

Professor David Erickson

Associate Professor
240 Upson Hall
Sibley School of Mechanical and Aerospace Engineering, Cornell University
Ithaca, New York, 14853
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EDUCATION

- Ph.D. – University of Toronto** Aug. 2004
Department of Mechanical & Industrial Engineering
Advisor: Prof. Dongqing Li
- M.A.Sc. – University of Toronto** Aug. 2001
Department of Mechanical & Industrial Engineering
Advisor: Prof. Dongqing Li
- B.Sc. – University of Alberta** June 1999
Department of Mechanical Engineering

RESEARCH AND WORK EXPERIENCE

- Cornell University** Aug. 2005 – Present
Sibley School of Mechanical and Aerospace Engineering: Ithaca, New York
Associate Professor (2011- Present), Assistant Professor (2005-11)
Field Memberships: Mechanical Engineering, Aerospace Engineering, Biomedical Engineering, Electrical Engineering, Applied Physics.
Center Memberships: Nanobiotechnology Center, Cornell Center for a Sustainable Future
- Optofluidics, Inc.** January 2011 - Present
Philadelphia, PA <http://www.optofluidicscorp.com>
Co-Founder, Chairman
Awards: Philadelphia Life Sciences Start-up of the Year (2012)
- École Polytechnique Fédérale Lausanne (EPFL)** July 2011 – Dec. 2011
Lausanne, Switzerland
Visiting Professor
- California Institute of Technology** Aug. 2004 – Aug. 2005
Department of Electrical Engineering: Pasadena, California
Post-doctoral Scholar
Supervisor: Prof. Demetri Psaltis
- Institute for Polymer Research, Dresden, Germany** July 2002 – Aug. 2002
Visiting Scientist
Supervisor: Dr. Carsten Werner
- Defense Research Establishment Valcartier (DREV)** May 1999 – Aug. 1999
Quebec City, Quebec
Research Assistant
Supervisor: Dr. Franklin Wong

MAJOR AWARDS AND HONORS

- Presidential Early Career Award for Scientists and Engineers (PECASE)** 2011
The highest honor bestowed by the United States government on science and engineering professionals in the early stages of their independent research careers.
- Department of Energy Early Career Award** 2010
The Department of Energy's award designed to bolster the nation's scientific workforce by providing support to exceptional researchers during the crucial early career years
- National Science Foundation CAREER Award** 2009
The National Science Foundation's most prestigious award for junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research.
- DARPA-MTO Young Faculty Award** 2007
The DARPA-MTO (Defense Advanced Research Projects Agency – Microsystems Technology Office) Young Faculty Award rewards research ideas that are critical to future technology developments leading to revolutionary advances of the state-of-the-art.
- Robert '55 and Vanne '57 Cowie Excellence in Teaching Award** 2007
"The highest award for teaching in the college [of Engineering at Cornell University]."

EXTERNAL POSITIONS AND SERVICE

Journal Editorships

- **Associate Editor.** Journal of Microfluidics and Nanofluidics. *January 2008 - continuing.*
- **Associate Editor.** Smart Materials and Structures. *January 2008 – continuing.*

Invited International Exchange Programs and National Symposiums

- National Academy of Engineering Frontiers in Engineering Symposium. 2009.
- 4th U.S. – Japan NSF Young Researchers Exchange Program. 2007

Academic Conferences – Organizer

- **European Optical Society – World of Photonics Congress: 2011** (Munich, Germany) "Optofluidics" conference organizer.
- **Frontiers in Optics: 2010** (Rochester, NY) Symposium Organizer "Optofluidics in the Near Field".
- **Conference on Lasers and Electro-Optics, CLEO: 2011** (Baltimore, MD), **2010** (San Jose, CA) Technical Committee "Biophotonics and Optofluidics"; **2009** (Baltimore, MD) **Symposium Chair and Organizer** "Optofluidics" & Technical Committee Member "Medical and Biological Applications"; **2007** (Baltimore, MD) Session Chair "Photonic Crystals".
- **IEEE/LEOS Summer Topicals: 2008** (Acapulco, Mexico) & **2006** (Quebec City, Quebec) Organizer & Chair "Optofluidics: Emerging Technologies and Applications"
- **International Mechanical Engineering Congress and Exposition (IMECE, ASME Annual Meeting): 2009** (Orlando, FL) & **2008** (Boston, MA) Co-Organizer of annual symposium on microfluidics & Session Chair; **2007** (Seattle, WA) Session chair; **2005** (Orlando, FL) Session Chair.

Proposal Review Panel Member

- **National Science Foundation:** January 2012 – Biosensors; December 2008 – Civil, Mechanical and Manufacturing Innovation; May 2008 - Chemical, Biological and Engineering Transport; May 2008 - Chemical, Biological and Engineering Transport (*Note: 2 Panels done in May 2008*); January 2008 - Chemical, Biological and Engineering Transport; 2007 – Active Nanostructures and Nanosystems Program; December 2006 & June 2006 – Nanomanufacturing Program.
- **National Institutes of Health:** February 2011 – Biotechnology; March 2010 – National Cancer Institute: Early Diagnostics for Cancer Detection. November 2008 & September 2007 - National Institute of Environmental Health Sciences (NIH-NIEHS): Superfund Basic Research Program; October 2008 and October 2009 National Institute of Allergy and Infectious Diseases (NIH-NIAID): Cooperative Research Partnerships for Biodefense.
- Also reviewer for: **Department of Energy** (2010-Present), **European Union** (2008-2011), **Singapore Science Foundation** (2008-2011), **Hong Kong Science Foundation** (2008-2011).

RESEARCH GROUP – CURRENT MEMBERS

Ph.D. Students

Kalontarnov, Michael Mechanical Engineering (A-Exam 2010)	2007-Present
Mak, Michael Biomedical Engineering (A-Exam 2011)	2008-Present
Jung, Erica Mechanical Engineering (A-Exam 2011)	2008-Present
Gumus, Abdurrahman Electrical Engineering	2008-Present
Serey, Xavier Applied and Engineering Physics	2008-Present
Mancuso, Matt Biomedical Engineering	2009-Present
Jiang, Li Mechanical Engineering	2009-Present
Oncescu, Vlad-Victor Mechanical Engineering	2009-Present
Kang, Pilgyu Mechanical Engineering	2009-Present
Jain, Aadhar Mechanical Engineering	2009-Present
Fain, Romy Mechanical Engineering	2010-Present
Ahsan, Syed Saad Applied and Engineering Physics	2011-Present
Lee, Seoho	2012-Present

Mechanical Engineering

O'Dell, Dakota
Applied and Engineering Physics

2012-Present

RESEARCH GROUP – FORMER MEMBERS & GRADUATES

Post-Doc and Ph.D Group Alumni

Mandal, Sudeep Degree Awarded: <u>Ph.D. Applied Physics (2009)</u> Current Position: General Electric Research, Niskayuna, NY	2005-2010
Yang, Allen Degree Awarded: <u>Ph.D. Chemical Engineering (2010)</u> Current Position: Post-Doc, University of California, Santa Barbara	2005-2010
Cordovez, Bernardo Degree Awarded: <u>Ph.D. Mechanical Engineering (2010)</u> Current Position: CTO, Optofluidics, Inc., Philadelphia, PA	2005-2010
Chung, Aram Degree Awarded: <u>Ph.D. Mechanical Engineering (2011)</u> Current Position: Post-Doc, University of California, Los Angeles	2006-2011
Krishnan, Mekala Degree Awarded: <u>Ph.D. Mechanical Engineering (2011)</u> Current Position: McKinsey & Company	2006-2011
Moore, Sean Degree Awarded: <u>M.S. Mechanical Engineering (2011)</u>	2007-2011
Goddard, Julie (Post-Doc) Current Position: Assistant Professor, University of Massachusetts, Amherst – Food Science	2007-2009
Huh, Yun Suk (Post-Doc) Location: Korean Basic Science Institute	2007-2010
Choi, Inhee (Post-Doc) Current Position: Post-Doc, University of California, Berkeley	2009-2011
Chen, Yih-Fan (Post-Doc) Current Position: Assistant Professor, National Cheng Kung University, Taiwan	2010-2011

Visiting Scholar Alumni

Sinton, David Canada Research Chair in Integrated Microfluidics and Nanofluidics Associate Professor of Mechanical Engineering, University of Toronto Adjunct Professor of Mechanical Engineering, Cornell University	2009-2010
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UG & MENG Group Alumni

