JUAN GABRIEL SANTIAGO
Charles Lee Powell Foundation Professor
Department of Mechanical Engineering
Stanford University

Education

University of Illinois at Urbana-Champaign
Ph.D., Mechanical Engineering, August 1995, GPA 4.0/4.0
Thesis: "An Experimental Study of the Velocity Field of a Transverse Jet Injected into a Supersonic Crossflow"

University of Illinois at Urbana-Champaign
M.S., Mechanical Engineering, August 1992, GPA 4.0/4.0
Thesis: "Facility Design and Preliminary Experiments for an Endothermic Fuel Combustion Facility"

University of Florida at Gainesville
B.S., Mechanical Engineering, May 1990
Undergraduate GPA 3.95/4.0, High Honors, First in Graduating Class

Work Experience

Stanford University, Stanford, California
Department of Mechanical Engineering
Full Professor, 9/10-Present
Interests include microfluidic systems for chemical and biological assays; methods and devices for automated sample preparation; and miniature drug delivery systems. Teach undergraduate and graduate courses in fluid mechanics, transport phenomena, experimental methods, and electrokinetic phenomena. Vice-Chair of Mechanical Engineering Department, 1/20-Present; Chair of Thermosciences Group, 9/09-10/12; Associate Professor, 4/05-9/10; Assistant Professor, 9/98-4/05.

Purigen Biosystems, Inc., Pleasanton, California, http://www.purigenbio.com/
Founder and Senior Consultant, 2/13-Present:
Company aims to be the first to commercialize electric field based sample extraction systems for biological applications. Raised funds, assembled team, am co-inventor on 18 related patents, and launched company. Consulting activities include developing novel microfluidic chip control strategies.

Cooligy, Inc., Mountain View, California
Founder and Senior Consultant, 1/02-1/06:
Company was the first to commercialize liquid cooling loops for microprocessors on a mass produced personal computer. Raised funds, assembled team, and launched company. Consulting activities included development of models and experiments to design and optimize pumps and liquid cooling.

University of Illinois at Urbana-Champaign
Department of Electrical and Computer Engineering, Beckman Institute for Advanced Science and Technology, BioMEMS Laboratory.
Research Scientist/Postdoctoral Fellow, 3/97-9/98:
Conducted experimental studies of flows in microfluidic devices using micron-resolution particle image velocimetry (PIV). Developed microfluidic devices for chemical and biological separation.

The Aerospace Corporation, Spacecraft Thermal Department, El Segundo, California
Senior Member of the Technical Staff, 10/95-3/97:
Worked as a research engineer in the field of thermal science. Analyzed and designed spacecraft and launch vehicle thermal technology using Monte-Carlo thermal radiation modeling, finite-difference

modeling, convective heat transfer analyses, and thermal system analyses. Designed a micro-resolution particle image velocimetry (PIV) system for investigations of micro-satellite thrusters.

University of Illinois at Urbana-Champaign
Department of Mechanical and Industrial Engineering

Graduate Research Assistant, 5/92-10/95:
Conducted a study of the mixing phenomena of an underexpanded, sonic jet injected into a supersonic crossflow. Used laser Doppler velocimetry measurements of mean velocities and Reynolds stresses to study flow field structure and jet development. Investigated instantaneous mixing using planar laser-induced fluorescence (PLIF) imaging. This study provides guidance to supersonic combustor designers and helps validate numerical predictions.

Teaching Fellow, 8/94-12/94:
This departmental award offered the opportunity to teach a department course of my choice: the fluid mechanics lecture course. Solely responsible for the development of course syllabus, lecture notes, class handouts, homework assignments, and exams. Presented all lectures and assigned final grades. Graded homework and exams.

Graduate Research Assistant, 8/90-5/92:
Led the design, construction, and instrumentation of a high-speed combustion wind tunnel facility. Carried out turbulent flame speed measurements, was designed to demonstrate the performance of the combustor facility and supporting systems. The facility was designed to study the combustion characteristics of endothermic fuel mixtures at simulated Mach 6 flight conditions of a turboramjet burner.

Exxon Production/Eastern Division, New Orleans, LA

Graduate Summer Intern, 5/90-8/90: Researched and compiled reports of over 15 oil well production histories. Based on this study, presented recommendations for two well restorations and three well abandonments.

University of Florida at Gainesville

Tutor, 8/88-5/90: Self-employed tutor of thermodynamics and fluid mechanics for undergraduates. Developed class outlines to supplement class notes.

Academic Areas of Interest and Research Methods

Academic: Fluid mechanics; microfluidics; electrokinetics; colloid science; experimental methods and random data analysis; microfabrication; heat transfer; analytical and numerical modeling of transport phenomena.

Fluid Mechanics and Optical Diagnostics Research: Particle image velocimetry, particle tracking velocimetry, caged-fluorescence imaging, bleached-fluorescence imaging, planar laser-induced fluorescence imaging; digital image processing (including particle tracking, pattern recognition, and filtering); CCD and ICCD camera/computer interfacing and imaging; flow seeding techniques; schlieren and shadowgraph techniques; laser Doppler velocimetry; experimental research facility design, construction, and instrumentation; surface flow visualization techniques; phase Doppler anemometry; and hot-wire anemometry.

Microfluidics Research: Mask layout and drafting; photolithography; chemical and reactive ion plasma etching of silicon and glass wafers; and epoxy-based photoresist; thermal oxide processing of silicon; anodic, thermal, and RTV bonding; thin film deposition; epifluorescent microscopy; confocal microscopy; scanning electron microscopy; and micro-fluidic system assembly, interconnect, and control.

Awards and Honors

1. Elected to the American Academy of Arts and Sciences, 2022.
2. Awarded the 2021 AES Lifetime Achievement Award by the AES Electrophoresis Society for exceptional career contributions to the fields of electrophoresis, electrokinetics, and related areas. One award is presented each year. This professional society was founded in 1979 and is a non-profit, international organization whose motto is "Advancing Electrokinetic Science".
3. Appointed Charles Lee Powell Foundation Professor by Stanford University. The Charles Lee Powell Foundation created this endowed professorship in 1979 to encourage academic excellence and honor outstanding achievement in engineering science, 2020.
4. CHEMINAS - Young Researcher Poster Award for poster titled "A Microfluidic Approach to Rapid CRISPR-Based Detecton of SARS-CoV-2 RNA, Micro-Total Analysis Systems Conference, October 4-9, 2020.
5. Best Poster Award for poster titled "Theory and Experimental Validation of Selective Removal of Nitrate Using Capacitive Deionization with Surface Functionalization," Materials Research Society Spring Meeting, Phoenix, Arizona, 2019.
6. Cozzarelli Prize for paper titled "Nondestructive nanostraw intracellular sampling for longitudinal cell monitoring," National Academy of Sciences, 2018.
7. Inducted into the College of Fellows of the American Institute for Medical and Biological Engineering (AIMBE), 2016.
8. 1st Place Prize Poster, "Multi-stage phasing of flow-through capacitive deionization", Stanford Mechanical Engineering Conference, Stanford, California, May 6th, 2016
9. Editor's Choice VIII author for Journal of Chromatography A, 2014.
10. Outstanding Contribution Award, ASME Industry Honors, Santa Clara Valley Section, April 11, 2013.
11. Elected Fellow of the American Society of Mechanical Engineers (ASME), 2012.
12. Advisee Supreet Bahga was awarded 2nd Place Prize for the University Michigan Modeling and Simulation of Nano/Microsystems Contest, 2012.
13. Elected Fellow of the American Physical Society (APS), 2010.
14. Best Poster Award (out of 174), "Label-Free Toxin Detection Using Fluorescent Fingerprint Assay," Association for Lab Automation, LabAutomation, Palm Springs, CA, Jan. 24-27, 2010.
15. Outstanding Alumnus Award from the Mechanical Engineering Department of the University of Florida, April 11, 2008.
16. Best Paper Award, "Physics of pumping Methanol/Water Solutions for Fuel Cell Applications", with Cullen Buie and Shawn Litster, ASME-IMECE Conference, 2007.
17. Mentorship Recognition, served as mentor to Terman Engineering (Undergrad) Scholastic Awardee David Fenning, 2008.
18. Outstanding Achievement in Academia Award from The National Consortium for Graduate Degrees for Minorities in Engineering and Science (GEM), 2006
19. Best Paper award, Conference of the Electrochemical Society, Cancun, Mexico, 2006
20. One of the top three most downloaded papers in the history of Experiments in Fluids journal (Santiago et al., 1998)
21. Invitation to National Academy of Engineering Conference "Frontiers in Engineering," 2004-2007
22. Elected Vice Chair of Gordon Conference on the Physics and Chemistry of Microfluidics, Watervillew Valley, NH (7/15-20 2007)
23. Elected Chair of Gordon Conference on the Physics and Chemistry of Microfluidics, Lucca, Italy (6/28 – 7/3, 2009)
24. Invited to Co-Chair the International Congress of Theoretical and Applied Mechanics (Adelaide, Australia, 2008).
25. Best Paper Award, ASME IMECE Conference, Advanced Energy Systems Division, 2006.
26. Best Poster Award, ASME IMECE Conference, 2005.
27. Best Poster in session award, Gordon Conference on the Physics and Chemistry of Microfluidics, Oxford England, 2005
28. Presidential Early Career Award for Scientist and Engineers (PECASE), 2004
29. Named by the Hispanic Engineers National Achievement Awards Corp. as a Role Model for young Hispanic engineers, 2004

