

Curriculum Vitae

NAME: Ponnambalam Selvaganapathy (Ravi)

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EDUCATIONAL BACKGROUND:

B.Tech.	Bachelor of Technology (1998) Chemical and Electrochemical Engineering Central Electrochemical Research Institute, Karaikudi, Madurai Kamaraj University, India.
M.S.	Master of Science (2001) Electrical Engineering University of Michigan, Ann Arbor, U.S.A. Advisor: Dr. Carlos Mastrangelo
Ph.D.	Doctor of Philosophy (2002) Electrical Engineering University of Michigan, Ann Arbor, U.S.A. Advisor: Dr. Carlos Mastrangelo

CURRENT STATUS AT McMASTER UNIVERSITY

- Professor in the Department of Mechanical Engineering
- Professor in the School of Biomedical Engineering

PROFESSIONAL ORGANIZATIONS AND INSTITUTES

- Member - Institute of Electrical and Electronic Engineers (IEEE)
- Member - Professional Engineers of Ontario (PEO)
- Member -Centre for Emerging Device Technologies (CEDT)
- Member -Brockhouse Institute of Materials Research (BIMR)
- Member -McMaster Manufacturing Research Institute (MMRI)
- Member -Centre for Micro and Nano Systems (MNS)
- Member -Biointerfaces Institute (BI)

EMPLOYMENT HISTORY

a) **Academic**

- Professor, Mechanical Engineering, McMaster University (Jul. 2016 – to date)
- Associate Professor, Mechanical Engineering, McMaster University (Jul. 2010-Jun 2016)
- Assistant Professor, Mechanical Engineering, McMaster University (Jan 2005-Jun 2010)
- Post-Doctoral Researcher, Nano/Bio Sciences Division, Sandia National Laboratories, Livermore, U.S.A. (April 2003 – June 2004)

SCHOLARLY AND PROFESSIONAL ACTIVITIES

a) **Editorship**

Guest Editor - Micromachines - Special Issue on Biomedical microdevices (2017)

b) **Grant Committees**

Panel Member - NSERC Discovery Grant - Electrical Engineering Evaluation Group (2016-19); Panel Member - Scalable Nanomanufacturing for Integrated Systems- National Science Foundation, USA (2017); Panel Member - Emerging Frontiers in Research and Innovation - National Science Foundation, USA (2009)

c) **Executive Positions**

Track Chair (Biomicrofluidics) and Organizing Committee Member - 5th European Conference on Microfluidics, Strasbourg, France (2018); Session Chair and Organizer – Microfluidics, 32nd International Symposium on Microscale Separations and Bioanalysis, Niagara on the lake (2016); Program Organizing Committee & Track Chair – Chemical Sensors – IEEE Sensors Conference (2013)
Session Chair – International Smart Structures and Systems Conference (2012)
Session Organizer – Sensors and Actuators – CANCEM 2011,
Session Chair and Organizer – Microfluidics - 92nd Canadian Chemistry Conference, Hamilton (2009).

d) **Journal Referee** (~10-15 papers/year)

1. Journal of Microelectromechanical Systems (IEEE/ASME) (**recognized for quality of my review**)
2. Journal of Micromechanics and Microengineering (IOP)
3. Biomedical Microdevices (Springer)
4. Transactions on Electron Devices (IEEE)
5. Transactions of Biomedical Engineering (IEEE)
6. Sensors and Actuators A&B (Elsevier)
7. Lab on a Chip (Royal Society of Chemistry)
8. Langmuir (American Chemical Society)
9. Microsystem Technologies (Springer)
10. Microfluidics and Nanofluidics (Springer)
11. Energy and Environmental Sciences (Royal Society of Chemistry)
12. Analyst (Royal Society of Chemistry)
13. Analytical Chemistry (American Chemical Society)
14. Microelectronics Engineering (Elsevier)
15. Sensors Journal (IEEE)
16. Electrophoresis

- 17.ACS Applied Surfaces and Interfaces (American Chemical Society)
- 18.ACS Biomaterials Science and Engineering (American Chemical Society)
- 19.Biomaterials (Elsevier)

e) **External Grant Reviewer**

1. French National Research Agency- ANR (2017)
2. Al-Jalila Foundation - United Arab Emirates (2016, 2017)
3. New Zealand Ministry of Business Innovation and Employment (2012, 2013)
4. Swiss National Science Foundation (2012)
5. Hong Kong Innovation and Technology Commission (2012, 2013)
6. NSERC Strategic Grant (2007, 2008, 2009, 2010, 2012)
7. NSERC Discovery Grant (2008, 2012,2013,2014, 2016-2019)
8. Canada Foundation for Innovation (CFI) (2009,2012,2013,2014)
9. British Columbia Innovation Council (2010)
10. NSERC/CIHR - CHRP Program (2011,2012,2014)
11. University of Western Ontario (2006)

f) **External Referee for Tenure and Promotion**

1. University of British Columbia (5)
2. University of Louisville (2)
3. George Mason University (1)

g) **Reviewer for Prestigious Awards**

1. Presidential Early Career Award for Scientists and Engineers -USA (PECASE) (2010)
2. Canada Research Chair Award (2011,2013)
3. NSERC Steacie Award (2012,2015)
4. NSERC Herzberg Medal (2013)

AREAS OF INTEREST

a) **Research**

- Micro/ Nano fluidics
- Micro/ Nano fabrication
- Micro electro mechanical systems (MEMS)
- Microdevices for drug delivery, drug discovery, diagnostics and artificial organs

b) **Teaching**

- Topics related to MEMS/NEMS and Microfluidics
- Core Courses in Mechanical Engineering

HONOURS & AWARDS

- Canada Research Chair Award (Tier II), Canada Research Chairs Program, (2016)
- Best Paper Award - Basic Science and Technology- Journal of Endodontics (2016)
- NSERC Discovery Accelerator Supplement Award (2015)
- Best Paper Award - Chemical Sensors - IEEE Sensors Conference (2014)
- McMaster Synergy Award for Interdisciplinary Collaboration (2014)

- Dean's Honor Roll for Teaching (2014)
- Rising Star in Global Health Award, Grand Challenges Canada, (2012)
- Canada Research Chair Award (Tier II), Canada Research Chairs Program, (2011)
- Early Researchers Award, Ontario Ministry of Research and Innovation, (2010)
- Leader's Opportunity Award, Canada Foundation for Innovation and Ontario Ministry of Research and Innovation: (2006)

