

Jimmie Carol Oxley

Dr. Jimmie Carol Oxley is Professor of Chemistry at the University of Rhode Island (URI), the former co-Director of the Department of Homeland Security (DHS) Center of Excellence (CoE) in Explosive Detection, Mitigation, and Response, and co-Director of the Forensic Science Partnership of URI. She earned a Ph.D. from the University of British Columbia (Chemistry) and joined the faculty of New Mexico Institute of Mining & Technology (NMT) where she founded a Ph.D. program in explosives and created a Thermal Hazards Research group. In 1995 she and her research group moved to URI, where her lab specializes in the study of energetic materials—explosives, propellants, pyrotechnics.

Dr. Oxley has organized numerous symposia and short courses for government and industrial laboratories on topics ranging from hazards analysis to bomb threats: Sandia and Los Alamos National Labs; NAVSEA, Indian Head & Stumpneck; US Army R&D (WES) & Picatinny Arsenal; Edwards & Eglin Air Force Bases; CIA; Defense Nuclear Safety Board; DHS & Transportation Security Administration; Raytheon; Lockheed; AS&E; Implant Sciences. Dr. Oxley is the past chair of the Gordon Research Conference (GRC) on Energetic Materials; co-founder of Life Cycles of Energetic Materials and the GRC on Illicit Substance Detection. She is an elected fellow of the North American Thermal Analysis Society and a reviewer for the FBI, NSF, Department of Justice, and National Academy of Sciences (NAS) National Research Council (NRC). Dr. Oxley has served on seven NRC panels/committees. In 2015 Dr. Oxley was given a 2-year appointment to the NIST Organization of Scientific Area Committees on Fire Debris and Explosives. She will begin a 3-year term on the DoD Strategic Environmental R&D Program Scientific Advisory Board. She is on the editorial boards of Forensic Chemistry and Central European Journal of Energetic Materials.

Dr. Oxley has authored a hundred papers on energetic materials (explosives, propellants, pyrotechnics). She has worked on law enforcement issues [with the FBI simulating the World Trade Center bombing (1993), with FEL examining large fertilizer bombs, and with ATF studying the behavior of pipe bombs]; however, her main research interest is hazard analysis of energetic materials. Studies include kinetics, analysis and prediction of stability, safety issues, synthesis of energetics, and analytical protocols. Her study of ammonium nitrate stability and terrorist usage has led to an invitation to testify before a subcommittee of the House Homeland Security Committee (Dec. 2005) and her work on explosive detection before the House Science & Technology Committee (April 2008). Oxley has studied most classes of energetic materials including improvised explosives such as, hydrogen peroxide, TATP, and HMTD. The later has resulted in safe-scent canine training aids, licensing in progress. Work has been performed for a variety of companies (BASF, Battelle, Dow Chemical, DuPont, Exxon, Honeywell) and government agencies (U.S. Army, Navy, Air Force, FAA, TSA, DARPA, and Sandia & Los Alamos National Labs). Oxley's URI laboratory is equipped with state-of-the-art analytical instruments: calorimeters, chromatographs, & mass spectrometers. Her labs also include TSA explosive detection equipment: IMS, conventional X-ray & CT; and she maintains a 30-TNT eq licensed range equipped with various high-speed cameras. She holds DOE & DoD secret clearances.

Education

Ph.D., Chemistry, University of British Columbia, Vancouver;
M.S., Chemistry, California State University, Northridge, CA;
B.A., University of California, San Diego, CA.

Oxley Personal Data

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Employment

2002 to present	University of Rhode Island (URI)	Professor
1999 to 2002	University of Rhode Island	Associate Professor:
1998 to present	URI Forensic Science Partnership	Co-Director
1995 to 1999	University of Rhode Island	Adj. Associate Professor
1995 to 1998	Gordon Research Conferences	Deputy Director
1989-1995	New Mexico Inst. of Mining & Tech. (NMIMT)	Associate Professor
1984-1989	NMIMT, Socorro, NM	Assistant Professor
1987-1995	Los Alamos National Laboratory	Visiting Scientist
1983-1984	Petroleum Recovery Research Center, NMIMT	Postdoctoral Fellow

Awards & Honors

2015, 2014; 2013 IP Award with various co-inventors
Outstanding Researcher Arts & Sciences, Dec. 2015.
First-Place Team 8th Annual National Security Innovation Contest; April 2014.
Outstanding Research Award URI, April 2008
Invited witness, House Science & Technology Committee April 24, 2008
Outstanding Research Award URI, May 2007
Saferstein Memorial Award Lecturer, Northwestern U. March 2005
Invited witness, House Subcommittee Homeland Security on HR3197, Dec. 14, 2005.
National Academy of Science (NAS): National Research Council (NRC)--7 committees:
Chemical Sci. Board for DHS on "Reducing the Threat of IED Attacks by Restricting Access to Chemical Explosive Precursors" (2016-17)
Army Research Lab's "Armor and Armaments" panel (2009-11)
Naval Studies "Determining Basic Research Needs to Interrupt the IED Delivery Chain (2005-08);
Manufacturing Board--for US military "Advanced Energetic Materials Manufacture" (2001-02);
Military Science Board advising U.S Army--"Chemical Weapon Destruction" (1998-99);
Chemistry Board for BATF "Marking, Rendering Inert, & Licensing Explosives (1996-98);
National Material Advisory Board for FAA-- "Commercial Aviation Security" (Jan'95-98);
Appointed to DoD Strategic Environmental R&D Program Fall 2016-2021
Organizer & Chair in national organizations (Gordon Research Conf. Energetic Materials 1994,96;
Calorimetry Conf. 1991-94; Life-Cycles Energetic Materials 1993-98; NATAS 1992-96)
Elected Fellow North American Thermal Analysis Society (NATAS); Sept. 1995.
Vice-Chair of NMIMT Faculty Senate (1993-94)
Chair of New Mexico section of the American Chemical Society '88; education chair '85
NMIMT corporate representative to American Assoc. of University Women '93-85
Reviewer for the FBI, National Science Foundation (NSF), National Academy of Sciences (NAS) Naval Studies Board & National Research Council (NRC) & Department of Energy
DOE review panel: "Low-Level Mixed Waste Cleanup"; June 1993, Feb. 1994, Ap 1994.
"Recycle, Reuse, & Disposal of Materials DOE's Decontam. & Decommis. Act.," Oct. '92.

