

**LAURYN E. DEGREEFF, Ph.D.**

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**Associate Professor**

**Florida International University**

Department of Chemistry and Biochemistry

Global Forensic and Justice Center

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**Lauryn E. DeGreeff** serves as an Associate Professor of Chemistry at Florida International University's Department of Chemistry and the Global Forensic and Justice Center. Her research emphasis is the field of trace vapor analysis as it relates to detection by canine and instruments. Dr. DeGreeff takes a chemistry-based approach to studying olfaction for the purpose of informing field vapor detection and sampling practices. Her research focuses on trace vapor sampling, characterization, and generation.

Dr. DeGreeff graduated from FIU with a Ph.D. in Forensic Chemistry in 2010. Prior to returning to FIU in 2021, Dr. DeGreeff received an 18-mo fellowship from the Federal Bureau of Investigation, Counterterrorism and Forensic Science Research Unit to study scent from living and deceased humans. After, she spent a decade as a researcher and principal investigator in the Chemistry Division at the U.S. Naval Research Laboratory in Washington DC.

Dr. DeGreeff is a sought-after speaker, regularly lecturing on the dynamics of odor for the operational communities and presenting at national and international scientific conferences. Her research contributions include more than 30 peer-reviewed manuscripts, six book chapters, two patents with two additional pending, and editorship of the book entitled *Canines: The Original Biosensor*, published in 2022. She hosted *Canine Detection and Olfaction Science Conference* in May 2023. She has acted as the Principal Investigator on a range of projects, totaling approximately \$4.3M while at FIU (Fall 2021 – Spring 2025).

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**EXPERIENCE**

**2021-present Associate Professor - Florida International University, Department of Chemistry and Biochemistry and the Global Forensic and Justice Center**

***Research interest:** Volatiles sampling and analysis. Analysis, detection, and generation of vapors and related canine detector science.*

**Work duties:** Acts as principal investigator on a variety of research projects, overseeing graduate, undergraduate, post-doctoral researchers. Manage

collaborative research within the FIU institution and with other university, government institutions, and private companies. Serves on dissertation and thesis committees for Ph.D. and master's students in the area of forensic science research. This includes directing research paths for said graduate students, as well as writing grant proposals for research and equipment funding. Research encompasses many forms of vapor detection, as well as other analytical techniques, with a focus on detection by canine, and is reported in the form of written reports and manuscripts, as well as regular oral presentations at conferences and educational seminars for the operational community. **Tenured Spring 2025**

**2018-2021**      **Courtesy Research Professor – Florida International University, Department of Chemistry and Biochemistry and the Global Forensic and Justice Center**

**Work duties:** Served on dissertation and thesis committees for Ph.D. and master's students in the area of forensic science research. This included directing research paths for said graduate students, as well as writing grant proposals for research and equipment funding.

**2014-2021**      **Research chemist / Principal Investigator – U.S. Naval Research Laboratory, Chemistry Division**

***Research interest:** Analysis, detection, and generation of vapors and related canine detector science.*

**Work duties:** Acted as principal investigator on research projects and oversaw supporting personnel and researchers. Designed research projects and obtained funding for the study of explosive and explosive-related materials and other contraband, to include, but not limited to, trace vapor analysis and material headspace characterization. Research encompassed many forms of vapor detection, as well as other analytical techniques, with a focus on detection by canine, and was reported in the form of written reports and manuscripts, as well as regular oral presentations at conferences and educational seminars for the operational community.

**2012-2014**      **Post-doctoral fellow – U.S. Naval Research Laboratory, Chemistry Division**

***Research interest:** Headspace analysis of low volatility explosives and canine training aids.*

**2011-2012**      **Visiting scientist – Federal Bureau of Investigation, Counterterrorism and Forensic Science Research Unit**

***Research interest:** Detection and determination of volatiles from human scent and odor by analytical instrumentation and development of canine training aids.*

**2006-2010**      **Graduate research assistant – Florida International University**

*Research interest: Development of a dynamic headspace concentration technique for the non-contact sampling of human odor samples and the creation of canine training aids.*

**2006/2008 Teaching assistant – Florida International University**

*Work duties: Instructed students on basic laboratory and safety practices. Administered and graded homework and exams.*

**2005-2006 Undergraduate research assistant – Chapman University**

*Research interest: Reactivity of iron oxyhydroxide nanoparticles to metals.*

**2002 Summer intern – New York City Office of the Chief Medical Examiner**

*Work duties: Worked under Dr. Mark Flomenbaum, Deputy Chief Medical Examiner of New York City. Observed and assisted in autopsies, court proceedings, and other workings of the Office of the Chief Medical Examiner. Organized data and materials for potential research studies.*

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## EDUCATION

**2010 Florida International University – Ph.D. Chemistry**

Miami, FL

*Dissertation title: Development of a dynamic headspace concentration technique for the non-contact sampling of human odor samples and the creation of canine training aids.*

**Advisor:** Dr. Kenneth Furton

**2006 Chapman University – B.S. Chemistry**

Orange, CA

*Thesis title: The photo-production of acetone from dissolved organic matter in seawater.*

**2003 New York University – B.A. Anthropology, pre-medical**

New York, NY

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## FUNDING (\*Principal Investigator; pending)

### *Florida International University*

**2025-2026 \*(\$31K) Center for the Advancement of Research in Forensic Science, NSF IUCUC**

“Odor profile capture by training aid substrates”

Co-PI - Dr. Kenneth Furton, Florida International University

- 2025      *\*(\\$992K) Department of Defense – Research and Education Program for HBCU/MI – Equipment/Instrumentation*  
 “Multi-scheme chemical ionization high resolution mass spectrometer as a highly versatile tool for the characterization of gas and liquid samples”  
*Co-PIs – Dr. Natalia Soares Quiente, Dr. Sonia Underwood, Florida International University*
- 2025      *\*(\\$1.06M) National Science Foundation - Major Research Instrumentation*  
 “Multi-scheme chemical ionization inlet for orbitrap high resolution mass spectrometer”  
*Co-PIs – Dr. Natalia Soares Quiente, Dr. Kenneth Furton, Florida International University*
- 2025-2026      **\*(\\$60K) Department of Homeland Security through Auburn University DCSITE**  
 “Measurement and characterization of the headspace from explosives used in the training of detection canines; Analytical and SME support for DCSITE”
- 2025      *\*(\\$113K) Army DEVCOM*  
 “Characterization of fentanyl training aids for canine detection”
- 2025-2026      *(\$623K, \*\$192K to FIU) National Institute of Justice*  
 “Non-contact detection of fentanyl and other synthetic opioids – Towards a generalized approach to detection of dangerous drug classes”  
*PI – Naval Research Laboratory, co-PI – Dr. DeGreeff*
- 2025-2026      *\*(\\$66K) Office of Naval Research*  
 “Validation of vapor transport models by laboratory simulations and field testing”
- 2024      **(\$59K, \*\$2950 to FIU) U.K. Defence Science and Technology Laboratory**  
 “Validity of human olfactory perception by individuals with hyperosmia as an analytical method to inform animal detection research”  
*PI – University of Manchester, Collaborators – FIU and University of Lincoln*
- 2024-2025      **\*(\\$88K) Department of Homeland Security through Auburn University DCSITE**  
 “Analytical and SME support for DCSITE”
- 2024-2025      **\*(\\$28K) Center for the Advancement of Research in Forensic Science, NSF IUCUC**

“Contamination of training aid substrates”

*Co-PI - Dr. Kenneth Furton, Florida International University*

**2024-2025 \*(\$28K) Center for the Advancement of Research in Forensic Science, NSF IUCUC**

“Non-contact detection of fentanyl and other synthetic opioids – Towards a generalized approach to detection of dangerous drug classes (Novel Psychoactive Substances)”

**2024 (\$650K, \*\$95K to FIU) National Science Foundation, Convergence Accelerator**

“Nose-computer interfaces for narcotics and weapons detection”

*PI – Canaery; co-PIs – Dr. DeGreeff and New York University*

**2023-2025 \*(\$440K) National Institute of Standards and Technology – Special Programs Office**

“Assessing the accuracy and reliability of canine detection: A proof-of-concept black box study using OSAC explosive detection standards”

*Co-PI – Texas Tech University*

**2023-2028 \*(\$998K) Department of Homeland Security – Scientific Leadership Award**

“Transforming forensic chemistry education and research to serve the Homeland Security Enterprise and establish a diverse workforce”

*Co-PI - Dr. Justin Carmel, Florida International University, STEM Transformation Institute*

**2023-2024 \*(\$642K) National Institute of Justice**

“Non-contact detection of fentanyl and other synthetic opioids – Towards a generalized approach to detection of dangerous drug classes”

*Co-PI - Naval Research Laboratory*

**2022-2023 \*(\$135K) Auburn University DCSITE, Department of Homeland Security**

“Development and validation of methods for Quality Assurance / Quality Control (QA/QC) of canine training materials”

**2022-2023 \*(\$20K) Center for Advanced Research in Forensic Science, NSF IUCUC**

“Suppression of vapor transport due to adsorption to containment materials”

**2022-2023 \*(\$28K) Center for Advanced Research in Forensic Science, NSF IUCUC**

“Survey of contamination and degradation in the lifetime of a canine training aid”

- 2022** \*(\$30K) Auburn University DCSITE, Department of Homeland Security  
*No title*
- 2021-2024** \*(\$317K) Office of Naval Research  
“Validation of vapor transport models by laboratory simulations and canine testing”  
*Co-PIs - Naval Research Laboratory, Chapman University*

*Naval Research Laboratory*

- 2020-2021** \*(\$340K) Bureau of Safety and Environmental Enforcement  
“Canine oil detection – Using odor signatures to improve training detection proficiency on land and water”  
*Co-PIs – Chiron K9, Owens Coastal Consultants*
- 2020** \*(\$170K) U.S. Army Combat Capabilities Development Command  
“Analytical chemistry support for field testing”
- 2020-2021** \*(\$640K) National Institute of Justice  
“Non-contact detection of fentanyl and other synthetic opioids”  
*Co-PI – Florida International University*
- 2020-2021** \*(\$240K) U.S. Army Combat Capabilities Development Command  
“Quantitative measurement of vaporous targets emanating from PDMS odor capture-and-release technology held in the Training Aid Delivery Device (TADD)”
- 2019** \*(\$80K) Office of Secretary of Defense, Domestic Preparedness Support Initiative  
“Training aid delivery devices (TADDs) for homemade explosives for use by law enforcement canine handlers – Determination of the shelf life of TADDs”
- 2019** \*(\$72K) Office of Secretary of Defense, Domestic Preparedness Support Initiative  
“Mixed odor delivery device (MODD) to enhance canine narcotics and explosive detection training”
- 2019-2021** \*(\$600K) Office of Naval Research – Basic Research  
“Empirical and theoretical determination of canine olfactory detection limits using a quantitative vapor delivery system”  
*Co-PI – Auburn University*
- 2017** \*(\$10K) U.S. Army Combat Capabilities Development Command  
“Rapid Equipping Force’s Military Working Dog Scent Kit – Literature Review”
- 2016** \*(\$53K) Office of Secretary of Defense, Domestic Preparedness Support Initiative

