

Stanford



Juan Santiago

Professor of Mechanical Engineering

CONTACT INFORMATION

- **Alternate Contact**

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Bio

BIO

Professor Santiago's research focuses on the study of microscale transport phenomena including electrokinetic flow, electrohydrodynamic instabilities, and general convective-diffusion-electromigration processes. His research includes the optimization and development of novel micro- and nano-devices for pumping liquids, on-chip electrophoresis, sample preconcentration methods, and miniature fuel cells. The applications of this work include microfabricated bioanalytical systems for genetic analysis, drug discovery, bioweapon detection, drug delivery, and power generation.

ACADEMIC APPOINTMENTS

- Professor, Mechanical Engineering
- Member, Bio-X
- Faculty Fellow, Stanford ChEM-H

HONORS AND AWARDS

- Fellow, American Society of Mechanical Engineering (2012)
- Fellow, American Physical Society (2010)
- Outstanding Alumnus Award, Mechanical Engineering Department of the University of Florida (2008)
- Outstanding Achievement in Academia Award, GEM Consortium (2006)
- Presidential Early Career Award for Scientist and Engineers, PECASE (2004)
- National Science Foundation Early Career Development (CAREER) Award, NSF (2003)
- Collegiate Inventors Award, National Inventors Hall of Fame (2001)
- Frederick Emmons Terman Fellow (Faculty) Award, Stanford University (1998)
- Post-Doctoral Fellowship, Ford Foundation (1997)

PROFESSIONAL EDUCATION

- PhD, University of Illinois at Urbana-Champaign (1995)
- MS, University of Illinois at Urbana-Champaign (1992)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

<http://microfluidics.stanford.edu/Projects/Projects.html>

Teaching

COURSES

2017-18

- Introductory Fluids Engineering: ME 70 (Aut)
- Physics of Microfluidics: ME 360 (Win)

2016-17

- Experimental Methods in Fluid Mechanics: ME 354 (Win)
- Introductory Fluids Engineering: ME 70 (Aut)
- The Great Principle of Similitude: ME 13N (Spr)

2015-16

- Experimental Methods in Fluid Mechanics: ME 354 (Win)
- Fluid Flow in Microdevices: ME 457 (Spr)
- The Great Principle of Similitude: ME 13N (Aut)

2014-15

- Advanced Topics in Electrokinetics: ME 458 (Spr)
- The Great Principle of Similitude: ME 13N (Aut)

STANFORD ADVISEES

Doctoral Dissertation Advisor (AC)

Ali Hemmatifar

Publications

PUBLICATIONS

- **Rapid Slow Off-Rate Modified Aptamer (SOMAmer)-Based Detection of C-Reactive Protein Using Isotachophoresis and an Ionic Spacer.** *Analytical chemistry*
Eid, C., Palko, J. W., Katilius, E., Santiago, J. G.
2015; 87 (13): 6736-6743
- **Isotachophoresis for fractionation and recovery of cytoplasmic RNA and nucleus from single cells.** *Electrophoresis*
Kuriyama, K., Shintaku, H., Santiago, J. G.
2015; 36 (14): 1658-1662
- **Transient delivery of modified mRNA encoding TERT rapidly extends telomeres in human cells** *FASEB JOURNAL*
Ramunas, J., Yakubov, E., Brady, J. J., Corbel, S. Y., Holbrook, C., Brandt, M., Stein, J., Santiago, J. G., Cooke, J. P., Blau, H. M.
2015; 29 (5): 1930-1939
- **Increasing Hybridization Rate and Sensitivity of Bead-Based Assays Using Isotachophoresis** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*
Shintaku, H., Palko, J. W., Sanders, G. M., Santiago, J. G.
2014; 53 (50): 13813-13816

