2009.
8. **Bercovici M.**, Kaigala G.V., Backhouse C.J., and Santiago J.G., "Fluorescent carrier ampholyte assay for label-free detection and identification of analytes via isotachophoresis," *13th Annual Meeting of the Israel Analytical Chemistry Society*, Tel-Aviv, Israel, January 19-20, 2010.
9. **Kaigala G.V.**, Bercovici M., Bahga S.S., Behnam M., Elliott D., Backhouse C.J., and Santiago J.G., "Rapid chemical detection and identification with a hand-held device," *Lab Automation 2010 Conference*, Palm Springs, California, January 24-27, 2010. ([Selected as finalist for the 2010 Lab Automation Innovation Award](#))
10. **Bercovici M.**, Kaigala G.V., Backhouse C.J., and Santiago J.G., "Label-Free Toxin Detection Using Fluorescent Fingerprint Assay" *Lab Automation 2010 Conference*, Palm Springs, California, January 24-27, 2010. ([Best poster award, of 174 posters](#)).
11. Bercovici M., Kaigala G.V., Bahga S.S., Backhouse C.J., and **Santiago J.G.**, "Rapid chemical detection and identification in a hand held device", *2010 International Chemical Congress of Pacific Basin Societies (Pacifichem)*, Honolulu, Hawaii, December 15-20, 2010. (Invited plenary lecture, presented by B.S.S.)
12. **Bercovici M.**, Kaigala G.V., Mach K.E., Liao J.C., and Santiago J.G., "Novel assay and system for rapid diagnostics of urinary tract infections using on-chip isotachophoresis and molecular beacons" *Lab Automation 2011 Conference*, Palm Springs, California, January 29-February 2, 2011.

13. **Garcia-Schwarz, G.**, M. Bercovici, L.A. Marshall, J.G. Santiago, "Sample dispersion in isotachophoresis", *BioX Interdisciplinary Initiatives Symposium*, Stanford, California, March 11, 2011.
14. M. Bercovici, **C.M. Han**, J.G. Santiago, "Rapid DNA hybridization using isotachophoresis" "Sample dispersion in isotachophoresis", *BioX Interdisciplinary Initiatives Symposium*, Stanford, California, March 11, 2011.
15. **Bercovici M.**, Kaigala G.V., Mach K.E., Han C.M., Liao J.C., and Santiago J.G., "Rapid detection of urinary tract infections using isotachophoresis and molecular beacons", *Gordon Research Conference on Physics and Chemistry of Microfluidics*, Waterville Valley, New Hampshire, June 26-July 1, 2011.
16. **Bercovici M.** Han C.M., Santiago J.G. and Liao J.C., "Rapid DNA hybridization using isotachophoresis", *Gordon Research Conference on Physics and Chemistry of Microfluidics*, Waterville Valley, New Hampshire, June 26-July 1, 2011.
17. **Bercovici M.** Han C.M., Santiago J.G. and Liao J.C., "10,000 fold acceleration of DNA hybridization reactions using isotachophoresis," *15<sup>th</sup> Annual Meeting of the Israel Analytical Chemistry Society*, Tel-Aviv, Israel, January 24-25, 2012.
18. Han C., M. Bercovici, L.A. Marshall, G. Garcia-Schwarz, A. Persat, J.C. Liao, and **Santiago J.G.**, "Isotachophoresis for extraction and rapid hybridization of nucleic acids," *International Symposium, Exhibit & Workshop on Electro- and Liquid Phase-Separation Techniques, ITP 2012*, Baltimore, MD, September 30 - October 3, 2012.
19. **Vilensky R.**, Bercovici M., and Segal E., "High sensitivity label-free nucleic acid detection using porous silicon and isotachophoresis ," *The second conference of The Israel Society for Biotechnology Engineering (ISBE)*, Tel Aviv, December 1<sup>st</sup>, 2013.
