

ADRIAN VILLALTA-CERDAS

Assistant Professor of Chemistry
Department of Chemistry - Sam Houston State University
AVC-ChemEd.com

EDUCATION

Ph. D. in Chemistry with emphasis in Chemical Education, Department of Chemistry, University of South Florida, Tampa, Florida. 2014.

Master of Arts in Chemistry with emphasis in Chemical Education, Department of Chemistry, University of South Florida, Tampa, Florida. 2012.

Bachelor of Science in Chemistry degree achieved with honors, School of Chemistry, University of Costa Rica, San José, Costa Rica. 2008.

PROFESSIONAL APPOINTMENTS

Assistant Professor of chemistry, Department of Chemistry, Sam Houston State University. Fall 2016 – to date.

Lecturer in Chemistry, Department of Chemistry and Biochemistry, California State University, Bakersfield. Fall 2014 – Spring 2016.

Curriculum Development Teaching Assistant, Department of Chemistry, University of South Florida. Spring 2012 – Summer 2014.

Research Assistant. Department of Chemistry, University of South Florida. Fall 2011 – Summer 2014.

Research Assistant. Chemistry Department, University of Texas at El Paso. Fall 2010 – Spring 2011.

Research Assistant. Chemistry Department, Clemson University. Fall 2008 – Summer 2010.

Chemical Analyst. LASA Analytical Laboratories, University of Costa Rica, Costa Rica. 2007 – 2008.

Chemical Analyst. Customs Laboratories, Treasury Department of Costa Rica, Costa Rica. 2006 – 2008.

Lecture Teaching Assistant, School of Chemistry, University of Costa Rica. 2006 – 2008.

RESEARCH PROGRAM

Research projects focus on learning strategies that foster scientific skill development and the study of effective teaching practices in chemistry at the college level. Additionally, I am studying the use of carbon nano materials for the removal of organic molecules from water for environmental remediation applications.

RESEARCH COLLABORATORS

EXTERNAL PROJECTS

Conceptual understanding of microscopic representations via molecular animations

Time frame: 2014 - 2021

Akaygun, Sevil	Boğaziçi University
Hansen, Sarah	Columbia University
Kelly, Resa	San Jose State University

Collaborative Research: General Chemistry in Three Dimensions: A Course Reform Collaborative

Time frame: 2018 - 2021

Biberdorf, Kate	The University of Texas at Austin
Bond, Marcus	Southeast Missouri State University
Conrad, John	University of Nebraska Omaha
Darr, Joshua P.	University of Nebraska Omaha
Donovan, Ashley	American Chemical Society Chemical – Edu. Division
Hegwood, Steven	Sam Houston State University
Morgan Theall, Rachel A	Southeast Missouri State University
Pazicni, Samuel	University of Wisconsin, Madison
Richter-Egger, Dana	University of Nebraska Omaha
Walker, Deborah R	The University of Texas at Austin
Wink, Donald J	University of Illinois at Chicago

The Networking for Science Advancement, Identifying Dormant Essential Automaticity Skills (IDEAS) in STEM

Time frame: 2017 - 2021

Andrews, Casey	Texas A&M San Antonio
Atkinson, Molly	University of North Texas
Broadway, Susan	University of North Texas
Dubrovskiy, Anton	University of Houston-Clear Lake
Jang, Ben	Texas A&M Commerce
Blain Mamiya	Texas State University
Mason, Diana	University of Northern Texas

Powell, Cynthia	Abilene Christian University
Shelton, George	Texas A&M San Antonio
Thompson, Jon	Texas Tech University
Walker, Deborah	The University of Texas at Austin
Weber, Rebecca	University of North Texas
Williamson, Vickie	Texas A&M

INTERNAL PROJECTS

Redesign of course, instruction and assessment of chemical kinetics in General Chemistry II: improving student learning via active, practice-oriented performance expectations

Time frame: 2017 – 2018

Thompson, David	Department of Chemistry
Zall, Christopher	Department of Chemistry

Implementation of self-explaining-based learning in Environmental Chemistry: improving conceptual understanding and scientific skills via active learning and performance expectations

Time frame: 2018 – 2019

Thompson, David	Department of Chemistry
Trad, Tarek	Department of Chemistry

A Comprehensive Model for Improving the Success of STEM Majors through the STEM Center.

Time frame: 2017 - 2021

Artho, Donna	Office of Institutional Effectiveness
Hegwood, Steven	Department of Chemistry
Loft, Brian	Department of Mathematics
Martin, Taylor E	Department of Mathematics
Thompson, David	Department of Chemistry
Swarthout, Mary	Department of Mathematics
Yildiz, Faruk	Department of Engineering Technology

Advancing STEM Programs with Integrating Research Enhancement Scholarships (ASPIRES)

Time frame: 2020 - 2021

Choudhary, Madhusudan	Department of Biological Sciences
Holt, Melinda	Department of Mathematics
Hyuk, Cho	Department of Computer Sciences
Ma, Junkun	Department of Engineering Technology

UNDERGRADUATE RESEARCH MENTORING

- 2017 Corbin McCleary, Andrea Bui, William Fernandez, Itzel Almaguer
- 2018 Andrea Bui, Ivette Rodriguez, My Phan, Jacqueline Jimenez, Sandra Perez
- 2019 My Phan, Jacqueline Jimenez, Faith Dimas, Cailee Auck, Lucy Hendrickson
- 2020 My Phan, Jacqueline Jimenez, Lucy Hendricson, Raul Zablah Vasquez, Ryan Dolezal, Cailee Auck, Emily Cwiklik
- 2021 Jacqueline Jimenez, Raul Zablah Vasquez, Emily Cwiklik, Ariel Van-Sertima, Michaela Tabor, Sandra Simmons.