30. National Science Foundation Faculty Early Career Development (CAREER) Award, 2003
31. Best Paper Award, Symposium on Thermodynamics and the Design, Analysis, and Improvement of Energy Systems, 2005
32. Best Poster award Annual Meeting of the American Institute of Chemical Engineering and American Electrophoresis Society, San Francisco, California, 2003
33. Best Poster award Gordon Conference on the Physics and Chemistry of Microfluidics, Big Sky Montana 2003
34. Nominee 2001 Technology Review Magazine TR100 Award
35. National Inventors Hall of Fame: Collegiate Inventors Award, 2001
36. Best Paper award at SEMI-THERM XVII, San Jose, CA USA, 2001
37. Frederick Emmons Terman Fellow (Faculty) Award, Stanford University 1998-1999
38. Ford Foundation Post-Doctoral Fellowship 1997-1998
39. UIUC Mechanical Engineering Alumni Teaching Fellow Award, 1994 – 1995
40. National Science Foundation SURGE Fellowship, 1992 – 1995
41. UIUC Mechanical Engineering Departmental Dupont Fellowship 1990-1991
42. UIUC Mechanical Engineering Departmental Chevron Fellowship 1991-1992
43. Exxon Corporation Fellowship, 1990 - 1994
44. Philip O. Yeaton Award for Excellence in Undergraduate Mechanical Engineering, University of Florida, 1990
45. National Action Council for Minorities in Engineering Scholarship ('87-'90)
46. First in Graduating Class, University of Florida, 1990
47. Graduation with High Honors, University of Florida, 1990

Keynote, Plenary, and Named Lectures

1. "CRISPR-based diagnostics: Microfluidic assays and fundamentals," Plenary Presentation at micro Flow and Interfacial Phenomena Conference, Irvine, California, June 20-23, 2022.
2. "Microfluidics and CRISPR for detection of the RNA of SARS-CoV-2," Plenary talk at the 3rd International Conference of Microfluidics, Nanofluidics and Lab-on-a-Chip (ICMFLOC2021), July 2-4, 2021.
3. "Self similarity and resonance in capacitive deionization," Keynote talk at the 5th International Conference on Capacitive Deionization & Electrosorption (CDI&E), May 10, 2021.
4. "Electric-field-driven microfluidics for rapid CRISPR-based diagnostics and its application to COVID-19 detection," Keynote at the Electric-field Mediated Microanalytical Device session of the 2020 AES Electrophoresis Society Annual Meeting, presented October 14, 2020.
5. "Capacitive deionization of water: Resonance and selective extraction," Keynote talk at the 13th International Symposium on Electrokinetics (ELKIN), Massachusetts Institute of Technology, Cambridge, MA, June 12-14, 2019.
6. "Separating and analyzing nuclear versus cytoplasmic nucleic acids from single cells," Keynote talk at the 4BIO Summit USA Conference (4th qPCR & Digital PCR Congress and the 3rd Microfluidics Congress), San Francisco, CA, September 14, 2018.
7. "Capacitive deionization of water: Energy dissipated versus stored." Keynote talk at the Microfluidics/Nanofluidics Symposium, American Society of Mechanical Engineering IMECE Conference 2016, November 17, Phoenix, Arizona.
8. "Capacitive deionization (CDI) of water: How much energy is dissipated and how much is stored?" Keynote talk at the 67th Annual Meeting of the International Society of Electrochemistry, August 22, 2016 in The Hague, The Netherlands.
9. "Life in the shock wave: Controlling DNA reactions with electric fields," The Stanley Corrsin Memorial Lecture in Fluid Mechanics, Whiting School of Engineering, Johns Hopkins University, April 14, 2016.
10. "DNA assays leveraging ion concentration shock waves," Keynote talk at the ASME NanoEngineering for Medicine and Biology Conference (NEMB), Houston, Texas, February 23, 2016.
11. "Thoughts on my background, graduate school, and a professorship," Keynote talk at the American Indian Scientists and Engineering Society Western Regional Conference, Stanford University, April 3-4, 2015.