Publications in Progress

Oxley, Jimmie C.; Smith James L.; Rettinger, Ryan; Porter, Matthew; Canaria, Jeffery "Explosive Properties of Fuel/Oxidizer Mixtures" New Trends in Research of Energetic Materials, Proceed. 21st Pardubice, CZ

Oxley, Jimmie C.; Smith James L.; Brown, A.C. "X-ray Simulants manuscript in preparation

Publications

Colizza, Kevin; McLennan, Lindsey; Yevdokimov, Alexander V.; Smith, James L.; Oxley, Jimmie
"Using Gas Phase Reactions of Hexamethylene Triperoxide Diamine (HMTD) to Improve Detection
in Mass Spectrometry" *J Am Soc Mass Spec* **2018** DOI: 10.1007/s13361-017-1879-5

Colizza, Kevin; McLennan, Lindsey; Yevdokimov, Alexander V.; Smith, James L.; Oxley, Jimmie
"Reactions of Organic Peroxides with Alcohols in Atmospheric Pressure Chemical Ionization—the
Pitfalls of Quantifying Triacetone Triperoxide (TATP)" *J Am Soc Mass Spec.* **2018**, 29: 393-404.
DOI: 10.1007/s13361-017-1836-3

J. C. Oxley; J.L. Smith; E. Bernier; F. Sandstrom; G.G Weiss; G.W. Recht; D.Schatzer
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Sayavur I. Bakhtiyarov, Jimmie C. Oxley, James L. Smith, Philipp M. Baldovi "A Complex Variable
Method to Predict a Range of Arbitrary Shape Ballistics" *J Applied Nonlinear Dynamics* **2017**, 6(4),
521-530.

Oxley, Jimmie C.; Smith James L.; Brown, A.C. "Eutectics of Erythritol Tetranitrate" *J Phys Chem*
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Decomposition of Erythritol Tetranitrate: A Joint Experimental & Computational Study" *J Phys.*
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Oxley, J.C.; Smith, J.L.; Porter, M; Yekel, M.J.; Canaria, J.A. "Potential Biocides" Iodine-Producing
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Rheological Studies of Functional Polyurethane Foam Composites: Part 1. Rheology of its
compounds with and without solid additives (aluminum flakes). *J Elastomers and Plastics*, **2017**; 1-
19. DOI 10.1177/0095244317715787

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of Functional Polyurethane Composites with Solid Additives (Calcium Iodate Particles and
Aluminum Flakes): Part 2. Rheology of Components. *J Elastomers and Plastics*, **2017**, 1-13
10.1177/0095244317729558

Oxley, J.C.; Smith, J.L.; Porter, M.; Colizza, K.; McLennan, L.; Zeiri, Y.; Kosloff, R.; Dubnikova, F.
"Synthesis and Degradation of Hexamethylene triperoxide diamine (HMTD)" *Propellant, Explosives,*
Pyrotechnics **2016**, 41(2), 334-350. DOI 10.1002/prop.201500151

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"Acetonitrile Ion Suppression in Atmospheric Pressure Ionization Mass Spectrometry," *J. Amer. Soc.*
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Oxley, Jimmie C.; Smith, James L.; Kagan, Gerald L.; Zhang, Guang; Swanson, Devon S. "Energetic
Material/Polymer Interaction Studied by Atomic Force Microscopy," *Propellants, Explosives,*
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Oxley, Jimmie C.; Smith, James L.; Donnelly, Maria A.; Colizza, Kevin; Rayome, Stephanie "Thermal Stability Studies Comparing IMX-101 (Dinitroanisole/Nitroguanidine/NTO) to Analogous Formulation Containing Dinitrotoluene," *Propellants, Explosives, Pyrotechnics*, **2016** 41(1), 98-113.

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Johnson, Samuel C.; Gan, Yong X.; Calderon, Sinclair B.; Smith, James L.; Oxley, Jimmie C. "Measuring the electrochemical response of a titanium oxide nanotube electrode to various chemicals as explosives components," *Int. Res. J. of Pure and Appl. Chem.* **2015** 5(2), 1-11.

Johnson, S.C.; Gan, Y. X.; Calderon, S.B.; Smith, J.L.; Oxley, J.C. "Measuring the Electrochemical Response of a Titanium Dioxide Nanotube Electrode to Various Chemicals as Explosive Components" *International Research Journal of Pure and Applied Chemistry*; **2015**; 5(2) 119-130. DOI: 10.9734/IRJPAC/2015/14263

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Colizza, Kevin M Porter, J. Smith, J. Oxley "Gas Phase Reactions of Alcohols with Hexamethylene triperoxide diamine (HMTD) under Atmospheric Pressure Chemical Ionization Conditions" *Rapid Communications in Mass Spectrometry* **2015**, 29(1), 74-80.

Oxley, Jimmie C.; Smith, James L.; Donnelly, Maria; Porter, Matthew "Fuel-oxidizer mixtures: their stabilities and burn characteristics," *J. of Therm. Anal. Calorim.* **2015** 121(2), 743-763.

Chen, Z.; Rettinger, R.; Hefferman, G.; Smith, J. Oxley, J. Wei, T. "Microwave modulated photon Doppler velocimetry" *Photonics Technology Letters, IEEE* **2015**.

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J. Oxley, J Smith, M. Donnelly, M Porter "Fuel-Oxidizer Mixtures: Their Stabilities and Burn Characteristics; *International Journal of Energetic Materials and Chemical Propulsion* **2014**, 13(6): 517-557.

Oxley, J.C.; Smith, J.L.; Brady, J.; Steinkamp, F.L. "Factors Influencing Destruction of Triacetone Triperoxide (TATP)," *Propellants, Explosives, Pyrotechnics*, **2014**,39(2), 289-298.

