

Seattle Pacific University Department of Chemistry and Biochemistry 206 – 281 – 2102 piercek@spu.edu

2007 – Ph.D. Analytical Chemistry, University of Washington (UW), March 16, 2007

2002 – B.S. Chemistry, Seattle University (SU), degree certified by American Chemical Society (ACS)

**Professor of Chemistry** Seattle Pacific University (2008 – present) Teaching: Analytical Chem (CHM 3225, 3227, 3228, 3229), General Chem (CHM 1211, 1212), Intro to Research Methods (CHM 2960), University Seminar (USEM 1000), Intro to Nature of Science (CHM 1110), Introductory Inorganic Chem (CHM 2540), Undergrad Research (CHM 4960), University Colloquium (UCOL 1000). Advise and mentor Undergraduate Research Assistants (CHM 4960). Research: Develop chemometrics for multidimensional chromatography, applications for differential mobility spectrometry, identify and quantify toxins in marine organisms.

**Visiting Assistant Professor** Seattle University (Jan 2007 – July 2008) General Chemistry and Quantitative Analysis.

**Graduate Research Assistant** University of Washington (Sep 2002 – Feb 2007) Advisor: Robert Synovec, Ph.D. Developed chemometric tools for chromatographic retention time alignment, feature selection, data mining, and pattern recognition for analysis of GC-FID, GC-MS, GC×GC, and GC×GC-TOFMS separations. UW Research Associate (2007)

**Consulting** (2007 – 2016): Chevron Energy Technology Co. (2009–2012), Amgen Inc (Summer2007), Authentix Inc (2010), New Mexico State University with Prof. Gary Eiceman (2013 – 2016, National Science Foundation Grant No. CHE-1306388)

**Publications** (Undergraduate Research Assistants are underlined; a note indicates if work was invited or peer-edited, otherwise all works underwent the traditional anonymous peer-review):