12. "Novel on-chip isotachophoresis assays for nucleic acid analysis," Keynote lecture at the 29th International Symposium on MicroScale Bioseparations (MSB2013), Charlottesville, Virginia, March 10-14, 2013.
13. "Isotachophoresis for Extraction and Rapid Hybridization of Nucleic Acids," Plenary Lecture, 19th International Symposium, Exhibit & Workshops on Electro- and Liquid Phase-Separation Techniques, ITP 2012, Baltimore, MA, October 2, 2012.
14. "Novel on-chip isotachophoresis (ITP) assays for nucleic acid extraction and analysis," Plenary lecture presented at Microtech Conference & Expo, Santa Clara, June 19, 2012.
15. "Isotachophoresis for extraction and rapid hybridization of nucleic acids," Plenary lecture at the International Symposium, Exhibit & Workshop on Electro- and Liquid Phase-Separation Techniques, ITP 2012, Baltimore, MD, October 1, 2012.
16. "Sample Preparation and Analysis Using Isotachophoresis," University of Santiago, Chile, March 23, 2012.
17. "On-Chip Sample Preparation and Nucleic Acid Profiling Using Isotachophoresis," Plenary Talk at the American Electrophoresis Society Annual Meeting, Minneapolis, MN, October 17, 2011.
18. "Nucleic acid extraction, identification, and quantitation using isotachophoresis," Keynote Talk at the Lab-on-a-Chip World Congress, South San Francisco, September 29, 2011.
19. "On-Chip Isotachophoresis for Toxin Detection and Nucleic Acid Extraction," Plenary Talk at 6th Annual Utah State Nanotechnology Conference, Salt Lake City, Utah, October 15, 2010.
20. "Rapid Chemical Detection and Identification with a Hand Held Device," Association for Lab Automation, Plenary Award Finalist presentation, LabAutomation, Palm Springs, CA, January 23, 2010.
21. Santiago, J. G. "Novel Indirect Fluorescence Detection Methods Using Isotachophoresis: Minding the Gaps and Steps," Keynote talk at the 23rd International Symposium on Microscale Bioseparations Conference, Boston, Massachusetts, February, 2009.
22. Santiago, J.G., "Indirect Fluorescence Detection of Non Fluorescent Analytes Using Isotachophoresis," Plenary Speaker, Sixth International Conference on Nanochannles, Microchannels and Minichannels, June 23-25, Darmstadt, Germany May 15, 2008.
23. Santiago, J.G., "Electrokinetic Nanofluidic and Microfluidic Devices: Physics and Applications," the Distinguished Speaker at the Frontiers in Mechanical Engineering: NanoMechanical Engineering at University of Pennsylvania, Philadelphia, Pennsylvania, May 15, 2008.
24. Santiago, J.G., "Novel On-Chip Isotachophoresis Assays," the Linseth Lecture at Cornell University, January 29, 2008.
25. Santiago, J.G., "Making Shock Waves in Microfluidics: The Physics and Applications of Isotachophoresis," Keynote Address at the 60th Annual Meeting of the Division of Fluid Dynamics, Nov 18-20, Salt Lake City, Utah, 2007.
26. "Electrokinetic Microfluidics at Extreme Scales," Spanish Society of Chromatography and Related Techniques, Plenary Talk, SECyTA, Vigo, Spain, Nov. 2006
27. "Electrokinetic Microfluidics at Extreme Scales," Keynote Address at the Electrostatics Society Annual Meeting, Berkeley, CA 2006.
28. "Field Amplified Sample Stacking for On-Chip Capillary Electrophoresis," Keynote Address at the ASME International Mechanical Engineering Congress and Exposition, Irvine, California, November, 2004
29. "Electrokinetic Microfluidic Systems: Sample Stacking and Instabilities," Keynote Address at the International Electrokinetics Conference, June 13-17, Carnegie Mellon University, Pittsburgh, Pennsylvania, 2004
30. "Electrokinetic Microfluidic Systems," Keynote Address at the Seventh Annual Paul Flory Conference, Chemistry Department, Stanford University, 2004
31. "Electrokinetic Flow Instabilities in Microfluidic Systems," International Conference on Theoretical and Applied Mechanics (ICTAM '04), Plenary Lecture for Microfluidics Symposium, Warsaw, Poland 2004
32. "Electrokinetic Microfluidic Systems: Stacking and Instabilities," Massachusetts Institute of Technology, The Ronald J. Probstein Lecture in Mechanical Engineering, Cambridge, Massachusetts, 2003
33. "Heterogenous Elelectrokinetic Systems," Keynote Address at the ASME International Mechanical Engineering Congress and Exposition, Washington D.C., November, 2003

34. "Electrokinetic Technology for Microfluidic Systems," Keynote Address of the IBC BioMEMS and Microfluidics, San Diego, CA, 2003
35. "Electrokinetic Microfluidic Systems," Keynote Address of the Joint American Institute of Chemical Engineering and American Electrophoresis Society Annual Meeting, Indianapolis, Indiana, 2002

(see also Other Invited Presentations below)

Activities and Service

External Service

Member of the Scientific Advisory Board of the International Electrokinetics Society, 2021-Present
Founding Editor in Chief of the journal *Flow*, Cambridge University Press, 2020-Present. *Flow* is a companion journal to the *Journal of Fluid Mechanics* and focuses on leveraging of fluid mechanics to enable new applications.
Editorial Board for the journal *Micromachines*, 2019-Present
Mentorship presentation and session for Future Advancers of Science and Technology (FAST), Stanford University, April 14, 2017.
Ad hoc Editor, *Proceedings of the National Academy of Sciences*, 2015, 2016.
Editorial Advisory Board for the journal *Analytical Chemistry*, 2015-2019
Member Editorial Board of the *Journal of Microfluidics and Nanofluidics*, Springer-Verlag, 2003 – Present
Local Organizing Committee member, 26th International Symposium on MicroScale Bioseparations of the CASSS International Separation Society Conference, San Diego, May 2011.
Book review for Elsevier, 2010
Chair (2009) and Vice-Chair (2007) of Gordon Research Conference on Physics and Chemistry of Microfluidics. Included organizing entire program, raising funds (including proposals to NIH, NSF, Philips Corp.), moderating sessions, and managing invitations, 2007-2009.
Guest Editor for special issue on Fundamental Principles and Techniques in Microfluidics for the journal *Lab on a Chip*, 2009
Associate Editor of the journal *Lab on a Chip*, Royal Society of Chemistry Publishing, 2008 – 2013
Member of the Technical Program Committee, International Conference on Miniature Systems for Chemistry and Life Sciences (MicroTAS), 2008-2014
NSF proposal review, 2011
NSF Panel Reviewer, 2010
NIH Study Section Panel Reviewer, 2006, 2009, 2010
DOE proposal review, 2006, 2008
Reviewer of tenure cases for Mechanical Engineering at major universities, 2006, 2007 (2), 2008 (3), 2010 (2), 2011(2), 2012(1)
Reviewer of Israeli national science foundation, 2006
Panel Moderator Silicom Corporation Ventures Conference, 2006
Mentorship Panel member at The National Consortium for Graduate Degrees for Minorities in Engineering and Science (GEM), 2006
ASME Fluids Division Awards Committee, 2004 – 2005
Royal Society of Chemistry book proposal review, 2011
Springer-Verlag book proposal review, 2005, 2009
Cambridge Press book proposal review, 2005
Tutorial for Materials Research Society on Microfluidics, April 2004
Tutorial on Micron-Resolution Particle Image Velocimetry, Sponsored by TSI, Inc. September 2003
Review Panel for NSF SBIR Proposals, October 2003
Review Panel for NSF CAREER Proposals, 2003, 2005
NSF proposal reviews 2002-2006
Tutorial for American Society of Mechanical Engineers on Microfluidics, October 2002
Founder and Senior Consultant of Cooligy, Inc., Mountain View, CA; company commercialized microchannel liquid cooling devices for microelectronics, 2002 - 2006
Active supporter of the Foundation for a College Education (non-profit organization with a mission to promote access to college by students in traditionally underrepresented groups) 2001- 2006.

Chair of Minority Recruitment for the American Society of Mechanical Engineering's Micro-electro-mechanical Systems (MEMS) Sub-Division, 1999 – 2006
Member of American Society of Mechanical Engineering, American Institute of Chemical Engineering, Institute of Electrical and Electronics Engineers, American Physical Society, 1998 – Present
Member American Institute of Aeronautics & Astronautics, 1999-2000
Member Pi Tau Sigma, Golden Key, American Society of Mechanical Engineers, Society of Hispanic Engineering Students, 1988-1990

Session Conference Chair and Proceedings Reviewer
Session Chair at the 72nd Annual American Physical Society Division of Fluid Dynamics Meeting November 23-26, 2019.
Session Chair, Microfluidics, Electrokinetics Conference, Cambridge, MA, 2019.
Session Chair for Electrokinetics I, The Batsheva de Rotschild Seminar Physics of Microfluidics, Sde Boker, Israel, January 5, 2017.
Session Chair at the 67th Annual Meeting of the International Society of Electrochemistry, August 23, 2016 in The Hague, The Netherlands.
Conference Chair, Gordon Research Conference on the Physics and Chemistry of Microfluidics, Barga, Italy, July, 2009
Conference Vice Chair, Gordon Research Conference on the Physics and Chemistry of Microfluidics, Oxford, England, planning for conference in August, 2007
Plenary Session Chair, Micro-Total Analysis Systems, San Diego, 2008.
Session Chair, Gordon Conference on the Physics and Chemistry of Microfluidics, Oxford, England, August, 2005
International Conference for Theoretical and Applied Mechanics, ICTAM, Poland, August, 2004
Lab Automation Conference, Assoc. for Laboratory Automation, Microfluidics Applications Session, San Jose, February 1-5, 2004
International Mechanical Engineering Congress and Exposition, Applications of Fluid Mechanics to Microsystems Technology, Washington, D.C., November 15-21, 2003
Annual Meeting of American Institute of Chemical Engineers, San Francisco, CA, November 16-21, 2003
7th International Conference on Miniaturized Chemical and BioChemical Analysis Systems **(**μTAS2003), Squaw Valley, California, October 5-9, 2003
Physics and Chemistry of Microfluidics, Gordon Conference, Big Sky Resort, Montana, August 24-29, 2003
19th Annual Joint Meeting of the Electrophoresis Society and the American Institute of Chemical Engineers, Indianapolis, Indiana, November 3-8, 2002
International Mechanical Engineering Congress and Exposition, Microfluidic Transport Phenomena, 1998 to 2006
ASME/JSME Fluids Engineering Conference, Microfluidic Devices for Liquids, 1998
Advisory Committee Member for the IEEE Aerospace Conference, 1997
ASME Fluids Engineering Division Summer Meeting, Separated and Complex Flows, 1997
AIAA 35th Aerospace Sciences Meeting, Thermophysics Technical Committee Session, 1997