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Oxley, J.C., Smith, J.L., Moran, J.S.; Almog, J. "Nitroguanidine, and EGDN: nitration using simple nitro species" *Tetrahedron. Letters*, **2008**, 49(28), 4449-4451

J. C. Oxley; J. L. Smith; L. Kirschenbaum; S. Marimganti "Accumulation of Explosives in Hair: Part II: Factors Affecting Sorption" *J Forensic Science*; **2007**, Vol 52, No. 6, 1291-1296.

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J. C. Oxley, J. L. Smith, L. Kirschenbaum, K. P. Shinde, S. Marimganti "Accumulation of Explosives in Hair" *J. Forensic Science*, **2005**, 50(4), 826-831.

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- Special Issue *Thermochemica Acta Energetic Materials*; Guest Editors: Oxley, Minier (32 articles) **2002**, 384(1-2).
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J.C. Oxley; J.L. Smith; K.E. Yeager; E. Rogers; X.X. Dong "NTO Decomposition Studies" in *MRS Decomposition, Combustion, & Detonation Chemistry of Energetic Materials* editors Brill, Russell, Tao, Wardle, **1996**, 135-142.

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Oxley, J.C.; Smith, J.L.; Wang, W. "Compatibility of Ammonium Nitrate with Monomolecular Explosives, Part I" *J. Phys. Chem.* **1994**, 98, 3893-3900.

Oxley, J.C.; Smith, J.L.; Wang, W. "Compatibility of Ammonium Nitrate with Monomolecular Explosives, Part II: Nitroarenes" *J. Phys. Chem.* **1994**, 98, 3901-3907.

Oxley, J.C. "Non-Traditional Explosives: Potential Detection Problems" *Terrorism and Political Violence* **1993**, 5(2), 30-47.

Wang, W.; Oxley, J.C.; Smith, J.L.; Gilson, N.S. "Thermal Compatibility of Ammonium Nitrate Mixtures with Energetic Organic Species" Proceed. 22nd NATAS Conf.; Denver, CO. Sept. 1993.

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Oxley, J.C.; Smith, J.L.; Askins, J. A.; Gilson, N. S.; Feng, H.; Banks, M.; and Gardner, J.S. "Thermal Stability Analysis of HAN-Based Liquid Gun Propellants," Proceed. JANNAF Propulsion Systems Hazards Subcommittee, Fort Lewis, WA, May 11-13, 1993.

Oxley, J.C.; Kooh, A.B.; Szekeres, R.; Zheng, W. "Mechanisms of Nitramine Thermolysis" Proceedings of ADPA Energetic Materials Technology, Oct. 4-7, 1992, New Orleans.

Oxley, J.C.; Olson, D.B.; Sandstrom, F. "NMIMT Hazard Testing Capabilities" Proceed. of 21st NATAS Conf.; Atlanta, Sept. 1992.

Oxley, J.C. "Cook-off: Small-Scale Thermal Hazards Analysis" 1992 JANNAF Propulsion Systems Hazards Subcom. Mtg. Cookoff Workshop; Silver Springs, MD, May, 1992

Oxley, J.C.; Kaushik, S.M.; Gilson, N.S. "Ammonium Nitrate Explosives-- Thermal Stability and Compatibility on Small & Large Scale" *Thermochem. Acta* **1992**, *212*, 77-85.

Oxley, J.C. Hiskey, M.A., Naud, D.; Szekeres, R. "Thermal Decomposition of Nitramines: Dimethylnitramine, Diisopropyl-nitramine, and N-Nitropiperidine" *J. Phys. Chem.* **1992**, *96*, 2505-2509. DOI: 10.1021/j100185a023

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Oxley, J.C. "Explosives Detection" *SPIE* San Diego, July **1992**

Minier, L.; Brower, K.; Oxley, J.C. "The Role of Intermolecular Reactions in Thermolysis of Aromatic Nitro Compounds in Supercritical Aromatic Solvents" *J. Org. Chem.* **1991**, *56*, 3306-3314. DOI: 10.1021/jo00010a025

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Minier, L.; Oxley, J.C. "Thermolysis of Nitroarenes: 2,2',4,4',6,6'-Hexanitrostilbene" *Thermochem. Acta* **1990**, *166*, 241-249. doi:10.1016/0040-6031

Baer, B.J.; Oxley, J.C.; Nicol, M. "The Phase Diagram of RDX (Hexahydro-1,3,5-Trinitro-s-Triazine) under Hydrostatic Pressure" *High Pressure Research* **1990**, 2, 99-108,

Hiskey, M.A.; Oxley, J.C. "A New Synthetic Route to Nitrate Esters" *J. Energetic Materials* **1989**, 7(3), 199-205.

Oxley, J.C.; Kaushik, S.M.; Gilson, N.S. "Thermal Decomposition of Ammonium Nitrate Based Composites" *Thermochem.Acta* **1989**, 153, 269.

Brower, K.R.; Oxley, J.C.; Tewari, M.P. "Homolytic Decomposition of Ammonium Nitrate at High Temperature" *J. Phy. Chem.* **1989**, 93, 4029-4033

Nicol, M.; Baer, B.J; Oxley, J.C. "Raman Spectroscopy of High Explosives at High Hydrostatic Pressures Used to Detect Phase Transition of RDX (Hexahydro-1,3,5-Trinitro-s-Triazine)" ADPA proceedings October, 1989.

Minier, L.M.; Oxley J.C. "Thermolysis of Nitroarenes: 2,2',4,4',6,6'- Hexanitrostilbene" Proceed. of 18th NATAS Conf.; San Diego, Sept. 1989

Nicol, M.; Oxley, J.C.; Baer, B.J "Phase Diagram of RDX(Hexahydro-1,3,5- Trinitro-s-Triazine) at High Pressures and Temperatures" ARART proceedings, Aug. 1989.

Oxley, J.C.; Brower,K.R.; Tewari, M.P. "The Thermal Decomposition of Energetic Nitrate Salts" 1988 JANNAF S&EPS Mtng, Monterey, May 23-27, 1988.

Oxley, J.C.; Kaushik, S.M.; Gilson,N.S. "Thermal Hazards Analysis of Ammonium Nitrate-Based Composites", paper 15, 17th NATAS Conf., Orlando, Oct. 9-12 1988.