LIFE TIME PUBLICATIONS (Total number of citations: ~ 1800; H-index-24)

a) Peer Reviewed

i) Contributions to Books

1. A. Aryasomayajula, P. Bayat, P. Rezai, P. Ravi Selvaganapathy, Microfluidic devices and their applications, in Handbook of Nanotechnology, (Ed: B. Bhushan), Springer, Chapter 16, 487-522, (2017)
2. W.I. Wu, P. Rezai, H.H. Hsu, P. Selvaganapathy, Materials and methods for the microfabrication of microfluidic biomedical devices, in *Microfluidic devices for biomedical applications* (Eds. X.J. Li, Y. Zhou), Woodhead Publishing, Chapter 1, 3-62, (2013)
3. P. Rezai, W. Wu, P. Selvaganapathy, Polymer Microfabrication, in *MEMS for biomedical applications*, (Ed: S. Bhansali), Woodhead Publishing, Chapter 1, 3-46, (2012).
4. P. Rezai, S. Salam, P. Selvaganapathy, B.P. Gupta, Microfluidic systems to study the biology of human diseases and identify potential therapeutic targets in *C. elegans*, in *Integrated Microsystems* (Ed: Kris Iniewski), CRC Press, Chapter. 27, 581-608 (2011).
5. A. Noori, S.K. Upadhyaya, P. Selvaganapathy, Materials and microfabrication processes for microfluidic devices, in *Microfluidics for Biological Applications*, E. Finehout, W.C. Tian (Eds.) Springer, Chapter 2, 35-92, (2009).
6. P. Selvaganapathy, Polymers in MEMS and microfluidics, in *Comprehensive Microsystems*, Y. Gianchandani, O. Tabata, H. Zappe (eds.) Elsevier, vol. 1, Chapter 8.05, 1-30, (2007).
7. P. Selvaganapathy, E.T. Carlen, C.H. Mastrangelo, Integrated microfabricated systems for genetic and protein analysis, in *Encyclopedia of Sensors*, C.A. Grimes, E.C. Dickey, M.V. Pishko (eds.), American Scientific Publishers, vol. X, 1-26, (2006).

ii) International Journal Publications

1. U. Umatheva, P. Madadkar, P.R. Selvaganapathy, R. Ghosh, Computational fluid dynamics (CFD) simulation of laterally-fed membrane chromatography, Chemical Engineering Research and Design, 2018 (accepted)
2. R. Ghaemi, M. Dabaghi, R. Attalla, A. Shahid, H.H. Hsu, P. R. Selvaganapathy, Use of flame activation of surfaces to bond PDMS to variety of substrates for fabrication of multimaterial microchannels, *J. Micromech. Microeng.* (2018) (accepted)
3. J. Peng, N. Rochow, J. Jansen, D. Predescu, B. DeFrance, S.-Y. Lee, G. Fusch, P. Ravi Selvaganapathy, C. Fusch, Postnatal dilatation of umbilical cord vessels and its impact on wall integrity: Prerequisite for the artificial placenta, *Artificial Organs* (2018) (accepted)
4. H. Matharoo, M. Dabaghi, N. Rochow, G. Fusch, N. Saraei, M. Tauhiduzzaman, S. Veldhuis, J. Brash, C. Fusch, and P.R. Selvaganapathy, Steel reinforced composite silicone membranes and its integration to microfluidic oxygenators for high performance gas exchange, *Biomechanics*, **12**, 014107, (2018).

5. X. Deng, R. Attalla, L. Sadowski, M. Chen, M. Majcher, I. Urosev, D-C.Yin, P.R. Selvaganapathy, C. Filipe, T. Hoare, Autonomously self-adhesive hydrogels as building blocks for additive manufacturing, *Biomacromolecules*, **19**, 62-70, (2018) **(featured on the cover)**
6. R. Attalla, C.S. Ling, P.R. Selvaganapathy, Silicon carbide nanoparticles as an effective bioadhesive to bond collagen containing composite gel layers for tissue engineering applications, *Advanced Healthcare Materials*, **7**, 1701385 (2018) **(featured on the cover)**
7. H.H. Hsu, M.J. Deen, P.R. Selvaganapathy, Complete solid state dissolved oxygen sensor using hemin electrocatalyst and palladium-reusable reference electrode, *IEEE Sensors*, **18**, 941-947, (2018).
8. N. Kazemi-Zanjani, M. Shayegannia, R. Prinja, A.O. Montazeri, A. Mohammadzadeh, K. Dixon, J. Zhu, P.R. Selvaganapathy, A. Zavodni, N. Matsuura, N.P. Kherani, Multiwavelength surface-enhanced raman spectroscopy using rainbow trapping in width-graded plasmonic gratings, *Advanced Optical Materials*, **6**, 1701136, (2018)
9. S. Banik, J. Mahony, P.R. Selvaganapathy, Elution of Artificial Sputum from Swab by Rotating Magnetic Field-Induced Mechanical Impingement, *Applied Sciences*, **7**, 1255, (2017) **(invited)**
10. A. Shahid, S. Chong, J. Mahony, M.J. Deen, P.R. Selvaganapathy, Electrical tweezer for droplet transportation, extraction, merging and DNA analysis, *Micromachines*, **8**, 353, (2017) **(invited)**
11. R. Ghaemi, P. Arefi, A. Stosic, M. Acker, Q. Raza, J.R. Jacobs, P.R. Selvaganapathy, A microfluidic microinjector for toxicological and developmental studies in *Drosophila* embryos, *Lab on a Chip*, **17**, 3898-3908, (2017)
12. E. Hoque, H.H. Hsu, A. Aryasomayajula, P.R. Selvaganapathy, P. Kruse, Pencil-drawn chemiresistive sensor for free chlorine in water, *IEEE Sensor Lett.*, **1**, 4500504, (2017)
13. A. Mohtasebi, A. Broomfield, T. Chowdhury, P.R. Selvaganapathy, P. Kruse, Reagent-free quantification of aqueous free chlorine via electrical read-out of colorimetrically functionalized pencil lines, *ACS Appl. Mat. Int.*, **9**, 20748-20761, (2017)
14. J. Liu, J. Mahony, P. Ravi Selvaganapathy, Low-cost and versatile integration of microwire electrodes and optical waveguides into silicone elastomeric devices using modified xurographic methods, *npj-Microsystems and Nanoengineering*, **3**, 17040, (2017)
15. R. Ghaemi, P. Rezai, F.R. Nejad, P.R. Selvaganapathy, Characterization of microfluidic clamps for immobilizing and imaging of *Drosophila Melanogaster* larva's central nervous system, *Biomicrofluidics*, **11**, 034113, (2017)
16. M.K. Russel, P.R. Selvaganapathy, C.Y. Ching, Electrical discharge characteristics of a dielectric liquid under external flow in a microchannel with planar electrode configuration, *J. Electrostatics*, **87**, 212-216, (2017)
17. M. S. Islam, A. Aryasomayajula, P. Ravi Selvaganapathy, A review on macroscale and microscale cell lysis methods, *Micromachines*, **8**, 83, (2017) **(invited)**
18. M.S. Islam, K. Kuryllo, A. Shahid, Y. Li, M.J. Deen, Ravi Selvaganapathy, Electrophoretic concentration and electrical lysis of bacteria in a microfluidic device using a nanoporous membrane, *Micromachines*, **8**,45, (2017) **(invited)**
19. H.H. Hsu, A. Aryasomayajula, P.R. Selvaganapathy, A review of sensing systems and their need for environmental water monitoring, *Critical Reviews in Biomedical Engineering*, **44**, 357-382, (2016).

