Charles Sherman Henry

PROFESSIONAL EXPERIENCE

- 2014 – present, Chair, Department of Chemistry, Colorado State University.
- 2013 – present, Cofounder and Board Chairman, Access Sensor Technologies, LLC, Fort Collins, CO
- 2012 – present Professor, Chemistry and Chemical & Biological Engineering, Colorado State University.
- 2004-present, Professor Cellular and Molecular Biology Program, Colorado State University
- 2009 Visiting Associate Professor, Chulalongkorn University, Bangkok, Thailand
- 2007 – 2012, Associate Professor of Chemistry and Chemical & Biological Engineering, Colorado State University
- 2007 – present, full member, School of Biomedical Engineering, Colorado State University
- 2004 – 2014, Cofounder & Chief Executive Officer, Advanced MicroLabs, LLC, Fort Collins, CO
- 2002 – 2007, Assistant Professor of Chemistry, Colorado State University
- 1999 – 2002, Assistant Professor of Chemistry, Mississippi State University
- 1998 – 1999, NIH Postdoctoral Fellow, University of Kansas

EDUCATION

University of Kansas, Lawrence, KS, 1998-1999.
NIH Postdoctoral Fellow in the Department of Pharmaceutical Chemistry with Professor Susan M. Lunte. “Microchip Capillary Electrophoresis/Electrochemistry for Determination of Homocysteine.”

University of Arkansas, Fayetteville, AR, 1994-1998.
Ph.D. in Analytical Chemistry with Professor Ingrid Fritsch. Thesis: “Construction and Characterization of a Microcavity Electrode System Containing Two Individually-Addressable Electrodes.”

Missouri Southern State College, Joplin, MO, 1990-1994.
B.S. in Chemistry, Honors, magna cum laude.

AWARDS AND HONORS

Top 25 Most Accessed Article, *Analyst*, 2016
Honorable Mention, Graduate Advising and Mentoring Award, CSU, 2015
Blatvnik Award Nominee, Colorado State University, 2013
Undergraduate Research Mentor Award, May 2012
Cleantech Research Award in Water Technology, May, 2011
Work highlighted in *Analytical Chemistry*, “Trends in Microfluidics,” Oct 15, 2010
Work highlighted SeparationsNow.com, “Analyzing Atmospheric Aerosols,” Dec. 21, 2009
Work highlighted in IMPO, “Tiny Tools Key to Understanding Aerosol Dangers,” 2009
U.S. Fulbright Scholar, Thailand, 2009
Editorial Advisory Board, *Analytica Chimica Acta*, 2009-present
Hot Article, *Analyst*, 2009
Highlight Article in *Chemical Technology*, 2008
Cover Article, *Plasma Processing and Polymerization*, 2007
Most Accessed Article, The *Analyst*, August, 2002
MSU Image Teacher Appreciation Award, April 2002
Top 10 Accessed Article, The *Analyst*, August, 2001
Ralph Powe Research Award, MSU Sigma Xi chapter, 2001
NIH Postdoctoral Research Fellowship

PUBLICATIONS

153. Dias, A. A.; Cardoso, T. M.; Chagas, C. L.; Oliveira, V. X.; Munoz, R. A.; Henry, C. S.; Santana, M. H.; Paixão, T. R.; Coltro, W. K. *Electroanalysis*, **2018**, in press.

152. de Freitas, S. V.; de Souza, F. R.; Rodrigues Neto, J. C.; Vasconcelos, G. A.; Abdelnur, P. V.; Vaz, B. G.; Henry, C. S.; Coltro, W. K. T. *Analytical Chemistry* **2018**, in press.
151. Quinn, C. W.; Miller-Lionberg, D. D.; Klunder, K. J.; Kwon, J.; Noth, E. M.; Mehaffy, J.; Leith, D.; Magzamen, S.; Hammond, S. K.; Henry, C. S.; Volckens, J. *Environmental Science & Technology* **2018**, in press.
150. Teengam P, Siangproh W, Tuantranont A, Vilaivon T, Chailapakul O, Henry C. Electrochemical impedance-based DNA sensor using pyrrolidinyl peptide nucleic acids for tuberculosis detection. *Anal Chim Acta*, **2018**, in press.
149. Mettakoonpitak J, Henry C. Electrophoretic Separations on Parafilm-Paper-Based Analytical Devices. *Sens Actuat B*, **2018**, in press.
148. Gerold C, Krummel A, Henry C. Microfluidic devices containing thin rock sections for oil recovery studies. *Microfluidics Nanofluidics*, **2018**, *22*, 76.
147. Phoonsawat K, Ratnarathorn N, Henry C, Dungchai W. Distance-based Paper Sensor for Determination of Chloride Ion Using Silver Nanoparticles. *Analyst*, *2018*, in press.
146. Noiphung J, Nguyen M, Punyadeera C, Wan Y, Laiwattanapaisal W, Henry C. Development of Paper-Based Analytical Devices for Minimizing the Viscosity Effect of Human Saliva. *Theranostics*, *2018*, 8, 3797-3807.
145. Hofstetter J, Wydallis J, Neymark G, Reilly T, Harrington J, Henry, C. Quantitative Colorimetric Paper Analytical Devices Based on Radial Distance Measurements for Aqueous Metal Determination, *Analyst*, **2018**, in press.
144. Boehle K, Carrell C, Caraway J, Henry C. Paper-based Enzyme Competition Assay for Detecting Falsified Antibiotics, *ACS Sensors*, **2018**, in press.
143. Channon R, Yang Y, Feibelman K, Geiss B, Dandy D, Henry C. Development of an Electrochemical Paper-based Analytical Device for Trace Detection of Virus Particles, Analy Chem, 2018, in press.
142. Manning R, Wilson G, Holcomb R, Zbacnik N, Tellechea A, Gilley-Dunn C, Krammes R, Krammes N, Evans G, Henry C, Manning M, Murphy B, Payne R, Katayama D. Denaturation and Aggregation of Interferon-t in Aqueous Solution, *Pharma Res*, **2018**, *35*, 137.
141. Mclean I, Schwerdtfeger L, Tobet S, Henry CS. Powering Ex Vivo Tissue Models in Microfluidic Systems, *Lab Chip*, **2018**, *18*, 1399-1410.
140. Tedjo W, Nejad J, Feeny R, Yang L, Henry CS, Tobet S, Chen T. "Electrochemical Biosensor System using a CMOS Microelectrode Array Provides High Spatially and Temporally Resolved Images. *Biosens Bioelec*, **2018**, in press
139. Murphy BM, Ozumerzifon T, Henry CS, Manning MC. High throughput detection of deamidation using S-(5'-denosyl)-L-homocysteine hydrolase and a fluorogenic reagent. *J Pharm Biomed Analy*, **2018**, in press.
138. Gerold C, Bakker E, Henry CS. Selective Distance-Based K^+ Quantification on Paper-Based Microfluidics. Anal Chem, **2018**, 90, 4894–4900, DOI: 10.1021/acs.analchem.8b00559
137. Yamada K, Citterio D, Henry CS. "Dip-and-read" paper-based analytical devices using distance-based detection with colour screening. *Lab Chip*, **2018**, *18*, 1485-1493. DOI: 10.1039/C8LC00168E
136. Srisa-art M, Noblitt S, Krummel A, Henry CS. IR-Compatible Microfluidic Devices for Monitoring Enzyme Kinetics. *Anal Chim Acta*, **2018**, 1021, 95-102.
135. Channon C, Nguyen M, Scorzelli A, Henry E, Volckens J, Dandy D, Henry CS. Rapid Flow in Multilayer Microfluidic Paper-Based Analytical Devices, *Lab Chip*, **2018**, 18, 793-802. DOI: 10.1039/C7LC01300K
134. Quinn C, Cate D, Miller-Lionberg D, Reilly, T, Volckens, J, Henry CS. Solid-Phase Extraction Coupled to a Paper-Based Technique for Trace Copper in Drinking Water. *Environ Sci Tech*, **2018**, 52 (6), 3567-3573. **DOI:** 10.1021/acs.est.7b05436
133. Nguyen M, Meredith, N, Henry CS. Design Considerations for Minimizing Sample Loss in Microfluidic Paper-based Analytical Devices. *Anal Chim Acta*, **2018**, 1017, 20-25. doi.org/10.1016/j.aca.2018.01.036
132. Klunder K, Elliott, CM, Henry CS. Highly Transparent Tetraaminophthalocyanine Polymer Films for DSSC Cathodes. *J Materials Chemistry A*, **2018**, 6 (6), 2767-2774.

