TATIANA TREJOS

Assistant Professor
Department of Forensic and Investigative Science
West Virginia University

1600 University Ave
Oglebay Hall, Morgantown
WV 26506

304.293.6978

Tatiana.trejos@mail.wvu.edu

www.linkedin.com/in/TatianaTrejos

https://orcid.org/0000-0001-9928-1022

SUMMARY

Dr. Trejos is an Associate Professor of the Department of Forensic and Investigative Sciences at West Virginia University, where she teaches forensic courses for the undergraduate, master's, and doctorate programs. Dr. Trejos believes in learning by doing and creating connections with real-world scenarios by bringing her forensic practitioner and law enforcement expertise to the classroom. Dr. Trejos' long-term research goal is to develop methods that enhance trace evidence's reliability and efficiency, providing valuable data to the criminal justice system and streamlined processes. Her research group focuses on building capacity and applying emerging methods to improve data quality and data usage. Dr. Trejos's main research includes applying statistics to evidence interpretation and the discovery of chemical signatures of forensic materials by spectrochemical methods, such as SEM-EDS, ICP-MS, Laser Ablation ICP-MS u-XRF, Laser-Induced Breakdown Spectroscopy, and Mass Spectrometry (GC-MS and LC-MS). Glass, paints, polymers, inks, and gunshot residues are among the trace materials investigated in Dr. Trejos' laboratory. Dr. Trejos has received over $4.5 million in funding from the U.S. Department of Justice, the National Institute of Justice, the US Department of State, and the Department of Commerce. Tatiana Trejos has authored 85 peer-reviewed scientific publications and book chapters in the field of forensic and analytical chemistry. Dr. Trejos has served as a program chair of scientific meetings and guest speaker at several venues worldwide. Dr. Trejos received the prestigious science and technology award "Clodomiro Picado Twight" from the Costa Rican National Academy of Sciences (2015), was listed on the Forensics Colleges' top 10 forensic chemistry professors and received the WVU Eberly College Outstanding Researcher Award (2020).

Tatiana has contributed to different scientific working groups. Tatiana is a member and technical contact of the ASTM E-30 committee and the NIST Chemistry/Instrumental Analysis Scientific Area Committee's (SAC's) Materials (Trace) Subcommittee within the Organization of Scientific Area Committees (OSAC). Within the NIST-OSAC organization, she has served as chair of the Research and Glass Working Groups and a member of the Interpretation and the Physical Fits Groups. Tatiana has served in two *NIST Scientific and Technical Review Panels (STRPs)* for physical fits and gunshot residue and was a guest speaker at the GSR subcommittee research sessions. Tatiana's contributions include drafting discipline-specific standard guidelines and testing methods, identifying research and development needs in trace evidence, designing and leading interlaboratory studies, and developing plans for training, disseminating, and implementing consensus-based methods. Tatiana has been recently elected as Director of the American Society of Trace Evidence Examiners (ASTEE).

AREAS OF EXPERTISE

- Forensic Chemistry
- Trace Evidence
- GSR, Fire Debris, and Explosives
- Questioned Documents and Drugs
- Chemometrics
- Quality Assurance
- Spectroscopy
- Mass Spectrometry
- Elemental Analysis
- Higher Education Teaching

TATIANA TREJOS

Assistant Professor
Department of Forensic and Investigative Science
West Virginia University

1600 University Ave
Oglebay Hall, Morgantown
WV 26506

304.293.6978

Tatiana.trejos@mail.wvu.edu

www.linkedin.com/in/TatianaTrejos

https://orcid.org/0000-0001-9928-1022

- Research Mentorship
- Project Management

EDUCATION

Florida International University, FL, USA	Ph.D. in Chemistry	2012
Florida International University, FL, USA	Master of Science in Forensic Science	2003
	Licentiature in Chemistry	1998
Universidad de Costa Rica, San José, CR	Bachelor of Science in Chemistry	1997
Universidad de Costa Rica, San José, CR		

WORK EXPERIENCE

07.16-to date Associate Professor, Department of Forensic and Investigative Science, West Virginia University.

2013-07.2016 Assistant Director of Academic Programs, Director of Professional Science Master Program in Forensic Science, and TEAF Facility Manager, International Forensic Research Institute and Department of Chemistry & Biochemistry, Florida International University, Miami, Florida.

2005-2013 Coordinator of Research Programs, TEAF Facility Manager and Instructor, International Forensic Research Institute and Department of Chemistry & Biochemistry, Florida International University, Miami, Florida.

2004-2005 Forensic Chemist and Trace Evidence Coordinator, Department of Forensic Science, Supreme Court of Justice, CR.

2002-2004 Research Assistant, MSFS program, Department of Chemistry & Biochemistry and IFRI, Florida International University, Miami, Florida.

1998-2002 Forensic Chemist, Department of Forensic Science, Supreme Court of Justice, Costa Rica.

SCIENTIFIC PUBLICATIONS

Publications:

1) Curran J, Buzzini P, Trejos T. Estimating Activity Level Probability Terms for the Background Presence of Glass in Forensic Casework. Forensic Science International (Submitted March 2024, in review)

2) Ovide, O., Corzo, R. and **Trejos, T**., 2024. Assessment of performance rates on the elemental comparison of small and irregular glass fragments using µ-XRF and LIBS. *Forensic Chemistry*, *38*, https://doi.org/10.1016/j.forc.2024.100567
3) Zach Andrews, Meghan Prusinowski, Evie Brooks, Cedric Neumann, **Tatiana Trejos.** 2024. Assessing physical fit examinations of stabbed and torn textiles through a large dataset of casework-like items and inter-laboratory studies. *Journal of Forensic Sciences*, *69*(2), pp.469-497, DOI: 10.1111/1556-4029.15452. Selected for JFS social media advertisement and featured in the AAFS Newsletter.
4) Prusinowski M, Tavadze P, Andrews Z, Lang L, Pulivendhan D, Neumann C, Romero AH, **Trejos T.** Experimental results on data analysis algorithms for extracting and interpreting edge feature data for duct tape and textile physical fit examinations. J Forensic Sci. 2023; 00: 1–17. https://doi.org/10.1111/1556-4029.15449 Selected for JFS social media advertisement and featured in the AAFS Newsletter.
5) Logan Lang , Pedram Tavadze, Meghan Prusinowski, Zach Andrews, Cedric Neumann, Tatiana Trejos, Aldo H Romero. Using convolutional neural networks to support examiners in duct tape physical fit comparisons. Forensic Science International. 2023 Dec 1;353:111884. https://doi.org/10.1016/j.forsciint.2023.111884.
6) Ledergerber TD, Feeney W, Arroyo L, **Trejos T**. A feasibility study of direct analysis in real time-mass spectrometry for screening organic gunshot residues from various substrates. Analytical Methods. 2023;15(36):4744-57. DOI: 10.1039/D3AY01258A
7) Vander Pyl C, Menking-Hoggatt K, Arroyo L, Gonzalez J, Liu C, Yoo J, Russo RE, **Trejos T**. Evolution of LIBS technology to mobile instrumentation for expediting firearm-related investigations at the laboratory and the crime scene. Spectrochimica Acta Part B: Atomic Spectroscopy. 2023 Jul 5:106741. https://doi.org/10.1016/j.sab.2023.106741
8) C Vander Pyl, K Dalzell, K Menking-Hoggatt, T Ledergerber, L Arroyo, **T Trejos**. Transfer and persistence studies of inorganic and organic gunshot residues using synthetic skin membranes. Forensic Chemistry, 34, 2023, 100498, https://doi.org/10.1016/j.forc.2023.100498
9) Mehltretter A, Prusinowski M, Arkes H, Flohr D, Neumann C, Ryland S, Sirk D, **Trejos T**. Interpretation and report writing in forensic comparisons of paint evidence: An interlaboratory exercise. Forensic Chemistry. 2023 Jun 16:100513. https://doi.org/10.1016/j.forc.2023.100513 (**Cover page vol 35**)
10) LC Alexander, O Ovide, OC Duffett, AD Lewis, P Buzzini, J Curran, **T Trejos.** The Random Presence of Glass and Paint on the Clothing and Footwear of Members of the General Population: A US Baseline Survey at Various Seasons. J Foren Sci 2023, 00:1-17, DOI: 10.1111/1556-4029.15226 (selected by JFS journal for Media spotlight)
11) AD Lewis, LC Alexander, O Ovide, OC Duffett, J Curran, P Buzzini, **T Trejos**. A study on the occurrence of glass and paint across various cities in the Uni- ted States—Part I: Background presence of glass in the general population, Forensic Chemistry, https://doi.org/10.1016/j.forc.2023.100497 (**Cover Page Vol 34**)
12) LC Alexander, AD Lewis, OC Duffett, J Curran, P Buzzini, **T Trejos**. A Study on the Occurrence of Glass and Paint across Various Cities in the United States Part II: Background Presence of Paint in the General Population, Forensic Chemistry, 34, 10493, https://doi.org/10.1016/j.forc.2023.100493
13) M Prusinowski, Z Andrews, C Neumann, **T Trejos**. Assessing significant factors that can

influence physical fit examinations – Part I. Physical fits of torn and cut duct tapes. For. Sci. Int. 2023, 343, https://doi.org/10.1016/j.forsciint.2023.111567

14) C Vander Pyl, W Feeney, L Arroyo, **T Trejos**, Assessment of the Limitations and Capabilities of GC-MS and LC-MS/MS for Trace Detection of Organic Gunshot Residues from Skin Specimens. Forensic Chemistry, 33, 2023, https://doi.org/10.1016/j.forc.2023.100471
15) Prusinowski M, Brooks E, Neumann C, **Trejos T**. Forensic interlaboratory evaluations of a systematic method for examining, documenting, and interpreting duct tape physical fits. Forensic Chemistry. 2023 Jul 1;34:100487. https://doi.org/10.1016/j.forc.2023.100487
16) O Ovide, R Corzo, **T Trejos.** The analysis of glass from portable electronic devices and glass accessories using µXRF for forensic investigations. Forensic Science International. 2023, 343, https://doi.org/10.1016/j.forsciint.2022.111550
17) **T Trejos.** Forensic Glass Examinations—a Review Focused on Elemental Spectrochemical Analysis. WIREs Forensic Science, WILEY (Advanced reviewed invited contribution). 2022, e1476,. https://doi.org/10.1002/wfs2.1476
18) J Almirall, **T. Trejos**. Interpol review of paint, tape, and glass evidence 2019-2022. Forensic Science International: Synergy, 6, 2022. https://doi.org/10.1016/j.fsisyn.2022.100306
19) Sarah Szakas, Korina Menking-Hoggatt, Tatiana Trejos, Alexander Gundlach-Graham. Elemental Characterization of Leaded and Lead-Free Inorganic Primer Gunshot Residue Standards by spICP-TOFMS. Applied Spectroscopy. 2022. DOI: 10.1177/00037028221142624
20) R Corzo, T Ernst, J Insana, C Martinez-Lopez, J Webb, E Haase, P Weis, **T Trejos**. Evaluation of the performance of modern X-ray fluorescence spectrometry systems for the forensic analysis of glass. *Forensic Chemistry*, 2022.*31*, 100447.
21) K Dalzell, C Ott, T Trejos, L Arroyo. Comparison of portable and benchtop electrochemical instruments for detection of inorganic and organic gunshot residues in authentic shooter samples, *J Forensic Sci*, 2022, https://doi.org/10.1111/1556-4029.15049
22) K Menking-Hoggatt, C Ott, C Vander Pyl, K Dalzell, J Curran, L Arroyo, **T Trejos**. Prevalence and Probabilistic Assessment of Organic and Inorganic Gunshot Residue and Background Profiles using LIBS, Electrochemistry, and SEM-EDS. *Forensic Chemistry*, 2022, https://doi.org/10.1016/j.forc.2022.100429
23) W Feeney, K Menking-Hoggatt, L Arroyo, J Curran, S Bell, **T Trejos**. Evaluation of organic and inorganic gunshot residues in various populations using LC-MS/MS, *Forensic Chemistry*, 2022, 27, https://doi.org/10.1016/j.forc.2021.100389.
24) T Cooman, T Trejos, A Romero, L Arroyo. Implementing machine learning for the identification and classification of compounds and mixtures in portable Raman instruments. Chemical Physics Letters, 787, 2022, 139283, https://doi.org/10.1016/j.cplett.2021.139283
25) C Martinez-Lopez, O Ovide, R Corzo, Z Andrews, J Almirall, **T Trejos**. Homogeneity assessment of the elemental composition of windshield glass by micro-XRF, LIBS, and LA-ICP-MS analysis. *Forensic Chemistry*, 27, 2022, 100384, https://doi.org/10.1016/j.forc.2021.100384
26) K Lambert, S Montero, A Akmeemana, R Corzo, G Gordon, E Haase, P Jiang, O Ovide, K Prasch, K Redman, T Scholz, T Trejos, J Webb, P Weis, W Wiarda, S Wilczek, H Xie, P Zoon, J Almirall. An interlaboratory study to evaluate the forensic analysis and

interpretation of glass evidence. Forensic Chemistry, 2022, 27, 100378, https://doi.org/10.1016/j/forc/2021.100378

27) W Feeney, K Menking-Hoggatt, C Vander Pyl, C Ott, S Bell, L Arroyo, **T Trejos**. Detection of organic and inorganic gunshot residues from hands using complexing agents and LC-MS/MS. *Analytical Methods.* 2021, 13, 3024-3039, https://doi.org/10.1039/D1AY00778E **(Journal COVER PAGE and hot article)**

28) C Vander Pyl, C Martinez-Lopez, K Menking-Hoggatt, **T Trejos**. Analysis of primer gunshot residue particles by Laser Induced Breakdown Spectroscopy and Laser Ablation Inductively Coupled Plasma Mass Spectrometry. *Analyst.* 2021. https://doi.org/10.1039/D1AN00689D

29) J Almirall, A Akmeemanaa, K Lambert, P Jiang, E Bakowska, R Corzo, C Martinez Lopez, E "Chip"Pollock, K. Prasch, T Trejos, P Weis, W Wiarda, H Xie, P Zoon. Determination of seventeen major and trace elements in new float glass standards for use in forensic comparisons using laser ablation inductively coupled plasma mass spectrometry. *Spectrochimica Acta B*, 2021, 19, https://doi.org/10.1016/j.sab.2021.106119

30) K Menking-Hoggatt, C Martinez, C Vander Pyl, E Heller, E Pollock, L Arroyo, and **T. Trejos.** Development of Tailor-Made Inorganic Gunshot Residue (IGSR) Microparticle Standards and Characterization with a Multi-technique Approach. *Talanta.* April 2021, 225, https://doi.org/10.1016/j.talanta.2020.121984

31) R Corzo, T Hoffman, T Ernst, T Trejos, T Berman, S Coulson, P Weis, Al Stryjnik, H Dorn, E "Chip" Pollock, MS Workman, P Jones, B Nytes, T Scholz, H Xie, K Igowsky, R Nelson, K Gates, J Gonzalez, LM Voss, J Almirall, An interlaboratory study evaluating the interpretation of forensic glass evidence using refractive index measurements and elemental composition, *Forensic Chemistry,* 22, 2021, https://doi.org/10.1016/j.forc.2021.100307

32) A Akmeemana, P Weis, R Corzo, D Ramos, P Zoon, T Trejos, T Ernst, C Pollock, E Bakowska, C Neumann, J Almirall, Interpretation of Chemical Data from Glass Analysis for Forensic Purposes, Journal of Chemometrics, *Journal of Chemometrics*. 2021; 35, e3267. https://doi.org/10.1002/cem.3267

33) K Menking-Hoggatt, L Arroyo, J Curran and **T Trejos**. Novel LIBS method for chemical micro-mapping of inorganic gunshot residue collected from hand samples, *Journal of Chemometrics*, online Dec 2019, 2021;35: e3208, https://doi.org/10.1002/cem.3208 (top cited article 2021-2022)

34) E Brooks, A Mehltretter, M Prusinowski, **T Trejos**. Optimization and Evaluation of Spectral Comparisons of Electrical Tape Backings by X-ray Fluorescence. *Journal of Forensic Chemistry*, 21, 2020.https://doi.org/10.1016/j.forc.2020.100291

35) J Almirall, **T Trejos**, K Lambert. Interpol review of glass and paint evidence 2016-2019, Forensic Science International: Synergy, 2020, https://doi.org/10.1016/j.fsisyn.2020.01.010