FUNDED GRANTS

Principal Investigator: Pilot Studies for Future Funding Program - Sam Houston State University - Reformed Organic Chemistry Laboratories (ROC-Labs): an academic environment supported by cooperative learning and project-based experimentation. 2021 - 2022. Funding: \$14,700.

Principal Investigator: Enhancing Undergraduate Research Experiences and Creative Activities - FAST Award - Synthesis of magnetite carbon nano onions composites for environmental remediation applications. 2021. Funding: \$6,000.

Principal Investigator: STEM Center at Sam Houston - Scholarship of Teaching and Learning: Integration of virtual chemical experiences into General Chemistry II via ChemCollective Labs. 2020. Funding: \$1,802.

Principal Investigator: College of Science and Engineering Technology - Summer Research Award - Carbon nano-onions (CNOs): synthesis and surface modification for environmental remediation applications, Sam Houston State University, 2019. Funding: \$2,500.

Principal Investigator: SHSU Individual Scholarship Internal Grant - Reformed chemistry laboratories: cooperative and project-based experimentation, Sam Houston State University, 2019 – 2020. Funding: \$5,000.

Principal Investigator: Teaching Innovation Grants (TIGs) - Implementation of self-explaining-based learning in Chemical Quantitative Analysis: improving conceptual

understanding and scientific skills via active learning and performance expectations, Sam Houston State University, 2018 – 2019. Funding: \$5,400.

Principal Investigator: College of Science and Engineering Technology - Summer Research Award - Design of novel lab experiences for Organic Chemistry at SHSU, Sam Houston State University, 2018. Funding: \$2,500.

Principal Investigator: Teaching Innovation Grants (TIGs) - Redesign of course, instruction and assessment of chemical kinetics in General Chemistry II: improving student learning via active, practice-oriented performance expectations, Sam Houston State University, 2017 – 2018. Funding: \$6,000.

Educational Assessment Specialist – Senior Personnel: “A Comprehensive Model for Improving the Success of STEM Majors through the STEM Center.” DUE - IUSE-Development & Implem Institut & Comm Transform, 2017-2020. Funding: \$2,028,798.

SCIENTIFIC PUBLICATIONS

JOURNAL ARTICLES

19. Shelton, R. G.; Mamiya, B.; Weber, R.; Walker, D. R.; Powell, C. B.; Jang, B.; Dubrovskiy, A. V.; Villalta-Cerdas, A.; Mason, D. (2021). Early Warning Signals from Automaticity Diagnostic Instruments for First- and Second-Semester General Chemistry. *Journal of Chemistry Education*. DOI: 10.1021/acs.jchemed.1c00714.
18. Kelly, R. M.; Akaygun, S.; Hansen, S. J. R.; Villalta-Cerdas, A.; Adam, J. (2021). Examining Learning of Atomic Level Ideas About Precipitation Reactions with a Resources Framework. *Chemistry Education Research and Practice*. <https://doi.org/10.1039/D0RP00071J>.
17. Villalta-Cerdas, A.; Thompson, D. E.; Hegwood, S. L. (2021). Integration of Research-based Strategies and Instructional Design: Creating Significant Learning Experiences in a Chemistry Bridge Course. Paper presented at 2021 American Society for Engineering Education (ASEE) Virtual Annual Conference Content Access, Virtual Conference.
16. Pazicni, S.; Wink, D. J.; Donovan, A.; Conrad, J. A.; Darr, J.; Richter-Egger, D. L.; Morgan Theall, R. A.; Villalta-Cerdas, A.; Walker, D. R. (2021). The ACS General Chemistry Performance Expectations Project: From Task Force to Three-Dimensional Learning Community. *Journal of Chemistry Education*, 98, 4, 1112–1123.
15. Weber, R.; Powell, C. B.; Williamson, V.; Mamiya, B.; Walker, D. R.; Dubrovskiy, A.; Shelton, G. R.; Villalta-Cerdas, A.; Jang, B.; Broadway, S.; Mason, D. (2020). Relationship between academic preparation in general chemistry and potential careers. *Biomedical Journal of Scientific & Technical Research*, 32 (5), 25311-25323.
14. Villalta-Cerdas, A.; Dubrovskiy, A.; Mamiya, B.; Walker, D. R.; Powell, C. B.; Broadway, S.; Weber, R.; Shelton, G. R.; Mason, D. (submitted 2020-Jan-JCST-RT-1507.R2; accepted 2020 Mar 11). Personal characteristics influencing college readiness of Hispanic students in a STEM gateway course: first-semester general chemistry. *Journal of College Science Teaching*.

