Scott G. Davis, Ph.D., P.E., CFEI

CEO – Principal Engineer

Phone: 301 915-9922 Mobile: 617 407-3300
Email: sgdavis@gexcon.com Fax: 301 656-2953

Professional Profile

Dr. Scott Davis is the CEO at Gexcon US and specializes in the engineering analysis and testing of combustion, thermal, and fluid processes. Dr. Davis is responsible for fire and explosion related activities, which include post-incident investigative work, worldwide training and experimentation, as well as performing risk assessments and safety studies for offshore and floating oil & gas installations, petrochemical facilities, and various other industries. These studies include explosion risk assessment, blast and venting analyses, assessment of combustible dust explosions, toxic/flammable gas releases and dispersion, hydrogen safety, ventilation, detector placement, and carbon monoxide dispersion with the assistance of the world-leading FLACS software developed by Gexcon. Dr. Davis is a member of Gexcon's docents group, which develops and delivers worldwide industrial seminars to owners, operators, safety engineers, and regulatory agencies, on the hazards associated with gas/dust explosions and LNG facilities.

Dr. Davis applies his expertise to the investigation and prevention of fires, explosions, and dispersion hazards such as flammable vapors and carbon monoxide exposures. He has expertise in evaluating the cause, origin, and dynamics associated with fires and explosions, principally as it relates to ignition, flame propagation, chemical kinetics, fluid dynamic processes associated with combustion and explosion events, including detonations. Dr. Davis was the lead investigator on hundreds of fire and explosion incidents, including chemical and industrial facilities and equipment, dust explosions, natural gas and propane explosions, unintentional ignition including thermal runaway, water hammer, BLEVE, and residential and commercial fires. Dr. Davis has conducted testing and design evaluation of industrial and residential gas-fired systems and equipment (boilers, furnaces, thermal fluid heaters), dust handling facilities, electrical appliances, and the associated controls and safety devices. Dr. Davis has also investigated numerous equipment and system failures associated with the formation, migration, and detection of carbon monoxide. He also works with companies addressing the technical aspects of product recalls as well as interacting with the Consumer Product Safety Commission (CPSC). He serves on the committees responsible for NFPA 921 *Guide for Fire and Explosion Investigations*, NFPA 652 *Standard on the Fundamentals of Combustible Dust,* NFPA 59A *Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)*, and had served on that for NFPA 720 *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment*.

Prior to joining Gexcon, Dr. Davis's research focused on heat and flow processes in fires, chemically reacting flows, flame dynamics, and combustion phenomena in high-pressure burners and reactors. He has developed a comprehensive detailed kinetic model to understand and predict the high temperature formation and destruction of carbon monoxide and hydrogen in practical combustion systems. Dr. Davis also performed extensive tests and analyses on the ignition and combustion characteristics of liquid hydrocarbon based fuels (i.e., gasoline, diesel, biodiesel, ethanol blended fuels), flammability and ignitability of thermally degraded materials, self-heating of materials and failures of electrical connectors. Dr. Davis's prior research also involved designing and building a high-pressure fuel delivery system for analyzing the combustion of various gaseous and liquid hydrocarbons.

Dr. Davis is currently on the review committee for the Combustion Institute and continues to perform independent peer reviews of publications in *Combustion and Flame*, *Combustion Theory and Modelling*, and *Combustion Science and Technology*.

Academic Credentials and Professional Honors

Ph.D., Mechanical and Aerospace Engineering, Princeton University, 1998
M.S., Mechanical and Aerospace Engineering, Princeton University, 1994
B.S., Aerospace Engineering, Pennsylvania State University, 1992
B.A., French, Pennsylvania State University, 1992

Adjunct Professor: Texas A&M University's Artie McFerrin Department of Chemical Engineering and the Mary Kay O'Connor Process Safety Center.

Member of the U.S. Technical Advisory Committees (TAG) to ISO/TC 86 - Refrigeration and air-conditioning - Panel 8 - Refrigerants and refrigeration lubricants administered by ASHRAE.

US Expert - ISO/Technical Committee (TC) 86: Standardization in the fields of refrigeration and air-conditioning, including terminology, mechanical safety, methods of testing and rating equipment, measurement of sound levels, refrigerant and refrigeration lubricant chemistry, with consideration given to environmental protection - SC 8/WG8 - Burning Velocity Test Methods

Steering Committee Member and Technical Advisory Committee Member for the Mary Kay O'Connor Process Safety Center.

Alternate Member: Technical Committee on Fire Investigations, NFPA 921 *Guide for Fire and Explosion Investigations*, National Fire Protection Association.

Principal Member: Technical Committee on Combustible Metals, NFPA 484 *Standard for Combustible Metals and Metal Dusts*, National Fire Protection Association.

Principal Member: Correlating Committee on Combustible Dusts, NFPA 652 *Standard on the Fundamentals of Combustible Dust,* National Fire Protection Association.

Principal Member: Correlating Committee on Liquefied Natural Gas, NFPA 59a *Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG),* National Fire Protection Association.

Best Paper and Presentation at the 43rd AIChE Loss Prevention Symposium (LPS) and , Tampa, FL (2009).

Best Paper and Presentation at the 51st AIChE Loss Prevention Symposium (LPS) and 13th Global Congress on Process Safety, San Antonio, TX (2017).

Excellence Award at the SAE 2006 & 2008 World Congress & Exhibition.

National Science Foundation and North Atlantic Treaty Organization International Post-Doctoral Fellowship, CNRS Marseille, France; Air Force Research In Aircraft Propulsion Technology Fellowship, Princeton University 1992–1997; Tau Beta Pi, National Engineering Honor Society.

Licenses and Certifications

Registered Professional Engineer, California, # 34526

Authorized Professional Engineer, Maryland, # 43297

Licensed Professional Engineer, Texas, # 113611

Authorized Professional Engineer, Pennsylvania, # PE080890

Registered Professional Engineer, New York, # 096277-1

Licensed Professional Engineer, Florida, # 99114

Licensed Professional Engineer, Colorado, # 0066035

Certified Fire and Explosion Investigator (CFEI) in accordance with the National Association of Fire Investigators National Certification Board per NFPA 921 Section 13.6.4.2

Fire Cause and Origin Investigation Training (1A), California Office of State Fire Marshal

Hazardous Waste Operations and Emergency Training, in accordance with OSHA 29 CFR 1910.120

Confined Space Entry Training, in accordance with OSHA 29 CFR 1910.146

PADI Rescue Diver Certification, CMAS (World Underwater Federation) Level III Diver

Languages

English (Native), French (Fluent)

Publications and Conference Proceedings

Davis, S., DeBold, T., Pagliaro, J., Lessons Learned When Low-Pressure Natural Gas Components are Overpressurized. Tenth International Symposium on Fire Investigation Science and Technology (ISFI 2024). Orlando, Florida, USA, 16-18 September 2024.

Davis, S., DeBold, T., Pagliaro, J., When Investigators Resist the Scientific Method: A Case Study Showing Increased Burning Hazards Caused by Flame Jetting. Tenth International Symposium on Fire Investigation Science and Technology (ISFI 2024). Orlando, Florida, USA, 16-18 September 2024.