30. **KM Pierce**, T Trinklein, J Nadeau, RE Synovec Chapter 20: “Data Analysis of Gas Chromatography” in Gas Chromatography 2<sup>nd</sup> ed. Ed. Colin Poole, Oxford, Elsevier, 2021. *Peer-edited*.
29. PE Sudol, **KM Pierce**, SE Prebhalo, KJ Skogerboe, BW Wright, RE Synovec. **Analytical Chimica Acta** “Development of Gas Chromatographic Pattern Recognition and Classification Tools for Compliance and Forensic Analyses of Fuels: A Review” (2020) 1132:157-186.
28. D Pasupuleti, GA Eiceman, **KM Pierce**. **Talanta** “Classification of biodiesel and fuel blends using gas chromatography–differential mobility spectrometry with cluster analysis and isolation of C18:3 me by dual ion filtering” (2016) 155:278-288.
27. DK Pinkerton, **KM Pierce**, RE Synovec. Series: **Data Handling in Science and Technology**. Volume 30: *Resolving Spectral Mixtures*. Chapter 10: Chemometric Resolution of Complex Higher Order Chromatographic Data with Spectral Detection, Ed. Cyril Ruckebusch, 2016, Elsevier, Oxford, ISBN-13: 978-0444636386. *Peer-edited*.
26. Dedeepya Pasupuleti, **KM Pierce**, Gary Eiceman. **Journal of Chromatography A**. (2015) 1421: 162-170.
25. ML Strawn, ET Lunsford, LE Larsen, MM Moran, V Allbritton, RP Ferrer, **KM Pierce**. **Environmental Analytical Chemistry** (2015) Volume 2 Issue 4: 148-153. <http://dx.doi.org/10.4172/jreac.1000148>.
24. **KM Pierce**, BA Parsons, RE Synovec. Series: **Data Handling in Science and Technology**. Volume 29: *Fundamentals and Analytical Applications of Multi-way Calibration*. Chapter 10: Pixel-level data analysis methods for comprehensive two-dimensional chromatography, Ed. AC Olivieri, 2015, Elsevier, Oxford, ISBN-13: 9780-444635273. *Peer-edited*.
23. RP Ferrer, ET Lunsford, C Candido, Madison L Strawn, **KM Pierce**. **Integrative and Comparative Biology** (2015) icv010v1 doi: 10.1093/icb/icv010.
22. **KM Pierce**, JC Hoggard. **Analytical Methods** (2014) 6 (3): 645 – 653.
21. **KM Pierce**, B Kehimkar, L Marney, JC Hoggard, RE Synovec. **Journal of Chromatography A** (2012) 1255: 3–11.
20. Ying Luo and **KM Pierce**. “Development towards Rapid and Efficient Screening for High Performance Hydrolysate Lots in a Recombinant Monoclonal Antibody Manufacturing Process” **Biotechnology Progress** (2012) 28: 1061–1068.
19. Stephen P. Schale, Trang M. Le, **KM Pierce**. **Talanta** (2012) 94: 320–327.
18. **KM Pierce**, JS Nadeau, RE Synovec. *Handbook of Separation Science: Gas Chromatography* Chapter 17: Data Analysis Methods, Ed. Colin F. Poole, 2012, Elsevier, Oxford, ISBN 9780123855404. *Peer-edited*.
17. **KM Pierce**, Rachel E. Mohler. **Separation & Purification Reviews** (2012) 41, 2: 143–168.
16. Ying Luo, **KM Pierce**. **Galenics, Amgen Process and Product Development Journal**, Vol 7, November 2012: 25–36.
15. **KM Pierce**, Stephen P. Schale, Trang M. Le, Joel C. Larson. **J. Chemical Education** (2011) 88: 806–810.
14. **KM Pierce**, Stephen P. Schale. **Talanta** (2011) 83: 1254–1259.
13. **KM Pierce**, E Bramanti, M Onor, R Spiniello, A Kangas, KJ Skogerboe, RE Synovec. **Talanta** (2010) 80: 1445–1451.
12. **KM Pierce**, Jamin Hoggard, Rachel Mohler, Robert E. Synovec **Journal of Chromatography A** (2008) 1184: 341–352.
11. Eric Burnham, L Bender, G Eiceman, **KM Pierce**, S Prasad. **Journal of Wildlife Management** (2008) 72: 792–797.
10. S Prasad, **KM Pierce**, H Schmidt, JV Rao, R Güth, RE Synovec, GB Smith, GA Eiceman, **The Analyst** (2008) 6: 760–767.
9. S Prasad, **K Pierce**, H Schmidt, J Rao, R Güth, S Bader, R Synovec, G Smith, G Eiceman. **The Analyst** (2007) 132: 1031–1039.
8. **KM Pierce**, Bob W. Wright, and Robert E. Synovec. **Journal of Chromatography A** (2007) 1141: 106–116.

7. Rachel Mohler, K. Dombek, J. Hoggard, **KM Pierce**, E. Young, Robert Synovec. **The Analyst** (2007) 132: 756–767.
6. **KM Pierce**, JC Hoggard, J Hope, P Rainey, et al. **Analytical Chemistry** 78 (2006) 14: 5068–5075.
5. N Watson, M VanWingerden, **KM Pierce**, B. Wright, R. Synovec. **Journal of Chromatography A** 1129 (2006) 1: 111–118.
4. **KM Pierce**, Janiece L. Hope, Jamin C. Hoggard and Robert E. Synovec. **Talanta** 70 (2006) 4: 797–804.
3. **KM Pierce**, Janiece Hope, Robert E. Synovec. **Lab Plus International** (November 2005) *Invited, peer-edited.*
2. **KM Pierce**, Lianna F. Wood, Bob W. Wright, and Robert E. Synovec. **Analytical Chemistry** 77 (2005) 23: 7735–7743.
1. **KM Pierce**, J.L. Hope, K.J. Johnson, B.W. Wright, R.E. Synovec. **Journal of Chromatography A** (2005) 1096: 101–110.