20. **Zeidman T.**, and Bercovici M., "Multiplexed Detection of Nucleic Acid Sequences from Raw Urine Samples Using Isotachophoresis," *The second conference of The Israel Society for Biotechnology Engineering (ISBE)*, Tel Aviv, December 1<sup>st</sup>, 2013.
21. **Karsenty M.**, and Bercovici M., "Accelerated nucleic acid hybridization on surface-based biosensors using isotachophoresis," *The second conference of The Israel Society for Biotechnology Engineering (ISBE)*, Tel Aviv, December 1<sup>st</sup>, 2013.
22. **Schwartz O.**, and Bercovici M., "Microfluidic assay for continuous real-time pathogen detection using antimicrobial peptides and isotachophoresis," *The second conference of The Israel Society for Biotechnology Engineering (ISBE)*, Tel Aviv, December 1<sup>st</sup>, 2013.
23. **Rosenfeld T.**, and Bercovici M., "Electrokinetics on paper-based microfluidic devices: towards low-cost high sensitivity biomolecular diagnostics," *The second conference of The Israel Society for Biotechnology Engineering (ISBE)*, Tel Aviv, December 1<sup>st</sup>, 2013.
24. **Ostromohov N.**, and Bercovici M., "Leveraging peptide nucleic acid probes and isotachophoresis for on-chip high sensitivity detection of DNA ," *The second conference of The Israel Society for Biotechnology Engineering (ISBE)*, Tel Aviv, December 1<sup>st</sup>, 2013.

25. **Levy A.**, **Dixit C.**, Starosvetsky E., Shen-Orr S., and Bercovici M., "Simulation-based design of a microfluidic device for cell pairing and analysis," *The second conference of The Israel Society for Biotechnology Engineering (ISBE)*, Tel Aviv, December 1<sup>st</sup>, 2013.
26. **Ostromohov N.**, and **Bercovici M.**, "Amplification free detection of DNA sequences at 100 fM concentrations," *Gordon Research Conference on Bioanalytical Sensors*, Newport, Rhode Island, June 27-July 1, 2014.
27. **Karsenty M.**, **Rubin S.**, and Bercovici M., "Accelerated nucleic acid hybridization on surface based biosensors under isotachopheresis," *Gordon Research Conference on Bioanalytical Sensors*, Newport, Rhode Island, June 27-July 1, 2014.
28. **Rosenfeld T.**, and Bercovici M., "1000-fold sample focusing on paper-based microfluidic devices," *Gordon Research Conference on Bioanalytical Sensors*, Newport, Rhode Island, June 27-July 1, 2014.
29. **Boyko E.**, **Rubin S.**, **Gat A.**, and Bercovici M., "2D Flow Patterning using Non-uniform Electroosmotic flow," *Israeli Conference on Mechanical Engineering (ICME)*, Tel Aviv. March 2-3, 2015.
30. **Rubin S.**, **Boyko E.**, **Gat A.**, and Bercovici M., "Elastic Surface Deformations Driven by Non-Uniform Electroosmotic Flow in a Hele-Shaw cell," *Fluids & Elasticity*, Biarritz, France, June 22-24, 2015.
31. **Rubin S.**, **Boyko E.**, **Gat A.**, and **Bercovici M.**, "Electroosmotic Flow in Hele-Shaw Configurations with Non-Uniform Surface Charge," *Gordon Research Conference on Physics and Chemistry of Microfluidics*, Mount Snow, Vermont, May 31 – June 5, 2015.
32. **Ostromohov N.**, **Khalandovsky R.**, and Bercovici M., "Focused upon hybridization: Rapid and high-sensitivity amplification-free detection of DNA using isotachopheresis and peptide nucleic acid probes," *ITP2015*, Helsinki, August 30 - September 5, 2015.
33. **Rubin S.**, **Gat A.**, and Bercovici M., "Elastic deformations in a Hele-Shaw cell driven by local non-homogeneities of fluid properties," *68<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics*, Boston, Massachusetts, November 22-24, 2015.