20. S. Ayyash, W.I. Wu, P. R. Selvaganapathy, Fast and inexpensive detection of bacterial viability and drug effectiveness through metabolic monitoring, *Sensors*, **16**, 1879, (2016) **(invited - special issue on Biomicrofluidics)**
21. M. K. Russel, S.M. Hasnain, P. R. Selvaganapathy, C. Y. Ching, Effect of doping Ferrocene in the working fluid of electrohydrodynamic (EHD) micropumps, *Microfluidics and Nanofluidics*, **20**, 112 (2016)
22. R. Ghaemi, P.R. Selvaganapathy, Microfluidic Devices for Automation of Assays on *Drosophila Melanogaster* for Applications in Drug Discovery and Biological Studies, *Current Pharmaceutical Biotechnology*, **17**, 822-836, (2016) **(invited)**
23. M. K. Russel, P. R. Selvaganapathy, C. Y. Ching, Ion Drag Electrohydrodynamic (EHD) Micro-Pumps under a Pulsed Voltage, *Journal of Electrostatics*, **82**, 48-54, (2016)
24. Y. Qin, H.-J. Kwon, A. Subrahmanyam, M.M.R. Howlader, P. Ravi Selvaganapathy, A. Adronov, M. Jamal Deen, Inkjet-printed bifunctional carbon nanotubes for pH sensing, *Material letters*, **176**, 68-70, (2016)
25. D. Liu, B.Gupta, P. R. Selvaganapathy, An Automated Microfluidic System for Screening *Caenorhabditis elegans* Behaviors using Electrotaxis, *Biomicrofluidics*, **10**, 014117 (2016)
26. R. Attala, C. Ling, P.R. Selvaganapathy, Fabrication and characterization of gels with integrated channels using 3D printing with microfluidic nozzle for tissue engineering applications, *Biomedical Microdevices*, **18**, 1-12, (2016).
27. S. M. Doreswamy, C. Fusch, P. R. Selvaganapathy, H. Matharoo, S. Shivananda, A comparison of the prototype neonatal offset-blade laryngoscope (NOBL) versus the Miller laryngoscope in a manikin, *Anaesthesia*, **71**, 320-325, (2015).
28. Y. Qin, A.U. Alam, S. Pan, M.M.R. Howlader, R. Ghosh, P.R. Selvaganapathy, Y. Wu, M.J. Deen, Low-Temperature Solution Processing of Palladium/Palladium Oxide Films and Their pH Sensing Performance, *Talanta*, **146**, 517-524, (2015).
29. J. Yang, P.R. Selvaganapathy, T.J. Gould, D.J. Dwivedi, D. Liu, A.E. Fox-Robichaud, P.C. Liaw, A Microfluidic Device for Rapid Quantification of Cell-free DNA in Patients with Severe Sepsis, *Lab on a Chip*, **15**, 3925 – 33, (2015).
30. C. Feng, O. Marinov, M.J. Deen, P.R. Selvaganapathy, Y. Wu, Sensitivity of the threshold voltage of organic thin-film transistors to light and water, *J. Appl. Phys.* **117**, 185501 (2015)
31. T. Guo, M.J. Deen, C.Q. Xu, Q. Fang, P.R. Selvaganapathy, H. Zhang, Observation of Ultra-slow Stress Release in Silicon Nitride Films on CaF₂, *Journal of Vacuum science and Technology A*, **33**, 041515, (2015).
32. J.M. Leung, L.R. Berry, H.M. Atkinson, R.M. Cornelius, D. Sandejas, N. Rochow, P.R. Selvaganapathy, C. Fusch, A.K.Chan, J.L. Brash, Surface modification of poly(dimethylsiloxane) with a covalent antithrombin–heparin complex for the prevention of thrombosis: use of polydopamine as bonding agent, *J. Mater. Chem. B*, **3**, 6032 - 36, (2015)
33. M. K. Russel, P. R. Selvaganapathy, C. Y. Ching, Electrohydrodynamic Injection Micropump with Single Walled Carbon Nanotube Electrodes, *Journal of Microelectromechanical Systems*, **24**, 1557-1564, (2015).
34. J. Piazza, C.Zhu, P.R. Selvaganapathy, T. Hoare, S.B. Jain, F. Hossain, R.K. Mishra, A Novel Intranasal Spray Device for the Administration of Nanoparticles to Rodents, *Journal of Medical Devices*, **9**, 041001, (2015)
35. G. Layton, W. I. Wu, P.R. Selvaganapathy, S. Friedman, A. Kishen. Fluid dynamics and biofilm removal generated by syringe-delivered and two ultrasonic assisted irrigation

- methods: A novel experimental approach. *J. of Endodontics*, **41**, 884-889 (2015) (**Best Paper Award in Basic Science and Technology category**)
36. H.H. Hsu, E. Hoque, P. Kruse, P. R. Selvaganapathy, A Carbon Nanotube Based Resettable Sensor for Measuring Free Chlorine in Drinking Water, *Appl. Phy. Lett.*, **106**, 063102 (2015) (**Impact Factor: 3.5**)
 37. R. Ghaemi, P. Rezai, B. Iyengar, P.R. Selvaganapathy, Microfluidic devices for imaging neurological response of *Drosophila Melanogaster* Larva to Auditory Stimulus, *Lab on Chip* **15**, 1116-1122, (2015) (**Impact Factor: 5.7**) (**in top 30 downloaded papers in Lab on Chip journal in Jan 2015**)
 38. T. Guo, Y. Wei, C.Q. Xu, B. R. Watts, Z. Zhang, Q. Fang, H. Zhang, P. R. Selvaganapathy, M. J. Deen, Counting of E. Coli by a Micro-flow Cytometer Based on a Photonic-Microfluidic Integrated Device, *Electrophoresis*, **36**, 298-304, (2015) (**Impact Factor: 3.1**)
 39. Z. Li, M.J. Deen, S. Kumar, P. R. Selvaganapathy, Raman Spectroscopy for In-Line Water Quality Monitoring – Instrumentation and Potential, *Sensors*, **14**, 17275-17303, (2014) (**Impact Factor: 2.0**)
 40. M. K. Russel, P. R. Selvaganapathy, C. Y. Ching, Effect of electrode surface topology on charge injection characteristics in dielectric liquids: An experimental study, *Journal of Electrostatics*, **72**, 487-492, (2014).
 41. H.H. Hsu, P.R. Selvaganapathy, J. Brash, Q. Fang, C.Q. Xu, J. Deen, H. Chen, Development of a Low-Cost Hemin-based Dissolved Oxygen Sensor with Anti-Biofouling Coating for Water Monitoring, *IEEE Sensors Journal*, **14**, 3400-3407, (2014) (**invited**)
 42. Y. Qin, Matiar M.R. Howlader, M.J. Deen, Y.M. Haddara, P.R. Selvaganapathy, Polymer Integration for Packaging of Implantable Sensors, *Sensors and Actuators-B, Chem.* **202**, 758-778, (2014).
 43. H.H. Hsu, P.R. Selvaganapathy, L. Soleymani, Bottom-up top-down fabrication of structurally- and functionally- tunable hierarchical palladium materials, *Journal of Electrochemical Society*, **161**, D3078-3086, (2014) (**Impact Factor: 2.8**)
 44. J. Piazza, T. Hoare, L. Molinaro, K. Terpstra, J. Bhandari, P.R. Selvaganapathy, B. Gupta, R.K. Mishra, Haloperidol-loaded intranasally administered lectin functionalized poly(ethylene glycol)-block-poly(d,l)-lactic-co-glycolic acid (PEG-PLGA) nanoparticles for the treatment of schizophrenia, *Eur. J. Pharm. Biopharm.*, **87**, 30-39, (2014)
 45. N Rochow, A. Manan, W.-I Wu, G. Fusch, S. Monkman, J. Leung, E. Chan, D. Nagpal, D. Predescu, J. Brash, P. Ravi Selvaganapathy, C. Fusch, An integrated array of microfluidic oxygenators as a neonatal lung assist device: invitro characterization and invivo demonstration, *Artificial Organs*, **38**, 856-866, (2014)
 46. S. Safari, P.R. Selvaganapathy, M.J. Deen, Microfluidic Reference Electrode with Free-Diffusion Liquid Junction, *J. of Electrochemical Society*, **160**, B177-B183, (2013). (**Impact Factor: 2.8**)
 47. S. Salam, A. Ansari, S. Amon, P. Rezai, P.R. Selvaganapathy, R.K. Mishra, B.P. Gupta, A microfluidic phenotype analysis system reveals function of sensory and dopaminergic neuron signaling in C. elegans electrostatic swimming behavior, *Worm*, **2**, e24558, (2013).
 48. J. Tong, P. Rezai, S. Salam, P.R. Selvaganapathy, B.P. Gupta, Microfluidic-based Electrotaxis for On-demand Quantitative Analysis of Caenorhabditis elegans' Locomotion, *J. Vis. Exp.*, **75**, e50226, (2013)