≥ 1600 Literature Citations according to Google Scholar. <https://scholar.google.com>

#### Awards, Certificates, Honorary Titles:

Tenured Fall 2014, Promoted to Associate Professor Fall 2013, Promoted to full Professor Fall 2018  
 Publication #12 recognized as one of the “Top Cited Articles from 2008 – 2009” published by **J. Chromatogr. A**.  
 “Highly Cited Author Award 2007 – 2009” from **Journal of Chromatography A**  
 Best poster – Eigenvector University April 24, 2006  
 Best poster – Center for Process Analytical Chemistry conference May 3, 2005  
 Boris Weinstein Fellow 2002-2003, University of Washington, for academic excellence  
 Seattle University Undergraduate Award in Analytical Chemistry (2001), SU Bannan Scholar (2001),  
 Washington Scholar 1998 – 2002 for academic excellence, SU Presidential Scholar 1998 – 2002 for academic excellence  
 Commissioned June 3, 2017 by Cascade Fellows with Bethany Community Church and Fuller Seminary  
 2017-18 **Club Advisor of the Year** awarded by Associated Students of Seattle Pacific to SPU ACS Chemistry Club Advisor  
 Awarded an MJ Murdock Charitable Trust 2019 Research Start-Up Grant for New Science Faculty Program  
 Visiting Scholar in the Department of Chemistry at University of Washington Nov 1, 2020 through Oct 31, 2021  
 Publication #29 was chosen as the **cover article** for its 2020 issue of **Analytica Chimica Acta**.

#### Service to the Scientific Community and to SPU:

Mentor and Advise Undergraduate Research Assistants (2004 – current)  
 Invited reviewer for anonymously peer-reviewed research journals, approximately once a month (2006 – current)  
 Invited reviewer for textbook chapters (2008 – current)  
 Faculty Advisor of SPU Chapter of Student Affiliates of the ACS (2009 – current)  
 Academic Advisor (2009 – current)  
 Annual Science Workshop Teacher (2000 – 2007), Expanding Your Horizons Conference at Seattle University  
 POGIL workshop June 20-22, 2008 Linfield College, McMinnville, OR  
 Member of SPU Admissions, Advising, and Retention Committee (AARC) (Fall 2011 to Spring 2014),  
 Member of SPU Curriculum Committee (Fall 2017 to Spring 2020)  
**Co-Chair** of SPU Curriculum Committee (Fall 2018-Spring 2020)  
**Chair** of AARC Faculty Committee (Fall 2014-Spring 2016), Replacement Chair Spring 2014  
 Ways of Knowing Committee Representative for Dept of Chemistry and Biochemistry, 2011 – 2012  
 Puget Sound Section ACS Booth Volunteer at Seattle Science Center’s Annual Science Festival 2012 and 2013  
**Co-Chair** of 2013 Puget Sound Section ACS Undergraduate Research Symposium, Seattle, WA April 27, 2013  
 Search Committee Faculty Rep for SPU VP EMM Spring 2014  
 SPU Faculty Council Member Spring 2014-Spring 2016, Winter-Spring 2019  
 Moderated Analytical Chemistry Session of the Technical Program at NORM ACS June 26, 2012  
 Dept representative at multiple SPU Admissions Events every year (2008 – current)  
**Chair** of Dept of Chemistry and Biochemistry 2019-current  
 Cross Campus Interview Team member 2019-current  
 Faculty Status Committee Member 2021-2024