Oxley, J.C; Brower, K.R."Thermal Decomposition of Hydroxylamine Nitrate" *SPIE* **1988**, 872, 63-9

Oxley, J.C.; Perkins, W.D. "Use of a CIR Cell for Analysis of Aqueous Partially Hydrolyzed Polyacrylamide solutions by FT-IR Spectroscopy" Perkin-Elmer Infrared Bulletin 113, July 1986.

Oxley, J.C.; Perkins, W.D. "Utilization of a circular cell for the analysis of partially hydrolyzed aqueous solutions of polyacrylamides by Fourier-transform infrared spectrometry" *Analisis* **1987**, 15(10), XLI-XLIV.

Martin, D.F.; Oxley, J.C.; Lim H.T. "Enhanced Recovery of a "J" Sand Crude Oil With a Combination of Surfactant and Alkaline Chemicals," SPE 14293, presented at 60th Ann. Tech. Conf.& Exhibit., Las Vegas, Sept. 22-25, 1985.

Martin, F.D.; Oxley, J.C. "Effects of Various Alkaline Chemicals on Phase Behavior of Surfactant/Brine/Oil Mixtures," paper SPE 13575, presented at the Intl. Symp. on Oilfield & Geothermal Chemistry, Phx., Apr. 9-11, 1985.

Martin F.D.; Hatch, M.J.; Abouelezz, M.; Oxley, J.C. "Modified Acrylamide Polymers for Enhanced Recovery of Crude Oil, National American Chemical Society Meet, Philadelphia, August 25-27, 1984.

Legzdins, P.; Martin, J.T.; Oxley, J.C., "New Organometallic Hydrido Nitrosyl Complexes of Tungsten." *Organometallics*, **1985**, 7, 1263-1271.

Legzdins, P.; Oxley, J.C. "Mono- and Bi-metallic Dinitrosyl-molybdenum Complexes." *Inorganic Chemistry* **1984**, 23, 1053-1059.

Oxley, Jimmie C.; Toppen, David L. "Kinetics and mechanisms of reactions of water-soluble ferric porphyrins. 3. Ascorbic acid reduction of the [5,10,15,20-tetrakis(4-N-methylpyridyl)porphine] iron(III)-histidine system" *Inorganic Chemistry* **1978**, 17(11), 3119-23.

UNITED STATES PROVISIONAL PATENT

J Oxley; J Smith; J Canino "Non-Detonable Explosive or Explosive-Simulant Source" US 9,784,723 B1 Oct. 10, 2017

Invited Lectures

JANNAF Difficulties in Analyzing Peroxide Explosives Dec 5, 2017

Why Study Energetic Materials; Texas Tech University, Nov 13, 2017

How to Detect HME CBRNE International Conference Lyon, Fr May 29-June 2, 2017

Explosive Analysis American Society for Clinical Laboratory Science Central New England May 9-11, Providence, RI

Perspectives on checkpoint security" ADSA15; Boston, MA Nov 15, 2016

What the DHS-CoE does for Law Enforcement; 2016 Texas Special Response Team Conf.; Austin, TX, Oct 4, 2016

Research into Improvised Explosives (HME) 5th Australian Symposium Energetic Materials, Adelaide, AU, Sept 27-29, 2016

International Association of Bomb Technicians & Investigators, Halifax, CA July 18-22, 2016

Weslayan University April 29, 2016

US Coast Guard Academy "Energetic Materials Research at URI" New London, CT, Jan 21, 2016

International Association of Bomb Technicians & Investigators, Hershey, PA June 12, 2015

Thermal Stability and Chemistry of Difficult Energetic Materials" New Trends in Research Energetic Materials; Pardubice, CZ, April 11, 2015

JANNAF Dec 10, 2014 Academic Research to Real Life Application ABQ

7th Annual CBRNe Convergence Oct 28-30 2104, NY, NY

Recognizing Improvised Drug vs Explosive Labs, 23rd Annual Haz-Mat Training Conf. Sept 18, 2014, Plymouth, MA

Energetic Materials Needs and R&D Goals GRC June 2014, ME

Plenary Lecture: "Explosive Detection: How We Got Here and Where are We Going?" International Symposium on Chemical Propulsion & Energetic Materials June 2-6 2014; Poitiers, FR

"URI Explosive Research" Ludwig-Maximilian University of Munich: June 2, 2014

"The Explosive Threat" McCabe Lecture Springfield College, MA April 2, 2014

Alpha Chi Sigma "Explosive Studies for Safety & Security" Oct. 26, 2013; URI

ADSA (Algorithm Development for Security Applications Workshop), "Addressing Issues with Sample Collection" Oct, 22, 2013; Boston

CT Valley ACS "Explosive Research for Safety and Security" Oct 17, 2013

ISADE "The Explosive Threat: Is there Something New Under the Sun?" Oct 8, 2013 Den Haag, Netherlands

FACSS/SciX "Taming the Peroxide Explosives and Other HME;" Milwaukee; Oct 2 2013

IABTI Regional Meeting; "Explosive Short Course" Colorado Spring; CO Sept 17, 2013

