

# Stanford

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## Juan Santiago

Professor of Mechanical Engineering

### CONTACT INFORMATION

- **Alternate Contact**

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### Bio

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#### 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

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### CURRENT RESEARCH AND SCHOLARLY INTERESTS

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

## Teaching

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### COURSES

#### 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)

#### 2013-14

- Advanced Topics in Electrokinetics: ME 458 (Spr)
- Experimental Methods in Fluid Mechanics: ME 354 (Aut)
- Fluid Flow in Microdevices: ME 457 (Spr)

## Publications

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### 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 isotachopheresis.** *Analytical chemistry*  
Qu, Y., Marshall, L. A., Santiago, J. G.  
2014; 86 (15): 7264-7268
- **Coupling Isotachopheresis 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 Isotachopheresis 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 isotachopheresis** *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 isotachopheresis.** *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 Isotachopheresis 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
- **Isotachopheresis 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 Isotachopheresis 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 isotachopheresis 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 Isotachopheresis** *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 Isotachopheretic Preconcentration and Electrophoretic Separation Using Bidirectional Isotachopheresis** *ANALYTICAL CHEMISTRY*  
Bahga, S. S., Chambers, R. D., Santiago, J. G.  
2011; 83 (16): 6154-6162
- **Sample dispersion in isotachopheresis** *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 Isotachopheresis 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 Isotachopheresis and Hybridization with Molecular Beacons** *ANALYTICAL CHEMISTRY*  
Persat, A., Santiago, J. G.  
2011; 83 (6): 2310-2316
- **High-sensitivity detection using isotachopheresis 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 isotachopheresis 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 Isotachopheresis** *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*  
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 isotachophoresis** *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*  
Devasenathipathy, S., Bharadwaj, R., Santiago, J. G.  
2007; 43 (6): 959-967

- **Free-surface microfluidic control of surface-enhanced Raman spectroscopy for the optimized detection of airborne molecules** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Piorek, B. D., Lee, S. J., Santiago, J. G., Moskovits, M., Banerjee, S., Meinhart, C. D.  
2007; 104 (48): 18898-18901
- **Current distribution in polymer electrolyte membrane fuel cell with active water management** *JOURNAL OF POWER SOURCES*  
Strickland, D. G., Litster, S., Santiago, J. G.  
2007; 174 (1): 272-281
- **Free-solution oligonucleotide separation in nanoscale channels** *ANALYTICAL CHEMISTRY*  
Pennathur, S., Baldessari, F., Santiago, J. G., Kattah, M. G., Steinman, J. B., Utz, P. J.  
2007; 79 (21): 8316-8322
- **Taylor-Aris dispersion in temperature gradient focusing** *ELECTROPHORESIS*  
Huber, D. E., Santiago, J. G.  
2007; 28 (14): 2333-2344
- **Comments on the conditions for similitude in electroosmotic flows** *JOURNAL OF COLLOID AND INTERFACE SCIENCE*  
Santiago, J. G.  
2007; 310 (2): 675-677
- **Engineering model of a passive planar air breathing fuel cell cathode** *JOURNAL OF POWER SOURCES*  
O'Hayre, R., Fabian, T., Litster, S., Prinz, F. B., Santiago, J. G.  
2007; 167 (1): 118-129
- **Measurement of temperature and reaction species in the cathode diffusion layer of a free-convection fuel cell** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*  
Fabian, T., O'Hayre, R., Prinz, F. B., Santiago, J. G.  
2007; 154 (9): B910-B918
- **Microfluidic Control of Nanoparticle Aggregation for Surfaced Enhanced Raman Spectroscopy**  
Piorek, B., Lee, S., J., Moskovits, M., Banerjee, S., Santiago, J., G., Meinhart, C.  
2007
- **Ballistic Dispersion in Temperature Gradient Focusing**  
Huber, D., E., Santiago, J., G.  
2007
- **On-Chip Electrophoresis Devices: Do's, Don'ts, and Dooms** *Chips & Tips, Lab on a Chip*  
Persat, A., Zangle, T., A., Posner, J., D., Santiago, J., G.  
2007
- **Detection of 100 aM fluorophores using a high-sensitivity on-chip CE system and transient isotachopheresis** *ANALYTICAL CHEMISTRY*  
Jung, B., Zhu, Y., Santiago, J. G.  
2007; 79 (1): 345-349
- **An electro-osmotic fuel pump for direct methanol fuel cells** *ELECTROCHEMICAL AND SOLID STATE LETTERS*  
Buie, C. R., Kim, D., Litster, S., Santiago, J. G.  
2007; 10 (11): B196-B200
- **Active water management for PEM fuel cells** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*  
Litster, S., Buie, C. R., Fabian, T., Eaton, J. K., Santiago, J. G.  
2007; 154 (10): B1049-B1058
- **Rotational electrophoresis of striped metallic microrods** *PHYSICAL REVIEW E*  
Rose, K. A., Meier, J. A., Dougherty, G. M., Santiago, J. G.  
2007; 75 (1)
- **The role of ambient conditions on the performance of a planar, air-breathing hydrogen PEM fuel cell** *JOURNAL OF POWER SOURCES*  
Fabian, T., Posner, J. D., O'Hayre, R., Cha, S., Eaton, J. K., Prinz, F. B., Santiago, J. G.