34. **Boyko E.**, **Rubin S.**, **Gat A.**, and Bercovici M., "2D Flow patterning in Hele-Shaw configurations using Non-Uniform Electroosmotic Slip," *68<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics*, Boston, Massachusetts, November 22-24, 2015.
35. **Wolowelsky K.**, Bercovici M., and Rotschild C., "CDI controlled spectral emission," *International conference on capacitive deionization and electrosorption*, Saarbrücken Germany, October 26-29 2015.
36. **Vilensky R.**, Bercovici M., and **Segal E.**, "1,000-fold sensitivity enhancement of porous Si biosensors for nucleic acid detection", *10<sup>th</sup> international conference in porous semiconductors – science and technology*, Tarragona, Spain, March 6 2016.
37. **Ostromohov N.**, Bercovici M., and Kaigala G.V., "Delivery of minimally dispersed liquid interfaces for sequential surface chemistry", *Swiss nano convention*, Basel, Switzerland, June 30 – July 1 2016.

38. **E. Boyko**, M. Bercovici, and A. D. Gat, "Flow of power-law liquids in a Hele-Shaw cell driven by non-uniform electro-osmotic slip in the case of strong depletion", *69<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics*, Portland, Oregon, Nov 20-22, 2016.
39. A. D. Gat, **E. Boyko**, and M. Bercovici, "Viscous-elastic dynamics of power-law fluids within an elastic cylinder", *69<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics*, Portland, Oregon, November 20-22, 2016.
40. M. Bercovici, **E. Boyko**, and A. D. Gat, "Deformations of a pre-stretched elastic membrane driven by non-uniform electro-osmotic flow", *69<sup>th</sup> Annual Meeting of the American Physical Society Division of Fluid Dynamics*, Portland, Oregon, November 20-22, 2016.
41. **E. Boyko**, **S. Rubin**, A.D. Gat, and **M. Bercovici**, "Flow and deformation patterning with non-uniform electro-osmotic slip", *Batsheva de Rothschild Seminar on Physics of Microfluidics*, Sde Boker, January 3-8, 2017.
42. **K. Wolwelsky**, E. Guyes, **S. Rubin**, M. Suss, M. Bercovici, and C. Rotschild, "Color control through FRET efficiency modulation using CDI", *SPIE Photonics West 2017*, San Francisco, California, January 28 – February 2, 2017.
43. **Boyko E.**, Gat A.D. and M. Bercovici, "Microscale deformations driven by various actuation mechanisms", Mini-symposium in memoriam of Antonio Castellanos Mata: Electrohydrodynamics, gas discharges, granular materials, St. Petersburg, June 25-30, 2017.
44. **F. Paratore**, G.V. Kaigala, M. Bercovici, "Experimental demonstration of flow patterning in a Hele-Shaw cell using non-uniform zeta potential", *Flow17 Micro and nanofluidics fundamentals and applications*, Paris, France, July 3-5, 2017.
45. **V. Frumkin**, and M. Bercovici, "Elastic deformations driven by the thermocapillary effect", *Flow17 Micro and nanofluidics fundamentals and applications*, Paris, France, July 3-5, 2017.
46. **N. Ostromohov**, G.V. Kaigala, M. Bercovici, "Electrokinetic scanning probe", *Flow17 Micro and nanofluidics fundamentals and applications*, Paris, France, July 3-5, 2017.
47. **R. Eshel**, **E. Boyko**, K. Gommed, and M. Bercovici, "Experimental study of elastic deformation driven by electro-osmotic flow", Paris, France, July 3-5, 2017.
48. **E. Boyko**, A. Gat, and M. Bercovici, "Deformations of a pre-stretched and lubricated finite elastic sheet", Paris, France, July 3-5, 2017.