Akhmechet, Roman	M.Eng./Engineer	2006-2007
Story, Devon	M.Eng.	2005-2006
Rubin, Ephram	M.Eng.	2006
Vallejo, Ana	M.Eng.	2006

Borkar, Abhas	M.Eng.	2006
Jayakumar, Harishankar	M.Eng.	2006
Dropkin, Amanda	Undergraduate Researcher	2005-2007
Youn, Paul	Undergraduate Researcher	2005-2006
Ahmad, Sana	Undergraduate Researcher	2005-2006
Tung, Stephen	Undergraduate Researcher	2006
Kabadi, Suraj	CNF-REU	2006
Lannon, Herbert	CNF-REU	2006
Kim, Donn	M.Eng.	2006-2007
Ng, Adrian	M.Eng.	2006-2007
Sheikh, Omer	M.Eng.	2006-2007
Nichols, Weston	Undergraduate Researcher	2006-2007
Chen, Likun	REU	2006-2007
Baisch, Andrew	CNF-REU	2007
Klug, Matt	M.Eng.	2007
Chi, Binbin	Undergraduate	2007
Kress, Michael	Undergraduate	2007
Lerdsuchatawanich, Tadsanapan	M.Eng.	2008
Park, Joonsik	UG/M.Eng.	2008
D'Souza, Angela	M.Eng.	2008-2009
DiFelice, Audrey	UG	2009
Klingler, Kristen	UG	2009
Huang, Toby	UG Researcher	2010
Duan, Hank	UG Researcher	2010
Anger, Richard	CNF-REU	2010
Ogunbo, Samuel	CU-LSAMP REU	2010
Jasuja, Nipun	UG Researcher	2009-2011
Neilsen, Lars	MS from DTU	2010-2011

PUBLICATIONS

Articles published or accepted to refereed journals

1. Ooms, M., Sieben, V., Pierobon, S., Jung, E.E., Kalontarov, M., Erickson, D., Sinton, D., "Evanescence Photosynthesis: Cultivating cyanobacteria in a surface-confined light field" *Physical Chemistry Chemical Physics* 14, 4817-4823 (2012).
2. Jain, A., Yang, A.J.H., Erickson, D., "Gel-based optical waveguides with live cell encapsulation and integrated microfluidics" *Optics Letters* (accepted 2012)
3. Chen Y.-F., Serey, X., Sarkar, R., Chen, P., Erickson, D., "Controlled photonic manipulation of proteins and other nanomaterials" *Nano Letters* 12 (3), 1633-1637 (2012).
4. Serey, X., Mandal, S., Chen, Y.-F., Erickson, D., "DNA Delivery and Transport in Thermal gradients near optofluidic resonators" *Physical Review Letters* 108, 048102 (2012).
5. Cordovez, B., Chung, A.J., Jasuja, N., Lee, D.J., Huang, X.T., Erickson, D. "Hybrid chemical, mechanical and electrical techniques for modulating insect flight activity" *Journal of Microfluidics and Nanofluidics* (Accepted 2012).
6. Krishnan, M., Erickson, D., "Optically induced microfluidic reconfiguration" *Lab-on-a-Chip*, 12, 613-621 (2012).
7. Mancuso, M., Goddard, J., Erickson, D., "Nanoporous Polymer Ring Resonators for Biosensing" *Optics Express*, 20 (1), 245-255 (2012)

8. Erickson, D., Sinton, D., Psaltis, D., "Optofluidics for Energy Applications" *Nature Photonics* **5**, 583-590 (2011).
9. Choi, I., Huh, Y.S., Erickson, D., "Ultra-sensitive, label-free probing of the conformational characteristics of amyloid beta aggregates with a SERS active nanofluidic device" *Journal of Microfluidics and Nanofluidics* (Accepted 2011)
10. Jiang, L., Erickson, D. "Directed self-assembly of microcomponents enabled by laser-activated bubble latching" *Langmuir* **27** (17), 11259-11264 (2011)
11. Kang, P., Erickson, D. "High Resolution Reversible Color Images on Photonic Crystal Substrates" *Langmuir* **27** (16), 9676-9680 (2011)
12. Oncescu, V., Erickson, D. "A Microfabricated Low Cost Enzyme-Free Glucose Fuel Cell for Powering Low-Power Implantable Devices" *Journal of Power Sources* **196**, 9169-9175 (2011).
13. Moore, S., Sinton, D., Erickson, D. "A Plate-Frame Flow- through Microfluidic Fuel Cell Stack" *Journal of Power Sources* **196**, 9481-9487 (2011).
14. Mak, M., Reinhart-King, C., Erickson, D., "Cancer Cell Migration and Metastasis in the Microenvironment: A Tapered Microchannel Approach for Single Cell Studies" *PLOS-ONE* **6**(6), e20825 (2011).
15. Chung, A.J., Huh, Y.S., Erickson, D., "Large Area SERS Active Substrates using Engineered Plasmonic Nanostructures" *Nanoscale* **3**, 2903-2908 (2011).
16. Chung, A.J., Erickson, D. "Optofluidic Waveguides for Reconfigurable Photonic Systems" *Optics Express* **19**(9) 8602-8609 (2011).
17. Kennedy, M.J., Stelick, S.J., Erickson, D., Batt, C.A. "Hydrodynamic optical alignment for micro- flow cytometry" *Lab on a Chip* **11** 1138-1143 (2011).
18. Erickson, D., Serey, X., Chen, Y.-F., Mandal, S., "Review: Nanomanipulation using Near Field Photonics" *Lab on a Chip* **11**, 995-1009 (2011).
19. Choi, I., Huh, Y.S., Erickson, D., "Size-selective concentration and label-free characterization of protein aggregates using a Raman active nanofluidic device" *Lab on a Chip* **11**, 632-638 (2011).
20. Cordovez, B., Chung, A.J., Mak, M., Erickson, D., "A Flexible and Multiplexed Polymer Drug Delivery System" *Microfluidics and Nanofluidics* **10**, 785-791 (2011).
21. Park, S.-M., Huh, Y.S., Szeto, K., Joe, D.J., Kameoka, J., Coates, G.W., Edell, J.B., Erickson, D., Craighead, H.G. "Rapid prototyping of nanofluidic systems using size-reduced electrospun nanofibers for biomolecular analysis" *Small* **6**, 2420-2426 (2010).
22. Serey, X., Mandal, S., Erickson, D., "Comparison of silicon photonic crystal resonator designs for optical trapping of nanomaterials" *Nanotechnology*, **21** 305202 (2010).
23. Lowe, A., Huh, Y.S., Strickland, A., Erickson, D., Batt, C.A. "Multiplex SNP Genotyping Utilizing Ligase Detection Reaction Coupled SERS" *Analytical Chemistry*, **82**(13), 5810-5814 (2010).
24. Jung, E., Chung, A.J., Erickson, D., "Analysis of liquid-to-solid coupling and other performance parameters for microfluidically reconfigurable photonic systems." *Optics Express*, **18**(11), 10973–10984 (2010).
25. Tolley, M., Kalontarov, M., Neubert, J., Erickson, D., Lipson, H., "Stochastic Modular Robotic Systems: A Study of Fluidic Assembly Strategies" *IEEE Transactions on Robotics*, **26**(3), 518-530 (2010)
26. Kalontarov, M., Tolley, M., Lipson, H., Erickson, D. "Hydrodynamically Driven Docking of Blocks for 3D Fluidic Assembly" *Microfluidics and Nanofluidics*, **9**, 551–558 (2010)
27. Mandal, S., Serey, X., Erickson, D., "Nanomanipulation using Silicon Photonic Crystal Resonators" *Nano Letters*, **10**, 99-104 (2010).