2006; 161 (1): 168-182

- **Water management in proton exchange membrane fuel cells using integrated electroosmotic pumping** *JOURNAL OF POWER SOURCES*  
Buie, C. R., Posner, J. D., Fabian, T., Cha, S., Kim, D., Prinz, F. B., Eaton, J. K., Santiago, J. G.  
2006; 161 (1): 191-202
- **Optimization of a microfluidic mixer for studying protein folding kinetics** *ANALYTICAL CHEMISTRY*  
Hertzog, D. E., Ivorra, B., Mohammadi, B., Bakajin, O., Santiago, J. G.  
2006; 78 (13): 4299-4306
- **Electroosmotic pumps fabricated from porous silicon membranes** *JOURNAL OF MICROELECTROMECHANICAL SYSTEMS*  
Yao, S., Myers, A. M., Posner, J. D., Rose, K. A., Santiago, J. G.  
2006; 15 (3): 717-728
- **A hybrid method for bubble geometry reconstruction in two-phase microchannels** *EXPERIMENTS IN FLUIDS*  
Wang, E. N., Devasenathipathy, S., Lin, H., Hidrovo, C. H., Santiago, J. G., Goodson, K. E., Kenny, T. W.  
2006; 40 (6): 847-858
- **Convective instability of electrokinetic flows in a cross-shaped microchannel** *JOURNAL OF FLUID MECHANICS*  
Posner, J. D., Santiago, J. G.  
2006; 555: 1-42
- **Semi-deterministic and genetic algorithms for global optimization of microfluidic protein-folding devices** *INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING*  
Ivorra, B., Hertzog, D. E., Mohammadi, B., Santiago, J. G.  
2006; 66 (2): 319-333
- **On-chip millionfold sample stacking using transient isotachopheresis** *ANALYTICAL CHEMISTRY*  
Jung, B., Bharadwaj, R., Santiago, J. G.  
2006; 78 (7): 2319-2327
- **Electrophoresis in nanochannels: brief review and speculation.** *Journal of nanobiotechnology*  
Baldessari, F., Santiago, J. G.  
2006; 4: 12-?
- **Advanced cooling technologies for microprocessors** *Workshop on Frontiers in Electronics (WOFE-04)*  
Kenny, T. W., Goodson, K. E., Santiago, J. G., Wang, E., Koo, J., Jiang, L., Pop, E., Sinha, S., Zhang, L., Fogg, D., Yao, S., Flynn, R., Chang, et al  
WORLD SCIENTIFIC PUBL CO PTE LTD.2006: 301-313
- **Direct water removal in gas diffusion layer of porton exchnage membrane fuel cells by a flexible electroosmotic pump** *4th International Conference on Fuel Cell Science, Engineering and Technology*  
Cha, S. W., Fabian, T., Posner, J., BUIE, C., Kim, D. J., Prinz, F. B., Eaton, J. K., Santiago, J.  
AMER SOC MECHANICAL ENGINEERS.2006: 1169-1171
- **A microfabricated direct methanol fuel cell with integrated electroosmotic pump** *19th IEEE International Conference on Micro Electro Mechanical Systems (MEMS 2006)*  
Buie, C. R., BANIN, Y., Tang, C. Y., Santiago, J. G., Prinz, F. B., Pruitt, B. L.  
IEEE.2006: 938-941
- **ELECTROPHORESIS IN NANOCANNELS** *2nd US-European Fluids Engineering Division Summer Meeting/14th International Conference on Nuclear Engineering*  
Pennathur, S., Baldessari, F., Kattah, M., Utz, P. J., Santiago, J. G.  
AMER SOC MECHANICAL ENGINEERS.2006: 589-593
- **Dynamics of field-amplified sample stacking** *JOURNAL OF FLUID MECHANICS*  
Bharadwaj, R., Santiago, J. G.  
2005; 543: 57-92
- **Electrokinetic transport in nanochannels. 1. Theory** *ANALYTICAL CHEMISTRY*  
Pennathur, S., Santiago, J. G.  
2005; 77 (21): 6772-6781