13. Mamiya, B.; Powell, C. B.; Shelton, G. R.; Dubrovskiy, A.; Villalta-Cerdas, A.; Broadway, S.; Weber, R.; Mason, D. (submitted 2020-11-JUN- manuscript ID: 2020-Jun-JCST-RT-1561; accepted 2020 Aug 10). Influence of Environmental Factors on Success of At-Risk Hispanic Students in First-Semester General Chemistry. *Journal of College Science Teaching*.
12. Villalta-Cerdas, A.; McCleary, C. (2019). Analysis of copper alloys as an introduction to data analysis and interpretation for General Chemistry courses. *Educación Química*, 30(2), 41-53.
11. Hansen, S. J. R.; Hu, B.; Reidlova, D.; Kelly, R. M.; Akaygun, S.; Villalta-Cerdas, A. (2019). Critical consumption of chemistry visuals: eye tracking structured variation and visual feedback of redox and precipitation reactions. *Chemical Education Research and Practice*, 2019, 20, 837-850.
10. Kelly, R. M.; Akaygun, S.; Hansen, S. J. R.; Villalta-Cerdas, A. (2017). The effect that comparing molecular animations of varying accuracy has on students' submicroscopic explanations. *Chemical Education Research and Practice*, 18, 582-600.
9. Villalta-Cerdas, A.; Sandi-Urena, S. (2016). Assessment of self-explaining effect in a large enrollment general chemistry course. *Educación Química*, 27(2), 115-125.
8. Villalta-Cerdas, A.; Sandi-Urena, S. (2014). Self-explaining effect in general chemistry instruction: Eliciting overt categorical behaviours by design. *Chemical Education Research and Practice*, 15, 530-540.
7. Villalta-Cerdas, A.; McKeny, P.; Gatlin, T. A.; Sandi-Urena, S. (2014). Evaluation of Instruction: General Chemistry Students' Patterns of Use and Contribution to RateMyProfessors.com. *Assessment & Evaluation in Higher Education*, 40(2), 181-198.
6. Villalta-Cerdas, A.; Sandi-Urena, S. (2013). Self-explaining and its Use in College Chemistry Instruction. *Educación Química*. 24(4), 431-438.
5. Yang, M.; Flavin, K.; Kopf, I.; Radics, G.; Hearnden, C. H. A.; McManus, G. J.; Moran, B.; Villalta-Cerdas, A.; Echegoyen, L. A.; Giordani, S.; Lavelle, E. C. (2013). Functionalization of Carbon Nanoparticles Modulates Inflammatory Cell Recruitment and NLRP3 Inflammasome Activation. *Small*, 9(24), 4194-4206.
4. Bergin, A., Sharp, K., Gatlin, T., Villalta-Cerdas, A., Gower, A., Sandi-Urena, S. (2013). Use of RateMyProfessors.com as a supplemental tool for the assessment of General Chemistry Instruction. *Journal of Chemical Education*, 90, 289-295.
3. Plonska-Brzezinska, M.; Dubis, A.; Lapinski, A.; Villalta-Cerdas, A.; Echegoyen, L. (2011). Electrochemical Properties of Oxidized Carbon Nano-Onions: DRIFTS-FTIR and Raman Spectroscopic Analyses. *A European Journal of Chemical Physics and Physical Chemistry*, 12, 2659-2668.
2. Plonska-Brzezinska, M.; Lapinski, A.; Wilczewska, A. Z.; Dubis, A.; Villalta-Cerdas, A.; Winkler, K.; Echegoyen, L. (2011). The synthesis and characterization of carbon nano-onions produced by solution ozonolysis. *Carbon*, 49, 5079-5089.

1. Breczko, J.; Winkler, K.; Plonska-Brzezinska, M.; Villalta-Cerdas, A.; Echegoyen, L. (2010). Electrochemical properties of composites containing small carbon nanoions and solid polyelectrolytes. *Journal of Materials Chemistry*, 20, 7761-7768.

BOOKS AND BOOK CHAPTERS

3. Sandi-Urena, S.; Villalta-Cerdas, A.; Gatlin, T. A.; Lykourinou, V. (2013). Authentic Chemistry Experiment Labs (ACE-Labs) For General Chemistry I & II: Cooperative Project-based Laboratory Experiences. Department of Chemistry, University of South Florida, Tampa, FL.
2. Li, F., Villalta-Cerdas, A., Echegoyen, L.E., and Echegoyen, L. (2013). An Update on Electrochemical Characterization and Potential Applications of Carbon Materials. In Torres, T. & Bottari, G. (Eds.), *Organic Nanomaterials: Synthesis, Characterization, and Device Applications*. (pp. 259-310). New York: Wiley-VCH.
1. Pinzón, J.R., Villalta-Cerdas, A., and Echegoyen, L. (2012). Fullerenes, Carbon Nanotubes, and Graphene for Molecular Electronics. In Metzger, R. M. (Ed.), *Unimolecular and Supramolecular Electronics I, Topics in Current Chemistry, Volume 312* (pp. 127-174). Berlin/Heidelberg: Springer.