Reviewer for Archived Journals
Nature Communications, 2022
Scientific Reports, 2021-2022
Communications Biology, 2022
Chemical Society Reviews, 2021
Flow, 2020-Present
Analytical Chemistry, 2000-2022
Lab on a Chip, 2006-2013, 2019-2022
Molecules, 2021-2022
Cell Reports Physical Science, 2022
Journal of Microfluidics and Nanofluidics, 2004 – 2008, 2010, 2014-2015, 2017, 2021
Analytica Chimica Acta, 2020-2021
ACS Sensors, 2019-2020

Joule, 2020
Biosensors and Bioelectronics, 2020
IEEE Access, 2020
Journal of Chromatography A, 2009, 2011-2013, 2015-2016, 2020
Analyst, 2010, 2013, 2017, 2019, 2021
Electrophoresis, 2002 – 2003, 2007, 2009-2010, 2012-2013, 2016, 2019-2021
Proceedings of the National Academy of Sciences, 2010, 2015-2016, 2019-2020
Journal of Fluid Mechanics, 2001 – 2006, 2010-2012, 2018-2019
Physical Review Fluids, 2016-2018, 2020
Nature, 2018
Micromachines, 2019-2020
Environmental Science and Technology, 2016-2019
PLOS One, 2019-2020
Desalination, 2019-2020
Environmental Science: Water Research and Technology, 2018-2019
Industrial & Engineering Chemistry Research, 2017
Journal of Industrial & Engineering Chemistry, 2018
Journal of the Electrochemical Society, 2008, 2015
Journal of Separation Science, 2017
Journal of Physical Chemistry, 2012, 2017-2018
Water Research, 2017-2018
Royal Society Open Science, 2018
Biomicrofluidics, 2016
SLAS Technology, 2017
Journal of Applied Physics, 2015
Angewandte Chemie, 2015, 2018
Electrochimica Acta, 2014-2016
Physical Review Fluids, 2016
ASME Journal of Heat Transfer, 2016
Experiments in Fluids, 2000 – 2006, 2016.
Applied Mathematics and Mechanics, 2015
Biomicrofluidics, 2013
American Chemical Society, ACS Nano, 2010
Macromolecules, 2012
Advanced Materials, 2010, 2015.
Analytical Biochemistry, 2010, 2015.
Nature Protocols, 2010
Journal of the American Chemical Society, JACS, 2010
Journal of Micromechanics and Microengineering 2003 –2006, 2010
International Journal of Hydrogen Energy, 2009
Physics of Fluids, 2002 – 2005, 2008-2009, 2013, 2015
Fuel Cells, 2007
International Journal of Hydrogen Energy, 2008
Langmuir, 2007-2008, 2014
Biomedical Microdevices, 2007-2008
Journal of Power Systems, 2006, 2008
Physical Review E, 2004, 2005 – 2007, 2009
Physical Review Letters, 2005
Applied Physics Letters, 2005
Journal of Chemical Physics, 2005-2006, 2009
Journal of Microelectromechanical Systems, 2000 – 2004, 2006
Chemical Engineering Science, 2001, 2003 – 04
Sensors and Actuators B, 2001 – 2004
Journal of Fluids Engineering, 2002 – 2005

Journal of Colloids and Interface Science, 2003, 2006-2008
Chemical Reviews, 2003
NSF Proposals, 2002 – 2003
Journal of Microscale Thermophysical Engineering, 2003
Journal of Heat Transfer, 2003
Journal of Ophthalmology, 2003
Journal of Biomedical Microdevices, 2002
Science, 2001- 2002, 2005
Review of Optics Letters, 2000
AIAA Journal, 1999 - 2000
Journal of Thermophysics and Heat Transfer, 1997
Journal of Measurement Science and Technology, 1997
Optics Letters, Optical Society of America, 1997

Internal Service

Member of campus-wide Graduate Fellowships Faculty Advisory Committee (GFFAC), October 2021-Present.
Vice Chair of Mechanical Engineering, January 2020 to Present.
Promotion committee, Mechanical Engineering, December 2020 to 2021.
Member of Vice Provost for Graduate Education Faculty Advisory Committee, 2020-Present.
Member of the Mechanical Engineering Graduate Studies Committee (GSC) meeting, 2019-Present.
Member of Mechanical Engineering Strategic Planning Committee, 2019-Present
Stanford Woods Institute for the Environment faculty affiliate, 2019-Present.
Member of the university wide Diversifying Academia, Recruiting Excellence (DARE) Fellowship Committee, Office of Vice Provost for Graduate Education, 2013-Present.
Tomkat Institute (Stanford University) faculty affiliate, 2015-Present.
Chair of Appointments and Promotions Committee, Mechanical Engineering, Stanford University, 2017-2019.
Member of Appointments and Promotions Committee, Mechanical Engineering, Stanford University, 2016-2017.
Member Graduate Diversity Steering Committee, Office of Vice Provost for Graduate Education, 2007-2019
Office of Engineering Diversity Programs and associated talks, dinners, lunches, meetings, and gatherings) 1999-2020
Stanford Summer Engineering Academy (SSEA): Curriculum planning, student host, Includes three-hour lecture on engineering and preparation for college. Presented to students which add diversity to Stanford, 2001-2018, 2021-Present
Faculty adviser for graduate students funded by Enhancing Diversity in Graduate Education--Science, Technology, Engineering and Mathematics (EDGE-STEM) Fellows Program, Stanford University, 2013-Present
Coordination and/or participation in ME Department admit days tours and student interviews 2001-Present
Coordination and/or participation in ME star applicant visit days, including tours and interviews 2001 – Present
Active in recruiting and retention efforts for minorities and women in engineering (including ~10 events per year such as luncheon's, group advising, presentations, dinners, etc.) 1998-Present
Bechtel International Center, Lunchtime with Faculty lunch, May 18, 2017
Reviewer of Tomkat Center proposals, 2016.
Reviewer of book for Cambridge Press, 2016.
Guest lecturer EDUC 343X Navigating the Academic Profession, Diversifying Academia, Recruiting Excellence (DARE) Program, May 4, 2015
Member of Hiring Committee for Senior Faculty, School of Engineering, 2014-2015
Chair of Promotion Committee (to Associate Professor), School of Engineering, 2013-2014
Chair of Reappointment Committee, School of Engineering, 2014-2015
Member of Reappointment Committee, School of Engineering, 2014-2015
Talk and panel member, "The Haves and the Have Nots: First-Gen/Low Income Grad Students and the Transition into Privilege," Grad Diversity Week, Stanford University, April 2015.