- **Electrokinetic transport in nanochannels. 2. Experiments** *ANALYTICAL CHEMISTRY*  
Pennathur, S., Santiago, J. G.  
2005; 77 (21): 6782-6789
- **Temperature gradient focusing in a microfluidic device** *9th Heat Transfer Photogallery*  
Huber, D., Santiago, J. G.  
ASME-AMER SOC MECHANICAL ENG.2005: 806–
- **Multiple-species model for electrokinetic instability** *PHYSICS OF FLUIDS*  
Oddy, M. H., Santiago, J. G.  
2005; 17 (6)
- **Convective and absolute electrokinetic instability with conductivity gradients** *JOURNAL OF FLUID MECHANICS*  
Chen, C. H., Lin, H., Lele, S. K., Santiago, J. G.  
2005; 524: 263-303
- **Microsecond mixer for kinetic studies of protein folding** *49th Annual Meeting of the Biophysical-Society*  
Hertzog, D., Michalet, X., Jager, M., Kong, X. X., Santiago, J., Weiss, S., Bakajin, O.  
CELL PRESS.2005: 376A–376A
- **A Multiple-Species Model for Electrokinetic Instability** *Physics of Fluids*  
Oddy, M., H., Santiago, J., G.  
2005; 6 (17): 064108(1)- 064108(17)
- **A high fidelity electrokinetic flow model for the prediction of electrophoregrams in on-chip electrophoresis applications** *ASME International Mechanical Engineering Congress and Exposition*  
Lin, H., Bharadwaj, R., Santiago, J. G., Mohammadi, B.  
AMER SOC MECHANICAL ENGINEERS.2005: 197–199
- **Non-linear stacking effects in microfluidic temperature gradient focusing** *ASME International Mechanical Engineering Congress and Exposition*  
Huber, D. E., Santiago, J. G.  
AMER SOC MECHANICAL ENGINEERS.2005: 341–344
- **Nonlinear dynamics of electrokinetic instabilities** *ASME International Mechanical Engineering Congress and Exposition*  
Posner, J. D., Santiago, J. G.  
AMER SOC MECHANICAL ENGINEERS.2005: 209–212
- **Electrokinetic flow instabilities in microfluidic systems** *21st International Congress of Theoretical and Applied Mechanics*  
Lin, H., Oddy, M. H., Santiago, J. G.  
SPRINGER.2005: 343–354
- **Convective electrokinetic flow instabilities in a cross-shaped microchannel** *8th International Conference on Miniaturized Systems for Chemistry and Life Sciences*  
Posner, J. D., Lin, H., Santiago, J. G.  
SPRINGER.2005: 623–25
- **Active water management for proton exchange membrane fuel cells using an integrated electroosmotic pump** *ASME International Mechanical Engineering Congress and Exposition*  
Buie, C. R., Posner, J. D., Fabian, T., Cha, S., Prinz, F. B., Eaton, J. K., Santiago, J. G.  
AMER SOC MECHANICAL ENGINEERS.2005: 243–247
- **High flow rate per power pumping of aqueous solutions and organic solvents with electroosmotic pumps** *ASME International Mechanical Engineering Congress and Exposition*  
Kim, D., Posner, J. D., Santiago, J. G.  
AMER SOC MECHANICAL ENGINEERS.2005: 311–314
- **Electrokinetic transport and dispersion in nanoscale channels** *8th International Conference on Miniaturized Systems for Chemistry and Life Sciences*  
Pennathur, S., Santiago, J. G.  
SPRINGER.2005: 402–4