28. Yang, A., Erickson, D., "Optofluidic ring resonator switch for optical particle transport" *Lab-on-a-Chip*, 10, 769-774 (2010).
29. Goddard, J., Mandal, S., Nugen, S., Baeumner, A., Erickson, D., "Patterning of Nucleic Acid Probes in Optical Nanocavities" *Colloids and Surfaces B*, 76,375-380 (2010).
30. Huh, Y.S., Erickson, D., "Aptamer based surface enhanced Raman scattering detection of vasopressin using multilayer nanotube arrays" *Biosensors and Bioelectronics*, 25, 1240-1243 (2010).
31. Cordovez, B., Psaltis, D., Erickson, D., "Electroactive Micro and Nanowells for Optofluidic Storage." *Optics Express*, 17(23), 21134-21148 (2009).
32. **Park, S.-M., Huh, Y.S., Craighead, H.G., Erickson, D., "A simple technique for nanofluidic device prototyping in PDMS using microchannel collapse" *Proceedings of the National Academy of Sciences - USA* 106, 15549-15554 (2009)**
33. Mandal, S., Goddard, J., Erickson, D., "A Multiplexed Optofluidic Biomolecular Sensor for Low Mass Detection" *Lab-on-a-Chip* 9, 2924-2932 (2009).
34. Krishnan, M., Park J., Erickson, D. "Opto-thermorheologiccal flow control" *Optics Letters* 34, 1976-1978 (2009).
35. Chung, A.J., Huh, Y.S., Erickson, D., "A robust, electrochemically driven microwell drug delivery system for controlled vasopressin release" *Biomedical Microdevices* 11, 861-867 (2009).
36. Goddard, J., Erickson, D., "Bioconjugation Techniques for Microfluidic Biosensors" *Analytical and Bioanalytical Chemistry* 394, 469-479 (2009).
37. Krishnan, M., Tolley, M., Lipson, H., Erickson, D., "Hydrodynamically Tunable Affinities for Fluidic Assembly" *Langmuir* 25, 3769-3744 (2009).
38. Yang, A.H.J., Lerdsuchatawanich, T., Erickson, D., "Forces and Transport Velocities for a Particle in a Slotted Waveguide" *Nano Letters* 9, 1182-1188 (2009).
39. Huh, Y.S., Lowe, A., Strickland, S., Batt, C.A., Erickson, D., "A Surface Enhanced Raman Scattering based Ligase Detection Reaction" *Journal of the American Chemical Society* 131, 2208-2213 (2009).
40. Chung, A.J., Erickson, D., "Engineering insect flight metabolics using pupa stage implanted microfluidics." *Lab-on-a-Chip* 9, 669-676 (2009).
41. **Yang, A.H.J., Moore, S.D., Schmidt, B.S, Lipson, M., Erickson, D., "Optical Manipulation of Nanoparticles and Biomolecules in Sub-Wavelength Slot Waveguides" *Nature*, 457, 71-75 (2009).**
42. Huh, Y.S., Chung, A.J., Cordovez, B., Erickson, D., "Enhanced on-chip SERS based biomolecular detection using electrokinetically active microwells." *Lab-on-a-Chip* 9, 433-439 (2009).
43. Huh, Y.S., Chung, A.J., Erickson, D., "Surface Enhanced Raman Spectroscopy for Molecular and Cancer Diagnostics" *Journal of Microfluidics and Nanofluidics* 6 285-297 (2009)
44. Tolley, M., Krishnan, M., Erickson, D., Lipson, H., "Dynamically programmable fluidic assembly" *Applied Physics Letters* 93, 254105 (2008).
45. Krishnan, M., Tolley, M., Lipson, H., Erickson, D., "Increased Robustness for Fluidic Self Assembly" *Physics of Fluids*, 20, 073304, (2008).
46. Mandal, S., Erickson, D., "Nanoscale Optofluidic Sensor Arrays" *Optics Express*, 16, 1623-1631 (2008).
47. Chung, A.J., Kim, D., Erickson, D., "Electroactive microfluidic devices for rapid, low power drug delivery in autonomous microsystems" *Lab-on-a-Chip*, 8, 330-338 (2008).
48. Yang, A., Erickson, D., "Stability analysis of optofluidic transport on solid-core waveguiding structures" *Nanotechnology*, 19, 045704 (2008).

49. Erickson, D., Mandal, S., Cordovez, B., Yang, A., "Nanobiosensors: Optofluidic, electrical and mechanical approaches to biomolecular detection at the nanoscale." *Journal of Microfluidics and Nanofluidics*, 4, 33-52 (2008).
50. Schmidt, B. S., Yang, A., Erickson, D., Lipson, M., "Optofluidic trapping and transport on solid core waveguides within a microfluidic device" *Optics Express*, 15 (22) 14322-14334 (2007).
51. Mandal, S., Erickson D., "Optofluidic Transport in Liquid Core Waveguiding Structures" *Applied Physics Letters*, 90, 184103 (2007).
52. Cordovez, B., Psaltis, D., Erickson D., "Trapping and Storage of Particles in Electroactive Microwells." *Applied Physics Letters*, 90, 024102 (2007).
53. Erickson, D., "Towards Numerical Prototyping of Labs-on-Chip, Modeling for Integrated Microfluidic Devices" *Journal of Microfluidics and Nanofluidics* 1, 301-318 (2005).
54. Heng, X., Erickson, D., Baugh, L., Yaqoob, Z., Sternberg, P., Psaltis, D., Yang C., "Optofluidic microscopy - a method for implementing a high resolution optical microscope on a chip" *Lab-on-a-Chip*, 6, 1274-1276 (2006).
55. Erickson, D., Rockwood, T., Emery, T., Scherer, A., Psaltis, D., "Nanofluidic Tuning of Photonic Crystal Circuits" *Optics Letters*, 31, 59-61 (2006)
56. Erickson, D., Liu, X., Venditti, R., Li, D., Krull, D., "Electrokinetically-based approach for single nucleotide polymorphism discrimination using a microfluidic device." *Analytical Chemistry*, 77, 4000-4007 (2005)
57. Erickson, D., Li, D. "Integrated Microfluidic Devices" *Analytica Chimica Acta* 507, 11-26 (2004).
58. Erickson, D., Liu, X., Krull, D., Li, D. "An electrokinetically controlled DNA hybridization microfluidic chip enabling rapid target analysis." *Analytical Chemistry*, 76, 7269-7277 (2004).
59. Lin, F.Y.H., Sabri, M., Erickson, D., Alirezaie, J., Li, D., Sherman, P.M. "Development of a novel microfluidic immunoassay for the detection of *Helicobacter pylori* infection" *Analyst* 129, 823-828 (2004).
60. Biddiss, E., Erickson, D., Li, D. "Surface charge enhanced micro-mixing for electrokinetic flows." *Analytical Chemistry* 76, 3208-3213 (2004).
61. Erickson, D., Sinton, D., Li, D. "A miniaturized high-voltage integrated power supply for portable microfluidic applications" *Lab on a Chip* 4, 87-90 (2004).
62. Zimmermann, R., Kratzmüller, T., Erickson, D., Braun, H.-G., Werner, C. "Ionic Strength-Dependent pK-Shift in the Helix-Coil-Transition of Grafted Poly(L-glutamic acid) Layers Analysed by Electrokinetic and Ellipsometric Measurements" *Langmuir* 20, 2369-2374 (2004).
63. Liu, X., Erickson, D., Li, D., Krull, U.J. "Cationic Polymer Coatings for Design of Electro-osmotic Flow and Control of DNA Adsorption." *Analytica Chimica Acta* 507, 55-62 (2004).
64. Erickson, D., Li, D. "Three-Dimensional Structure of Electroosmotic Flows over Heterogeneous Surfaces" *Journal of Physical Chemistry B* 107, 12212-12220 (2003).
65. Erickson, D., Sinton, D., Li, D. "Joule Heating and Heat Transfer in Poly(dimethylsiloxane) Microfluidic Systems" *Lab on a Chip* 3 141-149 (2003).
66. Erickson, D., Li, D. "Analysis of AC Electroosmotic Flows in a Rectangular Microchannel" *Langmuir* 19 5421-5430 (2003).
67. Sinton, D., Erickson, D., Li, D. "Micro-Bubble Lensing Induced Photobleaching (μ -BLIP) with Application to Microflow Visualization." *Experiments in Fluids* 35 178-187 (2003).
68. Erickson, D., Li, D., Krull, U.J. "Dynamic Modeling of DNA Hybridization Kinetics for Biochip Applications" *Analytical Biochemistry* 301 186-200 (2003).