Faculty sponsor and facilitator of Vice Provost for Graduate Education Twelve at Twelve discussion group, Winter Quarter 2012
Chair of Buildings 520 and 524 Teaching Lab Committee, 2012-2015
Chair of Search Committee, Mechanical Engineering Department, 2011-2012
Chair of Thermosciences Group, Mechanical Engineering Department, 2009-2012
Member of the Target of Opportunity Hiring Committee, Mechanical Engineering Department, 2011-2012
Member of the Mechanical Engineering Executive Committee, Mechanical Engineering Department, 2009-2012
Member of School of Engineering 3D Fellowship Committee, 2011-2015
Talks and meetings with students at El Centro Chicano, Stanford Univ. 2002 – 2005, 2012, 2014
Panel member for Graduate Environment of Support (HUMSCI 201) course, 2011, 2012
Assembled appointment papers for Mechanical Engineering Department, 2010, 2011
Lectures to undergraduate and graduate meetings of Region 1 (California to Washington State) of undergraduate and graduate students of the Society of Hispanic Professional Engineers, 2011
Panel member for Fellowship Application Workshop at El Centro Chicano, 2009
Panel member for Fellowship Application Workshop Consortium, 2009
Assembled appointment papers for Mechanical Engineering Department, 2008
Presentation and discussion with minority students taking enrolled in the Graduate Environment of Support (HUMSCI 201), 2006, 2010
Member Stanford Campus Residential Leaseholders (SCRL) Residential Traffic Committee, 2007-2009
Member Committee of Graduate Studies, Stanford, 2006-2008
Member of Mechanical Engineering Multiphysics Faculty Search Committee, 2005-2007
Member of Mechanical Engineering Biomechanics Faculty Search Committee, 2005-2006
Member of Stanford University Latino Faculty Committee, 2001-2006
Chair of promotion committee for Dr. Rainer Fasching (Sr. Research Assoc.), 2004-2005
Active Participation in Fluid Mechanics Search committee, 2004-2005
Presentation to Stanford Society of Chicano/Latino Engineers and Scient (SSCLES), 2004, 2005
Presentation and reception for Graduate Diversity Admit Weekend events, 1999, 2004, 2006, 2007, 2008
Presentation for Admit Weekend to incoming freshman, April 2005
Presentation to the Latino Engineering Graduate Organization, April 2005, 2006, 2008
Admit Weekend faculty panel member and presenter, 2003 – 2005
Keynote speaker at Seoul National University/Mechanical Engineering (Thermal Sciences Group) Conference at Stanford, 2004
Center for Integrated Systems Advisory Committee Conference speaker, 2004
Presentation to Mechanical Engineering Visiting Committee (and tours), 2004
Reviewer for Stanford Office of Technology Licensing Awards, 2001, 2002, 2004

Current PhD Graduate Student Advisees

Post-Qualifying Exam

1. Diego Huyke Villeneuve, B.S. Mechanical Engineering

Pre-Qualifying Exam

2. Alexandre Avaro, M.S. Mechanical Engineering
3. Neelanjan Akuli, B.S. Mechanical Engineering
4. Kunlin Ma, B.S. Mechanical Engineering
5. Charles Blanluet, B.S. Mechanical Engineering
6. Yousif Alkhulaifi, B.S. Mechanical Engineering

Graduated Students at PhD and MS level, Postdoctoral Researchers, Undergraduates, and Visitors

To date, I have served as adviser to 34 PhD's and advised 9 postdoctoral researchers and research associates. 19 of these former students and postdocs are now professors at major universities. I have also advised 15 MS students and 28 undergraduate researchers. I have hosted nine US and international visitors.

Archived Publications
(My students and postdoctoral researchers at Stanford **in bold** and *italics type*, respectively)

Submitted and Under Review

Published (and Accepted) Papers

1. Hoffman, D.J. , H.A. Bechtel, **D.A. Huyke**, J.G. Santiago, D.P. Deponte, and J.D. Koralek, "Liquid Heterostructures: Generation of Liquid-Liquid Interfaces in Free-Flowing Liquid Sheets," in press, *Langmuir*, 2022.
2. **Blanluet, C., D.A. Huyke, A. Ramachandran, A.S Avaro,** and J.G. Santiago, "Detection and Discrimination of Single Nucleotide Polymorphisms by Quantification of CRISPR-Cas Catalytic Efficiency," in press, *Analytical Chemistry*, 2022.
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32. *Kuriyama K., Shintaku H.*, Santiago J.G., "Development of microfluidic system for isolation and analyses of RNA and DNA from single cells", poster presented at 2nd Annual Single Cell Genomics & Transcriptomics Asia Congress 2014, Singapore, October 7-8, 2014.
33. **Shkolnikov, V.,** J.G. Santiago, "Species Altered Fluorescence Imaging (SAFI): A Non-invasive Visualization Method Which Simultaneously Images Scalar Fields and Quantifies Local Species Concentration", Stanford Bio-X Interdisciplinary Initiative, Stanford, California, February 25, 2013
34. **Qu, Y., Marshall, L.A.,** Santiago, J.G., "Simultaneous Purification and Fractionation of Nucleic Acids and Proteins From Complex Samples Using Isotachophoresis", presented at the 2013 American Institute of Chemical Engineers Annual Meeting (2013 AIChE), San Francisco, California, Nov. 3-8, 2013.
35. **Qu, Y., Marshall, L.A.,** Santiago, J.G., "On-Chip Protein Extraction and Albumin Exclusion From Plasma and Serum Using Isotachophoresis", presented at the 2013 American Institute of Chemical Engineers Annual Meeting (2013 AIChE), San Francisco, California, Nov. 3-8, 2013
36. **Marshall, L.A., Qu, Y.,** Santiago, J.G., Simultaneous Purification and Fractionation of Nucleic Acids and Proteins from Complex Samples using Isotachophoresis, presented at 29th International Symposium on MicroScale Bioseparations, March 10-14, 2013, University of Virginia, Charlottesville, Virginia, U.S.A.
37. **Rogacs, A.;** Santiago, J.G., "A High Fidelity, Validated Model of Temperature Effects for Electrophoresis," presented at the 29th International Symposium on MicroScale Bioseparations (MSB2013), Charlottesville, Virginia, March 10-14, 2013.
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39. **Garcia-Schwarz G.** Santiago J.G., and Mani A., "Electrokinetic instability of isotachophoresis shocks," American Physical Society Division of Fluid Dynamics, Pittsburgh, PA, November 24-26, 2013.
40. **Marshall, L.A.; Rogacs, A.;** Santiago, J.G., "A novel device for highly efficient extraction of nucleic acids from 10 μl whole blood samples." 2012. *American Electrophoresis Society Annual 2012 Meeting (AES 2012*), Pittsburgh, PA, Oct. 28-Nov. 2, 2012.
41. **Han C., M. Bercovici, L.A. Marshall, G. Garcia-Schwarz, A. Persat,** J.C. Liao, and Santiago J.G., "Isotachophoresis for extraction and rapid hybridization of nucleic acids," to be presented at the *International Symposium, Exhibit & Workshop on Electro- and Liquid Phase-Separation Techniques, ITP 2012*, Baltimore, MD, September 30 to October 3, 2012.

