

Moran Bercovici

PERSONAL

Full name: Moran Bercovici
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ACADEMIC DEGREES

09/2006 - 12/2010: Ph.D., GPA: 4.0 / 4.0
Stanford 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

10/2011 – present: Assistant Professor, Faculty of Mechanical Engineering
Technion – Israel Institute of Technology, Haifa, Israel
Leading the research at Technion Microfluidic Technologies Laboratory, focusing on development on microfluidic assays for molecular analysis. Advising Master and PhD students, teaching undergraduate and graduate courses in fluid mechanics, transport phenomena, microfluidics, and electrokinetics.

01/2011 – 09/2011: Postdoctoral Research Fellow, Department of Urology
School of Medicine, Stanford University, CA, USA
Conducted an analytical and experimental study of rapid nucleic acid hybridization under isotachopheresis, and developed an assay for diagnostics bacterial urinary tract infections. Mentored undergraduate and graduate students, and gained experience in proposal writing.

PROFESSIONAL EXPERIENCE

- 09/2006-12/2010: Graduate Research Assistant
Department of Mechanical Engineering, Stanford University, CA, USA
Developed a numerical code based on high resolution discretization and adaptive grid for rapid simulations of electrophoretic transport. This code allows rapid design of electrophoretic assays, and enables study of the coupled electromigration-reaction-diffusion processes. In addition, developed a new assay for rapid label-free detection of chemical toxins in water based on isotachophoresis.
- 09/2001-09/2006: Research Engineer
R&D Directorate, RAFAEL, Advanced Defense Systems, Israel
Developed aerodynamic configurations from conceptual design to flight testing using a variety of engineering tools including CAD programs, computational fluid dynamics (CFD) codes, wind tunnel testing, and Monte Carlo simulations. In addition, led research work on control of forebody vortices at high angles of attack using micro perturbations and participated in research on synthetic jet modeling for drag reduction.
- 06/2000-07/2001: Student Position, R&D Directorate
R&D Directorate, RAFAEL, Advanced Defense Systems, Israel
Developed a 2D panel method code for the design of aerodynamic profiles.

MILITARY SERVICE

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

RESEARCH EXPERIENCE AND INTERESTS

Experimental Research

Electrokinetic transport, lab-on-a-chip systems, molecular analysis, label-free detection and identification, electrophoretic separations, environmental monitoring, low-cost medical diagnostics, pressure and high voltage control of microfluidic devices, epifluorescent microscopy and imaging, confocal microscopy, data analysis, digital image processing, applied aerodynamics, wind tunnel testing.

Numerical/Analytical Research

Multiphysics simulations, high resolution schemes, shock capturing, adaptive meshing, computational fluid dynamics (CFD), analytical solutions of transport equations, multiple species chemical systems.

TEACHING EXPERIENCE

- 2012- present: Lecturer, Technion – Israel Institute of Technology
034013 *Fluid Mechanics 1, undergraduate level.*
Elected 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.

PROFESSIONAL ACTIVITIES

Departmental

- 2011- today. Member, the interdepartmental committee for nanoscience and nanotechnology.
- 2013. Member, committee for curriculum revision, nanoscience and nanotechnology program.

Reviewer for funding agencies

- Israel Science Foundation (ISF), 2014

Reviewer for archived journals

- Analyst, 2014
- Analytical Chemistry, 2011,2014,2015
- Biomedical Microdevices, 2013
- Biosensors and Bioelectronics, 2015

- Diagnostics, 2012
- Electrophoresis, 2010, 2013
- Journal of Chromatography A, 2009
- Journal of Electrostatics, 2011
- Journal of Fluid Mechanics, 2011 - 2012
- Lab on a Chip, 2012 - 2013
- Langmuir, 2008
- Microfluidics and Nanofluidics, 2012
- Physics of Fluids, 2008, 2011 – 2013
- Scientific Reports, 2013