49. W.-I. Wu, N. Rochow, E. Chan , G. Fusch, A. Manan, D. Nagpal, P. Ravi. Selvaganapathy, C. Fusch, Lung Assist Device: Development of Microfluidic Oxygenators for Preterm Infants with Respiratory Failure, *Lab on Chip*, **13**, 2641-2650, (2013) (**Impact Factor: 5.7**)
50. W.-I. Wu, Daniel Ewing, Chan Y. Ching, and P. Ravi Selvaganapathy, Measurement of Periodic Micro Flow Using Micro Particle Image Velocimetry with Phase Sampling, *Microfluidics and Nanofluidics*, **15**, 127-135, (2013) (**Impact Factor: 2.6**)
51. N. Rochow, E.C. Chan, W.-I Wu, P.R. Selvaganapathy, G. Fusch, L. Berry, J. Brash, A.K. Chan, C. Fusch, Artificial placenta - Lung assist devices for term and preterm newborns with respiratory failure, *Int. J. of Artificial Organs*, **36**, 377-391, (2013)
52. G. Mahadevan, H. Sheardown, P. Selvaganapathy, PDMS embedded microneedles as a controlled release system for the eye, *Journal of Biomaterials Applications*, **28**, 20-27, (2013), (**Impact Factor: 2.2**)
53. D. Maznichenko, P. R. Selvaganapathy, K. Venkatakrishnan, B. Tan, TiO₂ nanofibrous interface development for Raman detection of environmental pollutants, *Appl. Phys. Lett.*, **101**, 231602 (2012) (**Impact Factor: 3.5**)
54. Z.Y. Li, M.J. Deen, Q.Y. Fang, P.R. Selvaganapathy, Design of a flat field concave-grating-based micro-Raman spectrometer for environmental applications, *Applied Optics*, **51**, 6855-6863, 2012.
55. P. Rezai, S. Salam, P.R. Selvaganapathy, B. Gupta, Electrical sorting of *Caenorhabditis elegans*, *Lab on Chip*, **12**, 1831-1840, (2012), (**Impact Factor: 6.5**) (**Citations: 26**)
56. L. Kesselmann, S. Shinwary, P.R. Selvaganapathy, T. Hoare, Synthesis of Monodisperse, Covalently-Crosslinked, Degradable “Smart” Microgels Using Microfluidics, *Small*, **8**, 1092–1098, (2012) (**Impact factor: 7.3**) (**Citations: 13**)
57. W. Wu, K. Sask , J. Brash, P.R, Selvaganapathy, Polyurethane-Based Microfluidic Devices for Blood Contacting Applications, *Lab on Chip*, **12**, 960-970, (2012), (**Impact Factor: 6.5**) (**in top 10 downloaded papers in Lab on Chip journal in Jan 2012**) (**Citations: 11**)
58. P. Rezai, S. Salam, P.R. Selvaganapathy, B. Gupta, Pulse DC Electrotaxis of Nematodes *Caenorhabditis elegans* and *Caenorhabditis briggsae*, *Biomicrofluidics*, **5**, 044116 (2011), (**Impact Factor: 3.9**) (**Citations: 10**)
59. M.W Shinwari, M.J Deen, P.R Selvaganapathy, The effect of DNA probe distribution on the reliability of label-free biosensors, *Sens. & Act.: B. Chem.*, **160**, 441-447,(2011) (**Impact Factor: 3.3**) (**Citations: 5**)
60. P. Rezai, P.R. Selvaganapathy, G.R. Wohl, Plasma enhanced bonding of polydimethylsiloxane (PDMS) with parylene and its optimization, *Journal of Micromechanics and Microengineering*, **21**, 065024, (2011) (**Impact Factor: 2.3**) (**Citations: 12**)
61. S. Safari, P.Selvaganapathy, A.Deredja, J. Deen, Electrochemical growth of high-aspect ratio nanostructured silver chloride on silver and its application to miniaturized reference electrodes, *Nanotechnology*, **22**, 315601 (2011) (**Impact Factor:3.6**) (**featured on the cover**)
62. M. Hasnain, P. Selvaganapathy, C.Y. Ching, On the Modeling and Simulation of Ion Drag Electrohydrodynamic Micropumps, *Journal of Fluids Engineering*, **133**, 051102, (2011). (**top 10 most downloaded article in June 2011**) (**Citations: 5**)
63. W. Wu, P. Selvaganapathy, C.Y. Ching, Transport of Particles and Micro-organisms in Microfluidic Channels Using Rectified AC Electroosmotic Flow, *Biomicrofluidics*, **5**, 013407 (2011) (**Impact Factor:3.9**) (**selected for April 1, 2011 issue of Virtual Journal of Biological Physics Research**) (**Citations: 13**)