131. Piyanan T, Athipornchai A, Henry CS, Sameenoi Y. An Instrument-free Detection of Antioxidant Activity Using Paper-based Analytical Devices Coated with Nanoceria. *Analytical Sciences*, **2018**, 34 (1), 97-102.
130. Gerold C, Henry CS. Observation of dynamic surfactant adsorption facilitated by divalent cation bridging. *Langmuir*, **2018**, *34*, 1550-1556. DOI: 10.1021/acs.langmuir.7b03516
129. Srisa-Art M, Boehle K, Geiss B, Henry CS. Highly Sensitive and Rapid Detection of Salmonella typhimurium Using a Colorimetric Paper Based Analytical Device Coupled with Immunomagnetic Separation. *Analytical Chemistry*, **2018**, 90 (1), 1035-1043. DOI: 10.1021/acs.analchem.7b04628.
128. Kim YS, Yang Y, Henry CS. Laminated and infused Parafilm® – paper for paper-based analytical devices. *Sensors and Actuators B: Chemical*. **2018**, 255, 3654-3661. doi: https://doi.org/10.1016/j.snb.2017.10.005.
127. Mettakoonpitak J, Miller-Lionberg D, Reilly T, Volckens J, Henry CS. Low-cost reusable sensor for cobalt and nickel detection in aerosols using adsorptive cathodic square-wave stripping voltammetry. *Journal of Electroanalytical Chemistry*. **2017**;805(Supplement C):75-82. doi: https://doi.org/10.1016/j.jelechem.2017.10.026.
126. Klunder, K.: Nilsson, Z.; Sambur, J.; Henry, C., "Patternable Solvent-Processed Thermoplastic Graphite Electrodes," *JACS*, **2017**, 139 (36), 12623-12631.
125. Miguel, T.; Channon, R.; Adkins, J.; Coltro, W.; Henry, C., "A Paper-Based Colorimetric Spot Test for the Identification of Adulterated Whiskeys," *Chem Comm*, **2017**, 53 (56), 7957-7960.
124. Pratiwi, R.; Nguyen, M.; Ibrahim, S.; Yoshioka, N.; Henry, C., "A selective distance-based paper analytical device for copper(II) determination using a porphyrin derivative," *Talanta*, **2017**, 174, 493-499.
123. Martin-Yerga, D.; Alvarez-Martos, I.; Blanco-Lopez, M.; Henry, C. S.; Fernandez-Abedul, T, "Point-of-need simultaneous electrochemical detection of lead and cadmium using low-cost stencil-printed transparency electrodes, *Analytica Chimica Acta*, **2017**, in press.
122. Teengam, P.; Siangproh, W.; Tuantranont, A.; Vilaivan, T.; Chailapakul, O.; Henry, C.S., "Multiplex paper-based colorimetric DNA sensor using pyrrolidinyl peptide nucleic acid-induced AgNPs aggregation for detecting MERS-CoV, MTB and HPV oligonucleotides," *Analytical Chemistry*, **2017**, *89*, 5428-5435.
121. Boehle, K. E.; Giliand, J.; Wheeldon, C. R.; Holder, A.; Adkins, J. A.; Geiss, B. J.; Ryan, E. P.; Henry, C. S., "Utilizing Paper-Based Devices for Antimicrobial Resistant Bacteria Detection," *Angewandte Chemie*, **2017**, *129*, 6990-6994.
120. Cardoso, T.; de Souza, F. R.; Garcia, P. T.; Rabelo, D.; Henry, C. S.; Coltro, W., "Versatile fabrication of paper-based microfluidic devices with high chemical resistance using scholar glue and magnetic masks," *Analytica Chimica Acta*, **2017**, 974, 63-68.
119. Nantaphol, S.; Channon, R.; Takeshi, K.; Siangproh, W.; Chailapakul, O.; Henry, CS, "Boron Doped Diamond Paste Electrodes for Microfluidic Paper-Based Analytical Device", *Analytical Chemistry*, **2017**, *89*, 4100-4107.
118. Adkins, J; Boehle, K; Friend, C; Chamberlain, B; Bisha, B; Henry, CS, "Colorimetric and Electrochemical Bacteria Detection Using Printed Paper-and Transparency-Based Analytic Devices," *Analytical Chemistry*, **2017**, 89 (6), 3613-3621. ***Featured in ACS national press release, March 6, 2017**
117. Meredith, NA; Volckens, J; Henry, CS, "Paper-based microfluidics for experimental design: screening masking agents for simultaneous determination of Mn (II) and Co (II)." *Analytical Methods*, **2017**, 9, 534-540.
116. Mettakoonpitak J, Mehaffy J, Volckens J, Henry CS. "AgNP/Bi/Nafion-modified Disposable Electrodes for Sensitive Zn (II), Cd (II), and Pb (II) Detection in Aerosol Samples." *Electroanalysis*. **2017**, in 29, 880-889.
115. Yang Y, Noviana E, Nguyen MP, Geiss BJ, Dandy DS, Henry CS. "Paper-Based Microfluidic Devices: Emerging Themes and Applications." *Analytical Chemistry*. **2017**, 81, 71-91.
114. Volckens, J. V.; Quinn, C.; Leith, D.; Mehaffy, J.; Henry, C. S.; Miller-Lionberg, D., "Development and Evaluation of an Ultrasonic Personal Aerosol Sampler (UPAS)," *Indoor Air*,

2017, 27, 409-416.

113. Teengam P, Siangproh W, Tuantranont A, Henry CS, Vilaivan T, Chailapakul O. Electrochemical paper-based peptide nucleic acid biosensor for detecting human papillomavirus. *Analytica Chimica Acta*. **2017**, 952, 32-40.
112. Zbacnik TJ, Holcomb RE, Katayama DS, Murphy BM, Payne RW, Coccaro RC, Evans GJ, Matsuura JE, Henry CS, Manning MC. "Role of Buffers in Protein Formulations." *Journal of Pharmaceutical Sciences*. **2017**, 106, 713-733.
111. Feeny, RM; Puissant, NL; Henry, CS, "Degassed PDMS pump for controlled extraction from dried filter samples in microfluidic devices," *Analytical Methods*, **2016**, 8, 8266-8271. **Cover Article.**
110. Adkins, J. A.; Noviana, E.; Henry, C. S., "Development of a Quasi-Steady Flow Electrochemical Paper Analytical Device," *Analytical Chemistry*, **2016**, 88, 10639-10647.
109. Rattanarat, P.; Suea-Ngam, A.; Ruecha, N.; Siangproh, W.; Henry, C. S.; Srisa-Art, M.; Chailapakul, O., "Graphene-polyaniline modified electrochemical droplet-based microfluidic sensor for high-throughput determination of 4-aminophenol," *Anal Chim Acta*, **2016**, 925, 51-60.
108. Songjaroen, T.; Feeny, R. M.; Mensack, M. M.; Laiwattanapaisal, W.; Henry, C. S., "Label-free detection of C-Reactive protein using an electrochemical DNA immunoassay," *Sensing and Biosensing Research*, **2016**, *8*, 14-19.
107. Noblitt, S. N.; Berg, K.; Cate, D.; Henry, C. S.; "Characterizing Nonconstant Instrumental Variance in Emerging Miniaturized Analytical Techniques," *Anal Chim Acta*, **2016**, *915*, 64-73.
106. Nouanthayong, S.; Nacapricha, D.; Henry, C. S.; Sameenoi, Y., "Pesticide analysis using nanoceria-coated paper-based devices as a detection platform," *Analyst*, **2016**, *141*, 1837-1846.
105. Meredith, N.; Quinn, C.; Reilly, T.; Cate, D.; Volckens, J.; Henry, C., "Paper-Based Devices for Environmental Analysis," *Analyst*, **2016**, 141, 1874-1887. ***25 Most Accessed Article for 2016**
104. Mettapoonpitak, J.; Boehle, K.; Nantaphol, S.; Teengam, P.; Adkins, J.; Srisa-Art, M.; Henry, C., "Electrochemistry on Paper-Based Analytical Devices: A Review," *Electroanalysis*, **2016**, 28, 1420-1436.
103. Merutka, G.; Murphy, B. M.; Payne, R. W.; Wilson, G. A.; Matsuura, J. E.; Henry, C. S.; Manning, M. C., "Stability of lyophilized teriparatide, PTH (1-34), after reconstitution," *E. J. Pharma. Biopharma*, **2016**, *99*, 84-93.
102. Berg, K.; Adkins, J.; Boyle, S.; Henry, C. S., "Manganese Detection using Inexpensive Stencil Printed Carbon Ink Electrodes on Transparencies", *Electroanalysis*, **2016**, 28, 679-684.
101. Rungsawang, T.; Punrat, E.; Adkins, J.; Henry, C. S.; Chailapakul, O., "Development of electrochemical paper-based glucose sensor using cellulose-4-aminophenylboronic acid-modified screen printed carbon electrode," *Electroanalysis*, **2016**, 28, 462-468.
100. Lehmkuhl, B.; Noblitt, S.; Krummel, A.; Henry, C. S., "Fabrication of IR-transparent microfluidic devices by anisotropic etching of channels in CaF_2", *Lab Chip*, **2015**, 15, 4364-4368.
99. Adkins, J.; Henry, C. S., "Electrochemical detection in paper-based analytical devices using microwire electrodes," *Analytica Chimica Acta*, **2015**, 891, 247-254.
98. Noblitt, S.; Henry, C., "Calibration-Free Quantitation in Microchip Zone Electrophoresis with Conductivity Detection," *Electrophoresis*, **2015**, 36, 1927-1934.
97. Cate, D.; Noblitt, S.; Volckens, J.; Henry, C., "Multiplexed paper analytical device for quantification of metals using distance-based detection," *Lab Chip*, **2015**, **15**, 2808-2818.
96. Staicu, L.; Ackerson, C; Cornelis, P; Ye, L; Berendsen, R.; Hunter, W.; Noblitt, S.; Henry, C.; Sura-de Jong, M.; Musilova, L.; Montenieri, R.; Cappa, J.; Reynolds, J.; Wong, A.; Van Hullebusch, E.; Lens, P.; Pilon-Smits, E., "Pseudomonas moraviensis subsp. Stanleyae, a bacterial endophyte of hyperaccumulator Stanleya pinnata, is capable of efficient selenite reduction to elemental selenium under aerobic conditions*," J. Applied Microbiology*, **2015**, *119*, 400–410.
95. Adkins, J.; Boehle, K.; Henry, C. S., "Electrochemical paper-based microfluidic devices," *Electrophoresis*, **2015**, 36, 1811-1824.
94. Ruecha, N.; Rodthongkum, N.; Cate, D.; Volckens, J.; Chailapakul, O.; Henry, C. S., "Sensitive electrochemical sensor using a graphene–polyaniline nanocomposite for simultaneous detection of Zn (II), Cd (II), and Pb (II)," *Anal Chim Acta*, **2015**, *874*, 40-48.