42. **Suss, M.E**., T.F. Baumann, B. Bourcier, C.M. Spaddacini, K.A. Rose, J.G. Santiago, Stadermann, M., "Capacitive desalination with flow-through electrodes" Presented at the *ICREA Symposium on Nanofluidics, Colloids, and Membranes*, Barcelona, Spain, July 16 to 18, 2012.
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44. Suss, M.E., J.G. Santiago, T. Jaramillo, T.F. Baumann, M. Stadermann, Rose, K.A., "Charging Performance of Carbon Aerogel Electrodes with Hierarchical Porosity for Water Desalination and Energy Storage Applications" Presented at 219th meeting of the Electrochemical Society, Montreal, Canada, May 1 to 6, 2011.
45. **Bercovici M., Han C.,** Liao J.C., and Santiago J.G., "10,000 fold acceleartion of DNA hybridization reactions using isotachophoresis," *15th Annual Meeting of the Israel Analytical Chemistry Society*, Tel-Aviv, Israel, January 24-25, 2012.
46. **Bahga, S.S., Chambers, R.D.** and Santiago, J.G., "Interaction of ion-concentration in shock waves in microfluidics," *64th Annual Meeting of the American Physical Society/Division of Fluid Dynamics (APS/DFD)*, Baltimore, MD, November 20-22, 2011.
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50. **Garcia-Schwarz, G., M. Bercovici, L.A. Marshall**, J.G. Santiago, "Sample dispersion in isotachophoresis", *BioX Interdisciplinary Initiatives Symposium*, Stanford, CA, March 11, 2011.
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54. **Bahga, S.S., R.D. Chambers**, J.G. Santiago, "Coupled isotachophoretic preconcentration and electrophoretic separation using bidirectional isotachophoresis", The *Thermal and Fluid Sciences Affiliates and Sponsors Conference (TFSA 2011)*, Stanford, CA, February 2-4, 2011.
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60. **Strickland, D., T. Zangle**, and J.G. Santiago, "Visualization of concentration polarization generated by electroosmotic pumps," Meeting Abstracts - *Electrochemical Society*, 901, 41, p. 1410, May 2009.
61. **Persat, A.** and J.G. Santiago, "Generalized Ohmic Model for Electrokinetics," Annual meeting of the Material Research Society, Spring meeting, April 13-17, 2009, San Francisco, CA, 2009.
62. *Schoch R. B.*, M. Ronaghi, and J.G. Santiago, "Rapid and Sensitive Separation, Preconcentration, and Extraction of MicroRNA from Lysate Using On-Chip Isotachophoresis," *Stanford Genome Technology Center Site Visit*, Palo Alto, CA, December 12, 2008.
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65. Mani A., **T.A. Zangle,** and J.G. Santiago, "Concentration Polarization in Microchannel-Nanochannel Interfaces Using Method of Characteristics," *61st Annual Meeting of the American Physical Society Division of Fluid Dynamics*. San Antonio, TX, November 2008
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67. **Bercovici, M.,** S.K Lele, and J.G. Santiago, "Simulation and Optimization of Isotachophoresis," Thermal and Fluid Sciences Affiliates and Sponsors Conference, Stanford, CA, February 6-8, 2008.
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69. **Litster, S.,** B. Ha, **D.J. Kim**, and J.G. Santiago, "A Two-Liquid Electroosmotic Pump for Portable Drug Delivery," *ASME IMECE*, Seattle, WA, November 11-15, 2007.
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Materials Research Society, Portable Power Symposium, Hynes Convention Center & Sheraton Boston Hotel, Boston, MA, November 27-December 1, 2006.

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85. *Baldessari, F.***, T.A. Zangle, S. Pennathur,** M. Kattah, J. Steinman, P.J. Utz, and J.G. Santiago, "Electrophoresis and Preconcentration Techniques in Nanochannels," presented at the Eighth NHLBI Proteomics Investigator Meeting, Bethesda, MD, September 20-21, 2006.
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93. Meinhart, C.D., S. Bradford, *J.D. Posner*, and J.G. Santiago, "Electrokinetic Flow Instabilities in Microfluidics," FEMLAB (COMSOL) 2005 User Conference, Burlington, MA, October 24, 2005.
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97. **Huber, D.E.** and J.G. Santiago, "Temperature Gradient Focusing: Dynamics and Applications," LabAutomation Conference, San Jose, CA, January 30-February 3, 2005.

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110. **Chen, C.-H.,** *H. Lin*, S.K. Lele, and J.G. Santiago, "Convective Electrokinetic Microflow Instability with Conductivity Gradients," 56th Meeting of American Physical Society, Division of Fluid Dynamics (APS/DFD), East Rutherford, NJ, November 23-25, 2003.
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112. **Devasenathipathy, S.** and J.G. Santiago, "Particle Stacking in Electrokinetic Systems with Conductivity Gradients," Gordon Research Conference on the Physics and Chemistry of Microfluidics, Big Sky, MT, August 24-29, 2003.
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126. Santiago, J.G., "Microfluidic Processes: The Role of Micro-Scale Fluid Dynamics in BioMEMS," BioMEMS '98: Spanning the Frontiers of Engineering and Biology, University of California at San Franscisco, CA, October, 1998.
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Issued U.S. Patents

1.	US 6,606,251	Power conditioning module
2.	US 6,653,651	Micron resolution particle image velocimeter
3.	US 6,678,168	System including power conditioning modules
4.	US 6,881,039	Micro-fabricated electrokinetic pump
5.	US 6,882,543	Apparatus for conditioning power and managing thermal energy in an electronic device
6.	US 6,942,018	Electroosmotic microchannel cooling system
7.	US 6,991,024	Electroosmotic microchannel cooling system molecules
8.	US 7,019,972	Apparatus for conditioning power and managing thermal energy in an electronic device
9.	US 7,050,308	Power conditioning module
10.	US 7,057,198	Depth-of-field micron resolution velocimetry with pulsed images of injected solid particles
11.	US 7,061,104	Apparatus for conditioning power and managing thermal energy in an electronic device
12.	US 7,070,681	Electrokinetic instability micromixer
13.	US 7,086,839	Micro-fabricated electrokinetic pump with on-frit electrode
14.	US 7,131,486	Electroosmotic microchannel cooling system
15.	US 7,134,486	Control of electrolysis gases in electroosmotic pump systems
16.	US 7,185,697	Electroosmotic microchannel cooling system
17.	US 7,231,839	Electroosmotic micropumps with applications to fluid dispensing and field sampling

18. US 7,316,543 Electroosmotic micropump with planar features
19. US 7,334,630 Closed-loop microchannel cooling system
20. US 7,449,122 Micro-fabricated electrokinetic pump
21. US 7,458,783 Method and apparatus for improved pumping medium for electro-osmotic pumps
22. US 7,645,368 Orientation independent electroosmotic pump
23. US 7,799,453 Fuel cell with electroosmotic pump
24. US 7,846,593 Heat and water management device and method in fuel cells
25. US 7,951,278 Method of detecting directly undetectable analytes using directly detectable spacer
26. US 8,017,408 Device and methods of detection of airborne agents
27. US 8,247,238 Device and methods of detection of airborne agents
28. US 8,277,628 Method and apparatus using electric field for improved biological assays
29. US 8,382,460 Peristaltic pump with constrictions at fixed locations
30. US 8,394,251 Improved control of chemical reactions using isotachophoresis
31. US 8,414,754 Electrophoretic sample analysis and approach therefor
32. US 8,431,409 Device and methods of detection of airborne agents
33. US 8,460,530 Method for modifying the concentration of reactants in a microfluidic device
34. US 8,524,061 On-chip hybridization coupled with ITP based purification for fast sequence specific identification
35. US 8,562,804 Fluorescent finger prints for indirect detection in isotachophoresis
36. US 8,702,948 Method and Apparatus Using Electric Field for Improved Biological Assays
37. US 8,721,858 Non-focusing tracers for indirect detection in electrophoretic displacement techniques
38. US 8,821,704 Control of chemical reactions using isotachophoresis
39. US 8,431,409 Device and methods of detection of airborne agents
40. US 8,846,314 Isotachophoretic focusing of nucleic acids
41. US 8,986,529 Isotachophoresis having interacting anionic and cationic shock waves
42. US 8,999,129 Liquid and gel electrodes for transverse free flow electrophoresis
43. US 9,057,673 Method of preparing RNA from ribonuclease-rich sources
44. US 9,097,676 Device and methods of detection of airborne agents
45. US 9,151,732 Enhanced isotachophoresis assays using additives with spatial gradients, 2015
46. US 9,297,039 Control of chemical reactions using isotachophoresis, 2016
47. US 9,574,232 Devices and methods for controlling reversible chemical reactions at solid-liquid interfaces by rapid preconcentration and phase replacement, 2017
50. US 9,719,930 Device and methods of detection of airborne agents
48. US 9,753,007 Isotachophoretic focusing of nucleic acids, 2017
49. US 9,758,392 Phased charging and discharging in capacitive desalination, 2017
52. US 9,939,435 Detection of biological molecules using surface plasmon field enhanced fluorescence spectroscopy (SPFS) combined with isotachophoresis (ITP)
53. US 10,073,054 Control of chemical reactions using isotachophoresis, 2018
54. US 10,132,775 Enhanced isotachophoresis assays using additives with spatial gradients, 2018
55. US 10,233,441 Capillary barriers for staged loading of microfluidic devices, 2019
56. US 10,392,653 Devices and methods for controlling reversible chemical reactions at solid-liquid interfaces by rapid preconcentration and phase replacement, 2019
57. US 10,408,827 Detection of biological molecules using surface plasmon field enhanced fluorescence spectroscopy (SPFS) combined with isotachophoresis (ITP), 2019
58. US 10,415,030 Isotachophoresis for purification of nucleic acids, 2019
59. US 10,416,082 Device and methods of detection of airborne agents, 2019
60. US 10,750,928 Simultaneous extraction and separation of RNA and DNA from single cells using electrophoretic techniques, 2020
61. US 10,787,660 Capillary barriers for staged loading of microfluidic devices, 2020
62. US 10,822,603 Isotachophoresis for purification of nucleic acids, 2020
62. US 10,830,732 Control of chemical reactions using isotachophoresis, 2020
63. US 10,875,792 System and method for high efficiency electrochemical desalination, 2020
64. US 11,041,150 Systems, devices, and methods for isotachophoresis, 2021
65. US 11,325,123 Flow regulation in fluidic systems using a phase-change material at system ports

