LAURYN E. DEGREEFF, Ph.D.
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Associate Professor

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Lauryn E. DeGreeff is an Associate Professor of Chemistry with the Global Forensic and Justice Center at Florida International University, where she conducts research in the field of vapor analysis as it relates to detection by canine and instruments. She 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. After, she spent ten years as a researcher and principal investigator in the Chemistry Division at the U.S. Naval Research Laboratory in Washington DC. Dr. DeGreeff regularly lectures on the dynamics of odor for the operational community and at national and international scientific conferences. She has also authored more than 30 peer-reviewed manuscripts and six book chapters, holds two patents with two additional pending, and is the editor of the book entitled *Canines: The Original Biosensor*, released 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 $2.6M while at FIU (Fall 2021 – Spring 2024).

EXPERIENCE

2021-present Associate Professor - Florida International University, Department of Chemistry and Biochemistry and the International Forensic Research Institute

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 and*

government institutions. 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.

2018-2021 Courtesy Research Professor – Florida International University, Department of Chemistry and Biochemistry and the International Forensic Research Institute

Work duties: *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.*

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.*

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

FUNDING (*Principal Investigator)

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**
"*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**
"*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-PI – New York University

2023-2024 ***($240K) 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 ***($997K) 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 ***($630K) 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) Department of Homeland Security through Auburn University DCSITE**
"Development and validation of methods for Quality Assurance / Quality Control (QA/QC) of canine training materials"

2022 ***($20K) Center for Advanced Research in Forensic Science**
"Suppression of vapor transport due to adsorption to containment materials"

2022 ***($28K) Center for Advanced Research in Forensic Science**
"Survey of contamination and degradation in the lifetime of a canine training aid"

2021-2023 ***($315K) Office of Naval Research**
"Validation of vapor transport models by laboratory simulations and canine testing"

Co-PIs - Naval Research Laboratory, Chapman University

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) Department 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"

PROFESSIONAL ACTIVITIES

2024 **Guest Editor for *Chemosensors***
Special Issue entitled "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-present **Reviewer and Judge for *Undergraduate Research at FIU* –**
Review abstracts and judge student poster presentations annually

2021-present **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) Academy 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)

HONORS AND AWARDS

2023 FIU CASE 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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PRESS / PODCASTS

"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=5zkl-4SEwZc)

Reactions YouTube by American Chemical Society: "Testing the Best Bomb Detectors," 2021 (https://www.youtube.com/watch?v=TRwqOFHOjac).

"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

STUDENT ADVISING – FLORIDA INTERNATIONAL UNIVERSITY

Ph.D. Graduate students

Sadie Olrogg – "Characterization and detection of drugs in the field using non-contact static sampling", expected graduation 2027

Daigoro Greco – "Characterization of VOCs from burned victims", expected graduation 2027

Kayla Hogan – "Establishing effective canine training aids for drug detection: Understanding cross-contamination and development of a fentanyl canine training aid", expected graduation 2026.

Kaitlyn Mercando – "Understanding human decomposition to better human remains detection by canine", expected graduation 2026

Galpayage Dona Thouli Jayawardana – "Analysis of target VOCs of emerging threats to improve their non-contact field detection by ion mobility spectrometry", expected graduation 2026

Katherine Castro – "Volatile analysis of complex vapor profiles for canine training aid standardization", expected graduation 2025

Fantasia Whaley – "Evolution in VOC profiles during human decomposition", expected graduation 2025

Emma Calabrese – "Analysis of vapor transport from buried and contained explosive substances", expected graduation 2024

Michelle Karpinsky – "The headspace profile of crude oil for detection and differentiation purposes", expected graduation 2024

Janet Crespo Cajigas – "Improving canine detection specificity via instrumental and sensing tools", expected graduation 2023

Master's students

Lydia Burnett – "Canine sniffing biomechanics responses to varied chemical properties", Completed Fall 2023

PUBLICATIONS

Books

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

Book chapters (corresponding author*)*

Tiedemann, P., DeGreeff, L.E., Schultz, C. "Forensic and security application in substance detection canines." *In Olfactory Research in Dogs*, Springer Nature, expected publication 2023.

Viles Rosa, R., *Gokool, V.*, Hall, N., DeGreeff, L.E. "Canine olfactometry: Tools, uses, and techniques." *In Olfactory Research in Dogs*, Springer Nature, expected publication 2023.

Frank, K., DeGreeff, L.E., Furton, K.G. "Explosives detection by dogs." *In Counterterrorist Detection Techniques of Explosives – 2nd 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 *(*corresponding author; *FIU student, *FIU undergraduate*)

Karpinsky, M., Lopez, D., Campus, E.**, Bunker, P., Vaughan, S.R., Holness, H.K., Furton, K.G. Lauryn E. DeGreeff. Exploring Canine Olfactory Generalization using Odor Profile Fractions from Native Crude Oils. Journal of Chemical Senses. *Submitted to Chemical Senses*

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, accepted.*

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." *Sensors and Actuators B: Chemical, accepted*.

