NAVID NICK ZANGANEH, PH.D., PMP, CFEI

Associate

Summary

Navid Zanganeh has a robust background in fire and explosion incidents, process and equipment failures, material science, engineering analysis, process safety management (PSM), research and development, catalysis, kinetics, and emissions. He is skilled in leading multidisciplinary teams for Oil & Gas, Chemical, Energy, Automotive, and Environmental companies. Navid has a proven track record in project management, analytical thinking, fostering collaboration to mitigate risks and achieving measurable improvements and novel outcomes.

Areas of Technical Expertise

- Forensic Engineering & Failure Analysis
- Process Safety & Risk Management
- Chemical Engineering & Emissions Control
- Fire and Explosion Investigation

Education

- Ph.D., Chemical Engineering, 2017, Mississippi State University
- M.S., Chemical Engineering, 2011, Mississippi State University
- B.S., Chemical Engineering, 2008, Razi University

Registrations

- Certified Fire and Explosion Investigator (CFEI),
- National Association of Fire Investigators (NAFI)
- Project Management Professional (PMP),
- Project Management Institute (PMI)

Professional activities

- American Institute of Chemical Engineers (AIChE)
- National Fire Protection Association (NFPA)
- National Association of Fire Investigators (NAFI)
- Project Management Institute (PMI)

Select Project Experience

Forensic Evaluation

Automated Storage Rack System, Super Flat Slab Evaluation, DeKalb, IL. Slab displacement evaluation of a 360,000 sf warehouse with an ASRS (Automated Storage Rack System). Work includes repair recommendations for in place conditions.

Forensic Analysis

Confidential LNG Facility, Texas. * Forensic analysis of recurring freezing issues in the cold box at an LNG facility in Freeport, Texas, investigating feed quality and operational processes to determine the underlying factors contributing to the disruptions.

Forensic Investigation

Confidential LNG Facility, Georgia. * Forensic investigation into transient pressure spikes during loading operations at an LNG facility in Savannah, Georgia. Analyzed operational procedures, control systems, and equipment functionality to determine the root cause of the incident. Provided insights on contributing factors and assessed potential mitigation strategies.

Integra Technical Services, Freeport Smelter, Manyar, Indonesia. Scope of damage review for Freeport's Manyar copper smelter fire and explosion. The unit was being commissioned at the time of the event.

Litigation

Biehn v. Meade Electric Co., Waukegan, IL, regarding an explosion at A.B. Silicone Specialty at 3790 Sunset Ave in Waukegan, IL. Conducted a cause and origin investigation.

Confidential Gas Processing Plant, Texas, * regarding a fire incident at a gas processing plant in Orla, Texas. Conducted a comprehensive forensic analysis to identify hazardous materials and ignition sources, establishing the cause of the fire and the factors contributing to injuries and fatalities.

*Denotes work performed with previous employer.

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Confidential Manufacturing Facility, Texas,* regarding a significant tank explosion at a manufacturing facility in Houston, Texas. Conducted a thorough review and analysis of process safety management practices, emergency response protocols, and system integrity to identify contributing factors to the incident.

Confidential Nitrogen Facility, Louisiana, * regarding a critical incident at a major nitrogen facility in Donaldsonville, Louisiana, by conducting a comprehensive safety and compliance analysis. This evaluation assessed safety protocols and reviewed incident reports and work permits to support an in-depth analysis of the site conditions.

Confidential Automotive Manufacturer, Delaware, * regarding a class action investigation into high-pressure fuel injection pump failures in diesel trucks manufactured by a major automotive manufacturer in Delaware. Analyzed design flaws and operational issues, focusing on incompatibilities between U.S. fuel quality standards and European-designed pumps.

Confidential Automotive Manufacturer, United States, * regarding an investigation into SCR catalyst failure in diesel trucks manufactured by a major automotive company in the US. Conducted an in-depth analysis of the exhaust system, including the impact of the EGR system, exhaust configuration, DPF system and regeneration effects, and the performance of the SCR catalyst in treating NOx emissions, particularly at low temperatures.

Confidential Client, TX. Post-fire structural and chemical assessment. Our team evaluated fire-related damage at the one-storybuilding located in Texas. The fire event raised concerns regarding both structural damage and potential contamination from fire-related smoke residues. Thornton Tomasetti reviewed all available project documentation, performed a site visit to investigate the damage, and produced a comprehensive written report summarizing our visual observations, structural and chemical assessment findings. The report also included repair and remediation recommendations.

The Ritz-Carlton St. Thomas, Emissions Investigstion, St. Thomas, USVI. Investigation and identification of the likely cause of elevated emissions from diesel generators in , determining the applicable regulatory requirements and developing conceptual recommendations to bring the generators to EPA compliance.

Confidential Solar Farm Project, TX. Engineering consulting services related to reported damage from Hurricane Hanna. The purpose of the assessment was to evaluate alleged design and construction deficiencies and determine the cause and origin of the widespread damage. Scope of work included review of available project documentation and industry literature, structural analysis and preparation of a preliminary structural engineering evaluation report.