#### Scholarly Lectures:

28. ACS 255th National Meeting. Invited Speaker, 3/18-22/2018, **New Orleans, LA** “Chemometrics and Biofuels”
27. Pittcon, Internat’l Conf, Invited Speaker & Panelist, 2/27/2018, **Orlando, FL** “Education: GC-MS and Chemometrics”
26. SWAP 2018 at UW, 1/26/2018, **Seattle, WA** “Introducing Undergraduates to Chemometrics”
25. ACS Northwest Regional Meeting (NORM), 6/26/2012, **Boise, ID** “Predicting feedstock...using chemometrics...”
24. Spring Mentoring Tea, **SPU**, 05/23/2012 “Undergraduate Research and a Parable”
23. SPU Chemistry, Biology, and Physics Senior Capstone Seminar, 4/16/12, **Seattle, WA** “Chemometrics”
22. Day of Common Learning Break-out Session, 10/19/2011, **Seattle, WA** “...Science and Faith...”
21. SPU Faculty Retreat Break-out Session, 9/12/2011, **Camp Casey, WA** “Energy and Fuels”
20. SPU Invited Speaker, 1/18/2008, **Seattle, WA** “Analyzing Complex Samples Using...”
19. Xavier University, 11/09/2007, **Cincinnati, OH** “Using Chemometrics to Analyze Chromatographic Data.”
18. Amgen Inc, 9/13/2007, **Longmont, CO** “Screening peptone lots using chemometrics and NMR.”

17. Amgen Inc, 8/24/2007, **Thousand Oaks, CA** "Screening peptone lots using chemometrics and NMR."
16. New Mexico State Univ., 12/06/2006, **Las Cruces, NM** "Interpreting Complex Data from One-Dimensional and..."
15. CPAC Meeting, 11/07/2006, **Seattle, WA** "...Advancements in High-Speed GC, Multi-dimensional GC, and Data Analysis."
14. Chevron Energy Technology Co, 11/01/2006, **Richmond, CA**, "Complex Data from Multidimensional Chromatography"
13. Pacific Northwest National Laboratories, 9/06/06, **Richland, WA**, "Advances in Gas Chromatography and Chemometrics"
12. ExxonMobil, 7/10/2006, **Clinton, NJ**, "Extracting Information from Chromatographic Separations of Complex Samples."
11. 54th ASMS Conf, 5/31/06, **Seattle, WA**, "Fisher Ratio Algorithm for Third Order Separation Instr'n Data to Identify..."
10. CPAC Meeting, 5/09/06, **Seattle, WA** "Addressing the Needs of Process Analysis through Advancements in High-Speed..."
9. CPAC Meeting, 11/08/2005, **Seattle, WA**, "Chemometrics for multidimensional chromatographic analysis."
8. Federation of Applied Chemistry and Spectroscopy Societies, 10/10/2005, **Quebec City, Canada**, "Chemometrics..."
7. DOW Chemical Co., 6/07/2005, Live web broadcast worldwide from **Seattle, WA**, "Gas Chromatography: Advances in..."
6. deCODE Genetics, Inc, 5/31/2005, **Bainbridge Island, WA**, "Chemometric Analysis of Gas Chromatographic Data..."
5. Int'l Symposium on Capillary Chromatography and Electrophoresis, 5/24/2005, **Las Vegas, NV**, "Chemometric Analysis..."
4. CPAC Meeting, 5/03/2005, **Seattle, WA**, "Chemometrics for multidimensional chromatographic analysis."
3. CPAC Meeting, 11/09/2004, **Seattle, WA**, "Process GC with Chemometrics."
2. Pacific Northwest National Laboratory, 11/01/2004, **Richland, WA**, "Objective Classification of Gasoline Samples..."
1. Univ. of Wash. Dept. of Chemistry, 2/23/2004, **Seattle, WA**, "Fluorescence Polarization to Determine Fetal Lung Maturity."

≥ 40 Other Presentations (\*Presentations delivered by Undergraduate Research Assistants are starred):

\*21<sup>st</sup> Annual Erickson Conference 5/5/23. Poster presentation by Jack Nguyen

\*28th Murdock College Science Research Conference 11/8/19. Poster presentation by Israel Zamudio

\*BioCORE Scholars Research Week Symposium 6/14/19. Oral presentation by Z. Bailey, V. Bowman, A. Bashmail  
Guest lecturer for Women in Science Course at SPU April 24, 2019 "Women in Chemistry"

\*BioCORE Scholars Research Week Symposium 6/14/18. Oral presentation by A. Gonzales, S. Jenkins, I. Zamudio

\*16<sup>th</sup> Annual Erickson Conference at SPU, 5/11/18. Oral presentation by Emily Deveau ('18). Identification and Quantification of Paralytic Toxins in Puget Sound Shellfish.