- **Increasing hybridization rate and sensitivity of DNA microarrays using isotachophoresis** *LAB ON A CHIP*
Han, C. M., Katilius, E., Santiago, J. G.
2014; 14 (16): 2958-2967
- **Simultaneous purification and fractionation of nucleic acids and proteins from complex samples using bidirectional isotachophoresis.** *Analytical chemistry*
Qu, Y., Marshall, L. A., Santiago, J. G.
2014; 86 (15): 7264-7268
- **Coupling Isotachophoresis with Affinity Chromatography for Rapid and Selective Purification with High Column Utilization, Part 2: Experimental Study** *ANALYTICAL CHEMISTRY*
Shkolnikov, V., Santiago, J. G.
2014; 86 (13): 6229-6236
- **Coupling Isotachophoresis with Affinity Chromatography for Rapid and Selective Purification with High Column Utilization, Part 1: Theory** *ANALYTICAL CHEMISTRY*
Shkolnikov, V., Santiago, J. G.
2014; 86 (13): 6220-6228
- **Purification of nucleic acids using isotachophoresis** *JOURNAL OF CHROMATOGRAPHY A*
Rogacs, A., Marshall, L. A., Santiago, J. G.
2014; 1335: 105-120
- **An injection molded microchip for nucleic acid purification from 25 microliter samples using isotachophoresis.** *Journal of chromatography. A*
Marshall, L. A., Rogacs, A., Meinhart, C. D., Santiago, J. G.
2014; 1331: 139-142
- **On-chip separation and analysis of RNA and DNA from single cells.** *Analytical chemistry*
Shintaku, H., Nishikii, H., Marshall, L. A., Kotera, H., Santiago, J. G.
2014; 86 (4): 1953-1957
- **In Situ Spatially and Temporally Resolved Measurements of Salt Concentration between Charging Porous Electrodes for Desalination by Capacitive Deionization** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
Suss, M. E., Biesheuvel, P. M., Baumann, T. F., Stadermann, M., Santiago, J. G.
2014; 48 (3): 2008-2015
- **Particle Tracking and Multispectral Collocation Method for Particle-to-Particle Binding Assays** *ANALYTICAL CHEMISTRY*
Rogacs, A., Santiago, J. G.
2014; 86 (1): 608-614
- **Impedance-based study of capacitive porous carbon electrodes with hierarchical and bimodal porosity** *JOURNAL OF POWER SOURCES*
Suss, M. E., Baumann, T. F., Worsley, M. A., Rose, K. A., Jaramillo, T. F., Stadermann, M., Santiago, J. G.
2013; 241: 266-273
- **Rapid High-Specificity microRNA Detection Using a Two-stage Isotachophoresis Assay.** *Angewandte Chemie (International ed. in English)*
Garcia-Schwarz, G., Santiago, J. G.
2013; 52 (44): 11534-11537
- **Temperature effects on electrophoresis.** *Analytical chemistry*
Rogacs, A., Santiago, J. G.
2013; 85 (10): 5103-5113
- **Isotachophoresis with ionic spacer and two-stage separation for high sensitivity DNA hybridization assay.** *Analyst*
Eid, C., Garcia-Schwarz, G., Santiago, J. G.
2013; 138 (11): 3117-3120
- **A method for non-invasive full-field imaging and quantification of chemical species.** *Lab on a chip*
Shkolnikov, V., Santiago, J. G.
2013; 13 (8): 1632-1643
- **Two- and three-dimensional modeling and optimization applied to the design of a fast hydrodynamic focusing microfluidic mixer for protein folding** *PHYSICS OF FLUIDS*

