Stanford

Juan G. Santiago

Charles Lee Powell Foundation Professor

Mechanical Engineering

Curriculum Vitae available Online

CONTACT INFORMATION

- **Alternate Contact**

  Linda Huber - Administrative Associate

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Bio

BIO

Juan G. Santiago received PhD in Mechanical Engineering from the University of Illinois at Urbana-Champaign in 1995. His research includes the development of microsystems for on-chip chemical and biochemical analysis, methods for DNA quantification and hybridization, and electric-field based deionization methods. He is a Fellow of the American Physical Society, a Fellow of the American Society of Mechanical Engineering, and a Fellow of the American Institute for Medical and Biological Engineering. In 2022, he was elected to the American Academy of Arts and Sciences and to the National Academy of Inventors. He serves and has served as an editor of several journals and has co-founded several companies in microfluidics. Santiago serves as Editor-in-Chief of the new journal Flow by Cambridge University Press. 32 of his ex-PhD students and ex-postdocs have continued in microfluidics research including 24 professors at major universities, eight in corporate labs, and four in microfluidic startup companies. He has authored and co-authored over 220 archival publications and is a named inventor on 60 patents, 27 of which are currently licensed.

ACADEMIC APPOINTMENTS

- Professor, Mechanical Engineering
- Member, Bio-X
- Member, Wu Tsai Human Performance Alliance
- Faculty Fellow, Sarafan ChEM-H

ADMINISTRATIVE APPOINTMENTS

- Vice Chair, Department of Mechanical Engineering, (2020- present)

HONORS AND AWARDS

- Fellow, National Academy of Inventors (2022)
- Fellow, American Academy of Arts and Sciences (2022)
- AES Lifetime Achievement Award, AES Electrophoresis Society (2021)
- Fellow, American Institute for Medical and Biological Engineering (AIMBE) (2016)
- 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)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Editor-in-Chief, Flow, Cambridge University Press (2020 - present)
- Editorial Board, Journal of Microfluidics and Nanofluidics, Springer-Verlag (2003 - present)
- Editorial Advisory Board, Analytical Chemistry, American Chemical Society (2015 - 2019)
- Editorial Board of the journal Micromachines, MDPI (2019 - present)
- Associate Editor, Lab on a Chip, Royal Society of Chemistry (2008 - 2013)

PROFESSIONAL EDUCATION

- PhD, University of Illinois at Urbana-Champaign , Mechanical Engineering (1995)
- MS, University of Illinois at Urbana-Champaign , Mechanical Engineering (1992)
- BS, University of Florida , Mechanical Engineering (1990)

LINKS

- Santiago lab: https://microfluidics.stanford.edu/

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

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

Teaching

COURSES

2024-25

- Experimental Methods in Fluid Mechanics: ME 354 (Win)
- Physics of Microfluidics: ME 360 (Spr)

2023-24

- Fluid Flow in Microdevices: ME 457 (Spr)
- Fluid Mechanics: ME 351B (Win)

2022-23

- Advanced Topics in Electrokinetics: ME 458 (Spr)
- Experimental Methods in Fluid Mechanics: ME 354 (Win)
- Seminar in Fluid Mechanics: ENGR 298 (Aut)

2021-22

- Fluid Flow in Microdevices: ME 457 (Spr)
- Fluid Mechanics: ME 351B (Win)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Raj Balaji-Wright, Katherine Jiang

Postdoctoral Faculty Sponsor

Ray Chang, Soumyadeep Paul

Doctoral Dissertation Advisor (AC)

Alexandre Avaro, Qi Jiang, Kunlin Ma

Master's Program Advisor

Melodie Walla, Andrew Zaman

Doctoral (Program)

Yousif Alkhulaifi, Reed Brown, Max Kessler, Julie Pongetti, Padmanabha Prasanna Simha, Josh Vandervort