SCHOLARLY PRESENTATIONS (underlined: undergraduate student)

63. "Integration of evidence-based learning strategies and instructional design in a chemistry bridge course at Sam Houston State University." Adrian Villalta-Cerdas, David E. Thompson, Steven L. Hegwood; 262nd American Chemical Society National Meeting & Exposition, August 22 - 26, 2021. Hybrid in-person/virtual meeting.
62. "Experimental determination of five physical constants for introductory chemistry laboratories." Lucy Hendrickson, Adrian Villalta-Cerdas; 262nd American Chemical Society National Meeting & Exposition, August 22 - 26, 2021. Hybrid in-person/virtual meeting.
61. "Understanding density and viscosity of aqueous solutions in the chemistry laboratory." Raul Zablah-Vasquez, Jacqueline Jimenez, Ivette Rodriguez, Adrian Villalta-Cerdas; 262nd American Chemical Society National Meeting & Exposition, August 22 - 26, 2021. Hybrid in-person/virtual meeting.
60. "Increasing Student Engagement Through Process Oriented Guided Inquiry Learning (POGIL)." Adrian Villalta-Cerdas, David E. Thompson, Steven L. Hegwood. Sam Houston State University Teaching and Learning Conference. August 12th, 2021.
59. "Integration of research-based strategies and instructional design: creating significant learning experiences in a chemistry bridge course." Adrian Villalta-Cerdas, David E. Thompson, Steven L. Hegwood; ASEE Annual Conference & Exposition. June 27-30, 2021. Virtual Meeting.
58. "Integration of evidence-based learning strategies and instructional design in a chemistry bridge course at Sam Houston State University." Adrian Villalta-Cerdas,

- David E. Thompson, Steven L. Hegwood; Northwest Regional Meeting, Spring 2021. Virtual Meeting.
57. "Integration of evidence-based learning strategies and instructional design in a chemistry bridge course at Sam Houston State University." Adrian Villalta-Cerdas, David E. Thompson, Steven L. Hegwood; 261st American Chemical Society National Meeting & Exposition, Spring 2021. Virtual Meeting.
 56. "Experimental determination of five physical constants for introductory chemistry laboratories." Lucy Hendrickson, Adrian Villalta-Cerdas; 261st American Chemical Society National Meeting & Exposition, Spring 2021. Virtual Meeting.
 55. "Understanding density and viscosity of aqueous solutions in the chemistry laboratory." Raul Zablah-Vasquez, Jacqueline Jimenez, Ivette Rodriguez, Adrian Villalta-Cerdas; 261st American Chemical Society National Meeting & Exposition, Spring 2021. Virtual Meeting.
 54. "Limonene reactivity with elemental sulfur as an introduction to polymer chemistry and polarimetry in the organic chemistry laboratory." Emily Cwiklik, My Phan, Adrian Villalta-Cerdas; 261st American Chemical Society National Meeting & Exposition, Spring 2021. Virtual Meeting.
 53. "Constructing evidence-based chemical explanations of liquid-liquid extraction processes in the chemistry laboratory." Jacqueline Jimenez, Lucy Hendrickson, My Phan, Adrian Villalta-Cerdas; 261st American Chemical Society National Meeting & Exposition, Spring 2021. Virtual Meeting.
 52. "Integration of research-based strategies and instructional design: creating significant learning experiences in a chemistry bridge course at SHSU." Adrian Villalta-Cerdas, David E. Thompson, Steven L. Hegwood; 260th American Chemical Society National Meeting & Exposition, August 17 - 20, 2020. Virtual Meeting.
 51. "Synthesis and surface modification of carbon nano-onions (CNOs) for environmental remediation applications." Cailee Auck, Adrian Villalta-Cerdas; 260th American Chemical Society National Meeting & Exposition, August 17 - 20, 2020. Virtual Meeting.
 50. "Understanding the complexity and ambiguity of empirical laboratory work using liquid-liquid equilibrium extractions." Jacqueline Jimenez, My Phan, Lucy Hendrickson, Adrian Villalta-Cerdas; 260th American Chemical Society National Meeting & Exposition, August 17 - 20, 2020. Virtual Meeting.
 49. "Constructing evidence-based chemical explanations in the lab via causal relationships between equilibrium constants and molecular interactions." Lucy Hendrickson, Jacqueline Jimenez, My Phan, Adrian Villalta-Cerdas; 260th American Chemical Society National Meeting & Exposition, August 17 - 20, 2020. Virtual Meeting.
 48. "Integration of research-based strategies and instructional design: Creating significant learning experiences in a chemistry bridge course at SHSU." Adrian Villalta-Cerdas(1); David E. Thompson(1); Steven L. Hegwood(1). 2020 Biennial Conference on Chemical Education. Abstract accepted March 31, 2020. Because of the global

COVID-19 pandemic, the 2020 Biennial Conference on Chemical Education was terminated on April 2, 2020, by the Executive Committee of the Division of Chemical Education, American Chemical Society; and, therefore, this presentation could not be given as intended.