69. Sze, A., Erickson, D., Li, D. "Zeta-Potential Measurement of Flat Solid Surfaces Using Electroosmotic Flow and the Slope of Current-Time Method" *Journal of Colloid and Interface Science* 261 402-410 (2003).
70. Erickson, D., Li, D. "Microchannel Flow with Patch-Wise and Periodic Surface Heterogeneity." *Langmuir* 18 8949-8959 (2002).
71. Sinton, D., Erickson, D., Li, D. "Photo-Injection Based Sample Design and Electroosmotic Transport in Microchannels." *Journal of Micromechanics & Microengineering* 12 898-904, (2002).
72. Ye, C., Sinton, D., Erickson, D., Li, D. "Electrophoretic motion of a cylindrical particle in a cylindrical microchannel." *Langmuir* 18 9095-9101 (2002).
73. Erickson, D., Li, D. "Numerical Simulations of Capillary Driven Flows in Non-Uniform Cross Sectional Capillaries." *Journal of Colloid and Interface Science* 250 422-430 (2002).
74. Erickson, D., Li, D. "3D Numerical Simulations of a Microchannel Thermal Cycling Reactor." *International Journal of Heat and Mass Transfer* 45 3759-3770 (2002).
75. Erickson, D., Li, D. "Influence of Surface Heterogeneity on Electrokinetically Driven Microfluidic Mixing." *Langmuir* 18 1883-1892 (2002).
76. Erickson, D., Lu, F., Li, D., White, T. Gau, J. "An experimental investigation into the dimension sensitive viscosity of polymer containing lubricant oils in microchannels" *International Journal of Experimental Heat Transfer, Thermodynamics, and Fluid Mechanics* 25, 623-630 (2002).
77. Erickson, D., Li, D., White, T. Gao, J. "High shear-rate behavior of radial hydrogenated styrene-isoprene and block ethylene-propylene copolymer solutions." *Industrial & Engineering Chemistry Research* 40, 3523-3529 (2001).
78. Erickson, D., Li, D., "Streaming Potential and Streaming Current Methods for Characterizing Heterogeneous Solid Surfaces." *Journal of Colloid and Interfacial Science* 237(2), 283-289 (2001).
79. Erickson, D., Blackmore, B., Li, D. "An Energy Balance Approach to Modeling the Hydrodynamically Driven Spreading of a Liquid Drop." *Colloids and Surfaces A*. 182, 109-122 (2001).
80. Erickson, D., Li, D., Werner, C. "An Improved Method for determining the Zeta-Potential and Surface Conductance." *Journal of Colloid and Interface Science* 232, 186-197 (2000).

Articles currently under review by refereed journals

81. Chen, Y.-F., Jain, A., Jiang, L., Mancuso, M., Oncescu, V., Erickson, D. "Optofluidic Opportunities in Global Health, Food, Water and Energy" Submitted
82. Jung, E. E., Erickson, D., "Continuous operation of a hybrid solid-liquid state reconfigurable photonic system without resupply of liquids" Submitted
83. He, P., Choi, I., Erickson, D., "Electrochemical Monitoring of Vasopressin in Aptamer-Based Microfluidic Biosensors" Submitted

Book chapters and magazine articles

84. Krishnan, M., Erickson, D., "Introduction to Microfluidic and Optofluidic Transport" in *Handbook of Optofluidics* (H. Schmidt, A. Hawkins Eds.) Taylor and Francis (2010)
85. Erickson, D., Yang, A.H.J. "Optofluidic Trapping and Transport Using Photonic Devices" in *Optofluidics* (S. Fainman, L. Lee, D. Psaltis, C. Yang Eds.) McGraw Hill (2009)
86. Erickson, D., Krishnan, M. "Introduction to Electrokinetic Transport in Microfluidic Systems" in *Lab-on-Chip Technologies and Applications* (A. Rasooly, K. Herold Eds.) Horizon (2008)

87. Goddard, J., Mandal, S., *Erickson, D. "Optically Resonant Nanophotonic Devices for Label-Free Biomolecular Detection" in *Innovative Photonic Structures for Bio/Chemical Detection* (X. Fan Ed.) Springer (2008)
88. Erickson, D., Yang, C., Psaltis, D., "Optofluidics Emerges from the Laboratory" *Photonics Spectra* 42, 74-78 (2008)
89. Erickson, D., "Autonomous Microsystems" in 2008 Yearbook of Science and Technology, McGraw-Hill (2007).
90. Erickson, D., Li, D., "Microscale Flow and Transport Simulation for Electrokinetic and Lab-on-Chip Applications" in *Biomems and Biomedical Nanotechnology, Volume IV: Biomolecular Sensing, Processing and Analysis* (R. Bashir and S. Werely Eds.), Kluwer Academic Publishing (2007).

Other refereed technical publications

91. Akhmechet, R., Erickson, D., "Optofluidics: Techniques for Fabrication and Integration" Encyclopedia of Microfluidics and Nanofluidics. Springer (2006).
92. Yang, A., Erickson, D., "Optofluidics: Optics enabling Fluidics" Encyclopedia of Microfluidics and Nanofluidics. Springer (2006).
93. Mandal, S., Erickson, D., "Optofluidics: Applications" Encyclopedia of Microfluidics and Nanofluidics. Springer (2006).
94. Erickson, D., "Electroosmotic Flow" Encyclopedia of Microfluidics and Nanofluidics. Springer (2006).
95. Erickson, D., "Electroosmotic Flow over Heterogeneous Surfaces" Encyclopedia of Microfluidics and Nanofluidics. Springer (2006).
96. Erickson, D., "SNP on Chip: Microfluidic Technologies for Single Nucleotide Polymorphism Analysis" Encyclopedia of Microfluidics and Nanofluidics. Springer (2006).
97. Erickson, D., "Optofluidics: Fluidics enabling Optics" Encyclopedia of Microfluidics and Nanofluidics. Springer (2006).
98. Erickson, D., and Wong, F.C., "Failure Prediction of Solid Rocket Motors on Thermal Cool-Down." DREV-TR-2000 025. 150 Pages, 2000.
99. Erickson, D., et. al., "Development of the U of A Entry in the 1997 Propane Vehicle Challenge." 1997 Propane Vehicle Challenge, SAE SP-1360, 1998.

Contributed conference publications/presentations (invited talks listed separately)

1. Jung, E.E., Kalontarov, M., Doud, D., Angenent, L., Sinton, D., Erickson, D. " Novel Approach in Algae Biofuel Production using Advanced Photonics" *Conference on Lasers and Electrooptics (CLEO)*, San Jose, May 2012.
2. Jain, A., Erickson, D. "Agarose gel optical waveguides with encapsulation of live cells and integrated microfluidics" *Conference on Lasers and Electrooptics (CLEO)*, San Jose, May 2012.
3. Serey, X., Chen, Y.F., Fain, R., Kang, P., Erickson, D. " Overcoming the Temperature Increase Hurdle in Photonic Crystal Molecular Tweezers" *Conference on Lasers and Electrooptics (CLEO)*, San Jose, May 2012.
4. Ooms, M., Sieben, V.J., Erickson, D., Sinton, D., "An Optofluidic Photobioreactor Strategy for Bioenergy" *ASME International Mechanical Engineering Congress and Exposition*, Denver, Co, Nov. 2011.