- **Electrokinetic instabilities in thin microchannels** *PHYSICS OF FLUIDS*  
Storey, B. D., Tilley, B. S., Lin, H., Santiago, J. G.  
2005; 17 (1)
- **Microfluidic mixers for UV studies of unlabeled proteins** *8th International Conference on Miniaturized Systems for Chemistry and Life Sciences*  
Hertzog, D., Santiago, J., Bakajin, O.  
SPRINGER.2005: 539-41
- **Femtomole mixer for microsecond kinetic studies of protein folding** *ANALYTICAL CHEMISTRY*  
Hertzog, D. E., Michalet, X., Jager, M., Kong, X. X., Santiago, J. G., Weiss, S., Bakajin, O.  
2004; 76 (24): 7169-7178
- **Nucleation and growth of vapor bubbles in a heated silicon microchannel** *JOURNAL OF HEAT TRANSFER-TRANSACTIONS OF THE ASME*  
Wang, E. N., Devasenathipathy, S., Santiago, J. G., Goodson, K. E., Kenny, T. W.  
2004; 126 (4): 497-497
- **A laser induced cavitation pump** *JOURNAL OF MICROMECHANICS AND MICROENGINEERING*  
Wang, G. R., Santiago, J. G., Mungal, M. G., Young, B., Papademetriou, S.  
2004; 14 (7): 1037-1046
- **Instability of electrokinetic microchannel flows with conductivity gradients** *PHYSICS OF FLUIDS*  
Lin, H., Storey, B. D., Oddy, M. H., Chen, C. H., Santiago, J. G.  
2004; 16 (6): 1922-1935
- **A review of micropumps** *JOURNAL OF MICROMECHANICS AND MICROENGINEERING*  
Laser, D. J., Santiago, J. G.  
2004; 14 (6): R35-R64
- **High-pressure electroosmotic pumps based on porous polymer monoliths** *SENSORS AND ACTUATORS B-CHEMICAL*  
Tripp, J. A., Svec, F., Frechet, J. M., Zeng, S. L., Mikkelsen, J. C., Santiago, J. G.  
2004; 99 (1): 66-73
- **Computational study of band-crossing reactions** *JOURNAL OF MICROELECTROMECHANICAL SYSTEMS*  
Matta, A., Knio, O. M., Ghanem, R. G., Chen, C. H., Santiago, J. G., Debusschere, B., Najm, H. N.  
2004; 13 (2): 310-322
- **Optimized field amplified sample stacking for on-chip capillary electrophoresis.** *227th National Meeting of the American-Chemical Society*  
Bharadwaj, R., Jung, Y. S., Santiago, J. G.  
AMER CHEMICAL SOC.2004: U116-U116
- **A method for determining electrophoretic and electroosmotic mobilities using AC and DC electric field particle displacements** *JOURNAL OF COLLOID AND INTERFACE SCIENCE*  
Oddy, M. H., Santiago, J. G.  
2004; 269 (1): 192-204
- **Electrokinetic Flow Diagnostics** *Micro- and Nano-Scale Diagnostic Techniques*  
Devasenathipathy, S., Santiago, J., G.  
edited by Breuer, K.  
New York, Springer Verlag.2004: 1
- **Porous glass electroosmotic pumps: design and experiments** *JOURNAL OF COLLOID AND INTERFACE SCIENCE*  
Yao, S. H., Hertzog, D. E., Zeng, S. L., Mikkelsen, J. C., Santiago, J. G.  
2003; 268 (1): 143-153
- **Porous glass electroosmotic pumps: theory** *JOURNAL OF COLLOID AND INTERFACE SCIENCE*  
Yao, S. H., Santiago, J. G.  
2003; 268 (1): 133-142
- **Thousandfold signal increase using field-amplified sample stacking for on-chip electrophoresis** *19th Annual Conference of the American-Electrophoresis-Society*