Clinical Lab Science Convention; Providence, May 4, 2011

Wheaton College Chemistry Seminar April 6, 2011

DHS University Summit April 1, 2011
MIT Lincoln Labs Feb 24, 2011
Los Alamos National Lab Feb. 2, 2011
Warwick Rotary Club Warwick RI Jan 6, 2011
CSHEMA Reactive Chemicals Webinar Jan 19, 2011
URI Explosive Research for Safety and Security; Grand Challenge Course Dec. 9, 2010
IEEE Tutorial on the Explosive Threat; Waltham, MA Nov. 9, 2010
Soc Experimental Mechanics IMPLAST 2010 Blast Mitigation Workshop; Prov., RI Oct 14, 2010
What & Where to Look ; Oakland University, Chemistry, Dept. Detroit, Sept 29 2010
Overview of DHS Center of Excellence; Texas Tech, Chemistry; Lubbock, TX; Oct 27 2010
½ tutorial for UnderSecretary Tara O’Toole, Washington, DC June 11, 2010
1 day Tutorial TSA Bomb Appraisal Officers; Charlotte, NC, Jun 3, July 15, Aug 12, Sept 16, 2010
ALERT Safety Symposium all day on web from URI April 30, 2010
Pre- and Post-Blast: What to Look For, What to Look With, Am. Assoc of Forensics Scientists, Seattle, Feb 23, 2010
RI Emergency Management Advisory Council; URI Feb 9, 2010
DHS Center of Excellence: an Overview; URI Foundation Board, Jan 30, 2010
“Security: What More Can We Do?”Delta Airline; URI Jan 29, 2010
“DHS Center of Excellence” Homeland Security Science & Technology Advisory Committee, Wash DC, Jan 28, 2010
Studying Energetic Materials for Safety & Security; Miami, Florida International U, Jan 14, 2010
Peroxide Explosives—Hazards & Remedies; Tel Aviv, Dec 9, 2009
HME—Old Explosives, New Applications, Tel Aviv, Dec 8, 2009 26
Characteristic Signatures of VBIEDs Interagency Standoff Explosives Detection & Defeat Working Group, Wash DC, Nov 3, 2009
Research in Safety and Security, Newark, U Delaware. Nov 2, 2009
Developing Small-Scale Tests to Predict Explosivity; Sept 21, 2009 NATAS Lubbock Tx
“Explosive Threat; Massachusetts Assoc Hazardous Materials Techs Sept 17, 2009 Plymouth MA
“IED Overview” & “Uses of hair as forensic evidence” International Crime Scene Conference July 15-17, 2009, London, UK
“The IED Threat: What to Look for and What to Look with” National UASI (Urban Areas Security Initiative) Conference; Charlotte; June 10, 2009
“Center of Excellence in Explosives, Detection, Mitigation, & Response & Characterization” URI Research Seminar Series; June 5, 2009
Toward a Comprehensive Approach to Counter-IED; HME Working Group 29 Palms Marine Base; May 19, 2009
“Explosives Research at URI” Brown University, Ap 9, 2009
“Explosive Research at URI “ Aberdeen, MD; ABL, Ap 21, 2009
Explosive Residue, Pittcon Mar 11, 2009
DHS University Summit Mar 18, 2009
“Studying Energetic Materials from Safety to Security;” Royal Society of Chemistry-US, NYC; Nov. 22, 2008
“The Evolving Explosives Threat and the DHS Center of Excellence in Explosives”
US Army, Aberdeen Proving Ground, April 28, 2009
“Center of Excellence Projects” Brown University; April 9, 2009
“Detecting Traces from Improvised Explosives Devices” Pittcon; Chicago, March 11, 2009
“The Explosive Threat” keynote, Israel First International Symposium on Improvised Explosive, May 18-22, 2008
4 lectures DHS University Summit March 18,19, 2008
St. Petersburg, Russia NATO “What’s Special about Liquid Explosives?” Oct. 15-19, 2007
Northeastern University “Introduction to Explosives;” Nov. 14, 2007

Beijing, China National & Chinese Academies of Engineering “Protecting Against Terrorist Bombings—Precursor Control” Nov. 4-8, 2007

RI National Guard: “Introduction to Explosives” Oct 19, 2006; Cranston, RI

URI Alumni “Energetic Materials research at URI” NY, NY Sept. 14, 2006

National Security, Natural Disasters, Logistics & Transportation: “Assessing the Risks & the Responses;” Sept 25-26, 2006; Rhode Island

International Working Dogs “Peroxide Explosives” Sept 20, 2006; Rhode Island

“Thermal Decomposition Studies for Conventional & Unconventional Explosive Questions.” Heat-Flow Calorimetry of Energetic Materials Sept 12-15, 2005

Improvised Explosives; NATO Advanced Research Workshop: Detection and Disposal of Improvised Explosives; St. Petersburg; Sept. 6-11 2005.—paper presented by Herr Prof Schubert

Energetic Materials Intelligence Symposium, “Improvised Explosives” Aug. 30- Sept. 1, 2005

“Peroxide Explosives” Ben-Gurion University, Israel, June 8, 2005.

Saferstein Memorial Award Lecture, Northwestern U. March 24, 25 2005

Energetic Materials Intelligence Symposium “ Forensic Issues of Explosives” September 7-9, 2004

Energetic Materials Research at URI,” Hebrew University, Israel, Aug 4 2004

Gordon Research Conference on Energetic Materials “Explosive Research—Forensic Issues” Tilton, NM June 21, 2004.

“Explosions—Explosives Not Required” Canadian Explosive Research Lab; Ontario, June 10, 2004

TA Instruments Users Meeting; Feb. 2, 2004, San Antonio

Explosive Analysis—Training for U.S. Customs Laboratory; Las Vegas, NV; Feb. 23-24, 2004; Aug 10-11, 2004

Critical Incident Response Technical Support for Bomb Squads; Philadelphia, PA Jan. 14, 2003.

Golden CO Explosive Short Course; Oct 16-18, 2002; Oct 14-16 2003; Oct 12-15, 2004

URI Explosive Short Course, May 13-15; 2003; May 11-13, 2004; 2005; 2006; 2007; 2008; 2009; 2010; 2011; 20012

Holy Cross College; Nov. 1, 2002

NATAS North America Thermal Analysis Society, Plenary Lecture “Thermal Stability;” Sept. 25, 2002

NATAS Short Course Aug 2003; 2005; 2006; 2007; 2008; Sept 2009 (Lubbock, TX); Aug 10 2012 (Orlando, FL); Aug 4 2013 (WKU, Kentucky)

"Instrumental Analysis of Explosives and Explosive Residues" FBI Quantico, VA Jan. 29-Feb.3, 1995; May 18, 1996; May 17, 1997; May 6-8, 1998; May 7,1999; May 8, 2000; May 6, 2002; April 19, 2004; Aug, 14, 2006“Peroxide Explosives” International Workshop on the Forensic Aspects of Peroxide Explosives” Dec. 5, 6 2001 Fort Halstead, UK.