47. “Early identification of at-risk Hispanic students in first-semester general chemistry.” Diana Mason(1); Blain Mamiya(2); Adrian Villalta-Cerdas(3); Anton Dubrovskiy(4); Cynthia Powell(5); Rebecca Weber(6); Susan Broadway(1); George Shelton(7). 2020 Biennial Conference on Chemical Education. Abstract accepted March 31, 2020. Because of the global COVID-19 pandemic, the 2020 Biennial Conference on Chemical Education was terminated on April 2, 2020, by the Executive Committee of the Division of Chemical Education, American Chemical Society; and, therefore, this presentation could not be given as intended.
46. “Design of chemical engineering experiences of liquid-liquid extraction into project-based experimentation for introductory chemistry laboratories” Jacqueline Jimenez, Adrian Villalta-Cerdas; 258th American Chemical Society National Meeting & Exposition, August 25 - 29, 2019. San Diego, CA.
45. “Inference generation by Liberal Studies students in chemistry courses: latent transition analysis of explanatory behavior over time” Sandra Perez, Adrian Villalta-Cerdas; 258th American Chemical Society National Meeting & Exposition, August 25 - 29, 2019. San Diego, CA.
44. “Extraction of natural products as an introduction to commonly used laboratory techniques, polymer materials, and fluorescence in the organic chemistry laboratory” Andrea Bui, My Phan, Ivette Rodriguez, Adrian Villalta-Cerdas; 12th Annual Undergraduate Research Symposium, Sam Houston State University, Huntsville, TX, April 27, 2019.
43. “Design of significant learning experiences in the chemistry laboratory: understanding the physical properties of aqueous solutions” Andrea Bui, Ivette Rodriguez, Adrian Villalta-Cerdas; 12th Annual Undergraduate Research Symposium, Sam Houston State University, Huntsville, TX, April 27, 2019.
42. “Explaining for the Best Inference (EBI) and conceptual understanding of chemical phenomena using contrasting molecular animations” Adrian Villalta-Cerdas; 257th American Chemical Society National Meeting & Exposition, March 31 - April 4, 2019. Orlando, FL.
41. “Extraction of natural products as an introduction to commonly used laboratory techniques, polymer materials, and fluorescence in the organic chemistry laboratory” My Phan, Ivette Rodriguez, Adrian Villalta-Cerdas; 257th American Chemical Society National Meeting & Exposition, March 31 - April 4, 2019. Orlando, FL.
40. “Design of significant learning experiences in the chemistry laboratory: understanding the physical properties of aqueous solutions” Andrea Bui, Ivette Rodriguez, Adrian Villalta-Cerdas; ACS 2018 Southwest Regional Meeting, Nov 7 - 10, 2018. Little Rock, AR.
39. “Extraction of natural products as an introduction to commonly used laboratory techniques, polymer materials, and fluorescence in the organic chemistry laboratory”

- Andrea Bui, Ivette Rodriguez, Adrian Villalta-Cerdas; ACS 2018 Southwest Regional Meeting, Nov 7 - 10, 2018. Little Rock, AR.
38. “Design of cooperative, project-based laboratory experiences to promote understanding of stoichiometry in college-level General Chemistry courses” Adrian Villalta-Cerdas, David Thompson, Christopher Zall, 25th Biennial Conference on Chemical Education, University of Notre Dame, South Bend, IN, July 29 - August 2, 2018.
 37. “Design of cooperative, project-based laboratory experiences to promote understanding of stoichiometry in college-level General Chemistry courses” Itzel Almaguer, Andrea Bui, William Fernandez, Adrian Villalta-Cerdas, 25th Biennial Conference on Chemical Education, University of Notre Dame, South Bend, IN, July 29 - August 2, 2018.
 36. “Development of self-explaining skills at college level: Longitudinal study via Latent Transition Analysis” Adrian Villalta-Cerdas, 25th Biennial Conference on Chemical Education, University of Notre Dame, South Bend, IN, July 29 - August 2, 2018.
 35. “Design of laboratory experiences in material science and nanotechnology for cooperative project-based experimentation in general chemistry” Corbin McCleary, Adrian Villalta-Cerdas; 11th Annual Undergraduate Research Symposium, Sam Houston State University, Huntsville, TX, April 28, 2018.
 34. “Design of cooperative, project-based laboratory experiences to promote understanding of stoichiometry in college-level General Chemistry courses” Andrea Bui, William Fernandez, Itzel Almaguer, Adrian Villalta-Cerdas, 11th Annual Undergraduate Research Symposium, Sam Houston State University, Huntsville, TX, April 28, 2018.
 33. “Design of laboratory experiences in material science and nanotechnology for cooperative project-based experimentation in general chemistry” Corbin McCleary, Adrian Villalta-Cerdas; 255th American Chemical Society National Meeting & Exposition, March 18-22, 2018. New Orleans, LA.
 32. “Design of cooperative, project-based laboratory experiences to promote understanding of stoichiometry in college-level general chemistry courses” Andrea Bui, William Fernandez, Itzel Almaguer, Adrian Villalta-Cerdas; 255th American Chemical Society National Meeting & Exposition, March 18-22, 2018. New Orleans, LA.
 31. “Diseño y evaluación de experiencias de aprendizaje para el desarrollo de habilidades científicas en el aula y laboratorio químico: enfoque en la auto-explicación y expectativas de desempeño” Adrian Villalta-Cerdas, Online seminar, College of Science and Engineering - Universidad Pedagógica Nacional, Bogotá Colombia, January 2018.
 30. “Design of laboratory experiences in material science and nanotechnology for cooperative project-based experimentation in general chemistry” Corbin McCleary, Adrian Villalta-Cerdas; ACS 2017 Southwest Regional Meeting, Oct 29-Nov 1, 2017. Lubbock, TX.

