



Mike Foggia,  
Process Combustion  
Corporation



Zenaida Otero-Gephardt,  
Rowan University



Jay Baker,  
BS&B Safety Systems



Dan Wood,  
Chemours



Roy Cross,  
Process Combustion  
Corporation



Larry Klusmier,  
Spirax Sarco

## SAVE THE DATE NOVEMBER 9, 2019

# ASME DE SECTION, ASME STUDENT SECTION AT THE UNIVERSITY OF DELAWARE & AICHE-DVS JOINT PDH EVENT

### Earn Multiple PDHs in a Single Engaging Session

Save the date for this unique and engaging event sponsored by the American Society of Mechanical Engineers Delaware Section (ASME), ASME Student Section at the University of Delaware and the American Institute of Chemical Engineers Delaware Valley Section (AICHE-DVS). SIX speakers from various industries and backgrounds will present on EIGHT engaging and informative PDH-Earning topics in a single-day session.

8 PDH-Earning  
Seminars. Earn up to  
4 PDH credits for only  
\$70 for Professionals  
& \$35 for Students

Save with Group  
Rates and \$10  
Discount for Early  
Bird Registration  
(Ends Oct 18)

Breakfast and Lunch  
Included! Great  
Networking!

Highly Engaging and  
Qualified Speakers  
from Industry and  
Academia

Pumps and Pump  
Design | Industrial  
Thermal Oxidation |  
Ethics in Engineering  
| Rupture Disks |  
Biofiltration | Steam  
Trap Design | and  
More!

### WHEN AND WHERE:

University of Delaware  
STAR Campus  
Newark, Delaware

### Registration Link:

<https://aiche-philadelphia.org/>

Saturday, November 9,  
2019. 8AM – 2PM



# ASME DE SECTION, ASME STUDENT SECTION AT THE UNIVERSITY OF DELAWARE & AICHE- DVS JOINT PDH EVENT NOVEMBER 9, 2019

## SPEAKERS AND BIOS:

**Mr. Daniel W. (Dan) Wood** is a Consultant in the Engineering Technology Group of The Chemours Company. He is located in Wilmington, Delaware. He received a B.S. (Mechanical Engineering, 1991) degree from the University of Cincinnati.

Mr. Wood's current responsibilities include providing pump, mechanical seal, and pumping system technical support throughout Chemours. Mr. Wood is Vice-Chair of the ASME B73 Pump Committee. Mr. Wood sits on the International Pump Users' Symposium Advisory Committee and participates in Hydraulic Institute committees. In addition, he is a Level III Vibration Analyst. Mr. Wood has published numerous papers that have brought new techniques of problem solving to industry within his 28+ years of experience.

**Dr. Zenaida Otero Gephardt** is Associate Professor of Chemical Engineering at Rowan University where she has served as Director and Assistant Dean of Engineering. Dr. Gephardt is a Fellow and member of the Foundation Board of Trustees of the American Institute of Chemical Engineers (AIChE) and is a Past President and current Board Member of the AIChE-Delaware Valley Section. She is Past Vice President for Accreditation of the Latin American and Caribbean Consortium of Engineering Institutions (LACCEI). Dr. Gephardt teaches fluid mechanics, unit operations and process dynamics and control. Her major interests are in experimental design, data analysis and multi-phase systems. Dr. Gephardt holds PhD and MS degrees in chemical engineering from the University of Delaware and a BS in chemical engineering from Northwestern University. She is a registered professional engineer in the State of Delaware and conducts workshops and consults in the areas of experimental design and data analysis for the chemical and pharmaceutical industries.

**Mr. Michael Foggia** is the Business Development and Marketing Manager for Process Combustion Corp in Pittsburgh, PA. He spent 25+ years with Rohm & Haas (now Dow) working in the Specialty Chemicals group, focusing on new product and process commercialization, technical service/customer support, and Sales, Marketing and Business Development for chemical and photo-lithographic technology applications used in the electronics manufacturing sector. In 2006, he entered the air pollution control business, initially specializing in bio-oxidation technologies for the treatment of VOCs from industrial and municipal facilities and then into particulate removal/recovery, thermal oxidation and scrubber technologies.