“The Forensic Examination of Explosives” St. Anselm’s College, NH; Oct. 12, 2001

“Forensic Examination of Pipe Bombs” TWGFEX 1st Annual Meeting; Orlando, FL; 8/15/01

“The Forensic Examination of Explosives” Rhode Island College, RI: Feb. 9, 2001

“An Overview of Forensic Investigations” Hood College, MD; Oct.24, 2000

“Availability and Analysis of Explosive Residue” ACS National meeting Explosive Symposium, Washington, D.C. Aug. 22, 2000.

Oxley, J.C. “A Parametric Study of Pipe Bombs” presented at the International Workshop on Forensic Aspect of Low Explosive Devices, Fort Halsted, UK Feb. 9-10, 2000.

“Safe Handling of Energetic Materials” System Safety Society; Pawtucket, RI; Nov. 3, 1999.

“Thermal Stability of New Nitramine and Difluoramine Explosives” Sandia NL; Albuquerque, NM; Nov. 23, 1998.

“Thermal Stability of New Nitramine and Difluoramine Explosives” Naval Surface Weapons Lab; China Lake, CA; Oct. 5, 1998.

“The Thermal Analysis of Energetic Materials,” plenary lecture, NATAS, Toronto; 9/13/98

“The Study of Energetic Materials,” Chem. Dept. Georgia Institute of Tech., Sept. 10, 1998.

“The Study of Energetic Materials,” Chem. Dept. Arizona State U., Sept. 8, 1998.

"Explosives: Their Properties and Performance" Defence Research Agency, UK, July 13, 1998.
Explosives & Explosive Detection; IEEE Explosive Detection Class; March 27, 1997; Boston.
"The Basics of Explosives"; Feb. 21, 1997; Mechanical Engineering Dept; U of Utah.
Ammonium Dinitramide Decomposition Mechanisms; Feb. 20, '97; Thiokol; Brigham City, UT
"Decomposition of Ammonium Dinitramide" Energetic Materials, Dec. 3-6, '96, Annapolis, MD.
"A Scientist's Brush with the Media Keynote, ACS Science Reporters Workshop; Oct.19, 1996.
"Explosives in Landmine Use" MIT Working Group Aug. 26-31, 1996.
"Studies on Ammonium Nitrate" Army Research Lab, Aberdeen, MD; Jan. 3, 1996
"Thermal Decomposition Studies of Ammonium Nitrate" McGill University; Nov. 22,1995
"Terrorist Threats" JASON group MITRE, La Jolla, CA; July 12, 1995.
"Solution-Phase Decomposition of Nitrogenated Energetics," Ethyl; Richmond, Aug.15, 94.
Gordon Conf. on Energetic Materials; "Thermal Decomposition of Nitroarenes," NH; June 1994.
"Thermal Hazards Research: an Overview of RCEM Projects;" Sandia National Lab, Ap 22, 94.
Shock, Mechanical, & Thermal Initiation-to-Detonation Workshop "Thermal Decomposition
Mechanisms," Los Alamos, NM; Nov.16-18, 1993.
Lecturer: Computational Mechanics Workshop, "Explosives Technology"; Oct. 18-19, 1993; Oct.
1991; Santa Fe.
Fraunhofer Institute fur Chemische Technologie "Thermal Decomposition of Nitroarenes;"
9/1/93.Karlsruhe, Germany.
1993 Europto International Symposium on Substance Identification Technologies; October 4, 1993;
Innsbruck, Austria. 37
Los Alamos National Laboratory: Team 1; "Thermal Decomposition of Nitroarenes," Mar. 12, 1993;
Los Alamos, NM.
University of California, Los Angeles, High Pressure class, "Fundamentals of Explosives;" Nov.
9,11,1992. Los Angeles.
Los Alamos National Lab: "Thermal Decomposition of Energetic Materials"; Nov. 10, '92; Los
Alamos, NM.
U. of New Orleans, Chemistry Dept; Thermal Decomposition of Energetic Materials; 10/2/92; New
Orleans, LA.
1992 Annual Meeting of Optical Society of America, Fundamental and Applied Spectroscopy,
Technical Group Mtg. "Explosive Detection"; Sept. 23, 1992; Albuquerque, NM
NATAS Thermal Hazards Symp.; September 13-16, 1992; Atlanta, GA.
Symposium on Technology and Terrorism, National Strategy Information Center; Aug. 25-27, 1992;
St. Andrews, U.K.
JANNAF Propulsion Systems Hazards, Cookoff Symp, Ap27-May 1, 1992, Silver Spring, MD
National Energetic Materials Workshop & Study Group U.S. Department of Transportation, April
14-17, 1992, Avalon, NJ.
DOD Workshop on the Fundamental Physics & Chemistry of Combustion, Initiation, & Detonation
of Energetic Materials "Thermal Decomposition of Nitramine" March 3-6, 1992, Los Alamos, NM.
Lecturer & Organizer: Federal Aviation Assoc. Technical Center: "Introduction to Explosives" 5/91,
Ocean City, NJ.
"Thermal Analysis of Energetic Materials" Los Alamos National Lab High Explosives Group, Los
Alamos, NM; 2/21/91.
GRC on Energetic Materials; "Thermal Decomposition Studies" New Hampton, NH; 6/90.
Regional American Chemical Soc. "An Academic Study of Ammonium Nitrate Decomposition; Salt
Lake; June 1990.
Industry/University Cooperative Research Center Director's Meeting; NSF. Wash. D.C.; 1/12/90
"Thermal Hazards Analysis" IRECO; Salt Lake City, UT; Dec 15, 1989
"Thermal Hazards Analysis" Hercules Bachus; Magna,UT; Dec.14, 1989
"Thermal Hazards Analysis" Thiokol; Brigham City, UT; Dec.13, 1989
UCLA, High Pressure class, "Fundamentals of Explosives" Dec. 1988; Los Angeles, CA.

"Organometallic Nitrosyl Hydrides" Chemistry Dept., University of Texas, El Paso, Oct. 19, 1984.