93. Cate, D.; Adkins, J.; Mettapoonpitak, J.; Henry, C., "Recent Advances in Paper-Based Microfluidic Devices," *Analytical Chemistry*, **2015**, *87*, 19–41.
92. Feeny, R; Wydallis, J.; Lantvit, S.; Chen, T.; Reynolds, M.; Tobet, S.; Henry, C., "Analysis of Nitric Oxide from Chemical Donors Using CMOS Platinum Microelectrodes," *Electroanalysis*, **2015**, 27 (5), 1104-1109.
91. Manning, R; Holcomb, R.; Wilson, G.; Henry, C.; Manning, M., "Orthogonal Methods To Size Exclusion Chromatography (Sec) For Quantitation And Characterization Of Protein Aggregates," *BioPharm International*, **2014**, *December*, 32-39.
90. Sameenoi, Y.; Nongkai, P. N.; Nouanthavong, S.; Henry, C. S.; Nacapricha, D., "One-Step Polymer Screen-Printing for Microfluidic Paper-Based Analytical Device (μPAD) Fabrication," *Analyst*, **2014**, *139*, 6580-6588.
89. Noblitt, S. D.; Staicu, L. C.; Ackerson, C. J.; Henry, C. S., "Sensitive, Selective Analysis of Selenium Oxoanions Using Microchip Electrophoresis with Contact Conductivity Detection," *Anal. Chem*, **2014**, *86*, 8425-8432.
88. Pluangklang, T.; Wydalli, J. B.; Cate, D. M.; Nacapricha, D.; Henry, C.S., "A simple microfluidic electrochemical HPLC detector for quantifying Fenton reactivity from welding fumes," *Anal. Methods*, **2014**, *6*, 8180-8186.
87. Santhiago, M.; Henry, C. S.; Kubota, L., "Low cost, simple three dimensional electrochemical paper-based analytical device for determination of p-nitrophenol," *Electrochemica Acta*, **2014**, *130*, 771-777.
86. Rattanarat, P.; Dungchai, W.; Cate, D.; Volckens, J.; Chailapakul, O.; Henry, C., "Multilayer Paper-Based Device for Colorimetric and Electrochemical Quantification of Metals," *Analytical Chemistry*, **2014**, 86, 3555-3562.
85. Koehler, K.; Shapiro, J.; Sameenoi, Y.; Henry, C.; Volckens, J., "Laboratory Evaluation of a Microfluidic Electrochemical Sensor for Aerosol Oxidative Load," *Aerosol Sci. Tech*., **2014**, 48, 489-497.
84. Cate, D.; Nanthasurasak, P.; Riwkulkajorn, P.; L'Orange, C.; Henry, C. S.; Volckens, J., "Rapid Detection of Transition Metals in Welding Fumes Using Paper-Based Analytical Devices," *Ann Occup Health*, **2014**, 58, 413-423.
83. Adkins, J.; Gertsch, J.; Chanchand, J.; Perezmendez, A.; Coleman, S.; Osbodio, A.; Henry, C.; Goodridge, L.; Bisha, B.; "Colorimetric Paper-based Detection of Escherichia coli, Salmonella spp., and Listeria monocytogenes from Large Volumes of Agricultural Water," JOVE, **2014**, Jun 9;(88). doi: 10.3791/51414.
82. Dungchai, W.; Sameenoi, Y.; Chailapakul, O.; Volckens, J.; Henry, C. S., "Determination of aerosol oxidative activity using silver nanoparticle aggregation on paper-based analytical devices," *Analyst*, **2013**,*138*, 6766-6773.
81. Rattanarat, P.; Dungchai, W.; Cate, D. M.; Siangproh, W.; Volckens, J.; Chailapakul, O.; Henry, C. S., "A microfluidic paper-based analytical device for rapid quantification of particulate chromium," *Anal Chim Acta*, **2013**, 800,50-55.
80. Noiphung, J.; Songjaroen, T.; Dungchai, W.; Henry, C.; Chailapakul, O.; Laiwattanapaisal, W., "Electrochemical detection of glucose from whole blood using paper-based microfluidic devices," *Anal Chim Acta*, **2013**, 788, 39-45.
79. Cate, D. M.; Dungchai, W.; Cunningham, C. J.; Volckens, J.; Henry, C. S., "Simple, Distance-Based Measurement for Paper Analytical Devices," *Lab Chip*, **2013**, 2397-2404.
78. Santhiago, M.; Wydallis, J.; Kubota, L. T.; Henry, C. S., "Construction and Electrochemical Characterization of Microelectrodes for Improved Sensitivity in Paper-Based Analytical Devices," *Anal Chem*, **2013**, 85, 5233-5239.
77. Sameenoi, Y.; Panymeesamer, P.; Supalakorn, N.; Koehler, K.; Chailapakul, O.; Henry, C.; Volckens, J., "Microfluidic Paper-Based Analytical Device for Aerosol Oxidative Activity," *Environ Sci Technol*, **2013**, *47*, 932-940.
76. Mensack, M.; Wydallis, J.; Lynn, N.; Dandy, D.; Henry, C., "Spatially resolved electrochemical sensing of chemical gradients," *Lab Chip*, **2013**, *13*, 208-211.
75. Guan, Q.; Noblitt, S. D.; Henry, C. S., "Electrophoretic separations in poly(dimethylsiloxane)

microchips using mixtures of ionic, nonionic and zwitterionic surfactants," *Electrophoresis*, **2012**, 33, 2875-2883.
74. Sameenoi, Y.; Koehler, K.; Shapiro, J.; Boonsong, K.; Sun, Y.; Collett, Jr., J.; Volckens, J.; Henry, C. S., "Microfluidic Electrochemical Sensor for On-Line Monitoring of Aerosol Oxidative Activity," *J. Am. Chem. Soc.*, **2012**, *134*, 10562-10568.
73. Songjaroen, T.; Dungchai, W.; Chailapakul, O.; Henry, C. S.; Laiwattanapaisal, W., "Blood Separation on Microfluidic Paper-Based Analytical Devices," *Lab Chip*, **2012**, 18, 3392-3398.
72. Ratnarathorn, N.; Chailapakul, O.; Henry, C. S.; Dungchai, W., "Simple Silver Nanoparticle Colorimetric Sensing for Copper by Paper-Based Devices," *Talanta*, **2012**, 99, 552-557.
71. Rattanarat, P.; Dungchai, W.; Siangprob, W.; Chailapakul, O.; Henry, C. S., "Sodium Dodecyl Sulfate Modified Electrochemical Paper-Based Analytical Device for Determination of Dopamine Levels in Biological Samples," *Analytica Chimica Acta*, **2012**, 744, 1-7.
70. Mentele, M. M.; Cunningham, J. C; Koehler, K.; Volckens, J.; Henry, C. S., "Microfluidic Paper-Based Analytical Device for Particulate Metals," *Analytical Chemistry*, **2012**, 84, 4474-4480.
69. Jokerst, J. C.; Adkins, J. A.; Bledar, B.; Mentele, M. M.; Goodridge, L. D.; Henry, C. S., "Development of a Paper-Based Analytical Device for Colorimetric Detection of Select Foodborne Pathogens," *Analytical Chemistry*, **2012**, *84*, 2900-2907.
68. Lynn, N. S.; Tobet, S.; Henry, C. S.; Dandy, D. S., "Mapping Spatio-Temporal Molecular Distributions Using a Microfluidic Array," *Analytical Chemistry*, **2012**, *84*, 1360-1366.
67. Gertsch, J.; Emory, J.; Henry, C. S., "Advances in Microfluidics for Environmental Analysis," *Analyst*, **2012**, *137*, 24-34.
66. Sameenoi, Y.; Mensack, M. M.; Murphy, B. M.; Henry, C. S., "Competitive, Non-Competitive, and Mixed Format Cleavable Tag Immunoassays," *Methods*, **2012**, *56*, 166-173.
65. Guan, Q.; Noblitt, S. D.; Henry, C. S., "Electrophoretic separations in poly(dimethylsiloxane) microchips using a mixture of ionic and zwitterionic surfactants," *Electrophoresis*, **2012**, 33, 379-387.
64. Pettine, W.; Jibson, M.; Chen, T.; Tobet, S.; Nikkel, P.; Henry, C. S., "Characterization of Novel Microelectrode Geometries for Detection of Neurotransmitters**,"** *IEEE Sensors*, **2012**, 12(5), 1187-1192.
63. Noblitt, S. D.; Speights, R. M.; Henry, C. S., "Protonated diamines as anion binding agents and their utility in capillary electrophoresis separations," *Electrophoresis*, **2011**, *32*, 2986-2993.
62. Sameenoi, Y.; Mensack, M. M.; Boonsong, K.; Ewing, R.; Dungchai, W.; Chailapakul, O.; Cropek, D. M.; Henry, C. S., "Poly(dimethysiloxane) Cross-linked Carbon Paste Electrodes for Microfluidic Electrochemical Sensing," *Analyst*, **2011**, **136**, 3177-3184.
61. Holcomb, R. E.; Mason, L. J.; Reardon, K. F.; Cropek, D. M.; Henry, C. S., "Culturing and Investigation of Stress-Induced Lipid Accumulation in Microalgae Using a Microfluidic Device," *Analytical and Bioanalytical Chemistry*, **2011**, 400, 245-53.
60. Dungchai, W.; Chailapakul, O.; Henry, C.S., "A low-cost, simple, and rapid fabrication method for paper-based microfluidics using wax screen-printing," *Analyst*, **2010**, 136, 77-82.
59. Mentele, M.; Noblitt, S. D.; Kraly, J. R.; Henry, C. S., "Continuous Flow Interface for Microfluidic Devices," Proceedings MicroTAS 2010, Gronigen, Netherlands, **2010**, 1019-1021.
58. Dungchai, W.; Chailapakul, O.; Henry, C.S., "Use of multiple colorimetric indicators for paper-based microfluidic devices," *Analytica Chimica Acta*, **2010**, *674*, 227-233.
57. Gertsch, J.; Noblitt, S. D.; Cropek, D. M.; Henry, C. S., "Sub-ppb determination of perchlorate using microchip electrophoresis," *Analytical Chemistry*, **2010**, *82*, 3426-3429.
56. Apilux, A.; Dungchai, W.; Siangproh, W.; Praphairaksit, N.; Henry, C. S., Chailapakul, O., "Lab-on-paper with dual electrochemical/colorimetric detection for simultaneous determination of gold and iron," *Analytical Chemistry*, **2010**, 82, 1727-1732.
55. Noblitt, S. D.; Lewis, G. S.; Liu, Y.; Hering, S. V.; Collett, Jr, J. L.; Henry, C. S., "Interfacing microchip electrophoresis to a growth tube particle collector for semi-continuous monitoring of aerosol composition," *Analytical Chemistry*, **2009**, *81*, 10029-10037.
54. Guan, Q.; Henry, C. S., "Improving MCE with electrochemical detection using a bubble cell and sample stacking techniques," *Electrophoresis*, **2009**, *30*, 3339-3346.
53. Kraly, J. R.; Holcomb, R. E.; Guan, Q.; Henry, C. S., "Review: Microfluidic Applications in