- Ivorra, B., Redondo, J. L., Santiago, J. G., Ortigosa, P. M., Ramos, A. M.
2013; 25 (3)
- **Coupling isotachopheresis and capillary electrophoresis: a review and comparison of methods** *ANALYST*
Bahga, S. S., Santiago, J. G.
2013; 138 (3): 735-754
 - **A method for non-invasive full-field imaging and quantification of chemical species** *LAB ON A CHIP*
Shkolnikov, V., Santiago, J. G.
2013; 13 (8): 1632-1643
 - **Particle Tracking and Multispectral Collocation Method for Cytometry-Like and Particle-to-Particle Binding Assays** *Particle Tracking and Multispectral Collocation Method for Particle-to-Particle Binding Assays, Analytical Chemistry*
Rogacs, A., Santiago, J. G.
2013; 1 (86): 608-614
 - **Integration of rapid DNA hybridization and capillary zone electrophoresis using bidirectional isotachopheresis** *ANALYST*
Bahga, S. S., Han, C. M., Santiago, J. G.
2013; 138 (1): 87-90
 - **Unraveling the potential and pore-size dependent capacitance of slit-shaped graphitic carbon pores in aqueous electrolytes** *PHYSICAL CHEMISTRY CHEMICAL PHYSICS*
Kalluri, R. K., Biener, M. M., Suss, M. E., Merrill, M. D., Stadermann, M., Santiago, J. G., Baumann, T. F., Biener, J., Striolo, A.
2013; 15 (7): 2309-2320
 - **Integrated Printed Circuit Board Device for Cell Lysis and Nucleic Acid Extraction** *ANALYTICAL CHEMISTRY*
Marshall, L. A., Wu, L. L., Babikian, S., Bachman, M., Santiago, J. G.
2012; 84 (21): 9640-9645
 - **Effect of PVP on the electroosmotic mobility of wet-etched glass microchannels** *ELECTROPHORESIS*
Milanova, D., Chambers, R. D., Bahga, S. S., Santiago, J. G.
2012; 33 (21): 3259-3262
 - **Capacitive desalination with flow-through electrodes** *ENERGY & ENVIRONMENTAL SCIENCE*
Suss, M. E., Baumann, T. F., Bourcier, W. L., Spadaccini, C. M., Rose, K. A., Santiago, J. G., Stadermann, M.
2012; 5 (11): 9511-9519
 - **Robust and high-resolution simulations of nonlinear electrokinetic processes in variable cross-section channels** *ELECTROPHORESIS*
Bahga, S. S., Bercovici, M., Santiago, J. G.
2012; 33 (19-20): 3036-3051
 - **Electric fields yield chaos in microflows** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Posner, J. D., Perez, C. L., Santiago, J. G.
2012; 109 (36): 14353-14356
 - **Integration of On-Chip Isotachopheresis and Functionalized Hydrogels for Enhanced-Sensitivity Nucleic Acid Detection** *ANALYTICAL CHEMISTRY*
Garcia-Schwarz, G., Santiago, J. G.
2012; 84 (15): 6366-6369
 - **Bacterial RNA Extraction and Purification from Whole Human Blood Using Isotachopheresis** *ANALYTICAL CHEMISTRY*
Rogacs, A., Qu, Y., Santiago, J. G.
2012; 84 (14): 5858-5863
 - **Rapid hybridization of nucleic acids using isotachopheresis** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Bercovici, M., Han, C. M., Liao, J. C., Santiago, J. G.
2012; 109 (28): 11127-11132
 - **Concentration cascade of leading electrolyte using bidirectional isotachopheresis** *ELECTROPHORESIS*
Bahga, S. S., Santiago, J. G.
2012; 33 (6): 1048-1059