Publications

PUBLICATIONS

- **Design and Evaluation of a Robust CRISPR Kinetic Assay for Hot-Spot Genotyping.** *Analytical chemistry*
  Blanluet, C., Kuo, C. J., Bhattacharya, A., Santiago, J. G.
  2024
- **Taylor dispersion in arbitrarily shaped axisymmetric channels** *JOURNAL OF FLUID MECHANICS*
  Chang, R., Santiago, J. G.
  2023; 976
- **A neural network model for rapid prediction of analyte focusing in isotachophoresis.** *Electrophoresis*
  Jangra, A., Shriyam, S., Santiago, J. G., Bahga, S. S.
  2023
- **A critical review of microfluidic systems for CRISPR assays.** *Lab on a chip*
  Avaro, A. S., Santiago, J. G.
  2023
- **Detection and Discrimination of Single Nucleotide Polymorphisms by Quantification of CRISPR-Cas Catalytic Efficiency.** *Analytical chemistry*
  Blanluet, C., Huyke, D. A., Ramachandran, A., Avaro, A. S., Santiago, J. G.
  2022
- **Enzyme Kinetics and Detector Sensitivity Determine Limits of Detection of Amplification-Free CRISPR-Cas12 and CRISPR-Cas13 Diagnostics.** *Analytical chemistry*
  Huyke, D. A., Ramachandran, A., Bashkirov, V. I., Kotseroglou, E. K., Kotseroglou, T., Santiago, J. G.
  2022
- **Isotachophoresis: Theory and Microfluidic Applications.** *Chemical reviews*
  Ramachandran, A., Santiago, J. G.
  2022
- **Inconsistent treatments of the kinetics of Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) impair assessment of its diagnostic potential.** *QRB discovery*
  Santiago, J. G.
  2022; 3: e9

- **Web-Based Open-Source Tool for Isotachophoresis.** *Analytical chemistry*
  Avaro, A. S., Sun, Y., Jiang, K., Bahga, S. S., Santiago, J. G.
  2021
- **CRISPR Enzyme Kinetics for Molecular Diagnostics.** *Analytical chemistry*
  Ramachandran, A. n., Santiago, J. G.
  2021
- **Electric field-driven microfluidics for rapid CRISPR-based diagnostics and its application to detection of SARS-CoV-2.** *Proceedings of the National Academy of Sciences of the United States of America*
  Ramachandran, A., Huyke, D. A., Sharma, E., Sahoo, M. K., Huang, C., Banaei, N., Pinsky, B. A., Santiago, J. G.
  2020
- **Simultaneous optical and infrared thermal imaging of isotachophoresis.** *Analytica chimica acta*
  Terzis, A., Ramachandran, A., Kang, J., Santiago, J. G.
  2020; 1131: 9–17
- **On the competition between mixing rate and uniformity in a coaxial hydrodynamic focusing mixer.** *Analytica chimica acta*
  Huyke, D. A., Ramachandran, A., Oyarzun, D. I., Kroll, T., DePonte, D. P., Santiago, J. G.
  2020; 1103: 1–10
- **A system for the high-throughput measurement of the shear modulus distribution of human red blood cells.** *Lab on a chip*
  Saadat, A. n., Huyke, D. A., Oyarzun, D. I., Escobar, P. V., Øvreeide, I. H., Shaqfeh, E. S., Santiago, J. G.
  2020
- **Effects of Weak Electrolytes on Electric Double Layer Ion Distributions.** *The journal of physical chemistry letters*
  Chamberlayne, C. F., Zare, R. N., Santiago, J. G.
  2020: 8302–6
- **Performance metrics for the objective assessment of capacitive deionization systems** *WATER RESEARCH*
  Hawks, S. A., Ramachandran, A., Porada, S., Campbell, P. G., Suss, M. E., Biesheuvel, P. M., Santiago, J. G., Stadermann, M.
  2019; 152: 126–37
- **Frequency analysis and resonant operation for efficient capacitive deionization** *WATER RESEARCH*
  Ramachandran, A., Hawks, S. A., Stadermann, M., Santiago, J. G.
  2018; 144: 581-591
- **Thermodynamics of Ion Separation by Electrosorption** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
  Hemmatifar, A., Ramachandran, A., Liu, K., Oyarzun, D. I., Bazant, M. Z., Santiago, J. G.
  2018; 52 (17): 10196-10204
- **Self similarities in desalination dynamics and performance using capacitive deionization.** *Water research*
  Ramachandran, A., Hemmatifar, A., Hawks, S. A., Stadermann, M., Santiago, J. G.
  2018; 140: 323–34
- **Thermodynamics of Ion Separation by Electrosorption.** *Environmental science & technology*
  Hemmatifar, A., Ramachandran, A., Liu, K., Oyarzun, D. I., Bazant, M. Z., Santiago, J. G.
  2018
- **Frequency analysis and resonant operation for efficient capacitive deionization.** *Water research*
  Ramachandran, A., Hawks, S. A., Stadermann, M., Santiago, J. G.
  2018; 144: 581–91
- **SINC-seq: correlation of transient gene expressions between nucleus and cytoplasm reflects single-cell physiology** *GENOME BIOLOGY*
  Abdelmoez, M. N., Iida, K., Oguchi, Y., Nishikii, H., Yokokawa, R., Kotera, H., Uemura, S., Santiago, J. G., Shintaku, H.
  2018; 19: 66
- **Adsorption and capacitive regeneration of nitrate using inverted capacitive deionization with surfactant functionalized carbon electrodes** *SEPARATION AND PURIFICATION TECHNOLOGY*
  Oyarzun, D. I., Hemmatifar, A., Palko, J. W., Stadermann, M., Santiago, J. G.