# ASME DE SECTION, ASME STUDENT SECTION AT THE UNIVERSITY OF DELAWARE & AICHE- DVS JOINT PDH EVENT NOVEMBER 9, 2019

## SPEAKERS AND BIOS (CONT.):

**Mr. Jay Baker** has been with BS&B Safety Systems for the past 15 years serving as the North American Sales Manager for Engineering Firms. His duties include technical seminars, specification review, quote preparation, project management, direct sales management, and representative training. He previously worked as a field engineer in the Gulf of Mexico performing hydraulic fracturing and acidizing treatments. As an undergraduate, he worked as an engineering intern for BS&B performing drafting, testing, and design duties for various rupture disks. He received his B.S. in Mechanical Engineering from The University of Tulsa in 2002 and currently serves as a rupture disk representative for the American Petroleum Institute Standards 520 and 521. He lives in Jenks, Oklahoma and is married with 3 children.

**Mr. Roy Cross** is a Senior Applications Engineer for Process Combustion Corporation in Pittsburgh, PA. Roy is a Chemical Engineer having spent 30+ years working in Chemical Plants, Steel and Electric Power facilities, and EP&C Firms. For nearly 20 years, he has focused in air pollution abatement systems involving calciners, scrubbers, coal dryers and thermal oxidizers with a strong focus in low-NOx combustion. Roy has also been a member of the International Conference on Thermal Treatment Technologies and Hazardous Waste Combustors (IT3-HWC) since 2000 where he has served 6 years as the Conference Chair.

**Mr. Larry Klusmier.** Prior to joining Spirax Sarco Larry worked as a Product Development Engineer and is currently the Mid-Atlantic Area Manager with Spirax Sarco. He has 21 years' experience working with customers to improve their steam systems performance. He provides engineering design services from complete new plant design to small upgrades of equipment. He works with plant energy managers to reduce the energy usage, while also optimizing existing equipment to improve productivity and reliability. These energy improvements benefit the plants core production by lowering the energy usage per pound of production, while also improving the equipment reliability and longevity. Larry provides customers Solutions for the control and efficient use of steam and other industrial fluids. Larry Graduated from Wentworth Institute of Technology with a Bachelor's degree in Mechanical Engineering.



# ASME DE SECTION, ASME STUDENT SECTION AT THE UNIVERSITY OF DELAWARE & AICHE- DVS JOINT PDH EVENT NOVEMBER 9, 2019

## TOPICS TO BE COVERED:

- 1. Flameless Thermal Oxidation – An Innovative Technology:** This course provides an overview of Flameless Thermal Oxidation technology, a technology first developed in collaboration with the Department of Energy in the 1980s. More recently Flameless Thermal Oxidation has seen a resurgence in popularity due to a high removal efficiency, 99.9999% DRE and very low NO<sub>x</sub> emission levels, < 1ppmv. Participants will learn about relevant design parameters, functional characteristics, and the performance values of FTO equipment.
- 2. Ethics: The Human Infrastructure Component of Engineering:** The set of rules of conduct that govern the engineering profession is the definition of engineering ethics. Ethics constitutes the infrastructure of all engineering decisions, from the most technical calculation to personnel decisions in human resources departments. Our beliefs and perceptions play an important role in how we make judgments, interpret data and analyze situations. Awareness of these factors leads to better engineering decisions. The formulation of perceptions will be discussed and a strategy for analyzing ethical questions will be presented. Ethical decision making will be illustrated with interactive examples.
- 4. Fundamentals of Proper Design and Engineering of Oxidation Technologies:** This course provides an overview of the information required to properly design, engineer, and select an appropriate oxidation system. The presentation will cover the basic fundamentals and associated steps required to develop a compliant system and attendees will learn how to select the proper oxidation technology for a given application requirement.
- 5. Pumping Issues and Pump Designs That Address Them:** This course provides participants with some common pumping applications and provides potential solutions for pump and pump sealing type to meet those applications. Focus is on choosing a pump with lowest life cycle cost. In addition, pump seal types for various levels of hazardous applications are discussed. Upon completion of the workshop, the participants will be able to: Describe some common pumping applications and determine what pumps and pump seals would be best suited to meet those applications
- 6. Multi-Stage Thermal Oxidizer – NO<sub>x</sub> minimization:** This course provides a Description of multi-stage thermal oxidation technology, including its functionality and how it effectively minimizes NO<sub>x</sub> emissions. Participants will learn basic conceptual design of low NO<sub>x</sub> systems, engineering requirements, and performance capabilities.