Presentations

ISADE “Adventures in Analyzing Peroxide Explosives” Sept 17-21, 2017; Oxford, UK
“The Future of Energetic Materials” Sept 7, 2017; Bar Ilan University, Israel
The Role of Thermal Analysis in Screening and Analyzing Co-crystallization of Energetic Materials
NATAS “Analysis of Peroxide Explosives” Aug 7-9, 2017; U Delaware
NATAS/ITAC Aug. 14-19, 2016
Iodine-Producing Pyrotechnics NITREM April 22-22, 2016 Czech Rep
Ion Suppression by Acetonitrile in Mass Spectrometry TED April 4-8, 2016 Charlottesville, VA
Issues in Explosive Detection: Sampling. SciX Sept 18, 2015; Providence.
Peroxides and other HME; HME Working Group; Washington DC, Sept 4, 2015
Safe Handling of Highly Sensitive Energetic Materials ICT Karlsruhe, DE June 24, 2015
Fuel-Oxidizer Mixtures Thermal Behavior, (M. Donnelly) NATAS Sept 16, 2014 Santa Fe
International Propulsion Symposium Colorado, CO July 13-18 2014
“Fuel-Oxidizer Mixtures: Their Stability and Burn Characteristics” International Symposium on
Chemical Propulsion & Energetic Materials June 2-6 2014; Poitiers, FR
“The Explosive Threat: Peroxide Explosives” International Symposium on Chemical Propulsion &
Energetic Materials June 2-6 2014; Poitiers, FR
Polymers for Explosive Detection and Defeat-J Oxley, J Smith, J Canino, J. Brady, S. Vadlamannati
TED Conference April 8-11, 2014
ISADA: “Taming the Peroxides and Other HME” Oct 10, 2013 Den Haag, Netherlands
NATAS “Thermal Impact vs Sensitivity?” Aug. 4, 2013; Bowling Green, KY
“TATP Formation & Destruction” Trace Explosive Detection Ap 2013; Philadelphia
TED “Adulterating Explosive Precursors,” April 2012; Boston
EOD HME Working Group Jan 3-6, 2012
NATAS “Gentle Destruction of TATP;” Philadelphia; Aug. 16, 2010
NATAS “Developing Small-Scale Tests to Predict Explosivity”; Sept 21, 2009; Lubbock, TX
DHS/URI Detection Workshop Oct 8-9, 2009
9TH International Symposium on Analysis & Detection of Explosives (ISADE), Paris France:
“Explosive Residue—Forensic Evidence or Environmental Contamination?” July 1-5, 2007
Office of the Secretary of Defence; Cross Pollination Workshop “Tracking Explosive Precursors”
March 15, 2007
Developed & instructed courses on energetic materials safety & security for
Sandia and Los Alamos National Labs, DoD Managers, Federal Aviation Administration (FAA),
US Army, WES & Picatinny Arsenal; US Air Force Eglin; US Navy, Indian Head; Defense Nuclear
Facility Safety Board; Central Intelligence Agency; Allied Signal; John Hopkins Applied Physics Lab;
Lockheed Martin; Raytheon.
The Study of Reduced-Sensitivity RDX NATAS, Aug 7-9, 2006, Bowling Green, KY
Peroxide Explosives Detection and Destruction NATAS, Aug 7-9, 2006, Bowling Green, KY
Blast Injury Testing Conference, “Characterizing Pipe Bombs” Aug.31-Sept 1, 2004
Explosives in Hair; International Symposium Analysis & Detection of Explosives; Ottawa, ON June
7-10, 2004
“Decomposition of TNT in Soil” Battelle Sustainable Range Manant, Jan 7, 2004; New Orleans
SPIE “Hair as Forensic Evidence” April 13, 2004 Orlando, FL
SPIE Training Dogs to Detect TATP April 14, 2004, Orlando, FL
Hair as Forensic Evidence, TWGFX, Orlando, FL; Nov 19, 2003
Explosive Research at URI, MITRE, Wash, DC; Sept 11, 2003
Hair as Forensic Evidence, Forensic Explosive Lab, dstl, UK Sept 4, 2003
Enhanced Novel Explosives; 3rd International Non-Ideal Explosive Workshop; Socorro, NM May 21,
2003
Enhanced Novel Explosives, MITRE, Wash, DC; Feb. 4, 2003
“Lessons Learned from Two Explosions in Hydroxylamine Plants” ASC April, 6-8 2002

"Pipe Bombs: A Parametric Study" Northeast Assoc. of Forensic Science Meet; Oct. 4-6, 2001, Stowe, VT

"Thermally Unstable Materials: Potential for Catastrophic Runaway" American Chemical Society National Meeting; Aug 27, 2001

"Chemical events during the PEPCON Explosion" ACS National Meet ; Langerman & Oxley; Aug. 28, 2001

"Pipe Bombs—a Fragmentation Study" 1st Annual TWGFEX Symposium on Fire & Explosion Debris Analysis & Scene Investigation; Orlando, FL; Aug. 15, 2001

"Thermal Decomposition of High-Nitrogen Energetic Compounds—Tetrazines" NATAS Orlando, FL. Oct 4-6, 2000

"Thermal Decomposition of Difluoroamino Compounds" NATAS, Sept 1998.

"Thermal Stability of New Difluoroamine Complexes" American Defense Preparedness, 10/6-8/97.

"Ammonium Nitrate: Can It Be Inerted?" North American Thermal Analysis Society, Sept '97.

"HAN Propellant Stability" North American Thermal Analysis Society, Sept 1997.

"TNAZ Decomposition" Picatinny Arsenal "Sixteenth Annual Working Group Institute on Synthesis of High Energy Density Materials;" Picatinny, NJ; June 18-19, 1997.

"Desensitization of Ammonium Nitrate" ARL Review; May 30, 1997.

"Ammonium Nitrate and Explosive Principals" U Utah, Mechanical Engineering; Feb. 21, 1997.

"ADN Decomposition Pathways" ONR Review; Annapolis, MD; Dec. 6, 1996.

"Explosives in Seawater--Environmental Decomposition Second Explosives Detection Technology Symp. & Aviation Security Technology Conf.; Atlantic City; Nov.12-15, 1996.