Metabolomics and Metabolic Profiling," *Analytica Chimica Acta*, **2009**, *653*, *23-35*.
52. Dungchai, W.; Chailapakul, O.; Henry, C. S., "Electrochemical Detection for Paper-Based Microfluidics," *Analytical Chemistry*, **2009**, *81*, 5821-5826.
51. Gonzalez, C. D.; Cropek, D. M.; Henry, C. S., "Photopatternable carbon electrodes for chip-based electrochemical detection," *Electroanalysis*, **2009**, *21*, 2171-2174.
50. Lynn, N.S.; Henry, C.S.; Dandy, D.S., "Evaporation from Microreservoirs," *Lab Chip*, **2009**, 9, 1780-1788.
49. Murphy, B. M.; Dandy, D. S.; Henry, C. S., "Analysis of Oxidative Stress Biomarkers Using a Simultaneous Competitive/Non-Competitive Micromosaic Immunoassay," *Analytica Chimica Acta*, **2009**, *640*, 1-9.
48. Noblitt, S. D.; Henry, C. S., "High-sensitivity microchip electrophoresis determination of inorganic anions and oxalate in atmospheric aerosols with adjustable selectivity and conductivity detection," *Journal of Chromatography, A*, **2009**, *1216*, 1503-1510.
47. Holcomb, R. E.; Kraly, J. R., Henry, C. S., "Electrode Array Detector for Microchip Capillary Electrophoresis," *Analyst*, **2009**, *134*, 486-492.
46. Yan, R.; Yuan, G.; Stephens, M.D.; He, X.; Henry, C. S.; Dandy, D. S.; Lear, K. L. "Evanescent field response to immunoassay layer thickness on planar waveguides," *Applied Physics Letters*, **2008**, *93*, 101110.
45. Noblitt, S. D.; Henry, C. S., "Improving the Compatibility of Contact Conductivity Detection with Microchip Electrophoresis Using a Bubble Cell," *Analytical Chemistry*, **2008**, *80*, 7624-7630.
44. Noblitt, S. D.; Hering, S. V.; Collett, J. L.; Henry, C. S., Continuous Analysis of Atmospheric Aerosols using Microchip Electrophoresis," *Proceedings of MicroTAS 2008*, The Twelfth International Conference on Miniaturized Systems for Chemistry and Life Sciences, San Diego, California, USA, October 12 - 16, **2008**, pp.1248-1250.
43. Caulum, M. M.; Henry, C. S., "Measuring Reaction Rates on Single Particles in a Microfluidic Device," Lab on a Chip, **2008**, 8, 865-867.
42. Boonsong, K.; Caulum, M. M.; Dressen, B. M.; Chailapakul, O.; Cropek, D. M.; Henry, C. S., "Influence of Polymer Structure on Electroosmotic Flow and Separation Efficiency in Successive Multiple Ionic Layer Coatings for Microchip Electrophoresis," *Electrophoresis*, **2008**, 29, 3128-3134.
41. Lynn, N. S.; Dandy, D. S.; Henry, C. S., "Chaotic advection produced via transverse electrokinetic effects in a planar microchannel," *Microfluidics and Nanofluidics*, **2008**, 5, 493-505.
40. Murphy, B. M.; He, X.; Dandy, D. S.; Henry, C. S., "Competitive Immunoassay Methods for Detection of Metabolites and Proteins Using Micromosaic Patterning," *Analytical Chemistry*, **2008**, *80*, 444-450.
39. He, X., Dandy, D. S.; Henry, C. S., "Microfluidic Protein Patterning on Silicon Nitride Using Solvent Extracted Polydimethylsiloxane," *Sens Actuat B*, **2008**, *129*, 811-817.
38. Noblitt, S. D.; Kraly, J. R.; VanBuren, J. M.; Hering, S. V.; Collett Jr., J. L.; Henry, C. S., "Integrated Membrane Filters for Minimizing Hydrodynamic Flow and Filtering in Microfluidic Devices," *Analytical Chemistry*, **2007**, 79, 6249-6254.
37. Caulum, M. M.; Murphy, B. M.; Ramsey, L. M.; Henry, C. S., "Detection of Cardiac Biomarkers Using Micellar Electrokinetic Chromatography and a Cleavable Tag Immunoassay," *Analytical Chemistry*, **2007**, 79, 5249-5256.
36. Martin, I. T.; Dressen, B. M.; Boggs, M.; Liu, Y.; Henry, C. S.; Fisher, E. R., "Plasma Modification of PDMS Microfluidic Devices for Control of Electroosmotic Flow," *Plasma Proc Polym.*, **2007**, *4*, 414-424, *cover article*.
35. Noblitt, S. A.; Rhinehart, L.; Collett, J.; Herring, S.; Henry, C. S., "Separation of common organic and inorganic anions in atmospheric aerosols using a piperazine buffer and capillary electrophoresis," *Journal of Chromatography A*, **2007**, 1154, 400-406.
34. Vickers, J. J.; Dressen, B. M.; Boonsong, K.; Cropek, D.; Henry, C. S., "Thermoset polyester as an alternative material for microchip electrophoresis/electrochemistry," *Electrophoresis*, **2007**, 28, 1123-1129.

33. Caulum, M. M.; Henry, C. S., “Multi-Analyte Immunoassay using Cleavable Tags and Microchip Micellar Electrokinetic Chromatography,” *Analyst*, **2006**, 131, 1091-1093.
32. Vickers, J. A.; Caulum, M. M.; Henry, C. S., Generation of Hydrophilic Poly(dimethylsiloxane) for High Performance Microchip Electrophoresis. *Analytical Chemistry* **2006,** 78, 7446-7452.
31. Liu, Y.; MacDonald, D. A.; Yu, X. Y.; Hering, S. V.; Collett, J. L.; Henry, C. S., Analysis of anions in ambient aerosols by microchip capillary electrophoresis. *Analyst* **2006,** 131, 11, 1226-1231.
30. Payne, R. W.; Nayar, R.; Tarantino, R.; Del Terzo, S.; Moschera, J.; Di, J.; Heilman, D.; Bray, B.; Manning, M. C.; Henry, C. S., Second virial coefficient determination of a therapeutic peptide by self-interaction chromatography. *Biopolymers* **2006,** 84, (5), 527-33.
29. Valente, J. J.; Fryksdale, B. G.; Dale, D. A.; Gaertner, A. L.; Henry, C. S., Screening for physical stability of a Pseudomonas amylase using self-interaction chromatography. *Anal Biochem* **2006,** 357, 35-42.
28. Katayama, D. S.; Nayar, R.; Chou, D. K.; Valente, J. J.; Cooper, J.; Henry, C. S.; Vander Velde, D. G.; Villarete, L.; Liu, C. P.; Manning, M. C., “Effect of Buffer Species on the Thermally Induced Aggregation of Interferon-tau,” *J. Pharm. Sci*, **2006**, 95, 1212-1226.
27. Valente, J. J.; Verma, K. S.; Manning, M. C.; Wilson, W. W.; Henry, C. S., “Second virial coefficient studies of cosolvent-induced protein self-interaction,” *Biophys J* **2005**, 89, 4211-8.
26. Vickers, J. A.; Henry, C. S., Simplified current decoupler for microchip capillary electrophoresis with electrochemical and pulsed amperometric detection. *Electrophoresis* **2005**, 26, 4641-4647.
25. Garcia, C. D., Henry, C. S., “Coupling Capillary Electrophoresis with Pulsed Electrochemical Detection,” *Electroanalysis*, **2005**, 17, 1125-1131.
24. Garcia, C. D., Dressen, B. M., Henderson, A., and Henry, C. S., "Comparison of surfactants for dynamic surface modification of poly(dimethylsiloxane) microchips," *Electrophoresis*, **2005**, 26, 703-9.
23. Garcia, C. D., and Henry, C. S., "Comparison of pulsed electrochemical detection modes coupled with microchip capillary electrophoresis," *Electroanalysis*, **2005**, 17, 223-230.
22. Hompesch, R. W., Garcia, C. D., Weiss, D. J., Vivanco, J. M., and Henry, C. S., "Analysis of natural flavonoids by microchip-micellar electrokinetic chromatography with pulsed amperometric detection," *Analyst*, **2005**, 130, 694-700.
21. Garcia, C. D., Engling, G., Herckes, P., Collett, J. L., Jr., and Henry, C. S., "Determination of levoglucosan from smoke samples using microchip capillary electrophoresis with pulsed amperometric detection," *Environ Sci Technol*, **2005**, 39, 618-23.
20. Garcia, C. D., and Henry, C. S., "Enhanced determination of glucose by microchip electrophoresis with pulsed amperometric detection," *Anal Chim Acta*, **2004**, 508, 1-9.
19. Garcia, C. D., and Henry, C. S., "Direct detection of renal function markers using microchip CE with pulsed electrochemical detection," *Analyst*, **2004**, 129, 579-84.
18. Liu, Y., Vickers, J. A., and Henry, C. S., "Simple and sensitive electrode design for microchip electrophoresis/electrochemistry," *Analytical Chemistry*, **2004**, 76, 1513-7.
17. Garcia, C. D., Liu, Y., Anderson, P., and Henry, C. S., "Versatile 3-channel high-voltage power supply for microchip capillary electrophoresis," *Lab Chip*, **2004**, 3, 324-8.
16. Liu, Y., Garcia, C. D., and Henry, C. S., "Recent progress in the development of mu TAS for clinical analysis," *Analyst*, **2003**, 128, 1002-1008.
15. Garcia, C. D., and Henry, C. S., "Direct determination of carbohydrates, amino acids, and antibiotics by microchip electrophoresis with pulsed amperometric detection," *Analytical Chemistry*, **2003**, 75, 4778-4783.
14. Pittman, J. L., Henry, C. S., and Gilman, S. D., "Experimental Studies of Electroosmotic Flow Dynamics in Microfabricated Devices during Current Monitoring Experiments," *Analytical Chemistry*, **2003**, 75, 361-370.
13. Garcia, C. D., Holman, S. C., Henry, C. S., and Wilson, W. W., "Screening of protein-ligand interactions by affinity chromatography," *Biotech Prog*, **2003**, 19, 575-579.
12. Garcia, C. D., Hadley, D. J., Wilson, W. W., and Henry, C. S., "Measuring Protein Interactions by Microchip Self-Interaction Chromatography," *Biotech Prog*, **2003**, 19, 1006-1010.

11. Fanguy, J. C., and Henry, C. S., "Pulsed amperometric detection of carbohydrates on an electrophoretic microchip," *Analyst*, **2002**, 127, 1021-3.
10. Fanguy, J. C., and Henry, C. S., "The analysis of uric acid in urine using microchip capillary electrophoresis with electrochemical detection," *Electrophoresis*, **2002**, 23, 767-73.
9. Liu, Y., Wipf, D. O., and Henry, C. S., "Conductivity detection for monitoring mixing reactions in microfluidic devices," *Analyst*, **2001**, 126, 1248-1251.
8. Clark, E. A., Fanguy, J. C., and Henry, C. S., "High-throughput multi-analyte screening for renal disease using capillary electrophoresis," *J Pharm Biomed Anal*, **2001**, 25, 795-.
7. Liu, Y., Fanguy, J. C., Bledsoe, J. M., and Henry, C. S., "Dynamic coating using polyelectrolyte multilayers for chemical control of electroosmotic flow in capillary electrophoresis microchips," *Analytical Chemistry*, **2000**, 72, 5939-5944.
6. Martin, R. S., Gawron, A. J., Lunte, S. M., and Henry, C. S., "Dual-Electrode Electrochemical Detection for Poly(dimethylsiloxane)-Fabricated Capillary Electrophoresis Microchips," *Analytical Chemistry*, **2000**, 72, 3196-3202.
5. Holsten, N. D., Bowen, B. P., Vandaveer, W. R. I. V., Henry, C. S., Fritsch, I., and Lenihan, T. G., "Microcavities and micropores for electrochemical analysis," *Proc Electrochem Soc*, **1999**, 99-5, 67-81.
4. Henry, C. S., and Fritsch, I., "Microfabricated Recessed Microdisk Electrodes: Characterization in Static and Convective Solutions," *Analytical Chemistry*, **1999**, 71, 550-556.,
3. Henry C. S., Zhong, M., Lunte, S. M., Kim, M., Bau, H., and Santiago, J. J., "Ceramic microchips for capillary electrophoresis-electrochemistry," *Anal Comm*, **1999**, 36, 305-307.
2. Henry, C. S., and Fritsch, I., "Microcavities containing individually addressable recessed microdisk and tubular nanoband electrodes," *J Electrochem Soc*, **1999**, 146, 3367-3373.
1. Henry, C. S., and Fritsch, I., "Formation and Characterization of Supported Hexadecanethiol/Dimyristoyl Phosphatidylcholine Hybrid Bilayers Containing Gramicidin D," *Langmuir*, **1998**, 14, 5850-5857.