Davis, S., Pagliaro, J., DeBold, T., Part 1 – 2012 Flaminia Explosion and Fire, How to Accurately Predict Thermal Runaway: Experimental Study Involving Lab-scale and Full-scale Tests. Tenth International Symposium on Fire Investigation Science and Technology (ISFI 2024). Orlando, Florida, USA, 16-18 September 2024.

Pagliaro, J., Davis, S., DeBold, T., Part 2 – 2012 Flaminia Explosion and Fire, Investigation Findings and Lessons Learned From the 2012 Flaminia Incident. Tenth International Symposium on Fire Investigation Science and Technology (ISFI 2024). Orlando, Florida, USA, 16-18 September 2024.

Davis, S., Pagliaro, J., DeBold, T., Odor Fade: When Propane Tanks Need Extra Conditioning. Tenth International Symposium on Fire Investigation Science and Technology (ISFI 2024). Orlando, Florida, USA, 16-18 September 2024.

DeBold, T., Davis, S., Pagliaro, J., Slipping Through the Cracks – How Underground Gas Leaks Can Preferentially Migrate and Cause Explosions. Tenth International Symposium on Fire Investigation Science and Technology (ISFI 2024). Orlando, Florida, USA, 16-18 September 2024.

Davis, SG, Pagliaro, JL, Botwinick, D, and Engel, D, (2024), Large Scale Testing Confirms: A Deflagration to Detonation Transition Needs to be Considered When Facility Siting, Invited Best-of-the-Best Papers 2024 Spring Meeting and 20th Global Congress on Process Safety, New Orleans, LA, March 24-28, 2024.

Davis, SG, Pagliaro, JL, and Engel, D, and DeBold, T, (2024), Safety Strategies to Avoid Possible Pitfalls and Ensure the Safe Use of Hydrogen, 2024 Spring Meeting and 20th Global Congress on Process Safety, New Orleans, LA, March 24-28, 2024.

Davis, SG, Pagliaro, JL, and Engel, D, and DeBold, T, (2024), How to Accurately Predict Thermal Runaway: Experimental Study Involving Lab-Scale and Full-Scale Tests, 2024 Spring Meeting and 20th Global Congress on Process Safety, New Orleans, LA, March 24-28, 2024.

Davis, SG, Pagliaro, JL, and Engel, D, (2023), Protecting Gasoline Storage Tanks from Lightning: Lessons Learned from a Recent Gasoline Storage Tank Explosion and Fire, 2023 Spring Meeting and 19th Global Congress on Process Safety, Houston, TX, March 12-16, 2023.

Davis, SG, Engel, D, and Pagliaro, JL, (2023), Ammonia Safety: Emergency ventilation design for machinery rooms, 2023 Spring Meeting and 19th Global Congress on Process Safety, Houston, TX, March 12-16, 2023.

Simoes, V, Botwinick, D, and Davis, SG (2022). Are all our pools circular? How to properly address your hazard from a pool fire. 2022 Mary Kay O'Connor Process Safety Center International Symposium, October 2022.

Simoes, V, Botwinick, D, and Davis, SG (2022). When is going beyond an empirical consequence-based facility siting needed?. 2022 Mary Kay O'Connor Process Safety Center International Symposium, October 2022.

Davis, SG, DeBold, T, Engel, D, and Pagliaro, JL, (2022), Why Do Devastating Ammonium Nitrate Detonations Still Occur? Lesson still not learned in Beirut, Tianjin and West Texas, 2022 Spring Meeting and 18th Global Congress on Process Safety, San Antonio, TX, April 10-14, 2022.

Davis, SG, Pagliaro, JL, Engel, D, and DeBold, T, (2022), Propane Cylinder BLEVE: Investigation Findings and Lessons Learned in the 2014 Philadelphia Food Truck Explosion, 2022 Spring Meeting and 18th Global Congress on Process Safety, San Antonio, TX, April 10-14, 2022.

Davis, SG, Pagliaro, JL, Engel, D, and DeBold, T, (2022), Improving our understanding of hydrogen through testing and advanced modeling to avoid possible pitfalls and ensure its safe use, 2022 Spring Meeting and 18th Global Congress on Process Safety, San Antonio, TX, April 10-14, 2022.

Davis, SG, Engel, D, and Pagliaro, JL, (2022), Machinery Room Ventilation and Ammonia Release Computational Fluid Dynamics (CFD) Study, 2022 Natural Refrigeration Conference & Expo - 44th Annual Meeting International Institute of Ammonia Refrigeration, Savannah, GA, March 6-9, 2022.

Davis, SG (2021). Leveraging CFD to Effectively Evaluate Sensitivity to Ignition Locations when Designing for Explosion Loads. 2021 AIChE Virtual Spring Meeting and 17th Global Congress on Process Safety, April 18-23, 2021.

Davis, SG, Engel, D, and Pagliaro, JL (2020), Combustible Gas Dispersion in Residential Occupancies and Detector Location Analysis, Report Number: FPRF-2020-09, Fire Protection Research Foundation, 1 Batterymarch Park, Quincy, MA, August, 2020.

Davis, SG (2020). Have We Learned Our Lessons: Revisiting the 2004 Skikda Explosion 16 Years Later. 2020 AIChE Virtual Spring Meeting and 16th Global Congress on Process Safety, August 17-21, 2020.

Davis, SG and Pagliaro, JL (2019). Importance of Properly Designing Dust Explosion Protection Systems: Case Study – 2014 Georgia Pacific Corrigan Facility Fire and Explosion. Journal of Process Safety Progress. Volume 38, Issue 4, December, 2019: https://doi.org/10.1002/prs.12036.

Davis, SG, Pagliaro, JL, Botwinick, D, DeBold, T, van Wingerden, K., Allason, D., Johnson, D.M., Davis, Scott, et al. "Do not believe the hype: Using case studies and experimental evidence to show why the HSE is wrong about excluding deflagration-to-detonation transitions. Journal of Process Safety Progress. Volume 38, Issue 2, June 2019: https://doi.org/10.1002/prs.11998

Davis, SG, Botwinick, D, and Pagliaro, JL (2019). Fire Hazards and Mitigation Measures of ASHRAE Class A3 Refrigerants in Commercial Refrigeration Applications. 2019 IIAR Natural Refrigeration Conference & Expo. Phoenix, Arizona, March 3-6, 2019.

Davis, SG, Pagliaro, JL, Botwinick, D, and van Wingerden, K (2019). How Effective Are Safety Gaps at Mitigating Explosions: Large Scale Testing of Safety Gaps to Prevent DDTs. 15th Global Congress on Process Safety. New Orleans, LA, March 31-April 3, 2019.

Davis, SG (2019). When Emergency Response Goes Fatally Wrong: Lessons Learned from Investigating Two Major Incidents. 15th Global Congress on Process Safety. New Orleans, LA, March 31-April 3, 2019.

Davis, SG and Botwinick, D (2019). CFD-Based Probabilistic Hazard Analysis as an Early Tool to Improve FLNG Design. 15th Global Congress on Process Safety. New Orleans, LA, March 31-April 3, 2019.