29. "Effect of Self-explaining on Scientific-Skill Development: Longitudinal study via Latent Transition Analysis." Adrian Villalta-Cerdas; 253th American Chemical Society National Meeting & Exposition, April 2-6, 2017. San Francisco, CA.
28. "Effect of Self-explaining on Scientific-Skill Development: Longitudinal study via Latent Transition Analysis." Adrian Villalta-Cerdas; Texas Academy of Science Annual Meeting, March 3-5, 2017. Belton, TX.
27. "Design and implementation of self-explaining activities for chemistry courses." Adrian Villalta-Cerdas; ACS 2016 Southwest Regional Meeting, November 10-13, 2016. Galveston, TX.
26. "Design and implementation of self-explaining activities for chemistry courses." Adrian Villalta-Cerdas; 2016 Biennial Conference on Chemical Education (BCCE), July 31 - August 4, 2016. University of Northern Colorado. Greeley, CO.
25. "Effect of self-explaining on conceptual understanding of chemical phenomena using animation models at college level." Adrian Villalta-Cerdas; 2016 Biennial Conference on Chemical Education (BCCE), July 31 - August 4, 2016. University of Northern Colorado, Greeley, CO.
24. "Self-explaining effect in general chemistry instruction: eliciting overt categorical behaviors by design." Adrian Villalta-Cerdas; Chemical Education Research: New and Noteworthy Symposium (*invitation-only*), 251st American Chemical Society National Meeting & Exposition, March 13-17, 2016. San Diego, CA.
23. "Effect of self-explaining on conceptual understanding using animation models in college level chemistry courses." Adrian Villalta-Cerdas; Collaborators: Resa Kelly, Sarah Hansen, Sevil Akaygun, Miriam Buschhaus, Danielle Solano; Gordon Research Conference on Chemical Education, June 21-26, 2015. Lewiston, ME.
22. "Study of self-explaining skill development in college level introductory chemistry courses via latent transition analysis". Adrian Villalta-Cerdas; 249th American Chemical Society National Meeting & Exposition, March 22-26, 2015. Denver, CO.
21. "Use of Problem Solving to Elicit Self-explaining in General Chemistry". Adrian Villalta-Cerdas; Invited Speaker at San Jose State University, February 18th, 2015. San Jose, CA.
20. "Conceptual understanding and self-explaining in General Chemistry". Adrian Villalta-Cerdas, Santiago Sandi-Urena; Florida Annual Meeting and Exposition (FAME), May 8-10, 2014. Innisbrook, FL.
19. "Conceptual understanding and self-explaining in General Chemistry". Adrian Villalta-Cerdas, Santiago Sandi-Urena; 247th American Chemical Society National Meeting & Exposition, March 16-20, 2014. Dallas, TX.
18. "Integration of cooperative, project-based, authentic experiments in the General Chemistry Laboratory Program at the University of South Florida". Adrian Villalta-Cerdas, Santiago Sandi-Urena, Vasiliki Lykourinou; 247th American Chemical Society National Meeting & Exposition, March 16-20, 2014. Dallas, TX.