5. Oncescu, V.-V., Erickson, D., "A Microfabricated Enzyme-Free Glucose Fuel Cell for Implantable Devices" *ASME International Mechanical Engineering Congress and Exposition*, Denver, Co, Nov. 2011.
6. Jiang, L., Erickson, D., "Directed assembly of microstructures using bubble latches" *ASME International Mechanical Engineering Congress and Exposition*, Denver, Co, Nov. 2011.
7. Gumus, A., Winkler, D., Erickson, D., "Lab on a Bird: Autonomous Microsystems for In-Vivo real time biophysical monitoring of birds" *Micro-Total Analysis Systems (μ TAS)*, Seattle, Washington, USA, October 2011.
8. Kang, P., Ogunbo, S.O., Erickson, D., "High Resolution Reversible Color Images on Photonic Crystal Substrates" *Micro-Total Analysis Systems (μ TAS)*, Seattle, Washington, USA, October 2011.
9. Serey, X., Erickson, D. "Advancements in photonic crystal resonators for optical trapping" 1st EOS conference on Optofluidics, Munich, Germany May 2011.
10. Jung, E.E., Chung, A.J., Erickson, D. "Advancements in Microfluidically Reconfigurable Photonics" 1st EOS Conference on Optofluidics, Munich, Germany May 2011
11. Mancuso, M., Goddard, J., Erickson, D. "Porous Polymer Waveguides and Ring Resonators." *CLEO: Science and Innovations*, Baltimore, MD May 2011.
12. Kalontarov, M., Cordovez, B., Jung, E., Sinton, D., Erickson, D. "Waveguide Enabled Photo-Bio-Energy Production" *CLEO: Science and Innovations*, Baltimore, MD May 2011.
13. Krishnan, M., Erickson, D. "Optofluidically reconfigurable channel based microfluidics" *CLEO: Science and Innovations*, Baltimore, MD May 2011.
14. Chen, Y.-F., Serey, X., Mandal, S., Erickson, D. "Nanomanipulation using silicon nitride photonic crystal resonators" *IEEE Winter Topicals*, Keystone, CO, Jan. 2011.
15. Krishnan, M., Erickson, D. "Creating optically reconfigurable channel based microfluidic systems" *IEEE Photonics Society Winter Topicals*, Keystone, CO Jan. 2011.
16. Moore, S., Sinton, D., Erickson, D. "Planar flow-through Vanadium Redox laminar flow fuel cell" *ASME International Mechanical Engineering Congress and Exposition*, Vancouver, B.C. Nov. 2010.
17. Kalontarov, M., Cordovez, B., Jung, E.E., Sinton, D., Erickson, D. "Optofluidically Enabled Bio-Energy Production" *ASME International Mechanical Engineering Congress and Exposition*, Vancouver, B.C. Nov. 2010.
18. Mandal, S., Erickson, D., "Optofluidic approaches to protein folding analysis" *Frontiers in Optics/Laser Science: Special Session on Optofluidics in the Near Field*, Rochester, NY, October 2010.
19. Krishnan, M., Erickson, D., "Optically Reconfigurable Microfluidics" *Micro-Total Analysis Systems (μ TAS)*, Groningen, The Netherlands, October 2010.
20. Cordovez, B., Chung, A.J., Huang, T., Jasuja, N., Erickson, D., "Fusing Chemical and Electrical Stimulation Mechanisms for Cyborg Air Vehicle Control" *Micro-Total Analysis Systems (μ TAS)*, Groningen, The Netherlands, October 2010.
21. Choi, I., Huh, Y.S., Erickson, D., "A Nanofluidic Device for Selective Concentration and Label-Free Surface-Enhanced Raman Detection of Protein Aggregates" *Micro-Total Analysis Systems (μ TAS)*, Groningen, The Netherlands, October 2010.
22. Mak, M., Reinhart-King, C., Erickson, D., "An Optofluidic Platform for Characterizing Mechanical Markers of Metastatic Cancer" *Biomedical Engineering Society (BMES)*, Austin, TX, October 2010.
23. Chung, A.J., Cordovez, B., Huh, Y.S., Erickson, D., "Autonomous Microfluidic Device for Quantification and Regulation of Vasopressin" *Biomedical Engineering Society (BMES)*, Austin, TX, October 2010.

24. Jung, E., Huh, Y.S., Erickson D., “Surface Enhanced Raman Scattering (SERS) on-an-Optofluidic Chip Using Roof Collapse Method” *Conference on Lasers and Electrooptics (CLEO)*, San Jose, May 2010.
25. Chung, A.J., Jung, E., Erickson D., “Reconfigurable Photonics from Microfluidic Waveguides” *Conference on Lasers and Electrooptics (CLEO)*, San Jose, May 2010.
26. Serey, X., Mandal S., Erickson D., “Design and Experimental Demonstration of Optical Resonators for Nanotweezing” *Conference on Lasers and Electrooptics (CLEO)*, San Jose, May 2010.
27. Kalontarov, M., Krishnan, M., Erickson, D., “Fluid Dynamically Driven Assembly in 3D for Programmable Matter” *ASME International Mechanical Engineering Congress and Exposition*, Orlando, FL, Nov. 2009.
28. Cordovez, B., Erickson, D., “Optofluidic Data Storage” *ASME International Mechanical Engineering Congress and Exposition*, Orlando, FL, Nov. 2009.
29. Yang, A.H.J, Moore, S., Schmidt, B., Klug, M., Lipson, M., Erickson, D., “Biomolecular Optical Transport in Nanoscale Slot Waveguides” *American Institute of Chemical Engineers (AIChE) Annual Meeting*, Nashville, TN, Nov. 2009.
30. Huh, Y., Lowe, A., Chung, A., Cordovez, B., Strickland, A., Batt, C.A., Erickson, D., “Surface Enhanced Raman Scattering Based Biomolecular Sensing Techniques in Optofluidic Device” *American Institute of Chemical Engineers (AIChE) Annual Meeting*, Nashville, TN, Nov. 2009.
31. Mandal, S., Goddard, J., Serey, X., Erickson, D., “Nanoscale Optofluidic Sensor Arrays for Multiplexed Label Free Biosensing and Biomolecular Trapping.” *Micro-Total Analysis Systems (μ TAS)*, Korea, Nov. 2009
32. Chung, A.J., Cordovez, B., Reissman, T., MacCurdy, R.B. Garcia, E., Erickson, D., “Chemically Controlled Insect Cyborgs Using Implantable Microfluidic Devices.” *Micro-Total Analysis Systems (μ TAS)*, Korea, Nov. 2009.
33. Huh, Y., Lowe, A., Chung, A., Cordovez, B., Strickland, A., Batt, C.A., Erickson, D., “Optofluidic Surface Enhanced Raman Scattering Based Detection of a Single Nucleotide Polymorphism.” *Micro-Total Analysis Systems (μ TAS)*, Korea, Nov. 2009
34. Chung, A.J., Jung, E., Erickson, D., “A new form of reconfigurable photonic material using optofluidic waveguides.” *Micro-Total Analysis Systems (μ TAS)*, Korea, Nov. 2009.
35. Mandal, S., Goddard, J., Erickson, D., “Optofluidic Sensor Arrays for Biomolecular Detections” *Conference on Lasers and Electrooptics (CLEO) – Symposium on Optofluidics*, Baltimore, May 2009.
36. Park, J., Krishnan, M., Erickson, D., “Opto-thermorheologically reconfigurable microfluidics” *Conference on Lasers and Electrooptics (CLEO) – Symposium on Optofluidics*, Baltimore, May 2009.
37. Yang, A.H.J, Moore, S., Schmidt, B., Klug, M., Lipson, M., Erickson, D., “Direct Manipulation of Nanoparticles and DNA in Sub-Wavelength Optical Nanochannels” *Conference on Lasers and Electrooptics (CLEO) – Symposium on Optofluidics*, Baltimore, May 2009.
38. Krishnan, M., Tolley, M., Lipson, H., Erickson, D. “Dynamically Tunable Affinities for Fluidic Self Assembly” *American Institute of Chemical Engineers (AIChE) Annual Meeting*, Philadelphia, Pennsylvania, Nov. 2008.
39. Chung, A.J., Erickson, D. “Microfluidic Neuromuscular Control of Insect Micro-Air-Vehicles” *American Institute of Chemical Engineers (AIChE) Annual Meeting*, Philadelphia, Pennsylvania, Nov. 2008.
40. Chung, A.J., Erickson, D. “Microfluidic Control of Insect Locomotor Activity” *ASME International Mechanical Engineering Congress and Exposition*, Boston, Massachusetts, Nov. 2008.