36) **T Trejos**, S Koch, A Mehltretter. Scientific Foundations and Current State of Trace Evidence—a Review, Journal of Forensic Chemistry, 18, May 2020. (**Journal COVER PAGE**). https://doi.org/10.1016/j.forc.2020.100223

37) C Ott, K Dalzell, PJ Calderon, AL Alvarado-Gomez, T Trejos, L Arroyo. Evaluation of the Simultaneous Analysis of Organic and Organic Gunshot Residues within a Large Population Data Set Using Electrochemical Sensors, *Journal of Forensic Sciences*, 2020, https://doi.org/10.1111/1556-4029.14548

38) E Brooks, M Prusinowski, S Gross, **T Trejos**. Forensic Physical Fits in the Trace Evidence Discipline: A Review, *Forensic Science International*, 313, 2020, https://doi.org/10.1016/j.forsciint.2020.110349
39) C Vander Pyl, K Morris, L Arroyo, **T Trejos**. Assessing the utility of LIBS in the reconstruction of firearm related incidents, *Journal of Forensic Chemistry*, 19, June 2020, https://doi.org/10.1016/j.forc.2020.100251
40) W Feeney, C Vander Pyl, S Bell, **T. Trejos**. Trends in Composition, Collection, Persistence, and Analysis of IGSR and OGSR: A Review. *Journal of Forensic Chemistry*, 19, June 2020, https://doi.org/10.1016/j.forc.2020.100250
41) E Haase, L Arroyo, **T Trejos**. Classification of printing inks in pharmaceutical packages by Laser-Induced Breakdown Spectroscopy and Attenuated Total Reflectance-Fourier Transform Infrared Spectroscopy, *Spectrochimica Acta B*, 172, 2020. https://doi.org/10.1016/j.sab.2020.105963
42) M Prusinowski, E Brooks, **T Trejos**. Development and validation of a systematic approach for the quantitative assessment of the quality of duct tape physical fits. Forensic Science International, 307, February 2020, https://doi.org/10.1016/j.forsciint.2019.110103
43) RP Gorziza, CMB Carvalho, M González, LB Leal, T Korndörfer, RS Ortiz RS, T Trejos, Limberger RP. Blue and black ballpoint pen inks: a systematic review for ink characterization and dating analysis. *Brazilian Journal of Forensic Sciences Medical Law and Bioethics*. 8, 3, 2019, https://doi.org/10.17063/bjfs8(3)y2019113
44) C Martinez-Lopez, T Trejos, S Coulson, J Goodpaster, K Igowsky, F Kuczelinis, A Mehltretter, E Pollock, U Simmross, R Weimer, P Weis, JR Almirall, Interlaboratory evaluations of the performance of elemental analytical methods for the forensic analysis and comparisons of electrical tapes, *Forensic Chemistry*, 12, 2019, 66-77. https://doi.org/10.1016/j.forc.2019.01.001
45) C Vander Pyl, O Ovide, Ho M, Yuksel B, **T Trejos**. Spectrochemical Mapping Using Laser Induced Breakdown Spectroscopy as a More Objective Approach to Shooting Distance Determination, *Spectrochimica Acta B*, 2019, 152, 93-101. https://doi.org/10.1016/j.sab.2018.12.010
46) B Yuksel, M Ho, O Ovide, C Vander Pyl, **T Trejos**. Infrared Imaging as a Complementary Aid in Estimating Muzzle-to-Target Shooting Distance: An Application on Dark, Patterned and Bloody Samples. T K *J Foren Sci Leg Med*, 16,2, 2019, 73-80. DOI: 10.5336/forensic.2019-64837
47) M Prusinowski, A Mehltretter, C Martinez, J Almirall, **T Trejos**. Assessment of the utility of X- ray Fluorescence for the chemical characterization and comparison of black electrical tape backings. *Forensic Chemistry*, 2019, 13, 100146.
48) https://doi.org/10.1016/j.forc.2019.100146
49) **T Trejos**, C Vander Pyl, K Menking-Hoggatt, AL Alvarado, L Arroyo. Fast Identification of Inorganic and Organic Gunshot Residues by LIBS and Electrochemical Methods, *Forensic Chemistry, Elsevier*, 2018, 8, 146-156. https://doi.org/10.1016/j.forc.2018.02.006
50) K Rupert, M. Ho, **T Trejos**. Study of Transfer and Persistence of Glass in a Mock Kidnapping Case, *Journal of the American Society of Trace Evidence Examiners*, 2018, 8,1, 16-36.
51) CJ Johnson, P. Martin, KA Roberts, T Trejos, R Corzo, JR Almirall, AM Safer. The Capability of Raman Microspectroscopy to Differentiate Printing Inks, *Journal of Forensic Science*, 2018, 1- 14. DOI: 10.111 1/155 6-4 029.13508

52) C Martinez-Lopez, T Trejos, AH Mehltretter, JR Almirall. Elemental analysis and characterization of electrical tape backings by LA-ICP-MS, *Forensic Chemistry*, Elsevier, 2017,4, 96–107. https://doi.org/10.1016/j.forc.2017.03.003
53) JR Almirall, **T. Trejos**. Applications of LA-ICP-MS to forensic science. *Elements*, Oct 2016, 12, 335-340. (Invited contribution, IF 4.5) https://doi.org/10.2113/gselements.12.5.335
54) **T Trejos**, P Torrione, et al. A novel forensic tool for the characterization and comparison of printing ink evidence: development and evaluation of a searchable database using data fusion of spectrochemical methods, *Journal of Forensic Sciences,* 2016, 61, 3, 715-724 https://doi.org/10.1111/1556-4029.13109
55) K Subedi, T Trejos, JR Almirall. Forensic analysis of printing inks using tandem LIBS and LAICP-MS, *Spectrochimica Acta Part B: Atomic Spectroscopy*, 2015, 103, 76-83. https://doi.org/10.1016/j.sab.2014.11.011
56) R Corzo, K Subedi K, T Trejos, JR Almirall. Evaluation of the Forensic Utility of Scanning Electron Microscopy-Energy Dispersive Spectroscopy and Laser Ablation-Inductively Coupled Plasma-Mass Spectrometry for Printing Ink Examinations. *Journal of Forensic Sciences*, 2016, 61, 3, 725-734. DOI: 10.1111/1556-4029.13110
57) **T Trejos**, R Corzo, K Subedi, JR Almirall. Characterization of toners and inkjets by laser ablation spectrochemical methods and Scanning Electron Microscopy-EDX, *Spectrochmica Acta B*, 2014, 92, 9-22. DOI: 10.1016/j.sab.2013.11.004
58) **T Trejos**, R Koons, S. Becker, T Berman, J Buscaglia, M Dueckin, T Eckert-Lumsdon, T Ernst, C Hanlon, A Heydon, K Mooney, R Nelson, K Olsson, C Palenik, E Pollock, D Rudell, S Ryland, A Tarifa, M Valadez, P Weis and JR Almirall. Cross-validation and evaluation of the performance of methods for the elemental analysis of forensic glass by μ-XRF, ICP-MS and LA-ICP-MS, *Journal of Anal. Bional. Chem*, 2013, 405: 5393-5409, DOI:10.1007/s00216-013-6978-y
59) **T Trejos**, R Koons, Weis, S Becker, T Berman, C Dalpe, M Duecking, J Buscaglia, T Eckert- Lumsdon, T Ernst, C Hanlon, A Heydon, K Mooney, R Nelson, K Olsson, E Schenk, C Palenik, EC Pollock, D Rudell, S Ryland, A Tarifa, M Valadez, A van Es, V Zdanowicz, and JR Almirall. Forensic analysis of glass by μ-XRF, ICP-MS, LA-ICP-MS and LA-ICP-OES: Evaluation of the performance of different criteria for comparing elemental composition, *Journal of Analytical Atomic Spectrometry*, 2013, 38, 1270-1282, DOI: 10.1039/C3JA50128K
60) JR Almirall, E Cahoon, S Jantzi, E Schenk, T Trejos. New Developments in Forensic Applications of LIBS and LAICPMS. *Optical Soc America,* LM5B.1, 2012, https://doi.org/10.1364/LACSEA.2012.LM5B.1
61) T Ernst, T Berman, J Buscaglia, T Eckert-Lumsdon, C Hanlon, K Olsson, C Palenick, S Ryland, T Trejos, M Valdez and JR Amirall. Signal-to-noise ratios in forensic glass analysis by micro-X- ray fluorescence spectrometry, *X-Ray Spectrometry*, 2014, DOI: 10.1002/xrs.2437
62) Elemental Analysis Working Group Members (EAWG): ASTM method for the elemental analysis of glass by LA-ICP-MS, ASTM, ASTM E-2927-13
63) Elemental Analysis Working Group Members (EAWG) ASTM method for the elemental analysis of glass by μXRF, ASTM, ASTM E2926-13
64) **T Trejos**, A Flores and JR Almirall. Micro-spectrochemical analysis of document paper and gel inks by laser ablation inductively coupled plasma mass spectrometry and laser

induced breakdown spectroscopy, Spectrochimica Acta Part B: *Atomic Spectroscopy*, 2010, 65B (11), 884-895. https://doi.org/10.1016/j.sab.2010.08.004

65) L Arroyo, T Trejos, T Hosick, S Machemer, J Almirall, and PR Gardinali. Analysis of soils and sediments by laser ablation ICP-MS: an innovative tool for environmental forensics, *Environmental Forensics*, 2010, 11: 4, 315- 327. https://doi.org/10.1080/15275922.2010.494949
66) L Arroyo, T Trejos, PR Gardinali, JR Almirall. Optimization and Validation of a LA-ICPMS method for the routine analysis of soils and sediments, *Spectrochim Acta B*, 64:16-25, 2009. https://doi.org/10.1016/j.sab.2008.10.027
67) W Castro, T Trejos, B Naes, JR Almirall. Comparison of high resolution and dynamic reaction cell ICP-Ms capabilities for the forensic analysis of iron in glass, *Analytical and Bioanalytical Chemistry*, 2008, 392:663-672. DOI: 10.1007/s00216-008-2299-y
68) JR Almirall, **T Trejos**. Advances in the Forensic Analysis of Glass Fragments: A Review with focus on refractive index and elemental analysis. *Forensic Science Review*, 2006, 18, 2, 74-95 (invited contribution)
69) K Smith, T Trejos, J. Watling, J.R. Almirall. A Guide for the quantitative elemental analysis of glass using LA-ICP-MS. Atomic Spectroscopy, May/June 2006, 27 (3), p 69-75
70) S Umpierrez, T Trejos, K Neubauer, JR Almirall. Determination of Iron in Glass by Laser Ablation and Solution using a DRC-ICP-MS. *Atomic Spectroscopy*, May/June 2006 27 (3), 76- 79.
71) **T Trejos** and JR Almirall. Sampling strategies for the analysis of glass fragments by LA-ICP- MS: Part I: Microhomogeneity study of glass and its application to the interpretation of forensic evidence, *Talanta*, 2005, 67: 388-395. DOI: 10.1016/j.talanta.2005.01.042
72) **T Trejos** and JR Almirall. Sampling strategies for the analysis of glass fragments by LA-ICP- Ms: Part II: Sample size and sample shape considerations, Talanta, 2005, 67: 395-401. DOI: 10.1016/j.talanta.2005.01.033
73) C Latkoczy, S Becker, M Ducking, D Gunther, JA Hoogewerff, J Almirall, J Buscaglia, A Dobney, R Koons; S Montero; G van der Peijl, W Stoecklein, T Trejos; JR Watling, V Zdanowicz. Development and evaluation of a standard method for the quantitative determination of elements in float glass samples by LA-ICP-MS. *Journal of Forensic Sciences* 2005, 50(6) 1327-1341
74) **T Trejos**, S Montero, JR Almirall. Analysis and Comparison of Glass Fragments by Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) and ICP-MS, *Journal of Analytical and Bioanalytical Chemistry,* 2003, 376, 8: 1255-1264. DOI: 10.1007/s00216-003-1968-0
75) **T Trejos** and JR Almirall. Effect of fractionation on the elemental analysis of glass using Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS), *Analytical Chemistry*, 2004, 76 (5), 1236-1242. DOI: 10.1021/ac0349330
76) JR Almirall, T Trejos, A Hobbs, K Furton. Trace elemental analysis of glass and paint samples of forensic interest, In Carapezza EM (Ed): Sensors, and Command, Control, Communications, and Intelligence (C3I) Technologies for Homeland Defense and Law Enforcement II; Proceedings of the International Society for Optical Engineering (SPIE, September 2003, Vol 5071: 193. https://doi.org/10.1117/12.498106

BOOK CHAPTERS

1) A Mehltretter, T Trejos, Alaric CW Koh. Chapter 2: **Forensic Examination of Pressure Sensitive Tapes**. Desiderio, V.; Taylor, C. E.; Daeid, N. N., ***Handbook of Trace Evidence Analysis Volume 2***. Wiley. 2024 (in press).
2) Celine Weyermann, Virginie Redouté Minzière, Thomas Tilborg, Tatiana Trejos, Claude Roux. Chapter 6: **Gunshot Residue (GSR).** Desiderio, V.; Taylor, C. E.; Daeid, N. N., ***Handbook of Trace Evidence Analysis Volume 2***. Wiley. 2024 (in press)
3) J Curran, T Hicks, T Trejos. Chapter 6: Interpretation of Glass Evidence. Desiderio, V.; Taylor, C. E.; Daeid, N. N., ***Handbook of Trace Evidence Analysis***. Wiley. 2020. ISBN-13: 978-1118962114
4) T Trejos, JR Almirall. "Forensic Characterization and Comparisons of Inks". In ***Forensic Science Handbook***. R. Saferstein and R. Hall eds, Chapter 7, 2019, 3rd edition, Vol 1.
5) JR Almirall, T Trejos. "Analysis of Glass Evidence". In ***Forensic Chemistry Fundamentals and Applications***. J. Siegel ed. Willey Blackwell, John Wiley and Sons, 2016, ISBN 978-1-118-89772-0, Chapter 6, pp 228-272.
6) T Trejos and JR Almirall, Laser Ablation Inductively Coupled Plasma Mass Spectrometry in Forensic Science in Wiley ***Encyclopedia of Analytical Chemistry*** (Forensic Analytical Chemistry Volume) G. Patonay, Ed. 2010, a9103, pp 1-26.
7) J.R. Almirall and T. Trejos, Forensic applications of mass spectrometry in ***Encyclopedia of Mass Spectrometry***, Vol. 5, Diane Beauchemin, Editor, 2010, pp 705-717.
8) J.R. Almirall, Trejos, T; Hobbs, A; Perr, J; Furton, K. Mass spectrometry in forensic science. In: ***Advances in Mass Spectrometry***, AE Ashcroft, G Brenton, JJ Mohaghan (Eds), ***Elsevier***, 16, chapter 10, pp 167-187, 2004

SCIENTIFIC PRESENTATIONS

1. June 2024. Tatiana Trejos, FTCoE & NIJ Webinar: FITS—Functional Implementation of Thorough and Systematic approaches for Fracture Examinations. Live on June 4th, 2024 and available on demand Course (oral presentation)
   link: https://learning.forensicac.org/course/view.php?id=591
2. June 2024. Tatiana Trejos, Trace Evidence Perspective on Interpretation Scales, Communicating Forensic Findings: Current Practices and Future Directions Workshop, Rockville, Maryland (oral presentation)
3. June 2024. Leah Thomas, Kourtney Dalzell, Luis Arroyo, Tatiana Trejos. Qualtrics Survey on protocols of arrest, collection, storage, and analytical procedures on firearm-related investigations and the resulting gunshot residue evidence. NIST-OSAC OGSR Task Group (oral, virtual).
4. May 2024. Tatiana Trejos. Assessing the reliability of modern μXRF technology for expanded impact on the forensic examination and interpretation of trace evidence. NIST-OSAC Trace Materials Subcommitee, Jacksonville, FL (oral)
5. April 2024. Lacey Leatherland and Tatiana Trejos. Webinar: WVU Interlaboratory on Electrical Tapes. (oral, virtual)
6. April 2024. Addio Fiordigigli, Ian Balestrieri, Kourtney Dalzell, Thomas Ledergerber, Tatiana Trejos, Luis Arroyo. Gas Chromatography Solutions for Monitoring Organic

Gunshot Residues at Trace Levels. WVU Undergraduate Research Symposium, Spring 2024, Morgantown, WV (poster)