AWARDS AND HONORS

2015	Daniel Shiran Memorial Research Prize for an outstanding research in Bio-Medicine
2014	Citation for excellence in teaching (top 12% of Technion)
2013	The Henri Gutwirth Prize for the Promotion of Research
2012	Horev Fellow, Leaders in Science and Technology – Taub Foundation
2012	Elected as Technion excellent lecturer (top 4% of Technion)
2011	Marie Curie Career Integration Grant
2010	LabAutomation 2010 best poster award (of 170)
2006-2010	Stanford Graduate Fellowship in Engineering and Science
2006-2008	Fulbright Doctoral Fellowship
2006	M.Sc. graduation <i>summa cum laude</i>
2002	Best Students' Project Award, 42 nd Israel Annual Conference on Aerospace Sciences
2001	B.Sc. graduation <i>summa cum laude</i>
1998-2001	Technion's president list for academic achievements

CURRENT STUDENTS AND TRAINEES

* Primary adviser, unless otherwise mentioned

Postdocs [2]

1. Shimon Rubin,	Ph.D., Ben-Gurion University, Israel	2013-
	Publications and patents: J13,J14,J20	
	Lady Davis Postdoctoral Fellow, 2014	

Ph.D. Students [4]

1. Tal Zeidman	M.Sc., Biotechnology Eng., Technion, Israel	2012-
2. Tally Rosenfeld	B.Sc., Biomedical Eng., Technion, Israel	2012-
	Publications and patents: J17, J18, C12, C13, P6, P7	
3. Federico Paratore	M.Sc. Bio-nanotechnology Eng., Sapienza, Italy	2014-
4. Rita Vilensky	M.Sc., Chemical Eng., Technion, Israel	2011-
	Primary adviser: Prof. Ester Segal	

M.Sc. (with thesis) students [5]

Theses in progress

1. Ofer Dagan B.Sc., Aerospace Eng., Technion, Israel 2011-2014
Publications and patents: *C1, J16*
2. Nadya Ostromohov B.Sc., Mechanical Eng., Technion, Israel 2013-2015
Publications and patents: *C1, P3, J19*
Joan and Irwin Jacobs Fellowship for graduate students, 2015
Leonard and Diane Sherman Interdisciplinary Graduate School Fellow, 2014
Sidney and Beatrice Wolberg Award, 2013
3. Nethanel Ganor B.Sc., Mechanical Eng., Technion, Israel 2013-2014
Awards: Sidney and Beatrice Wolberg Award, 2014
4. Rebecca Khalandovsky B.A., Molecular Biology, Princeton U, USA 2014-2016
5. Evgeniy Boyko B.Sc., Mechanical Eng., Technion, Israel 2014-2016
Publications and patents: *J20*

Completed theses

1. Merav Karsenty, B.Sc., Biomedical Eng., Technion, Israel 2012-2014
Publications and patents: *J14, J18, P5, P6*
2. Ortal Schwartz B.Sc., Biomedical Eng., Technion, Israel 2012-2014
Publications and patents: *J15, P3, P4*
Awards: Leonard and Diane Sherman Interdisciplinary Graduate School Fellow, 2013

MAJOR RESEARCH GRANTS

* PI Moran Bercovici, unless otherwise mentioned

2012-2016	EU FP7 Marie Curie PCIG9-GA-2011-293576	100,000 Euro
2012-2016	Israel Science Foundation (ISF), Research grant, 515/12	1,160,000 NIS
2012-2016	Israel Science Foundation (ISF), Equipment grant, 1698/12	1,030,000 NIS
2013-2014	German Israel Foundation (GIF), 2287-2235.5/2011	34,000 Euro
2014-2018	EU FP7 EID, PITN-GA-2013-607322 (Coordinator)	750,000 Euro
2014-2015	Ministry of Economy, NOFAR 50660	497,800 NIS

PUBLICATIONS

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

Graduate students and postdocs underlined

- 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., Santiago J.G. and Liao J.C. (2012), "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 – Vol. 86, Iss. 20.*
- 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 – Vol. 14, Iss. 23.*
 - *Featured on Material Research Society*
 - *Chosen as Lab on a Chip highest impact papers (top 10%)*
- J18. Karsenty M., Rosenfeld T., Gomme 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.