- **On-chip Isotachophoresis for Separation of Ions and Purification of Nucleic Acids** *JOVE-JOURNAL OF VISUALIZED EXPERIMENTS*
Garcia-Schwarz, G., Rogacs, A., Bahga, S. S., Santiago, J. G.
2012
- **On-chip isotachophoresis for separation of ions and purification of nucleic acids.** *Journal of visualized experiments : JoVE*
Garcia-Schwarz, G., Rogacs, A., Bahga, S. S., Santiago, J. G.
2012: e3890-?
- **An Integrated Printed Circuit Board Device for Cell Lysis and Nucleic Acid Extraction** *Analytical Chemistry*
Marshall, L. A., Li, L., Babikain, S., Bachman, M., Santiago, J., G.
2012; 21 (84): 9640-9645
- **Desalination and hydrogen, chlorine, and sodium hydroxide production via electrophoretic ion exchange and precipitation** *PHYSICAL CHEMISTRY CHEMICAL PHYSICS*
Shkolnikov, V., Bahga, S. S., Santiago, J. G.
2012; 14 (32): 11534-11545
- **Extraction of DNA from Malaria-Infected Erythrocytes Using Isotachophoresis** *ANALYTICAL CHEMISTRY*
Marshall, L. A., Han, C. M., Santiago, J. G.
2011; 83 (24): 9715-9718
- **Electrophoretic mobility measurements of fluorescent dyes using on-chip capillary electrophoresis** *ELECTROPHORESIS*
Milanova, D., Chambers, R. D., Bahga, S. S., Santiago, J. G.
2011; 32 (22): 3286-3294
- **Coupled Isotachophoretic Preconcentration and Electrophoretic Separation Using Bidirectional Isotachophoresis** *ANALYTICAL CHEMISTRY*
Bahga, S. S., Chambers, R. D., Santiago, J. G.
2011; 83 (16): 6154-6162
- **Sample dispersion in isotachophoresis** *JOURNAL OF FLUID MECHANICS*
Garcia-Schwarz, G., Bercovici, M., Marshall, L. A., Santiago, J. G.
2011; 679: 455-475
- **Rapid Detection of Urinary Tract Infections Using Isotachophoresis and Molecular Beacons** *ANALYTICAL CHEMISTRY*
Bercovici, M., Kaigala, G. V., Mach, K. E., Han, C. M., Liao, J. C., Santiago, J. G.
2011; 83 (11): 4110-4117
- **MicroRNA Profiling by Simultaneous Selective Isotachophoresis and Hybridization with Molecular Beacons** *ANALYTICAL CHEMISTRY*
Persat, A., Santiago, J. G.
2011; 83 (6): 2310-2316
- **High-sensitivity detection using isotachophoresis with variable cross-section geometry** *ELECTROPHORESIS*
Bahga, S. S., Kaigala, G. V., Bercovici, M., Santiago, J. G.
2011; 32 (5): 563-572
- **Electroosmotic pump performance is affected by concentration polarizations of both electrodes and pump** *SENSORS AND ACTUATORS A-PHYSICAL*
Suss, M. E., Mani, A., Zangle, T. A., Santiago, J. G.
2011; 165 (2): 310-315
- **Toward an Electrolytic Micropump Actuator Design with Controlled Cyclic Bubble Growth and Recombination** *Symposium on Sensors, Actuators, and Microsystems General Session/219th Meeting of the Electrochemical-Society (ECS)*
Hsu, L., Ramunas, J., Gonzalez, J., Santiago, J. G., STRICKLAND, D. G.
ELECTROCHEMICAL SOC INC.2011: 3-11
- **High sensitivity detection using isotachophoresis with variable cross-section geometry** *Electrophoresis*
Bahga, S. S., Kaigala, G. V., Bercovici, M., Santiago, J., G.
2011; 32: 311-314
- **Quantification of Global MicroRNA Abundance by Selective Isotachophoresis** *ANALYTICAL CHEMISTRY*
Persat, A., Chivukula, R. R., Mendell, J. T., Santiago, J. G.