64. M. Howlader, P. Selvaganapathy, M. Jamal Deen, T. Suga, Nanobonding Technology Toward Electronic, Fluidic, and Photonic Systems Integration, *Journal of Selected Topics in Quantum Electronics*, **17**, 689-702, (2011) (**Impact Factor:3.0**) (**Citations: 12**)
65. P. Rezai, A. Siddiqui, P. Selvaganapathy, B. Gupta, Behavior of Caenorhabditis elegans in Alternating Electric Field and its Application to their Localization and Control, *Applied Physics Letters*, **96**, 153702 (2010) (**Impact Factor: 3.7**) (**Citations: 29**)
66. K. Ou, W.I Wu, P.R. Selvaganapathy, Process Design for Reactive Ion Etching of Silicones, *International Journal of Abrasive Technology*, **3**, 105-121, (2010) (**Invited**)
67. M.W Shinwari, M.J Deen, P.R Selvaganapathy, Finite-element modelling of biotransistors, *Nanoscale Research Letters*, **5** (3), 494-500, (2010) (**Citations: 7**)
68. M.W Shinwari, D. Zhitomirsky I.A. Deen, P.R. Selvaganapathy, M.J. Deen, D. Landheer, Microfabricated reference electrodes and their biosensing applications, *Sensors*, **10**, 1679-1715, 2010. (**Impact Factor: 2.0**) (**Citations: 56**)
69. P. Zangeneh, P. Selvaganapathy, C.Y. Ching, Influence of 3D geometry and spacing on the performance of ion drag electrohydrodynamic micropump, *Journal of Electrostatics*, **68**, 376-383, 2010
70. S. Upadhyaya, P. Selvaganapathy, Microfluidic drug discovery platform for cell based assays, *Lab on a Chip*, **10**, 341 – 348, (2010) (**Impact Factor: 6.5**) (**Citations: 23**)
71. P. Rezai, A. Siddiqui, P. Selvaganapathy, B. Gupta, Electrotaxis of C.elegans in a microfluidic environment, *Lab on a Chip*, **10**, 220 – 226, (2010) (**Impact Factor: 6.5**) (**Citations: 58**)
72. A.J. Robinson, G. O'Donnell, J. Verheggen, P. Selvaganapathy, C.Y. Ching, Development of a novel electrohydrodynamic micropump with 3D electrode geometry, *International Journal of Heat and Technology*, **28**, 89-94 (2010)
73. S. Upadhyaya, P. Selvaganapathy, Miniaturized microfluidic formats for cell based high throughput screening, *Critical Reviews in Biomedical Engineering*, **37**, 1-193, (2009)
74. A. Noori, P. Selvaganapathy, J. Wilson, Single cell microinjection using compliant fluidic channels with electroosmotic dosing, *Lab on a Chip*, **9**, 3202 – 3211, (2009) (**Impact Factor: 6.5**) (**top 10% - inside cover article**) (**Citations: 18**)
75. P. Zangeneh, P. Selvaganapathy, C.Y. Ching, Effect of electrode asymmetry on performance of electrohydrodynamic micropumps, *Journal of Microelectromechanical Systems*, **18**, 547-554, (2009) (**Impact Factor: 3**) (**Citations: 7**)
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78. M.W. Shinwari, M.J. Deen, P. Selvaganapathy, Analytic Modeling of Biotransistors, *IET Circuits, Devices & Systems* **2**, 158-165, 2008. (**Citations: 6**)
79. B. Mitra, C.G. Wilson, L. Que, P. Selvaganapathy, Y.G. Gianchandani, Microfluidic discharge-based optical sources for detection of biochemicals, *Lab on a Chip*, **6**, 60–65, (2006). (**Impact Factor: 6.5**) (**Citations: 20**)
80. L.L. Chu, K. Takahata, P. Selvaganapathy, Y.B. Gianchandani, J.L. Shohet, A micromachined kelvin probe with integrated actuator for microfluidic and solid-state

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81. P. Selvaganapathy, E.T. Carlen, C.H. Mastrangelo, Recent progress in microfluidic devices for nucleic acid and antibody assays, *Proceedings of the IEEE*, **91**, 954 -975, 2003. (**Impact Factor: 3.4**) (**Citations: 53**) (invited) (**one of the top 20 cited papers in MEMS 2003-04**)
 82. C. Yu, S. Mutlu, P. Selvaganapathy, C.H. Mastrangelo, F. Svec, J.M.J. Frechet, Flow control valves for analytical microfluidic chips without mechanical parts based on thermally responsive monolithic polymers, *Analytical Chemistry*, **75**, 1958-1961, (2003). (**Impact Factor: 5.6**) (**Citations: 178**)
 83. P. Selvaganapathy, E.T. Carlen, C.H. Mastrangelo, Electrothermally actuated inline microfluidic valve, *Sensors and Actuators, A: Physical*, **104**, 275-282, (2003). (**Impact Factor: 2**) (**Citations: 96**)
 84. P. Selvaganapathy, Y.S. Leung Ki, P. Renaud, C.H. Mastrangelo, Bubble-free electrokinetic pumping, *Journal of Microelectromechanical Systems*, **11**, 448 -453, (2002). (**Impact Factor: 3**) (**Citations: 57**)
 85. N. Kamalanand, G. Gopalakrishnan, S.G. Ponnambalam, J. Mathiyarasu, R.N. Natarajan, P. Subramaniam, N. Palaniswamy, N.S. Rengaswamy, Role of hydrogen and hydroxyl ion in cathodic disbondment, *Anti-Corrosion Methods and Materials*, **45**, 243–247, (1998).

iii) Refereed Conference Proceedings

1. R. Ghaemi *et al.*, A Universal Method to Bond Silicones to Polymeric and Metallic Substrates, in *International Conference on Miniaturized Systems for Chemistry and Life Sciences*, 2017.
2. H. Matharoo *et al.*, “Stainless Steel Reinforced Composite Silicone Membrane and Its Integration Into Microfluidic Oxygenators for High Performance Gas Exchange,” in *International Conference on Miniaturized Systems for Chemistry and Life Sciences*, 2017, pp. 425–426.
3. R. Attalla, C. Ling, P.R. Selvaganapathy, Lamination-Based Assembly of Hydrogels with Integrated Channels Using Nanoparticle Adhesives, in *39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, (July 2017)
4. S. Banik, J. Mahony, P.R. Selvaganapathy, Magnetically actuated physical impingement for elution of artificial mucous from a swab, in *The 20th International Conference on Miniaturized Systems for Chemistry and Life Sciences*, Dublin, Ireland, 703-705, (2016)
5. J. Liu, J.B. Mahony, P.R. Selvaganapathy, Low cost integration of microwire electrodes into silicone elastomeric devices using modified xurographic methods, in *The 20th International Conference on Miniaturized Systems for Chemistry and Life Sciences*, Dublin, Ireland, 1035-1037, (2016)
6. R. Attalla, P.R. Selvaganapathy, Microfluidic vascular channels in gels using commercial 3D printers, in *Proc. SPIE 9705, Microfluidics, BioMEMS, and Medical Microsystems XIV*, 97050J (2016)
7. R. Ghaemi, B. Iyengar, P.R. Selvaganapathy, A microfluidic microinjection of drosophila embryo in a format using compliant mechanism and electrokinetic dosage control, , in *The 19th International Conference on Miniaturized Systems for Chemistry and Life Sciences*, Gyeongju, Korea, 710-713, (2015)