2018; 194: 410–15

- **Extreme Two-Phase Cooling from Laser-Etched Diamond and Conformal, Template-Fabricated Microporous Copper** *ADVANCED FUNCTIONAL MATERIALS*
  Palko, J. W., Lee, H., Zhang, C., Dusseault, T. J., Maitra, T., Won, Y., Agonafer, D. D., Moss, J., Houshmand, F., Rong, G., Wilbur, J. D., Rockosi, D., Mykyta, et al
  2017; 27 (45)

- **Nondestructive nanostraw intracellular sampling for longitudinal cell monitoring** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Cao, Y., Hjort, M., Chen, H., Birey, F., Leal-Ortiz, S. A., Han, C. M., Santiago, J. G., Pasca, S. P., Wu, J. C., Melosh, N. A.
  2017; 114 (10): E1866–E1874

- **Nondestructive nanostraw intracellular sampling for longitudinal cell monitoring.** *Proceedings of the National Academy of Sciences of the United States of America*
  Cao, Y., Hjort, M., Chen, H., Birey, F., Leal-Ortiz, S. A., Han, C. M., Santiago, J. G., Pasca, S. P., Wu, J. C., Melosh, N. A.
  2017

- **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

- **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

- **Temperature effects on electrophoresis.** *Analytical chemistry*
  Rogacs, A., Santiago, J. G.
  2013; 85 (10): 5103-5113

- **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

- **Rapid hybridization of nucleic acids using isotachophoresis** *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

- **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

- **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

- **Analytical solutions for viscoelectric effects in electrokinetic nanochannels.** *Electrophoresis*
  Ma, K., Ramachandran, A., Santiago, J. G.
  2024

- **Stream lamination and rapid mixing in a microfluidic jet for X-ray spectroscopy studies** *FLOW*

Huyke, D. A., Avaro, A. S., Kroll, T., Santiago, J. G.
2023; 3

- **Liquid Heterostructures: Generation of Liquid-Liquid Interfaces in Free-Flowing Liquid Sheets.** *Langmuir : the ACS journal of surfaces and colloids*
  Hoffman, D. J., Bechtel, H. A., Huyke, D. A., Santiago, J. G., DePonte, D. P., Koralek, J. D.
  2022

- **Uncertainty Quantification of Michaelis-Menten Kinetic Rates and Its Application to the Analysis of CRISPR-Based Diagnostics.** *Angewandte Chemie (International ed. in English)*
  Avaro, A. S., Santiago, J. G.
  2022

- **Electrochemical Methods for Water Purification, Ion Separations, and Energy Conversion.** *Chemical reviews*
  Alkhadra, M. A., Su, X., Suss, M. E., Tian, H., Guyes, E. N., Shocron, A. N., Conforti, K. M., de Souza, J. P., Kim, N., Tedesco, M., Khoiruddin, K., Wenten, I. G., Santiago, et al
  2022

- **Millisecond timescale reactions observed via X-ray spectroscopy in a 3D microfabricated fused silica mixer. Corrigendum.** *Journal of synchrotron radiation*
  Huyke, D. A., Ramachandran, A., Ramirez-Neri, O., Guerrero-Cruz, J. A., Gee, L. B., Braun, A., Sokaras, D., Garcia-Estrada, B., Solomon, E. I., Hedman, B., Delgado-Jaime, M. U., DePonte, D. P., Kroll, et al
  2022; 29 (Pt 3): 930