- Jung, B., Bharadwaj, R., Santiago, J. G.  
WILEY-VCH VERLAG GMBH.2003: 3476-83
- **Particle imaging techniques for microfabricated fluidic systems** *EXPERIMENTS IN FLUIDS*  
Devasenathipathy, S., Santiago, J. G., Wereley, S. T., Meinhart, C. D., Takehara, K.  
2003; 34 (4): 504-514
  - **On-chip coupling of isoelectric focusing and free solution electrophoresis for multidimensional separations** *ANALYTICAL CHEMISTRY*  
Herr, A. E., Molho, J. I., Drouvalakis, K. A., Mikkelsen, J. C., Utz, P. J., Santiago, J. G., Kenny, T. W.  
2003; 75 (5): 1180-1187
  - **Incomplete sensitivities for the design of minimal dispersion fluidic channels** *COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING*  
Mohammadi, B., Molho, J. I., Santiago, J. G.  
2003; 192 (37-38): 4131-4145
  - **Thermodynamic efficiency of porous glass electroosmotic pumps** *International Electronic Packaging Technical Conference*  
Yao, S. H., Zeng, S. L., Santiago, J. G.  
AMER SOC MECHANICAL ENGINEERS.2003: 383-390
  - **Particle Tracking Techniques for Microfabricated Fluidic Systems** *Experiments in Fluids*  
Devasenathipathy, S., Santiago, J. G., Wereley, S. T., Meinhart, C. D.  
2003; 4 (34): 504-513
  - **Incomplete Sensitivities in Design and Control of Fluidic Channels** *Computer Assisted Mechanics and Engineering Sciences*  
Mohammadi, B., Santiago, J. G.  
2003; 10: 201-210
  - **Numerical simulation of field amplified sample stacking in microfluidic system** *Nanotechnology Conference and Trade Show (Nanotech 2003)*  
Feng, J. J., Krishnamoorthy, S., Sundaram, S., Bharadwaj, R., Santiago, J. G.  
COMPUTATIONAL PUBLICATIONS.2003: 234-237
  - **Experimental study on two-phase heat transfer in microchannel heat sinks with hotspots** *19th Annual IEEE Semiconductor Thermal Measurement and Management Symposium*  
Cho, E. S., Koo, J. M., Jiang, L., Prasher, R. S., Kim, M. S., Santiago, J. G., Kenny, T. W., Goodson, K. E.  
IEEE.2003: 242-246
  - **Silicon electroosmotic micropumps for integrated circuit thermal management** *12th International Conference on Solid-State Sensors, Actuators and Microsystems (TRANSDUCERS 03)*  
Laser, D. J., Myers, A. M., Yao, S. H., BELL, K. F., Goodson, K. E., Santiago, J. G., Kenny, T. W.  
IEEE.2003: 151-154
  - **Microfluidic flow simulation: Stacking one-dimensional study** *HOUILLE BLANCHE-REVUE INTERNATIONALE DE L'EAU*  
Alexis-Alexandre, G., Mohammadi, B., Santiago, J. G., Bharadwaj, R.  
2003: 18-23
  - **A planar electroosmotic micropump** *JOURNAL OF MICROELECTROMECHANICAL SYSTEMS*  
Chen, C. H., Santiago, J. G.  
2002; 11 (6): 672-683
  - **Photobleached-fluorescence imaging of microflows** *EXPERIMENTS IN FLUIDS*  
Mosier, B. P., Molho, J. I., Santiago, J. G.  
2002; 33 (4): 545-554
  - **Closed-loop electroosmotic microchannel cooling system for VLSI circuits** *17th Annual IEEE Semiconductor Thermal Measurement and Management Symposium*  
Jiang, L. N., Mikkelsen, J., Koo, J. M., Huber, D., Yao, S. H., Zhang, L., Zhou, P., Maveety, J. G., Prasher, R., Santiago, J. G., Kenny, T. W., Goodson, K. E.  
IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC.2002: 347-55
  - **Design and optimization of on-chip capillary electrophoresis** *ELECTROPHORESIS*  
Bharadwaj, R., Santiago, J. G., Mohammadi, B.  
2002; 23 (16): 2729-2744