Submitted manuscripts

- J19. Ostromohov N., Schwartz O., and Bercovici M., (2015) "Amplification-free detection of nucleic acid sequences using isotachopheresis and peptide nucleic acid probes", under consideration in *Biosensors and Bioelectronics*.
- J20. Boyko E., Rubin S., Gat A., and Bercovici M., (2015), "Electroosmotic flow in Hele-Shaw configurations with non-uniform surface charge", under review in *Journal of Fluid Mechanics*.

Patents and patent applications

Graduate students and postdocs underlined

- P1. Chambers R.D., Santiago J.G., and Bercovici M., "Non-focusing tracers for indirect detection in electrophoretic displacement techniques," Patent Application US 13/065,168, March 2010.

- P2. Santiago J.G., Bercovici M., Kaigala G.V., Chambers R.D., "Fluorescent finger prints for indirect detection in isotachopheresis," US 13/134,165, March 2011.
- P3. Bercovici M., Ostromohov N., and Schwartz O., "Detection of genetic sequences using PNA probes and isotachopheresis", Provisional Patent Application, August 2013.
- P4. Bercovici M., and Schwartz O., "Continuous cell detection by isotachopheresis", Provisional Patent Application 61910131, November 2013.
- P5. Bercovici M. Karsenty M., "A microfluidic chip and isotachopheresis system comprising the same", Provisional Patent Application 61910132, November 2013.
- P6. Bercovici M. Karsenty M., Rosenfeld T., "Methods of isotachopheresis detection", Provisional Patent Application 62004382, June 2014.
- P7. Bercovici M., Rosenfeld T., "Microfluidic electrokinetic paper based devices", Provisional Patent Application, June 2014.

CONFERENCES

Invited conference talks

1. "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 1st 2013.
2. "Isotachopheresis based biosensors", *The second conference of The Israel Society for Biotechnology Engineering (ISBE)*, Tel Aviv, Dec 1st 2013.
3. "Isotachopheresis based biosensors", *NanoIsrael*, Tel Aviv, Mar 24th 2014

Refereed papers in conference proceedings

Graduate students and postdocs underlined

- 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", *42nd Israel Annual Conference on Aerospace Sciences*, 2002.
- C2. Bercovici M., Arad A., Seifert A., and Yehoshua T., "On the computational modeling of synthetic Jet actuators", *46th 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," *47th 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, Oct 28 – Nov 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, Oct 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, Oct 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, Oct 26 – 30, 2014.

Non-refereed conference presentations and posters

Graduate students and postdocs underlined. Presenters marked **bold**.