7. April 2024. Liliana Barbosa, Thomas Ledergerber, Kourtney Dalzell, Luis Arroyo, Tatiana Trejos.Characterization of Firearm Ammunition via LC-MS/MS Analysis of Smokeless Powders, Spent Cartridges, and Hand Residues. WVU Undergraduate Research Symposium, Spring 2024, Morgantown, WV (poster, runner up)
8. April 2024. Claire Dolton, Lacey Leatherland, Tatiana Trejos. Evaluating evidence integrity in the analysis of tape evidence when using latent print development and µXRF analysis. WVU Undergraduate Research Symposium, Spring 2024, Morgantown, WV (poster, first place winner)
9. April 2024. Brooke Weiss, Allison Carranza, Tatiana Trejos. Development of an Extensive Database for the Forensic Examination of Glass by X-Ray Fluorescence. WVU Undergraduate Research Symposium, Spring 2024, Morgantown, WV (poster)
10. March 2024. WVU Eureka STEM Camp Forensic Workshop. CSI Behind the Scenes: Discovering Clues through Science. Tatiana Trejos, Luis Arroyo, Kourtney Dalzell, Thomas Ledergerber, Leah Thomas (workshop for middle school girls), Jacksons Mill, Weston, WV.
11. March 2024. Tatiana Trejos. Development of mobile technology for on-site analysis of gunshot residue. Graduate Seminar, IUPUI Forensic Science Program (virtual oral presentation, invited)
12. February 2024. Thomas Ledergerber, Tatiana Trejos, Luis Arroyo, Mat Staymates, and Kourtney Dalzell. Building Foundations for a more comprehensive interpretation of IGSR and OGSR evidence. Pittcon Conference and Exposition, San Diego, CA (oral invited)
13. February 2024. Luis Arroyo, Tatiana Trejos, Matt Staymates, Kourtney Dalzell, Thomas Ledergerber, Leah Thomas, and Madison Lindung. Comprehensive Assessment of Novel Reference Materials and Analytical Methods for the Analysis and Interpretation of Organic and Inorganic Gunshot Residues. NIJ Forensic Science R&D Symposium, AAFS 76th, Denver, CO (oral invited).
14. February 2024. Tatiana Trejos, Zachary Andrews, Meghan Prusinowski, Cedric Neumann, Aldo Romero. Assessing the Strength of Trace Evidence Fracture Fits Through a Comprehensive, Systematic, and Quantifiable Approach. NIJ Forensic Science R&D Symposium, AAFS 76th, Denver, CO (oral invited).
15. February 2024. Zachary Andrews, Lacey Leatherland, Troy Ernst, Ruthmara Corzo, Cedric Neumann, Tatiana Trejos. Assessing spectral comparison metrics for the forensic analysis of glass and electrical tape. Pittcon Conference and Exposition, San Diego, CA (poster)
16. February 2024. Troy Ernst, Zachary Andrews, Cedric Neumann, Ruthmara Corzo, Tatiana Trejos. Assessing the reliability of modern µXRF technology for expanded impact on the forensic examination and interpretation of trace materials: glass evidence. National Institute of Justice Forensic Science R&D Symposium at the American Academy of Forensic Sciences 76th Annual Scientific Meeting, Denver, CO (poster)
17. February 2024. Lacey Leatherland, Ruthmara Corzo, Charlotte Vogler, Zachary Andrews, Cedric Neumann, Tatiana Trejos. Assessing the reliability of modern µXRF technology for expanded impact on the forensic examination and interpretation of trace materials: tape evidence. National Institute of Justice Forensic Science R&D Symposium

at the American Academy of Forensic Sciences 76th Annual Scientific Meeting, Denver, CO (poster)

18. November 2023. Patrick Buzzini, Lauryn Alexander, Andra Lewis, James Curran, Tatiana Trejos. A survey of the background presence of glass and paint in the general population across various cities in the United States. 23rd Triennial Meeting of the International Association of Forensic Sciences. Sidney, Australia (oral presentation)
19. November 2023. Andria Mehltretter, Tatiana Trejos, Meghan Prusinowski. Past, present, and future states of interpretation and reporting of trace evidence comparisons in the United States. 23rd Triennial Meeting of the International Association of Forensic Sciences. Sidney, Australia (oral presentation)
20. November 2023. Thomas Ledergerber, Monica Joshi, Luis Arroyo, and Tatiana Trejos. Evaluation of Gas Chromatography-Triple Quadrupole Mass Spectrometry for the Identification of Organic Gunshot Residues from Known Shooters and Non-Shooters. 2023 Annual Eastern Analytical Symposium, New Jersey (invited speaker)
21. November 2023. Tatiana Trejos, Luis Arroyo, Kourtney Dalzell, Thomas Ledergerber, Leah Thomas, and Madison Lindung. Development of Strategic Analytical Methods to Support the Modernization of Gunshot Residue Practice in Forensic Science.2023 Annual Eastern Analytical Symposium, New Jersey (invited speaker)
22. October 2023. Tatiana Trejos, Luis Arroyo, Kourtney Dalzell, Leah Thomas, Madison Lindung, and Thomas Ledergerber. Streamlining Decision-making Processes at the Crime Scene and the Laboratory by Incorporating Fast Screening Tools into Current Gunshot Residue Workflows. FACSS SCIX Annual Meeting, Reno, NV (invited speaker)
23. October 2023. Rutmara Corzo, Oriana Ovide, Tatiana Trejos. Performance of μXRF and LIBS for the forensic analysis of small and irregular glass fragments. FACSS SCIX Annual Meeting, Reno, NV
24. October 2023. Kourtney Dalzell, Leah Thomas, Thomas Ledergerber, Courtney Vander Pyl, Tatiana Trejos, Luis Arroyo, Jhanis Gonzalez, Chunyi Liu, Jong Yoo, and Richard E. Russo. Advancement of LIBS Mobile Technology for the Detection of Firearm Discharge Residue from Various Substrates and Assessment at Mock Crime Scenes. FACSS SCIX Annual Meeting, Reno, NV
25. October 2023. Luis Arroyo, Tatiana Trejos, Kourtney Dalzell, Thomas Ledergerber, Leah Thomas. Strategies to streamline firearm-related investigations at the crime scene and the laboratory using modern screening tools for GSR detection. 2023 CFS Physical Sciences Symposium, Center of Forensic Science, Toronto, Canada. (invited speaker)
26. October 2023. Tatiana Trejos, Luis Arroyo, Mat Staymates, Courtney Vander Pyl, Thomas Ledergerber, Kourtney Dalzell, and Madison Lindung. Lessons learned about the transfer and persistence of inorganic and organic gunshot residue. 2023 CFS Physical Sciences Symposium, Center of Forensic Science, Toronto, Canada. (invited speaker)
27. October 2023. Tatiana Trejos, Zachary Andrews, Meghan Prusinowski, Pedram Tavazohi, Logan Lang, Aldo Romero, and Cedric Neumann. Assessment of modern methods for the quantitative comparison of physical fit examinations through large datasets and interlaboratory studies. 2023 CFS Physical Sciences Symposium, Center of Forensic Science, Toronto, Canada. (invited speaker)

28. September 2023. Lacey Leatherland, Tatiana Trejos. Elemental analysis of electrical tapes-capabilities of modern μXRF technology. 2023 Graduate research symposium and poster session. NIJ-FTCoE National Forensic Science Week. (online oral poster)
29. September 2023. Tatiana Trejos, Andria Mehltretter, and Meghan Prusinowski. Interpretation and report writing in forensic comparisons of paint evidence: results from an interlaboratory exercise. Webinar, NIST-OSAC.
30. August 2023. Claire Dolton, Meghan Prusinowski, Zachary Andrews, Charlotte Vogler, Katelin Radonovich, Cedric Neumann, Tatiana Trejos. Efforts to strengthen the scientific foundation of physical fits of automotive plastics. Midwestern Association of Forensic Scientists (MAFS) 52nd Annual Meeting, Detroit, MI (poster)
31. August 2023. Thomas Ledergerber, Kourtney Dalzell, Matt Staymates, Luis Arroyo, Tatiana Trejos. Gunshot residue visualization using laser sheet scattering, high speed videography, atmospheric particle samplers, and analytical techniques. Midwestern Association of Forensic Scientists (MAFS) 52nd Annual Meeting, Detroit, MI (oral presentation)
32. August 2023. Lacey Leatherland, Ruthmara Corzo, Cedric Neumann, Tatiana Trejos. Evaluating and comparing the discrimination and informing power of μXRF and ATR-FTIR for the forensic analysis of tapes. Midwestern Association of Forensic Scientists (MAFS) 52nd Annual Meeting, Detroit, MI (oral presentation)
33. August 2023. Zachary Andrews, Troy Ernst, Tatiana Trejos. Evaluation of comparison criteria for modern μXRF analysis of casework-like glass samples. Midwestern Association of Forensic Scientists (MAFS) 52nd Annual Meeting, Detroit, MI (oral presentation)
34. July 2023. Alyson Niermeyer, Zachary Andrews, Tatiana Trejos. Modern Phone Screens as Forensic Evidence: Evaluation of Glass Refractive Index. 16th Annual Undergraduate Summer Symposium. Morgantown, WV.
35. July 2023. Claire Dolton, Katie Radonvich, Meghan Prusinowski, Zachary Andrews, Pedram Tavadze, Tatiana Trejos. Development of quantitative metrics to assist in physical fit examinations of fractured automotive polymers. 16th Annual Undergraduate Summer Symposium. Morgantown, WV
36. May 2023. Kourtney A. Dalzell, Courtney Vander Pyl, Leah Thomas, Colby E. Ott, Korina Menking-Hoggatt, Tatiana Trejos, and Luis E. Arroyo. Advancements in portable technology for gunshot residue detection using electrochemical and Laser-Induced Breakdown Spectroscopy (LIBS) devices. NIJ National Research Conference, Arlington, Virginia
37. April 2023, Tatiana Trejos, Kourtney Dalzell, Thomas Ledergerber, Zach Andrews, Lacey Leatherland, Sharon Kalb. CSI Behind the Scenes: Discovering Clues through Science. WVU ERUREKA STEM Camp Forensic Workshop. Weston, WV
38. April 2023. Madison Lindung, Tatiana Trejos, Luis Arroyo. West Virginia University Congressionally Directed Spending Programs visit to the US Capitol and meetings with members of US Congress. Research at WVU-FIS on Firearm-Related Investigations. (invited contribution).
39. March 2023. Tatiana Trejos, Meghan Prusinowski, Zachary Andrews. Webinar and discussion forum on physical fits interlaboratory studies of duct tapes and textiles. Webinar.

40. March 2023, Kourtney A. Dalzell, Courtney Vander Pyl, Tatiana Trejos, Luis E. Arroyo. Innovative sampling and screening methods for IGSR and OGSR analysis in firearm reconstruction investigations using electrochemistry and statistical analysis. Pittcon 2023. (Poster presentation).
41. March 2023, Luis Arroyo, Tatiana Trejos, Matt Staymates, Korina Menking-Hoggatt, Colby Ott, Courtney Vander Pyl, Kourtney A. Dalzell, Thomas Ledergerber, and Bill Feeney. Pittcon 2023. NIJ Session. Advancements in the Analysis of Forensic Trace Evidence (G. Dutton session coordinator). Novel Tools for the Analysis of Organic and Inorganic Gunshot Residues: moving technology to the forefront. (Oral presentation)
42. February 2023, Thomas Ledergerber, William Feeney, Edward Scisco, Luis Arroyo, Tatiana Trejos. Investigation of Authentic Organic Gunshot Residues by Direct Analysis in Real Time-Mass Spectrometry. AAFS meeting, Orlando, FL (poster presentation)
43. February 2023, Zachary Andrews, Meghan Prusinowski, Tatiana Trejos. Assessment of a novel method for physical fit examinations using an extensive database of casework-like samples and interlaboratory studies. AAFS meeting, Orlando, FL (poster presentation)
44. January 2023, Tatiana Trejos. Expanding the Capabilities of Gunshot Residues: Novel Sampling and Analytical Methods, virtual presentation to the NIST-OSAC GSR Subcommittee (invited oral presentation).
45. January 2023, Madison Lindung, Kourtney Dalzell, Tatiana Trejos. Transfer and Persistence of Gunshot Residue on Clothing and Synthetic Skin Substrates by SEM-EDS, 20th Annual Undergraduate Research Day at the Capitol (poster presentation)
46. January 2023, Leah Thomas, Kourtney Dalzell, Tatiana Trejos. Portable Screening Solution to Firearm-related Crimes using Laser Induced Breakdown Spectroscopy (LIBS), 20th Annual Undergraduate Research Day at the Capitol. (poster presentation)
47. December 3rd, 2022. Madison Lindung, Korina Menking-Hoggatt, Courtney Vander Pyl, Kourtney Dalzell, and Tatiana Trejos. Transfer and Persistence of Gunshot Residue on Synthetic Skin by SEM-EDS. Fall Undergraduate Research Symposium, Morgantown, WV (Oral presentation)
48. November 8th, 2022. Jose Almirall and Tatiana Trejos. INTERPOL International Forensic Science Managers Symposium. Tri-Annual Review of Glass, Paint, and Tape: Current State and Challenges Lyon, France. (Oral presentation-virtual, invited speaker)
49. October 28th, 2022. Tatiana Trejos, Luis Arroyo, Korina Menking-Hoggatt, Courtney Vander Pyl, Kourtney Dalzell. Métodos novedosos para la identificación de partfculas orgánicas e inorgánicas de residuos de disparo XIII Congreso Internacional de Medicina Legal y Ciencias Forenses, Panama (Oral presentation, invited speaker)
50. September 2022, Korina Menking-Hoggatt, Courtney Vander Pyl, Kourtney Dalzell, Colby E. Ott, Luis Arroyo, Tatiana Trejos. FTCoE National Forensic Week. Persistence, Prevalence, and Probabilistic Study of Inorganic and Organic Gunshot Residue in Shooter and Non-Shooter Populations (Poster-virtual, invited speaker)
51. September 14th, 2022. T Trejos, A Quigley-McBride, M Prusinowski, Z Andrews. Workshop: Forensic Examinations of Physical Fits—Past, Present, and Future. MAFS 51st Annual Fall Meeting A Joint Meeting with ASTEE, Des Moines, Iowa. (workshop organizer and instructor, full day workshop)
52. September 15th, 2022. Meghan Prusinowski, Zachary Andrews, Tatiana Trejos. Development of systematic and practical documentation templates for tape and textile

physical fit comparisons. MAFS 51st Annual Fall Meeting A Joint Meeting with ASTEE. Des Moines, Iowa. (Oral presentation)

53. September 16th, 2022. Zachary Andrews, Colton Diges, Tatiana Trejos. Evaluating the use of microfiber alignment in office paper and postage stamps to identify physical fits. MAFS 51st Annual Fall Meeting A Joint Meeting with ASTEE. Des Moines, Iowa. (Oral presentation)
54. September 16th, 2022. Tatiana Trejos, Luis Arroyo, Korina Menking-Hoggatt, Courtney Vander Pyl, Kourtney Dalzell, Colby Ott, and Thomas Ledergerber. Development of innovative, reliable, and fast screening methods for the detection of organic and inorganic gunshot residues. MAFS 51st Annual Fall Meeting A Joint Meeting with ASTEE Des Moines, Iowa. (Oral presentation)
55. September 17th, 2022. Lauryn Alexander, Oriana Ovide, Olivia Duffett, Andra Lewis-Krick, Patrick Buzzini, Tatiana Trejos. Evaluation of Glass and Paint Traces on Clothing and Footwear of the General Public in Various U.S. Regions and Seasons. MAFS 51st Annual Fall Meeting A Joint Meeting with ASTEE. Des Moines, Iowa. (Oral presentation)
56. July 28th, 2022. Madison Lindung, Leah Thomas, Korina Menking-Hoggatt, Courtney Vander Pyl, and Tatiana Trejos. Portable versus Benchtop LIBS Comparison for Screening of Gunshot Residue. WVU Summer Undergraduate Symposium, Morgantown, WV (Poster, 2nd place award)
57. June 1st 2022. Meghan Prusinowski, Zachary Andrews, Cedric Neumann, Tatiana Trejos. Assessing significant factors that can influence physical fit examinations of tape and textiles. European Academy of Forensic Sciences (EAFS) conference, Stockholm, Sweden (Poster)
58. May 31st, 2022. Tatiana Trejos and Luis Arroyo. Analysis and Interpretation of Organic and Inorganic Gunshot Residues: Lessons Learned from a Large Population Study. European Academy of Forensic Sciences (EAFS) conference, Stockholm, Sweden (Oral presentation, invited keynote speaker)
59. April 2022, Tatiana Trejos, Meghan Prusinowski, Korina Menking-Hoggatt. CSI Behind the Scenes: Discovering Clues through Science. STEM Camp Forensic Workshop.
60. February 2022. Kourtney Dalzell, Courtney Vander Pyl, MS, Tatiana Trejos. and Luis Arroyo, Combining novel sampling techniques and electrochemical detection in GSR analysis for bullet hole identification and distance determination. 20, Seattle, WA Poster Presentation).
61. February 2022. Courtney Vander Pyl, MS, Korina Menking-Hoggatt, Tatiana Trejos. Rapid Spectrochemical Mapping Techniques for Enhanced Detection and Visualization of Gunshot Residue Patterns. AAFS Conference, Seattle, WA Poster Presentation).
62. February 2022. William Feeney, Korina Menking-Hoggatt, Luis Arroyo, James Curran, Suzanne Bell, Tatiana Trejos. An Evaluation of Organic and Inorganic Gunshot Residues in Various Populations Using Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). AAFS Conference, Seattle, WA. (Oral presentation)
63. February 2022 Korina Menking-Hoggatt, Colby E. Ott, Courtney Vander Pyl, Kourtney Dalzell, James Curran, Luis Arroyo, Tatiana Trejos. Probabilistic Interpretation of a Large Population Study of Gunshot Residue and Background Profiles using LIBS, Electrochemistry, and SEM-EDS, Seattle, WA. (Oral presentation)