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, Lindsay, D., "Physical properties of odorants affect behavior of trained detection dogs during close-quarters searches." *Scientific Reports, in press.*

[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, in press.*

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 44th 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.

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.

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.

DeGreeff, L.E., Furton, K.G. "Collection and identification of human remains volatiles by non-contact, dynamic airflow sampling and SPME-GC/MS using various sorbent materials." *Analytical and Bioanalytical Chemistry*, **2011**; *401* (4), 1295-1307.

DeGreeff, L.E., Curran, A.M., Furton, K.G. "Evaluation of selected sorbent materials for the collection of volatile organic compounds related to human scent using non-contact sampling mode." *Forensic Science International*, **2011**, *209*,133-142.

Official Reports

DeGreeff, L.E., Katilie, C.J., Simon, A.G. "Evaluation and characterization of novel canine training aid devices to enhance narcotics and homemade explosive detection" *Memorandum report (NRL/MR/6181—19)*.

DeGreeff, L.E., Simon, A.G., Peranich, K., Frank, K., Holness, H.K., Furton, K.G. "Canine discrimination of trained odors from simple and complex mixtures" *Memorandum Report (NRL/MR/6181—19-9923),* **20 Aug. 2019**.

Rose-Pehrsson, S.L., Collins, G.E., Hammond, M., Giordano, B., DeGreeff, L.E., "Trace vapor generator for explosives and narcotics (TV-Gen)" *Memorandum Report (NRL/MR6181—18-9829),* **8 Dec. 2018**.

Peranich, K., DeGreeff, LE. "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.**

Simon, A.G., DeGreeff, L.E., Maughan, M., Gadberry, J. "Canine detection of explosives: Shifting focus from traditional to homemade explosives." *Memorandum Report (NRL/MR/6181—18-9794),* **17 Sept. 2018.**

Simon, A.G., DeGreeff, L.E., Peranich, K., Holness, H., Furton, K.G. "Canine generalization to molecularly similar odors and odor mixtures." *Memorandum Report (NRL/MR/6181—18-9797),* **22 June 2018.**

DeGreeff, L.E., Peranich, K., Simon, A.G. "Detection of ammonium nitrate variants by canine: A study of generalization between like substances." *Memorandum Report (NRL/MR/6181—18-9791),* **30 April 2018.**

DeGreeff, L.E., Conroy, M. W., Malito, M, Harrison, C. "Development of an alternative mixed odor delivery device (MODD) for canine training." *Memorandum Report (NRL/MR/6180—17-9732),* **10 May 2017**.

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 January 2016**.

DeGreeff, L.E., Katilie, C.J., Johnson, K.J., Rose-Pehrsson, S. "Headspace analysis of hexamethylene triperoxide diamine (HMTD)." *Memorandum Report (NRL/MR/6180—15-9605),* **April 7, 2015**.

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 1." *Memorandum Report (NRL/MR/6180—15-9603),* **February 18, 2015**.

PATENTS

DeGreeff, L.E., Crespo-Cajigas, J.M., Katilie, C.J. "Indicating cross-contamination of volatile organic compounds between closed containers stored in proximity using a colorimetric sensor." Invention disclosure (Navy Case No. 114303), **27 Jan 2021**.

DeGreeff, L.E., Crespo-Cajigas, J.M. "Derivatization of vaporous chlorine by propylene oxide." Patent application (Navy Case No. 109358-US1), **04 Feb 2020**.

DeGreeff, L.E., Katilie, C.J. "Online chemical derivatization using a cooled programmed temperature vaporization inlet." US Patent No. US10648955B2, **12 May 2020**.

DeGreeff, L.E., Malito, M., Brandon, A., Katilie, C.J. "Mixed Odor Delivery Device (MODD)," U.S. Patent No. US9986720B2, **05 June 2018**.

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

Invited – Scientific conferences

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., "Canine: 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 Sept. 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.

DeGreeff, L.E. "Characterization of vaporous targets from non-contact detection of fentanyl and related opioids," ASCLD FRC Lightning Talks (virtual); 07 July 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," 4th 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 June 2018.

Scientific conferences

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; Charlotte, NC; 14 Sept. 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; Charlotte, NC; 13 Sept. 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 Sept. 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; [hybrid]; 20 April 2023.

DeGreeff, L.E., *Forte, L.* "Detection of emerging threats: A chemist's perspective," 2023 DSTL Working Dog Symposium; [hybrid]; 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.