Non-Peer Reviewed Publications

- Henry, C. S., Payne, R. W., Valente, J. J., Wilson, W. W. Manning, M. C., “Self-Interaction Chromatography for Screening,” *Genetic Engineering News*, Invited Tutorial Review, **2005**, 25, 62-63.
- Valente, J. J.; Payne, R. W.; Manning, M. C.; Wilson, W. W.; Henry, C. S., “Colloidal behavior of proteins: effects of the second virial coefficient on solubility, crystallization and aggregation of proteins in aqueous solution.” *Curr Pharm Biotechnol* **2005**, 6 (6), 427-36.
- Wilson, W. W.; Garcia, C. G.; Henry, C. S., “Microfluidic Devices for Studying Biomolecular Interactions,” *NASA Tech Briefs*, **2006**, 30(2), 57-59.

Books and Book Chapters

- Henry, C. S., Miniaturized Analysis Systems. In *McGraw-Hill Yearbook of Science & Technology*, McGraw-Hill: New York, 2004; pp 200-203.
- Clark, E. A.; Fritsch, I.; Nasrazadani, S.; Henry, C. S., Analytical Techniques for Materials Characterization. In *Advanced Electronic Packaging*, 2nd ed.; Ulrich, R. K.; Brown, W. D., Eds. IEEE Press: Piscataway, NJ, 2006; pp 725-790.
- Henry, C. S. *Microchip Capillary Electrophoresis: Methods and Protocols*; Humana Press: Totowa, NJ, 2006.
- Henry, C. S., Microchip Capillary Electrophoresis: An Introduction. In *Microchip Capillary Electrophoresis: Methods and Protocols*, Henry, C. S., Ed. Humana Press: Totowa, NJ, 2006; Vol. 339, pp 1-12. 1.
- Garcia, C. D.; Henry, C. S., Micro-Molding for Poly(dimethylsiloxane) Microchips. In *Microchip Capillary Electrophoresis: Methods and Protocols*, Henry, C. S., Ed. Humana Press: Totowa, NJ, 2006; Vol. 339, pp 27-36.

- Liu, Y.; Henry, C. S., Polyelectrolyte Coatings for Microchip Capillary Electrophoresis. In *Microchip Capillary Electrophoresis: Methods and Protocols*, Henry, C. S., Ed. Humana Press: Totowa, NJ, 2006; Vol. 339, pp 57-66.
- Garcia, C. D.; Henry, C. S., Coupling Electrochemical Detection with Microchip Capillary Electrophoresis, In *BioMEMS: Technologies and Applications*, Wang, W.; Soper, S. A., Taylor & Francis Group: Boca Raton, FL, 2006.
- Scaled-Down Approaches for Measuring Protein-Protein Interactions, J. Fanguy, C. Henry, S. Holman, J. Valente and W. Wilson, in Protein Crystallization Strategies for Structural Genomics, ed. N. Chayen, IUL Biotechnology Series, 127-152 (2007).
- Noblitt, S. D.; Henry, C. S., "Overcoming Challenges in using Microchip Electrophoresis for Extended Monitoring Applications," to be published in Fundamental Concepts, Practical Applications, and Limitations of Capillary Electrophoresis and Microchip Capillary Electrophoresis, published by Wiley & Sons, 2013.
- Mensack, M. M.; Holcomb, R. E.; Henry, C. S., "Potential of Microfluidics and Single Cell Analysis in Metabolomics (Micrometabolomics)", Metabolomics in Practice, editors Lammerhofer and Weckwerth, published by Wiley & Sons, 2013, pgs 239-260.

HIGHLIGHTS OF WORK

"High Park fire made city air among world's worst," Bobby Magill, Fort Collins Coloradoan, January, 2013.
"High Park smoke caused breathing dangers," Pamela Dickman, Loveland Reporter-Herald, Jan. 2013
"Lab-on-a-chip tech promises revolution," Steve Lynn, Northern Colorado Business Report, March, 2013.

PATENTS

- W. W. Wilson, C. M. Garcia, C. S. Henry, "Micro-Fluidic Device for Measuring Osmotic Second Virial Coefficients," US Patent #: 6,974,678. International patent filed.
- C. D. Garcia, C. S. Henry, "Direct Detection of Carbohydrates, Amino Acids, and Antibiotics using Microchip Electrophoresis with Pulsed Amperometric Detection." Patent Issued, 2011, 10/568,975.
- L. J. DeLucas, W. W. Wilson, L. Nagy, D. Johnson, C. S. Henry, "Improved Method for Determining Crystalization Parameters and Apparatus for Use with the Same," Patent Issued, 2011, 8,080,421.
- R. Holcomb, C. S. Henry, "Microfluidic System for Biofuel Studies," Patent Application filed, 2010.
- C. S. Henry, L. R. Goodridge, J. Jokerst, "Paper-based Microspot Assay for Pathogenic Bacteria," Patent Application Filed, 2011.
- J.D. Williams, J. A. Moritz, C. S. Henry, S. D. Floyd, L. T. Van, K. Gurule, J. A. Adkins, M. J. Swigart, T. S. Bailey, L. M. Stone-roy, "TONGUE STIMULATION FOR COMMUNICATION OF INFORMATION TO A USER",US Patent # 20150283384, 2015.
- C. S. Henry, M. M. Mensack, "Microfluidic Cytochemical Staining System," US Patent issued. Pending final number.
- J.D. Williams; J.A. Moritz; Henry, C.S.; et al, "Tongue Stimulation for Communication of Information to a User," US# 9,669,159 B2, June 6, 2017.

PRESENTATIONS (more than 100 additional talks given by students):

- Recent Advances in Paper-based Sensors, Department of Chemistry, Chulalongkorn University, Bangkok, Sept. 2018.
- Paper-based Microfluidic Devices for Clinical and Environmental Diagnostics, Clinical Chemistry, Chulalongkorn University, Bangkok, Sept 2018.
- Recent Advances in Paper-based Microfluidics, KMUTT, Bangkok, Sept, 2018
- High Performance Thermoplastic Composite Carbon Electrodes, Invited Talk, Reilly/Murray Awards Symposium, Pittcon, Orlando, 2018.
- Detecting Infectious Diseases Using Paper-Based Analytical Devices, Invited Talk, Pittcon, Orlando, 2018.

- Paper Meets Plastic: Combining Paper Analytic Devices with 3D Printing for Infectious Disease Detection, Invited Keynote, MSB, Rio de Janerio, Brazil, 2018.
- Clinical and Environmental Diagnostics Enabled by Paper-based Microfluidic Devices – University of Arizona, invited seminar, May, 2017.
- Electrochemical Microfluidic Devices – Invited Keynote, Adams Institute 10th Anniversary Ceremony, University of Kansas, May, 2017.
- Electrochemical paper-based analytical devices – Invited Keynote, Electrochemical Society Meeting, New Orleans, May, 2017.
- Novel flow phenonmenon in paper-based analytical devices – Poster, Chemistry and Physics of Microfluidics, Barga, Italy, June 2017.
- Paper-based analytical devices for clinical and environmental diagnostics – Invited Plenary, 7th Microfluidics Workshop, Sao Paulo, Brazil, August, 2017.
- Paper-based and 3D Printed Microfluidic devices – Invited Lecture, Goiana University, Goiana, Brazil, August, 2017.
- Electrochemical paper-based analytical devices – Invited Keynote, International Electrochemical Society, Providence, RI, August, 2017.
- Coupling electrode arrays with paper-based analytical devices – Poster, MicroTAS, Savanah, GA, October, 2017.
- Recent Developments in Paper-based Microfluidic Devices, Invited Keynote, PACCON, Bangkok, Thailand, January, 2016.
- Rapid Screening for Infectious Disease Using Paper-Analytic Devices, Invited Talk, Pittcon, Atlanta, GA, March, 2016.
- Personal Exposure Monitoring Using Portable Samplers and paper Analytical Devices, Invited Talk, Pittcon, Atlanta, GA, March, 2016.
- Microfluidic Devices for Charactering the Composition and Health Impacts of Aerosolized Particulate Matter, Plenary Lecture, IMPACT- InSECT meeting, Nagoya, Japan, April, 2016.
- New Applications of Porous Microfluidic Devices, Invited talk, Mahidol University, Bangkok, Thailand, January 2015.
- Environmental and bioanalytical measurements enabled by porous microfluidic devices, PACCON, Bangkok Thailand, January, 2015.
- Portable Integrated Electrochemical Paper-Based Analytical Devices, Invited Talk, Pittcon, New Orleans, March, 2015.
- Quantifying Metals in Inhalable Particulate Matter using Electrochemical Paper-Based Devices, Invited Talk, Pittcon, New Orleans, March, 2015.
- Chemical Imaging using Microfluidics and Electrochemistry, Invited Lecture, University of Campinas, July 2015.
- Emerging Global Health Applications of Porous Microfluidic Devices, Plenary, Brazilian Microfluidics Workshop, Campinas, Brazil, July, 2015.
- Emerging Global Health Applications of Porous Microfluidic Devices, Invited Keynote, MicroMed-A, Capetown, South Africa, Oct, 2015.
- Electrochemical Paper-based Analytical Devices for Clinical and Environmental Diagnostics, 2015, Plenary Lecture, Lab-on-a-Chip Congress, San Diego, CA, Oct, 2015.
- Electrochemical Paper-based Analytical Devices for Clinical and Environmental Diagnostics, 2015, Plenary Lecture, Microfluidics World Congress, London, Oct 2015.
- IR transparent microfluidic devices, Invited Lecture, Pacifichem 2015, Honolulu, HI, Dec, 2015.
- Microfluidic Paper-based Sensors for Clinical and Environmental Diagnostics, Contributed Lecture, Pacifichem 2015, Honolulu, HI, Dec 2015.
- Microfluidic Paper-based Analytical Devices for Metals Determination, Chulalongkorn University, January 2015.
- Electrochemical Paper-Based Analytical Devices, Electrochemistry Gordon Conference, *Invited talk*, Ventura, CA, January 2014.
- Personal Exposure Assessment using Paper Microfluidic Devices, Pittcon, Invited Talk, Chicago, IL,

March, 2014.