“Development of an alternative Mixed Odor Delivery Device (MODD) for canine training”

- 2015-2018** \*(\$750K) **Office of Naval Research – Basic Research**  
“Exploring the generalization-discrimination balance in odor detection canines”
- 2015** \*(\$150K) **Jerome and Isabella Karle Distinguished Scholar Fellowship**  
“Elucidation and modeling of the dynamic vapor signature of hexamethylene triperoxide diamine”
- 2013-2015** \*(\$550K) **Office of Naval Research**  
“Analytical support, characterization and optimization of a canine training aid delivery system”

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## UNIVERSITY SERVICE

- 2024-present** Faculty mentor for Chemistry Graduate Student Organization
- 2024-present** Serve on the Department of Chemistry Human Resources Committee
- 2023-2024** Department of Chemistry meeting secretary
- 2022-present** Serve on the Department of Chemistry Graduate Program Committee
- 2022-present** Obtained and hold the FIU MMC Explosive Handling Licenses for the State of Florida and ATF
- 2021-present** Reviewer and judge for *Undergraduate Research at FIU* – Review abstracts and judge student poster presentations annually
- 2021-present** Serve on student committees (MSFS and PhD)
- 2021-present** Department of Chemistry Drug Enforcement Agency Controlled Substance Registration holder
- 2021-present** Serve on the IFRI MSFS Graduate Program Committee
- 2021-2023** Served on Department of Chemistry Instrumentation Committee

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## OUTSIDE PROFESSIONAL ACTIVITIES

- 2024-present** Guest editor for *Chemosensors* Special Issue, “Detection of Volatile Organic Compounds in Complex Mixtures”
- 2023-present** *Forensic Chemistry* Editorial Board Member
- 2023-present** Planning board for the Joint Symposium for Working K9s
- 2022** Chair, Canine Detection and Olfaction Science Conference –  
Held at FIU Koven’s Conference Center, May 23-25, 2023 (207 attendees)
- 2021-2023** Department of Homeland Security Canine S&T and MIT Lincoln Lab –  
Analytical Analysis of Canine Training Aids Working Group
- 2021-present** American Academy of Forensic Science (AAFS) Standards Board (ASB) -  
Dogs and Sensors Consensus Body, Member

- 2021-present OSAC (Organization of Scientific Area Committees) for Forensic Science –**  
Dogs and Sensors Subcommittee, Affiliate member
- 2020-present OSAC (Organization of Scientific Area Committees) for Forensic Science –**  
Ignitable Liquids, Explosives and Gunshot Residue Subcommittee member
- 2020 Keynote speaker** for Schmid College Program Honors and Capstone Conference  
(Chapman University)
- 2019-2021 Joint Services Working Dog Research Steering Committee**
- 2018-2019 Subject matter expert** to Lowland Search and Rescue on “Improving location of  
missing people from vulnerable populations using trained search dog”
- 2016-present Training seminars –** Regularly present training seminars supporting military and  
law enforcement canine handlers
- 2015-2021 Mentor** to National Research Council post-doctoral fellows
- 2015-2021 Mentor** to summer interns through the Naval Research Laboratory summer  
internship programs
- 2017 Co-organizer –** Department of Defense Canine Detection Research Focus Group,  
hosted at Naval Research Laboratory
- 2014-2017 Developed, patented, and brought to market** canine training device (Mixed Odor  
Delivery Device)
- 2008-2010 Committee chair –** Student selection committee for guest lecturers, Department of  
Chemistry, Florida International University
- 2006-2010 Meeting facilitator –** SWGDOG (Scientific Working Group for Dog and  
Orthogonal Detection Guidelines) bi-annual meetings
- 2007-2009 President –** Florida International University Chemistry and Biochemistry Graduate  
Student Organization
- 2004-2006 President –** Chapman University Chapter of the Student Affiliates of the American  
Chemical Society
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## UNIVERSITY COURSES TAUGHT

- Forensic chemistry (CHS 4503 – undergraduate)
- Forensic chemistry (CHM 5542 – graduate)
- Instrumental analysis (CHM 4130 – undergraduate)
- Analytical methods (CHM 5150 – graduate)
- Senior seminar (CHM 4930 – undergraduate)

## OTHER COURSES TAUGHT

- Headspace analysis for Advanced Chromatography (1.25 hours)
- Exploring Odor (2 days)
- Odor chemistry (2 hours)
- Odor basics for Nosework Detection and Training (2 hours)

Training aid handling and storage (1 hour)  
Odor chemistry of fentanyl and drugs (2 hours)  
Odor chemistry for explosives detection (2 hours)  
Canine training aids: The good, the bad, and the smelly (2 hours)  
Detection of emerging threats: A chemist's perspectives (2 hours)  
You stink! Human Scent – Living and deceased for K9 teams (2 hours)

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## **HONORS AND AWARDS**

**2024** FIU CASE Faculty Recognition Award for Engagement  
**2023** FIU CASE Faculty Recognition Award for Research  
**2022** U.S. Navy Civilian Service Award  
**2020** American Society of Naval Engineers – 30 Inspirational Women Role Models  
**2019** Naval Research Laboratory, Chemistry Division Award for the article “Mixed vapor generation device for delivery of homemade explosives vapor plumes”  
**2018** Naval Research Laboratory Technology and Transition Award  
**2018** Naval Research Laboratory Edison Patent Award  
**2018** Federal Laboratory Consortium Award for Excellence in Technology Transfer  
**2015** Jerome and Isabella Karle Distinguished Scholar Fellowship – Naval Research Laboratory  
**2013** National Research Council Research Associateship  
**2009** Member of Delta Epsilon Iota Academic Honor Society  
**2008** Member of Alpha Epsilon Lambda Academic Honor Society  
**2006** High Achievement in the Study of Chemistry – Chapman University

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## **STUDENT ADVISING – FLORIDA INTERNATIONAL UNIVERSITY**

### ***Ph.D. Graduate students***

Joel Fuentes – “Vapor transport from buried ammonium nitrate-based explosives”, expected graduation 2029

Fernando Zalidvar – “Optimum training aid substrates for canines’ detection humans, drugs, and explosives”, expected graduation 2028

Sadie Olrogg – “Characterization and detection of drugs in the field using non-contact static sampling”, expected graduation 2028

Daigoro Greco – “Characterization of VOCs from burned victims”, expected graduation 2028

Kayla Hogan – “Establishing effective canine training aids for drug detection: Understanding cross-contamination and development of a fentanyl canine training aid”, expected graduation 2027

Galpayage Dona Thouli Jayawardana – “Analysis of target VOCs of emerging threats to improve their non-contact field detection by ion mobility spectrometry”, expected graduation 2027

Katherine Castro – “Volatile analysis of complex vapor profiles for canine training aid standardization”, expected graduation 2026

Fantasia Whaley – “Evolution in VOC profiles during human decomposition”, expected graduation 2026

Emma Calabrese – “Analysis of vapor transport from buried and contained explosive substances”, COMPLETED Summer 2025

Michelle Karpinsky – “The headspace profile of crude oil for detection and differentiation purposes”, COMPLETED Spring 2025; **Winner of CASE Graduate Student Service Award**

Janet Crespo Cajigas – “Improving canine detection specificity via instrumental and sensing tools”, COMPLETED Spring 2024; **Winner of FIU Department of Chemistry and Biochemistry “Best Dissertation”**

### *Master’s students*

Lydia Burnett – “Canine sniffing biomechanics responses to varied chemical properties”, COMPLETED Fall 2023

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## **PUBLICATIONS** (\*corresponding author, FIU student author, undergraduate FIU student)

### *Books*

\*DeGreeff, L.E., Schultz, C. (Eds.). *Canines: The Original Biosensors*, Jenny Stanford Publishing, Singapore, 2022.

### *Book chapters*

\*Tiedemann, P., DeGreeff, L.E., Schultz, C. “Forensic and security application in substance detection canines.” *In Olfactory Research in Dogs*, Springer Nature, 2023, pp. 237-290.

Viles Rosa, R., Gokool, V., \*Hall, N., \*DeGreeff, L.E. “Canine olfactometry: Tools, uses, and techniques.” *In Olfactory Research in Dogs*, Springer Nature, 2023, pp. 85-118.

Frank, K., DeGreeff, L.E., \*Furton, K.G. “Explosives detection by dogs.” *In Counterterrorism Detection Techniques of Explosives – 2<sup>nd</sup> Edition*, Elsevier, 2021, pp. 45-75.

\*DeGreeff, L.E. “Introduction – Canines: The Original Biosensors.” *In Canines: The Original Biosensors*, Jenny Stanford Publishing, 2022, pp. 3-19.

\*DeGreeff, L.E., Singletary, M., Lazarowski, L. “Sensitivity and selectivity in canine detectors.” *In Canines: The Original Biosensors*, Jenny Stanford Publishing, 2022, pp. 63-106.

\*DeGreeff, L.E., Maughan, M. “Understanding the dynamics of odor to aid in odor detection.” *In Canines: The Original Biosensors*, Jenny Stanford Publishing, 2022, pp. 217-273.

#### *Peer-reviewed – Florida International University*

Whaley, F., Albizu, V., Cruz, J., Dargan, R., \*DeGreeff, L., “Investigation of distinct odor profiles of blood over time using chemometrics and detection canine response.” *Chemosensors*, **2025**, 13(9), 349.

Jayawardana, G.D.T., Fulton, A.C., Ford, H.O., Nuwayhid, R.B., Giordano, B.C., \*DeGreeff, L.E., “QCM-based screening of acrylate polymers for NPPA pre-concentration to enhance vapor detection of fentanyl.” *Analytica Chimica Acta*, **2025**, 1376, 344633.

[INVITED] Dargan, R., Hogan, K.A., Forte, L., Bosnich, J., Furton, K.G., \*DeGreeff, L.E., “Lessons from the development of a canine training aid mimic for the detection of fentanyl: Canines versus instruments.” *Frontiers in Sensors*, submitted.

Whaley, F., Greco, D., Mercando, K., \*DeGreeff, L.E., “Type and Storage of Human Remains Detection Canine Training Aids: A Review and Handler Survey.” *Forensic Science International Synergy*, **2025**, 11, 100625.

Gokool, V.A., Karpinsky, M., Furton, K.G., \*DeGreeff, L.E., “Proof-of-Concept: Chemometric Approach for Environmental Forensic Sourcing of Crude Oil Samples using SPME-GC-MS.” *Talanta*, **2025**, 285, 127381.