41. Huh, Y.S., Chung, A.J., Cordovez, B., Erickson, D. "Optofluidic Surface Enhanced Raman Spectroscopy Chip for Detection of Dengue Virus" ASME International Mechanical Engineering Congress and Exposition, Boston, Massachusetts, Nov. 2008.
42. Yang, A.H.J, Moore, S.D., Schmidt, B.S., Lipson, M., Erickson, D., "Optofluidic Manipulation with sub-wavelength scale photonics" *Micro-Total Analysis Systems (μ TAS)*, San Diego, CA, Oct. 2008.
43. Tolley, M.T., Krishnan, M., Lipson, H., Erickson, D., "Advances Towards Programmable Matter" *Micro-Total Analysis Systems (μ TAS)*, San Diego, CA, Oct. 2008.
44. Goddard, J.M., Mandal, S., Erickson, D., "Targeted Patterning of Nucleic Acid Probes on Optical Nanostructures" *Micro-Total Analysis Systems (μ TAS)*, San Diego, CA, Oct. 2008.
45. Erickson, D. "Nanoscale Optofluidic Transport" SPIE Optics and Photonics, San Diego, CA, August 2008.
46. Cordovez, B., Psaltis, D., Erickson, D., "Optofluidic Data Storage." IEEE/LEOS Summer Topical on Optofluidics, Acapulco, Mexico, July 2008.
47. Mandal, S., Goddard, J., Erickson, D., "Nanoscale Optofluidic Sensor Arrays for Dengue Virus Detection." IEEE/LEOS Summer Topical on Optofluidics, Acapulco, Mexico, July 2008.
48. Moore, S., Yang, A., Schmidt, B., Lipson, M., Erickson, D., "Optofluidic Trapping in Exposed Mode Slot Waveguides" Conference on Lasers and Electrooptics (CLEO), San Jose, May 2008.
49. Mandal, S., Goddard, J., Erickson, D., "Nanoscale Optofluidic Sensor Arrays for Dengue Virus Detection." Conference on Lasers and Electrooptics (CLEO), San Jose, May 2008.
50. Schmidt, B., Manipatruni, S., Yang, A., Erickson, D., Lipson, M. "Optical Trapping Platform Based on Highly Confining Silicon Waveguiding Structures with Microfluidics." Conference on Lasers and Electrooptics (CLEO), San Jose, May 2008.
51. Mandal, S., Goddard, J., Erickson, D., "Biomolecular Detection using Nanoscale Optofluidic Sensor Arrays" IEEE MEMS, Tucson, AZ, Jan 2008.
52. Tolley, M., Baisch, A., Erickson, D., Lipson, H., "Latching Mechanisms for Self-Assembled Planar Microcomponents" *IEEE MEMS*, Tucson, AZ, Jan 2008.
53. Yang, A., Erickson, D., "Waveguide Based Particle Trapping in Integrated Microfluidic Devices" *AICHE Annual Meeting*, Salt Lake City, Utah, Nov. 2007.
54. Yang, A., Mandal, S., Erickson, D., "Optofluidic Transport – Optical Waveguides as Microfluidic "Train Tracks" ASME International Mechanical Engineering Congress and Exposition, Seattle, Washington, Nov. 2007.
55. Krishnan, M., Tolley, M., Lipson, H., Erickson, D., "Directed Hierarchical Self Assembly - Active fluid mechanics at the micro and nanoscales." ASME International Mechanical Engineering Congress and Exposition, Seattle, Washington, Nov. 2007.
56. Chung, A., Kim, D., Chen, L., Akhmechet, R., Cordovez, B., Erickson, D., "Electroactive Microfluidic Devices for Control of Insect Cyborg Neuromuscular Systems." *Micro-Total Analysis Systems (μ TAS)*, Paris, France, Oct. 2007.
57. Mandal, S., Akhmechet, R., Chen, L., Nugen, S., Baeumner, A., Erickson, D. "Nanoscale optofluidic sensor arrays for Dengue virus detection" *SPIE Optics and Photonics, Section on Optofluidics*, San Diego, California, August 2007.
58. Cordovez, B., Psaltis, D., Erickson, D. "Electroactive Nanowells for Spectrographic Fluidic Memory" *SPIE Optics and Photonics, Section on Optofluidics*, San Diego, California, August 2007.
59. Mandal, S., Erickson, D., "Optofluidic Transport in Liquid Core Photonic Crystal Fibers" *Conference on Lasers and Electro-Optics (CLEO)*, Baltimore, Maryland, May 2007.

60. Yang, A., Mandal, S., Erickson, D., "Micro and Nanofluidic Transport Using Advanced Photonic Devices." *ASME International Mechanical Engineering Congress and Exposition*, Chicago, Ill., Nov. 2006.
61. Tolley, M., Zykov, V., Lipson, H., Erickson, D., "Directed Fluidic Self-Assembly of Microscale Tiles" *Micro-Total Analysis Systems (μ TAS)*, Tokyo, Japan, Oct. 2006.
62. Mandal, S., Erickson, D., "Optical Chromatography in Hollow Core Photonic Crystal Fibers" *Micro-Total Analysis Systems (μ TAS)* Tokyo, Japan, Oct. 2006.
63. Cordovez, B., Erickson, D., "Electroactive Nanowell Sensors for Parallel Particle Trapping and Detection" *Micro-Total Analysis Systems (μ TAS)*, Tokyo, Japan, Oct. 2006.
64. Mandal, S., Erickson, D., "Particle Transport in Liquid Core Photonic Crystal Fibers" *IEEE/LEOS Summer Topical on Optofluidics, Quebec City, July 2006*.
65. Yang, A.H.J., Erickson, D., "Finite Element Analysis of Coupled Nanofluidic Dynamics and Silicon-on-Insulator Particle Trapping" *IEEE/LEOS Summer Topical on Optofluidics, Quebec City, July 2006*.
66. Cordovez, B., Tung, S., Erickson, D., "Optofluidic Particle Manipulation and Characterization in Individually Addressed Nanowell Sensors" *IEEE/LEOS Summer Topical on Optofluidics, Quebec City, July 2006*.
67. Cordovez, B., Erickson, D., "Electro-active Nanowell Structures for Sensing and Optofluidic Applications" *CLEO, Conference on Lasers and Electro-Optics, Long Beach, CA, May 2006*.
68. Erickson, D., Rockwood, T., Emery, T., Scherer, A., Psaltis, D., "Nanofluidic Tuning of Photonic Crystal Circuitry" *CLEO, Conference on Lasers and Electro-Optics, Long Beach, CA, May 2006*.
69. Heng, X., Cui, X., Erickson, D., Psaltis, D., Yang, C. "Portable optical microscope-on-a-chip" *Photonics West, San Jose, CA, Jan 2006*.
70. Heng, X., Erickson, D., Psaltis, D., Yang, C. "Optofluidic microscope and its applications in developmental biology" *Photonics West, San Jose, CA, Jan 2006*.
71. Heng, X., Erickson, D., Psaltis, D., Yang, C., "Opto-fluidic microscope: a novel imaging device on a biochip." *2005 SPIE Optics East*. Boston, MA, October 2005.
72. Erickson, D., Rockwood, T., Emery, T., Scherer, A., Psaltis, D., "Integration of Sub-Wavelength Nanofluidics with Photonic Crystals" *2005 ASME International Mechanical Engineering Congress and Exposition*, Orlando, FL., Nov. 2005.
73. Erickson, D., Emery, T., Rockwood, T., Scherer, A., Psaltis, D., "Nanofluidically Tunable Photonic Crystal Devices" *Micro-Total Analysis Systems (μ TAS) 2005*, Boston, MA, Oct. 2005.
74. Heng, X., Erickson, D., Psaltis, D., Yang, C "Optofluidic Microscope – A miniaturized microscope on a chip." *Micro-Total Analysis Systems (μ TAS) 2005*, Boston, MA, Oct. 2005.
75. Erickson, D., Heng, X., Li, Z., Rockwood, T., Emery, T., Zhang, Z., Scherer, A., Yang, C., Psaltis, D. "Optofluidics" *SPIE Optics and Photonics*. San Diego, CA, August 2005.
76. Erickson, D., Li, B., Adleman, J., Vyawahare, S., Quake, S., Psaltis, D., "Spectrographic Microfluidic Memory" *3rd International Conference on Microchannels and Minichannels*, Toronto, ON, June 2005
77. Heng, X., Erickson, D., Psaltis, D., Yang, C., "Optofluidic Microscopy" *3rd International Conference on Microchannels and Minichannels*, Toronto, ON, June 2005
78. Erickson, D., Adleman, J., Li, B., Pu, Y., Rockwood, T., Psaltis, D., "Optofluidics" *Optical Society of America Topical Meeting on Information Photonics*, June 2005.
79. Erickson, D., Liu, X., Venditti, R. Krull, U., Li, D "Electrokinetics for control of on-chip chemical reactions" *American Physical Society March Meeting*, Los Angeles, CA, March 2005.