64. February 2022. Meghan Prusinowski, Evie Nguyen, Tatiana Trejos. Validation of a Systematic Method for Duct Tape Physical Fits Through Inter-Laboratory Studies. 2022 AAFS Conference, Seattle, WA. (Poster, Virtual)
65. February 2022. Zachary Andrews, Colton Diges, Tatiana Trejos. Feature Occurrence and Error Rates in Textile Physical Fit Comparisons. 2022 AAFS Conference, Seattle, WA. (Poster)
66. February 2022, Lauryn C. Alexander, Oriana Ovide, Olivia Duffett, Andra Lewis-Krick, Dr. Patrick Buzzini, Dr. Tatiana Trejos, A Comparative Study on the Background Presence of Glass and Paint in Various Populations and Seasons in the United States, American Academy of Forensic Sciences Annual Conference, Seattle, WA. (Oral Presentation).
67. December 2021, Jessica Friedel, Korina Menking-Hoggatt, Tatiana Trejos. A Study of Gunshot Residue Prevalence in the General Population of Morgantown West Virginia, WVU Fall Undergraduate Symposium (Oral Presentation)
68. October 2021. Meghan Prusinowski, Zachary Andrews, Tatiana Trejos. *Development of systematic methods for the physical edge comparison of trace materials*. 2021 Brazil Winter 3rd School of Forensic Sciences (Virtual, Oral Presentation)
69. October 2021, Lauryn C Alexander, Oriana Ovide, Olivia Duffett, Tatiana Trejos. The Background and Relevance of Microscopic Traces of Glass Evidence in Forensic Investigations, 2021 Brazilian Winter School Conference, (virtual oral presentation)
70. October 2021. Courtney Vander Pyl, Kourtney Dalzell, Tatiana Trejos, and Luis Arroyo. Emerging Analytical Techniques for the Reconstruction of Firearm-Related Incidents. Brazil 3rd School of Forensic Science (Virtual, Oral Presentation).
71. October 2021, Lauryn C Alexander, Oriana Ovide, Olivia Duffett, Tatiana Trejo. Why does it matter to understand how common it is to find paint and glass microparticles in the regular population- A forensic perspective, 2021 9th Annual Black Doctoral Network Conference (Poster & Oral Presentation)
72. October 2021. Korina Menking-Hoggatt; William Feeney, Tatiana Trejos, Luis Arroyo. Study of various types of Gunshot Residue and Background Populations using LIBS, Electrochemistry, SEM-EDS, LC/MS/MS and probabilistic Interpretation. Brazilian Winter School Program (Virtual, Oral Presentation).
73. September 23, 2021, Korina Menking-Hoggatt, Edward "Chip" Pollock, Emily Heller, Courtney Vander Pyl, Claudia Martinez, Tatiana Trejos. Inorganic Gunshot Residue (IGSR) Micro-particle Standard with Application to Method Development and Understanding Modern Ammunition. Mid-Atlantic Association of Forensic Scientist and ASTEE joint meeting (oral, MAAFS Annual Scholarship Winner)
74. September 23, 2021, Lauryn Alexander, Oriana Ovide, Olivia Duffett. How common is it to find glass and paint residues in a member of the general U.S. population? A preliminary study. Mid-Atlantic Association of Forensic Scientist and ASTEE joint meeting (oral)
75. September 23, 2021. Courtney Vander Pyl, Korina Menking-Hoggatt, Tatiana Trejos. Rapid Analytical Screening Methods for the Investigation of Firearm Related Crimes. Mid-Atlantic Association of Forensic Scientist and ASTEE joint meeting (oral)
76. July 30th, 2021. Tatiana Trejos and Andria Mehltretter. Lessons Learned from Paint and Tape Interlaboratory Exercises: Do systematic approaches lead to examiner consistency?

Current Trends in Forensic Trace Analysis 2021 Online Forensic Symposium. (Oral, invited)

77. July 29th, 2021. Colton Diges, Zachary Andrews, Meghan Prusinowski. Microfiber Alignment in Stamp Edges for Physical Fit. 13th Annual summer undergraduate research symposium, Morgantown, WV https://www.youtube.com/watch?v=tdt-TiiNtXM
78. July 29th, 2021. Olivia Duffet, Lauryn Alexander, Oriana Ovide, Tatiana Trejos. Survey of Glass and Paint in the General Population to Assess their Evidential Value**.** 13th Annual summer undergraduate research symposium, Morgantown, WV https://www.youtube.com/watch?v=0aDxkbAueco
79. July 29th, 2021. Declan Revenew, Courtney Vander Pyl, Bill Feeney, Tatiana Trejos. Evaluating GC-MS and LC-MS/MS Efficacy for Characterization of a Developed Organic Gunshot Residue Standard**.** 13th Annual summer undergraduate research symposium, Morgantown, WV https://www.youtube.com/watch?v=1yszuB1nH60
80. July 28th, 2021. Jessica Friedel, Korina Menking-Hoggatt, and Tatiana Trejos. Prevalence of Particles Characteristic and Consistent with GSR Found in A Background Population Study. Current Trends in Forensic Trace Analysis 2021 Online Forensic Symposium. (poster)
81. July 28th, 2021. Courtney Vander Pyl, Claudia Martinez-Lopez, Korina Menking-Hoggatt, Tatiana Trejos. Rapid Laser-Based Methods for the Detection of Modern Gunshot Residues. Current Trends in Forensic Trace Analysis 2021 Online Forensic Symposium. (Poster, BEST POSTER ELSERVIER FORENSIC CHEMISTRY AWARD)
82. July 28th, 2021. Bill Feeney, Suzanne Bell, Tatiana Trejos. Exploring the probabilistic interpretation of gunshot residue in various populations using LC-MS/MS. Current Trends in Forensic Trace Analysis 2021 Online Forensic Symposium. (poster)
83. July 28th, 2021. Lauryn Alexander, Oriana Ovide, Olivia Duffet, Tatiana Trejos A Study of Frequency of Occurrence of Glass and Paint in the U.S. Population: Preliminary Findings. Current Trends in Forensic Trace Analysis 2021 Online Forensic Symposium. (poster)
84. July 28th, 2021. Oriana Ovide, Ruthmara Corzo, Tatiana Trejos. Assessing the Variability Within Small Vehicular Glass Fragments Using μ-XRF. Current Trends in Forensic Trace Analysis 2021 Online Forensic Symposium. (poster)
85. July 28th, 2021. Zachary Andrews, Colton Diges, Meghan Prusinowski, Tatiana Trejos. Assessing the Value of Microfiber Alignment Between Stamp Edges for Physical Fit Comparisons. Current Trends in Forensic Trace Analysis 2021 Online Forensic Symposium. (poster)
86. June 2nd, 2021. Tatiana Trejos, Meghan Prusinowsli, Zachary Andrews. Forensic Examination of Duct Tape Physical Fits: Interlaboratory Results, NIST-OSAC Trace Subcommittee (oral)
87. April 2021, Tatiana Trejos. Perfiles químicos como pistas en escenas del crimen. 30th Anniversary of Costa Rican Scientific Highschool Systems (invited oral)
88. March 2021, Tatiana Trejos. Experiences from a Forensic Scientist. A.O.E. Junior Academy for Young Women in STEM (invited oral)
89. March 2021, Luis Arroyo, Tatiana Trejos, Korina Menking Hoggatt, Colby Ott, Courtney Vander Pyl, Kourtney Dalzell, Bill Feeney. Detection of gunshot residues from leaded

and non-leaded ammunition by electrochemical sensors and LIBS, PITTCON 2021 (invited speaker)

90. March 2021, Tatiana Trejos, Luis Arroyo, Korina Menking Hoggatt and Courtney Vander Pyl. LIBS as an emerging method for the detection of firearm discharge residues, NIJ (National Institute of Justice) -Emerging Analytical Methods for Chemical and Biological Forensic Evidence Session, PITTCON 2021 (invited speaker)
91. January 2021, Bill Feeney, Tatiana Trejos. Detection of OGSR and IGSR from the same collection stub using complexing agents and LC/MS/MS, 4th event Global Lecture Series, Crossing Forensic Borders (invited speaker)
92. January 2021, Korina Menking-Hoggatt, C. Ott, Tatiana Trejos, Luis Arroyo. Novel rapid detection of inorganic and organic gunshot residues using LIBS and electrochemistry: a population study, 4th event Global Lecture Series, Crossing Forensic Borders. (Invited speaker)
93. February 2021, Courtney Vander Pyl, Korina Menking-Hoggatt, Claudia Martinez, Tatiana Trejos. Application of Laser-Based Methods for the Analysis of Gunshot Residue Originating from Modern Ammunition. AAFS 2021
94. February 2021, Kourtney A. Dalzell, Korina Menking-Hoggatt, Colby E. Ott, Tatiana Trejos, and Luis Arroyo. Detection of Lead-Free Inorganic and Organic Gunshot Residue Using LIBS, Electrochemistry, and Machine Learning. AAFS 2021
95. February 2021, Meghan Prusinowski, Zachary Andrews, Evie Nguyen, Tatiana Trejos. Development of Systematic Approaches for Physical Fit Comparisons of Trace Materials. Presented at Virtual AAFS Conference (E-Poster)
96. December 2020. Tatiana Trejos and Luis Arroyo. Strengthening the Technical-Scientific and Quality Control Framework of the Judicial System in Costa Rica: from Crime Scene to the Expert Opinion in Courtroom. Department of State, Bureau of International Narcotics and Law Enforcement Affairs (INL), Costa Rica US Embassy, San Jose CR (oral)
97. December 2020. Tatiana Trejos, Andria Mehltretter, , Meghan Prusinowski. An Interlaboratory Study on Interpretation and Report Writing in Forensic Comparison of Paint Trace Materials. NIST-OSAC Meeting (virtual, invited speaker)
98. December 2020. William Feeney. American Society of Crime Laboratory Directors (ASCLD) Forensic Research Committee "Lightning Talks" series: Emerging Techniques and Applications for Gunshot Residues (webinar, invited speaker).
99. November 2020. Korina Menking-Hoggatt, Luis Arroyo, and Tatiana Trejos. Feasibility Study of Rapid Emerging Methods for the Analysis of Inorganic and Organic Gunshot Residues. 7º National Meeting of Forensic Chemistry / 4º Meeting of the Brazilian Society of Forensic Sciences (ENQFor/SBCF) online Joint Congress. (Virtual, oral, invited speaker)
100. October 2020. Tatiana Trejos and Ruthmara Corzo. An Effective Framework for Interlaboratory Studies: Lessons Learned for Refractive Index and u-XRF Spectral Data in Glass Analysis. ASTM International Workshop on Interlaboratory Studies and Collaborative Research in the Forensic Sciences (virtual, oral invited speaker)
101. October 2020. Tatiana Trejos, Luis Arroyo, Colby Ott, Courtney Vander Pyl, Korina Menking Hoggatt and Kourtney Dalzell. Investigative leads using LIBS and orthogonal methods in crime laboratories and in the field, FACSS SCIX 2020, virtual conference.

102. October 2020. Meghan Prusinowski, Zachary Andrews, Evie Brooks, Tatiana Trejos. Development and Validation of Systematic Methods for Physical Fit Examinations. [Virtual Oral Presentation]. Joint ASTEE and Northeastern Association of Forensic Scientists 46th Annual Conference
Virtual: https://whova.com/portal/webapp/naofs_202010/.
103. September 2020. Korina Menking-Hoggatt, Eduard Pollock, Emily Heller, Courtney Vander Pyl, Claudia Martinez, Tatiana Trejos. Inorganic Gunshot Residues (IGSR) Microparticles Standard with Application to Method Development and Understanding Modern Ammunition. MAAFS Annual Meeting (Oral presentation, virtual, recipient of 2020 MAAFS Scholarship Award)
104. July 2020. Tatiana Trejos, Cedric Neumann. Advances in physical fit and spectral comparisons of tapes. 2020 Online Symposium: Current Trends in Forensic Trace Analysis (oral presentation, presenter and Symposium Program Chair)
105. July 2020. Luis Arroyo, Tatiana Trejos, and Korina Menking-Hoggatt. Development of a Versatile IGSR Microparticle Standard. 2020 Online Symposium: Current Trends in Forensic Trace Analysis (oral presentation, presenter and Symposium Program Chair)
106. July 2020. Courtney Vander Pyl, Oriana Ovide, Colby Ott, Luis Arroyo and Tatiana Trejos. Quick Spectrochemical Methods for Detecting Gunshot Residues on Crime Scene Samples. Current Trends in Trace Analysis: 2020 Online Forensic Symposium Series (virtual, poster).
107. July 2020. Claudia Martinez-Lopez, Oriana Ovide, Ruthmara Corzo, Zachary Andrews, Lauryn Alexander, Tatiana Trejos. Assessing the Elemental Homogeneity of Single Source Vehicle Glass by u-XRF, LIBS, and LA-ICP-MS. Current Trends in Forensic Trace Analysis: 2020 Online Symposium (virtual poster)
108. July 2020. Evie Brooks, Zachary Andrews, Meghan Prusinowski, Tatiana Trejos. Development of a Systematic Method for Textile Physical Fit Comparisons. Current Trends in Forensic Trace Analysis: 2020 Online Symposium (virtual poster)
109. July 2020. Korina Menking-Hoggatt, Luis Arroyo, Colby Ott, and Tatiana Trejos. Characterizing Inorganic and Organic Gunshot Residue by Laser Induced Breakdown Spectroscopy and Electrochemistry. Current Trends in Forensic Trace Analysis online forensic symposium. (Poster online presentation)
110. May 2020. Courtney Vander Pyl, Korina Menking-Hoggatt, Claudia Martinez, Tatiana Trejos. Fast Spectrochemical Methods and Micro-Particle Standards to Facilitate Transfer and Persistence Studies of Inorganic and Organic Gunshot Residues. First Online Forensic Graduate Symposium, Morgantown, WV (poster, symposium organizer) (AWARD for "Best Research e-Poster Presentation-First Place)
111. May 2020. Meghan Prusinowski, Evie K. Brooks, Pedram Tavadze, Aldo Romero, Tatiana Trejos. Validation of a Quantitative Method for Assessing Physical Fits of Trace Materials through Inter-Laboratory Studies and Computational Algorithms. First Online Forensic Graduate Symposium, Morgantown, WV (poster, symposium organizer)
112. May 2020. Korina Menking-Hoggatt, Tatiana Trejos. Characterization of Modern Inorganic Gunshot Residue Micro-Particles for Enhancement of Forensic Analysis. First Online Forensic Graduate Symposium, Morgantown, WV (oral, symposium organizer)
113. May 2020. Colby E. Ott, Pedro J. Calderón-Arce, Kourtney A. Dalzell, Hugo Cunha-Silva, Ana L. Alvarado-Gámez, M. Julia Arcos-Martínez, Tatiana Trejos, Luis E. Arroyo. Electrochemistry: A Powerful Analytical Technique for the Analysis of Forensic