Burnett, L., Waldrop, L., Hebdon, N., Stevens, P., Moljo, M., \*DeGreeff, L.E., “Dog sniffing biomechanic responses in an odor detection test of odorants with differing physical properties.” *Journal of Animal Science*, **2024**, skae353.

[INVITED] Calabrese, E., Alexis, S., Furton, K.G., \*DeGreeff, L.E., “Impact of adsorption on the vapor availability of contained explosives and drugs.” *Propellants, Explosives, Pyrotechnics*, **2024**, e202400115.

Crespo-Cajigas, J., Kabir, A., Furton, K., \*DeGreeff, L., “Development of a paper-based sol-gel vapochromic sensor for the detection of vapor cross-contamination within a closed container.” *Analytica*, **2024**, 5(3), 295-310.

Karpinsky, M., Lopez, D., Campus, E., Bunker, P., Vaughan, S.R., Holness, H.K., Furton, K.G., \*DeGreeff, L.E., “Exploring canine olfactory generalization using odor profile fractions from native crude oils.” *Plos One*, **2024**, 0311818.

\*Maughan, M.N., Gadberry, J.D., Sharpes, C.E., Buckley, P.E., Miklos, A., Furton, K.G., DeGreeff, L.E., Hall, N.J., Greubel, R.R., \*Sloan, K.B., “Calibrating canines – a universal detector calibrant for detection dogs.” *Frontiers in Allergy*, **2024**, 5.

\*DeGreeff, L.E., Katilie, C.J., Sharpes, C.E., Maughan, M.N., Gadberry, J.D., Nolan, P., Hall, N., Magner, B., Best, E.M., Calabrese, E., Whaley, F., Hammond, M., Buckley, P.E., “Evaluation of non-detonable canine training aids for explosives by headspace analysis of canine testing.” *Forensic Chemistry*, **2024**, 37, 100553.

Mejia, D., Burnett, L., Hebdon, N., Stevens, P., Shiber, A., Cranston, C., DeGreeff, L., \*Waldrop, L.D., “Physical properties of odorants affect behavior of trained detection dogs during close-quarters searches.” *Scientific Reports*, **2024**, 14, 4843.

[INVITED] Crespo Cajigas, J., Gokool, V.A., Holness, H.K., Furton, K.G., \*DeGreeff, L.E., “Method development for an untargeted HS-SPME-GC-MS analysis of terpenes and cannabinoids for the geographic sourcing of marijuana.” *Talanta Open*, **2024**, 9, 100300.

Katilie, C.J., \*DeGreeff, L.E., Sharpes, C., Buckley, P., Gadberry, J., Maughan, M. “Evaluation of canine training aids containment for homemade explosive and components by headspace analysis and canine testing.” *Journal of Forensic Science*, **2023**, 68(6), 2021-2036.

Fulton, A.C., Forte, L., Vaughan, S.R., Holness, H.K., Furton, K.G., \*DeGreeff, L.E. “Investigation of volatile organic compounds from trace fentanyl powder via passive degradation.” *Forensic Chemistry*, **2022**, 31, 100456.

Vaughan, S.R., Gokool, V., Karpinsky, M., Bunker, P., Owens, E., Tuttle, S.G., DeGreeff, L.E. “A preliminary study of the odorants of interest in native crude oils to oil detection canines.” *Proceeds of the 44<sup>th</sup> AMOP Technical Seminar on Environmental Contamination and Response*, **2022**.

Fulton, A.C., Vaughan, S.R., \*DeGreeff, L.E. “Non-contact detection of fentanyl by a field-portable ion mobility spectrometer.” *Drug Testing and Analysis*, **2022**, 14(8), 1451-1459.

Smith, C.D., Fulton, A.C., \*DeGreeff, L.E. “Detection of N-phenylpropanamide vapor from fentanyl materials by secondary electrospray ionization-ion mobility spectrometry (SESI-IMS).” *Analytica Chimica Acta*, **2022**, 100114.

\*DeGreeff, L.E., Peranich, K. “Canine olfactory detection of trained explosive and narcotic odors in mixtures.” *Forensic Science International*, **2021**, 329, 111059.

*Peer-reviewed – Naval Research Laboratory*

Vaughan, S.R., Fulton, A.C., \*DeGreeff, L.E. “Comparative analysis of vapor profiles of fentalogs and illicit fentanyl.” *Analytical and Bioanalytical Chemistry*, **2021**, 7055-7062.

\*DeGreeff, L.E., Peranich, K. “Headspace analysis of ammonium nitrate variants and the effects of differing vapor profiles on canine detection.” *Forensic Chemistry*, **2021**, 25, 100342.

Vaughan, S.R., \*DeGreeff, L.E., Forte, L., Holness, H.K., Furton, K.G. “Identification of volatile components in the headspace of pharmaceutical-grade fentanyl” *Forensic Chemistry*, **2021**, 24, 100331.

\*DeGreeff, L.E., Katilie, C.J., Johnson, R., Vaughan, S.L. “Quantitative vapor delivery for improved canine threshold testing” *Analytical and Bioanalytical Chemistry*, **2020**, 413, 955-966.

\*Lazarowski, L., Krichbaum, S., DeGreeff, L.E., Simon, A., Singletary, M., Angle, C., Waggoner, L.P. “Methodological considerations in canine olfactory detection research.” *Frontiers Veterinary Science*, **2020**, 7, 408.

**(Editor’s pick)** \*Giordano, B.C., DeGreeff, L.E., Malito, M., Hammond, M., Katilie, C., Mullen, M., Collins, G.E., Rose-Pehrsson, S.L. “Trace vapor generator for explosives and narcotics (TV-Gen).” *Reviews of Scientific Instruments*, **2020**, 91(8), 085112.

\*DeGreeff, L.E., Simon, A.G., Macias, M.S., Holness, H.K., Furton, K.G. “Controlled odor mimic permeation systems for olfactory training and field-testing.” *Journal of Visualized Experiments*, 28 Jan 2021.

\*DeGreeff, L.E., Simon, A.G., Peranich, K., Holness, H.K., Frank, K., Furton, K.G. “Generalization and discrimination of molecularly similar odorants in detection canines and the influence of training.” *Behavioural Processes*, **2020**, 177, 104148.

Crespo-Cajigas J.M., Perez-Almodovar, L., \*DeGreeff, L.E. “Headspace analysis of potassium chlorate using on-fiber SPME derivatization coupled with GC/MS.” *Talanta*, **2019**, 205, 120127.

Simon, A.G., \*DeGreeff, L.E., Frank, K., Peranich, K., Holness, H.K., Furton K.G. “A method for controlled odor delivery in canine olfactory testing.” *Chemical Senses*, **2019**, 44(6), 399-408.

Simon, A.G., \*DeGreeff, L.E. “Variation in the headspace of bulk hexamethylene triperoxide diamine (HMTD): Part II. Analysis of non-detonable canine training aids. *Forensic Chemistry*, **2019**, 13, 100155.

\*DeGreeff, L.E., Liddell, H.P.H., Pogue, W.R., Merrill, M.H., Johnson, K.J. “Effect of re-use of surface sampling traps on surface structure and collection efficiency for trace explosive residues.” *Forensic Science International*, **2019**, 297, 254-264.

Katilie, C.J., Simon, A.G., \*DeGreeff, L.E. “Quantitative analysis of vaporous ammonia by online derivatization with gas chromatography – mass spectrometry with applications to ammonium nitrate-based explosives.” *Talanta*, **2019**, *193*, 87-92.

\*DeGreeff, L.E., Katilie, C.J., Malito, M., Giordano, B. “Mixed vapor generation device for delivery of homemade explosives vapor plumes.” *Analytica Chimica Acta*, **2018**, *1040*, 41-48.

\*DeGreeff, L.E., Cerreta, M., Katilie, C.J. “Variation in the headspace of bulk hexamethylene triperoxide diamine (HMTD) with time, environment, and formulation.” *Forensic Chemistry*, **2017**, *4*, 41-50.

\*DeGreeff, L.E., Malito, M., Katilie, C.J., Brandon, A., Conroy, M.W., Peranich, K., Anath, R., Rose-Pehrsson, S.L. “Passive delivery of mixed explosives vapor from separated components.” *Forensic Chemistry*, **2017**, *4*, 19-31.

\*DeGreeff, L.E., Cerreta, M., Rispoli, M. “Feasibility of canine detection of mass storage devices: A study of volatile organic compounds emanating from electronic devices using solid phase microextraction.” *Journal of Forensic Science*, **2017**, *62*(6), 1613-1616.

\*Steinkamp, F.L., DeGreeff, L.E., Collins, G., Rose-Pehrsson, S.L. “Factors affecting the intramolecular decomposition of hexamethylene triperoxide diamine and implications for detection.” *Journal of Chromatography A*, **2016**, *1451*, 55-60.

\*DeGreeff, L.E., Rogers, D., Katilie, C.J., Johnson, K.J., Rose-Pehrsson, S. “Technical Note: Headspace analysis of explosive compounds using a novel sampling chamber.” *Forensic Science International*, **2014**, *248*, 55-60.

#### ***Peer-reviewed – Florida International University (graduate school)***

DeGreeff, L.E., Weakley-Jones, B., \*Furton, K.G. “Creation of canine training aids for human remains detection canines utilizing a non-contact, dynamic airflow, volatile concentration technique.” *Forensic Science International*, **2012**, *209*, 133-142.

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Peranich, K., DeGreeff, L.E. “Canine research – Past, present, future: Analysis of gaps and user needs.” *Naval Surface Warfare Center, Indian Head Explosive Ordnance Disposal Technology Division Final Report (IHTR 3775)*, **28 Nov 2018**.

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DeGreeff, L.E., Katilie, C.J. Malito, M., Brandon, A., Ananth, R., Rose-Pehrsson, S.L., “Analytical support, characterization, and optimization of a canine training aid delivery system: Phase 2,” *Memorandum Report (NRL/MR/6180—16-9657)*, **29 Jan 2016**.

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DeGreeff, L.E., Crespo-Cajigas, J.M. “Derivatization of vaporous chlorine by propylene oxide.” U.S. Patent No. US20200247736, **06 Apr 2021**. *pending*

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## PRESS / PODCASTS

“The future of detection dogs: Science meets practice with Dr. Lauryn DeGreeff and Dr. Lindsay Waldrop”, *K9’s Talking Scents, Episode #116*, 30 May 2025

“How a dog's nose became a powerful tool for science and conservation”, *NPR Short Wave*, by Berly McCoy, Emily Kwong, Rachel Carlson, and Rebecca Ramirez, 05 March 2025.

“The science of K9 detection with Dr. Lauryn DeGreeff and Dr. Nathan Hall”, *The Next Level Podcast*, Episode 7, 07 Nov 2024.