2010; 82 (23): 9631-9635

- **Design and fabrication of porous polymer wick structures** *SENSORS AND ACTUATORS B-CHEMICAL*
Shkolnikov, V., Strickland, D. G., Fenning, D. P., Santiago, J. G.
2010; 150 (2): 556-563
- **A two-liquid electroosmotic pump using low applied voltage and power** *SENSORS AND ACTUATORS A-PHYSICAL*
Litster, S., Suss, M. E., Santiago, J. G.
2010; 163 (1): 311-314
- **Active water management at the cathode of a planar air-breathing polymer electrolyte membrane fuel cell using an electroosmotic pump** *JOURNAL OF POWER SOURCES*
Fabian, T., O'Hayre, R., Litster, S., Prinz, F. B., Santiago, J. G.
2010; 195 (11): 3640-3644
- **Passive water management at the cathode of a planar air-breathing proton exchange membrane fuel cell** *JOURNAL OF POWER SOURCES*
Fabian, T., O'Hayre, R., Litster, S., Prinz, F. B., Santiago, J. G.
2010; 195 (10): 3201-3206
- **A self-priming, roller-free, miniature, peristaltic pump operable with a single, reciprocating actuator** *SENSORS AND ACTUATORS A-PHYSICAL*
Shkolnikov, V., Ramunas, J., Santiago, J. G.
2010; 160 (1-2): 141-146
- **Effects of Constant Voltage on Time Evolution of Propagating Concentration Polarization** *ANALYTICAL CHEMISTRY*
Zangle, T. A., Mani, A., Santiago, J. G.
2010; 82 (8): 3114-3117
- **In situ-polymerized wicks for passive water management in proton exchange membrane fuel cells** *JOURNAL OF POWER SOURCES*
Strickland, D. G., Santiago, J. G.
2010; 195 (6): 1667-1675
- **Ionic strength effects on electrophoretic focusing and separations** *ELECTROPHORESIS*
Bahga, S. S., Bercovici, M., Santiago, J. G.
2010; 31 (5): 910-919
- **Fluorescent Carrier Ampholytes Assay for Portable, Label-Free Detection of Chemical Toxins in Tap Water** *ANALYTICAL CHEMISTRY*
Bercovici, M., Kaigala, G. V., Backhouse, C. J., Santiago, J. G.
2010; 82 (5): 1858-1866
- **Method for Analyte Identification Using Isotachopheresis and a Fluorescent Carrier Ampholyte Assay** *ANALYTICAL CHEMISTRY*
Bercovici, M., Kaigala, G. V., Santiago, J. G.
2010; 82 (5): 2134-2138
- **Compact adaptive-grid scheme for high numerical resolution simulations of isotachopheresis** *JOURNAL OF CHROMATOGRAPHY A*
Bercovici, M., Lele, S. K., Santiago, J. G.
2010; 1217 (4): 588-599
- **Evidence shows concentration polarization and its propagation can be key factors determining electroosmotic pump performance** *SENSORS AND ACTUATORS B-CHEMICAL*
Strickland, D. G., Suss, M. E., Zangle, T. A., Santiago, J. G.
2010; 143 (2): 795-798
- **Miniaturized system for isotachopheresis assays** *LAB ON A CHIP*
Kaigala, G. V., Bercovici, M., Behnam, M., Elliott, D., Santiago, J. G., Backhouse, C. J.
2010; 10 (17): 2242-2250
- **Theory and experiments of concentration polarization and ion focusing at microchannel and nanochannel interfaces** *CHEMICAL SOCIETY REVIEWS*
Zangle, T. A., Mani, A., Santiago, J. G.
2010; 39 (3): 1014-1035
- **Purification of Nucleic Acids from Whole Blood Using Isotachopheresis** *ANALYTICAL CHEMISTRY*

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- Persat, A., Marshall, L. A., Santiago, J. G.
2009; 81 (22): 9507-9511
- **Engineering model for coupling wicks and electroosmotic pumps with proton exchange membrane fuel cells for active water management** *ELECTROCHIMICA ACTA*
Litster, S., Buie, C. R., Santiago, J. G.
2009; 54 (26): 6223-6233
 - **Two-phase hydrodynamics in a miniature direct methanol fuel cell** *INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER*
Buie, C. R., Santiago, J. G.
2009; 52 (21-22): 5158-5166
 - **Electrokinetic control of sample splitting at a channel bifurcation using isotachopheresis** *NEW JOURNAL OF PHYSICS*
Persat, A., Santiago, J. G.
2009; 11
 - **Effects of carbon dioxide on peak mode isotachopheresis: Simultaneous preconcentration and separation** *LAB ON A CHIP*
Khurana, T. K., Santiago, J. G.
2009; 9 (10): 1377-1384
 - **Imaging and Quantification of Isotachopheresis Zones Using Nonfocusing Fluorescent Tracers** *ANALYTICAL CHEMISTRY*
Chambers, R. D., Santiago, J. G.
2009; 81 (8): 3022-3028
 - **On the Propagation of Concentration Polarization from Microchannel-Nanochannel Interfaces Part II: Numerical and Experimental Study** *LANGMUIR*
Zangle, T. A., Mani, A., Santiago, J. G.
2009; 25 (6): 3909-3916
 - **On the Propagation of Concentration Polarization from Microchannel-Nanochannel Interfaces Part I: Analytical Model and Characteristic Analysis** *LANGMUIR*
Mani, A., Zangle, T. A., Santiago, J. G.
2009; 25 (6): 3898-3908
 - **Electrokinetics in nanochannels. Part II. Mobility dependence on ion density and ionic current measurements (vol 325, pg 539, 2008)** *JOURNAL OF COLLOID AND INTERFACE SCIENCE*
Baldessari, F., Santiago, J. G.
2009; 331 (2): 550-550
 - **Electrokinetics in nanochannels. Part I. Electric double layer overlap and channel-to-well equilibrium (vol 325, pg 526, 2008)** *JOURNAL OF COLLOID AND INTERFACE SCIENCE*
Baldessari, F., Santiago, J. G.
2009; 331 (2): 549-549
 - **Dry gas operation of proton exchange membrane fuel cells with parallel channels: Non-porous versus porous plates** *JOURNAL OF POWER SOURCES*
Litster, S., Santiago, J. G.
2009; 188 (1): 82-88
 - **Open source simulation tool for electrophoretic stacking, focusing, and separation** *JOURNAL OF CHROMATOGRAPHY A*
Bercovici, M., Lele, S. K., Santiago, J. G.
2009; 1216 (6): 1008-1018
 - **Basic principles of electrolyte chemistry for microfluidic electrokinetics. Part I: Acid-base equilibria and pH buffers** *LAB ON A CHIP*
Persat, A., Chambers, R. D., Santiago, J. G.
2009; 9 (17): 2437-2453
 - **Corrigendum to 'Electrokinetics in Nanochannels: Part II: Mobility Dependence on Ion Density and Ionic Current Measurements** *Journal of Colloid and Interface Science*
Baldessari, F., Santiago, J., G.
2009; 2 (331): 550-550