- **A modular and reconfigurable open-channel gated device for the electrokinetic extraction of cell-free DNA assays.** *Analytica chimica acta*
  Futai, N., Fukazawa, Y., Kashiwagi, T., Tamaki, S., Sakai, R., Hogan, C. A., Murugesan, K., Ramachandran, A., Banaei, N., Santiago, J. G.
  2022; 1200: 339435

- **Species Abundance and Reaction Off-Rate Regulate Product Formation in Reactions Accelerated Using Isotachophoresis.** *Analytical chemistry*
  Jiang, Q., Ramachandran, A., Santiago, J. G.
  2021

- **Millisecond timescale reactions observed via X-ray spectroscopy in a 3D microfabricated fused silica mixer.** *Journal of synchrotron radiation*
  Huyke, D. A., Ramachandran, A., Ramirez-Neri, O., Guerrero-Cruz, J. A., Gee, L. B., Braun, A., Sokaras, D., Garcia-Estrada, B., Solomon, E. I., Hedman, B., Delgado-Jaime, M. U., DePonte, D. P., Kroll, et al
  2021; 28 (Pt 4): 1100-1113

- **Understanding resistances in capacitive deionization devices** *ENVIRONMENTAL SCIENCE-WATER RESEARCH & TECHNOLOGY*
  Kuo, H. A., Ramachandran, A., Oyarzun, D. I., Clevenger, E. C., Santiago, J. G., Stadermann, M., Campbell, P. G., Hawks, S. A.
  2020; 6 (7): 1842–54

- **High-Frequency Water Vapor Sorption Cycling Using Fluidization of Metal-Organic Frameworks** *CELL REPORTS PHYSICAL SCIENCE*
  Terzis, A., Ramachandran, A., Wang, K., Asheghi, M., Goodson, K. E., Santiago, J. G.
  2020; 1 (5)

- **Energy transfer for storage or recovery in capacitive deionization using a DC-DC converter** *JOURNAL OF POWER SOURCES*
  Oyarzun, D. I., Hawks, S. A., Campbell, P. G., Hemmatifar, A., Krishna, A., Santiago, J. G., Stadermann, M.
  2020; 448

- **Process design tools and techno-economic analysis for capacitive deionization.** *Water research*
  Hasseler, T. D., Ramachandran, A. n., Tarpeh, W. A., Stadermann, M. n., Santiago, J. G.
  2020; 183: 116034

- **CONCENTRATION GRADIENTS INSIDE MICRODROPLETS.** *Micro total analysis systems : proceedings of the ... [Mu] TAS International Conference on Miniaturized Chemical and Biochemical Analysis Systems. [Mu] TAS (Conference)*
  Chamberlayne, C. F., Santiago, J., Zare, R. N.
  2020; 2020: 212-213

- **Simultaneous RNA purification and size selection using on-chip isotachophoresis with an ionic spacer.** *Lab on a chip*
  Han, C. M., Catoe, D., Munro, S. A., Khnouf, R., Snyder, M. P., Santiago, J. G., Salit, M. L., Cenik, C.
  2019

- **Comments on "Comparison of energy consumption in desalination by capacitive deionization and reverse osmosis"** *DESALINATION*

Ramachandran, A., Oyarzun, D. I., Hawks, S. A., Campbell, P. G., Stadermann, M., Santiago, J. G.
2019; 461: 30–36