Davis, SG and Botwinick, D (2019). Inherent Safety - How to Utilize Explosion Hazard Analyses as an Early Tool to Improve FPSO and FLNG design. 15th Global Congress on Process Safety. New Orleans, LA, March 31-April 3, 2019.

Davis, SG (2018). Designing Effective Emergency Response Plans: Lessons Learned from Investigating Two Major Incidents. 2018 Mary Kay O'Connor Process Safety Center International Symposium, October 2018.

Davis, SG and Pagliaro, JL (2018). Investigation findings and lessons learned in the 2014 Georgia Pacific Corrigan facility fire and explosion. Ninth International Symposium on Fire Investigation Science and Technology. Itasca, Illinois, USA, 24-26 September, 2018.

Davis, SG, Pagliaro, JL, DeBold, TF (2018). Propane safety: Investigation findings and lessons learned in the 2014 Philadelphia food truck explosion. Ninth International Symposium on Fire Investigation Science and Technology. Itasca, Illinois, USA, 24-26 September, 2018.

Davis, SG, DeBold, TF, Pagliaro, JL (2018). Are liquid propane leaks really 270 times larger than vapor? Case study regarding the physics of liquid and vapor propane leaks. Ninth International Symposium on Fire Investigation Science and Technology. Itasca, Illinois, USA, 24-26 September, 2018.

DeBold, TF, Pagliaro, JL, Davis, SG (2018). Could this gas leak have caused the explosion? Case study showing why air infiltration needed to be considered to explain flammable gas accumulation. Ninth International Symposium on Fire Investigation Science and Technology. Itasca, Illinois, USA, 24-26 September, 2018.

Davis, SG, Botwinick, D, Pagliaro, JL, Engel, D, van Wingerden K, Johnson, M (2018). Advanced technique to study deflagration to detonation transition (DDT) at large scales. 12th International Symposium on Hazards, Prevention, and Mitigation of Industrial Explosions (ISHPMIE). Kansas City, USA, August, 2018.

Davis, SG and Pagliaro, JL (2018). Importance of Properly Designing Dust Explosion Protection Systems: Case Study – 2014 Georgia Pacific Corrigan Facility Fire and Explosion. 12th International Symposium on Hazards, Prevention, and Mitigation of Industrial Explosions (ISHPMIE). Kansas City, USA, August, 2018.

Davis, SG and Pagliaro, JL (2018). Importance of Properly Designing Dust Explosion Protection Systems: Case Study – 2014 Georgia Pacific Corrigan Facility Fire and Explosion. 14th Global Congress on Process Safety. Orlando, Florida, April 22, 2018.

Davis, SG, Pagliaro, JL, Debold, TF, Botwinick, D, van Wingerden, K, Allasan, D, and Johnson, DM (2018). Don't believe the hype: Using Case Studies and Experimental Evidence to Show why the HSE is wrong about Excluding DDTs. 14th Global Congress on Process Safety. Orlando, Florida, April 22, 2018.

Davis, SG and Botwinick, D (2018). Getting It Right for Projects in Early Design Phase: Advanced Techniques to Ensure Accurate Explosion Assessments. 14th Global Congress on Process Safety. Orlando, Florida, April 22, 2018.

Davis, SG, Pagliaro, JL, Debold, TF, van Wingerden, M, van Wingerden, K (2018). Large Scale Flammability and Explosivity Testing of Ammonia: Impact on Ammonia Safety in Refrigeration Applications. 2018 IIAR Natural Refrigeration Conference & Expo. Colorado Springs, Colorado, March 18, 2018.

Pagliaro, JL, Davis, SG, and van Wingerden, K (2017). Is my facility at risk? Understanding the risks associated with low burning velocity compounds. 2017 Mary Kay O'Connor Process Safety Center International Symposium, October 2017.

Davis, SG, Engel, D, van Wingerden, K, & Merilo, E (2017). Can gases behave like explosives: Large-scale deflagration to detonation testing. Journal of Fire Science. Volume 35, Issue 5, September 5, 2017: pp. 434-454. https://doi.org/10.1177/0734904117715648

Davis, SG, DeBold, TF, & Marsegan, C (2017). Investigation Findings and Lessons Learned in the West Fertilizer Explosion. Journal of Fire Science. Volume 35, Issue 5, September 5, 2017: pp. 379-395. https://doi.org/10.1177/0734904117715649

Davis, SG, Pagliaro, JL, Debold, TF, van Wingerden, M, van Wingerden, K (2017). Flammability and explosion characteristics of mildly flammable refrigerants, Journal of Loss Prevention in the Process Industries. Volume 49, Part B, September, 2017: pp: 662-674. http://dx.doi.org/10.1016/j.jlp.2017.05.019

Davis, SG, DeBold, T, Marsegan, C, & Hendrickson, B (2017). Overfill to Overpressure – Investigation Findings and Contributing Events to the CAPECO Explosion. 13th Global Congress on Process Safety. San Antonio, Texas, March 29, 2017.

Davis, SG, Pagliaro, JL, Debold, TF, van Wingerden, M, van Wingerden, K (2017). Large scale flammability and explosivity testing of low burning velocity gases: Validity of prediction tools and impact on siting studies and risk assessments. 13th Global Congress on Process Safety. San Antonio, Texas, March 27, 2017.

Davis, SG, Pagliaro, JL, Botwinick, D, Engel, D, van Wingerden, K, Merilo, E, Ziemba, A, Groethe, M (2017). Large scale testing confirms: A deflagration to detonation transition needs to be considered when facility siting. AICHE 13th Global Congress on Process Safety. San Antonio, Texas, March 2017.

Davis, SG, Pagliaro, JL, DeBold, TF, van Wingerden, M, van Wingerden, K (2016). Flammability and explosion characteristics of marginally flammable refrigerants. 11th International Symposium on Hazards, Prevention, and Mitigation of Industrial Explosions. Dalian, China, July 2016.

Davis, SG, Merilo, E, Engel, D, and van Wingerden, K (2016). Large Scale Detonation Testing: New Findings in the Prediction of DDTs at Large Scales. 2016 Mary Kay O'Connor Process Safety Center International Symposium, October 2016: 20-39.

Davis, SG, Engel, D, and van Wingerden, K (2016). Can Gases Behave Like Explosives – Large Scale Deflagration to Detonation Testing. Eighth International Symposium on Fire Investigation Science and Technology (ISFI 2016). Scottsdale, Arizona, USA, 22-24 September 2016.

Davis, SG, DeBold, TF, Marsegan, C, & Hendrickson, B (2016). Investigation Findings and Lessons Learned in the West Fertilizer Explosion. Eighth International Symposium on Fire Investigation Science and Technology (ISFI 2016). Scottsdale, Arizona, USA, 22-24 September 2016.

Davis, SG, Engel, D, Groethe, MA, and van Wingerden, K (2016). Large Scale Deflagration to Detonation Testings. 11th International Symposium on Hazards, Prevention, and Mitigation of Industrial Explosions (ISHPMIE). Dalian, China, July 2016.

Davis, SG, Pagliaro, JL, Debold, TF, van Wingerden, M, and van Wingerden, K (2016). Flammability and Explosion Characteristics of Marginally Flammable Refrigerants. 11th International Symposium on Hazards, Prevention, and Mitigation of Industrial Explosions (ISHPMIE). Dalian, China, July 2016.