Karpinksy, 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 11th Annual Forensic Science Symposium (virtual), 6 June 2022.

Forte, L., Vaughan, S., Holness, H.K., DeGreeff, L., Furton, K.G., "Effects of degradative stress on the headspace profile of fentanyl (virtual)," GFJC 11th Annual Forensic Science Symposium (virtual), 6 June 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 (virtual)," GFJC 11th Annual Forensic Science Symposium (virtual), 6 June 2022.

Castro, K., DeGreeff, L.E., "Survey of contamination and degradation in the lifetime of a canine training aid (virtual)," GFJC 11th Annual Forensic Science Symposium (virtual), 6 June 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," 44th Arctic and Marine Oilspill Program (AMOP) technical seminar (virtual); 7 June 2022.

Bunker, P., Vaughan, S.R., DeGreeff, L.E., Owens, E.H., Tuttle, S.G., "The detection of underwater oil by oil detection canines," 44th Arctic and Marine Oilspill Program (AMOP) technical seminar (virtual); 7 June 2022.

Karpinsky, M., Vaughan, S.R., DeGreeff, L.E., "Comparison of vapor profiles of fresh and highly weathered crude oil," 44th Arctic and Marine Oilspill Program (AMOP) technical seminar (virtual); 7 June 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. et al., "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-portable ion mobility spectrometer," American Academy of Forensic Science; Seattle, WA; 22-25 Feb 2022.

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., Katilie, 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.

Vaughan, S.R., DeGreeff, L.E., *Forte, L.*, Holness, H.K., Furton, K.G. "Characterization of the vapor profile of fentanyl and related analogs for instrumental and canine detection." 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., Katilie, 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 March 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 March 2020.

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," Pittsburg 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 April 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 April 2018.

Peranich, K.P., DeGreeff, L.E.; Simon, A.; Holness, H. "Exploring the generalization-discrimination balance in odor detection canines," 1st International Canine Science Conference; Tempe, AZ; 8 October 2017.

Rose-Pehrsson, S.L., Collins, G.E., Hammond, M.H., Giordano, B.C., DeGreeff, L.E., Tamanaha, C. "Trace explosive vapor generation methods," 12th International Symposium on the Analysis and Detection of Explosives; Oxford, UK; 17-21 Sept 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," 9th Annual Workshop on Trace Explosives Detection; Santa Fe, NM; 24-28 April 2017.

Katilie, C.J., DeGreeff, L.E., Giordano, B., Collins, G., Rose-Pehrsson, S.L. "Generation and evaluation of airborne explosive particles," 9th Annual Workshop on Trace Explosives Detection; Santa Fe, NM; 24-28 April 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 March 2017.

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

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 April 2016.

DeGreeff, L.E., Katilie, C.J., Steinkamp, F.L. "HMTD Decomposition," Trace Explosives Detection Workshop, Charlottesville, VA, 4-8 April 2016.

DeGreeff, L.E., Katilie, C.J., Steinkamp, F.L. Rose-Pehrsson, S.L., "Analysis of the Decomposition of Hexamethylene Triperoxide Diamine (HMTD) as Determined by SPME-GC/MS and LC/MS," Pittsburgh Conference and Exposition, Atlanta, GA, 6-10 March 2016.

DeGreeff, L.E., Katilie, C.J., Steinkamp, F.L., Rose-Pehrsson, S.L. "Vapor analysis of binary explosive mixtures." Presented at the Trace Explosive Detection Workshop, Pittsburgh, PA, April 2015.

DeGreeff, L.E., Katilie, C.J., Steinkamp, F.L., Rose-Pehrsson, S.L. "Vapor analysis of binary explosive mixtures." Presented at the Pittsburgh Conference and Exposition, New Orleans, LA; March 2015.

Katilie, C.J., DeGreeff, L.E., Johnson, K.J., Rose-Pehrsson, S.L. "Headspace analysis of dinitrotoluene isomers." Presented at the Pittsburgh Conference and Exposition, New Orleans, LA; March 2015.

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

Steinkamp, F.L., Giordano, B., DeGreeff, L.E., Collins, G., Rose-Pehrsson, S. "Ammonium nitrate vapor generation." Presented at the Trace Explosives Detection Workshop, Charlottesville, VA; April 2014.

DeGreeff, L.E., Katilie, C.J., Johnson, K.J., Rose-Pehrsson, S. "Headspace analysis of low volatility explosive compounds." Presented at the Pittsburgh Conference and Exposition, Chicago, IL; March 2014.