- **Corrigendum to 'Electrokinetics in Nanochannels. Part I: Electric Double Layer Overlap and Channel-to-Well Equilibrium** *Journal of Colloid and Interface Science*
Baldessari, F., Santiago, J., G.
2009; 2 (331): 549-549
- **In-situ Polymerized Wicks for Passive Water Management and Humidification of Dry Gases** *9th Proton Exchange Membrane Fuel Cell Symposium (PEMFC) Conducted Under the Auspices of the 216th Meeting of the Electrochemical-Society-Inc*
STRICKLAND, D. G., Santiago, J. G.
ELECTROCHEMICAL SOC INC.2009: 303-9
- **NANOPORE CONCENTRATION POLARIZATION** *ASME International Mechanical Engineering Congress and Exposition*
Talasaz, A. H., Zangle, T. A., Santiago, J. G.
AMER SOC MECHANICAL ENGINEERS.2009: 871-872
- **IN-SITU POLYMERIZED WICKS FOR PASSIVE WATER MANAGEMENT IN PEM FUEL CELL SYSTEMS** *3rd International Conference on Energy Sustainability*
Strickland, D. G., Fenning, D., Litster, S., Santiago, J. G.
AMER SOC MECHANICAL ENGINEERS.2009: 325-326
- **Special issue on fundamental principles and techniques in microfluidics** *LAB ON A CHIP*
Santiago, J. G., Chen, C.
2009; 9 (17): 2423-2424
- **Basic principles of electrolyte chemistry for microfluidic electrokinetics. Part II: Coupling between ion mobility, electrolysis, and acid-base equilibria** *LAB ON A CHIP*
Persat, A., Suss, M. E., Santiago, J. G.
2009; 9 (17): 2454-2469
- **Hydrodynamic interactions in metal rodlike-particle suspensions due to induced charge electroosmosis** *PHYSICAL REVIEW E*
Rose, K. A., Hoffman, B., Saintillan, D., Shaqfeh, E. S., Santiago, J. G.
2009; 79 (1)
- **Rapid and selective extraction, isolation, preconcentration, and quantitation of small RNAs from cell lysate using on-chip isotachopheresis** *LAB ON A CHIP*
Schoch, R. B., Ronaghi, M., Santiago, J. G.
2009; 9 (15): 2145-2152
- **Electrokinetics in nanochannels - Part I. Electric double layer overlap and channel-to-well equilibrium** *JOURNAL OF COLLOID AND INTERFACE SCIENCE*
Baldessari, F.
2008; 325 (2): 526-538
- **Electrokinetics in nanochannels - Part II. Mobility dependence on ion density and ionic current measurements** *JOURNAL OF COLLOID AND INTERFACE SCIENCE*
Baldessari, F.
2008; 325 (2): 539-546
- **Sample zone dynamics in peak mode isotachopheresis** *ANALYTICAL CHEMISTRY*
Khurana, T. K., Santiago, J. G.
2008; 80 (16): 6300-6307
- **Lymphocyte electrotaxis in vitro and in vivo** *JOURNAL OF IMMUNOLOGY*
Lin, F., Baldessari, F., Gyenge, C. C., Sato, T., Chambers, R. D., Santiago, J. G., Butcher, E. C.
2008; 181 (4): 2465-2471
- **A depth-averaged electrokinetic flow model for shallow microchannels** *JOURNAL OF FLUID MECHANICS*
Lin, H., Storey, B. D., Santiago, J. G.
2008; 608: 43-70
- **Ballistic dispersion in temperature gradient focusing** *PROCEEDINGS OF THE ROYAL SOCIETY A-MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES*