8. H.H. Hsu, E. Hoque, P. R. Selvaganapathy, P. Kruse, A carbon nanotube based resettable sensors for measuring free chlorine in drinking water, *Proc. of IEEE Sensors Conference*, Spain, 1042-1045, (2014).
9. H.H. Hsu, P.R. Selvaganapathy, Stable and reusable electrochemical sensor for continuous monitoring of phosphate in water, *Proc. of IEEE Sensors Conference*, Spain, 1423-1426, (2014)
10. R. Ghaemi, P. Rezai, B. Iyengar, F. Rafiei Nejad, P.R. Selvaganapathy, A microfluidic chip for investigating auditory responses in the larval stage of the fruit fly, , in *The 18th International Conference on Miniaturized Systems for Chemistry and Life Sciences*, San Antonio, USA, 273-275, (2014)
11. R. Attalla, P.R. Selvaganapathy, 3D printing of gels with integrated vascular channels for cell culture using a microfluidic printhead, in *The 18th International Conference on Miniaturized Systems for Chemistry and Life Sciences*, San Antonio, USA, 479-481, (2014)
12. J. Yang, P.R. Selvaganapathy, D. Dwivedi, A. Fox-Robichaud, P.C. Liaw, Microfluidic device for clinical outcome prediction of severe sepsis, in *The 18th International Conference on Miniaturized Systems for Chemistry and Life Sciences*, San Antonio, USA, 1036-1038, (2014)
13. S. Ayyash, W.-I. Wu, P. Ravi Selvaganapathy, Fast and inexpensive detection of bacterial viability and drug resistance through metabolic monitoring, in *The 2014 IEEE Healthcare Innovation Conference (HIC)*, Seattle, USA, 22 - 25, (2014)
14. M. K. Russel, P. R. Selvaganapathy, C. Y. Ching, Ion drag EHD Micropump with Single Walled Carbon Nanotube Electrodes, *4th Micro and Nano Flows Conference*, London, U.K. (2014)
15. R. Ghaemi, J. Tong, P. R. Selvaganapathy, B.P. Gupta, Microfluidic device for microinjection of *Caenorhabditis elegans*, in *The 17th International Conference on Miniaturized Systems for Chemistry and Life Sciences*, Freiburg, Germany, 1821-1823, (2013)
16. M.S. Islam, K. Kuryllo, P. R. Selvaganapathy, Y. Li, M.J. Deen, A microfluidic sample preparation device for pre-concentration and cell lysis using a nanoporous membrane, in *The 17th International Conference on Miniaturized Systems for Chemistry and Life Sciences*, Freiburg, Germany, 1105-1107, (2013)
17. H.H. Hsu, P. Selvaganapathy, Development of a low cost hemin based dissolved oxygen sensor with anti-biofouling coating for water monitoring, In *IEEE Sensors Conf.*, Baltimore, USA, (2013). (DOI: 10.1109/ICSENS.2013.6688588) (**Best student paper award in chemical sensors**)
18. P. Rezai, S.-C. A. Yeh, S. Salam, Q. Fang, B. P. Gupta, and P. R. Selvaganapathy, Co-relation of cellular and behavioral responses of *C.elegans* to pulse DC electric fields, in *The 16th international Conference on Miniaturized Systems for Chemistry and Life Sciences, Okinawa, Japan*, 1609-1612, (2012).
19. S. Shinwary, C. Y. Ching, and P. R. Selvaganapathy, Monodisperse droplet generation using electrical pulses, in *The 16th international Conference on Miniaturized Systems for Chemistry and Life Sciences, Okinawa, Japan*, 1523-1525, (2012).
20. W.-I. Wu, G. Layton, A. Kishen, P.R. Selvaganapathy, Characterization of irrigation dynamics in passive ultrasonic and pressurized irrigation methods in a root canal using microfluidic device, in *The 16th international Conference on Miniaturized Systems for Chemistry and Life Sciences, Okinawa, Japan*, 1390-1392, (2012).

21. N. Rochow, W.-I. Wu, E. Chan, D. Nagpal, G. Fusch, P.R. Selvaganapathy, S. Monkman, C. Fusch, Integrated microfluidic oxygenator bundles for blood gas exchange in premature infants, in *The 25th International Conference on Micro Electro Mechanical Systems, Paris, France*, 957-961, (2012).
22. P. Rezai, S. Salam, B.P. Gupta, P.R. Selvaganapathy, Electrical sorting of *Caenorhabditis elegans*, in *The 15th international Conference on Miniaturized Systems for Chemistry and Life Sciences, Seattle, USA*, 723-725, (2011).
23. W.-I. Wu, K. N. Sask, P. R. Selvaganapathy, and J. L. Brash, Fabrication of polyurethane microfluidic channels and their surface modification for blood contacting applications, in *The 15th international Conference on Miniaturized Systems for Chemistry and Life Sciences, Seattle, USA*, 1140-1142, (2011).
24. W.-I. Wu, N. Rochow, G. Fusch, R. Kusdaya, A. Choi, P. R. Selvaganapathy, and C. Fusch, Development of microfluidic oxygenators as lung assisting devices for preterm infants, in *The 15th international Conference on Miniaturized Systems for Chemistry and Life Sciences, Seattle, USA*, 550-552, (2011).
25. P. Rezai, S. Salam, P.R. Selvaganapathy, B. Gupta, Separation of *Caenorhabditis elegans* by electrotaxis in a microdevice, in *The 16th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers 2011), Beijing, China*, 2766-2769, (2011). (**Oral Presentation, top 12% of 1600 papers**).
26. P. Rezai, P.R. Selvaganapathy, G.R. Wohl, (2011), Plasma enhanced bonding of PDMS with parylene, *The 16th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers 2011), Beijing, China*, 1340-1343, (2011).
27. M.J. Deen, M.M.R. Howlader, P.R. Selvaganapathy, T. Suga, Nanobonding technologies for emerging applications, in *Proc. of International Conference on Electronic Packaging, Kyoto, Japan*, (2011) (**invited**)
28. S. Loane, P. R. Selvaganapathy, C. Y. Ching, Development and characterization of an electroplated copper nickel alloy–platinum micro-thermocouple, *ASME/JSME 2011 8th Thermal Engineering Joint Conference (AJTEC2011), Honolulu, Hawaii, USA*, T30016-T30016-7, (2011).
29. P. Rezai, S. Salam, B. Gupta, P.R. Selvaganapathy, Transport, localization and separation of *C.elegans* using electrotaxis for movement based behavioral assays in drug discovery, *The 14th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μ TAS 2010), Groningen, Netherlands*, 160-163, (2010)
30. S. Safari-Mohsenabad, P.R. Selvaganapathy, M.J. Deen, Microfluidic reference electrode for applications in biosensing, *The 14th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μ TAS 2010), Groningen, Netherlands*, 596-599, (2010)
31. Wen-I Wu, D. Ewing, C.Y. Ching, P. R. Selvaganapathy, Phase mapping technique for periodic electroosmotic flow measurements in micro particle image Velocimetry, *The 14th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μ TAS 2010), Groningen, Netherlands*, 914-917, (2010)
32. Wen-I Wu, C.Y. Ching, P. R. Selvaganapathy, Particle transportation by using rectified AC electroosmotic flows in open microfluidic channels, *The 14th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μ TAS 2010), Groningen, Netherlands*, 1952-1955, (2010)
33. P. Zangeneh Kazemi, P. R. Selvaganapathy, C. Y. Ching, Development of Electrohydrodynamic Micropumps with Micropillar Electrodes, *Proc. of The 2nd*