- Advances in Microfluidics, University of Tasmania, Hobart Tasmania, April, 2014, Invited lecture.
- Paper-Based Microfluidic Devices, Australia-New Zealand Microfluidics Conference, Hobart, Tasmania, Australia, Plenary Lecture, April, 2014.
- Multifunctional Microfluidic Paper-Based Devices for Environmental Analysis, Invited Keynote, MicroTAS 2014, San Antonio, TX, October, 2014.
- Microfluidic approaches to the analysis of ambient aerosols, *invited lecture*, Nanyang Technical University, Singapore, January, 2013.
- Personal Exposure Assessment using Paper-Based Microfluidic Devices, *invited lecture*, Pure and Applied Chemistry Conference, BangSaen, Thailand, January, 2013.
- Analytical Chemistry using paper, pencils, and crayons, *invited lecture*, Center for Environmental Medicine, Colorado State University, Jan 2013.
- Microscale Tools for Measuring Spatiotemporal Chemical Gradients in Biological Systems, *invited talk*, SPIE Photonics West, San Francisco, CA, February, 2013.
- Personal exposure assessment to particulate metals using a paper-based analytical device, *invited talk*, SPIE Photonics West, San Francisco, February, 2013.
- Hybrid Microfluidic/Electrochemical Systems for Measuring Spatiotemporal Molecular Gradients, *Invited Talk*, Pittsburg Conference, Philadelphia, March 2013.
- Microfluidic Tools for Personal Exposure Assessment, *Invited Talk*, Medical Device Research Center, MIT, May, 2013.
- Assessing Exposure to Environmental Pollutants using Paper-Based Analytical Devices, *Invited Talk*, Gordon Research Conference on the Chemistry and Physics of Microfluidics, Pisa, Italy, June 2013.
- Hybrid Microfluidic/Electrochemical Systems for Measuring Spatiotemporal Molecular Gradients, *Invited Talk*, Lab-on-a-Chip World Congress, San Diego, September, 2013.
- Microfluidic Paper-Based Analytical Devices for Personal Exposure Assessment, *Invited Talk*, Department of Chemistry, University of Oviedo, Oviedo, Spain, November, 2013.
- Electrochemistry of Atmospheric Micro- and Nanoparticles, *invited lecture*, Pittsburg Conference on Analytical Chemistry, Orlando, FL, March, 2012.
- A Small Solution to a Big Problem: Lab-on-a-Chip Technology for Characterizing Atmospheric Aerosols, *invited plenary lecture*, Wyoming meeting of the ACS, April, 2012.
- Providing spatial and temporal distributions of biomarkers using microfluidic electrochemical biosensors, *invited talk*, ACS national meeting, San Diego, CA, April, 2012.
- Microfluidic electrochemical enzymatic sensor arrays for measuring extracellular biomarkers, *invited lecture*, Microfluidics in Biology meeting, Telluride, CO, July, 2012.
- Microfluidic tools for personal exposure assessment, *invited lecture*, Lab-on-a-Chip World Congress, San Diego, CA, September, 2012.
- Fast measurements of inherent and catalytic aerosol oxidative activity, oral presentation, AAAR, October 2012, Minneapolis, MN
- A low-cost method for quantifying metal aerosol in the field: Microfluidic paper-based analytical devices (μPAD), oral presentation, AAAR, October, 2012, Minneapolis, MN.
- Microfluidic tools for personal exposure assessment, *invited lecture*, Latin American Capillary Electrophoresis society meeting, Buenos Aires, Argentina, December, 2012.
- Improving Quantification of Microfluidic Paper-Based Analytical Devices (μPAD) by Multiple Colorimetric and Electrochemical Detection, invited talk, Pittcon, March, 2011.
- Immunoaffinity Capillary Electrophoresis Using Cleavable Tags, Pittcon, Invited Talk, Orlando, FL, 2010.
- Analysis of Ambient Aerosols using Lab-on-a-Chip Technology, Pittcon 2010, Orlando, FL Invited Talk.
- On-Line Perchlorate Monitoring by Microchip Electrophoresis, Invited Talk, Pittcon 2010, Orlando, FL
- An Introduction to Microfluidics, Chulalongkorn University, Bangkok, Thailand, Aug 2010.

- Analysis of Atmospheric Aerosols by Microchip Electrophoresis, ITP, Baltimore, **Invited Keynote Lecture**, Aug, 2010.
- Developing Sensing Chemistries for Developing Countries, Invited Talk, Florida International University, Sept, 2010.
- Electrochemistry on Paper-Based Microfluidic Devices, **Invited Keynote Lecture**, Regional Electrochemistry Meeting of Southeast Asia, Oct, 2010.
- Continuous Flow Interface for Analysis of Ambient Aerosols, AAAR, Oct, 2010.
- Analysis of Ambient Aerosols by Microchip Electrophoresis, invited talk, LACE, December, 2010.
- Multiplexed Micromosaic Immunoassays for Simultaneous Competitive/Non-Competitive Biomarker Analysis, Pittcon, 2009, Chicago.
- Analysis of Ambient Aerosols Using Lab-on-a-Chip Chemistry, Chulalongkorn University, invited talk, September, 2009.
- Immunoaffinity Capillary Electrophoresis Using Cleavable Tags, 35th Congress on Science and Technology of Thailand, Invited Lecture, Chonburi, Thailand, Oct., 2009.
- Immunoaffinity Capillary Electrophoresis Using Cleavable Tags, Eastern Analytical Symposium, Invited Talk, Somerset, NJ, Nov. 2009.
- Development of an Electrode Array Detector for Microchip Capillary Electrophoresis, RGJ Conference, Pataya, Thailand, April, 2008.
- A Small Solution to a Big Problem: Environmental Monitoring by Microchip Electrophoresis, RMUTK, Bangkok, Thailand, April, 2008.
- A Small Solution to a Big Problem: Environmental Monitoring by Microchip Electrophoresis, UT-Arlington, April, 2008.
- A Small Solution to a Big Problem: Environmental Monitoring by Microchip Electrophoresis, Denver University, April, 2008.
- Environmental Analysis by Microchip Capillary Electrophoresis, Rocky Mountain Conference on Analytical Chemistry, Breckenridge, CO, July, 2008.
- Taking the Lab Outside, CSU-Pueblo, September, 2008.
- Selective Detection Using Electrode Arrays and Microchip Capillary Electrophoresis, ACS Midwest Regional Meeting, Kearney, NE, Oct, 2008.
- Rapid Aerosol Composition Monitoring Using Microchip Electrophoresis, ACS Midwest Regional Meeting, Kearney, NE, Oct, 2008.
- Continuous Analysis of Atmospheric Aerosols Using Microchip Electrophoresis, refereed poster, MicroTAS 2008, San Diego, Oct. 2008.
- Interfacing External World Flow to a Microchip Capillary Electrophoresis Device for Improved Real-Time Aerosol Analysis. AAAR Annual Meeting, Orlando, FL, Oct, 2008.
- Continuous Monitoring of Water-Soluble Aerosol Composition with Microfluidic Devices. AAAR Annual Meeting, Orlando, FL, Oct 2008.
- Towards Real-Time Metabolic Monitoring Using MIcrochip Electrophoresis, Creighton University, Omaha, NE, Nov 2008.
- Taking the Lab Outside: Aerosol Analysis by Microchip Electrophoresis, Latin American Capillary Electrophoresis (LACE) symposium, Puerto Vallarta, Mexico, Dec, 2008.
- Rapid Biomarker Detection using the Cleavable Tag Immunoassay, MicroScale Bioseparations, Vancouver Canada, January 2007, invited talk.
- Development of An Electrode Array Detector for Microchip Electrophoresis, Midwest Regional ACS meeting, Kansas City, MO, Oct, 2007, invited talk.
- Towards Redox Metabolomics: Improving the Sensitivity and Selectivity of Microchip CE-ECD, Invited talk, Latin American conference on Capillary Electrophoresis (LACE), Guarju, Brazil, Dec 2006.
- Development of a Lab-on-a-Chip System for Characterization of Aerosols, Pittcon, Oral, Orlando, March, 2006.
- Performance Enhancing Coatings for Microchip Capillary Electrophoresis, Pittcon, Oral, Orlando, March, 2006.

- A Guided Approach to Optimizing Protein Formulations, Oral, Pittcon, Orlando, March, 2006.
- Enabling Microfluidic Technologies for Bioanalytical and Biophysical Chemistry, invited talk, University of Virginia, March 24th, 2006.
- Effects of matrix formulations on Proteorhodopsin determined by Self Interaction Chromatography (SIC), Invited Talk, Proteorhodopsin symposium, Genencor International, Palo Alto, April 3rd, 2006.
- Detection of Disease Biomarkers using Electrophoresis Microchips, invited poster, NIH/NSF workshop on Point-of-Care Technologies, April 7, 2006.
- Rapid Assays using Microfluidics: New Chemistries for Point-of-Measurement Applications," invited talk, Oregon State University, April, 2006.
- Permanently hydrophilic PDMS for microchip electrophoresis, microTAS, Tokyo Japan, Nov 2006, refereed poster.
- Rapid Multianalyte Screening using the Cleavable Tag Immunoassay, LACE, Mexico City, Mexico, Dec 2006. Invited Talk.
- Measuring Protein Self-Interaction Using Self-Interaction Chromatography, Well-Characterized Biotechnology Pharmaceuticals," Invited Plenary Lecture, January 2005.
- Measuring Antioxidants Using Microchip CE-EC, invited talk, Microscale Bioseparations, New Orleans, February, 2005.
- Proteomic and Metabolomic Analysis by Microchip Capillary Electrophoresis, invited talk, University of Washington, Seattle, April, 2005.
- Environmental Analysis using Microchip Capillary Electrophoresis, invited talk, Midwest Regional ACS meeting, Joplin, MO, Oct 2005.
- Enabling Bioanalytical, Biophysical, and Environmental Chemistry Using Microfluidics, invited talk, University of Arkansas, Fayetteville, AR, Dec, 2005.
- Rapid Measurement of Metabolites by Microchip CE-EC, invited talk, FACSS, October 2004.
- Measurement of Anions in Aerosols using Microchip CE, invited Talk, Electrochemical Society Meeting, October 2004.
- Rapid Detection of Metabolic Disease Markers Using Microchip CE-PAD, invited talk, American Electrophoresis Society, November 2004.
- Biomedical and Environmental Applications of Lab-on-a-Chip Technology, invited talk, University of Texas-San Antonio, November, 2004.
- Biomedical and Environmental Applications of Lab-on-a-Chip Technology, invited talk, College of the Ozarks, November 2004.
- Biomedical and Environmental Applications of Lab-on-a-Chip Technology, invited talk, Truman State University, November 2004.
- New Trends in Proteomic and Metabolomic Analysis using Lab-on-a-Chip Technology, invited talk, Saint Louis University, November, 2004.
- Enhanced Electrochemical Detection for Microchip Electrophoresis, poster, SmallTalk 2003, San Jose, CA, July, 2003.
- Enhanced Electrochemical Detection for Microchip Electrophoresis, invited talk, FACSS, October, 2003.
- Self-Interaction Chromatography for Rapid Protein Crystallization Screening, invited talk, FACSS, October, 2003.
- Biomedical and Biochemical Applications of Lab-on-a-Chip Technology, invited talk, Western Washington University, October, 2003.
- Chemical Control of Flow in Microfluidics, Invited Talk, Pittcon 2002, New Orleans, LA, March 2002.
- Advances in Lab-on-a-Chip Technology, FACSS meeting, October, 2002.
- Surface Modification Methods for Polymer Microchip Electrophoresis Devices, FACSS, October 2002.
- Miniaturized Total Analysis Systems: Engineering Meets Chemistry, Jackson State University, Jackson, MS, Invited Talk, January 26th, 2001.
- Biomedical Applications of Microchip Capillary Electrophoresis, University of Mississippi, Oxford, MS, Invited Talk, March, 2001.