Post-fire Smoke Damage Investigation, NY. Evaluation of conditions and possible contamination in relation to water exposure and fire incidents in a high-rise building.

Confidential Battery Plant, TN. Performance-based structural fire engineering study to investigate the structural performance of the subject steel framing with the applied intumescent coating thicknesses, under realistic fire conditions. The study was conducted to assess whether and where the applied thicknesses are sufficient to meet the fire safety intent of the code, or need to be supplemented with additional fireproofing.

Select Papers, Lectures and Publications

"The Dogma of Process Safety," AICHE Chemical Engineering Progress Magazine, 2024 (co-author)

"How Gold Nanoparticle Catalysts Can Assist in Reducing Automotive Pollutant Emissions." 14th AIChE Southwest Process Technology Conference, Houston, Texas, 2022 (co-author)

"What Is the Safest Hazard Assessment Approach for Distances to Storage Tanks?" 2021 AIChE Virtual Spring Meeting and 17th Global Congress on Process Safety, 2021 (co-author)

"Creating Opportunities for Waste Minimization of Recycled Drilling Fluids Using Plant-Based Scavengers." Oil & Gas Environmental Conference, Dallas, Texas, 2019 (co-author)

"Sinter-resistant and highly active sub-5 nm bimetallic Au-Cu nanoparticle catalyst encapsulated in silica for high-temperature carbon monoxide oxidation." Journal of ACS Materials and Interfaces, 10 (5), 4776-4785, 2018 (co-author).

"Effect of carbon nanotubes on electrical and mechanical properties of multiwalled carbon nanotubes/epoxy coatings." Journal of Coatings Technology and Research, 13(1), 191-200, 2016 (co-author)

"Studying the effect of ethanol and operating temperature on purification of lactulose syrup containing lactose." World Academy of Science, Engineering and Technology, International Journal of Biological, Biomolecular, Agricultural, Food and Biotechnological Engineering, 9, 342-345, 2016 (co-author)

"Effect of carbon nanotubes on mechanical properties of multi-walled carbon nanotubes/epoxy coatings." International Conference on Metallurgical Coatings and Thin Films, San Diego, California, 2015 (co-author)

"Separation of lactose from lactulose syrup: Statistical perspective." International Conference and Expo on Separation Techniques, San Francisco, California. DOI: 10.4172/2157-7064.S1.01, 2015 (co-author)

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"Improving the electrical conductivity of epoxy coating using carbon nanotube by the electrodeposition method." International Conference on Nanostructured Materials and Nanotechnology, Miami, FL, 2015 (co-author)

"Effect of aging time on CeO2 nanoparticle size distribution synthesized via sol-gel method." International Journal of Materials and Metallurgical Engineering, Miami, Florida, 2015 (co-author)

"Fabrication and characterization of ultrasmall Au–Cu nanoalloy clusters encapsulated by silica for high-temperature catalysis." American Institute of Chemical Engineers (AIChE), Salt Lake City, Utah, 2015 (co-author)

"Effect of calcination temperature on CeO2 nanoparticle size distribution synthesized via microemulsion method [Abstract]." 4th International Conference on Nanotek & Expo, San Francisco, California, 2015 (co-author)

"Growth and microstructural investigation of multiwall carbon nanotubes fabricated using electrodeposited nickel nanodeposits and chemical vapor deposition method." Journal of Molecular Structure, 1074, 250-254, 2014 (co-author)

"Low-temperature oxidation of carbon monoxide produced by diesel-ignited methane dual fuel low-temperature combustion in a single-cylinder diesel engine." American Institute of Chemical Engineers (AIChE), Salt Lake City, Utah, 2014 (co-author)

"Growth and microstructural investigation of multiwall carbon nanotubes fabricated using electrodeposited nickel nanodeposits and chemical vapor deposition method." Journal of Molecular Structure, 1074, 250-254, 2014 (co-author)

"Flower-like boehmite nanostructure formation in two-steps." Journal of Coordination Chemistry, 67(3), 555-562, 2014 (co-author)

"Hydrothermal synthesis and characterization of TiO 2 nanostructures using LiOH as a solvent." Advanced Powder Technology, 22(3), 336-339, 2011 (co-author)

"Experimental and Theoretical Study of Lactose solubility in Ethanol/Water Mixture." 3th Technical Conference of Thermodynamics, 2011 (co-author)

"Self-assembly of boehmite nanopatels to form 3D high surface area nanoarchitectures." Applied Physics A: Materials Science & Processing, 99(1), 317-321, 2010 (co-author)

"MAO-synthesized Al2O3- supported V2O5 nano-porous catalysts: Growth, characterization, and photoactivity." Applied Surface Science, 256(12), 3806-3811, 2010 (co-author)

CONTACT

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