- Micro/Nanoscale Heat & Mass Transfer International Conference (MNHMT2009)*, Shanghai, China, 1818, (2009)
34. P. Rezaei, A. Siddiqui, P. Selvaganapathy, B. Gupta, Electric field control of *C.elegans* movement in microfluidic channels, *The 13th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μ TAS 2009)*, Jeju, Korea, 1270-1272, (2009)
 35. S. SafariMohsenabad, P.R. Selvaganapathy, M.J. Deen, Microfabricated true reference electrode for sensing applications, *14th Canadian Semiconductor Technology Conference*, Hamilton, Canada, 284-285, (2009)
 36. P. Selvaganapathy, C.Y. Ching, Electrohydrodynamic pumping for electronic cooling applications, in *Proc. of International Conference on Electronic Packaging*, Kyoto, Japan, (2009) **(invited)**
 37. A. Noori, P. Selvaganapathy, Electroosmotic dosage control for microinjection in a lab-on-a-chip format, in *Proc. of International Conference on Microtechnologies in Medicine and Biology*, Quebec City, Canada, 142-143, (2009).
 38. W.I Wu, P. Selvaganapathy, C.Y. Ching, Zeta potential modulation and synchronization with AC electric field for rectified electroosmotic flow, in *Proc. of International Conference on Microtechnologies in Medicine and Biology*, Quebec City, Canada, 68-69, (2009).
 39. A. Noori, P. Selvaganapathy, Single cell microinjection using compliant fluidic channels, in *Proc. of the 12th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μ TAS 2009)*, San Diego, U.S.A, 1971-1973, (2008). **(top 6% of submitted papers)**
 40. S. Upadhyaya, P. Selvaganapathy, Nanoporous device for accurate dose control in high throughput screening, in *Proc. of ASME/IEEE MEMS 2008 Conference*, Tucson, Arizona, U.S.A, 583-586, (2008)
 41. G. Mahadevan, P. Selvaganapathy, H. Sheardown, Integrated microneedle arrays and assembly techniques for drug delivery applications, in *Proc. of Smart Systems Integration Conference*, Barcelona, Spain, 483-486, (2008)
 42. M. J. Deen, M.W. Shinwari, P. R. Selvaganapathy, Towards low-cost, high-sensitivity, integrated biosensors, in *Proc. of 26th International Conference on Microelectronics (MIEL 2008)*, Nis, Serbia, 307-314 (2008).
 43. P. Zangeneh, P. Selvaganapathy, C.Y. Ching, Microfabricated EHD pumps with high aspect ratio electrodes, in *Proc. of International Conf. on Microchannels and Minichannels*, Puebla, Mexico, ICNMM2007-30140, 253-259 (June 2007).
 44. B. Subramani, P. Selvaganapathy, Surface micromachined PDMS microchannels, in *Proc. of International Conf. on Microchannels and Minichannels*, Puebla, Mexico, ICNMM2007-30169, 587-593 (June 2007).
 45. L.L. Chu, K. Takahata, P. Selvaganapathy, J.L. Shohet, Y.B. Gianchandani, A micromachined kelvin probe for surface potential measurements in microfluidic channels and solid-state applications, *Proc. of the 12th International Conference on Solid-State Sensors, Actuators and Microsystems (TRANSDUCERS)* 384 -387, (2003). **(Citations: 7)**
 46. L. Que, P. Selvaganapathy, B. Mitra, C.G. Wilson, Y.B. Gianchandani, Dye fluorescence LED-SPEC: A battery operated on-chip wavelength tunable optical source for detection of biochemicals, *Proc. of the 7th International Conference on Micro Total Analysis Systems*, 1251-1255, (2003). **(Citations: 5)**
 47. S. Mutlu, C. Yu, P. Selvaganapathy, F. Svec, C.H. Mastrangelo, J.M.J. Frechet, Micromachined porous polymer for bubble free electro-osmotic pump, *Proc. of the 15th IEEE*

International Conference on MicroElectroMechanical Systems (MEMS), 19 -23, (2002).
(Citations: 27)

48. P. Selvaganapathy, E.T. Carlen, C.H. Mastrangelo, Batch fabricated inline microfluidic valve, *Proc. of the Solid State Sensors and Actuators Workshop*, Hilton Head Conference, 317-320, (2002).
49. P. Selvaganapathy, M.A. Burns, D.T. Burke, C.H. Mastrangelo, Inline electrochemical detection for capillary electrophoresis, *Proc. of the 14th IEEE International Conference on MicroElectroMechanical Systems (MEMS)*, 451 -454, (2001). (Citations: 14)

iv) **Unpublished Documents**

a) **Journal Articles Under Revision**

v) **Patents**

1. **US Patent:** 9,841,381, Temperature change indicator and methods of making the same, P.R. Selvaganapathy, W-I. Wu (2017)
2. **US Patent:** 9,492,603: C. Fusch, L. Berry, A. Chan, N. Rochow, P. Selvaganapathy, J. Brash, G. Fusch, Artificial Placenta (2016).
3. **US Patent:** 8,702,939: P. Selvaganapathy, Bhagwati Gupta, Pouya Rezai, Electrotaxis methods and devices (2014).
4. **US patent:** 8,173,415: P. Selvaganapathy, A. Noori, Single cell microinjection using compliant fluidic channels (2012)
5. **US Patent** 7,125,478: P. Selvaganapathy, M.A. Burns, D.T. Burke, C.H. Mastrangelo; Microscale electrophoresis devices for biomolecule separation and detection, (2006).
6. **US Patent** 7,142,303: Y.B. Gianchandani, C.G. Wilson, L. Que, B. Mitra, P. Selvaganapathy; Microdischarge optical source apparatus and method and system for analyzing a sample, (2006).
7. **US Patent** 7,116,115: Y.B. Gianchandani, L.L. Chu, K. Takahata, P. Selvaganapathy, J.L. Shohet; Micromachined probe apparatus and methods for making and using same to characterize liquid in a fluidic channel and map embedded charge in a sample on a substrate, (2006).

vi) **Provisional Applications**

1. T. Hoare, P. Selvaganapathy, J. Yang, S. Campbell, W.I. Wu, A mixing microinjection device with precise and simultaneous small volume injection control of multiple components. Docket No. 14-039 (2013)

PRESENTATIONS AT MEETINGS

a) **Invited**

1. P.R. Selvaganapathy, Additive manufacturing methods for integration of electrodes in flexible devices, Canada-China Symposium on flexible electronics, London, Canada, (Sep 2017) (**invited**)
2. P.R. Selvaganapathy, Electrifying Microfluidics, International Symposium on Electrohydrodynamics, Ottawa, Canada (June 2017) (**keynote**)

3. P.R. Selvaganapathy, Biomedical microdevices for diagnostics, drug discovery and artificial organs, Firestone Institute, St. Joseph's Hospital, Hamilton, Canada, (June 2017) **(invited)**
4. P.R. Selvaganapathy, Microfabricated sensors for environmental monitoring, Nankai University, Tianjin, China, (Nov 2016) **(invited)**
5. P.R. Selvaganapathy, Fast bacterial culture using microfluidics, Jiangsu Industrial Technology Research Institute, (Sep 2016) **(invited)**
6. P.R. Selvaganapathy, Printed gel platforms with integrated microfluidic channels for perfusion and cell culture, Canadian Chemistry Conference, Halifax, Canada, (Jun 2016) **(invited)**
7. P.R. Selvaganapathy, Simple sample preparation for bioassays, 229th Electrochemical Society Conference, San Diego, USA, (May 2016) **(invited)**
8. P.R. Selvaganapathy, A frequency domain optofluidics dissolved oxygen sensor with enhanced sensitivity for water monitoring, 229th Electrochemical Society Conference, San Diego, USA, (May 2016) **(invited)**
9. P.R. Selvaganapathy, 3D printing of microfluidic vascular channels in gels using commercial 3D printers, SPIE Photonics West, BIOS, San Francisco, USA, (Feb 2016) **(invited)**
10. P.R. Selvaganapathy, Sensors exploiting the nanoscale phenomena for environmental and medical monitoring, Indo-Canadian Symposium on Nanotechnology, Mysore, India, (Feb 2016) **(invited)**
11. P.R. Selvaganapathy, Microfluidic sample preparation for handling raw biological samples – examples of urine and plasma, Canadian Chemistry Conference, Vancouver, Canada, (Jun 2014) **(invited)**
12. P.R. Selvaganapathy, Simple microfluidic sample preparation for point of care diagnostics, Ontario on a Chip Conference, Toronto, Canada, (May 2014) **(invited)**
13. P.R. Selvaganapathy, Advanced functional materials for biomicrofluidics, Thermec Conference, Las Vegas, USA, (Dec 2013) **(invited)**
14. C.Fusch, P. R. Selvaganapathy, Development Of Microfluidic Oxygenators As Lung Assisting Devices For Term And Preterm Newborn Infants, 9th Int. Conf. on Pediatric Mechanical Circulatory Support Systems & Pediatric Cardiopulmonary Perfusion, Hershey, PA, USA, (May 2013) **(invited)**
15. P.R. Selvaganapathy, Microfluidics and its application in drug discovery, drug delivery and diagnostics, Department of Chemistry and Chemical Engineering, Soochow University, Suzhou, China, (Nov 2012) **(invited)**
16. P.R. Selvaganapathy, Integration of functional materials into microfluidic devices, Canadian Materials Science Conference, London, Canada, (Jun 2012)
17. P.R. Selvaganapathy, Electrical control of fluid flow and transport at the microscale, Center for Nanoscience and Engineering , Indian Institute of Science, Bangalore, India (Mar 2012) **(invited)**
18. P.R. Selvaganapathy, Microfluidics and how does it relate to wood and its products?, Institute of Wood Science and Technology , Bangalore, India (Feb 2012)
19. P.R. Selvaganapathy, What is MEMS and microfluidics, National Institute of Engineering , Mysore, India (Feb 2012) **(invited)**