International patents

1.	GB2526999A (B)	Capillary barriers for staged loading of microfluidic devices
2.	China 2,459,6.1	Method and Apparatus Using Electric Field for Improved Biological Assays
3.	AU2003301337A1	Control of electrolysis gases in electroosmotic pump systems
4.	AU2003282531A1	Vapor escape microchannel heat exchanger
5.	AU2008276308A1	Method and apparatus using electric field for improved biological Assays
6.	TW200506305A	Boiling temperature design in pumped microchannel cooling loops
7.	GB2408781A (B)	Micro-fabricated electrokinetic pump
8.	AU2003217286A1 (A8)	Power conditioning module
9.	TW200416349A (B)	Micro-fabricated electrokinectic pump
10.	AU2003270882A1	Micro-fabricated electrokinetic pump with on-frit electrode
11.	AU2002326931A1 (A8)	Electroosmotic microchannel cooling system

Other Invited Presentations

1. "CRISPR-based diagnostics: Fundamental limits of detection and microfluidic assays" Sunday short course at Solid-State Sensors, Actuators, and Microsystems Workshop, June 5, 2022.
2. Santiago, JG "Microfluidic device for detection of SARS-CoV-2," Plenary talk at the 3rd International Conference of Microfluidics, Nanofluidics and Lab-on-a-Chip (ICMFLOC2021) held in Shenzhen from 2–4 July 2021.
3. "Introduction to Flow: Applications in Fluid Mechanics," Webinar sponsored by Cambridge University Press for research community in China, June 18, 2021.
4. "Flow: A new journal by Cambridge University Press," Webinar sponsored by Cambridge University Press for international community, May 26, 2021.
5. "Isotachophoresis for Separations and DNA Hybridization," Thermo Fisher Scientific, January, 2020.
6. "Electric Field Control of DNA Hybridization Reactions," Physics and Chemistry of Microfluidics, Gordon Conference, Hong Kong, June 19, 2019.
7. "Reaction Capacitive deionization of water: Resonant desalination and selective nitrate extraction," University of Tokyo, June 24, 2019.
8. "DNA extraction, hybridization, and enrichment using isotachophoresis," RIKEN, Wako City, Tokyo, Japan, June 25, 2019.
9. "Fast hybridization, single-cell fractionation, and high-throughput cell deformability: An update on the Stanford Microfluidics Lab," Sony Corporation Headquarters, Tokyo, Japan, June 26, 2019.
10. "Electrokinetics applied to water and biology," Kyoto University, Kyoto, Japan, June 27, 2019.
11. "Microfluidic Sheet Jets for X-ray Spectroscopy Studies at SLAC," Fluid Mechanics Seminar, Stanford University, May 21, 2019.
12. "Micromixers and microjets for SLAC National Laboratory," B. Ha, A. Ramachandra, D. DePonte, JG Santiago. Mathematical Nanosystems Workshop, Simon Foundation, University of California at Los Angeles, January 17-18, 2018.
13. The Batsheva de Rotschild Seminar Physics of Microfluidics, Sde Boker, Israel, "Flow-through capacitive deionization models and experiments," A. Hemmatifar, Y. Qu, J. Palko, M Stadermann, and JG Santiago, January 6, 2017.
14. Okinawa Institute of Science and Technology, "Life in the shock wave: Controlling DNA reactions with electric fields," JG Santiago, April 24, 2016.
15. University of Houston, "Life in the shock wave: Accelerating DNA reactions with electric fields," Houston, Texas, February 25, 2016.
16. CADMIM NSF Consortium Meeting, University of California at Irvine, February 17, 2016.
17. International Conference and Expo on Separation Techniques, August 10-12, 2015 San Francisco, USA
18. Mechanical Engineering Seminar, Princeton University, October 24, 2014.
19. Shintaku, H. and J.G. Santiago, "Extraction and Fractionation of RNA and DNA from Single Cells Using Selective Lysing and Isotachophoresis," SPIE BiOS, San Francisco, CA, February 7-12, 2015.
20. Shintaku, H., J.W. Palko, G.M. Sanders, and J.G. Santiago, "Coupling Isotachophoresis with Bead-Based Assay for Rapid and Multiplexed Nucleic Acids Detection," Lab-on-a-Chip Asia- Microfluidics and Point Of Care Diagnostics, Singapore, November 20-21, 2014.

21. Shintaku, H. and J.G. Santiago, "Sample Preparation for Simultaneous Analysis of RNA and DNA from Single Cells Using Electrophoretic Techniques," 2nd Annual Single Cell Genomics & Transcriptomics Asia Congress 2014, Singapore, October 7-8, 2014.
22. Mechanical Engineering Seminar, Northwestern University, March 28, 2014
23. Exxon Production Research Visit, Stanford University, February 5, 2013
24. MF4 Consortium Meeting, Stanford University, February 4, 2013
25. Bay Area Separation Science Forum (BASSF) – *Applications of Microfluidic Technologies in the Biotechnology Industry*, CASS International Separation Society, South San Francisco, April 20, 2012.
26. Physics and Chemistry of Microfluidics, Gordon Conference, Waterville Valley, NH, June 26-July 1, 2011
27. DARPA and SPAWAR PI Meeting, Stanford, September 16, 2010
28. DARPA MF3 Center Meeting, UC Irvine, June 23, 2010
29. SPARK Meeting, Stanford University, August 10, 2010
30. ITP 2010 Conference, Baltimore, Aug 31, 2010
31. ONSET Ventures, Palo Alto, CA, May 6, 2010
32. Agilent Technologies, Santa Clara, April 20, 2010
33. SPARK Meeting, Clark Center, Stanford University, April 21, 2010
34. Lab Automation 2010 Conference, Palm Springs, January 23-27, 2010
35. Immunometrics Workshop Meeting, Stanford University, Stanford, CA, January 2010.
36. DARPA Microtechnology Office Workshop, Minneapolis, MN, 2009
37. DARPA PI Meeting, Bend, Oregon, July 6-7, 2009.
38. Life Technologies, Carlsbad, CA, 2009
39. Arizona State University, 2009
40. Seoul National University, 2009
41. Material Research Society, Electro-Fluids Symposium, San Francisco, 2009.
42. Biorad Inc., Hercules, CA, 2009
43. Stanford University Fluid Mechanics Seminar, Stanford, CA, 2008
44. Ebara Corporation, Tokyo, Japan, 2008
45. University of Florida, Gainesville, 2008
46. Stanford University Mechanical Engineering Advisory Committee, 2007
47. Bosch Inc., Stanford, CA 2007
48. General Electric Corp. Research, Niscayuna, NY, 2007
49. University of Twente, Twente, The Netherlands, Dec. 2006
50. Spanish Society of Chromatography and Related Techniques, SECyTA, Vigo, Spain, Nov. 2006
51. Univ. California at Santa Cruz, Biochemistry Dept., 2006
52. 30th Annual GEM Conference, Chicago, IL, 2006
53. Institute for Pure and Applied Mathematics, UCLA, 2006
54. Biodesign Group, Stanford University, Stanford, CA 2005
55. Applied Biosystems, Foster City, CA, 2005
56. BIRS Research Conference on Micro- and Nano-fluidics, Banff, Canada 2005
57. American Physical Society Conference, Los Angeles, March 2005
58. Florida International University, Miami, Florida, 2005
59. Hewlett-Packard Laboratories, Palo Alto, 2004
60. Seoul National University/Stanford University Conference, Stanford, 2004
61. Predicant Biosciences, South San Francisco, 2004
62. Research Center International Conference on Theoretical and Applied Mechanics (ICTAM ’04), Warsaw, Poland 2004
63. University of Illinois at Urbana-Champaign, Mech. Engineering Department, 2004
64. University of California at Santa Barbara, Mech. Engineering Department, 2004
65. Lab Automation Conference, Association for Laboratory Automation, San Jose, 2004
66. Annual American Chemical Society Meeting, Anaheim, CA 2004
67. Lab Automation Conference, Association for Laboratory Automation, San Jose, California, 2004
68. American Society of Mechanical Engineering IMECE, Washington, Microfluidics Symposium, Washington D.C., 2003