“Meet Lauryn DeGreeff”, *Joint Symposium for Working K9s Podcast*, 21 May 2024.

“JSWK9 Introduction”, *Joint Symposium for Working K9s Podcast*, 20 May 2024.

“Bomb dog research, odor purity, and research update with Dr. Lauryn DeGreeff, Dr. Michele Maughan, and Jenna Gadberry”, *K9 Detection Collaborative*, 05 Mar 2024.

“New scientific study about bomb dog training aids” with Lauryn DeGreeff and Michele Maughan” *The Police K9 Training Podcast, with Jeff Meyer*, 07 Feb 2024.

“Fentanyl training considerations with Dr. DeGreeff and Dr. Maughan”, *Police K9 Radio*, 29 May 2023, <https://youtu.be/u-3-sNtJoDM>.

“Canine olfaction and detection science conference with Lauryn DeGreeff”, *The Conservation K9 Podcast*, 02 May 2023.

“K9 Sci Con with Dr. Lauryn DeGreeff”, *K9 Detection Collaborative*, 02 May 2023.

Season 2, Episode 4: Dr. Lauryn DeGreeff, *The Conservation K9 Podcast*, 15 June 2022.

“Canines as the Original Biosensor and Odor / Scent Chemistry with Dr. Lauryn DeGreeff”, *K9 Detection Collaborative*, 11 Apr 2022.

“FIU research makes possible the training of canines to find explosives, sniff out fungus, and detect COVID”, *FIU News*, by Michelle Chernicoff, 7 Dec 2021.

“Cocktail Anyone”, *K9s Talking Scents Podcast*, Season 3, Episode 54, 19 Nov 2021.

“Trainer’s Forum with Dr. Lauryn DeGreeff”, *HRD Specialized K9 Training*, Jan 2021. (<https://www.youtube.com/watch?v=5zk1-4SEwZc>)

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“Controlling the leash of your career”, part of the series “30 Inspirational Women Role Models and STEM Advocates”, *American Society of Naval Engineers*, Nov. 2020.

“Developing a trace vapor generator for explosives and narcotics,” *AZoLifeSciences*, 11 Sept 2020.

“Trace vapor generator for detection of explosives, narcotics,” *American Institute of Physics* (Phys.org), 18 Aug 2020.

“Odor mixtures,” *K9s Talking Scents Podcast*, Season 1, Episode 17, 26 Nov 2019.

“Shifting focus from traditional to homemade explosives detection,” *K-9 Cop Magazine*, by L. DeGreeff et al. (Part I. Issue 57, August/September 2019; Part II. Issue 58, October/November 2019; Part III. Issue 59, December/January 2020).

“Dr. Lauryn DeGreeff talks about how odor moves,” *HITS Radio*, Episode 35, 4 Sept 2019.

Richmond NBC12: “Chemists work to train drug-sniffing dogs for law enforcement purposes,” 27 July 2019.

NRL Pipeline: “NRL Scientist Educates Baltimore on Research to Support Fleet, Nation,” 19 Oct 2018.

Baltimore WBFF Fox 45 news: Two live segments showcasing Mixed Odor Delivery Device, 5 Oct 2018.

NRL YouTube: “K9 Detection Research,” 27 June 2018.

“Introducing Bear, a Seattle Police Dog that Can Sniff Out Porn” *The Stranger*, by Sydney Brownstone, 11 Apr 2018

NRL YouTube: “NRL Chemist Develops Device to Train Canine Units,” 6 July 2017.

“New Navy Device Helps Dogs Smell Explosives Better” *Stars and Stripes*, by Scott Wyland, 8 Aug 2017

“Engineer Investigates Odor Detection Canines” *South Potomac Pilot*, by Holly Dodds, 18 Aug 2017

“ONR Helps Train the Future Canine Force” *Office of Naval Research Media Release*, by Warren Duffie, 28 April 2015.

Manuscripts and Ph.D. dissertation submitted as evidence in State of Florida v. Casey Anthony, May-June 2011

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## PRESENTATIONS AND SEMINARS (presenter; *FIU student*, \**undergraduate student*)

### *Invited – Scientific conferences – Florida International University*

**Keynote:** DeGreeff, L.E., *Karpinsky, M.*, Bunker, P., Vaughan, S., Owens, E. “Canine detection of crude oils for spill remediation,” International Network of Environment Forensics [virtual]; 25 Aug 2025.

DeGreeff, L.E., “Canine safety considerations in the detection of fentanyl,” Needs and Research Gaps Surrounding Safe Handling of Synthetic Opioids; Gaithersburg, MD; 9 June 2025.

*Crespo Cajigas, J.*; DeGreeff, L.E., “Volatile analysis of terpenes and cannabinoids for the geographic sourcing of marijuana,” Pittsburgh Conference and Exposition; Boston, MA; 4 Mar 2025.

*Calabrese, E.*, Furton, K., DeGreeff, L.E. “Impact of Adsorption on the Vapor Availability of Contained Explosives and Drugs,” Global Forensic Science Alliance; [virtual] 3 Dec 2024.

Fulton, A.C., *Jayawardana, T.*, Giordano, B., DeGreeff, L.E. “Enhanced non-contact detection of fentanyl via silicon nanowire arrays pre-concentration on a portable ion mobility spectrometer,” Pittsburg Conference and Exposition; San Diego, CA; 26 Feb 2024.

DeGreeff, L.E., Fulton, A., *Jayawardana, T.*, Giordano, B., Vaughan, S., *Forte, L.*, Holness, H., Furton, K.G. “Non-contact detection of fentanyl and other synthetic drugs,” NIJ Forensic Science R&D Symposium at the American Academy of Forensic Science Conference; Denver, CO; 20 Feb 2024.

Bunker, P., DeChant, M., Hall, N., DeGreeff, L., Owens, E. “Oil detection canines – Beyond Chapter 20,” Canine Detection and Olfaction Science Conference; Miami, FL; 24 May 2023.

DeGreeff, L.E., “What’s that smell? - Canine detection chemistry,” Canine Detection and Olfaction Science Conference; Miami, FL; 24 May 2023.

Fulton, A.C., Vaughan, S.R., DeGreeff, L.E., “Non-contact detection of fentanyl by a field-portable ion mobility spectrometer,” NIJ Innovations in Forensic Examination of Seized Drugs

and Forensic Toxicology at the Pittsburgh Conference and Exposition; Philadelphia, PA; 20 Mar 2023.

Crespo Cajigas, J., Castro, K., DeGreeff, L.E., “Canines: The original biosensors.” World Police Summit; Dubai, United Arab Emirates; 09 March 2023.

DeGreeff, L.E., Forte, L., “Emerging threats – Characterization and detection of homemade explosives and synthetic opioids by instrument and canine,” CINA Distinguished Speaker Series [virtual]; 23 Feb 2023.

DeGreeff, L.E., Whaley, F., Perry, E. “Living vs. remains scent: Vapor analysis and odor characterization,” Forensic Olfactoronics International Workshop; Prague, Czech Republic; 22 Sep 2022.

DeGreeff, L.E. “Odor chemistry: Factors that affect odor profiles and odor detection,” The Power of Scents: Olfactory research from innovation to application and validation workshop; Morogoro, Tanzania; 21 June 2022.

#### *Invited – Scientific conferences – Naval Research Laboratory*

DeGreeff, L.E. “Characterization of vaporous targets from non-contact detection of fentanyl and related opioids,” ASCLD FRC Lightning Talks [virtual]; 07 Jul 2021.

DeGreeff, L.E. “Understanding odor for better canine detection,” Detection Dog Panel, 10th Annual Forensic Science Symposium [virtual]; 07 Jun 2021.

DeGreeff, L.E., Katilie, C.J., Giordano, B. “Applications of dynamic and static headspace extraction methods with GC/MS to characterize and quantify vapor from canine training materials,” Consensus Analytical Methods for K9 Training Aid Verification [virtual]; 08 Mar 2021.

DeGreeff, L.E., Vaughan, S., Forte, L., Holness, H.K., Furton, K.G. “Non-contact detection of fentanyl and other synthetic opioids,” 4<sup>th</sup> Annual National Institute of Justice Forensic Science Symposium at Pittcon 2021 [virtual]; 11 Mar 2021.

**Keynote:** DeGreeff, L.E., Furton, K.G. “Discovering the invisible: The future of forensic detection including identification through human scent traces,” GCC Forensics Conference and Exhibition; Manama, Bahrain; 14 Nov 2019.

DeGreeff, L.E. “Canine detectors: The original biosensor,” Gordon Research Conference; Newport, RI; 26 Jun 2018.

#### *Scientific conferences – Florida International University*

Jayawardana, G.D.T.L., DeGreeff, L.E., “Expanding IMS capabilities for non-contact detection of dangerous substances,” Graduate Student Appreciation Week Scholarly Forum; Miami, FL; Apr 2025.

Whaley, F., \*Albizu, V., Fuentes, J., Cruz, J., DeGreeff, L., “Evolution of VOC profiles during early decomposition,” Joint Symposium for Working K9s; Atlanta, GA; 8-10 Apr 2025.

Whaley, F., \*Albizu, V., Cruz, J., DeGreeff, L., “Investigation of distinct odor profiles of blood using chemometrics and canine detection,” Joint Symposium for Working K9s; Atlanta, GA; 8-10 Apr 2025.

Perry, E., Greco, D., DeGreeff, L., “Detection of residual odor by FEMA canines,” Joint Symposium for Working K9s; Atlanta, GA; 8-10 Apr 2025.

Karpinsky, M., Browning, H., Quigley-McBride, A., Bunker, P., Tidemann, P., DeGreeff, L.E., “Assessing the accuracy and reliability of canines using OSAC explosive detection standards,” Joint Symposium for Working K9s; Atlanta, GA; 8-10 Apr 2025.

Karpinsky, M., \*Lopez, D., \*Campues, E., Bunker, P., Vaughan, S., Holness, H., Furton, K., DeGreeff, L.E., “Exploring canine olfactory generalization using odor profile fractions from native crude oils,” Joint Symposium for Working K9s; Atlanta, GA; 8-10 Apr 2025.

Dargan, R., DeGreeff, L.E., “Smokeless powder training aids for canine training,” Joint Symposium for Working K9s; Atlanta, GA; 8-10 Apr 2025.

Dargan, R., Whaley, F., Greco, D., Carrasco, J., Hudgins, D., DeGreeff, L.E., “Canine generalization of human remains volatile fractions: A preliminary study,” Joint Symposium for Working K9s; Atlanta, GA; 8-10 Apr 2025.

DeGreeff, L.E., Dargan, R., Hogan, L., Forte, L., Furton, K.G., “Towards the validation of canine training aids,” Joint Symposium for Working K9s; Atlanta, GA; 8-10 Apr 2025.