- Conductivity Detection for Microchip Capillary Electrophoresis, Invited Talk, SmallTalk2001, San Diego, CA Aug. 29-31, 2001.
- Biomedical Applications of Lab-on-a-Chip Technology, Invited Departmental Seminar, Louisiana State University, Sept. 21, 2001.
- Biomedical Applications of Lab-on-a-Chip Technology, Invited Departmental Seminar, Auburn University, Oct. 11, 2001.
- Polymer Microfluidic Devices: Surface Chemistry and Biomedical Applications, Invited Departmental Seminar, Colorado State University, Dec. 13, 2001.
- Characterization of Electroosmotic Flow in Hybrid Glass/PDMS Capillary Electrophoresis Microchips, Poster, SmallTalk2000, San Diego, July 8-12, 2000.
- Biomedical Applications of Microchip Capillary Electrophoresis, Invited Talk, University of Memphis, September 8th, 2000.
- Microchip Capillary Electrophoresis/Electrochemistry for the Determination of Renal Function, Invited Talk, FACSS 2000, Nashville, TN, September 24-28th.
- Characterization of Hybrid Glass/PDMS Microchips for Capillary Electrophoresis/Electrochemistry, Invited Talk, 52nd Southeast/56th Southwest Regional Meeting of the American Chemical Society, New Orleans, LA, December 6-8, 2000.

SERVICE

National/International Service

Session Organizer and Presider, FACSS 2000, Nashville, TN September 24th-28th.
Section Co-organizer for Bioanalytical Chemistry, FACSS 2002, Providence, RI.
Section Organizer for Bioanalytical Chemistry, FACSS 2003, Ft. Lauderdale, FL.
NSF SBIR Panel Review, April, 2001
NSF SBIR Panel Review, April, 2002
NSF SBIR Panel Review, September, 2002
NSF MRI Panel Review, May, 2005
NIH Postdoctoral Fellowship Panel, July, November, 2003. July 2004, July 2005.
Session Organizer and Presider, Pittcon 2004, Chicago, IL, March 7-12, 2004.
Session Organizer and Presider, Midwest Regional Meeting, Joplin, MO Oct 26-28, 2005.
Session Organizer and Presider, FACSS, 2006, Orlando, FL.
Rocky Mountain Analytical Chemistry Conference, Session Chair, 2008.
NIH Panel Review, ISD panel, May, 2009, June 2011, June 2016, February 2017, October 2017.
ACS session organizer, Fall 2011 ACS meeting, Denver, CO
Editorial Advisory Board, *Analytica Chimica Acta*
Symposium organizer, Pittsburg Conference, Orlando, FL, 2010.
Recruiting Committee, Society for ElectroAnalytical Chemistry
NIH K Award Panel, October, 2013
NIH EBIT Study Section, October, 2013
Executive Technical Program Committee, mTAS Meeting, 2015, 2018-2020.
Technical Program Committee, mTAS Meeting, 2013-present.
Industrial Recruiting Committee, mTAS meeting, 2012, 2014, 2016.
NIH special emphasis panel study section, February, 2016, 2017, 2018.
Board Member, Society for Electroanalytical Chemistry. 2018-2021.

Manuscript reviews

Analytical Chemistry, Journal of the American Chemical Society, The Analyst, Lab-on-a-Chip, Electroanalysis, Chemical Communications, Analytica Chimica Acta, Journal of Chromatography A & B, Journal of Pharmaceutical and Biomedical Analysis, Journal of Pharmaceutical Sciences, *Electrophoresis*, *Talanta, Environmental Science and Technology, PLOS One, Scientific Reports, Theranostics.*

Departmental & University Service

Graduate operations committee. 2002-2003
Graduate recruiting committee, 2003-2010
Faculty search committee, 2002-2003
Cleanroom users committee, 2006-present
URI Scholarship committee, 2006
Undergraduate advisor, 2005-2010
Graduate Executive Committee, Biomedical Engineering School, 2007-present
Graduate Recruiting Committee, Biomedical Engineering School, 2008-2010
Outside Program Review Committee, CVMBS program, Colorado State University, 2008
Undergraduate recruiting committee, 2007- present
Undergraduate scholarship and awards committee, 2007-2010
Faculty search committee, 2010-2011, chair of this committee
CSU Academic Integrity special committee, 2011
Analytical Division Chair, 2011-2014
Search Committee Chair, IDRC Director Search, 2015-2016
Departmental executive committee, 2011-2018
Department Chair, 2014-2018.

STUDENTS ADVISED

Postdoctoral Associates & Visiting Faculty

Carlos Garcia, 1/2001-8/2004, Associate Professor, University of Texas-San Antonio.
Kenneth Garrison, College of the Ozarks, Point Lookout, MO, Summer 2004.
Xinya He, 04/21/2006-9/15/2007, Postdoc at the LSU Health Sciences Center.
James Kraly, 4/2007-08/2009, Assistant Professor, Keene State College
Carlos Gonzalez 11/2007-10/2010, Staff Scientist.
David Weiss, 08/2009-12/2009, Associate Professor, University of Colorado-Colorado Springs, Visiting Professor
Jason Emory, Pfeiffer University, 3/2010-8/2013
Kanokporn Boonsong, 11/2010-11/2012
Meghan Mensack, 11/2010-4/2013, Accelr8 Technology
Scott Noblitt, Staff Scientist, 2012-2016, CHD Bioscience
Erin Gross, 08/2011-12/2011, Associate Professor, Creighton University, Visiting Professor
Nathan Meredith, 4/2014-8/2016, Faculty Member, University of Central Arkansas
Monpichar Sris-Art, 7/2015-7/2016, Faculty member, Chulalongkorn University
Robert Channon, 11/2015-7/2018, Research Scientist, Imperial College, London
Yuanyuan Yang, 4/2016-06/2017, Research Scientist

Students Advised (Graduate)

Yan Liu, M.S. Spring 2001 (MSU), Ph.D. 2005 (CSU) (Assistant Professor, Northern Michigan University)
Joseph C. Fanguy, M.S. (MSU), December, 2002 (Technology Transfer Officer, MSU)
Yali Jia, M.S., December, 2002 (MSU) (Lab Coordinator, Georgia Southern University)
Joseph Valente, Ph.D., 2006, Research Chemistry, Novartis
Meghan Caulum, Ph.D., 2007, Research Assistant Professor, CSU.
Jon Vickers, Ph.D., 2007, Research Chemist, Advanced MicroLabs, LLC
Lauren Ramsey, M.S., 2006, Biochemistry – Graduate School, Univ. Washington (Chemistry)
Jaimie VanBuren, M.S., 2009, Array Pharmaceuticals.
Luke Mason, M.S., 2009, Eco Consulting, Durango.
Brian Dressen, Ph.D. 2008, Jacobs Engineering
Robby Payne, Ph.D., 2008, Legacy Biosciences
Brian Murphy, Ph.D., 2009, Legacy Biosciences
Ryan Holcomb, Ph.D., 2010, Legacy Biosciences
Scott Noblitt, Ph.D., 2010, Staff Scientist, CSU

Qian Guan, Ph.D., 2012, Instructor.
Mallory Mentele, Ph.D., 2012, Instructor, CSU
Jana Gertsch, Ph.D. 2012, Center for Environmental Medicine.
Megan Easterly, Ph.D., 2013, deceased.
Yupaporn Saamenoi, Ph.D., 2013, Assistant Professor, Burapha University, Thailand.
Julie Denham, M.S., 2014, Chemist, Tolmar
Brynson Lehmkul, M.S., 2015, Chemist, Sausage Queen, Aspen, CO
David Cate, Ph.D. 2015, Biomedical Engineering, Engineer, Global Good, Seattle, WA
John Wydallis, Ph.D., 2016, Access Sensor Technologies
Jacyln Adkins, Ph.D. 2016, Optienz
Rachel Feeny, Ph.D. 2016, Revelant
Chase Gerold, Ph.D. 2018, Instructor CSU
Jaruwan Mettapoonpitak, Ph.D. 2018 Assistant Professor
Kevin Klunder, Ph.D. 2018, Postdoc
Michael Nguyen, Ph.D. 2018, Postdoc)
Casey Quinn, Ph.D. 2018, AST
Katharine Boehle, Ph.D. 2018, Biofire
Zarina Munshi, M.S. 2018, Instructor
Katherine Berg, Ph.D. Candidate, Chemistry (4th year)
Alyssa Kava, Ph.D. Candidate, Chemistry (3rd year)
Eka Noviana, Ph.D. Candidate, Chemistry (3rd year)
Sidhartha Jain, Ph.D. Candidate, Biomedical Engineering (2nd year)
Cody Carrell, Ph.D. Candidate, Chemistry (2nd t year)
Cynthia McCord, Ph.D. Candidate, Chemistry (2nd year)
Ruth Menger, Ph.D. Candidate, Chemistry (1st year)
Alec Richardson, Ph.D. Candidate, Biomedical Engineering (1st year)
Kaylee Clark, Ph.D. Candidate, Chemistry (1st year)
Zach Call, Ph.D. Candidate, Chemistry (1st year)