"TNAZ Decomposition Pathways" Fifteenth Annual Working Group Institute on Synthesis of High Energy Density Materials;" Picatinny, NJ; June 12, 13, 1996.

"Materials of Potential Terrorist Threat" 5th International Symposium on Analysis & Detection of Explosives, Dec. 4-8, 1995; Washington, D.C.

"Ammonium Nitrate: Desensitization & Taggant Issues" 5th International Symposium on Analysis & Detection of Explosives, Dec. 4-8, 1995; Washington, D.C.

"NTO Thermal Decomposition" Materials Research Society, Nov. 27-30, 1995; Boston, MA.

"Thermal Studies of Energetic Materials" Los Alamos National Laboratory; July 14, 1995.

"Thermal Decomposition Studies on NTO and NTO/TNT" ICT 26th Intnt. Ann. Conf on Pyrotechnics; Karlsruhe, Germany; July 6, 1995.

"Explosives Detection: Potential Problems" SPIE Europto European Symposium on Optics of Environmental and Public Safety; Munich, Germany; June 21, 1995.

"Thermal Decomposition of NTO" ADPA, Orlando, FL; March 21-24, 1994.

"Thermal Hazards Analysis of Ammonium Nitrate Formulations" Eastern Analytical Symposium; Sommerset, NJ; Nov. 18, 1993.

"Thermal Analysis of Liquid Propellants ARDEC, Picatinny NJ, Aug 16,1993; Aberdeen, Maryland Sept 10, 1993

"Thermal Stability Studies on Nitroarenes" 10th International Detonation Symposium; Boston, 7/93.

"Thermal Analysis of HAN-Based Liquid Gun Propellants" JANNAF Propulsion a Systems Hazards Subcommittee, Fort Lewis, WA, May 10-13, 1993.

"XM46 Critical Assessment of Its Thermal Behavior" Picatinny Arsenal, Ap 6,'93.

"Thermal Hazards Evaluation of Energetic Materials" presented at Research Center for Energetic Materials Semiannual Review, Ap 1995, Oct. 1994; Ap. 20, 1994; Oct. 24, 1993; Ap. 21, 1993; Oct. 27,1992; Ap. 21, 1992; Oct. 9, 1991; Ap. 10, 1991; Oct.24, 1990; Ap, 1990; Oct., 1989; Ap 10, 1989; Oct.20,1988; Ap 13, 1988; Nov. 4,5, 1987; May 27, 1987; Dec. 2, 1986; Mar 26, 1986.

Lecturer CETR Explosives Safety Course: Nov. 8, 1993; May 17,1993; Nov. 1992; Nov. 1991; May 1991; Feb. 1990.

"Chemistry & Science--Options for Todays Woman" Expanding Your Horizons Conf. at Los Alamos Nat'l Lab, 3/1/93.

"New Mexico Tech Hazard Testing Capabilities" DuPont, Wilmington, DE, Feb. 25, 1993.

"Liquid Gun Propellant Testing" presented at EMRTC Seminar, NMIMT, Feb 12, 1993.

"New Mexico Tech Hazard Testing Capabilities" TRW Mesa Sys, Mesa, AZ; Nov. 12,'93.

"New Mexico Tech Hazard Testing Capabilities" TRW San Bernardino, CA; Nov.11,'93.

"Ammonium Nitrate Explosives--Thermal Stability and Compatibility on Small & Large Scale" NATAS-invited speaker at Thermal Hazards Symposium September 22-25, 1991.

"The Effect of Anions on the Thermal Stability of Ammonium Nitrate Formulations" ADPA Inter. Symp: Compatibility of Plastics & Other Materials with Explosives, Propellants, Pyrotechnics and Processing of Explosives, Propellants & Ingredients, San Diego, CA April 23, 1991.

"Characterization of Thermal Hazards" Eastern Analytical Wk., Somerset, NJ; Nov.14, 1990.

"Ammonium Nitrate-Composites and Nitrate Ester: Study of Thermal Stability U.S. Army Ballistic Research Lab. Aberdeen, MD; June 23 1989.

"Thermal Stability of Ammonium Nitrate Emulsions" Los Alamos National Lab.; NM 12/13/88

"Thermal Decomposition of Energetic Nitrate Salts" JANNAF Safety & Environ. Protect. Sub. Monterey, CA, 5/24/88.

"Thermal Hazards Analysis of Ammonium Nitrate-Based Composites", presented at 17th North American Thermal Analysis Society Conf., Orlando, FL, Oct. 10, 1988.

"Thermal Decomposition of Hydroxylamine Nitrate" presentation at Optoelectronics & Laser Applications in Science & Engineering, Los Angeles, CA, Jan. 14, 1988.

"Thermal Stability of Hydroxylamine Nitrate" to Aerojet, Sacramento, CA, Sept. 13,'88.

"Ammonium Nitrate: Thermal Stability in Composite Mixtures."Eglin AFB, FL, June, 22, 1987.

"Thermal Decomposition of Ammonium & Hydroxylammonium Nitrate Salts" Edwards AF, Lancaster, CA, 11/20/87.

"Thermal Decomposition Studies at NMIMT" presented Los Alamos NL NM, Nov. 16, 1987.

"NMIMT Capabilities & Thermal Hazard Studies" Hazards Group, Dow Chem., Midland, 8/14/87

"Thermolysis of Hydroxylamine Nitrate" to Aerojet Propulsion Sacramento, CA, May 20,'87

"Thermal Hazards of Energetic Materials" NMIMT Chem. Dept., Socorro,NM, Jan. 21, 87.

"FT-IR Analysis of Aqueous, Partially Hydrolyzed Polyacrylamide Solutions," Southwest Regional Meeting of the American Chemical Society, Houston, Nov.19-21, 1986.

"Effects of Various Alkaline Chemicals on Phase Behavior of Surfactant/Brine Oil Mixtures." Int'l Soc. Petroleum Engineers, Phx., Apr. 10, 1985.

"Alkaline Chemicals, Effects on Surfactant Phase Behavior" NM Petroleum Recov. Res Cen. 4/4/85