Evidence. First Online Forensic Graduate Symposium, Morgantown, WV (poster, symposium organizer)

114. May 2020. Evie Brooks, Meghan Prusinowski, Andria Mehltretter, Tatiana Trejos. Evaluation of Spectral Comparison and Contrast Methods for the Interpretation of X-ray Fluorescence Spectra of Electrical Tape Backings. First Online Forensic Graduate Symposium, Morgantown, WV (poster, symposium organizer)
115. May 2020. Emily Haase, Luis Arroyo, Tatiana Trejos. Evaluation of the Chemical Profile of Counterfeit Pharmaceutical Packaging Using LIBS and ATR-FTIR. First Online Forensic Graduate Symposium, Morgantown, WV (poster, symposium organizer)
116. May 2020. Lauryn Alexander, Zachary Andrews, Oriana Ovide, Claudia Martinez-Lopez, Tatiana Trejos. Evaluation of the Performance of Laser Induced Breakdown Spectroscopy Elemental Profiles for the Forensic Comparison of Glass. First Online Forensic Graduate Symposium, Morgantown, WV (poster, symposium organizer)
117. April 2020. Emily Heller, Korina Menking-Hoggatt, Claudia Martinez-Lopez, and Tatiana Trejos. Analysis of Inorganic GSR Microparticles using Laser Induced Breakdown Spectroscopy (LIBS), Annual Undergraduate Symposium, Morgantown, WV (e-video poster)
118. April 2020. Zachary Andrews, Oriana Ovide, , Claudia Martinez-Lopez, PhD, Ruthmara Corzo, PhD Lauryn Alexander, BS, Tatiana Trejos, PhD. Forensic Investigations of Vehicle-Related Crimes: Is it Elemental? Annual Undergraduate Symposium, Morgantown, WV (e-video poster)
119. March 2020. Tatiana Trejos, Evie Brooks, Meghan Prusinowski. Interlaboratory Study on Physical Fits of Duct Tapes: Lessons Learned and Next Steps. NIST-OSAC meeting, Norman, OK (oral)
120. March 2020. Ruthmara Corzo and Tatiana Trejos. Elemental analysis of glass using micro- XRF with modern detector systems: Interlaboratory Results. NIST-OSAC, Norman, OK (oral)
121. March 2020. Korina Menking-Hoggatt, Emily Heller, Edward M. Pollock, Claudia Martinez, Tatiana Trejos. Development and Characterization of Inorganic Gunshot Residue (IGSR) Standard Micro-particles to Enhance Understanding of Modern Ammunition. The NIJ Forensic Science Symposium at Pittcon, Chicago, IL (poster)
122. February 2020, Oriana Ovide, Ruthmara Corzo, Tatiana Trejos, Analysis of Modern Glass for Forensic Comparisons Using micro-XRF, Louis Stokes Alliance for Minority Participation (LSAMP) KY-WV 13th Annual Research Symposium, Poster
123. February 2020. Tatiana Trejos and Luis Arroyo. Rapid Detection of Inorganic and Organic Firearm Discharge Residues by Laser-Induced Breakdown Spectroscopy (LIBS) and Electrochemical Sensors. 2020 National Institute of Justice Forensic Science Research and Development Symposium, Anaheim, CA (oral, invited)
124. February 2020. Korina Menking-Hoggatt, Colby E. Ott, Courtney H. Vander Pyl, Luis Arroyo, James Curran, Tatiana Trejos. The Power of Statistics and Machine Learning Applied to Orthogonal Rapid Methods for the Identification of Inorganic Gunshot Residue (IGSR) and Organic Gunshot Residue (OGSR) Markers. 72nd AAFS Annual Scientific Meeting, Anaheim, CA (oral)
125. February 2020. Korina Menking-Hoggatt, Edward M. Pollock, Tatiana Trejos. A Novel Approach for the Collection and Characterization of Inorganic Gunshot Residue (IGSR) Standards, 72nd AAFS Annual Scientific Meeting, Anaheim, CA (poster)

126. February 2020. Colby E. Ott, Pedro Calderón-Arce, Korina Menking-Hoggatt, Courtney H. Vander Pyl, Ana L. Alvarado-Gámez, Tatiana Trejos, Luis E. Arroyo. An Analysis of Organic and Inorganic Gunshot Residues (OGSR and IGSR) Via Electrochemical Methods with Screen- Printed Carbon Electrodes and Nanoparticle Modifications, 72nd AAFS Annual Scientific Meeting, Anaheim, CA (poster)
127. February 2020. Courtney H. Vander Pyl, Oriana Ovide, Colby E. Ott, Luis E. Arroyo, Tatiana Trejos. A Chemical Analysis of Gunshot Residues (GSRs) for Investigative Leads and Reconstruction of Firearm- Related Incidents, 72nd AAFS Annual Scientific Meeting, Anaheim, CA (poster)
128. February 2020. William Feeney, Suzanne Bell, Luis E. Arroyo, Tatiana Trejos. The Characterization and Detection of Organic and Inorganic Firearm Discharge Residue (FDR) Using High-Performance Liquid Chromatography-Triple Quadrupole (HPLC-QQQ) and Host- Guest Chemistry, 72nd AAFS Annual Scientific Meeting, Anaheim, CA (oral)
129. February 2020. Meghan Prusinowski, Evie K. Brooks, Pedram Tavadze, Aldo Romero, Tatiana Trejos. Assessing the Value of a Physical End Match in Trace Evidence: A Comparison of Human-Based and Computational-Based Approaches, 72nd AAFS Annual Scientific Meeting, Anaheim, CA (oral)
130. February 2020. Evie K. Brooks, Andria Mehltretter, Tatiana Trejos. Parameter Optimization and Validation for Qualitative Elemental Analysis of Electrical Tape Backings by X-Ray Fluorescence (XRF), 72nd AAFS Annual Scientific Meeting, Anaheim, CA (oral)
131. February 2020. Oriana Ovide, Zachary B. Andrews, Ruthmara Corzo, Tatiana Trejos. An Assessment of Elemental Homogeneity in Glass Using Micro-X-Ray Fluorescence Spectroscopy (μ-XRF) and Laser-Induced Breakdown Spectroscopy (LIBS) , 72nd AAFS Annual Scientific Meeting, Anaheim, CA (oral)
132. February 2020. Emily A. Haase, Mandy Ho, Tatiana Trejos, Luis E. Arroyo. A Fast Examination of Counterfeit Pharmaceutical Packaging Through Laser-Induced Breakdown Spectroscopy (LIBS) and Attenuated Total Reflectance/Fourier Transform Infrared (ATR/FTIR) Spectroscopy, 72nd AAFS Annual Scientific Meeting, Anaheim, CA (oral)
133. November 2019. Tatiana Trejos, Luis Arroyo and Suzanne Bell. Rapid Identification of Organic and Inorganic Gunshot Residues. Webinar Sponsored by NIJ and organized by FTCOE and RTI international, November 20th, 2019. (Invited speakers, webinar live streamed and available on demand https://forensiccoe.org/webinar/rapid-and-effective-identification-of- organic-and-inorganic-gunshot-residues/)
134. October 2019. Tri-Annual Review of Glass and Paint: Current State and Challenges. INTERPOL International Forensic Science Managers Symposium, Lyon, France (invited speaker)
135. October 2019. Using LIBS for Elemental Signature Discovery in Forensic Applications. Tatiana Trejos, Luis Arroyo, Emily Haase, Courtney Vander Pyl, Korina Menking-Hoggatt. SCIX Annual meeting, Palm Springs, CA (invited speaker)
136. October 2019. Korina Menking-Hoggatt, Colby Ott, Luis Arroyo, and Tatiana Trejos. Characterizing Inorganic and Organic Gunshot Residue by Laser Induced Breakdown Spectroscopy and Electrochemistry, SCIX conference, Palm Springs, CA (poster)

137. October 2019. Courtney Vander Pyl, Oriana Ovide, and Tatiana Trejos. Application of Laser Induced Breakdown Spectroscopy in the Reconstruction of Firearm Related Incidents, SciX conference, Palm Springs, CA (poster)
138. October 2019. E Haase, M Ho, T Trejos, and L Arroyo. Assessing the Discrimination of Pharmaceutical Packaging Ink Through LIBS and ATR-FTIR. SciX conference, Palm Springs, CA (poster)
139. July 2019. M Prusinowski, E Brooks, T Trejos. Developing a Systematic Method for the Comparison of Duct Tape Edges. NIST-OSAC meeting, Orlando, FL (oral presentation, invited)
140. May 2019. Tatiana Trejos. Trace Evidence: Then, Now and Moving Forward. MAAFS meeting, Morgantown WV.
141. May 2019. Emily Haase, Mandy Ho, Luis Arroyo, Tatiana Trejos. Spectroscopic Analytical Tools for the Discrimination of Blank Ink on Pharmaceutical Packaging: Tackling Counterfeits. MAAFS meeting, Morgantown WV.
142. May 2019. Courtney Vander-Pyl, Oriana Ovide, Tatiana Trejos. A Novel Approach for Increased Objectivity in Detecting Gunshot Residues Around Bullet Orifices, MAAFS meeting, Morgantown WV.
143. May 2019. Korina Menking-Hoggatt, Luis Arroyo, Tatiana Trejos. Modern Fast Screening of Inorganic and Organic Gunshot Residue (GSR) by Laser-Induced Breakdown Spectroscopy (LIBS) and Electrochemistry (EC), MAAFS meeting, Morgantown WV.
144. May 2019. M Prusinowski, E Brooks, T Trejos. Putting the Pieces Together: Developing and Applying a Systematic Method for the Comparison of Duct Tape Edges, MAAFS meeting, Morgantown WV
145. April 2019. Katrina Rupert, Paige Schmitt, Megan Bradley, and Tatiana Trejos. Transfer and persistence of vehicle glass: Experimental studies utilizing mock crime scenes. CBDIAI meeting, Richmond, VA (poster presentation, first prize award)
146. April 2019. Meghan Bradley, Paige Schmitt, Tatiana Trejos. Mock Vandalism: a Study of the Transfer and Persistence of Glass, Paint, and Plastic. Annual Undergraduate Symposium, Morgantown, WV.
147. February 2019. Luis Arroyo, Korina Menking-Hoggatt and Tatiana Trejos. The Fusion of Electrochemical and Spectrochemical Data for the Detection of Organic and Inorganic Gunshot Residues (GSR), AAFS meeting, Baltimore
148. February 2019. Courtney Vander Pyl, Oriana Ovide, Bayram Yuksel and Tatiana Trejos. Increased objectivity of shooting distance determinations by Spectrochemical Mapping, AAFS meeting, Baltimore
149. February 2019. Korina Menking-Hoggatt and Tatiana Trejos. Laser-Induced Breakdown Spectroscopy as a Rapid Detection Technique for Gunshot Residue, AAFS meeting, Baltimore
150. February 2019. Meghan Prusinowski and Tatiana Trejos. The forensic evaluation of cut and torn duct tape fractures: a validation study to quantify the quality of a physical match, AAFS meeting, Baltimore
151. February 2019. Meghan Prusinowski and Tatiana Trejos. Characterization and Comparison of Electrical Tape Backings by X-Ray Florescence, AAFS meeting, Baltimore

152. December 2018. Paige Schmitt, Chelsea Thomson, Katrina Rupert, Megan Bradley, Luis Arroyo and Tatiana Trejos. Transfer and Persistence of Glass and Paint in Vehicle Collisions. RAP undergraduate poster session, Morgantown WV (undergraduate RAP program)
153. October 2018. Tatiana Trejos, Korina Menking-Hoggatt, Luis Arroyo. Chemical analysis and statistical interpretation of gunshot residues using LIBS and electrochemical sensors. SCIX meeting, Atlanta. (Invited speaker)
154. September 2018. Korina Menking-Hoggatt, Luis Arroyo and Tatiana Trejos. Identification of Organic and Inorganic Gunshot Residues by Electrochemical and Spectrochemical Methods, Sacramento County District Attorney Crime Lab, Technical Scientific Visit, Sacramento, CA.
155. September 2018. Korina Menking-Hoggatt and Tatiana Trejos. Characterization of Modern Ammunition and Background Profiles: A Novel Approach and Probabilistic Interpretation of Inorganic Gunshot Residue, Sacramento County District Attorney Crime Lab, Technical Scientific Visit, Sacramento, CA.
156. September 2018. Korina Menking-Hoggatt, Courtney Vander Pyl and Tatiana Trejos. LIBS Applications for Firearm Distance Determinations, Sacramento County District Attorney Crime Lab, Technical Scientific Visit, Sacramento, CA.
157. September 2018. Korina Menking-Hoggatt and Tatiana Trejos. Return on Investment for Rapid LIBS Analysis, Sacramento County District Attorney Crime Lab, Technical Scientific Visit, Sacramento, CA.
158. September 2018. Tatiana Trejos, Nathan Carey, Katrina Rupert, Chelsea Thomson, and David Green. Transfer and Persistence of Glass: Lessons Learned from Mock Crime Scenes, European Network of Forensic Science Institutes (ENFSI), 24th EPG Meeting, Pontoise, France (invited speaker)
159. September 2018. Tatiana Trejos. OSAC Trace Materials Subcommittee Update. European Network of Forensic Science Institutes (ENFSI), 24th EPG Meeting, Pontoise, France (invited speaker)
160. July 2018. Tatiana Trejos. Streamlined Elemental Analysis Applications of LIBS to Forensic Evidence, Webinar sponsored by Applied Spectra (invited keynote speaker)
161. July 2018. Oriana Ovide, Courtney Vander Pyl, Bayram Yuksel, Korina Menking-Hoggatt and Tatiana Trejos. Distance Determination Using Firearm Discharge Residues: Challenges of Color Tests and Benefits of LIBS, Annual Undergraduate Research Symposium, Morgantown, WV (undergraduate SURE program)
162. July 2018. Tatiana Trejos. Role of Data Collection in Forensic Investigations: Questioned Documents and Paints. First Ecola de Inverno de Ciencias Forenses. Porto Alegre, Brazil (invited speaker)
163. July 2018. Tatiana Trejos. Forensic Analysis of Glass: State of Affairs. First Ecola de Inverno de Ciencias Forenses. Porto Alegre, Brazil (invited speaker)
164. July 2018. Tatiana Trejos. Forensic Examination of Tapes: Method Innovation and Assessment of Error Rates. First Ecola de Inverno de Ciencias Forenses. Porto Alegre, Brazil (invited speaker)
165. July 2018. Tatiana Trejos. Integration of LIBS and Electrochemical Methods for the Detection of Gunshot Residues. First Ecola de Inverno de Ciencias Forenses. Porto Alegre, Brazil (invited speaker)

166. May 2018. Tatiana Trejos. Forensic Applications of Laser-Based Spectrochemical Analysis WVU Workshop on Laser Ablation ICP-MS (LA-ICP-MS) and Laser Induced Breakdown Spectroscopy (LIBS). Morgantown, WV (Workshop Organizer)
167. May 2018. Tatiana Trejos. Chemical Imaging of Gunshot Residues by Laser-Induced Breakdown Spectroscopy (LIBS). REU site, Research in Chemistry at WVU, Morgantown, WV
168. April 2018. Korina Menking-Hoggatt, Courtney Vander Pyl, Mandy Ho, and Tatiana Trejos. Versatility of LIBS for Fast Detection of Gunshot Residues. CBDIA meeting, Morgantown, WV (1st place poster award)
169. April 2018. Nathan Carey, Chelsea Thomson, Katrina Rupert and Tatiana Trejos. Assessment of Transfer and Persistence of Beer and Wine Bottle Glass. CBDIAI meeting, Morgantown, WV (2nd place poster award)
170. April 2018. Katrina Rupert, Nathan Carey, Paige Schmitt, Mandy Ho and Tatiana Trejos. Transfer and persistence of glass in vehicle glass: experimental studies using mock kidnapping and robbery scenes. CBDIAI meeting, Morgantown, WV
171. April 2018. Mandy Ho, Courtney Vander Pyl, and Tatiana Trejos. Evaluation of Infrared Imaging for Visualization of Gunshot Residue on Dark Backgrounds and Bloody Samples. CBDIAI meeting, Morgantown, WV
172. April 2018. Mollie Fisher, Meghan Prusinowski, and Tatiana Trejos. Application of score likelihood ratios for the assessment of duct tape fracture comparisons. CBDIAI meeting, Morgantown, WV
173. April 2018. Chelsea Thomson, Paige Schmitt, Katrina Rupert, Luis Arroyo and Tatiana Trejos. Transfer and persistence of glass and paint in side and front vehicular collisions. CBDIAI meeting, Morgantown, WV
174. March 2018. Trejos T. Score Likelihood Ratio Example of Duct Tape Edge Fracture Match. OSAC Trace/Materials Statistics Workshop.
175. March 2018. Trejos T. Keynote speaker. How forensic scientists help crime fighting? Johnson's Family Lecture, Park University, Parksville, MO (invited keynote speaker)
176. March 2018. Trejos T. Keynote speaker. Lecture and workshop: How can minute evidence tell us the story about a crime? Johnson's Family Lecture, Park University, Parksville, MO (invited keynote speaker)
177. February 2018. Tatiana Trejos. Elemental Analysis in Forensic and Intelligence Investigations. WVU Department of Chemistry Graduate Colloquium, Morgantown WV (invited speaker)
178. January 2018. Trejos T, Arroyo L. Identification of organic and inorganic gunshot residues by electrochemical and spectrochemical methods, Impression, Pattern and Trace Evidence Symposium, Jan 22-25, Arlington, VA
179. January 2018. Trejos T, Thomson C, Rupert K, Carey N. Transfer and persistence of glass: experimental studies involving vehicle and container glass, Impression, Pattern and Trace Evidence Symposium, Jan 22-25, Arlington, VA
180. January 2018. Trejos T, Prusinowski M, Fisher M. Evaluation of error rates in the determination of duct tape fractures, Impression, Pattern and Trace Evidence Symposium, Jan 22-25, Arlington, VA
181. September 2017, Trejos, T, K. Menking-Hoggatt, L. Arroyo. Analysis of Gunshot Residues by laser-based spectrochemical methods and electrochemical sensors Combined