Students Advised (Undergraduate)
Kristie Armstrong (@ MSU), B.S. 2001 – Biochemistry Division Director MS Public Health Laboratory
Chris Easley (@MSU), B.S., 2002 – Assistant Professor, Auburn University
Daniel Leslie, B.S. 2005 – Postdoctoral Fellow, Wyss Institute, Harvard University
Thomas Shaw, B.S. 2005 – Medical School
Michelle Mora, B.S. 2005 – Medical School
Melissa Weston, B.S. 2006 – PhD, University of Arkansas
Alexis Crawford, B.S. 2007 – Graduate School, University of Utah
Anne Regel, B.S. 2007 – Graduate School, University of Kansas
Mike Morrison, B.S. 2007, Lead Chemist, Xcel powerplant, Colorado Springs
Samantha McDonnell, 2006-2008, UC-Davis Vet School.
Lee Wise, 2006-2008, Medical School
Amanda Ehlenbeck, 2007-2008, Bend Chemicals, Bend Oregon
Daniel Nelson, B.S. 2010 – Graduate School, University of Virginia
Roy Miller, B.S. 2010, Medical School
Becky Ewing, 2010-2011
Rachel Speights, B.S., 2011 – Chemist at SGS in Denver
Josephine Cunningham, 2010-2012, B.S., Graduate School, University of Texas
Quinn Joganich (chemical engineering), 2010-2011
Jaime Meier (chemical engineering), 2011-2013
Pantila Panyameesamer, 2011, summer researcher from Chulalongkorn University, Thailand
Natcha Suphalakorn, 2011, summer researcher from Chulalongkorn University, Thailand
Eric Martin, 2012
Jason Jurca, 2012
Cody Eslinger, 2012-2013, BS, Graduate School, University of Texas

Laurelle Turner, 2013-2015, BS, Chemical Engineering
Briana Chamberlain, 2013-2015
Nicole Pouissant, Biomedical Engineering, 2012-2015
Marie Barry, 2014, Chemist at Avago in Fort Collins
Holly Conger, 2013-2014
Katrina Puck, 2014-present
Sarah Boyle, 2014-2015
Ryan Ash, 2014-2015, Chemist at Tolmar
Alison Bailey, Biomedical Engineering, 2014-2015
Emilio Isasi, 2015, visiting student from Hope College
David Mast, 2015-2016
Chloe Beardsley (2016-present)
Luna Martinez (2016-2017)
Nicholas Bruns (2018-present)
Chloe Chou (2018-present)

High school Students Advised
Brandon Ohr, Woodlin High School, 2005-2006
Ian Kennedy, Poudre High School, 2008.
Nathan Henry, Homeschooled, 2010
Sydney Kelley, Poudre High School, 2016-2017
Elijah Henry, Homeschooled, 2016-present

FUNDED GRANTS & CONTRACTS

Completed
"Development of a Ground-based Water Analyzer for Remote Sensing of Nitrates and Phosphates in Surface Water." United States Geological Survey, March 1, 2000 – February 28, 2001. $24,213.

"A Microfluidic Filtration System," Center for Biophysical Sciences and Engineering, University of Alabama-Birmingham, June 1-Aug. 1, 2002, $19,500. Henry, PI

"Workshop on Electrochemical Biosensors," Army Research Office, October, 2002, $20,000, Henry, PI

"Exploring the Role of Insulin-like Growth Factor-I in Cardiovascular Disease: Development of a Microchip Based Assay," American Heart Association, July, 2003-June 2005, $110,000, Henry, PI.

"Measurement of Second Virial Coefficients" HTD Biosciences, contract, March 1, 2004 – Dec. 31, 2004, $50,000. Henry, PI.

"Analysis of Protein Formulation Stability," Legacy Biosciences, contract, $84,000, 01/01/2005-12/15/2005.

"Rapid Measurement of Anions by Microchip CE," U.S. Army, 04/01/2005-12/31/2005, $47,236. C. Henry, PI.

"Studying Protein-Protein Interactions," Genencor, Unrestricted Gift, $41,560 09/01/2005.

"Study of Protein Interactions in Pharmaceutical Formulations," Legacy Biosciences, multiple contracts, $80,567.

"Studying Protein Interactions in Macromolecular Formulations," Legacy Biosciences, unrestricted gift, $12,000.

"Microfluidic Sensor Chips for Movement, Separation, and Detection of Charged Species," US Army Corp of Engineers, Henry, PI $179,138, 04/2005-12/2008.

"Research Study," Dyax Corporation, $50,002, 04/2007-03/2008

"Research Study," Danisco International, $50,002, 05/2007-04/2008

"High Throughput Screening of Protein-Protein Interactions by Microchip SPACE." NASA, Sept. 1, 2001 – Nov. 30, 2004. $462,000. Wilson, PI

"Near Real-Time, Microchip Assay of Aerosol Chemical Composition," NASA, SBIR subcontract, 1/16/2004-7/19/2004, $23,300. Collett, PI (45% split to CSH).

"Measurement of Inorganic Ions in Atmospheric Particles," EPA, SBIR subcontract, 3/1/2004-9/1/2004, $23,300. Collett, PI (45% split to CSH).

"Measurement of Inorganic Ions in Atmospheric Particles," EPA SBIR phase II subcontract, 04/01/2005-06/30/2006, $100,000. PI J. Collett (45% split to CSH).

"Mapping the Crystallization Slot for Membrane Proteins," NIH, R21GM075816, 01/2006-12/2007, $344,544. PI, P. Loll (CSU portion $108,195).

"Detection of Homocysteine by Microchip CE-EC," NIH, SBIR phase I, $100,000, 06/2006-12/2006. Willard, PI (CSU portion, $33,100).

"Multi-analyte Physiological Optical Waveguide Sensing," NIH R01 EB000726, Dandy, PI, 09/2002-08/2006, $217,000 annual to Chemistry (joint with Grainger, 40% CSH).

"Detection of Creatinine by Microchip CE-ECD," NIH, SBIR phase I, $100,000, 09/2006-08/2007. Willard, PI (CSU portion $25,000).

"Measurement of Organic Acids in Aerosols by Microchip CE," DOE SBIR phase II subcontract, 07/01/2005-12/30/2008, $257,000, PI J. Collett (45% split with CSH).

"A Microchip Sensor for Glycated Hemoglobin," NSF SBIR Phase II, $468,024, 03/2006-09/2008. Willard, PI (CSU portion $66,455).

"SBIR: Microchip-Based Perchlorate Analyzer for Water Remediation Monitoring and Field Assessments," NIH, $115,000 (CSU $33,655). Willard, PI, 9/1/2008 – 8/31/2009.

"Rapid Metabolomic Screening using Microchip CE-ECD," NIH, 1 R01 EB004876-01A1, $602,056, 08/2006-07/2010

"Microchip Assay for Cardiovascular Disease Markers," NIH SBIR Phase II, $750,000 ($139,149 to CSU), 09/01/2008-08/31/2010.

"Bioscience Discovery Grant: Glucose/Xylose Sensor for Cellulosic Biomass Processing," CSU/State of CO, $34,000, 05/2009-04/2010.

"Development of a caffeine biosensor," Private funding source, $33,000.

"MicroBioGenerator," Department of Energy, 01/2009-12/2009, $84,000.

"SERDP SEED: Rapid Perchlorate Determination," U.S. Army Research Office, $81,293. 01/2009-12/2010
"In Silico Biomimetic Sensor for Monitoring Industrial Exposure," ARO, W9132T-07-2-0012, $260,000, 10/2006-12/2011

"Design and Testing of a Microchip-Based System for In Situ Aerosol Composition Testing," NSF, ATM-0737201, $563,105, 1/1/2008-12/30/2011

"SBIR Phase II: Determination of Perchlorate in Drinking Water," NIH, CSU subcontract from Advanced MicroLabs, LLC, $67,324.

"Safeport: A Modular Approach to Fieldable Microfluidic Sensors," US Army Corps of Engineers, $210,000. 04/2010-03/2013

"Paper-Based Microfluidic Device for Detection of Foodborne Pathogens," Infectious Disease Supercluster grant, CSU, $105,000. 04/2010-06/2011

"ARRA - Compact Instrument for Time-Resolved Airborne Particle Chemistry," NIH, $692,000 (Collett PI), 08/2010-09/2013.

"Rapid Detection of Aerosolized Heavy Metals," MAP ERC, $20,000 10/2010-9/2012.

"AML: Analysis of Anions for the Power Industry," NSF SBIR subcontract, $150,000 ($24,000 to CSU). 07/2011-12/2011

"Transformative Improvements in Field Ready Biosensor Platform Development through Protein Assembly Engineering and Device Integration," Infectious Disease Supercluster, CSU, $95,000 (Fisk, PI).

"A portable, fast sensor for oxidative capacity of particulate air pollution," NIEHS, R21ES019264-01, $396,824. 08/2010-07/2013

"Development of a Microfluidic Paper Analytical Device (uPAD) for Airborne Metals," NIOSH, 1R21OH010050-01A1, $398,302, 08/01/2011-07/31/2013.

"Electrochemical Paper-based analytical device for detection of transition metals," NIH, $45,000, 08/2014-03/2015

"Studies of Oil Recovery," British Petroleum, $3,600,000, 10/1/2012-10/1/2017

"On-line Aerosol Monitoring," EPA through Microchemica, $23,999, 1/1/2015-12/30/2018

"Development of Metal Detection Chemistry," NSF through AST, $115,000, 12/2015-11/2017.

"Development of a paper-based sensor to detect viral infections," State of Colorado, $80,000, 4/2016-4/2018.

"Development of a Ca selective electrode for in vivo measurements," CCTSI, $25,000. 7/1/2017-6/30/2018.

Current
Legacy Biosciences, "Research Contract," $500,000 total on-going support.

“Low-Cost Versatile Sampler for Personal PM Exposure by Microenvironment,” NIOSH (CDC) $2,073,381.00, 1/1/2015-12/30/2018.

“Development of Biosensors to Detect Pathogens in Environmental & Wildlife Samples,” USDA-NWRC, $300,000, 8/16/2015-9/30/2018.

“Rapid assessment of particulate matter composition using a low-cost sampler and paper-analytic devices,” NIH, $1,827,140, 1/1/2015 – 12/30/2019

“Thermoplastic electrodes for sensing and batteries,” NSF, $374,000. 9/1/2017-8/31/2020.

“Electrochemical paper-based analytic devices for personal exposure assessment,” NIH through AST, $275,000, 9/15/2017-9/14/2019.

TEACHING

Colorado State University

Clinical Chemistry, Non-majors Quantitative Analysis, Majors Quantitative Analysis, Introduction to Chemical Analysis, Chemical Separations, Instrumental Analysis, Bioanalytical Chemistry, Mass Spectrometry, and Biosensors (In Biomedical Engineering).

Chulalongkorn University

Introduction to Microfluidics

Short Courses

“Microfluidic Paper-Based Analytical Devices,” MSB, Rio de Janeiro, Brazil, February, 2018.

“An introduction to Paper-Based Microfluidics,” MicroTAS, San Antonio, TX, October, 2014.

“An introduction to Paper-Based Microfluidics,” Australia-New Zealand Microfluidics Meeting, Hobart, Tasmania, Australia, April, 2014.

“An introduction to Paper-Based Microfluidics,” MicroScale Bioseparations, Charlottesville, VA, March, 2013.