Calabrese, E., Furton, K.G., DeGreeff, L.E., “Impact of adsorption on vapor availability of contained explosives and drugs,” Joint Symposium for Working K9s; Atlanta, GA; 8-10 Apr 2025.

Calabrese, E., Carrasco, J., Furton, K.G., DeGreeff, L.E., “Simulated explosive burial: Analysis of vapor transport through soil conditions,” Joint Symposium for Working K9s; Atlanta, GA; 8-10 Apr 2025.

Greco, D.; DeGreeff, L.E., “The impact of storage and container options for human remains detection training aids,” Pittsburgh Conference and Exposition; Boston, MA; 4 Mar 2025.

Zaldivar Eyre, F.; Furton, K.G.; DeGreeff, L.E., “The contamination of training aid substrates,” Pittsburgh Conference and Exposition; Boston, MA; 4 Mar 2025.

Jayawardana, G.D.T.L.; Furton, A.; Giordano, B.; DeGreeff, L.E., “Beyond SPME: Alternative approach to fentanyl vapor sampling,” Pittsburgh Conference and Exposition; Boston, MA; 4 Mar 2025.

Castro, K.; \*Echeverria, R.; DeGreeff, L.E., “Development of a standard validation method of alternative canine explosive training aids,” Pittsburgh Conference and Exposition; Boston, MA; 4 Mar 2025.

Greco, D.; DeGreeff, L.E., “The impact of storage and container options for human remains detection training aids,” Annual Conference of the American Academy of Forensic Sciences; Baltimore, MD; 17-22 Feb 2025.

Zaldivar Eyre, F.; Furton, K.G.; DeGreeff, L.E., “The contamination of training aid substrates,” Annual Conference of the American Academy of Forensic Sciences; Baltimore, MD; 17-22 Feb 2025.

Quigley-McBride, A.; Browning, H.; DeGreeff, L.E.; Prada-Tiedemann, P., “Assessing the accuracy and reliability of canine explosives detection using OSAC training and certification standards,” Annual Conference of the American Academy of Forensic Sciences; Baltimore, MD; 17-22 Feb 2025.

Whaley, F.; \*Albizu, V.; \*Fuentes, J.; \*Millan, E.; Cruz, J.; DeGreeff, L.E., “Evolution of VOC profiles during early human and animal decomposition in application for canine detection,” Annual Conference of the American Academy of Forensic Sciences; Baltimore, MD; 17-22 Feb 2025.

Dargan, R.; DeGreeff, L.E., “Developing a universal smokeless powder training aid,” Annual Conference of the American Academy of Forensic Sciences; Baltimore, MD; 17-22 Feb 2025.

Olrogg, S.; Moon, J.; DeGreeff, L.E., “Development and testing of a novel sorbent material for headspace analysis with application to illicit drugs,” Annual Conference of the American Academy of Forensic Sciences; Baltimore, MD; 17-22 Feb 2025.

Hogan, K.; Furton, K.G.; DeGreeff, L.E., “An assessment of the permeability of VOCs between containers housing detection canine training aids,” Annual Conference of the American Academy of Forensic Sciences; Baltimore, MD; 17-22 Feb 2025.

Karpinsky, M.; Bunker, P; \*Campues, E.; \*Lopez, D.; Vaughan, S; Furton, K; DeGreeff, L., “Generalization of crude oil for oil detection canines using odor profile fractions,” Clean Gulf, 18-20 Nov 2024.

Calabrese, E.R., DeGreeff, L.E., “Sorption of containment materials: Impact on the vapor availability of explosives and drugs,” Trace Explosive and Drug Detection Workshop; Dublin, Ireland; 26 June 2024.

Castro, K.D., DeGreeff, L.E., “Towards the development of a standard method for the validation of alternative canine training aids,” Trace Explosive and Drug Detection Workshop; Dublin, Ireland; 26 June 2024.

DeGreeff, L.E., Forte, L., Furton, K., “Towards the development of a non-hazardous canine training aid for fentanyl detection: Lessons learned,” Trace Explosive and Drug Detection Workshop; Dublin, Ireland; 26 June 2024.

Fulton, A., Jayawardana, T., Giordano, B., DeGreeff, L.E., “Detection of vaporous fentanyl using silicon nanowire array preconcentration on a handheld ion mobility spectrometer,” Trace Explosive and Drug Detection Workshop; Dublin, Ireland; 26 June 2024.

Whaley, F., Albizu, V., Cruz, J., DeGreeff, L. "Investigation of distinct odor profiles of blood over time using chemometrics and detection canine response," Global Forensic Science Symposium [virtual]; 06 June 2024.

Crespo-Cajigas, J.M., Kabir, A., Furton, K.G., DeGreeff, L.E., "Development and evaluation of a vaporchromic sensor to indicate cross-contamination of vapors between closed containers," Pittsburgh Conference and Exposition; San Diego, CA; 27 Feb 2024.

Karpinsky, M., Gokool, V., Vaughan, S.R., Furton, K.G., DeGreeff, L.E., "Comparison of odor profiles of differently sourced fresh and weathered crude oils," Pittsburgh Conference and Exposition; San Diego, CA; 27 Feb 2024.

Calabrese, E.R., Furton, K.G., DeGreeff, L.E., "Vapor transport through soil: Impact of environmental conditions in a simulated explosive burial," Pittsburgh Conference and Exposition; San Diego, CA; 26 Feb 2024.

Karpinsky, M., Bunker, P., Campues, E. \*, Lopez, D. \*, Vaughan, S., Furton, K.G., DeGreeff, L.E., "Generalization of crude oil for oil detection canines using odor profile fractions," Pittsburgh Conference and Exposition; San Diego, CA; 25 Feb 2024.

Whaley, F., Albizu, V. \*, DeGreeff, L.E., "Investigation of distinct odor profiles of blood over time using chemometrics and detection canine response," Pittsburgh Conference and Exposition; San Diego; 25 Feb 2024.

Castro, K.D., Cruz-Sanchez, J., DeGreeff, L.E., "Analysis of contamination in canine training aids through chemometric modeling," Annual Conference of the American Academy of Forensic Sciences; Denver, CO; 21 Feb 2024.

Hogan, K.A., DeGreeff, L.E., Furton, K.G., "Assessment of odorant permeability for training aid mimics in different containers utilizing HS-SPME-GC-MS," Annual Conference of the American Academy of Forensic Sciences; Denver, CO; 21 Feb 2024.

Jayawardana, G.D.T.L., DeGreeff, L.E., Fulton, A., Giordano, B., "A pre-concentrating polymer coating for improved detection of fentanyl and fentanyl analogs," Annual Conference of the American Academy of Forensic Sciences; Denver, CO; 21 Feb 2024.

Calabrese, E., Johnson, R.F., DeGreeff, L.E., "Understanding vapor transport of buried 2,4-DNT through modeling, simulations, and headspace analysis," International Symposium on the Analysis and Detection of Explosives (ISADE); Charlotte, NC; 14 Sep 2023.

Castro, K., Bridges, R.\*, Roberts, T. \*, DeGreeff, L.E., "Understanding the contamination of explosive canine training aids," International Symposium on the Analysis and Detection of Explosives (ISADE); Charlotte, NC; 13 Sep 2023.

DeGreeff, L.E., Burnett, L., Hebdon, N., Stevens, P., Moljo, M. \*, Waldrop, L., "Canine sniffing biomechanic responses to varied chemical properties," International Symposium on the Analysis and Detection of Explosives; Charlotte, NC; 13 Sep 2023.

Crespo Cajigas, J., Gokool, V.A., Holness, H., Furton, K.G., DeGreeff, L.E., “Comparison of targeted and untargeted analyses for the geographical sourcing of marijuana,” Canine Detection and Olfaction Science Conference; Miami, FL; 25 May 2023.

Calabrese, E., DeGreeff, L. “Study of odor availability from contained explosives and drugs,” Canine Detection and Olfaction Science Conference; Miami, FL; 24 May 2023.

Karpinsky, M., Campues, E. \*, Lopez, D. \*, Bunker, P., Furton, K., DeGreeff, L. “Canine detection by odor fraction profiles to determine odorants of interest in native crude oils,” Canine Detection and Olfaction Science Conference; Miami, FL; 23 May 2023.

Castro, K., Bridges, R.M\*, Roberts, T. \*, DeGreeff, L. “Exploring contamination in canine training aids,” Canine Detection and Olfaction Science Conference; Miami, FL; 23 May 2023.

Burnett, L., Hebdon, N., Stevens, P., Moljo, M. \*, DeGreeff, L., Waldrop, L. “Canine sniffing biomechanic responses to varied chemical properties,” Canine Detection and Olfaction Science Conference; Miami, FL; 23 May 2023.

Perry, E., Bender, K., Liang, S. Karpinsky, M., Jenkins, E., DeGreeff, L. “An analysis of the microbiological and chemical exposure of canines deployed to the Surfside condominium collapse: Implications for canine decontamination and tactical hygiene,” 2023 Working Dog Research Forum [virtual]; 20 Apr 2023.

DeGreeff, L.E., Forte, L. “Detection of emerging threats: A chemist’s perspective,” 2023 DSTL Working Dog Symposium [virtual]; 27 Feb 2023.

Calabrese, E., DeGreeff, L.E., “The role of adsorption on the detectability of contained explosives and drugs,” Annual Conference of the American Academy of Forensic Science; Orlando, FL; 16 Feb. 2023.

Crespo Cajigas, J.M., Holness, H.K., Furton, K.G., DeGreeff, L.E., “Untargeted headspace/solid phase microextraction couple to gas chromatograph/mass spectrometer (HS/SPME-GC/MS) of terpenes and cannabinoids for the geographical sourcing of marijuana using multivariate data analysis,” Annual Conference of the American Academy of Forensic Science; Orlando, FL; 16 Feb. 2023.

Karpinsky, M., DeGreeff, L.E., Perry, E., “The chemical analysis of the Surfside building collapse samples: Updating decontamination protocols for search and rescue canines,” Annual Conference of the American Academy of Forensic Science; Orlando, FL; 16 Feb. 2023.

Whaley, F., DeGreeff, L.E., “The volatile organic compounds (VOCs) of training aids used for human remains detection canines: A survey on the impact of storage conditions on odor signature,” Annual Conference of the American Academy of Forensic Science; Orlando, FL; 16 Feb 2023.

Crespo Cajigas, J.M., Holness, H.K., Furton, K.G., DeGreeff, L.E., “Geographical sourcing of marijuana: An untargeted HS-SPME-GC-MS approach,” SACNAS National Diversity in STEM Conference; San Juan, PR; 28 Oct 2022.

Karpinsky, M., Gokool, V., Vaughan, S.R., DeGreeff, L.E., “Comparison of vapor profiles of fresh and highly weathered crude oil,” Southeastern regional meeting of the American Chemical Society (SERMACS); San Juan, PR; 19 Oct 2022.