69. University of Minnesota, Mech. Engineering Department, Minneapolis, MN, 2003
70. University of California at Berkeley, Mech. Engineering Department, Berkeley, CA, 2003
71. University of California at Davis, Mech. Engineering Department, Davis, CA, 2003
72. Carnegie-Mellon University, Chemical Engineering Department, Pittsburg, PA, 2003
73. National Institute of Standards and Technology, Gaithersburg, Virginia, 2003
74. Gordon Conference on the Physics and Chemistry of Microfluidics, Big Sky, Montana, 2003
75. Joint American Institute of Chemical Engineering and American Electrophoresis Society, San Francisco, California, 2003
76. University of Pennsylvania, Mechanical Engineering Department, Philadelphia, Pennsylvania, 2003
77. California Institute of Technology, Mechanical Engineering Department, 2003
78. Gordon Conference on the Physics and Chemistry of Microfluidics, Big Sky, Montana, 2003
79. Joint American Institute of Chemical Engn. and American Electrophoresis Society, San Francisco, CA, 2003
80. University of Tokyo, Tokyo, Japan, 2003
81. Keio University, Tokyo, Japan, 2003
82. IBC BioMEMS and Microfluidics, Keynote Address, San Diego, CA, 2003
83. Joint American Institute of Chemical Engineering and American Electrophoresis Society, Indianapolis, Indiana, Keynote Address, 2002
84. Target Discovery, Palo Alto, California, 2002
85. Integrated Nanosystems, Berkeley, California, 2002
86. ASME Microfluids Mini-Course, Boston, Massachusetts, 2002
87. Sandia National Laboratories, Albuquerque, New Mexico, 2002
88. Intel Corporation Thermal Research, Chandler, 2002
89. Gordon Research Conference on the Physics and Chemistry of Microfluidics, Oxford, England, 2001
90. Poa Sana Corporation, San Jose, California, 2001
91. Lawrence Livermore National Laboratories, Livermore, California, 2001
92. Sandia National Laboratories, Livermore, California, 2001
93. Zyomix Corporation, Hayward, California, 2001
94. Agilent Corporation, Palo Alto, California, 2001
95. LabAutomation ’01, Palm Springs, California, 2001
96. Intel, Portland, Oregon, 2000
97. Endovasix Corporation, Redwood, California, 2000
98. LabAutomation ’00, Palm Springs, California, 2000
99. Committee on Microfluidic Interconnects, ASME International ME Congress and Exposition, Nashville, Tennessee, 1999
100. ACLARA Biosystems: Flow Visualization for Electrokinetic Flow, Menlo Park, California 1999
101. Hewlett-Packard Laboratories, Palo Alto, California, 1999
102. Endovasix Corporation, Redwood City, California, 1999
103. BioMEMS ’98: Spanning the Frontiers of Engineering and Biology, University of California at San Francisco, 1998
104. 3M Corporate Research, St. Paul, Minnesota, 1998
105. University of Florida, Gainesville, FL, 1997, 1998.
106. University of California at Santa Barbara, CA, 1998.
107. University of Maryland at College Park, MD, 1998.
108. Stanford University, Stanford, CA, 1998.
109. University of Illinois at Urbana-Champaign, Urbana, IL, 1998.
110. Harvard University - Division of Engineering and Applied Sciences, 1998.
111. University of Minnesota, Minneapolis, MN, 1998.
112. Carnegie Mellon University, Pittsburgh, PA, 1998.
113. University of Illinois at Urbana-Champaign, Urbana, IL, 1995, 1997.
114. Harvard University - Medical School, Boston, MA, 1996.
115. The Aerospace Corporation, El Segundo, CA, 1995, 1996.
116. Air Products Corporation, Allentown, PA, 1995.
117. Exxon Production Research, Houston, TX, 1995.

Other Presentations

1. DARPA MicroFlumes Contractors Meeting, June 1998.
2. DARPA CCAD Contractors Meeting, September 1998.
3. DARPA MicroFlumes Contract Update, February 1999.
4. DARPA CCAD Contract Update, February 1999.
5. DARPA CCAD Contract Update, September, 1999.
6. DARPA HERETIC Contractors Meeting, June 1999.
7. DARPA CCAD Contractors Meeting, October 1999.
8. DARPA MicroFlumes PI Meeting, January 2000.
9. DARPA CCAD PI Meeting, August 2000.
10. DARPA MicroFlumes PI Meeting, August 2000.
11. DARPA Bioflips PI Meeting, August 2000.
12. DARPA HERETIC Contractors Meeting, November 2000.
13. DARPA Bioflips PI Meeting, February 2001.
14. DARPA CCAD PI Meeting, May 2001.
15. DARPA HERETIC Contractors Meeting, May 2001.
16. DARPA Simbiosys PI Meeting, August 2001.
17. DARPA Simbiosys PI Meeting, February 2002.
18. DARPA Simbiosys Contractors Meeting, September 2002.
19. DARPA Simbiosys Contractors Meeting, February 2003.
20. Intel Contract Meeting, December 2002.
21. Intel Contract Meeting, July 2003.
22. Honda Contract Meeting, September 2003.
23. DARPA Simbiosys Contractors Meeting, September 2003.
24. NIH Contract Meeting, October 2003.
25. Honda Contract Meeting, December 2003.
26. DARPA Simbiosys Contractors Meeting, January 2004.
27. Honda Contract Meeting, December 2004
28. DARPA Simbiosys Contractors Meeting, January 2005.
29. Honda Contract Meeting, October 2005
30. Honda Contract Meeting, January 2006
31. Honda Contract Meeting, August, 2006
32. DARPA MF3 Center PI Meeting, November, 2006
33. Honda Contract Meeting, November, 2006
34. Honda Contract Meeting, February 2007
35. DARPA PI Meeting, UC Irvine, 2009
36. DARPA PI Meeting, UC Irvine, 2010
37. DARPA PI Meeting, Washington DC, 2012
38. DARPA PI Meeting, Friend or Foe program, teleconference, 2020.

References Available Upon Request