- **Particle tracking techniques for electrokinetic microchannel flows** *ANALYTICAL CHEMISTRY*  
Devasenathipathy, S., Santiago, J. G., Takehara, K.  
2002; 74 (15): 3704-3713
- **Electroosmotic flow pumps with polymer frits** *SENSORS AND ACTUATORS B-CHEMICAL*  
Zeng, S. L., Chen, C. H., Santiago, J. G., Chen, J. R., Zare, R. N., Tripp, J. A., Svec, F., Frechet, J. M.  
2002; 82 (2-3): 209-212
- **Measurements and modeling of two-phase flow in microchannels with nearly constant heat flux boundary conditions** *JOURNAL OF MICROELECTROMECHANICAL SYSTEMS*  
Zhang, L., Koo, J. M., Jiang, L., Asheghi, M., Goodson, K. E., Santiago, J. G., Kenny, T. W.  
2002; 11 (1): 12-19
- **Bleached-Fluorescence Imaging of Microflows** *Experiments in Fluids*  
Mosier, B., P., Molho, J., I., Santiago, J., G.  
2002; 4 (33): 545-554
- **Enhanced nucleate boiling in microchannels** *15th IEEE International Conference on Micro Electro Mechanical Systems (MEMS 2002)*  
Zhang, L., Wang, E. N., Koo, J. M., Jiang, L., Goodson, K. E., Santiago, J. G., Kenny, T. W.  
IEEE.2002: 89-92
- **Transient and sub-atmospheric performance of a closed-loop electroosmotic microchannel cooling system** *THERMES 2002 International Conference*  
Jiang, L., Mikkelsen, J., Koo, J. M., Zhang, L., Huber, D., Yao, S., Bari, A., Zhou, P., Santiago, J., Kenny, T., Goodson, K. E., Maveety, J., Prasher, et al  
MILLPRESS SCIENCE PUBLISHERS.2002: 133-139
- **Electroosmotic microchannel cooling system for microprocessors** *Electronics Cooling*  
Goodson, K., E., Santiago, J., G., Kenny, T., Jiang, L., Zeng, S., Koo, J., M.  
2002; 8: 46-47
- **Electrokinetic instability micromixing** *ANALYTICAL CHEMISTRY*  
Oddy, M. H., Santiago, J. G., Mikkelsen, J. C.  
2001; 73 (24): 5822-5832
- **Fabrication and characterization of electroosmotic micropumps** *SENSORS AND ACTUATORS B-CHEMICAL*  
Zeng, S. L., Chen, C. H., Mikkelsen, J. C., Santiago, J. G.  
2001; 79 (2-3): 107-114
- **Electroosmotic flows in microchannels with finite inertial and pressure forces** *ANALYTICAL CHEMISTRY*  
Santiago, J. G.  
2001; 73 (10): 2353-2365
- **Simulation and design of extraction and separation fluidic devices** *ESAIM-MATHEMATICAL MODELLING AND NUMERICAL ANALYSIS-MODELISATION MATHEMATIQUE ET ANALYSE NUMERIQUE*  
Mohammadi, B., Santiago, J. G.  
2001; 35 (3): 513-523
- **Optimization of turn geometries for microchip electrophoresis** *ANALYTICAL CHEMISTRY*  
Molho, J. I., Herr, A. E., Mosier, B. P., Santiago, J. G., Kenny, T. W., Brennen, R. A., Gordon, G. B., Mohammadi, B.  
2001; 73 (6): 1350-1360
- **Two-phase microchannel heat sinks for an electrokinetic VLSI chip cooling system** *17th Annual IEEE Semiconductor Thermal Measurement and Management Symposium*  
Jiang, L. N., Koo, J. M., Zeng, S. L., Mikkelsen, J. C., Zhang, L., Zhou, P., Santiago, J. G., Kenny, T. W., Goodson, K. E., Maveety, J. G., Tran, Q. A.  
IEEE.2001: 153-157
- **Liquid Flows in Microchannels** *CRC Handbook of MEMS*  
Sharp, K., V., Adrian, R., J., Santiago, J., G., Molho, J., I.  
edited by Gad-el-Hak, M.  
CRC Press, New York.2001: 6-1 to 6-38