- **Using Ultramicroporous Carbon for the Selective Removal of Nitrate with Capacitive Deionization.** *Environmental science & technology*
  Hawks, S. A., Ceron, M. R., Oyarzun, D. I., Pham, T. A., Zhan, C., Loeb, C. K., Mew, D., Deinhart, A., Wood, B. C., Santiago, J. G., Stadermann, M., Campbell, P. G.
  2019
- **High water recovery and improved thermodynamic efficiency for capacitive deionization using variable flowrate operation** *WATER RESEARCH*
  Ramachandran, A., Oyarzun, D. I., Hawks, S. A., Stadermann, M., Santiago, J. G.
  2019; 155: 76–85
- **High water recovery and improved thermodynamic efficiency for capacitive deionization using variable flowrate operation.** *Water research*
  Ramachandran, A., Oyarzun, D. I., Hawks, S. A., Stadermann, M., Santiago, J. G.
  2019; 155: 76–85
- **Ion selectivity in capacitive deionization with functionalized electrode: Theory and experimental validation.** *Water research X*
  Oyarzun, D. I., Hemmatifar, A., Palko, J. W., Stadermann, M., Santiago, J. G.
  2018; 1: 100008
- **Ion selectivity in capacitive deionization with functionalized electrode: Theory and experimental validation** *WATER RESEARCH X*
  Oyarzun, D., Hemmatifar, A., Palko, J. W., Stadermann, M., Santiago, J. G.
  2018; 1
- **Device design and flow scaling for liquid sheet jets** *PHYSICAL REVIEW FLUIDS*
  Ha, B., DePonte, D. P., Santiago, J. G.
  2018; 3 (11)
- **A method for quantifying in plane permeability of porous thin films** *JOURNAL OF COLLOID AND INTERFACE SCIENCE*
  Rong, G., Palko, J. W., Oyarzun, D. I., Zhang, C., Hammerle, J., Asheghi, M., Goodson, K. E., Santiago, J. G.
  2018; 530: 667–74
- **Performance metrics for the objective assessment of capacitive deionization systems.** *Water research*
  Hawks, S. A., Ramachandran, A., Porada, S., Campbell, P. G., Suss, M. E., Biesheuvel, P. M., Santiago, J. G., Stadermann, M.
  2018; 152: 126–37
- **Efficient Production of On-Target Reads for Small RNA Sequencing of Single Cells Using Modified Adapters** *ANALYTICAL CHEMISTRY*
  Khnouf, R., Shore, S., Han, C. M., Henderson, J. M., Munro, S. A., McCaffrey, A. P., Shintaku, H., Santiago, J. G.
  2018; 90 (21): 12609-12615
- **Enhanced Capillary-Fed Boiling in Copper Inverse Opals via Template Sintering** *ADVANCED FUNCTIONAL MATERIALS*
  Zhang, C., Palko, J. W., Barako, M. T., Asheghi, M., Santiago, J. G., Goodson, K. E.
  2018; 28 (41)
- **Efficient Production of On-Target Reads for Small RNA Sequencing of Single Cells Using Modified Adapters.** *Analytical chemistry*
  Khnouf, R., Shore, S., Han, C. M., Henderson, J. M., Munro, S. A., McCaffrey, A. P., Shintaku, H., Santiago, J. G.
  2018
- **Tailoring Permeability of Microporous Copper Structures through Template Sintering** *ACS APPLIED MATERIALS & INTERFACES*
  Zhang, C., Palko, J. W., Rong, G., Pringle, K. S., Barako, M. T., Dusseault, T. J., Asheghi, M., Santiago, J. G., Goodson, K. E.
  2018; 10 (36): 30487–94
- **Tailored porous electrode resistance for controlling electrolyte depletion and improving charging response in electrochemical systems** *JOURNAL OF POWER SOURCES*
  Palko, J. W., Hemmatifar, A., Santiago, J. G.
  2018; 397: 252–61
- **Self similarities in desalination dynamics and performance using capacitive deionization** *WATER RESEARCH*
  Ramachandran, A., Hemmatifar, A., Hawks, S. A., Stadermann, M., Santiago, J. G.
  2018; 140: 323-334