MAFS, SAFS, ASTEE meeting, September 17-22, 2017, Cincinnati, OH. (Invited, oral presentation)

182. September 2017, N. Carey, K, Rupert, T. Trejos. Primary and Secondary Transfer of Glass: Lessons Learned from Mock Cases Involving Vehicle and Container Glass, Combined MAFS, SAFS, ASTEE meeting, September 17-22, 2017, Cincinnati, OH. (Invited, oral presentation)
183. September 2017, M. Prusinowski, A. Brake, T. Trejos. Evaluation of performance rates in the determination of duct tape fracture matches, Combined MAFS, SAFS, ASTEE meeting, September 17-22, 2017, Cincinnati, OH. (Invited, oral presentation)
184. September 2017, Trejos, T, K. Menking-Hoggatt, L. Arroyo. Fast identification of firearm discharge residues by laser-based spectrochemical methods and electrochemical sensors Combined MAFS, SAFS, ASTEE meeting, September 17-22, 2017, Cincinnati, OH. (Poster presentation)
185. September 2017, K. Rupert, M. Ho, T. Trejos., Transfer and Persistence of Glass: Experimental Study in a Mock Kidnapping Case Involving the Breaking of a Vehicle Passenger's Windows, Combined MAFS, SAFS, ASTEE meeting, September 17-22, 2017, Cincinnati, OH. (Poster presentation)
186. September 2017, M. Ho, K. Rupert, T. Trejos. Validation of Laser Induced Breakdown Spectroscopy (LIBS) Method for Shooting Distance Determination, Combined MAFS, SAFS, ASTEE meeting, September 17-22, 2017, Cincinnati, OH. (Poster presentation)
187. September 2017, A. Brake, M. Prusinowski, T. Trejos. Evaluation of performance rates in the determination of duct tape fracture matches, Combined MAFS, SAFS, ASTEE meeting, September 17-22, 2017, Cincinnati, OH. (Poster presentation)
188. September 2017, T. Trejos. Using Laser Ablation Spectrochemical Methods to Assist Forensic Investigations. WVU Department of Geology and Geography Graduate Colloquium Seminar, Morgantown WV, invited speaker.
189. July 2017, A. Brake, M. Prusinowski, T. Trejos. Assessment of the validity of duct tape end matches in forensic comparisons, Summer Undergraduate Research Symposium, Morgantown, WV. (Poster presentation)
190. April 2017, K. Rupert, M. Ho, T. Trejos. Study of the Transfer and Persistence of Glass in a Mock Kidnapping Case. 1st Annual Undergraduate Symposium, WVU, Morgantown, WV. (Poster presentation)
191. April 2017, M. Ho, K. Rupert, T. Trejos. Estimation of shooting distance via 2D-elemental mapping by Laser Induced Breakdown Spectroscopy (LIBS). 1st Annual Undergraduate Symposium, WVU, Morgantown, WV. (Poster presentation)
192. April 2017, M. Hills, R. Karimi, B. Walls, J. Mink, R. O'Brien and T. Trejos. Effect of Post- Shooting Activity on Distance Determination by Colorimetric Tests. Educational Conference for the Chesapeake Bay Division of the International Association of Identification (CBD-IAI), Frederick, MD. (Poster, First place poster award)
193. March 2017, Contributions of Costa Rican Women in Science and Technology, UCR-UNESCO Women in Science and Technology Week, San Jose, Costa Rica (Oral presentation, Invited Keynote speaker),
194. March 2017, Forensic Science Workshop, University of Costa Rica, workshop to high school students-STEM initiative, San Jose, Costa Rica. (Invited, Oral presentation and hands-on workshop)

195. March 2017, How to become a forensic scientist? invited keynote speaker, University of Costa Rica, Department of Chemistry, San Jose, Costa Rica. (Invited, Oral presentation and hands- on workshop)
196. July 2016: T. Trejos, C. Martinez, JR Almirall. Applications of Spectrochemical Profiles for the Forensic Characterization of Electrical Tapes, NIST Trace Evidence Data Workshop Gaithersburg, MD.
197. February 2016: T. Hoffman, T. Trejos, JR Almirall. Strengthening the evaluation and interpretation of glass evidence using statistical analysis of collection sets of refractive index and elemental data. AAFS 68th Annual Scientific Meeting, Las Vegas, Nevada
198. March 2016: McElfresh K, Trejos T. The introduction of probabilistic statistics into forensic pattern sciences, IFRI 5th Annual Symposium: Panel Discussion, Miami, FL
199. March 2016: T. Trejos, C. Martinez, JR Almirall. Strengthening the value of electrical tape evidence in forensic investigations by elemental profiling, IFRI 5th Annual Symposium and Elsevier Symposium on Forensic Chemistry, Miami, FL
200. September 2015: T. Trejos, C Martinez, R Corzo, K Subedi, R Williamsom, P Torrione, J Yoo and JR Almirall. Development and evaluation of a searchable database for the characterization and comparison of forensic evidence using spectrochemical methods, SCIX meeting, Rhode Island
201. September 2015: T. Trejos Forensic Applications of Laser Ablation Spectrochemical Methods, Florida Atlantic University, graduate Seminar invited speaker, Boca Raton, FL
202. August 2015: The use of novel laser ablation methods to aid forensic and intelligence investigations. National Academy of Sciences, Costa Rica
203. August 2015: T. Trejos, C Martinez, Y Cheung, A Mehltretter, JR Almirall. A novel approach for the analysis and interpretation of the elemental composition of tape by LA-ICP-MS and LIBS. NIJ IPTES Symposium, San Antonio Texas
204. August 2015: T. Trejos, JR Almirall. Forensic Analysis of Glass-our experience in the last decade improving forensic glass investigations, Forensic Chemistry Symposium, University of Costa Rica, Costa Rica
205. August 2015: T. Trejos, JR Almirall. Forensic Analysis of Tapes, Forensic Chemistry Symposium, University of Costa Rica, Costa Rica
206. August 2015: T. Trejos, JR Almirall. Forensic Analysis of inks on questioned documents, Forensic Chemistry Symposium, University of Costa Rica, Costa Rica
207. June 2015: T. Trejos, Challenge and Success of science hybrid online programs, Professional Science Master Directors Meeting, Orlando, FL
208. July 2015: T. Trejos and JR Almirall. Materials characterization by LAICPMS and LIBS, NSF IUCRC meeting, Washington DC
209. July 2015: T. Trejos and JR Almirall. Development chemical databases to strengthen the interpretation of forensic evidence, NSF IUCRC meeting, Washington DC
210. May, 2015: D. Moreda, T.Trejos, C Martinez, and JR Almirall, Validation of an analytical method for the identification of SmartWater CSI Forensic Marking Technology, IFRI 4th Annual Symposium, Miami, Florida
211. May 2015: Ruthmara Corzo, Tatiana Trejos, and Jose Almirall. The discrimination of printing inks by Scanning Electron Microscopy-Energy Dispersive X-Ray Spectroscopy. Third Annual IFRI Forensic Science Symposium, Miami, FL

212. May 2015: T. Trejos, C. Martinez, I Cheung, JR Almirall. Chemical Characterization and Discrimination of Electrical Tape Backings by laser-based spectrochemical methods. Third Annual IFRI Forensic Science Symposium, Miami, FL
213. April 2015: T. Trejos. The role of Forensic Sciences in STEM education, Intel Women Network WIN and STEM, Intel, Costa Rica.
214. April 2015: Kiran Subedi, Tatiana Trejos, Jose Almirall "Application of tandem LIBS/LA-ICP- MS for the analysis of printing inks using data fusion and multivariate statistical tools" Graduate Student Appreciation Week (GSAW), Scholarly forum FIU, Miami, Florida
215. April 2015: C. Martinez, T. Trejos, J Almirall, Elemental Profiling of Electrical Tapes by Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS), GSAW, Miami, Florida
216. March 2015: D. Moreda, C. Martinez, Y Cheung, T Trejos and JR Almirall. Validation of an analytical methods for the identification of SmartWater Forensic Marking Technology, FIU Undergraduate Research Conference, Miami, FL
217. March 2015: T. Trejos. Forensic Sciences and CSI: myth or reality? Costa Rican National Academy of Sciences, STEM high school programs. (videoconference)
218. February 2015: T. Trejos, P. Torrione, R. Corzo et al. A novel automated searchable database for the chemical characterization and comparison of printing inks, AAFS, Orlando, FL
219. February 2015: Martinez C, Trejos T and JR Almirall. Characterization of Electrical Tapes by Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) and Scanning Electron Microscopy Energy Dispersive Spectroscopy (SEM-EDS), AAFS 67th Annual Meeting, Orlando, Florida
220. January 2015: Martinez C, Trejos T, Almirall J. Elemental profiling of electrical tapes by LA- ICP-MS, ASMS Sanibel Conference, Clearwater Beach, FL
221. October 2014, K. Subedi, T. Trejos and JR. Almirall. Application of tandem LIBS-LAICPMS for forensic examinations of inks, IAFS, Korea, Seoul.
222. September 2014, T.Trejos, C. Martinez, I. Cheung, J. Almirall. Characterization and comparison of tape evidence using laser-based spectrochemical methods and chemometric analyses, The Great Scientific Exchange SCIX conference, SCIX Reno, Nevada, USA.
223. September 2014, R. Corzo, T. Trejos, K. Subedi, J. Almirall. The discrimination of printing inks by spectroscopic and mass spectrometric techniques, SCIX Reno, Nevada, USA
224. September 2014, K. Subedi, T. Trejos, J. Almirall. Application of tandem LIBS/LA-ICP-MS for the analysis of printing inks using data fusion and multivariate analytical tools, The Great Scientific Exchange SCIX conference, SCIX Reno, Nevada, USA.
225. May 2014, L Pierson, T Trejos, JR Almirall. SmartWater CSI Forensic Marking Technology: Impact as Crime Deterrent in South Florida and Validation of its Scientific Foundation, IFRI symposium, Miami, FL, USA.
226. May 2014, Ruthmara Corzo, Tatiana Trejos, Jose Almirall. The discrimination of printing inks by Scanning Electron Microscopy-Energy Dispersive Spectroscopy. IFRI Symposium, Miami, FL, USA.

227. April 2014, T. Trejos, JR Almirall. Resolviendo crímenes con ayuda de rayos laser y espectro química, Congreso de Ciencias Químicas y IV Simposio Estudiantil, Universidad de Costa Rica, San José, Costa Rica.
228. February 2014, J. Almirall and T. Trejos, From basic research to routine use in courtroom: elemental analysis and comparisons of materials with LA-ICP-MS, NIJ grantees meeting, Seattle, USA.
229. January 2014, K. Subedi, T. Trejos and J. Almirall, Characterization of printing inks using tandem LIBS-LA-ICP0MS, Winter Plasma Conference, Amelia Island, FL, USA.
230. January 2014, T. Trejos and J. Almirall. Final project report of Forensic Ink Analysis and Comparison System (FIACS), Homeland Security and Investigations Laboratory, Washington DC, USA.
231. December 2013: T. Trejos, A. Raeva, R. Corzo, K. Subedi, R. Williamson, JR Almirall "Forensic Ink Analysis and Comparison System Progress Report December 2013, Washington DC, USA.
232. Noviembre 2013, T. Trejos and J. Almirall, Forensic Applications of laser ablation (LA-ICP-MS and LIBS), Applied Spectra Laser Ablation Workshop, Freemont CA, USA.
233. September 2013, Tatiana Trejos, Kiran Subedi and Jose Almirall, Forensic Applications of Laser Induced Breakdown Spectroscopy (LIBS), SCIX meeting, Milwaukee, USA
234. March 2013, T. Trejos and J. Almirall, Applications of LA-ICP-MS for the elemental profiling of glass, ink, paper and chemical taggants, IFRI symposium, Miami, FL, USA.
235. March 2013, T. Trejos and J. Almirall, validation of LA-ICP-MS method for the identification of forensic chemical coding systems, IFRI symposium, Miami, FL, USA.
236. March 2013, R. Corzo, T. Trejos and J.Almirall, Characterization of toners using SEM-EDS and laser based microspectrochemical techniques, IFRI symposium, Miami FL USA.
237. October 2012, T. Trejos, L. Kamandulis and J. Almirall, Application of laser-based spectrochemical analysis for the analysis of questioned documents, SCIX meeting, Kansas, MO, USA.
238. September 2012, T. Trejos and J. Almirall, Characterization of the elemental composition of printing inks using laser-based microspectrochemical techniques (LA-ICP-MS and LIBS), INTERPOL 7th EDEWG meeting, (Young Scientist Presentation Award), Lyon, France.
239. June 2012, J. Almirall and T. Trejos. Evidential Value of the Elemental Composition of Glass, Ink and Paper by Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP- MS), 11th European Workshop on Laser Ablation, Gijon, Spain.
240. March 2012. T. Trejos, L Kamandulis, JR Almirall. Micro-chemical identification of printing and writing inks using laser-based methods (LIBS and LA-ICP-MS), Pittsburgh Conference, Orlando, FL, USA.
241. December 2011. J. Almirall and T. Trejos, Advanced Elemental Analysis of Trace Evidence; A Focus on Interpretation, NIJ Sponsored Workshops, Miami, FL, USA.
242. October 2011, E. Cahoon, S. Jantzi, T. Trejos, J. Almirall. New developments in forensic applications of LIBS; analysis of glass, cotton, soil, paper and ink. FACSS, Reno, NV, USA.
243. August 2011, T.Trejos et al. Evaluation of the performance of different match criteria for the comparison of elemental composition of glass by uXRF, ICPMS, LAICPMS and LIBS, Trace Evidence Symposium, Kansas City, MO, USA.