Calabrese, E., Vaughan, S.R., DeGreeff, L.E., “Influence of soil barrier composition on explosive VOC dissipation,” Southeastern regional meeting of the American Chemical Society (SERMACS); San Juan, PR; 19 Oct 2022.

Gokool, V., Vaughan, S., DeGreeff, L.E. “A pattern recognition approach to headspace analysis of crude oils,” Southeastern regional meeting of the American Chemical Society (SERMACS); San Juan, PR; 19 Oct 2022.

Forte, L., Vaughan, S., Holness, H.K., DeGreeff, L., Furton, K.G., “Effects of degradative stress on the headspace profile of fentanyl,” Southeastern regional meeting of the American Chemical Society (SERMACS); San Juan, PR; 19 Oct 2022.

Karpinsky, M., Bunker, P., Gokool, V., Vaughan, S.R., Owens, E., DeGreeff, L.E., “Determination of odorants of interest in native crude oils to oil detection canines,” International Oil Spill Science Conference; Halifax, Canada; 6 Oct 2022.

Calabrese, E., Vaughan, S.R., DeGreeff, L.E., “Impact of soil adsorption on vapor transport of buried TNT-based explosives: Experimental design and preliminary results,” GFJC 11<sup>th</sup> Annual Forensic Science Symposium [virtual]; 6 Jun 2022.

Forte, L., Vaughan, S., Holness, H.K., DeGreeff, L., Furton, K.G., “Effects of degradative stress on the headspace profile of fentanyl,” GFJC 11<sup>th</sup> Annual Forensic Science Symposium [virtual]; 6 Jun 2022.

Crespo-Cajigas, J.M., Kabir, A., Furton, K.G., DeGreeff, L.E., “Development of a paper-based sol-gel vapochromic senso for detection of VOC cross-contamination within closed containers,” GFJC 11<sup>th</sup> Annual Forensic Science Symposium [virtual]; 6 Jun 2022.

Castro, K., DeGreeff, L.E., “Survey of contamination and degradation in the lifetime of a canine training aid,” GFJC 11<sup>th</sup> Annual Forensic Science Symposium [virtual]; 6 Jun 2022.

DeGreeff, L.E., Vaughan, S.R., Gokool, V., Karpinsky, M., Bunker, P., Owens, E.H., Tuttle, S.G., “A preliminary study of the odorants of interest in native crude oils to oil detection canines,” 44<sup>th</sup> Arctic and Marine Oilspill Program (AMOP) technical seminar [virtual]; 7 Jun 2022.

Bunker, P., Vaughan, S.R., DeGreeff, L.E., Owens, E.H., Tuttle, S.G., “The detection of underwater oil by oil detection canines,” 44<sup>th</sup> Arctic and Marine Oilspill Program (AMOP) technical seminar [virtual]; 7 Jun 2022.

Karpinsky, M., Vaughan, S.R., DeGreeff, L.E., “Comparison of vapor profiles of fresh and highly weathered crude oil,” 44<sup>th</sup> Arctic and Marine Oilspill Program (AMOP) technical seminar [virtual]; 7 Jun 2022.

Forte, L., Vaughan, S., Holness, H.K., DeGreeff, L., Furton, K.G., “Effects of degradative stress on the headspace profile of fentanyl,” American Academy of Forensic Science; Seattle, WA; 22-25 Feb 2022.

DeGreeff, L.E., Katlie, C.J., Waggoner, P., “A method for the determination of canine olfaction detection limits using a quantitative vapor delivery system,” Trace Explosives Detection Workshop; New Orleans, LA; 10 May 2022.

Calabrese, E., Vaughan, S.R., DeGreeff, L.E., “Impact of soil adsorption on vapor transport of buried TNT-based Explosives,” Trace Explosives Detection Workshop; New Orleans, LA; 12 May 2022.

Vaughan, S.R., Fulton, A.C., DeGreeff, L.E., “Analysis of fentalogs and illicit fentanyl vapor profiles,” American Academy of Forensic Science; Seattle, WA; 22-25 Feb 2022.

Fulton, A.C., Vaughan, S.R., DeGreeff, L.E., “Non-contact detection of fentanyl by a portable ion mobility spectrometer,” American Academy of Forensic Science; Seattle, WA; 22-25 Feb 2022.

#### *Scientific conferences – Naval Research Laboratory*

Fulton, A., Vaughan, S., DeGreeff, L., “Headspace analysis of street-grade fentanyl and the development of a non-contact detection method for fentanyl,” 10th Annual Forensic Science Symposium [virtual]; 10 Jun 2021.

Vaughan, S.R., DeGreeff, L.E., Tuttle, S.G., “A method for the determination of odor signatures of hydrocarbons of interest to oil detection canines,” International Oil Spill Conference [virtual]; 13 May 2021.

DeGreeff, L., “Analytical support for canine odor detection at the U.S. Naval Research Laboratory,” Working Dog Research Forum [virtual]; 30 Mar 2021.

Maughan, M., Gadberry, J., DeGreeff, L., “Person-borne improvised explosive device (PBIED) detection evaluation,” Working Dog Research Forum [virtual]; 30 Mar 2021.

Crespo Cajigas, J.M., Katlie, C.J., DeGreeff, L.E., Kabir, A., Furton, K.G. “Vapochromic colorimetric sensor for the cross-contamination of volatile organic compounds (VOCs),” Pittsburgh Conference and Exposition [virtual]; 6-10 Mar 2021.

DeGreeff, L.E., Vaughan, S.R., L.E., Forte, L., Holness, H.K., Furton, K.G. “Headspace analysis of fentanyl and related analogs for development of non-contact detection method.” Pittsburgh Conference and Exposition [virtual]; 6-10 Mar 2021.

DeGreeff, L., Vaughan, S., Forte, L., Holness, H.K., Furton, K.G. “Characterization of the vapor profile of fentanyl and related analogs for instrumental and canine detection” NIJ Forensic Science Research and Development Symposium [virtual]; 16 Feb 2021.

DeGreeff, L., Katlie, C.J., Johnson, R. “A method for the determination of canine olfactory limits of detection using a quantitative vapor delivery system,” American Academy of Forensic Sciences [virtual]; 15-19 Feb 2021.

DeGreeff, L., Vaughan, S., Forte, L., Holness, H.K., Furton, K.G. “Determination of the headspace profiles of fentanyl and related analogs for instrumental and canine detection” American Academy of Forensic Sciences [virtual]; 15-19 Feb 2021.

Forte, L., Vaughan, S., DeGreeff, L.E., Holness, H., Furton, K.G. “The effects of degradative stress on vapor analysis of fentanyl,” American Academy of Forensic Sciences [virtual]; 15-19 Feb 2021.

Crespo Cajigas, J.M., Katilie, C., DeGreeff, L., Kabir, A., Furton, K.G. “Towards a vapo-chromic colorimetric sensor for the cross-contamination of volatile organic compounds (VOCs),” American Academy of Forensic Sciences [virtual]; 15-19 Feb 2021.

Katilie, C.J., DeGreeff, L.E. “Quantitative headspace analysis of canine training aid delivery devices for the detection of potassium chlorate, ammonium nitrate, and urea nitrate,” Pittsburgh Conference and Exposition; Chicago, IL; 3 March 2020.

Mullen, M., Katilie, C.J., Giordano, B.C., DeGreeff, L.E., Collins, G., Rose-Pehrsson, S.L. “Understanding the dynamics of explosive vapor transport,” Pittsburgh Conference and Exposition; Chicago, IL; 3 Mar 2020.

DeGreeff, L.E., Katilie, C.J. “A method for the determination of canine olfaction detection limits using a quantitative vapor delivery system,” Pittsburgh Conference and Exposition; Chicago, IL; 3 Mar 2020.

DeGreeff, L.E. “The chemistry of odor: How understanding odor can foster a better detector,” International Working Dog Conference; Stockholm, Sweden; 1-5 Sep 2019.

Frank, K., Simon, A.G., Peranich, K., Holness, H., Furton, K.G., DeGreeff, L.E. “A method for controlled odor delivery in canine olfactory testing,” International Working Dog Conference; Stockholm, Sweden; 1-5 Sep 2019.

DeGreeff, L.E., Simon, A.G., Katilie, C.J., Malito, M. “Training tools to aid in the detection of homemade explosives,” International Working Dog Conference; Stockholm, Sweden; 1-5 Sep 2019.

Rose-Pehrsson, S.L., Collins, G.E., Giordano, B.C., Malito, M.P., Hammond, M.H., DeGreeff, L.E., Katilie, C.J., Simon, A.G., “Trace vapor testbed and vapor generators for hazardous chemicals, explosives, and narcotics,” Vapor Methods Standard Working Group; Washington, DC; 2 May 2019.

Rose-Pehrsson, S.L., Collins, G.E., Giordano, B.C., Malito, M.P., Hammond, M.H., DeGreeff, L.E., Katilie, C.J., Cerreta, M.C., Simon, A.G., “Trace vapor testbed and vapor generators for hazardous chemicals, explosives, and narcotics,” Pittsburgh Conference and Exposition; Philadelphia, PA; 18 Mar 2019.

Rose-Pehrsson, S.L., Collins, G.E., Malito, M.P., Hammond, M.H., DeGreeff, L.E., Katilie, C.J., Cerreta, M.C., Simon, A.G. “Trace vapor generator for explosives and narcotics (TV-Gen): An overview,” American Academy of Forensic Sciences; Baltimore, MD; 18-23 Feb 2019.

Simon, A.G., DeGreeff, L.E. “Analysis of non-detonable canine training aids for hexamethylene triperoxide diamine (HMTD),” American Academy of Forensic Sciences; Baltimore, MD; 18-23 Feb 2019.

DeGreeff, L.E., Peranich, K., Simon, A.G. “Current state of homemade explosives detection by canines: Research and knowledge gaps.” American Academy of Forensic Sciences; Baltimore, MD; 18-23 Feb 2019.

DeGreeff, L.E., Katilie, C.J., Rose-Pehrsson, S.L., Malito, M.P. “A novel odor delivery device for homemade explosive analysis.” American Academy of Forensic Sciences; Baltimore, MD; 18-23 Feb 2019.

DeGreeff, L.E.; Peranich, K.P.; Simon, A.G. “Current state of HME detection by canines: Research and knowledge gaps,” Trace Explosives Detection Workshop; Ottawa, ON, Canada; 10-13 Apr 2018.

Simon, A.G.; Peranich, K.P.; DeGreeff, L.E. “Detection of ammonium nitrate variants by canines: A study of generalization between like substances,” Trace Explosives Detection Workshop; Ottawa, ON, Canada; 10-13 Apr 2018.