20. P.R. Selvaganapathy, Electrifying microfluidics – A few examples of using electric fields and forces to control microfluidic components and a few applications, Materials Research Center , Indian Institute of Science, Bangalore, India (Feb 2012)
21. P.R. Selvaganapathy, Smart materials and surfaces in microfluidics – a few examples, Sixth International Conference , Bangalore, India (Jan 2012) (**invited**)
22. P.R. Selvaganapathy, Electrifying Microfluidics, Brockhouse Institute of Materials Research, McMaster University, (Nov 2011)
23. P.R. Selvaganapathy, Electrical methods for transport of particles, cells, organisms and generation of droplets in microfluidic systems, 2011 CMOS Emerging Technologies Workshop, Whistler, British Columbia, (June 2011)
24. M.J. Deen, M.M.R. Howlader, P.R. Selvaganapathy, T. Suga, Nanobonding technologies for emerging applications, in *Proc. of International Conference on Electronic Packaging*, Kyoto, Japan, (2011) (**invited**)
25. S. Safari, P.R. Selvaganapathy, M.J. Deen, Microfluidic reference electrode and its application in BioFET, Pacificchem 2010, Honolulu, Hawaii, (Dec 2010)
26. B.G. Gupta, P. Rezai, P.R. Selvaganapathy, Microfluidic systems for chemical screening and drug discovery, 2010 CMOS Emerging Technologies Workshop, Whistler, British Columbia, (May 2010)
27. P. Selvaganapathy, Microfluidics for optoelectronic applications, 217th Electrochemical Society Meeting, Vancouver, (April 2010).

b) **Contributed**

1. E. Hoque, L. H-H. Hsu, A. Aryasomayajula, P. R. Selvaganapathy, and P. Kruse, Pencil-Drawn Chemiresistive Sensor for Free Chlorine in Water, *IEEE Sensors Conference*, Glasgow UK, (Oct – Nov 2017)
2. R. Attalla, C. Ling, P.R. Selvaganapathy, Lamination-Based Assembly of Hydrogels with Integrated Channels Using Nanoparticle Adhesives, in *39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, (July 2017)
3. H.H. Hsu, P. R. Selvaganapathy, Development of all solid state sensors for environmental water monitoring: dissolved oxygen and free chlorine, in *ECS Conference*, San Diego, USA, (May 2016)
4. H.H. Hsu, E. Hoque, P. R. Selvaganapathy, P. Kruse, A carbon nanotube based resettable sensors for measuring free chlorine in drinking water, *In IEEE Sensors Conference*, Spain, (Nov 2014).
5. H.H. Hsu, P.R. Selvaganapathy, Stable and reusable electrochemical sensor for continuous monitoring of phosphate in water, *In IEEE Sensors Conference*, Spain, (Nov 2014)
6. P. Madadkar, P.R. Selvaganapathy, R. Ghosh, Protein PEGylation using microreactors, *In 2014 AIChE Annual Meeting*, , Atlanta, USA, (Nov. 2014)
7. R. Ghaemi, P. Rezai, B. Iyengar, F. Rafiei Nejad, P.R. Selvaganapathy, A microfluidic chip for investigating auditory responses in the larval stage of the fruit fly, , in *The 18th International Conference on Miniaturized Systems for Chemistry and Life Sciences*, San Antonio, USA, (Oct 2014)
8. S.B. Campbell, J. Yang, W.I. Wu, P.R. Selvaganapathy, T.R. Hoare, Design of a Microinjection Device for Injection of in Situ Gelling Hydrogels for Ophthalmic Drug Delivery, *AIChE Annual Meeting*, San Francisco, USA, (Nov 2013)

9. A.S. Jawed, W. Syed, W.I. Wu, S.B. Campbell, T.R. Hoare, P.R. Selvaganapathy, Wirelessly Controlled Microfluidic Actuators Using Radiofrequency Electromagnetic Induction, *AICHE Annual Meeting, San Francisco, USA*, (Nov 2013)
10. H.H. Hsu, P. Selvaganapathy, Development of a low cost haemin based dissolved oxygen sensor with anti-biofouling coating for water monitoring, *In IEEE Sensors conference, Baltimore, USA*, (Oct 2013). (**Best student paper award in chemical sensors**)
11. H.H. Hsu, P.R. Selvaganapathy, Q. Fang, C.Q. Xu, Development of a miniaturized dissolved oxygen sensor for water monitoring, in *221st Electrochemical Society Meeting, Seattle, WA, USA*, (May 2012)
12. P. Rezai, S. Salam, P.R. Selvaganapathy, B. Gupta, Separation of *Caenorhabditis elegans* by electrotaxis in a microdevice, in *The 16th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers 2011), Beijing, China, 2766-2769*, (2011).
13. S. Salam, P. Rezai, P.R. Selvaganapathy, R.K. Mishra, B.P. Gupta, Microfluidics approach to study neurodegeneration in a *Caenorhabditis elegans* Parkinson's disease model, in *18th International C. elegans meeting, Los Angeles, USA*. (June 2011)
14. W.I.Wu, D. Ewing, P.R. Selvaganapathy, C.Y. Ching, Periodic flow measurement using micro particle image Velocimetry, in *5th Ontario on a Chip Conference, Toronto, Canada*, (May 2010)
15. P. Rezai, B.P. Gupta, P.R. Selvaganapathy, Application of *Caenorhabditis elegans*' Electrosensory Response in Drug Discovery Assays for Movement Disorder Diseases, in *5th Ontario on a Chip Conference, Toronto, Canada*, (May 2010)
16. S. Safari-Mohsenabad, P.R. Selvaganapathy, M.J. Deen, Microfluidic Reference Electrode for Lab-on-Chip Sensing Application, in *5th Ontario on a Chip Conference, Toronto, Canada*, (May 2010)
17. S. Safari-Mohsenabad, P.R. Selvaganapathy, A. Derardja, M.J. Deen, Nanosheet formation by electrodeposition and its application to miniaturized reference electrodes, in *217th Electrochemical Society Meeting, Vancouver, BC, Canada*, (Apr 2010)
18. W. Shinwari, P.R. Selvaganapathy, M.J. Deen, Geometric and conformational considerations in biotransistors, in *217th Electrochemical Society Meeting, Vancouver, BC, Canada*, (Apr 2010)
19. A. Noori, P. Selvaganapathy, Single cell microinjection using compliant fluidic channels, in *Proc. of the 12th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μ TAS 2009), San Diego, U.S.A, 1971-1973*, (2009)