17. "Use of Problem Solving to Elicit Self-explaining in General Chemistry". Adrian Villalta-Cerdas, Santiago Sandi-Urena; The Southeast Regional Meeting of the American Chemical Society (SERMACS) 2013, November 12-16, 2013. Atlanta, GA.
16. "Use of Problem Solving to Elicit Self-explaining in General Chemistry". Adrian Villalta-Cerdas, Santiago Sandi-Urena; 246th American Chemical Society National Meeting & Exposition, September 8-12, 2013. Indianapolis, IN.
15. "Use of Problem Solving to Elicit Self-explaining in General Chemistry". Adrian Villalta-Cerdas, Santiago Sandi-Urena; CER Graduate Student Conferences, July 26-28, 2013. Miami University, Oxford, OH.
14. "Use of Problem Solving to Elicit Self-explaining in General Chemistry". Adrian Villalta-Cerdas, Santiago Sandi-Urena; Gordon Research Conference on Chemical Education, June 9-14, 2013. Newport, RI.
13. "Use of problem-solving to elicit self-explaining in general chemistry". Adrian Villalta-Cerdas, Santiago Sandi-Urena; Florida Annual Meeting and Exposition (FAME), May 9-11, 2013. Innisbrook, FL.
12. "Use of problem-solving to elicit self-explaining in general chemistry". Adrian Villalta-Cerdas, Santiago Sandi-Urena; University of South Florida 11th Raymond N. Castle Student Research Conference, April 20, 2013. Tampa, FL.
11. "Current state of research in chemistry learning in the academic college laboratory." Adrian Villalta-Cerdas, Santiago Sandi-Urena, Todd A. Gatlin; 245th American Chemical Society National Meeting & Exposition, April 7-11, 2013. New Orleans, Louisiana.
10. "Current state of research in chemistry learning in the academic college laboratory." Adrian Villalta-Cerdas, Santiago Sandi-Urena, Todd A. Gatlin; 2012 Biennial Conference on Chemical Education (BCCE), July 29 - August 2, 2012. The Pennsylvania State University, College Park, PA.
9. "Use of problem-solving to elicit self-explaining in general chemistry". Adrian Villalta-Cerdas, Santiago Sandi-Urena; 22nd International Conference on Chemistry Education – 11th European Conference on Research In Chemistry Education (ICCE-ECRICE), July 15-20, 2012. Rome, Italy.
8. "Self-explaining experiences in large enrollment general chemistry courses". Adrian Villalta-Cerdas, Santiago Sandi-Urena; Florida Annual Meeting and Exposition (FAME), May 17-20, 2012. Innisbrook, FL.
7. "Generación de Auto-Explicaciones en Cursos de Química General (Self-explaining experiences in large enrollment general chemistry courses)". Adrian Villalta-Cerdas, Santiago Sandi-Urena; University of Costa Rica, May 3, 2012. San José, Costa Rica.
6. "Self-explaining experiences in large enrollment general chemistry courses". Adrian Villalta-Cerdas, Santiago Sandi-Urena; University of South Florida 10th Raymond N. Castle Student Research Conference, April 21, 2012. Tampa, FL.

5. “Current state of research in chemistry learning in the academic college laboratory” Adrian Villalta-Cerdas, Santiago Sandi-Urena, Todd A. Gatlin; 243rd American Chemical Society National Meeting & Exposition, March 25 – March 29, 2012. San Diego, CA.
4. “Self-explaining experiences in large enrollment general chemistry courses”. Adrian Villalta-Cerdas, Santiago Sandi-Urena; 2012 Mid-Year McKnight Research and Writing Conference, February 25 - February 26, 2012. Tampa, FL.
3. “Regioisomers of tetra-aziridine-C₆₀ derivatives: Synthesis and characterization”. Adrian Villalta-Cerdas, Floriana Foarta, Angy Ortiz, Luis Echegoyen; 66th Southwest and 62nd Southeastern Regional Meeting of the ACS, November 30 - December 4, 2010. New Orleans, LA.
2. “Regioisomers of tetra-aziridine-C₆₀ derivatives: Synthesis and characterization”. Adrian Villalta-Cerdas, Floriana Foarta, Angy Ortiz, Luis Echegoyen; SACNAS National Conference, September 30 - October 4, 2010. Anaheim, CA.
1. “Synthesis of novel 2D polygons and 3D polyhedral supramolecular Pt^{II}, Pd^{II}-pyridylpyrrolidino-C₆₀ derivatives”. Adrian Villalta-Cerdas, Angy Ortiz, Luis Echegoyen; SACNAS National Conference, October 15 - 18, 2009. Dallas, TX.

PROFESSIONAL SERVICE

INTERNATIONAL

Ph.D. Thesis Reviewer: Rodrigo Rodriguez Cepeda, Thesis: “Significant learning of chemistry concepts: a study in the context of learning styles.” National Pedagogical University, Bogota, Colombia. 2016-2017.

Symposium Co-organizer: “Research on Learning in the Laboratory.” International Conference on Chemistry Education (ICCE), Toronto, Canada. July, 2014.

NATIONAL

Workshop Organizer: “Integration of cooperative, project-based, authentic experiments in the General Chemistry Laboratory Program: exemplar model for STEM laboratory instruction.” 4th Annual LEAP Texas Forum, Dallas, TX. February, 2017.

Workshop Co-Organizer: “Integration of cooperative, project-based, authentic experiments in the General Chemistry Laboratory Programs at the University of South Florida and Northeastern University.” 2016 Biennial Conference on Chemical Education, University of Northern Colorado, CO. July, 2016.

Symposium Co-Organizer: “Once upon an animation: Looking for connections between laboratory stories and scenarios partnered with visualization practice.” 2016 Biennial Conference on Chemical Education, University of Northern Colorado, Greeley, CO. July, 2016.

Consultant and Research Team Member: “Developing a Visualization Framework for Chemical Reactions.” NSF-DUE-HER Collaborative Research, \$413,118 (two awards), funded September, 2015 to date.