Simon, A.G.; Peranich, K.P.; DeGreeff, L.E. “Exploring the effects of the generalization-discrimination balance and availability in odor detection canines,” Naval Research Laboratory Sigma Xi Post-Doctoral Poster Session; Washington, D.C.; 13 Dec 2017.

DeGreeff, L.E.; Peranich, K.P.; Simon, A.; Holness, H. “Exploring the generalization-discrimination balance in odor detection canines,” Navy Knowledge Counter-IED Network; Dahlgren, VA; 19 Oct 2017.

Peranich, K.P., DeGreeff, L.E.; Simon, A.; Holness, H. “Exploring the generalization-discrimination balance in odor detection canines,” 1<sup>st</sup> International Canine Science Conference; Tempe, AZ; 8 Oct 2017.

Rose-Pehrsson, S.L., Collins, G.E., Hammond, M.H., Giordano, B.C., DeGreeff, L.E., Tamanaha, C. “Trace explosive vapor generation methods,” 12<sup>th</sup> International Symposium on the Analysis and Detection of Explosives; Oxford, UK; 17-21 Sep 2017.

Simon, A., DeGreeff, L.E., Peranich, K. “Evaluation of the generalization-discrimination balance for detection canines,” International Defence and Security Canine Conference; Cirencester, UK; 12 Jul 2017.

DeGreeff, L.E., Peranich, K. “The chemistry of odor and odor detection,” International Defence and Security Canine Conference; Cirencester, UK; 12 Jul 2017.

DeGreeff, L.E., Rose-Pehrsson, S.L., Malito, M. “A novel delivery device for homemade explosive analysis,” ISOCS/IEEE International Symposium on Olfaction and Electronic Nose; Montreal, Quebec, Canada; 28-31 May 2017.

DeGreeff, L.E. “Considerations in the vapor analysis of traditional vs. homemade explosives,” ISOCS/IEEE International Symposium on Olfaction and Electronic Nose; Montreal, Quebec, Canada; 28-31 May 2017.

DeGreeff, L.E., Katilie, C.J., Malito, M., Rose-Pehrsson, S.L. “Evaluation of a novel vapor delivery device for homemade explosives analysis,” 9<sup>th</sup> Annual Workshop on Trace Explosives Detection; Santa Fe, NM; 24-28 Apr 2017.

Katilie, C.J., DeGreeff, L.E., Giordano, B., Collins, G., Rose-Pehrsson, S.L. “Generation and evaluation of airborne explosive particles,” 9<sup>th</sup> Annual Workshop on Trace Explosives Detection; Santa Fe, NM; 24-28 Apr 2017.

DeGreeff, L.E., Malito, M., Katilie, C.K., Peranich, K. “Odor delivery for canine training on binary explosives,” International Working Dog Conference; Banff, Alberta, Canada; 5 Apr 2017.

DeGreeff, L.E., Peranich, K. “The chemistry of odor and odor detection,” International Working Dog Conference; Banff, Alberta, Canada; 5 Apr 2017.

DeGreeff, L.E., Peranich, K. “Exploring the generalization-discrimination balance in odor detection canines,” International Working Dog Conference; Banff, Alberta, Canada; 5 Apr 2017.

DeGreeff, L.E., Rose-Pehrsson, S.L., Katilie, C.J., Malito, M. “Evaluation of a novel vapor delivery device for homemade explosive analysis,” Pittsburgh Conference and Exposition, Chicago, IL; 5-9 Mar 2017.

Katilie, C.J., DeGreeff, L.E., Lubrano, A., Andrews, B., Rose-Pehrsson, S.L. “Trace ammonia vapor analysis by GC/MS for the detection of ammonium nitrate explosives,” Pittsburgh Conference and Exposition; Chicago, IL; 5-9 Mar 2017.

Rose-Pehrsson, S.L., DeGreeff, L.E., Giordano, B., Collins, G., Steinkamp, F.L., Lubrano, A., Andrews, B., Newsome, G.A. “Ammonium nitrate detection with mass spectrometry,” ALERT ADSA Workshop; Boston, MA; 10-11 May 2016.

Katilie, C.J., DeGreeff, L.E., Rose-Pehrsson, S.L. “Headspace analysis of binary explosive mixtures using the Mixed Odor Delivery Device,” Trace Explosives Detection Workshop; Charlottesville, VA; 4-8 Apr 2016.

DeGreeff, L.E., Katilie, C.J., Steinkamp, F.L. “HMTD Decomposition,” Trace Explosives Detection Workshop; Charlottesville, VA; 4-8 Apr 2016.

DeGreeff, L.E., Katilie, C.J., Steinkamp, F.L. Rose-Pehrsson, S.L., “Analysis of the decomposition of hexamethylene triperoxidediamine (HMTD) as determined by SPME-GC/MS and LC/MS,” Pittsburgh Conference and Exposition; Atlanta, GA; 6-10 Mar 2016.

DeGreeff, L.E. “The chemistry of odor detection: Application to canine training,” Canadian Security and Safety Program Briefing on the Scientific Efficacy and Development of Canine Explosive Training Aids; Ottawa, CAN; 10 Feb 2016.

DeGreeff, L.E., Katilie, C.J., Rose-Pehrsson, S.L. “Vapor analysis of binary explosive mixtures.” Naval CIED Knowledge Network; Dahlgren, VA; Jun 2015.

DeGreeff, L.E., Katilie, C.J., Steinkamp, F.L., Rose-Pehrsson, S.L. “Vapor analysis of binary explosive mixtures,” Trace Explosive Detection Workshop; Pittsburgh, PA; Apr 2015.

DeGreeff, L.E., Katilie, C.J., Steinkamp, F.L., Rose-Pehrsson, S.L. “Vapor analysis of binary explosive mixtures,” Pittsburgh Conference and Exposition; New Orleans, LA; Mar 2015.

Katilie, C.J., DeGreeff, L.E., Johnson, K.J., Rose-Pehrsson, S.L. “Headspace analysis of dinitrotoluene isomers,” Pittsburgh Conference and Exposition; New Orleans, LA; Mar 2015.

DeGreeff, L.E., Newsome, G.A., Katilie, C.J., Johnson, K.J., Rose-Pehrsson, S. “Headspace analysis of hexamethylene triperoxide diamine.” Canine Science and Technology Workshop, Raleigh, NC; Jul 2014.

DeGreeff, L.E., Katilie, C.J., Malito, M., Brandon, A., Ananth, R., Steinkamp, F.L., Rose-Pehrsson, S. “Instrumental and biological detection of ammonium nitrate-based explosives.” Canine Science and Technology Workshop; Raleigh, NC; Jul 2014.

DeGreeff, L.E., Katilie, C.J., Malito, M., Brandon, A., Ananth, R., Rose-Pehrsson, S. “Instrumental and biological detection of ammonium nitrate-based explosives,” Trace Explosive Detection Workshop; Charlottesville, VA; Apr 2014.

Steinkamp, F.L., Giordano, B., DeGreeff, L.E., Collins, G., Rose-Pehrsson, S. “Ammonium nitrate vapor generation,” Trace Explosives Detection Workshop; Charlottesville, VA; Apr 2014.

DeGreeff, L.E., Katilie, C.J., Johnson, K.J., Rose-Pehrsson, S. “Headspace analysis of low volatility explosive compounds,” Pittsburgh Conference and Exposition; Chicago, IL; Mar 2014.

DeGreeff, L.E., Katilie, C.J., Newsome, G.A., Johnson, K.J., Rose-Pehrsson, S. “Headspace analysis of low volatility explosive compounds,” International Symposium on Analysis and Detection of Explosives; The Hague, Netherlands; Oct 2013.

Newsome, G.A., DeGreeff, L.E., Johnson, K.J., Rose-Pehrsson, S. “Detection of explosive molecular adduct ions with flowing atmospheric pressure afterglow mass spectrometry,” 61<sup>st</sup> Meeting of the American Society for Mass Spectrometry; Minneapolis, MN; Jun 2013.

*Scientific conferences – Federal Bureau of Investigation*

DeGreeff, L.E., Tipple, C.A., Grime, M.A., Stockham, R.A., Eckenrode, B.A. “Comparison of extraction and analysis techniques for the collection and determination of the volatile organic compounds (VOCs) from dried blood,” Pittsburgh Conference and Exposition; Philadelphia, PA; Mar 2013.

DeGreeff, L.E., Snyder, D.L., Tipple, C.A., Grime, M.A., Stockham, R.A., Eckenrode, B.A. “Use of canines to detect dried human blood and instrumental methods for the determination of odor profiles,” 65<sup>th</sup> American Academy of Forensic Sciences; Washington, DC; Feb 2013.

Furton, K.G., Brown, J.S., Beltz, K., Caraballo, N.I., DeGreeff, L.E. “Optimization of canine human scent detection and improving canine performance and consistency by employing field calibrants.” Canine Science and Technology Forum; Imperial College, London, UK; Apr 2012.

DeGreeff, L.E., Caldwell, P.T., Snyder, D., Tipple, C.A., Stockham, R., Eckenrode, B. “Forensic analysis of volatile and microbial contributors to human scent via multiple extraction methods,” Pittsburgh Conference and Exposition; Orlando, FL; Mar 2012.

DeGreeff, L.E., Grime, M., Eckenrode, B. “Detection of volatile organic compounds in dried human blood by instrument and canine.” Florida International University Forensic Symposium; Miami, FL; Mar 2012.

Furton, K.G., Caraballo, N.I., DeGreeff, L.E., Brown, J.S. “Advances in the field of laboratory detection of human remains,” Pittsburgh Conference and Exposition; Orlando, FL; Mar 2012.

DeGreeff, L.E., Snyder, D., Caldwell, P.T., Tipple, C.A., Grime, M., Stockham, R., Rushing, B., Eckenrode, B. “Detection and identification of volatile organic compounds in dried human blood samples by instrumental analysis and canines,” 64<sup>th</sup> American Academy of Forensic Science Conference; Atlanta, GA; February 2012.

DeGreeff, L.E., Snyder, D., Grime, M., Tipple, C.A., Eckenrode, B. “Detection of dried human blood by canine,” Onsite Conference; Baltimore, MD; Jan 2012.

Eckenrode, B., Tipple, C.A., Caldwell, P.T., DeGreeff, L.E., Dulgerian, N., Stockham, R. “GCxGC-MS mapping of human volatiles,” 59<sup>th</sup> Meeting of the American Society of Mass Spectrometry; Seattle, WA; Jun 2011.

*Scientific conferences – Florida International University (graduate school)*

DeGreeff, L.E., Furton, K.G. “Collection and determination of human remains volatiles by non-contact, dynamic airflow,” Florida Annual Meeting and Exposition, American Chemical Society Regional Conference; Tampa, FL; May 2010.

DeGreeff, L.E., Furton, K.G. “Determination of the odor signature of human remains using non-contact, dynamic airflow sampling,” Pittsburgh Conference and Exposition; Orlando, FL; Mar 2010.