Davis, SG, Groethe, MA, Engel, D, and van Wingerden, K (2016). Large Scale Testing - Development of Advanced CFD Tools for the Enhanced Prediction of Explosion Pressure Development and Deflagration Risk on Drilling and Production Facilities. 2016 Offshore Technology Conference (OTC-27290-MS). Houston, Texas, 2–5 May 2016.

Davis, SG, Hendrickson, B, Marsegan, C, and DeBold, T (2016). Investigation Findings and Lessons Learned in the West Fertilizer Explosion. 12th Global Congress on Process Safety. Houston, Texas, April 11-23, 2016.

Davis, SG, Engel, D, and van Wingerden, K (2015). Large Scale Detonation Testing – RPSEA Project Award. 2015 Mary Kay O'Connor Process Safety Center International Symposium, October 2015: 375-388.

Davis, SG, Bratteteig, A, Sharpe, E, and Barua, R (2015). Case Study: Laser-Based Gas Detection Technology and Dispersion Modeling Used to Eliminate False Alarms and Improve Safety Performance on Terra Nova FPSO. 11th Global Congress on Process Safety (GCPS), Austin, TX, 2015.

Davis, SG, & Marsegan, C (2014). Initial Investigative Facts in the West Fertilizer Explosion. 2014 Mary Kay O'Connor Process Safety Center International Symposium, October 2014: 264-273.

van Wingerden, K, and Davis, SG (2014). Scaling Of Metal Dust Explosions. 2014 Mary Kay O'Connor Process Safety Center International Symposium, October 2014: 264-273.

Engel, D, and Davis, SG (2014). Challenges of Explosion Risk Management in Arctic Environments. 2014 Mary Kay O'Connor Process Safety Center International Symposium, October 2014: 264-273.

Gavelli, F, Botwinick, D, and Davis, SG (2014). CFD Based QRA of an LNG Liquefaction Facility. 2014 Mary Kay O'Connor Process Safety Center International Symposium, October 2014: 968-979.

van Wingerden, K, Bratteteig, A, and Davis, SG (2014). The Effect of Ignition Modelling on Prediction of Explosion Risk. 2014 Mary Kay O'Connor Process Safety Center International Symposium, October 2014: 264-273.

Rosas, C, Davis, S, Engel, D, Middha, P, van Wingerden, K and Mannan, S (2014). Deflagration to detonation transitions (DDTs): Predicting DDTs in hydrocarbon explosions. Journal of Loss Prevention in the Process Industries, 30: 263-274.

Davis, SG, DeBold, TF, Engel, D, Hendrickson, B, & Hinze, PC (2014). A Case Study of an Alleged CO Poisoning in a Moving Truck. Seventh International Symposium on Fire Investigation Science and Technology (ISFI 2014). University of Maryland, USA, 22-24 September 2014: 149-160.

Davis, SG, Engel, D, DeBold, TF, Hinze, PC, & Hendrickson, B (2014). Misuse of Simple Explosion Tools in Complex Explosion Investigations. Seventh International Symposium on Fire Investigation

Science and Technology (ISFI 2014). University of Maryland, USA, 22-24 September 2014: 173-184.

Davis, SG, Engel, D, & van Wingerden, K, Hinze, PC, & Hendrickson, B (2014). Complex Explosion Development in Mines: Case Study – 2010 Upper Big Branch Mine Explosion. Seventh International Symposium on Fire Investigation Science and Technology (ISFI 2014). University of Maryland, USA, 22-24 September 2014: 161-172.

Engel, D, & Davis, SG (2014). Testing your Ignition Source Theory: Case Study of Alleged Wood Ignition by Hot Exhaust Gases. Seventh International Symposium on Fire Investigation Science and Technology (ISFI 2014). University of Maryland, USA, 22-24 September 2014: 219-230.

Schumacher, J, & Davis, SG (2014). Investigation of the Explosion at the Conagra Slim Jim Plant. Seventh International Symposium on Fire Investigation Science and Technology (ISFI 2014). University of Maryland, USA, 22-24 September 2014: 593-604.

Davis, SG & Hinze, P (2014). Dust explosions: Case studies of dryer explosions and a need for advanced vent design. Proceedings Tenth International Symposium on Hazards, Prevention, and Mitigation of Industrial Explosions (X ISHPMIE), Bergen, 10-14 June 2014: 1173-1195.

Davis, SG & Hinze, P (2014). Simulating explosive pressure in test geometries with FLACS-Blast. Proceedings Tenth International Symposium on Hazards, Prevention, and Mitigation of Industrial Explosions (X ISHPMIE), Bergen, 10-14 June 2014: 433-458.

Engel, D, Davis, SG & van Wingerden, K (2014). Complex explosion development in mines: Case study - 2010 Upper Big Branch mine explosion. Proceedings Tenth International Symposium on Hazards, Prevention, and Mitigation of Industrial Explosions (X ISHPMIE), Bergen, 10-14 June 2014: 1007-1036.

Davis, SG, Engel, D & van Wingerden, K (2014). Complex explosion development in mines: Case study - 2010 Upper Big Branch mine explosion. Process Safety Progress, 34(3), September 2015: 286–303. First presented at 10th Global Congress on Process Safety (GCPS), New Orleans, 30 March - 2 April 2014.

van Wingerden, K & Davis, SG (2014). Unknown aspects of metal dust explosions. 10th Global Congress on Process Safety (GCPS), New Orleans, 30 March - 2 April 2014.

Davis, SG, Hinze, PC, van Wingerden, K (2013). Hazards of Gasoline Contamination – Case Study of a Tanker Truck Explosion Resulting from Switch Loading, 2013 Mary Kay O'Connor Process Safety Center International Symposium, 2013: 774-787.

van Wingerden, K., Dykesteen, M., Bakke, JR, Davis, SG (2013). Piper-Alpha re-visited, 2013 Mary Kay O'Connor Process Safety Center International Symposium, 2013: 513-532.

Pedersen, HH, Davis, SG, Middha, P, Arntzen, BJ & Skjold, T (2013). Sensitivity analysis and parameter optimization for the improved modelling of gas explosions. Twenty-fifth International Colloquium on the Dynamics of Explosions and Reactive Systems (ICDERS), Taipei, 28 July - 2 August 2013.

Middha, P, van Wingerden, K & Davis, SG (2013). Use of CFD based consequence models for fire and explosion accident investigations. Hazards Asia Pacific Symposium 2013, 16-18 April 2013, Shangri-La Hotel, Kuala Lumpur, Malaysia.

Davis, SG, Bratteteig, A. Gavelli, F (2013). CFD-Based Probabilistic Explosion Hazard Analysis as an Early Tool to Improve FLNG Design, 2013 Mary Kay O'Connor Process Safety Center International Symposium, 2013: 848-859.

Hansen, OR, Davis, SG, Gavelli, F & Middha, P (2013). Onshore explosion studies - benefits of CFD-modelling. Fourteenth International Symposium on Loss Prevention and Safety Promotion in the Process Industries, 12-15 May 2013, Florence, Italy. Chemical Engineering Transactions, 31: 205-210

Davis, SG, Hinze, PC & van Wingerden, K (2013). Hazards of Performing Hot Work in Gasoline Storage Tanks. 9th Global Congress on Process Safety, San Antonio, Texas, 2013.