49. **Frumkin V.** and Bercovici M., "Elastic deformations driven by the thermocapillary effect", *The Annual Meeting of the Israeli Mathematical Union*, Rimonim Palm Beach, Acre, Israel, May 25-28, 2017.
50. **Frumkin V.** and Bercovici M., "Elastic deformations driven by the thermocapillary effect", *Flow 17*, UPMC, Paris, France, July 3-5, 2017.
51. **Boyko E.**, Gat A. and Bercovici M., "Deformations of a pre-stretched and lubricated finite elastic membrane driven by non-uniform external forcing", *70th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, Denver, Colorado, November 19-21, 2017.

52. **Frumkin V.** and Bercovici M., "Thermocapillary dipole in a Hele-Shaw type confinement", 9th Meeting of the International Marangoni Association, Guilin, China, Aug. 31-September 5, 2018.
53. **Boyko E.**, Gat A. and Bercovici M., "Elastic deformation instability in soft microfluidic configurations induced by non-uniform electro-osmotic flow", 9th Conference of the International Marangoni Association (IMA9), Guilin, August 30 – September 5, 2018.
54. **E. Boyko**, A. Gat and M. Bercovici, "Elastic deformation instability in soft microfluidic configurations induced by non-uniform electro-osmotic flow", 12th European Fluid Mechanics Conference (EFMC12), Vienna, September 9-13, 2018.
55. **X.F. van Kooten**, G.V. Kaigala and M. Bercovici, "Encapsulation-on-demand: retrieving analytes of interest from on-chip electrokinetic separations", 44th Micro and Nano Engineering Conference (MNE), Copenhagen, September 24-27, 2018.
56. **Frumkin V.** and Bercovici M., "Thermocapillary dipole in a Hele-Shaw cell", Micro- and Nano-Fluidics: Fundamentals and Applications, Lorentz Center, Leiden, Netherlands, November 12-16, 2018.
57. **Frumkin V.** and Bercovici M., "Thermocapillary dipole in a Hele-Shaw cell", 71st Annual Meeting of the American Physical Society Division of Fluid Dynamics, Atlanta, USA, November 18-20, 2018.
58. **Frumkin V.**, Razin A. and Bercovici M., "Thermocapillary flow over superhydrophobic surfaces", 71st Annual Meeting of the American Physical Society Division of Fluid Dynamics, Atlanta, USA, November 18-20, 2018.
59. **E. Boyko**, A. Gat and M. Bercovici, "Elastic deformation instability in soft microfluidic configurations induced by non-uniform electro-osmotic flow", 71st Annual Meeting of the American Physical Society Division of Fluid Dynamics, Atlanta, Georgia, November 18-20, 2018.
60. **Bacheva, V.**, Paratore, F., Rubin, S., Kaigala, G.V., Bercovici, M., "Diffusion-based separation using bidirectional electroosmotic flow", *Isranalytica 2019*, Tel Aviv, Israel, January 23, 2019.
61. **Bacheva, V.**, Paratore, F., Rubin, S., Kaigala, G.V., Bercovici, M., "Field-effect electroosmotic flow patterning as a mechanism for diffusion-based separation", 35th International Symposium on Microscale separation and Bioanalysis (MSB 2019), Corvallis, Oregon, USA, March 26, 2019. ([Best oral presentation by a young scientist award](#))
62. **Bacheva, V.**, Paratore, F., Rubin, S., Kaigala, G.V., Bercovici, M., "Size-based biomolecular separation enabled by field-effect electroosmosis", Miniaturized Systems for Chemistry and Life Sciences (microTAS2019)", Basel, Switzerland, Oct 28, 2019.
63. **Boyko E.**, Bercovici M., and Gat A., "Elastic instability in soft microfluidic configurations driven by non-uniform electro-osmotic flow", Harrington Symposium: Physics of Microfluidics, Austin, Texas, June 9-11, 2019.