1. **Bercovici M.**, Lele S.K., and Santiago J.G., "Simulation and optimization of isotachopheresis", *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 isotachopheresis", Invited, Department of Applied Chemistry, The University of Tokyo, Tokyo, Japan, March 26, 2008.
3. **Bercovici M.** and Santiago J.G., "Dispersion in isotachopheresis", *61st Annual Meeting of the American Physical Society/Division of Fluid Dynamics (APS/DFD)*, 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, OR, 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 isotachopheresis," *62nd Annual Meeting of the American Physical Society/Division of Fluid Dynamics (APS/DFD)*, 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 isotachopheresis," *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 isotachopheresis 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 isotachopheresis", BioX Interdisciplinary Initiatives Symposium, Stanford, CA, March 11, 2011.
14. M. Bercovici, **C.M. Han**, J.G. Santiago, "Rapid DNA hybridization using isotachopheresis" "Sample dispersion in isotachopheresis", BioX Interdisciplinary Initiatives Symposium, Stanford, CA, 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 isotachopheresis and molecular beacons", Gordon Research Conference on Physics and Chemistry of Microfluidics, Waterville Valley NH, June 26-July 1, 2011.
16. **Bercovici M.** Han C.M., Santiago J.G. and Liao J.C., "Rapid DNA hybridization using isotachopheresis", Gordon Research Conference on Physics and Chemistry of Microfluidics, Waterville Valley NH, 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 isotachopheresis," *15th 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.**, "Isotachopheresis 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 to October 3, 2012.
19. **Vilensky R.**, Bercovici M., and Segal E., "High sensitivity label-free nucleic acid detection using porous silicon and isotachopheresis," *The second conference of The Israel Society for Biotechnology Engineering (ISBE)*, Tel Aviv, Dec 1st, 2013.
20. **Zeidman T.**, and Bercovici M., "Multiplexed Detection of Nucleic Acid Sequences from Raw Urine Samples Using Isotachopheresis," *The second conference of The Israel Society for Biotechnology Engineering (ISBE)*, Tel Aviv, Dec 1st, 2013.
21. **Karsenty M.**, and Bercovici M., "Accelerated nucleic acid hybridization on surface-based biosensors using isotachopheresis," *The second conference of The Israel Society for Biotechnology Engineering (ISBE)*, Tel Aviv, Dec 1st, 2013.
22. **Schwartz O.**, and Bercovici M., "Microfluidic assay for continuous real-time pathogen detection using antimicrobial peptides and isotachopheresis," *The second conference of The Israel Society for Biotechnology Engineering (ISBE)*, Tel Aviv, Dec 1st, 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, Dec 1st, 2013.

24. Ostromohov N., and Bercovici M., “Leveraging peptide nucleic acid probes and isotachopheresis for on-chip high sensitivity detection of DNA ,” *The second conference of The Israel Society for Biotechnology Engineering (ISBE)*, Tel Aviv, Dec 1st, 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, Dec 1st, 2013.
26. Ostromohov N., and **Bercovici M.**, “Amplification free detection of DNA sequences at 100 fM concentrations ,” Gordon Research Conference on Bioanalytical Sensors, Newport RI, 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 RI, 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 RI, June 27-July 1, 2014.

Conference activities

- Israeli Conference on Mechanical Engineering, Tel Aviv. 2012, Session chair.

Other Talks and Presentations

1. Ebara Research Corporation, Yokohama, Japan, Mar 2008
2. Faculty of Mechanical Engineering, Technion, Israel, Jan 2010
3. Faculty of Mechanical Engineering, Technion, Israel, May 2011
4. Nanotechnology Symposium, Stanford Institute for Immunity Transplantation and Infection, Aug 2011
5. Faculty of Biotechnology and Food Engineering Seminar, Technion, Jan 2012
6. Technion Open Day, Feb 2012
7. Fluid Mechanics Seminar, Technion, Mar 2012
8. Grand Water Research Institute Seminar, Technion, Dec 2012
9. Nanoscience Symposium, Universitat Autònoma de Barcelona, Nov 2012
10. Jacob Blaustein Institute for Desert Research, Ben-Gurion University, Sede Boker, Dec 2012
11. Medical technological innovation, Rambam Hospital, Feb 2013
12. Faculty of Biology Seminar, Technion, May 2013
13. Faculty of Biomedical Engineering Seminar, Technion, May 2013
14. Department of Chemical Engineering Seminar, Ben Gurion University, Dec 2013
15. Center for Smart Interfaces, Technical University Darmstadt, Nov 2013
16. Department of Chemistry, Heidelberg University, Nov 2013
17. Life Technologies, Webex Seminar, Jan 2014

18. Life Science and Engineering Institute and Russell Berrie Nanotechnology Institute, special seminar, May 2014.
19. Center for Bioengineering, University of California in Santa Barbara, July 2014.
20. Department of Mechanical Engineering, University of Texas in Austin, Oct 2014.

References available upon request