-
- Huber, D. E., Santiago, J. G.
2008; 464 (2091): 595-612
- **High flow rate per power electroosmotic pumping using low ion density solvents** *SENSORS AND ACTUATORS A-PHYSICAL*
Kim, D., Posner, J. D., Santiago, J. G.
2008; 141 (1): 201-212
 - **Preconcentration, separation, and indirect detection of nonfluorescent analytes using fluorescent mobility markers** *ANALYTICAL CHEMISTRY*
Khurana, T. K., Santiago, J. G.
2008; 80 (1): 279-286
 - **Quick Measurement of Electroosmotic Flow Velocity** *Chips & Tips, Lab on a Chip*
Nohmi, M., Santiago, J., G.
2008
 - **Physics of pumping methanol/water solutions for fuel cell applications** *ASME International Mechanical Engineering Congress and Exposition*
Buie, C. R., Litster, S., Santiago, J. G.
AMER SOC MECHANICAL ENGINEERS.2008: 637-642
 - **Taylor Dispersion in Sample Pre-Concentration Methods** *CRC Handbook of Electrophoresis*
Bharadwaj, R., Huber, D., E., Khurana, T., Santiago, Juan, G.
edited by Landers, J.
CRC Press.2008; 3rd: 1085-1120
 - **Model and Experimental Study of Hydrodynamic Coupling between a Fuel Pump and a Direct Methanol Fuel Cell** *8th Symposium on Proton Exchange Membrane Fuel Cells*
Buie, C. R., Santiago, J. G.
ELECTROCHEMICAL SOCIETY INC.2008: 1525-38
 - **On-chip isothermal polymerase chain reaction** *ASME International Mechanical Engineering Congress and Exposition*
Morita, T., Persat, A., Santiago, J. G.
AMER SOC MECHANICAL ENGINEERS.2008: 1003-1004
 - **INDIRECT FLUORESCENCE DETECTION OF NON FLUORESCENT ANALYTES USING ISOTACHOPHORETIC MOBILITY MARKERS** *6th International Conference on Nanochannels, Microchannels and Minichannels*
Khurana, T. K., Bercovici, M., Santiago, J. G.
AMER SOC MECHANICAL ENGINEERS.2008: 1701-1706
 - **On-chip indirect detection of non-fluorescent analytes using fluorescent spacers** *ASME International Mechanical Engineering Congress and Exposition*
Khurana, T. K., Santiago, J. G.
AMER SOC MECHANICAL ENGINEERS.2008: 901-904
 - **Two-liquid electroosmotic pump for portable drug delivery systems** *ASME International Mechanical Engineering Congress and Exposition*
Litster, S., Ha, B., Kim, D., Santiago, J. A.
AMER SOC MECHANICAL ENGINEERS.2008: 963-964
 - **Experimental study of concentration polarization at a microchannel-nanochannel interface** *ASME International Mechanical Engineering Congress and Exposition*
Mani, A., Zangle, T. A., Santiago, J. G.
AMER SOC MECHANICAL ENGINEERS.2008: 911-912
 - **On-chip preconcentration and separation of simple and complex analytes using isotachopheresis** *ASME International Mechanical Engineering Congress and Exposition*
Khurana, T. K., Persat, A., Santiago, J. G.
AMER SOC MECHANICAL ENGINEERS.2008: 857-861
 - **Toward orientation-independent design for gas recombination in closed-loop electroosmotic pumps** *SENSORS AND ACTUATORS B-CHEMICAL*
Lin, C., Yao, S., Posner, J. D., Myers, A. M., Santiago, J. G.
2007; 128 (1): 334-339
 - **Investigation of internal pressure gradients generated in electrokinetic flows with axial conductivity gradients** *EXPERIMENTS IN FLUIDS*
-

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