64. **Boyko E., Eshel R.**, Gat A. and Bercovici M., "Non-uniform electro-osmotic flow drives elastic deformation instability", Harrington Symposium on the Physics of Microfluidics, Austin, Texas, June 9-11, 2019.

65. **Bacheva, V., Paratore, F., Rubin, S., Kaigala, G.V., Bercovici, M.**, "Diffusion-based separation using bidirectional electroosmotic flow", Harrington Symposium on the Physics of Microfluidics, Austin, Texas, USA, June 9-11, 2019.
66. **Frumkin V.**, Gommed K. and Bercovici M., "Dipolar thermocapillary motor and swimmer", Physics of Microfluidics, Austin, USA, June 9-11, 2019.
67. **Boyko E.**, Eshel R., Gat A. and Bercovici M., "Elastic deformation instability in soft microfluidic configurations induced by non-uniform electro-osmotic flow", Fluid & Elasticity 2019 conference, Malaga, June 2019.
68. **Boyko E.**, Bercovici M., and Gat A., "Elastic instability in soft microfluidic configurations driven by non-uniform electro-osmotic flow", 13<sup>th</sup> International Symposium on Electrokinetics (ELKIN), Boston, Massachusetts, June 12-16, 2019.
69. **Boyko E., Eshel R.**, Gat A. and Bercovici M., "Non-uniform electro-osmotic flow drives elastic deformation instability", 13<sup>th</sup> International Symposium on Electrokinetics (ELKIN), Boston, Massachusetts, June 12-16, 2019.
70. **Bacheva, V., Paratore, F., Rubin, S., Kaigala, G.V., Bercovici, M.**, "Diffusion-based separation using bidirectional electroosmotic flow", 13th International Symposium on Electrokinetics (ELKIN), Boston, Massachusetts, USA, June 12-14, 2019.
71. **Gabay, I., Bacheva, V., Gat, A.D., Bercovici, M.**, "Dielectrophoretic-driven deformations of a lubricated elastic sheet", 13th International Symposium on Electrokinetics (ELKIN), Boston, Massachusetts, USA, June 12-14, 2019. ([Best poster award](#))
72. **Paratore F., Bacheva V., Kaigala G.V., Bercovici M.**, "Dynamic flow patterning with localized field effect electroosmosis", *ELKIN- 13th International Symposium on Electrokinetics, Massachusetts Institute of Technology, MA, US, Jun 12-14, 2019.*
73. **Paratore F., Bacheva V., Kaigala G.V., Bercovici M.**, "Dynamic Microscale Flow Patterning Using Non-Uniform Electroosmotic Flow", *Gordon Research Seminar, Physics and Chemistry of Microfluidics, Hong Kong, CN, Jun 15-16, 2019.* ([Best poster award](#))
74. **Paratore F., Bacheva V., Kaigala G.V., Bercovici M.**, "Dynamic Microscale Flow Patterning Using Non-Uniform Electroosmotic Flow", *Gordon Research Conference, Physics and Chemistry of Microfluidics, Hong Kong, CN, Jun 16-21, 2019.*
75. **Frumkin V.**, Gommed K. and Bercovici M., "Dipolar thermocapillary motor and swimmer", Stokes 200 Symposium, Cambridge, UK, September 15-18, 2019.
76. **Bacheva, V., Paratore, F., Rubin, S., Kaigala, G.V., Bercovici, M.**, "Bidirectional flow filter", The 5th Conference of the Israel Society for Biotechnology Engineering (ISBE), Tel Aviv, December 22<sup>nd</sup>, 2019.
77. **Bacheva, V., Paratore, F., Rubin, S., Kaigala, G. V., Bercovici, M.**, "Bidirectional flow filter: a novel diffusion-based separation", *23rd Annual Meeting of the Israel Analytical Chemistry Society (Isranalytica 2020)*, Tel Aviv, Israel, Jan 22, 2020.