Gavelli, F & Davis, SG (2013). The mitigation conundrum: when reducing one hazard may increase another. 2013 AIChE Spring National Meeting, San Antonio, Texas, 2013.

Davis, SG, Martini, R & Gavelli, F (2013). CFD-based probabilistic explosion hazard analysis as an early tool to improve FLNG design. 2013 AIChE Spring National Meeting, San Antonio, Texas, 2013.

Hansen, OR, Gavelli, F, Davis, SG & Middha, P (2013). Equivalent cloud methods used for explosion risk and consequence studies, Journal of Loss Prevention in the Process Industries, 26: 511-527, 2013.

Gavelli. F, Hinze, PC & Davis, SG (2012). CFD analysis of the accumulation and deflagration of a flammable gas release in a closed environment. Fifth International Symposium on Fire Investigation Science and Technology (ISFI 2012). University of Maryland, USA, 15-17 October 2012: 253-264.

Geiser, J, Davis, SG & Gavelli, F (2012). Carbon monoxide accumulation from sidewall vents in screened enclosures. Fifth International Symposium on Fire Investigation Science and Technology (ISFI 2012). University of Maryland, USA, 15-17 October 2012: 273-284.

Davis, SG, van Wingerden, K, Hinze, PC, Hansen, OR & Gavelli, F (2012). Dust explosions: Case study of dryer explosions and poor explosion vent design. 8th Global Congress on Process Safety, Houston, Texas, 2012.

Davis, SG, van Wingerden, K, Hinze, PC, Hansen, OR & Gavelli, F (2012). Dust explosions: Case study of dryer explosions and poor explosion vent design. 8th Global Congress on Process Safety, Houston, Texas, 2012.

Hansen, OR, Davis, SG, Gavelli, F & Richardson, J (2012). Benefits of CFD for Onshore Facilities. 8th Global Congress on Process Safety, Houston, Texas, 2012.

Gavelli, F, Davis, SG, Hansen, OR (2011). Evaluating the Potential for Overpressures from the Ignition of an LNG Vapor Cloud during Offloading. Journal of Loss Prevention in the Process Industries, 24(6): 908-915, 2011

Davis, SG, Hinze, PC, Hansen, OR, van Wingerden, K (2011). Does Your Facility Have a Dust Problem: Methods for Evaluating Dust Explosion Hazards. Journal of Loss Prevention in the Process Industries, 24(6): 837–846, 2011

Gavelli, F., Davis, SG, Ichard, M. & Hansen, OR (2011). CFD simulation of gas dispersion from large-scale toxic chemical releases in complex environments, 2011 Mary Kay O'Connor Process Safety Center International Symposium, 25-27 October 2011: 132-148.

Bratteteig, A., Hansen, OR, Gavelli, F & Davis, SG (2011). Using CFD to analyze gas detector placement in process facilities. 2011 Mary Kay O'Connor Process Safety Center, International Symposium, College Station, Texas, 25-27 October 2011: 735-753.

Hansen, OR, Gavelli, F, Davis, SG & Middha, P (2011). Equivalent cloud methods used for explosion risk and consequence studies, 2011 Mary Kay O'Connor Process Safety Center International Symposium, 25-27 October 2011:78-106.

Davis, SG, Hansen, OR, Rogstadkjernet, L, Bratteteig, A, Berthelsen, I, Davidsen, T.& Holm, J (2011). Benefits of risk-based design through probabilistic consequence modeling, 7th Global Congress on Process Safety, American Institute of Chemical Engineers Spring National Meeting, Chicago, IL 2011.

Gavelli, F, Davis, SG, Hinze, P. & Hansen, OR (2011). CFD modeling of hydrogen releases and explosions, 7th Global Congress on Process Safety, American Institute of Chemical Engineers Spring National Meeting, Chicago, IL 2011.

Hansen, OR, Davis, SG, Mannan, MS (2010). Assessing the Credibility of Major Incidents during a Process Hazards Analysis. Proceedings, 2010 Mary Kay O'Connor Process Safety Center International Symposium, College Station, TX.

Davis, SG, Hinze, PC, Hansen, OR, van Wingerden, K (2010). Does Your Facility Have a Dust Problem: Methods for Evaluating Dust Explosion Hazards. Proceedings, 2010 Mary Kay O'Connor Process Safety Center International Symposium, College Station, TX.

Gavelli, F, Davis, SG, Hansen, OR (2010). Evaluating the Potential for Overpressures from the Ignition of an LNG Vapor Cloud during Offloading. Proceedings, 2010 Mary Kay O'Connor Process Safety Center International Symposium, College Station, TX.

Davis, SG, Engel, D, Gavelli, F, Hinze, PC, Hansen, OR (2010). Advanced Methods for Determining the Origin of Vapor Cloud Explosions. Case Study: 2006 Danvers Explosion Investigation. Proceedings, International Symposium on Fire Investigation Science and Technology, Hyattsville, MD, 2010.

Gavelli, F, Davis, SG, Hansen, OR (2010). A Modern Tool for the Investigation of Indoor Flammable Gas Migration. Proceedings, International Symposium on Fire Investigation Science and Technology, Hyattsville, MD, 2010.

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Hansen, OR and Davis, SG (2010). Vapor Could Explosion Mechanisms and Mitigation. Proceedings, 3rd World Conference on Safety of Oil and Gas Industry (WCOGI 2010), Beijing, China, Sept. 26-27, 2010.

Davis, SG, Engel, D, Hansen, OR (2010). Case study summary of dryer explosion and venting design. Process Safety Progress, 29, pp. 345-348, 2010.

Davis, SG, Hinze, PC, Hansen, OR, van Wingerden, K (2010). 2005 Buncefield Vapor Cloud Explosion: Unraveling the Mystery of the Blast. Interflame 2010, Nottingham, UK.

Hansen, OR, Hinze, PC, Engel, D, Davis SG (2010). Using CFD for blast wave predictions. Journal of Loss Prevention in the Process Industries, 23, pp. 885-906, 2010. Also in, Proceedings, 2009 Mary Kay O'Connor Process Safety Center International Symposium, College Station, TX.

Hansen, OR, Gavelli, F, Ichard, M, Davis, SG (2010). Validation of FLACS against Experimental Data Sets from the Model Evaluation Database for LNG Vapor Dispersion. Journal of Loss Prevention in the Process Industries, 23, pp. 857-877, 2010.

Davis, SG, Engel, D, Hansen, OR (2010). Dust or Gas Explosion: Case Study of Dryer Explosion and Design Venting. 6th Global Congress on Process Safety, American Institute of Chemical Engineers Spring National Meeting, San Antonio, TX, 2010.

Gavelli, F, Davis, SG, Hansen, OR (2010). A Unified Model for LNG Pool Spread and Vapor Dispersion: Is Wind Scooping Really A Factor?, AIChE Spring National Meeting, San Antonio, TX, 2010.