\*Murdock College Science Research Conference. 11/10/17. Oral presentation by Emily Deveau ('18). Quantification of Paralytic Toxins in Puget Sound Shellfish.

\*ACS 254th National Meeting, **Washington DC**. 8/20/17. Poster presentation by E Deveau, E Frame, N Buzitis, S Bass, R Ferrer, and KM Pierce. Identification and quantification of paralytic toxins in Puget Sound marine organisms. Undergraduate student representatives also presented a poster for SPU Chapter of Student Affiliates of the ACS.

\*15<sup>th</sup> Annual Erickson Conference at SPU, 5/12/17. Oral presentation by Hong Dao Nguyen. Math Meets Chemistry: Principal Component Analysis

ACS Northwest Regional Meeting, **Anchorage, AK**. 6/26/16. Poster presentation by KM Pierce. Classification of biodiesel and petrodiesel blends using gas chromatography-differential mobility spectrometry and dual ion filtering.

\*14<sup>th</sup> Annual Erickson Conference at SPU, 5/13/16. Poster presentation by Angie Pell. Quantification of copper and lead in moss from Puget Sound region parks using flame atomic absorption spectroscopy and the standard addition method.

249<sup>th</sup> ACS National Meeting, **Denver, CO**. 3/24/15. Poster presentation by KM Pierce. "Identification and quantification of paralytic toxins in Puget Sound marine organisms.

24<sup>th</sup> ISIMS Conference, July 2015. D. Pasupuleti, K.M. Pierce, G.A. Eiceman. "Gas Chromatography and High Speed GC with Tandem Differential Mobility Detectors for Selective Detection of Methyl Linolenate and Fatty Acid Alkyl Esters in Biodiesel."

Pittcon 2015, **New Orleans, LA**. 3/8/15. Oral presentation by G.A. Eiceman; co-authors M.R. Menlyadiev, D. Pasupuleti, K.M. Pierce, "GC with Tandem Differential Mobility Spectrometry"

249<sup>th</sup> National ACS Meeting, **Denver, CO**. 3/23/15. Undergraduate student representatives presented the poster for SPU Chapter of Student Affiliates of the ACS.

\*Murdock College Science Research Conference. 11/15/14. Oral presentation by Madison Strawn (F14). Quantification of Paralytic Toxins in Puget Sound Marine Organisms.

\*Murdock College Science Research Conference. 11/14/14. Camillo M. Candido, Karisa M. Pierce, Ryan P. Ferrer. Poster. "Saxitoxin and the ochre sea star: Molecule of keystone significance and a classic keystone species"