- **Modeling of two-phase microchannel heat sinks for VLSI chips** *14th IEEE International Conference on Micro Electro Mechanical Systems (MEMS 2001)*  
Koo, J. M., Jiang, L. N., Zhang, L., Zhou, P., Banerjee, S. S., Kenny, T. W., Santiago, J. G., Goodson, K. E.  
IEEE.2001: 422–426
- **A micromachined silicon low-voltage parallel-plate electrokinetic pump** *11th International Conference on Solid-State Sensors and Actuators*  
Laser, D., Yao, S. H., Chen, C. H., Mikkelsen, J., Goodson, K., Santiago, J., Kenny, T.  
SPRINGER-VERLAG BERLIN.2001: 920–923
- **Passive mixing in a three-dimensional serpentine microchannel** *JOURNAL OF MICROELECTROMECHANICAL SYSTEMS*  
Liu, R. H., Stremmer, M. A., Sharp, K. V., Olsen, M. G., Santiago, J. G., Adrian, R. J., Aref, H., Beebe, D. J.  
2000; 9 (2): 190-197
- **A PIV algorithm for estimating time-averaged velocity fields** *JOURNAL OF FLUIDS ENGINEERING-TRANSACTIONS OF THE ASME*  
Meinhart, C. D., Wereley, S. T., Santiago, J. G.  
2000; 122 (2): 285-289
- **Particle-image velocimetry measurements in electrokinetic flow.**  
Devasenathipathy, S., Santiago, J. G.  
AMER CHEMICAL SOC.2000: U578–U578
- **Mixing of a sonic transverse jet injected into a supersonic flow** *AIAA JOURNAL*  
VanLerberghe, W. M., Santiago, J. G., Dutton, J. C., Lucht, R. P.  
2000; 38 (3): 470-479
- **Electroosmotic capillary flow with nonuniform zeta potential** *ANALYTICAL CHEMISTRY*  
Herr, A. E., Molho, J. I., Santiago, J. G., Mungal, M. G., Kenny, T. W., Garguilo, M. G.  
2000; 72 (5): 1053-1057
- **Micron-resolution velocimetry techniques** *9th International Symposium on Applications of Laser Techniques to Fluid Mechanics*  
Meinhart, C. D., Wereley, S. T., Santiago, J. G.  
SPRINGER-VERLAG BERLIN.2000: 57–70
- **Designing corner compensation for electrophoresis in compact geometries** *4th International Symposium on Micro Total Analysis Systems ((mu)TAS 2000)*  
Molho, J. I., Herr, A. E., Mosier, B. P., Santiago, J. G., Kenny, T. W., Brennen, R. A., Gordon, G. B.  
SPRINGER.2000: 287–290
- **Fabrication and characterization of electrokinetic micro pumps** *7th Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems*  
Zeng, S. L., Chen, C. H., Mikkelsen, J. C., Santiago, J. G.  
IEEE.2000: 31–36
- **Experimental investigation of flow transition in microchannels using micron-resolution particle image velocimetry** *7th Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems*  
Zeighami, R., LASER, D., Zhou, P., Asheghi, M., Devasenathipathy, S., Kenny, T., Santiago, J., Goodson, K.  
IEEE.2000: 148–153
- **Miniaturized capillary isoelectric focusing (cIEF): Towards a portable high-speed separation method** *4th International Symposium on Micro Total Analysis Systems ((mu)TAS 2000)*  
Herr, A. E., Molho, J. I., Santiago, J. G., Kenny, T. W., Borkholder, D. A., Kintz, G. J., Belgrader, P., Northrup, M. A.  
SPRINGER.2000: 367–370
- **Electroosmotic capillary flow with nonuniform zeta potential** *Analytical chemistry*  
Herr, A. E., Molho, J. I., Santiago, J. G., Mungal, M. G., Kenny, T. W., Garguilo, M. G.  
2000; 72 (5): 1053–57
- **PIV measurements of a microchannel flow** *EXPERIMENTS IN FLUIDS*  
Meinhart, C. D., Wereley, S. T., Santiago, J. G.  
1999; 27 (5): 414-419
- **Diagnostic Techniques for Microfluidics Research** *Developments in Laser Techniques and Applications to Fluid Mechanics*



Meinhart, C., D., Wereley, S., T., Santiago, J., G.  
edited by Adrian, R., J., Durao, D., F.G., Durst, F.  
Springer-Verlag, Berlin.1999: 1

- **A particle image velocimetry system for microfluidics** *EXPERIMENTS IN FLUIDS*  
Santiago, J. G., Wereley, S. T., Meinhart, C. D., Beebe, D. J., Adrian, R. J.  
1998; 25 (4): 316-319
- **Micro-resolution particle image velocimetry** *Conference on Microfabricated and Nanofabricated Structures and Devices for Biomedical Environmental Applications*  
Wereley, S. T., Santiago, J. G., Chiu, R., Meinhart, C. D., Adrian, R. J.  
SPIE - INT SOC OPTICAL ENGINEERING.1998: 122-133
- **Crossflow vortices of a jet injected into a supersonic crossflow** *AIAA JOURNAL*  
Santiago, J. G., Dutton, J. C.  
1997; 35 (5): 915-917
- **Velocity measurements of a jet injected into a supersonic crossflow** *JOURNAL OF PROPULSION AND POWER*  
Santiago, J. G., Dutton, J. C.  
1997; 13 (2): 264-273
- **Velocity Measurements of a Jet Injected into a Supersonic Crossflow** *Journal of Propulsion and Power*  
Santiago, J., G., Dutton, J., C.  
1997; 2 (13): 264-273
- **Crossflow Vortices of a Jet Injected into a Supersonic Crossflow** *AIAA Journal*  
Santiago, J., G., Dutton, J., C.  
1997; 5 (35): 915-917