DeGreeff, L.E., Katilie, C.J., Newsome, G.A., Johnson, K.J., Rose-Pehrsson, S. "Headspace analysis of low volatility explosive compounds." Presented at the International Symposium on Analysis and Detection of Explosives, The Hague, Netherlands; October 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." Presented at the 61st Meeting of the American Society for Mass Spectrometry, Minneapolis, MN; June 2013.

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." Presented at the Pittsburgh Conference and Exposition, Philadelphia, PA; March 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." Presented at the 65th American Academy of Forensic Sciences, Washington, DC; February 2013.

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." Presented at the Pittsburgh Conference and Exposition, Orlando, FL; March 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." Presented at the 64th American Academy of Forensic Science Conference, Atlanta, GA; February 2012.

Eckenrode, B., Tipple, C.A., Caldwell, P.T., DeGreeff, L.E., Dulgerian, N., Stockham, R. "GCxGC-MS mapping of human volatiles." Presented at the 59th Meeting of the American Society of Mass Spectrometry, Seattle, WA; June 2011.

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

DeGreeff, L.E., Furton, K.G. "Collection and determination of human remains volatiles by non-contact, dynamic airflow." Presented at the 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." Presented at the Pittsburgh Conference and Exposition, Orlando, FL; March 2010.

DeGreeff, L.E., Furton, K.G. "Collection of human remains volatiles by non-contact, dynamic airflow sampling." Presented at the 62nd American Academy of Forensic Science Conference, Seattle, WA; February 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." Presented at the 61st 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." Presented at the 60th 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." Presented the 83rd 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." Presented at the 231st American Chemical Society National Conference, Atlanta, GA; March 2006.

Kim, C.S., DeGreeff, L.E., Lentini, C.J. "Synchrotron-based studies of metal adsorption and (co)-precipitation with iron oxyhydroxide nanoparticles." Presented at the 231st American Chemical Society National Conference, Atlanta, GA; March 2006.

DeGreeff, L.E., DeBruyn, W.J. "The photo-production of acetone from dissolved organic matter in seawater." Presented at the American Chemical Society Western Regional Conference, Anaheim, CA; January 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 American Chemical Society Western Regional Conference, Anaheim, CA; January 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." Presented at the NSF-sponsored Nanoscale Processes in the Earth and Planetary Sciences workshop, Albuquerque, NM; January 2006.

Invited Workshops

DeGreeff, L.E., "Chemistry of Odor," 32nd 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 chemistry for explosive detection," HITS K9 Training Seminar; Scottsdale, AZ; 16 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, FL; 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.

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

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

DeGreeff, L.E., Bunker, P. "Training aid storage and handling," Fundacja IRMA - Webinar; 11 May 2021.

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

DeGreeff, L.E., "Odor chemistry basics for canine handlers," presented at the 30th Annual California Narcotics Canine Association Training Institute (virtual); 3 May 2021.

DeGreeff, L.E., "Odor analysis of human remains," presented to the 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 - Webinar; 13 Sept 2020.

DeGreeff, L.E. "K9s Detection of Explosives and HMEs," Fundacja IRMA - Webinar; 31 May 2020.

DeGreeff, L.E. "You stink! Human scent – living and dead – for K9 teams," Fundacja IRMA - Webinar; 14 May 2020.

DeGreeff, L.E. "Odor chemistry basics for K9 handlers," Fundacja IRMA - Webinar; 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 – Webinar; 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," 28th 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.

Other presentations

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.

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

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 December 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 October 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, 11-13 July 2017.

DeGreeff, L.E., Peranich, K. "The chemistry of odor and odor detection," International Defence and Security Canine Conference; Cirencester, UK, 11-13 July 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 April 2017.

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

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

Rose-Pehrsson, S.L., DeGreeff, L.E., Giordano, B., Collins, G., Steinkamp, F.L., Lubrano, A., Andrews, B., Newsome, G.A. "Ammonium Nitrate (AN) Detection with Mass Spectrometry," ALERT ADSA Workshop, Boston, MA, 10-11 May 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, Canada, 10 February 2016.

DeGreeff, L.E., Katilie, C.J., Rose-Pehrsson, S.L. "Vapor analysis of binary explosive mixtures." Presented at the Naval CIED Knowledge Network, Dahlgren, VA, June 2015.

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

DeGreeff, L.E., Grime, M., Eckenrode, B. "Detection of volatile organic compounds in dried human blood by instrument and canine." Presented at the Florida International University Forensic Symposium, Miami, FL; March 2012.

DeGreeff, L.E., Snyder, D., Grime, M., Tipple, C.A., Eckenrode, B. "Detection of dried human blood by canine." Presented at Onsite Conference, Baltimore, MD; January 2012.

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." Presented at the Canine Science and Technology Forum; Imperial College, London, UK; April 2012.

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 17th Annual Graduate Women in Science Conference, Orange, CA; March 2006.