Gavelli, F, Davis, SG, Hansen, OR, Ichard, M (2010). CFD Simulation of Vapor Dispersion from LNG Jetting and Flashing Releases, AIChE Spring National Meeting, San Antonio, TX, 2010.

Davis, SG, Hansen, OR (2010). New investigation findings on the 2006 Danvers, MA Explosion. Journal of Loss Prevention in the Process Industries, 23(2), pp. 194-210, 2010.

Hansen, OR, Ichard, M, Davis, SG (2009). Validation of FLACS for vapor dispersion from LNG spills: Model evaluation protocol. Proceedings, 2009 Mary Kay O'Connor Process Safety Center International Symposium, College Station, TX.

Davis SG, Hansen, OR (2009). Lessons Learned from the 2006 Facility Explosion in Danvers, MA. Proceedings, 43rd Annual Loss Prevention Symposium, American Institute of Chemical Engineers Spring National Meeting, Tampa, FL, 2009.

Davis SG, Kelley S, Somandepalli V (2010). Hot surface ignition of performance fuels. Fire Technology, Vol. 46, No.2, pp. 363-374, 2010.

Somandepalli V, Kelley S, Davis SG (2008). Hot surface ignition of ethanol-blended fuels and biodiesel. SAE Paper 2008-01-0402, SAE World Congress, April, 2008.

Davis SG, Wise J, Engel D, Somandepalli V (2008). Crimp connector failures: Quantifying copper oxide layer growth. Proceedings, International Symposium on Fire Investigation Science and Technology, Cincinnati, OH, 2008.

Davis SG, Ibarreta A, Kessel A, Ellison A (2008). Flammability of nylon used as insulation in electrical connectors. Proceedings, International Symposium on Fire Investigation Science and Technology, Cincinnati, OH, 2008.

Davis SG (2007). Explosion hazards during fuel transition in combustion equipment. Proceedings, 41st Annual Loss Prevention Symposium, American Institute of Chemical Engineers Spring National Meeting, Houston, TX, 2007.

Davis SG, Somandepalli V (2007). Hot surface ignition of gasoline, E85, diesel and E-diesel. Proceedings, 10th Topical Conference on Energy Processes, American Institute of Chemical Engineers Spring National Meeting, Houston, TX, 2007.

Davis SG, Clevenger J, Ibarreta A (2007). Flammability of electrical crimp connectors subjected to heating. Proceedings, Fire and Materials 10th International Conference, 2007.

Sivaramakrishnan R, Comandini A, Tranter RS, Brezinsky K, Davis SG, Wang H (2007). Combustion of CO/H_2 mixtures at elevated pressures. Proceedings, Combustion Institute, Vol. 31, pp. 429–437, 2007.

Davis SG, Chavez D, Kytomaa H (2006). Hot surface ignition of flammable and combustible liquids. SAE Paper 2006-01-1014, SAE Transactions—Journal of Fuels and Lubricants, 2006.

Davis SG, Joshi A, Wang H, Egolfopoulos FN (2005). An optimized kinetic model of H_2/CO combustion. Proceedings, Combustion Institute, Vol. 30, pp. 1283–1292, 2005.

Dong Y, Holley AT, Andac MG, Egolfopoulos FN, Davis SG, Middha P, Wang H (2005). Premixed extinction of H_2/air flames: Chemical kinetics and molecular diffusion effects. Combustion and Flame 2005; 142:374–387.

Davis SG, Diamond A, Gans W, Hinze, PC, Kytömaa H (2004). Don't judge a crimp by its cover. Connector Specifier 2004; 20(10).

Davis SG, Mhadeshwar AB, Vlachos DG, Wang H (2003). A new method to response surface development for detailed gas-phase and surface reaction kinetic model development and optimization. International Journal of Chemical Kinetics 2003; 36:94.

Davis SG, Searby G (2002). The use of counterflow flames for the evaluation of burning velocities and stretch effects in hydrogen/air mixtures. Combustion Science and Technology 2002; 174:93–110.

Davis SG, Quinard J, Searby G (2002). Determination of Markstein numbers in counterflow, premixed laminar flames. Combustion and Flame, Vol. 130, pp. 112–122, 2002.

Davis SG, Quinard J, Searby G (2002). Markstein numbers in counterflow, methane–and propane–air flames: A computational study. Combustion and Flame 2002; 130:123–136.

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Qin Z, Lissianski VV, Huixing Y, Gardiner WC, Davis SG, Wang H (2001). Combustion chemistry of propane: A case study of detailed reaction mechanism optimization. Proceedings, Combustion Institute, Vol. 28, pp. 1663, 2001.

Davis SG, Law CK, Wang H (1999). Propyne pyrolysis in a flow reactor: An experimental, RRKM, and detailed kinetic modeling study. Journal of Physical Chemistry A 1999; 103:5889–5899.

Davis SG, Law CK, Wang H (1999). Propene pyrolysis and oxidation kinetics in a flow reactor and laminar flames. Combustion and Flame 1999; 119:375–399.

Davis SG, Law CK (1998). Determination of and fuel structure effects on laminar flame speeds of C_1 to C_8 hydrocarbons. Combustion Science and Technology 1998; 140:427.

Davis SG, Law CK (1998). Laminar flame speeds and oxidation kinetics of iso-octane/air and n-heptane/air flames. Proceedings, Combustion Institute, Vol. 27, pp. 521, 1998.

Davis SG, Wang H, Law CK (1998). An experimental and detailed kinetic modeling study of propyne oxidation in flames and in a flow reactor. Proceedings, Combustion Institute, Vol. 27, pp. 305, 1998.

Davis SG, Wang H, Brezinsky K, Law CK (1996). Laminar burning speeds and oxidation kinetics of benzene/air and toluene/air flames. Proceedings, Combustion Institute, Vol. 26, pp. 1025, 1996.

Selected Presentations and Courses

Davis, SG and Pagliaro, JL, (2024), Understanding and Managing Risks for the Hydrogen Technology, 2024 Hydrogen Safety & Hazardous Areas Conference, Brisbane QLD, Australia, February 21-22, 2024.

Davis, SG, Davis, SG, Pagliaro, JL, Engel, D, and Debold, TF (2023), Keynote Presentation: Strategies to safely manage the new hydrogen technology, IDC Technologies 2023: Hydrogen Safety & Hazardous Areas Conference, Brisbane QLD, Australia, February 22-23, 2023.

Davis, SG, Davis, SG, Pagliaro, JL, Debold, TF, and Engel, D (2022), Improving Our Understanding of Hydrogen through Testing and Advanced Modeling to Avoid Possible Pitfalls and Ensure Its Safe Use, 3rd Center for Hydrogen Safety Americas Conference, Anaheim Convention Center, Anaheim, CA, September 20-22, 2022.

Davis, SG, Davis, SG, Pagliaro, JL, Engel, D, and Debold, TF (2022), Lessons Learned from an Explosion Involving a Small-Scale Commercial Hydrogen Electrolyzer, 3rd Center for Hydrogen Safety Americas Conference, Anaheim Convention Center, Anaheim, CA, September 20-22, 2022.