- \*SPU Summer Research Institute 2014. 8/21/14. Oral presentation, Paralytic Shellfish Toxins, by Madison Strawn (F14).
- \*SPU Summer Research Institute 2013. 8/16/13. Oral presentation on Shellfish Toxin project by Victoria Albritton.
- \*245<sup>th</sup> National ACS Meeting, **New Orleans, LA**. 4/8/13. ACS SPU Chapter poster with 5 undergraduate representatives.
- \*MJ Murdock Charitable Trust Research Conference at **Whitman University**, 10/26/2012. Meredith Moran (F12)
- \*10<sup>th</sup> Annual Erickson Conference at **SPU**, 5/11/12. Two posters for projects by Brittany Raab ('12) and Trang M. Le ('12)
- \*Puget Sound Reg. ACS Undergrad Research Symposium, **Seattle University**, 4/28/12. TM Le ('12), B Raab ('12)
- \*MJ Murdock Charitable Trust Research Conference at **Seattle University**, 11/11/11. Trang Le ('12) & Lauren Larsen ('12)
- \*Ninth Annual Erickson Conference, 5/13/11, **SPU**. Oral presentation by Research Assistant Stephen Schale ('11)
- \*Ninth Annual Erickson Conference, **SPU**, 5/13/11. Three posters by Brittany Raab, Trang Le, and Stephen Schale
- \*241<sup>st</sup> National ACS Meeting, **Anaheim, CA**, 3/28/11. Two research posters by Trang M. Le, Stephen P. Schale, Brittany Raab. In addition, other undergraduate student representatives presented the SPU ACS Student Section poster.
- \*Murdock Symposium 11/13/10 Linfield College, **McMinnville, OR**. Two posters by TM Le, SP Schale, & B Raab
- \*Eighth Annual Erickson Conference at **SPU**, 5/14/10. Separate projects and posters by Trang M. Le and Stephen P. Schale
- \*Puget Sound ACS at Central Washington University, **Ellensburg, WA**. 5/1/10. Research poster by Stephen P. Schale
- \*239<sup>th</sup> National ACS Meeting, **San Francisco, CA**. 4/22/10. ACS SPU Chapter poster with 4 undergraduate representatives.
- \*Murdock Symposium 10/31/09 at Gonzaga University, **Spokane, WA**. Research project poster by Stephen P. Schale
- \*August 2009 SPU Summer Research Institute Oral Presentation by Damian Rowe. Peak-Finding Algorithm
- \*7<sup>th</sup> Erickson Conference 5/8/09, **Seattle, WA**. SPU. Three posters by A Kangas ('09), KL King ('10), SP Schale ('11).
- \*Puget Sound ACS Undergraduate Research Conference at University of Puget Sound 5/2/09, **Tacoma, WA**. Stephen Schale
- Eigenvector University 5/6/08, **Seattle, WA**, "Chemometric Analysis of Complex NMR Spectral Data."
- 23<sup>rd</sup> Int. Conf. on Yeast Genetics and Molecular Biology 7/1-6/07 Melbourne, Australia. ET Young, RE Mohler, KM Dombek, EM Humston, JC Hoggard, KM Pierce, RE Synovec "Comparison of Wild Type and Mutant Yeast Metabolomes Using Comprehensive GC×GC-TOFMS Data," Poster #13-35. *in absentia*
- Dalian International Symposia and Exhibition on Chromatography (DISEC), which included the 4th International GC×GC Symposium, Dalian, China, 6/4/07. "Discovery-Based Metabolomics using GC x GC-TOFMS and Chemometrics," RE Synovec, ET Young, RE Mohler, KM Dombek, JC Hoggard, EM Humston, KM Pierce, Invited Keynote Lecture, *in absentia*.
- Eigenvector University 4/24/06, **Seattle, WA**, "Correcting Retention Time Shifts in Chromatography...."
- PittCon 3/16/06, **Orlando, FL**, "Correcting Retention Time Shifts in Chromatography for Improved Data Analysis."
- International Symposium on Capillary Chromatography and Electrophoresis 5/24/05, **Las Vegas, NV**, "Tools for the Extraction of Useful Information from Metabolic Profiles: Techniques for Mining the GC x GC-TOFMS Data Cube."
- PittCon 2/28/05, **Orlando, FL**, "Principles of Comprehensive 2D Separations with Chemometric Data Analysis," RE Synovec, JL Hope, AE Sinha, BJ Prazen, KM Pierce, JC Hoggard, RE Mohler (Keynote Lecture – 2D Separations Session)
- CPAC Meeting 11/03, **Seattle, WA**, "Process Gas Chromatography and Chemometrics."
- CPAC Meeting 5/03, **Seattle, WA**, "Process Gas Chromatography and Chemometric Analysis."
- CPAC Meeting 11/02, **Seattle, WA**, "Online measurement of interfacial properties: Dynamic surface tension detection."