244. August 2011, K. Olsson, T. Trejos et al. A proposed standard test method for forensic analysis of glass using capillary uXRF, Trace Evidence Symposium, Kansas City, MO, USA
245. August 2011, T. Ernst, T. Trejos et al. When is a peak, a peak? Calculating detection and quantification limits for uXRF of glass samples, Trace Evidence Symposium, Kansas City, MO, USA.
246. August 2011, J. Almirall, T.Trejos et al. Update on elemental analysis working group, Trace Evidence Symposium, Kansas City, MO, Aug 2011.
247. August 2011, R. Nelson, T. Trejos et al. A comparison of solution based and LAICPMS analysis of forensic glass samples and a proposed standard test method for determination of trace elements in glass samples using LAICPMS, Trace Evidence Symposium, Kansas City, MO, USA.
248. August 2011, M. Valdez, T. Trejos et al. Precision of elemental analysis measurements of glass by µXRF and the impact on forensic comparisons, Trace Evidence Symposium, Kansas City, MO, USA.
249. August 2011, S. Jantzi, T. Trejos et al. Inter-laboratory comparison of LAICPMS, uXRF and LIBS methods for bulk soil analysis, Trace Evidence Symposium, Kansas City, MO, USA.
250. August 2011, J. Almirall, T. Trejos, et al. Characterization of Materials by Elemental Analysis, µXRF, LAICPMS, and LIBS method performance, use of match criteria and significance of association, Trace Evidence Symposium, Kansas City, MO, USA.
251. December 2010, J. Almirall and T. Trejos, Advances in forensic chemical analysis of materials using laser induced breakdown spectroscopy, PACIFICHEM, Honolulu, Hawaii, USA.
252. December 2010, T.Trejos and J. Almirall, Microchemical characterization of questioned documents using elemental analysis determined by laser-based methods (LIBS and LA-ICP- MS), PACIFICHEM, Honolulu, Hawaii, USA
253. August 2010, T.Trejos. Performance of Different Match Criteria for the elemental analysis of glass, EAWG meeting, Breckenbridge, CO, USA.
254. August 2010, T.Trejos. Report on the Results for the interlaboratory tests, of the Elemental Analysis Working Group, EAWG meeting, Breckenbridge, CO, USA.
255. May 2010, T.Trejos and J. Almriall, Importancia del perfil elemental en el análisis e interpretación de evidencia traza: discusión de casos, III Conferencia Internacional Educativa en Ciencias Forenses CAD-IAI, San José, Costa Rica.
256. May 2010, T.Trejos and J. Almirall, Lásers: avances tecnológicos en la comparación e identificación de documentos dudosos, II Conferencia Internacional Educativa en Ciencias Forenses CAD-IAI San José, Costa Rica.
257. May 2010, T. Trejos and J. Almirall, Uso de rayos láser para el análisis de perfiles elementales en el área de las Ciencias Forenses, Universidad de Costa Rica, Escuela de Química, San José, Costa Rica.
258. March 2010, T.Trejos; R. Hark; L. East and JR. Almirall, PITTCON, Comparison of the capabilities of LIBS and LAICPMS for the forensic analysis of paper and gel ink, Orlando, FL, USA
259. 150) February 2010. JR. Almirall, T. Trejos; R. Hark; L. East; R. Russo. AAFS Meeting, Forensic analysis of inks by Laser Induced Breakdown Spectrometry (LIBS)

and Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS), Seattle, WA, USA

260. August 2009, JR Almirall, T Trejos, J. Buscaglia, R. Koons, S. Ryland and T Berman. Trace evidence symposium. Elemental analysis of trace evidence-workshop. Tampa, FL, USA. 152)
261. August 2009, T. Trejos. Analisis forense en interpretacion de evidencia traza. Workshop August, 15-21, Procuraduría General de Monterey, Graduate Student Research Award, Program of National Security Studies, Jack Gordon Institute for Public Policy and Citizenship. Monterrey, México.
262. June 2009. T. Trejos, Analisis Forense de Vidrios y Pinturas, Workshop, June 2-10, 2009, Laboratorio Forense de la Republica Dominicana, Graduate Student Research Award, Program of National Security Studies, Jack Gordon Institute for Public Policy and Citizenship. Santo Domingo, Dominican Republic.
263. February 2009, T Trejos, Naes B, Rodriguez Y, Almirall, JR. February. 61st Annual Meeting, American Association of Forensic Science. Evaluation of capabilities of LA-ICP-MS for the forensic analysis of gel pen inks, Denver CO, USA.
264. January 2008, T Trejos and José Almirall, Winter Plasma Conference on Mass Spectrometry, Status of Plasma Spectrochemical Analysis in Forensic Sciences, Temecula, CA, USA.
265. February 2007, T.Trejos, B. Naes, J.R. Almirall, 59th Annual Meeting, American Association of Forensic Science. Micro-homogeneity studies of trace elements in solid matrices by LA-ICP- MS: Implications for forensic comparisons, San Antonio, TX, USA.
266. July 2006, L. Arroyo, T. Trejos, P. Gardinali and JR Almirall, 8th European Workshop on Laser Ablation, Forensic analysis of soils and sediments by LA-ICP-MS, Zurich, Switzerland.
267. November 2006, T. Trejos and J. Almirall, Encuentro de Ciencias Forenses, Ponencias de Revista de Ciencias Forenses, Developments in the Forensic Analysis of Glass, San José, Costa Rica.
268. September 2006, T Trejos and J. Almirall, 33rd Annual Meeting, Federation of Analytical chemistry and Spectroscopy Societies, FACSS, Application of Laser Ablation Inductively Coupled Plasma Mass Spectrometry to solid matrices of forensic interest, Orlando, FL, USA.
269. May 2005. T. Trejos, JR Almirall, I. Tebbet. Investigacion de la escena del crimen-curso practico. May 2-July 9 2005, patrocinado por University of Florida y Florida International University, Quito, Ecuador.
270. February 2005, T. Trejos and JR Almirall, 57th Annual Meeting, American Association of Forensic Science. Forensic Analysis of Paints by LA-ICP-MS, NITECRIME workshop, New Orleans, USA.
271. November 2004, T. Trejos and JR Almirall, 1er Congreso en Ciencias Forenses: Costa Rica 2004. San José, Costa Rica. Relevancia del análisis de vidrios como elemento de transferencia en escenas del crimen: análisis de un caso, Heredia, Costa Rica.
272. November 2004. T. Trejos. 1er Congreso en Ciencias Forenses: Costa Rica 2004. San José, Costa Rica. Aspectos de Etica Forense, Heredia, Costa Rica.
273. February 2004, T. Trejos and JR Almirall, 56th Annual Meeting, American Association of Forensic Science (AAFS), Sampling considerations in the analysis of glass fragments

by Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS), Dallas, TX, USA.

274. March 2004, T.Trejos and JR Almirall, 17th International Symposium on the Forensic Sciences, ANZFSS, , Sampling considerations in the analysis of glass fragments by Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS,) (best poster award), Wellington, New Zealand
275. October 2003, T. Trejos and JR Almirall, 30th Annual Meeting FACSS, Federation of Analytical chemistry and Spectroscopy Societies Application of Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) to the Fingerprinting of Trace Evidence, Fort Lauderdale, FL, USA.
276. May 2003, T. Trejos and JR Almirall, FAME Florida American Chemical Society, Florida Section. Evaluation of the Homogeneity of Glass Samples by LA-ICP-MS, Orlando, FL, USA
277. April 2003, T. Trejos, A. Hobbs and JR Almirall, NITECRIME group meeting, Forensic Analysis of Paints by LA-ICP-MS, Wien, Austria.
278. February 2003, JR Almirall, T. Trejos, A. Hobbs and S. Montero, 55th Annual Meeting of the
279. American Academy of Forensic Sciences, Use of a Database of Elemental and Refractive Index Values from Glass Samples to Determine the Significance of Matching Profiles in a Comparison Between Glasses., Chicago, IL, USA.
280. February 2003, T. Trejos and JR. Almirall, 55th Annual Meeting of the American Academy of Forensic Sciences, Evaluation of LA-ICP-MS as a Tool for the Elemental Analysis and Discrimination of Glass Evidence, Chicago, IL, USA.
281. September 2003, T. Trejos and JR Almirall, 16th meeting of the International Mass Spectrometry Conference (IMSC), Study of the effects from size and distribution of particles entering a plasma and elemental fractionation on the quantification of glass samples during LA-ICP-MS, Edinburgh, Scotland.
282. September 2002, T. Trejos, S. Montero and J.R. Almirall, 16th meeting of the International Association of Forensic Sciences IAFS, Comparison of Solution External Calibration, Solution Isotope Dilution and Laser Ablation as Tools in the Analysis of Glass Fragments by Inductively Coupled Plasma Mass Spectrometry, Montpellier, France.
283. September 2002, T. Trejos, A. Hobbs, S. Montero and JR. Almirall, VII ENFSI Meeting, European Network of Forensic Science Institutes, Elemental Analysis of Glass and Paint by ICP-MS, ID-ICP-MS and LA-ICP-MS, Madrid, Spain

OTHER ACTIVITIES AND AWARDS

Professional affiliations

- Member of the American Academy of Forensic Sciences (AAFS), American Society of Trace Evidence Examiners (ASTEE), Costa Rican College of Chemists and Engineers (CCCR), American Society of Testing and Materials (ASTM)

Scientific groups

- International Scientific Committee (ISC) Board of the International Laser Induced Breakdown Spectroscopy (by nomination)
- Director, American Society of Trace Evidence Examiners ASTEE (2022-2025)
- Member of the Chemistry/Instrumental Analysis Scientific Area Committee's (SAC's) Materials (Trace) Subcommittee within the Organization of Scientific Area Committees (OSAC). [IT liaison (former chair), glass sub-task group (former chair), interpretation sub-task group (member), research sub-task group (former chair), physical fits group (member)] (2014-to date)
- NIST-OSAC Scientific and Technical Review Panel *(STRP)* for gunshot residue and physical fits. (2021-2022)
- Guest, European Network of Forensic Science Institutes Paint and Glass task group.
- Member of ASTM and technical contact (2014 to date)
- Member and coordinator of the NIJ-funded Elemental Analysis Working Group (EAWG) (2009-2011),
- Member of the International Working Group: Natural Isotopes and Trace Elements in Criminalistics and Environmental Forensics (NITECRIME) (2002-2005)
- President and Founding member of the Costa Rican Association of Forensic Sciences (ACCF) and organizer of first Forensic Scientific Meeting in Costa Rica (>200 participants from Latin America and US)
- Member, quality assurance committees, including the QA Program United Nations-OIJ

Awards/Honors:

- **2024: Nominee/Finalist for Distinction in Mentoring Graduate Students in Research Award.** West Virginia University.
- **2020: Outstanding Researcher Award,** West Virginia University, Eberly College of Arts and Sciences, Morgantown, WV (December 2020)
- **2019: Distinguished Group Service Award (Interpretation Task Group),** NIST-OSAC, Orlando FL.
- **2015: National Award of Technology "Clodomiro Picado Twight"**, Costa Rican National Academy of Sciences (NAS) and the Ministry of Science and Technology (MICIT).
- **2013: Top Ph.D. in Forensic Track Graduate Award,** American Chemical Society-South Florida Section and the FIU Department of Chemistry and Biochemistry, Miami, FL. Dissertation entitled: Evaluation of the Evidential Value of the Elemental Composition of Glass, Ink and Paper by Laser-based micro-spectrochemical methods

- **2012: Young Forensic Scientist Award INTERPOL-EDEWG**, 7th Conference European Document Experts Working Group, Lyon, France.
- Invited oral presentation entitled: Characterization of elemental composition of printing inks using laser-based spectrochemical techniques (LA-ICP-MS and LIBS).

Other activities:

- **May - June 2024:** Reviewer for proposals for the National Institute of Justice
- **January 2022-2025:**Director, American Society of Trace Evidence Examiners ASTEE
- **December 2023 to date:** Organization Instenational Scientific committee for the XIII LIBS 2024 International Meeting & II Latin American Meeting on Laser Induced Breakdown Spectroscopy, Argentina (September 2024)
- **July 2021:** Scientific Program Co-chair. 2021 Online Symposium: Current Trends in Forensic Trace Analysis (>1200 participants form > 60 countries)
- **July 2020:** Scientific Program Chair. 2020 Online Symposium: Current Trends in Forensic Trace Analysis (>1000 participants form > 60 countries)
- **May 2020.** Organizer, First Online Forensic Graduate Symposium, Department of Forensic and Investigative Sciences, Morgantown, WV
- **July 2016-to date.** ASTM technical contact for forensic glass ASTM test methods and guidelines.

RESEARCH FUNDING

Awards-WVU (about $ 4.6 million funded):

1. Strengthening Scientific Foundations for Advancing Best Practices in the Collection, Storage, Analysis, and Interpretation of Organic and Inorganic Gunshot Residues. $564,733 (Jan 2024-December 2025). Award # 15PNIJ-23-GG-04218-SLFO. Luis Arroyo (PI), Tatiana Trejos (co-PI).
2. DOS-INL- Strengthening the Technical-Scientific and Quality Control Framework of the Judicial System in Costa Rica: from Crime Scene to the Expert Opinion in Courtroom-Phase II, $520,000 (Jan 2023- May 2025) Award # SINLEC20CA3120, Tatiana Trejos (PI) and Luis Arroyo (co-PI)
3. NIJ- Assessing the reliability of modern μXRF technology for expanded impact on the forensic examination and interpretation of trace evidence. Award # 15PNIJ-22-GG-03571-SLFO, $388,814 (Jan 2023-Dec 2024). Tatiana Trejos (PI)

4. Department of Commerce. Procurement of Technology and Equipment to Respond to Opioid and Violence Epidemics in WV. Award # 60NANB22D204, $705,000 (Oct 2022-Sep 2023). Tatiana Trejos (PI), Luis Arroyo (co-PI), Casper Venter (Co-PI)
5. NIJ- Assessing the Strength of Trace Evidence Fracture Fits through a Comprehensive, Systematic and Quantifiable Approach. Award # 2020-DQ-BX-0012, $466,543 (Jan 2021-Dec 2022) Tatiana Trejos (PI), Aldo Romero (co-PI)
6. NIJ- Comprehensive Assessment of Novel Reference Materials and Analytical Methods for the Analysis and Interpretation of Organic and Inorganic Gunshot Residues, $476,517 (Jan 2021-Dec 2022). Award # 2020-DQ-BX-0010, Luis Arroyo (PI) and Tatiana Trejos (co-PI)
7. DOS-INL- *Strengthening the Technical-Scientific and Quality Control Framework of the Judicial System in Costa Rica: from Crime Scene to the Expert Opinion in Courtroom,* $519,894 (May 2020- May 2022) Award # SINLEC20CA3120, Tatiana Trejos (PI) and Luis Arroyo (co-PI)
8. NIJ- Development of baseline survey of random presence of glass and paint for the interpretation of evidence in the US courts. Award # 2019-DU-BX-0015, $326,820 (Jan 2020-Dec 2021) Tatiana Trejos (PI).
9. NIJ- STEM Graduate Fellowship. Validation of a Single Instrument, Single Protocol for the Detection of the Inorganic and Organic Constituents of Firearm Discharge Residues. Award # 2019-R2-CX-044, $100.000.00 (Jan 2020-Dec 2021). Tatiana Trejos (PI) and William Feeney (PhD Student Fellowship Recipient)
10. WVU-PSCOR, Internal grant, seed program. Strengthening the Forensic Examination and Interpretation of Physical Fits, $21,000.00. Tatiana Trejos (PI) and Aldo Romero (co-PI)
11. NIJ- Fast Screening of Firearm Discharge Residues by Laser-based Spectrochemical Methods, Electrochemical Sensors, and Chemometrics. Award # 2018-DU-BX-0186, $379.354.00 (Jan 2019-Dec 2020). Tatiana Trejos (PI) and Luis Arroyo (co-PI)
12. NIJ- STEM Graduate Fellowship. Characterization of Modern Ammunition and Background Profiles: A Novel Approach and Probabilistic Interpretation of Inorganic Gunshot Residue. Award # 2018-R2-CX-009, $100.000.00 (Jan 2019-Dec 2020). Tatiana Trejos (PI) and Korina Menking-Hoggatt (PhD Student Fellowship Recipient.
13. WVU-PSCOR, Internal grant, seed program. Fast Screening and Interpretation of Firearm Discharge Residues by Laser-Based Spectrochemical Methods, Electrochemical Sensors and Chemometrics. $5.000.00. Jan 2017. Tatiana Trejos (PI) and Luis Arroyo (co-PI)
14. Subaward WVU-FIU. Characterization and comparison of tape evidence using elemental profiling methods and chemometric analyses $22,118.