- **Tailoring Permeability of Microporous Copper Structures through Template Sintering.** *ACS applied materials & interfaces*
  Zhang, C., Palko, J. W., Rong, G., Pringle, K. S., Barako, M. T., Dusseault, T. J., Asheghi, M., Santiago, J. G., Goodson, K. E.
  2018
- **Self-Cleaning Porous Surfaces for Dry Condensation** *ACS APPLIED MATERIALS & INTERFACES*
  Liu, K., Huang, Z., Hemmatifar, A., Oyarzun, D. I., Zhou, J., Santiago, J. G.
  2018; 10 (31): 26759–64
- **Modelling and optimization applied to the design of fast hydrodynamic focusing microfluidic mixer for protein folding** *JOURNAL OF MATHEMATICS IN INDUSTRY*
  Ivorra, B., Ferrandez, M. R., Crespo, M., Redondo, J. L., Ortigosa, P. M., Santiago, J. G., Ramos, A. M.
  2018; 8
- **A method for quantifying in plane permeability of porous thin films.** *Journal of colloid and interface science*
  Rong, G., Palko, J. W., Oyarzun, D. I., Zhang, C., Hammerle, J., Asheghi, M., Goodson, K. E., Santiago, J. G.
  2018; 530: 667–74
- **Nitrate removal from water using electrostatic regeneration of functionalized adsorbent** *CHEMICAL ENGINEERING JOURNAL*
  Palko, J. W., Oyarzun, D. I., Ha, B., Stadermann, M., Santiago, J. G.
  2018; 334: 1289–96
- **Quantifying the flow efficiency in constant-current capacitive deionization** *WATER RESEARCH*
  Hawks, S. A., Knipe, J. M., Campbell, P. G., Loeb, C. K., Hubert, M. A., Santiago, J. G., Stadermann, M.
  2018; 129: 327–36
- **Charging and Transport Dynamics of a Flow-Through Electrode Capacitive Deionization System** *JOURNAL OF PHYSICAL CHEMISTRY B*
  Qu, Y., Campbell, P. G., Hemmatifar, A., Knipe, J. M., Loeb, C. K., Reidy, J. J., Hubert, M. A., Stadermann, M., Santiago, J. G.
  2018; 122 (1): 240–49
- **Equilibria model for pH variations and ion adsorption in capacitive deionization electrodes.** *Water research*
  Hemmatifar, A., Oyarzun, D. I., Palko, J. W., Hawks, S. A., Stadermann, M., Santiago, J. G.
  2017; 122: 387-397
- **Rapid Hydrogen-Deuterium Exchange in Liquid Droplets.** *Journal of the American Chemical Society*
  Jansson, E. T., Lai, Y., Santiago, J. G., Zare, R. N.
  2017; 139 (20): 6851-6854
- **Assay for Listeria monocytogenes cells in whole blood using isotachophoresis and recombinase polymerase amplification** *ANALYST*
  Eid, C., Santiago, J. G.
  2017; 142 (1): 48-54
- **Equilibria model for pH variations and ion adsorption in capacitive deionization electrodes** *Water Research*
  Hemmatifar, A., Oyarzun, D. I., Palko, J. W., Hawks, S. A., Stadermann, M., Santiago, J. G.
  2017: 387-397
- **Assay for Listeria monocytogenes cells in whole blood using isotachophoresis and recombinase polymerase amplification.** *Analyst*
  Eid, C., Santiago, J. G.
  2016; 142 (1): 48-54
- **Energy consumption analysis of constant voltage and constant current operations in capacitive deionization** *DESALINATION*
  Qu, Y., Campbell, P. G., Gu, L., Knipe, J. M., Dzenitis, E., Santiago, J. G., Stadermann, M.
  2016; 400: 18-24
- **Influx and Production Rates in Peak-Mode Isotachophoresis** *ANALYTICAL CHEMISTRY*
  Eid, C., Santiago, J. G.
  2016; 88 (23): 11352-11357
- **Energy breakdown in capacitive deionization.** *Water research*
  Hemmatifar, A., Palko, J. W., Stadermann, M., Santiago, J. G.
  2016; 104: 303-311

- **An Ohmic model for electrokinetic flows of binary asymmetric electrolytes** *CURRENT OPINION IN COLLOID & INTERFACE SCIENCE*
  Persat, A., Santiago, J. G.
  2016; 24: 52-63

- **Design sensitivity and mixing uniformity of a micro-fluidic mixer** *PHYSICS OF FLUIDS*
  Ivorra, B., Lopez Redondo, J., Ramos, A. M., Santiago, J. G.
  2016; 28 (1)

- **High Heat Flux Two-Phase Cooling of Electronics with Integrated Diamond/Porous Copper Heat Sinks and Microfluidic Coolant Supply**
  Palko, J. W., Lee, H., Agonafer, D. D., Zhang, C., Jung, K., Moss, J., Wilbur, J. D., Dusseault, T. J., Barako, M. T., Houshmand, F., Rong, G., Maitra, T., Gorle, et al
  IEEE.2016: 1511–17

- **Approaching the limits of two-phase boiling heat transfer: High heat flux and low superheat** *APPLIED PHYSICS LETTERS*
  Palko, J. W., Zhang, C., Wilbur, J. D., Dusseault, T. J., Asheghi, M., Goodson, K. E., Santiago, J. G.
  2015; 107 (25)

- **Two-Dimensional Porous Electrode Model for Capacitive Deionization** *JOURNAL OF PHYSICAL CHEMISTRY C*
  Hemmatifar, A., Stadermann, M., Santiago, J. G.
  2015; 119 (44): 24681-24694

- **Characterization of Resistances of a Capacitive Deionization System** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
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