DeGreeff, L.E., Furton, K.G. “Collection of human remains volatiles by non-contact, dynamic airflow sampling,” 62<sup>nd</sup> American Academy of Forensic Science Conference; Seattle, WA; Feb 2010.

DeGreeff, L.E., Curran, A.M., and Furton, K.G. “Optimization of the Scent Transfer Unit (STU-100) for the non-contact sampling of human scent volatile compounds.” 61<sup>st</sup> American Academy of Forensic Science Conference; Denver, CO; Feb 2009.

DeGreeff, L.E., Herran, S., and Furton, K.G. “The development of the human scent collection chamber for the minimization of environmental contamination during non-contact human scent sampling.” 60<sup>th</sup> American Academy of Forensic Science Conference; Washington DC; Feb 2008.

Furton, K.G., Aarons, J., DeGreeff, L.E., Holness, H., Hudson, D.T., Macias, M., Prada, P.A. “The chemistry and law behind the use of canines and machines to identify drug money and suspects,” 83<sup>rd</sup> American Chemistry Society Florida Annual Meeting and Exposition; Orlando, FL; May 2007.

McKee, M.A., DeGreeff, L.E., Kim, C.S. “Reactivity of iron oxyhydroxide nanoparticles with As(V), Cu(II), Hg(II), and Zn(II) as a function of particle size,” 231<sup>st</sup> American Chemical Society National Conference; Atlanta, GA; Mar 2006.

Kim, C.S., DeGreeff, L.E., Lentini, C.J. “Synchrotron-based studies of metal adsorption and (co)-precipitation with iron oxyhydroxide nanoparticles,” 231<sup>st</sup> American Chemical Society National Conference; Atlanta, GA; Mar 2006.

DeGreeff, L.E., Kim, C.S. “The effect of particle size on copper uptake to iron oxyhydroxide nanoparticles as a function of pH.” Presented at the 17<sup>th</sup> Annual Graduate Women in Science Conference; Orange, CA; Mar 2006.

DeGreeff, L.E., DeBruyn, W.J. “The photo-production of acetone from dissolved organic matter in seawater,” American Chemical Society Western Regional Conference; Anaheim, CA; Jan 2006.

DeGreeff, L.E., Kim, C.S. “The effect of particle size on copper uptake to iron oxyhydroxide nanoparticles as a function of pH.” American Chemical Society Western Regional Conference; Anaheim, CA; Jan 2006.

Kim, C.S., DeGreeff, L.E., Lentini, C.J., McKee, M.A., Waychunas, G.A. “Spectroscopic and macroscopic studies of heavy metal interactions with iron oxyhydroxide nanoparticles.” NSF-sponsored Nanoscale Processes in the Earth and Planetary Sciences workshop; Albuquerque, NM; Jan 2006.

*Invited Workshops – Florida International University*

DeGreeff, L.E. “Life as a detector: The science of biological detection,” University of Memphis; Memphis, TN; 21 Mar 2025.

DeGreeff, L.E. “Exploring odor,” Wales, UK; 2-3 May 2025.

DeGreeff, L.E. “Odor chemistry,” Sci Scent; Theale, UK; 2 Feb 2025.

DeGreeff, L.E. “Canine training aids: The good, the bad, and the smelly,” Sci Scent; Theale, UK; 1 Feb 2025.

DeGreeff, L.E. “Odor chemistry of fentanyl and other drugs,” International Police Canine Association Law Enforcement Training Institute; Anaheim, CA; 27 Jan 2025.

DeGreeff, L.E. “Towards the development of an alternative training for fentanyl,” 2024 Canadian Police Canine Associates Detection Dog Conference; Calgary, CAN; 17 Apr 2024.

DeGreeff, L.E. “Chemistry of odor,” 2024 Canadian Police Canine Associates Detection Dog Conference; Calgary, CAN; 16 Apr 2024.

DeGreeff, L.E., Maughan, M., “Canine training aids: The good, the bad, and the smelly,” Fundacja IRMA [virtual]; 25 Mar 2024.

DeGreeff, L.E., “Chemistry of Odor,” 32<sup>nd</sup> Annual IPCA Law Enforcement Training Institute; Anaheim, CA; 23 and 24 Jan 2024.

DeGreeff, L.E., “Odor chemistry for explosive detection,” HITS K9 Training Seminar; Scottsdale, AZ; 18 Aug 2023.

DeGreeff, L.E., “Detection of emerging threats – A chemist’s perspective,” HITS K9 Training Seminar; Scottsdale, AZ; 17 Aug 2023.

DeGreeff, L.E., “Odor basics for the nose Nosework dog handler,” Smart Dog Training Seminar; Scottsdale, AZ; 14 Aug 2023.

DeGreeff, L.E., “You stink! Chemistry of living human and human remains odor,” Smart Dog Training Seminar; Scottsdale, AZ; 13 Aug 2023.

DeGreeff, L.E., “Detection of emerging threats: A chemist’s perspective,” California Narcotics Canine Association; Sacramento, CA; 17 Jan 2023.

DeGreeff, L.E., “Odor chemistry research to enhance canine detection,” Global Ties Miami – FIU Canine Detection Team Workshop; Miami, FL; 28 Oct 2022.

DeGreeff, L.E., “Odor chemistry for substance detection,” Australian K9 Scent Detection Conference; Sydney, AUS; 11 Oct 2022.

DeGreeff, L.E. “Odor chemistry for narcotics detection,” HITS (Handler Instruction and Training Seminar); Orlando, FL; 19 Aug 2022.

DeGreeff, L.E. “Odor chemistry for explosives detection,” HITS (Handler Instruction and Training Seminar); Orlando, FL; 17 Aug 2022.

*Invited Workshops – Naval Research Laboratory*

DeGreeff, L.E., “Odor chemistry basics for canine handlers,” presented to the Military Working Dog Program; Petersen AFB, CO; 21 Jul 2021.

DeGreeff, L.E. “Odor chemistry basics for explosives detection canine handlers,” presented to the Central Intelligence Agency K9 team; Dulles, VA; 1 Jun 2021.

DeGreeff, L.E., Bunker, P. “Training aid storage and handling,” Fundacja IRMA [virtual]; 11 May 2021.

DeGreeff, L.E., “A chemist’s perspective on the canine detection of explosives with considerations related to homemade explosives (HME’s),” 30th Annual California Narcotics Canine Association Training Institute [virtual]; 3 May 2021.

DeGreeff, L.E., “Odor chemistry basics for canine handlers,” 30th Annual California Narcotics Canine Association Training Institute [virtual]; 3 May 2021.

DeGreeff, L.E., “Odor analysis of human remains,” Human Remains Detection Canine Training Forum [virtual]; 28 Jan 2021.

DeGreeff, L.E., Peranich, K., Simon, A.G. “Odor basics for the Nosework dog handler,” Fundacja IRMA [virtual]; 13 Sep 2020.

DeGreeff, L.E. “K9s Detection of Explosives and HMEs,” Fundacja IRMA –[virtual]; 31 May 2020.

DeGreeff, L.E. “You stink! Human scent – living and dead – for K9 teams,” Fundacja IRMA [virtual]; 14 May 2020.

DeGreeff, L.E. “Odor chemistry basics for K9 handlers,” Fundacja IRMA [virtual]; 10 May 2020.

DeGreeff, L.E., Maughan, M., Gadberry, J. “The science of odor and odor detection,” Military Working Dog Leadership Conference; San Antonio; 29-31 Jan 2020.

DeGreeff, L.E. “Odor basics for detection and training,” K9 Sport Scent Work Conference; Palm Springs, CA; 17 Jan 2020.

DeGreeff, L.E. “Explosive Chemistry and Odor,” Canadian Police Canine Association Explosive Detection Dog Trainers Course; Toronto, CAN; 15 Jan 2020.

DeGreeff, L.E., Simon, A.G., Peranich, K. “Canine generalization / discrimination balance,” National Association of Canine Scent Works – Webinar; 28 Aug 2019.

DeGreeff, L.E., “Considerations in the detection of homemade explosives,” Handler Instruction and Training Seminar; Chicago, IL; 15 Aug 2019.

DeGreeff, L.E., “The chemistry of odor and odor detection,” Handler Instruction and Training Seminar; Chicago, IL; 15 Aug 2019.

DeGreeff, L.E., “The chemistry of odor and odor detection,” 2019 Blueline K9 Training Conference and Vendor Show; Pittsburgh, PA; 25 Apr 2019.

DeGreeff, L.E., Simon, A.G., Peranich, K. “Odor basics for detection and training,” National Association of Canine Scent Works [virtual]; 11 Apr 2019.

DeGreeff, L.E., Simon, A.G., and Peranich, K. “Odor basics for detection and training,” California Narcotics Canine Association and National Association of Canine Scent Work Joint Training Seminar; Palm Springs, CA; 31 Jan 2019.

DeGreeff, L.E. “Considerations in the detection of homemade explosives,” 28<sup>th</sup> Annual California Narcotics Canine Association Law Enforcement Training Institute; Palm Springs, CA; 28 and 29 Jan 2019.

DeGreeff, L.E. “The chemistry of odor and odor detection – Explosives detection” invited seminar for Transportation Security Administration; San Antonio, TX; 26 Nov 2018.

DeGreeff, L.E. “The chemistry of odor and odor detection – Narcotics and human detection” invited seminar for Customs and Border Patrol; Tucson, AZ; 16 Nov 2018.

DeGreeff, L.E. “Canine detectors: The original biosensor,” invited seminar at Wayne State University Chemistry Department; Detroit, MI; 16 Oct 2018.

DeGreeff, L.E. “Headspace analysis and quantitation of problematic volatile species by SPME and other methods,” invited seminar at Smithsonian Museum Conservation Institute; Suitland, MD; 6 Sept 2018.

DeGreeff, L.E. “Traditional vs. homemade explosives,” Handler Instruction and Training Seminar (HITS); Washington, DC; 17 Aug 2018.

DeGreeff, L.E. “The chemistry of odor and odor detection,” Handler Instruction and Training Seminar (HITS); Washington, DC; 17 Aug 2018.

DeGreeff, L.E. “Detection of human remains by canine,” Canadian Police Canine Association Handler Development Seminar; Barrie, ON, Canada; 19-22 June 2018.

DeGreeff, L.E. “Detection of homemade explosives by canine,” Canadian Police Canine Association Handler Development Seminar; Barrie, ON, Canada; 19-22 June 2018.

DeGreeff, L.E., Peranich, K. “The chemistry of odor and odor detection,” 2017 United States Marine Corp Military Working Dog Kennel Master’s Conference; San Antonio, TX; 24-28 July 2017.

DeGreeff, L.E. “Man’s best friend does science: The chemistry behind canine detection,” NRL Academy Lecture Series; Washington DC; 14 June 2017.