At the University of Delaware | Est. 1929



# ASME DE SECTION, ASME STUDENT SECTION AT THE UNIVERSITY OF DELAWARE & AICHE- DVS JOINT PDH EVENT NOVEMBER 9, 2019

## TOPICS TO BE COVERED:

- 7. Hydraulic Performance and Maintenance Problems Induced in Centrifugal Pumps by Improper Piping Arrangements:** This course provides participants with the knowledge and skills needed to understand how to determine proper and improper piping issues for centrifugal pumps. This is important because the piping arrangement (especially suction piping) can have a major effect on the performance and reliability of the pump. Upon completion of the workshop, the participants will be able to: Define and describe typical centrifugal pump suction issues E.G. Effect of air entrainment on pump performance, Freefall, Submergence, Vortex reduction designs, suction pipe velocities, elbows, side suction piping arrangements, proper reducer arrangements, multiple pump suction manifolds, air pockets due to improper pipe routing, minimum distance from pump suction nozzle to first obstruction etc. and describe typical pump discharge piping sizing.
- 8. Bio-Oxidation Technology for the treatment of Industrial Air:** Basic technological overview, functionality, and general operational parameters needed to successfully treat air borne VOC's biologically.
- 9. Rupture Disk Design and Selection:** Rupture disks are a non-mechanical pressure relief device designed to activate at a specific pressure. They are used in every industry and serve as the last line of defense for pressure relief. This presentation will examine how rupture disk technology has progressed over the past 90 years since BS&B introduced the first commercially available rupture disk. It will focus on the many variables involved when selecting a rupture disk for an application and the applicable codes pertaining to rupture disks. Accessories for rupture disks will also be discussed. Product samples will be passed around the room and various rupture disks will be activated via pressurized test stand to demonstrate precision and opening characteristics.
- 10. Steam Trap Types and Testing Methods:** The duty of a steam trap is to discharge condensate, air and other incondensable gases from a steam system while not permitting the escape of live steam. The need for steam traps, considerations surrounding their operation, basic modes of operation are to be discussed. Various trap testing methods will be reviewed. A major problem has always been the accurate identification of faulty traps. Wrong diagnosis can allow faulty traps to remain troublesome, and perfectly sound traps to be replaced unnecessarily. Accurate diagnosis is therefore important to any maintenance program.



At the University of Delaware | Est. 1929



# ASME DE SECTION, ASME STUDENT SECTION AT THE UNIVERSITY OF DELAWARE & AICHE- DVS JOINT PDH EVENT NOVEMBER 9, 2019

## PROGRAM SCHEDULE:

	Track 1 (Audion)	Track 2 (Atrium)
8:00-8:30am	Registration/Breakfast Networking	Registration/Breakfast Networking
8:30-9:30am	Fundamentals of Proper Design and Engineering of Oxidation Technologies	Ethics: The Human Infrastructure Component of Engineering
9:30-9:45am	Break	Break
9:45-10:45am	Multi-Stage Thermal Oxidizer – NOx Minimization	Pumping Issues and Pump Designs That Address Them
10:45-11:00am	Break	Break
11:00-12:00pm	(1) Flameless Thermal Oxidation – An Innovative Technology;  (2) Bio-oxidation Technology for the Treatment of Industrial Air	Hydraulic Performance and Maintenance Problems Induced in Centrifugal Pumps by Improper Piping Arrangements
12:00-1:00pm	Lunch	Lunch
1:00-2:00pm	Steam Trap Types and Testing Methods	Rupture Disk Design and Selection



At the University of Delaware | Est. 1929