80. Heng, X., Erickson, D., Psaltis, D., Yang C. "Optofluidic microscopy" *Conference on Lasers and Electro-Optics (CLEO)*, Baltimore, MD, May 2005.
81. Erickson, D., Liu, X., Venditti, R. Krull, U., Li, D "A DNA hybridization chip with Electrokinetically-Based Single Nucleotide Polymorphism (SNP) Discrimination." *2004 ASME International Mechanical Engineering Congress and Exposition*, Anaheim, CA, Nov 2004.
82. Erickson, D., Liu, X., Krull, U., Li, D. "An Electrokinetically Controlled DNA Hybridization Chip" *2nd International Conference on Microchannels and Minichannels*, Rochester, NY, June 2004.
83. Biddiss, E., Erickson, D., Li, D. "Heterogeneous surface charge enhanced micro-mixer for electrokinetic flows" *2nd International Conference on Microchannels and Minichannels*, Rochester, NY, June 2004.
84. Erickson, D., Sinton, D., Nikolic, V., Li, D. "Heat Transfer and Electrokinetic Flow Analysis in Poly(dimethylsiloxane) Microfluidic Systems" *2003 ASME International Mechanical Engineering Congress and Exposition*, Washington D.C., Nov 2003.
85. Sinton, D., Erickson, D., Li, D. "Molecular Tagging in Microchannels with Micro-Bubble Lensing Induced Photobleaching (micro-BLIP)" *2003 ASME International Mechanical Engineering Congress and Exposition*, Washington D.C., Nov 2003.
86. Krull, U.J., Park, S.H., Liu, X., Zeng, J., Li, D., Erickson, D. "Genomic target identification using distributed gradients of selective single-stranded oligonucleotide probes in conjunction with microfluidics" *39th International Union of Pure and Applied Chemists (IUPAC) Congress*, Ottawa, Ontario, August 2003.
87. Lin, F.Y.H., Erickson, D. Li, D., Sherman, P.M. "Development of a Novel Microfluidics-based Biochip System for the Detection of Helicobacter pylori" *103rd General Meeting of the American Society for Microbiology*, Washington D.C., May 2003.
88. Lin, F.Y.H., Erickson, D. Li, D., Sherman, P.M. "Development of a novel microfluidics based biochip system for the detection of microbial pathogens" *Annual Meeting of the Canadian Association of Gastroenterology (CAG)*, Banff, February 2003.
89. Erickson, D., Li, D. "3D Numerical Simulations of Pressure Driven Flow over Electrokinetically Heterogeneous Surfaces." *ELKIN 2002* Krakow, Poland, June 2002.
90. Sinton, D., Erickson, D., Li, D. "Photo-Injection and Sample Transport in Microfluidic-Chip Applications." *CSME Forum 2002* Kingston, Ontario, June 2002.
91. Erickson, D., Li, D., and Werner, C. "Simultaneous Determination of the Zeta (ζ)-Potential and Surface Conductance using the Improved Slope Intercept Technique." *75th ACS Colloid and Surface Sciences Symposium*, Pittsburgh, Pennsylvania, June 2001.
92. Erickson, D., and Li, D., "Modeling Electrokinetic Flow through Microchannels with Heterogeneous Surface Properties." *75th ACS Colloid and Surface Sciences Symposium*, Pittsburgh, Pennsylvania, June 2001.
93. Wong, F.C. and Erickson, D., "Time-Temperature Independent Fracture Analysis of an Instrumented Solid Rocket Motor" *36th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit*, AIAA Paper 2000-3324, 2000.

INVITED/KEYNOTE TALKS

1. *Optofluidics for Energy* – Microsystems Seminar Series, Institute of Systems Research, University of Maryland, College Park, April 2012
2. *Handling the smallest matter and other uses for optofluidics* – Department of Mechanical Engineering, University of Central Florida, Orlando, FL, March, 2012.

3. *Handling the smallest matter and other uses for optofluidics* – Department of Mechanical Engineering, Columbia University, New York, NY, February, 2012.
4. *Optofluidics from Single Molecule Analysis to BioEnergy* – Department of Mechanical Engineering, University of Pennsylvania, Philadelphia, PA, January, 2012.
5. *Optofluidics for Energy and Single Molecule Analysis* – Swiss Federal Institute of Technology, Zurich Basel Campus (ETHZ), Basel, Switzerland, December 2011.
6. *Optofluidics for Energy and Single Molecule Analysis* – Swiss Federal Institute of Technology, Zurich (ETHZ), Zurich, Switzerland, November 2011.
7. *Optofluidics for Defense* – Nanotechnology for Defense, Seattle, WA, October, 2011.
8. *Single-molecule biophysics with optofluidic trapping* – Frontiers in Optics, San Jose, CA, October, 2011.
9. *Single-molecule biophysics with optofluidic trapping* – EOS topical meeting on Optical Microsystems, Capri, Italy, September, 2011.
10. *New directions in Optofluidics* – Swiss Federal Institute of Technology, Lausanne (EPFL), Lausanne, Switzerland, September 2011.
11. *Optofluidics for Molecular Diagnostics* - International Topical Meeting on Information Photonics (Photonics for Sensing), Ottawa, Ontario, May 2011.
12. *Optofluidics with Silicon Photonics* - International Topical Meeting on Information Photonics (Silicon photonics and nanophotonics), Ottawa, Ontario, May 2011.
13. *Energy and biological application of photonic crystal resonator nanomanipulators*. - OSA Topical Meeting on Optical Trapping, Monterey, CA, April 2011.
14. *Optical Resonators for Nanomanipulation: From Single Molecule Analysis to Directed Assembly* – Photonics West (Laser Resonators Conference), San Francisco, January 2011
15. *Optofluidic Techniques for Molecular Diagnostics* – Photonics West, San Francisco, January 2011
16. *Microfluidically reconfigurable photonics and matter* – Keynote - Asian-Pacific International Symposium on Lab on Chip (APLOC 2011), Singapore, January, 2011.
17. *Optofluidics for Biomedical and Industrial Applications* – Nanyang Technological University, Singapore, January 2011.
18. *Biophotonics and Optofluidics* – Institute of Microelectronics, Singapore, January 2011.
19. *Optofluidics for Materials Science* – 2010 Materials Research Society Fall Meeting, Boston, MA, November 2010.
20. *Microfluidically reconfigurable photonics and matter* – Department of Mechanical and Industrial Engineering, University of Toronto, Toronto, Ontario, November 2010.
21. *Microfluidically reconfigurable photonics and matter* – Department of Mechanical, Aerospace and Nuclear Engineering, Rensselaer Polytechnic Institute, Troy, NY, October 2010.
22. *Microfluidically reconfigurable photonics and matter* - 8th International Conference on Nanochannels, Microchannels and Minichannels, Montreal, Quebec, August, 2010.
23. *Optofluidic Sensing – Combining near-field detection and trapping for enhanced biomolecular detection* - SPIE Optics and Photonics, San Diego, August 2010.
24. *Optofluidics* - Danish Technical University, Copenhagen, Denmark, March, 2010.
25. *Nanomaterial Applications of Optofluidics* - ASME 2010 First Global Congress on Nanoengineering for Biology and Medicine, Houston, Texas, February, 2010.
26. *Optofluidics and Fluid Optics* – University of California, San Diego, January 2010.

27. *Microfluidics of Programmable Matter* - American Vacuum Society annual meeting, San Diego, California, November 2009.
28. *Optofluidics for Biomolecular Analysis* - University of California, Los Angeles, October 2009.
29. *Optofluidics* - Frontiers in Optics (OSA Annual Meeting), San Jose, California, October 2009.
30. *Optofluidics and Programmable Matter* - NATO Advanced Study Institute on Microfluidics Based Microsystems. Izmir, Turkey, August 2009.
31. *Optical Manipulation of Nanoparticles and Nucleic Acids using Silicon Photonics* - SPIE Optics and Photonics, San Diego, August 2009.
32. *Optically Resonant Molecular Sensors* - SPIE Optics and Photonics, San Diego, August 2009.
33. *Optofluidics – Fusing Nanofluidics and Nanophotonics* - State Key Laboratory of Non-Linear Mechanics, Institute of Mechanics, Chinese Academy of Sciences, Beijing, April 2009.
34. *Biomolecular Detection with Optofluidics* - SPIE Defense, Security and Sensing, Orlando, Florida, April 2009.
35. *Optofluidics* - University of Maryland, Baltimore County March 2009.
36. *Optofluidics* - California Institute of Technology, Pasadena, California February 2009.
37. *Optofluidics for Biomolecular Analysis* - University of California, Santa Cruz, January 2009.
38. *Silicon Optofluidic Devices for Biomolecular Analysis* - Photonics West, San Jose, January 2009.
39. *Nanofluidically Active Photonic Crystals* - SPIE Optics and Photonics, San Diego, August 2008.
40. *Optofluidics* - Brown University, Providence, Rhode Island, August 2008.
41. *Optically Resonant Biosensors* - Gordon Research Conference on Bioanalytical Sensors, Rhode Island, July 2008.
42. *Optofluidics* - 6th International Conference on Nanochannels, Microchannels, and Minichannels, Technische Universitaet of Darmstadt, Darmstadt, Germany, June 2008.
43. *Microfluidically enabled optical, living and manufacturing systems* - Yale University, New Haven, Connecticut April 2008.
44. *Microfluidically enabled optical, living and manufacturing systems* - Tufts University, Medford, Massachusetts, April 2008.
45. *Optofluidics: Fluidics Enabling Optics and Optics Enabling Fluidics* - ASME Micro/Nanoscale Heat Transfer International Conference, Tainan, Taiwan, January 2008.
46. *Optofluidics* - Department of Mechanical Engineering, University of Victoria, November 2007.
47. *Optofluidic Transport and Sensing* - École Polytechnique Fédéral de Lausanne (EPFL), October 2007.
48. *Integrated Micro-, Nano- and Optofluidic Systems* - Department of Mechanical Engineering, Vanderbilt University, September 2007.
49. *Whole Chip Numerical Simulation of Integrated Biomolecular Microfluidic Devices* - 9th US National Congress on Computational Mechanics (USNCCM9) Symposium on Modeling and computation of active small (nano) systems. Berkeley, California, July 2007.
50. *Integrated Micro-, Nano- and Optofluidics Devices* - US-Japan Young Nanotechnology Researchers Exchange, Osaka University, Osaka, Japan, June 2007.
51. *Optofluidics: Fusing Microfluidics with Microphotonics* - Department of Mechanical Engineering, Clemson University, February 2007.
52. *Optofluidics: Emerging Technologies and Applications* - College of Nanoscale Science and Engineering, SUNY Albany. February 2007.