Davis, SG (2021), Innovative and efficient CFD method to solve hydrogen combustion for the energy industry, SPE International Webinar: CFD Modeling for Process Safety and Environmental Risk Assessment, November 18, 2021 (https://www.spegcs.org/events/6260/).

Davis, SG (2021), NFPA 715: Combustible Gas Dispersion Detector Location Analysis, Keeping Hazardous Environments Safe Conference on Demand - hosted by the National Fire Protection Association, October 5, 2021 (https://www.nfpa.org/IH-track).

Davis, SG, Importance of Properly Designing Dust Explosion Protection Systems: Case Study – 2014 Georgia Pacific Corrigan Facility Fire and Explosion. Gexcon Webinar, June 3, 2021.

Davis, SG, Unraveling the Mysteries of AN Detonations: Why Beirut, Tianjin, and West Texas should not occur. AIChE Webinar, March 31, 2021 (https://www.aiche.org/academy/webinars/unraveling-mysteries-detonations).

Davis, SG, Combustible Gas Dispersion and Detector location Analysis in Residential Occupancies, Fire Protection Research Foundation (FPRF) Webinar, March 10, 2021 (https://www.nfpa.org/Training-and-Events/By-type/Webinars).

Davis, SG, Is your facility safe? Lessons learned from LNG incidents. Gexcon's LNG Safety Webinar Series. June-August, 2020.

Davis, SG, PHA with Advanced CFD Analyses for Downstream and Chemical Plants. Texas and Louisiana - 32nd Annual Environmental, Health and Safety (EHS) Seminar & Industry Trade Show. Galveston, TX. June 3-6, 2019.

Davis, SG, Tank Farm Explosions – Investigation with CFD and Lessons Learned. Texas and Louisiana - 32nd Annual Environmental, Health and Safety (EHS) Seminar & Industry Trade Show. Galveston, TX. June 3-6, 2019.

Davis, SG, Using Advanced Analyses to Unravel the Mystery of the West Texas Explosion. Texas and Louisiana - 32nd Annual Environmental, Health and Safety (EHS) Seminar & Industry Trade Show. Galveston, TX. June 3-6, 2019.

Davis, SG, Importance of properly designing dust explosion protection systems: case study: 2014 Georgia Pacific Corrigan facility fire and explosion. Purdue Process Safety and Assurance Center (P2SAC) – Spring Meeting. West Lafayette, IN, May 8, 2019.

Davis, SG, How Effective Are Safety Gaps at Mitigating Explosions: Large Scale Testing of Safety Gaps to Prevent DDTs. Purdue Process Safety and Assurance Center (P2SAC) – Spring Meeting. West Lafayette, IN, May 9, 2019.

Davis, SG, Seminar: Potential for Deflagration to Detonation Transition (DDT) at large scales: does size matter? Presented at the Fire and Blast Information Group (FABIG) Technical Meeting held on 27th March in Aberdeen and 28th March in London, 2019.

Davis, SG, Do we really understand the risks associated with storage tanks - cases studies showing potential hazards, 2018 SADAF Process Safety Campaign, Al Jubail, Saudi Arabia, November 26, 2018.

Davis, SG, NFPA: Evaluation of the Fire Hazard of ASHRAE Class A3 Refrigerants in Commercial Refrigeration Applications, AHRTI Flammable Refrigerants Research & Planning Conference, UL, Northbrook, IL, October 8-9, 2018.

Davis, SG, AHRTI 9013: A2L Refrigerant Release and Ignition Study for Refrigerated Display Cases, AHRTI Flammable Refrigerants Research & Planning Conference, UL, Northbrook, IL, October 8-9, 2018.

Davis, SG, Using R-290 (Propane) in Commercial Refrigeration Applications: Hazards and Mitigation Measures. NFPA Conference and Expo. Las Vega, Nevada, June 11, 2018.

Davis, SG, Can vapor clouds more easily transition from deflagration to detonation at large scales?. 2018 Spring Technical Meeting Central States Section of The Combustion Institute. Minneapolis, MN. Orlando, Florida, May 20, 2018.

Davis, SG, Designing Effective Emergency Response Plans : Lessons learnt from years of investigation incidents. Qatar Process Safety Symposium (QPSS). Doha, Qatar, April 8, 2018.

Davis, SG, Large Scale Flammability and Explosivity Testing of Low Burning Velocity Gases & Ammonia: Validity of Prediction Tools and Impact on Siting Studies. Ammonia Safety & Training Institute. Marina, California, September 15, 2017.

Davis, SG, Seminar: Investigation Findings and Lessons Learned in the West Fertilizer Explosion. Presented at 5th Process Safety Technical Exchange Meeting (PSTEM16) held on 4th-5th October in Saudi Arabia, 2016.

Davis, SG, Seminar: Revisiting the 2004 Skikda Explosion 12 Years Later. Presented at the Fire and Blast Information Group (FABIG) Technical Meeting held on 9th March in Aberdeen and 10th March in London, 2016.

Davis, SG, Seminar: Breaking the Mold: Applying Advanced Techniques to Fire and Explosion Analyses. Presented at the 2015 Propane Defense conference, Baltimore, MD. October 1 – 2, 2015.

Davis, SG, Seminar: It's Always Bigger in Texas: The West, Texas AN Explosion. Presented at the 2015 Propane Defense conference, Baltimore, MD. October 1 – 2, 2015.

Davis, SG, Seminar: Challenges of Explosion Risk Management in Arctic Environments. Presented at the 2015 Arctic Offshore Operations Conference, Anchorage, AK. 27 May 2015.

Davis, SG, Case example: Porter v. Heritage Propane – El Paso County, Texas. Presented at the 2015 DRI Product Liability conference, Phoenix, AZ. April 9-11, 2015.

Davis, SG, CFD-Based Probabilistic Explosion Hazard Analysis as an Early Tool to Improve FLNG Design. Presented at the Fire and Blast Information Group (FABIG) Technical Meeting held on 3rd December in Aberdeen and 4th December in London, 2014.

Davis, SG, van Wingerden, K, Dust Explosion Hazards, an Advanced Course. Course offered in Houston, TX, Lake Charles, LA, Doha, Qatar, and Atlanta, GA. Feb. 2012, Feb. & Dec. 2013, Feb. 2014, May 2014.

Gavelli, F, Davis, SG, Gas Explosion Hazards for LNG Facilities, an Advanced Course. Course offered in College Station, TX, Doha, Qatar, Oct. 2011, Nov. 2012, Dec. 2013, Nov. 2014.

Davis, SG. et al. Gas Explosion Hazards on Offshore Facilities, an Advanced Course. Course offered in College Station, TX, St. Johns - Newfoundland, Canada, New Orleans, LA, Aug. 2010, May 2011, Aug. 2012, Mar. 2014, June 2014, Aug. 2014.

Davis SG, Keynote Session: Computational Fluid Dynamics (CFD) in Today's Bulk Solids Handling, International Powder & Bulk Solids Conference – 2014.

Davis, SG, What's New in Tech - Advanced Vent Design to Mitigate Dryer Explosions, International Powder & Bulk Solids Conference – 2014.