78. **Bacheva, V.**, Paratore, F., Dolev, M. B., Kaigala, G. V., Bercovici, M., "Buffer exchange Coronavirus detection using bidirectional flow", *36th International Symposium on Microscale separation and Bioanalysis (MSB 2020)*, Virtual Edition, Sept 30, 2020.
79. **Gabay I.**, Paratore F., **Boyko E.**, Ramos A., Gat A.D., and Bercovici M., "Dielectrophoretic-driven deformations of free surface", *The 71th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, Chicago, Illinois, November 22-24, 2020.
80. **Gabay I.**, Paratore F., **Boyko E.**, Ramos A., Gat A.D., and Bercovici M., "Dielectrophoretic-driven deformations of liquid-fluid interface", *The 4th international dielectrophoresis conference, Flagstaff, Arizona*, July 26-28, 2021.
81. **Bacheva, V.**, Paratore, F., **Dolev, M. B.**, **Rofman, B.**, Kaigala, G. V., Bercovici, M., "Bidirectional flow filter: high-purity filtration of biomolecules in low-sample volumes using electrically driven microfluidics", *Swiss symposium in point-of-care diagnostics*, Davos, Switzerland, Oct 21, 2021.
82. **Boyko E.**, Bacheva V., Eigenbrod M., Paratore F., Gat A., Hardt S., Bercovici M., "Microscale hydrodynamic cloaking and shielding via electroosmosis", *74th Annual Meeting of the American Physical Society - Division of Fluid Mechanics (APS-DFD)*, Phoenix, AZ, US, Nov 21-23, 2021.
83. **Widerker D.**, Kaigala G., and Bercovici M., "Localized Electrochemical deposition of overhanging multi-material metal structures by hydrodynamic flow confinement", *14th International Symposium on Electrokinetics (ELKIN 2022)*, July 4-6 2022. ([best student talk award](#))
84. **Rofman B.**, Naddaf R., Gefen T., Geva-Zatorsky N., and Bercovici M., "Automated device for multi-stage paper-based assays enabled by an electroosmotic pumping valve", *14th International Symposium on Electrokinetics (ELKIN 2022)*, July 4-6 2022.
85. **Gabay I.**, **Bacheva V.**, Bercovici M., Ramos A., and Gat A.D., "Dielectrophoresis driven deformations of a thin liquid film in a bounded domain", *14th International Symposium on Electrokinetics (ELKIN 2022)*, July 4-6 2022.
86. **Bacheva V.**, Balciunaite A., **Gabay I.**, Kaigala G., Bercovici M., "Photoactuated gate electrodes for microscale flow patterning", *14th International Symposium on Electrokinetics (ELKIN 2022)*, July 4-6 2022.
87. **Elgarisi M.**, Frumkin V., **Luria O.**, Bercovici M., "Fluidic shaping of optical components", 14<sup>th</sup> European Fluid Mechanics Conference (EFMC14), September 13-16 2022.
88. **Ericson J.**, Frumkin V., Eshel R., Nice M., **Luria O.**, Ferdman B., Opatovski N., Gommed K., Shusteff M., Shechtman Y., Bercovici M., "Dynamic shaping of thin liquid films by photoactuated thermocapillary flow", 14<sup>th</sup> European Fluid Mechanics Conference (EFMC14), September 13-16 2022.
89. **Gabay I.**, **Bacheva V.**, Bercovici M., Ramos A., Gat A., "Dynamics of a thin liquid film in a finite domain" 14<sup>th</sup> European Fluid Mechanics Conference (EFMC14), September 13-16 2022.

90. **Widerker D.**, Kaigala G.V., Bercovici M., “Localized Electrochemical Deposition of Multi- Metal Structures by Hydrodynamic Flow Confinement”, The 66th International Conference on Electron, Ion, and Photon Beam Technology and Nanofabrication, May 30 – June 2, 2023.