53. *Optofluidics* - 5th International Conference on Optics-photonics Design and Fabrication. Nara, Japan, December 2006.
54. *Numerical Simulation for Integrated Microfluidic Devices* - Building Nanostructures Bit by Bit Workshop. Cornell Nanoscience and Technology Center, October 2006.
55. *Integrated Optofluidic Devices* - Department of Mechanical Engineering, Carnegie Mellon University, Pittsburg, Pennsylvania, October 2006.
56. *Micro- and Nanofluid Dynamics in Optofluidic and Nanophotonic Devices* - Optical Society of America, Frontiers in Optics, Rochester, NY, October 2006.
57. *Nanoscale Fluid Dynamics* - Symposium on Nonlinear Dynamics of Nanosystems, Chemnitz, Germany, August 2006.
58. *Photofluidics* - SPIE Optics and Photonics Conference, San Diego, California, August 2006.
59. *Optofluidics* - Department of Biomedical Engineering, University of Rochester, Rochester, NY, November 2005.
60. *Optical Nanofluidics* - MAE Colloquium Series, Sibley School of Mechanical and Aerospace Engineering, Cornell University. Ithaca, NY, September 2005.
61. *Microscale Transport Analysis and the Development of DNA Hybridization Chips* - Applied Physics and Optics Seminar, California Institute of Technology, Pasadena, California, May 2004.
62. *Microscale Transport Analysis and the Development of DNA Hybridization Chips* - Department of Mechanical and Aerospace Engineering, Cornell University, Ithaca, NY, May 2004.
63. *Microscale Transport Analysis and the Development of DNA Hybridization Chips* - Department of Mechanical Engineering, Tufts University, Boston, MA, May 2004.
64. *Microfluidics Based DNA Sensor Chips* - Department of Mechanical and Environmental Engineering, University of California, Santa Barbara, Santa Barbara, California, April 2004.
65. *Microscale Simulation for Integrated Microfluidic Devices* - Department of Mechanical Engineering, Rice University, Houston, Texas, February 2004.
66. *Microfluidics Based DNA Sensor Chips* - Department of Mechanical Engineering, Duke University, Durham, NC, February 2004,
67. *Microscale Simulation for Integrated Microfluidic Devices* - Department of Mechanical and Aerospace Engineering, University of Florida, Gainesville, Florida, December 2003.

SELECT INDUSTRIAL, WORKSHOP, CORNELL BASED, OR EDUCATIONAL TALKS

1. *Directed Assembly of Hybrid Nanostructures Using Optically Resonant Nanotweezers* – Biomolecular Materials Principal Investigators Meeting, Washington, DC, October 2011.
2. *Optofluidics for Biomolecular Analysis* – Department of Chemistry and Chemical Biology, Cornell University, February 2011.
3. *“Self-Reliant” Microsystems for Battlefield Health Assessment and Treatment* – DARPA/FDA *in-vivo* Diagnostics Workshop, Arlington, Va., February 2011.
4. *Microsystems for “Point of Use” Molecular Diagnostics* – DARPA Point of Use Nutritional Devices Workshop, Arlington, Va., November 2010.
5. *Optofluidic systems for Reconfigurable Photonics* - AFOSR Workshop on Reconfigurable Systems, Albuquerque, New Mexico, November 2010.
6. *Nanoscale Optofluidic Sensor Arrays* – DARPA SNIpHER Program Workshop, Washington, DC, March 2010.

7. *Fluids and Photons: Combining electromagnetics and hydrodynamics across all scales* – National Science Foundation, Washington, DC, December 2009.
8. *Fluid Dynamically Reconfigurable Photonics and Matter* - AFOSR Workshop on Reconfigurable Systems, Santa Fe, New Mexico, July 2009.
9. *Optofluidics for Biomolecular Analysis* - International Workshop on Nanotechnology-Enabled Sensors and Diagnostics, Dublin City University, Dublin, Ireland, May 2009.
10. *Optofluidics for Biomolecular Detection* - Draper Labs, Cambridge MA, January 2009.
11. *Optofluidics for Biomolecular Analysis and Detection* - Sigma-Aldrich, St. Louis, MO, October, 2008.
12. *Optofluidic Transport for Biomolecular Analysis* - Nanobiotechnology, Biomolecular Devices and Analysis Seminar Series. Ithaca, NY, December 2007.
13. *Optofluidic Transport* - Cornell Fluid Dynamics Seminar Series, Ithaca, NY, November 2007.
14. *The US National Nanotechnology Initiative Network (poster presentation)* - Third International Nanotechnology Conference on Communications and Cooperation, Brussels, Belgium, April 2007.
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16. *Optofluidics for NanoBioTechnology* - Nanobiotechnology Center, Cornell University, Ithaca, NY, April 2006.
17. *Electrokinetics for Lab-on-Chip devices* - Department of Chemical Engineering Colloquium Series, Cornell University, Ithaca, NY, March 2006.
18. *Optofluidics for Biomedical Engineering* - BME 501 – Biomedical Engineering Seminar (Dr. David Lipson). Oct. 2006.
19. *Lab on Chip Devices* - Nanotechnology Teachers Institute, Cornell University, Ithaca, NY. August 2006.
20. *Electrokinetic techniques for single nucleotide polymorphism discrimination and massively parallel biosensing* - Cornell Fluid Dynamics Seminar Series, Ithaca, NY, December 2005.
21. *Optofluidics* - Seminar Series in Photonics, Department of Electrical and Computer Engineering, Cornell University, Ithaca, NY, October 2005.

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TEACHING

Fundamentals of Fluid Dynamics and Aerodynamics (MAE 601 - Graduate)

Department of Mechanical and Aerospace Engineering, Cornell University
Fall 2008, Fall 2009, Fall 2010

Nanoscale Energy Transport and Conversion (MAE 656 – Graduate)

Department of Mechanical and Aerospace Engineering, Cornell University
Spring 2006, Spring 2007, Spring 2008, Spring 2010

Thermodynamics (MAE/ENGRD 221 – Undergraduate)

Department of Mechanical and Aerospace Engineering, Cornell University
Fall 2005, Fall 2006, Fall 2007, Spring 2009

Thermal Energy Conversion (Undergraduate)

Department of Mechanical & Industrial Engineering, University of Toronto
Spring 2004.

DEPARTMENTAL, COLLEGE AND UNIVERSITY LEVEL SERVICE:

Entrepreneurship and Industry Committee (College of Engineering)	2011
Reinvisioning the Engineering Library Committee (College of Engineering)	2010
Fluid Dynamics Search Committee	2010-2011
Admissions Committee	2010-2011
Chair, Graduate Programs Committee	2009-2011
Colloquium Committee	2008-2009
Faculty Secretary	2007-2008
Dynamics Systems and Controls, Search Committee (2 Terms)	2006-2008
Academic Committee	2006-2007