Davis, SG, Gavelli, F, WorkShop - LNG HANDLING & FLNG HAZARD PREVENTION, 7th Annual FLNG Summit, Seoul, South Korea, August 2013

Hansen, OR, Ichard, M, Davis, SG. Validation of FLACS for vapor dispersion from LNG spills: Model evaluation protocol. 2009 Mary Kay O'Connor Process Safety Center International Symposium, College Station, TX.

Davis, SG, Naturally it was the Gas: Fire Scene and Causation Analysis in the Presence of Gas Fire Appliances. DRI Fire and Casualty Seminar, Chicago, IL, Nov. 4-5, 2010.

Davis, SG, Hansen, OR. Investigation findings from the 2006 Danvers explosion. Danvers' community public meeting, May 27, 2009.

Sivaramakrishnan R, Comandini A, Tranter RS, Brezinsky K, Davis SG, Wang H. CO oxidation at high pressures – experiments and modeling. Technical Meeting of the Central States Section of The Combustion Institute, Case Western Reserve University, NASA Glenn Research Center, Cleveland, OH, 2006.

Joshi AV, Davis SG, Wang H. Multi-channel chemically activated reactions: Comparison of Troe's modified strong collision model and exact solution of the master equation by Monte Carlo method. Spring Technical Meeting of the Western States Section of the Combustion Institute, University of California, Davis, 2004.

Joshi AV, Davis SG, Wang H. Ab-initio study of the C_6H_5O + H reaction: Viability of the CO + C_5H_6 channel. Fall Technical Meeting of the Eastern States Section of the Combustion Institute, University Park, PA, 2003.

Davis SG, Joshi AV, Wang H, Egolfopoulos FN. A comprehensive and optimized kinetic model of H_2/CO combustion. 3rd Joint Meeting of the U.S. Sections of the Combustion Institute, Chicago, IL, 2003.

Davis SG, Joshi AV, Wang H, Egolfopoulos FN. Experimental and numerical studies of flame extinction: validation of chemical kinetics. 3rd Joint Meeting of the U.S. Sections of the Combustion Institute, Chicago, IL, 2003.

Davis SG, Searby, G. The use of counterflow flames for the evaluation of burning velocities and stretch effects in hydrogen/air mixtures. 2nd Mediterranean Combustion Symposium, Sharm El-Sheikh, Egypt, 2002.

Davis SG, Wang H, Tsang W. A theoretical study of the reactions on the C_2H_3O potential energy surfaces: Kinetics of C_2H_2 + OH products and the unimolecular dissociation of the vinoxy radical. 5th International Conference on Chemical Kinetics, Gaithersburg, MD, 2001.

Davis SG, Wang H. Development of a detailed chemical kinetic reaction mechanism of propane oxidation at high temperature. Fall Technical Meeting, the Western States Section of the Combustion Institute, Irvine, CA, 1999.

Davis SG, Law CK, Wang H. A theoretical study of the chemically activated reactions on the C_3H_5 potential energy surface. Joint Meeting of the US Sections of the Combustion Institute, Washington, D.C., 1999.

Davis SG, Law CK, Wang H. The pyrolysis and oxidation of propene in a flow reactor. Joint Meeting of the U.S. Sections of the Combustion Institute, Washington, D.C., 1999.

Investigative Training

Davis, SG, Fuel/Air Explosions and Investigations Training. Training presented to the US Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), Brunswick, GA and Huntsville, AL, July and August 2013, August 2015-2016, August and December 2017, May-August 2018, March-August 2019, February-October 2020, July 2021, January-July 2022, August 2024.

Davis, SG, Fuel Gas Explosion. Instructor/training for the New York Chapter of the Association of Arson Investigators (IAAI) Annual Training Seminar, May 2024.

Davis, SG, Fuel Gas Explosion. Instructor/training for the Ohio Chapter of the Association of Arson Investigators (IAAI) Annual Training Seminar, November 2022.

Davis, SG, Explosion Hazards Course. Training presented to SABIC and its affiliates, Jubail, Saudi Arabia, 2021.

Davis, SG, Emergency Preparedness and Incident Investigation Course. Training presented to SABIC and its affiliates, Jubail, Saudi Arabia, 2017-2019, 2021, 2023, 2024.

Davis, SG, Explosion Dynamics. Instructor/training for the 49th Nebraska Fire & Arson Investigation Conference, Omaha, Nebraska, September, 2018.

Davis, SG, Incident Investigation and Root Cause Analysis. Instructor/training for Plains Midstream, Calgary, Canada, June 7, 2018.

Davis, SG, Fuel Air Explosion Investigations. Instructor/training for the North Dakota Chapter of the Association of Arson Investigators (IAAI) Annual Training Seminar, North Dakota, September, 2017.

Davis, SG, Fuel Air Explosion Investigations. Instructor/training for the 2017 Denver Advanced Fire Investigation Seminar, Denver, Colorado, May 9, 2017.

Davis, SG, Dust Explosion Hazards. Instructor/Speaker at the 67th Annual International Association of Arson Investigators (IAAI) International Training Conference, Las Vegas, NV, April 2016.

Davis, SG, Fuel Air Explosion Investigations. Instructor/training for the Montana Chapter of the Association of Arson Investigators (IAAI) Annual Training Seminar, Helena, Montana, April 14 - 15, 2016.

Davis, SG, Fuel Air Explosion Investigations Course, Instructor for HSE Safety training and New South Wales Mining Industry, Melbourne, AUS Sept. 2015 and Sydney, AUS Feb. 2016.

Davis, SG, Gas and Vapor Cloud Explosion Investigations. Instructor/training for the Oregon Chapter of the Association of Arson Investigators (IAAI) Annual Training Seminar, Seaside, Oregon, September, 2015.

Davis, SG, Fuel Air Explosion Investigations. Instructor/Speaker at the 65th Annual International Association of Arson Investigators (IAAI) International Training Conference, Las Vegas, NV, April 2014.

Davis, SG, Training Presentation for the New Jersey Chapter of the Association of Arson Investigators (IAAI) Annual Training Seminar, Atlantic City, NJ, March, 2014.

Davis, SG, Training Presentation for the Wisconsin Chapter of the Association of Arson Investigators (IAAI) Annual Training Seminar, Milwaukee, WI, November, 2013.

Prior Experience

Senior Managing Engineer in Exponent's Thermal Science Practice, Exponent – Failure Analysis Associates, Boston, MA (2002-2008)
Postdoctoral Fellow, Mechanical Engineering, University of Delaware in collaboration with IRPHE – Laboratoire de Combustion, Marseille, France (2000–2002)
Postdoctoral Fellow, National Science Foundation (NSF)-NATO/CNES, IRPHE – Laboratoire de Combustion, Marseille, France (1998–2000)
Graduate Research Assistant, Mechanical Engineering, Princeton University (1992–1998)

Peer Reviewer

Review Committee for the International Symposium on Combustion

Reviewer for Combustion and Flame, Combustion Theory and Modelling, and Combustion Science and Technology

Professional affiliations

National Fire Protection Association—NFPA (member)

Combustion Institute (member)

Society of Fire Protection Engineers—SFPE (member)

National Association of Fire Investigators—NAFI (member)

American Institute of Chemical Engineers (member)

American Chemical Society (member)

International Association of Arson Investigators (Member)