Awards prior to WVU:

1. NIJ- Strengthening the evaluation and interpretation of glass evidence using statistical analysis of collection sets and databases of refractive index and elemental data (**μ**XRF, ICP-MS and LA-ICP-MS). Requested funding $230,471 JR Almirall (PI) and Tatiana Trejos (co-PI). 2015-2017
2. Characterization and comparison of tape evidence using elemental profiling methods and chemometric analyses. Requested funding $244,072. JR Almirall (PI) and Tatiana Trejos (co-PI). 2015-2018. Partial Subaward transferred to WVU /T. Trejos

STUDENTS RESEARCH MENTORING

A. Graduate students (Master of Science and Doctoral)

1. Meghan Prusinowski, MSFS, 2019, WVU Department of Forensic and Investigative Science, Assessing the reliability of physical end matching and chemical comparison of pressure sensitive tapes. https://researchrepository.wvu.edu/etd/4026

2. Courtney Vander Pyl, MSFS, 2019, WVU Department of Forensic and Investigative Science, Chemical analysis of firearm discharge residues using Laser Induced Breakdown Spectroscopy. https://researchrepository.wvu.edu/etd/4058

3. Evie Brooks, MSFS, 2020, WVU Department of Forensic and Investigative Science, Statistical assessment of the significance of fracture fits in trace evidence" (2020). Graduate Theses, Dissertations, and Problem Reports. 7704. https://researchrepository.wvu.edu/etd/7704

4. Korina Menking Hoggatt, Ph.D, Spring 2021. WVU Department of Forensic and Investigative Science, **C**haracterization of modern ammunition and background profiles: A novel approach and probabilistic interpretation of inorganic gunshot residue. Graduate Theses, Dissertations, and Problem Reports. 8336. https://researchrepository.wvu.edu/etd/8336

5. William Feeney, Ph.D., Fall 2021.WVU Department of Chemistry, Modified firearm discharge residue analysis utilizing advanced analytical techniques, complexing agents, and molecular dynamics. "Modified Firearm Discharge Residue Analysis utilizing Advanced Analytical Techniques, Complexing Agents, and Quantum Chemical Calculations" (2021). *Graduate Theses, Dissertations, and Problem Reports*. 10302. https://researchrepository.wvu.edu/etd/10302

6. Courtney Vander Pyl, Ph.D., Fall 2022. WVU Department of Forensic and Investigative Science, Expanding the Capabilities of Firearm Investigations: Novel Sampling and Analytical Methods for Gunshot Residue Evidence" (2022). *Graduate Theses, Dissertations, and Problem Reports*. 11509. https://researchrepository.wvu.edu/etd/11509

7. Zachary Andrews, MSFS (Summer 2022), WVU Department of Forensic and Investigative Science, "Evaluating the Validity and Reliability of Textile and Paper Fracture Characteristics in Forensic Comparative Analysis" (2022). *Graduate Theses, Dissertations, and Problem Reports*. 11373. https://researchrepository.wvu.edu/etd/11373

8. Oriana Ovide, MSFS (Summer 2022), WVU Department of Forensic and Investigative Science, "Identifying and Minimizing Sources of Variability Within Modern Spectroscopic Techniques for the Forensic Analysis of Glass" (2022). *Graduate Theses, Dissertations, and Problem Reports*. 11413. https://researchrepository.wvu.edu/etd/11413

9. Meghan Prusinowski, Ph.D. (Spring 2023), WVU Department of Forensic and Investigative Science, Enhancing the forensic comparison process of common trace materials through the development of practical and systematic methods. 11644. https://researchrepository.wvu.edu/etd/11644

10. Lauryn Alexander, Ph.D (Spring 2023), WVU Department of Forensic and Investigative Science, Strengthening the interpretation of glass and paint evidence through the study of random frequency of occurrence and analytical information. *Graduate Theses, Dissertations, and Problem Reports*. 11683. https://researchrepository.wvu.edu/etd/11683

11. Lacey Leatherland, MSFS (Spring 2024), WVU Department of Forensic and Investigative Science, Use of Interlaboratory Studies for the Development of Consensus-Based Criteria for the Elemental Analysis of Electrical Tapes.

12. Zachary Andrews, Ph.D (expected graduation Spring 2025), WVU Department of Forensic and Investigative Science, Developing Consensus-based Methods for the Examination and Interpretation of Contemporary Vehicle, Architectural, and Portable Electronic Device Glasses by micro-X-Ray Fluorescence Spectrometry

13. Thomas Ledergerber, PhD (Expected graduation Fall 2025), WVU Department of Chemistry (G. Jackson Co-Chair). Development of Fast and Comprehensive Approaches for Gunshot Residue Interpretation using Ambient Ionization, Mass Spectrometry, and Microparticle Sampling Studies

14. Madison Lindung, MSFS (expected graduation in Spring 2025). Department of Forensic and Investigative Science. Forensic characterization and comparison of modern nail polish products by their physical features and chemical composition.

15. Leah Thomas, MSFS (expected graduation Spring 2025) Department of Forensic and Investigative Science. The assessment of current analytical workflows of gunshot residue evidence and strategies for the implementation of advanced technologies in crime scene laboratories.

B. Undergraduate students

1. Katrina Rupert (2016-2019, FIS undergraduate research and NIST-SURF internship)
2. Mandy Ho (2016-2018, FIS undergraduate research)
3. Aaron Brake (Summer 2017, SURE undergraduate program)
4. Brittany Merrell (Fall 2016, FIS undergraduate research)
5. Reem Karimi (2017, capstone)
6. Mindy Hills (2017, capstone)
7. Becca Walls (2017, capstone)
8. Chelsea Thomson (2017-2018, FIS undergraduate research)
9. Mollie Fisher (2017-2018, FIS undergraduate research)
10. Nathan Carey (2017-2018, FIS undergraduate research)
11. Paige Schmitt (2018-2021, Honors EXCEL and RAP undergraduate program)
12. Emily Halpern (Fall 2019, Chemistry undergraduate research)
13. Zachary Andrews (2019-2020, FIS undergraduate intern)
14. Oriana Ovide (SURE 2018, Chemistry undergraduate program, 2019 NIST-SURF internship, 2020 FIS 497)
15. Megan Bradley (2019 -2020, FIS, RAP undergraduate program)
16. Emily Heller (2019-2020, FIS undergraduate research)
17. Jessica Guerrette (2020, WVU Chemistry undergraduate research)
18. Hannah Simmerly (Fall 2020, FIS undergraduate intern)
19. Elizabeth Hanley (Spring 2021, FIS undergraduate student)
20. Jessica Friedel (Spring 2021 to Spring 2022, RAP undergraduate program)
21. Colton Diges (Spring 2021 to date), FIS undergraduate student, Summer 2021 SURE program)
22. Declan Revenew (Spring 2021, FIS undergraduate student, Summer 2021 FIS internship)
23. Olivia Duffet (Spring 2021- to Spring 20222, FIS undergraduate student, Summer 2021 FIS internship)
24. Hannah Good (Fall 2021,Spring 2022, RAP undergraduate program)
25. Divanjali Pulivendhan (Spring 2022-to Spring 2023), FIS undergraduate student, Summer 2022 FIS internship)
26. Madison Lindung (Spring 2022-to Spring 2023), FIS undergraduate student, Summer 2022 FIS internship)
27. Leah Thomas (Summer 2022-to Spring 2023), FIS undergraduate student, Summer 2022 FIS internship)
28. Emily Conn (Fall 2022-to Spring 2023), FIS undergraduate student
29. Claire Dolton (Fall 2022-to Spring 2024), FIS undergraduate student Honors-Excel
30. Charlotte Vogler (Summer 2022-to Fall 2023), FIS undergraduate student
31. Katelin Radonovich (Summer 2022-to Spring 2024)FIS undergraduate student
32. Addio Fiordigigli (Spring 2023 to date), FIS undergraduate student
33. Liliana Barbosa (Spring 2023 to date), FIS undergraduate student
34. Allison Carranza (Fall 2023 to date), FIS undergraduate student
35. Allyson Niemeyer (Spring 2023 to all 2023), FIS undergraduate student
36. Jenna Goldberg (Spring 2024), FIS undergraduate student
37. Brooke Weiss (Spring 2024), FIS undergraduate student

38. Isabel Talley (Summer 2024), SURE undergraduate program

C. Post-doctoral associates and visiting scholars

1. Bayram Yuksel (Visiting Scholar, October 2017-October 2018, fellowship from the Scientific and Technological Research Council of Turkey, Development of visualization methods for shooting distance estimations)
2. Claudia Martínez-Lopez (Post-doctoral Associate, August 2019-August 2020. Spectrochemical Analysis of Gunshot Residues)
3. Korina Menking-Hoggatt (Post-doctoral Associate, May 2021 to November 2022 Analysis and Interpretation of Gunshot Residues)
4. Pedram Tavazohi (Post-doctoral Associate, May 2022 to date, Analysis and Interpretation of Physical Fit using Computational Algorithms and Deep Learning)

D. Thesis/Dissertation Committees Served

1. Nicole Richetelli (Ph.D. in Forensic Science, PI: Jacqueline Speir, graduated 2020)
2. Tyler Davidson (Ph.D. in Forensic Science, PI: Glen Jackson, graduated 2020)
3. Emily Haase (MSFS, PI: Luis Arroyo, graduated 2020)
4. Travon Cooman (Ph.D. in Forensic Science, PI: Luis Arroyo, graduated 2022)
5. Joseph Cox (Ph.D. in Forensic Science, PI: Luis Arroyo, graduated 2021)
6. Alexander San Nicholas (Ph.D. in Forensic Science, PI: Luis Arroyo)
7. Colby Ott (Ph.D. in Forensic Science, PI: Luis Arroyo, graduated 2022)
8. Kourtney Dalzell (MSFIS, PI: Luis Arroyo, graduated 2022)
9. Kylea Mathison (MSFIS, PI: Luis Arroyo, graduated 2022)
10. Trina Perone (Ph.D. in Chemistry, PI: Brian Pop, graduated 2019)
11. Kinkini Udana (Ph.D. in Chemistry, PI: Steven Valentine, graduated 2022)
12. Lyrek Lockley (MSFIS, PI: Keith Morris)
13. Kourtney Dalzell (PhD, PI: Luis Arroyo)
14. Alexis Wilcox (MSFIS, PI: Luis Arroyo)
15. Chong Li (PhD in Chemistry, PI: Peng Li, graduated 2022)
16. Amanda Devor (PhD in Chemistry, PI: Peng Li)
17. Olanrewaju Awoyemi(PhD in Chemistry, PI: Peng Li, Steven Valentine)
18. Emily Heller (PhD in Chemistry, PI: Brian Pop)
19. Carly Smith ((MSFIS, PI: Keith Morris)
20. Jessica Thornton (PhD in Forensic Science, PI: Keith Morris)
21. Kailey Evanowsky (MSFIS, PI: Luis Arroyo)
22. Bailey Poulton (PhD in Forensic Science, PI: Keith Morris)

TEACHING EXPERIENCE

Courses taught at WVU

Course Number (credits)	Course name	Semesters taught	Program
FIS 696/796 (1)	Graduate Seminar	Fall 2016	MSFIS and PhD

		Spring 2020	
FIS 614 (3)	Advanced Trace Evidence (Lecture and Laboratory)	Spring 2017 Spring 2018 Spring 2019 Spring 2021 Spring 2023	Undergraduate FIS Forensic Chemistry Major
FIS 414/416 (3+1)	Trace Evidence Examinations (Lecture and Laboratory)	Spring 2019 Spring 2021 Spring 2023 Spring 2024	MSFIS
FIS 703 (3)	Research Design in Forensic Science	Fall 2018 Fall 2020 Spring 2022 Spring 2024	PhD
FIS 340/341 (3+1)	Forensic Chemical Analysis	Fall 2019 Fall 2020 Fall 2021 Fall 2022 Fall 2023 Fall 2024	Undergraduate FIS Forensic Chemistry Major

Other courses taught as part of DOS grant

1. September 2020. Current State of Analysis of Organic and Inorganic Gunshot Residues. Costa Rica Department of Forensic Science, Organism of Judicial Investigation (online)
2. November 2020. Decision Making and Bayesian Statistics. Costa Rica Department of Forensic Science, Organism of Judicial Investigation (online)
3. March to July 2021. Quality Management and ISO 17020 Accreditation Requirements Workshop Series. Costa Rica Crime Scene Investigation Section (SIORI), Organism of Judicial Investigation (online, 10 sessions, 2h by session)
4. August to November 2021. Introduction to ISO 17020 and Accreditation Workshop Series. Costa Rica Medical Examiners Department, Organism of Judicial Investigation (online, 10 sessions, 2h by session)

Other courses taught prior WVU appointment

Selected list of courses taught to graduate students and more than 400 forensic practitioners and law enforcement personnel.

1. Instructor, Forensic Chemistry online section (PSMFS program), FlU, 2015 and 2016
2. Instructor, Forensic Chemistry workshops –advanced topics in analytical chemistry (PSMFS and MSFS programs), FIU, 2015
3. Coordinator, graduate industrial internship, FIU, 2015
4. Co-instructor Forensic Chemistry (graduate course), FIU, 2012
5. Co-instructor Center of Administration of Justice, Forensic Science for Lawyers,
6. International Forensic Training Program, Florida International University (2012-2015)

7. Instructor, Forensic Analysis of Soils (online, University of Valencia, Master of Forensic Science (2013-2015)
8. Co-Instructor, Techniques of crime scene investigation (online, University of Valencia, Master of Forensic Science (2013-2015)
9. Instructor, Forensic Trace Evidence Workshop, May 2016 (1 week), Barbados.
10. Behind the Scenes: Discovering the CSI world through a microscope, hands-on workshop for Geeki Girls, a STEM initiative for middle school girls, Florida, December 2015.
11. Elemental Analysis of Trace Evidence (1 week course, NIJ-funded intermediate and advanced level examiners). 2008, 2009, 2010, 2011, 2012, 2013, 2014 (NIJ-funded).
12. Examination and comparison of glass evidence (1-week course, entry and intermediate level examiners). 2009, 2011, 2012, 2013 (NIJ-funded).
13. Advanced Mass Spectrometry for Forensic Scientists (1-week course, intermediate and advanced level) 2010, 2012, 2013 (NIJ-funded).
14. Scientific working group on interpretation of trace evidence (4 meetings, 2009-2010, different venues) (Lectures and group discussion based on the evaluation of results from inter-laboratory tests)
15. Forensic Analysis of Glass and Paint, June 2-10, 2009, Dominican Republic Forensic Laboratory.
16. Forensic Analysis and Interpretation of Trace Evidence, August 15-21 2009, Procuraduria General, Monterey, Mexico
17. Elemental Analysis Workshop August 4th, 2009, Clearwater beach, FL, Trace Evidence Symposium
18. Elemental Analysis of Forensic Evidence, hands on workshop Dec 10-14th, 2007, FIU Miami FL
19. Analysis and interpretation of fire scene evidence March 22-24th, 2006, FIU (offered to Taiwan forensic examiners) Miami FL
20. Forensic Analysis of Paint March 27-29th, 2006, FIU (offered to Taiwan forensic examiners) Miami FL
21. Forensic Analysis of Fibers March 29th-31st, 2006, FIU (offered to Taiwan forensic examiners) Miami FL
22. Analysis of Glass Evidence April 3rd-5th, 2006, FIU (offered to Taiwan forensic examiners) Miami FL
23. LA-ICP-MS workshop with emphasis in soil analysis April 25th -27th , 2006, FIU, Tailored course to EPA personnel, Miami FL
24. Analysis and comparison of glass evidence with focus on refractive index and interpretation (CSJ, Costa Rica)
25. Forensic Examination of Glass Evidence Hands-on Workshop. Offered to Forensic Examiners from Colombia Medical Examiner's Office, Nov 28-Dec 9th, 2005. Miami, FL
26. NITECRIME Workshop on Trace Elements and Isotopes in Forensic Science, Trace elemental analysis of glass and paint, Feb 21, 2005, New Orleans, AAFS meeting.
27. Crime Scene Investigation. May 2nd-July 9th, 2005, Sponsored by University of Florida and Florida International University (hybrid online and on-site course), Quito, Ecuador.

28. Forensic Examination of Glass and Paint (2-weeks course), Department of Forensic Science, Costa Rica
29. Glass Examination and Comparison with a Focus on Elemental Analysis of Forensic Glass Samples by ICP-MS and LA-ICP-MS: A Course for Practicing Forensic Scientists July 21st- 23rd, 2003, AMES Laboratory, Iowa State University
30. Glass Examination and Comparison of forensic glass samples by ICP-MS and LA-ICP-MS: a workshop for practicing forensic scientists, December 5-6, 2002, FIU Miami FL
31. Mass Spectrometry Workshop May 2002, FIU Workshop offered for DEA personnel and FIU graduate students, Miami FL.
32. Advanced Techniques for Crime Scene Investigation, 1998-2001 (once a year), Supreme Court of Justice, Costa Rica
33. Forensic Chemistry for law enforcement personnel, 1999-2001 (once a year), Supreme Court of Justice, and Department of Forensic Science, Costa Rica
34. Advanced techniques in forensic toxicology (lecture series), January 2001, Department of Forensic Science, Costa Rica