Symposium Co-organizer: “Research on Learning in the Laboratory.” 249th National Meeting and Exposition of the American Chemical Society (ACS), Denver, CO. March, 2015.

Symposium Co-organizer: “Research on Learning in the Laboratory.” 247th National Meeting and Exposition of the American Chemical Society (ACS), Dallas, TX. March, 2014.

Symposium Co-organizer: “Research on Learning in the Laboratory.” 245th National Meeting and Exposition of the American Chemical Society (ACS), New Orleans, LA. April, 2013.

INSTITUTIONAL

Workshop Co-Organizer: “Active Learning in STEM Classes Big and Small: Flipped Classes with Peer-Led Team Learning.” Department of Chemistry, Sam Houston State University, TX. June, 2018.

Session Moderator, Science Contest - University Interscholastic League 2018, Sam Houston State University, Huntsville, TX. April, 2018.

Session Moderator, Science Contest - University Interscholastic League 2017, Sam Houston State University, Huntsville, TX. April, 2017.

Scientific Judge and Session Moderator, Kern County Regional Science Bowl 2016, California State University, Bakersfield. February, 2016.

Workshop Organizer: “Validity Evidence: construct validity via data analysis” California State University, Bakersfield, CA. January, 2016.

Scientific Judge and Session Moderator, Kern County Regional Science Bowl 2015, California State University, Bakersfield. February, 2015.

Curriculum Reform Committee Member, General Chemistry Laboratory Program, Department of Chemistry, University of South Florida. Spring 2012 - Summer 2014.

Graduate Student Advisory Board, Chem-SEEDS NSF-sponsored REU Site, Department of Chemistry, University of South Florida. Summer, 2013.

University of South Florida Recruiter, presentation at the University of Costa Rica, San José, Costa Rica. May, 2012.

University of South Florida Recruiter, booth at 243rd American Chemical Society National Meeting & Exposition, San Diego, California. March, 2012.

University of South Florida Recruiter, presentation at the Universidad Pedagógica Nacional, Bogotá, Colombia. October, 2011.

SACNAS Chapter Treasurer, Clemson University. Fall 2009 - Spring, 2010.

Student Association Board member, Chemistry Department, University of Costa Rica. 2006.

AWARDS AND RECOGNITIONS

ACADEMIC ACHIVEMENTS

Younger Chemist Award, The American Chemical Society - Greater Houston Section, 2020.

REU Mentor Certificate, Department of Chemistry, University of South Florida, Spring 2014.

REU Mentor Certificate, Department of Chemistry, University of South Florida, Spring 2013.

Costa Rican Ministry of Science and Technology Fellowship, San José, Costa Rica. 2012-2014 (\$12,500), 2011-2012 (\$7,300), 2010-2011 (\$5,000), 2009-2010 (\$7,500), 2008-2009 (\$7,000).

Portals of Teaching Success Certificate of Achievement, Academy for Teaching and Learning Excellence, University of South Florida, Spring 2012.

Graduate Poster Award, Department of Chemistry, The University of Texas at El Paso, October 2010.

Academic Achievement Award, School of Chemistry, University of Costa Rica, December 2005.

Full-Tuition Scholarship (2005-2006), University of Costa Rica, January 2005.

Academic Achievement Award, School of Chemistry, University of Costa Rica, December 2004.

Full-Tuition Scholarship (2004-2005), University of Costa Rica, January 2004.

TRAVEL GRANTS

Odyssey Grant Travel Award 2019, National Science Teacher Association Conference, December 12-14, 2019. Seattle, WA.

Division of Chemical Education (DivCHED) Travel Award 2017, 253rd ACS National Meeting, April 2-6, 2017. San Francisco, CA.

The Martin Travel Endowment Award, Department of Chemistry, University of South Florida. Conference: 247th American Chemical Society National Meeting & Exposition, Dallas, TX. March 2014.

Conference Presentation Grant Program, Student Government, University of South Florida. Assisted conference: 246th American Chemical Society National Meeting & Exposition, Indianapolis, IN. September, 2013.

The Martin Travel Endowment Award, Department of Chemistry, University of South Florida. Assisted conference: Gordon Research Conference on Chemical Education, Newport, RI. June 2013.

Conference Presentation Grant Program, Student Government, University of South Florida. Assisted conference: International Conference on Chemistry Education – 11th European Conference on Research In Chemistry Education (ICCE-ECRICE), Rome, Italy. July 2012.

Conference Presentation Grant Program, Student Government, University of South Florida. Assisted conference: International Seminar of Chemistry: History, Philosophy and Education, Bogotá, Colombia. October 2011.

SACNAS Travel Award, SACNAS National Conference, Anaheim, CA. September 2010.

SACNAS Travel Award, SACNAS National Conference, Dallas, TX. October 2009.

OTHER AWARDS

2018 Chemistry in Pictures photo contest - **Grand-prize winner**, Chemistry & Engineering News magazine, February 2019.

AFFILIATIONS

American Chemical Society (ACS), Divisions of Chemical Education and History of Chemistry, 2008 to date.

National Science Teacher Association, 2019 to date.