



# INDUSTRIAL COMBUSTION SYMPOSIUM

## Virtual Symposium

- › 15 Technical Presentations
- › AFRC Business Meeting

October 19-21, 2020

REGISTER TODAY  
[afrc.net/symposium](http://afrc.net/symposium)

# AGENDA

\*ALL TIMES CENTRAL

## MONDAY, OCTOBER 19

**10:00 AM**

Opening Remarks

Vance Varner, *John Zink Company, LLC*

Jamal Jamaluddin, *Comprehensive Heater Support, LLC*

**10:15 – 10:45 AM**

1. The Advantages of Monitoring Flare Pilots with Instantaneous Response

Clayton A. Francis, *Zeeco, Inc.*

**10:50 – 11:20 AM**

2. Flare Combustion Index in Lieu of Combustion Zone Net Heating Value

Yousheng Zeng and Jon Morris, *Providence Photonics, LLC*

**11:20 – 11:35 AM** BREAK

**11:35 AM – 12:05 PM**

3. New Developments in Flaring Liquid Natural Gas without Vaporization of the Waste Stream

Clay Anderson, *Zeeco, Inc.*

**12:10 – 12:40 PM**

4. Hardening of Arches for Commercial Simulation of Industrial Flares: A Program Update

Marc A. Cremer, *Reaction Engineering International*; Minmin Zhou, *University of Utah*; Dave Wang, *Reaction Engineering International*; Adam Cowley *Reaction Engineering International*; Jeremy Thornock, *Clean Air Engineering*

**12:45 – 2:00 PM**

AFRC Business Meeting

## TUESDAY, OCTOBER 20

**10:00 AM**

Introduction

Jamal Jamaluddin, *Comprehensive Heater Support, LLC*

**10:05 – 10:35 AM**

5. Clearsign Eye™ Flame Rod Replacement Technology

Steve Sock, *Clearsign Technologies Corporation*

**10:40 – 11:10 AM**

6. Simulation of the Thermo-Acoustic Coupling Inside an Industrial Hazardous Waste Incinerator

Joseph Smith, *Missouri University of Science & Technology*; Ahti Suo-Anttila, *Computational Engineering*; Robert Jackson, *Elevated Analytics Consulting LLC*; Zach Smith, *Elevated Analytics Consulting LLC*; Vikram Sreedharan, *Elevated Analytics Consulting LLC*

**11:15 – 11:45 AM**

7. Multifaceted Approach to Radiant Wall Burner Design Improvements for Retrofit Applications

Parker Imel, Michal Hradisky, Austin White, *Zeeco, Inc.*

**11:45 AM – NOON** BREAK

**NOON – 12:30 PM**

8. Three Canister Regenerative Thermal Oxidizer with Secondary and Tertiary Heat Recovery

Aziz A. Jamaluddin, Brian Wendt and Vipul Patel, *Epcon Industrial Systems, Ltd.*

**12:35 – 1:05 PM**

9. A Comprehensive Parametric Investigation of Efficient Soot Modeling Using High Fidelity Method of Moments

Rakesh Yadav, *ANSYS, Inc. USA*; Po-Wei Chen, *Georgia Institute of Technology*; Chao Han, *ANSYS, Inc. USA*; Shaoping Li, *ANSYS, Inc. USA*; Saurabh Patwardhan, *ANSYS, Inc., India*; Stefano Orsino, *ANSYS, Inc. USA*; Pravin Nakod, *ANSYS Inc., India*

**1:10 – 1:40 PM**

10. Modeling Sulfur-Nitrogen Chemistry Inside a Claus Reaction Furnace

Joseph Smith, *Missouri University of Science & Technology*; Ahti Suo-Anttila, *Computational Engineering*; Robert Jackson, *Elevated Analytics Consulting LLC*; Zach Smith, *Elevated Analytics Consulting LLC*; Vikram Sreedharan, *Elevated Analytics Consulting LLC*

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# AGENDA

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## WEDNESDAY, OCTOBER 21

**10:00 AM**

Introduction

Jamal Jamaluddin, *Comprehensive Heater Support, LLC*

**10:05 – 10:35 AM**

11. Burner Tile Design

Charles Baukal, *John Zink Hamworthy Combustion*;

Bill Johnson, *John Zink Hamworthy Combustion*

**10:40 – 11:10 AM**

12. Using Numerical Simulation to Diagnose Boiler Tube Failures

Eric Duplain, *Brais, Malouin and Associates Inc.*

**11:15 – 11:45 AM**

13. Design Considerations for Carbon-Free Combustion

Michael Cochran and David Schalles, *Bloom Engineering Company, Inc.*

**11:45 AM – NOON**

**BREAK**

**NOON – 12:30 PM**

14. 3-D Model Development and Validation for Once-Through Steam Generator (OTSG): Coupling Combustion, Heat Transfer and Steam Generation

Ehsan Askari, Eugenio Turco Neto, Richard Lozowy, Adrien Chatel, and Mario Forcinito, *AP-Dynamics, Inc.*

**12:35 – 1:05 PM**

15. Ultra Low Nox Burners vs. SCRs

Charles Baukal, *John Zink Hamworthy Combustion*; Jaime Erazo, *John Zink Hamworthy Combustion*; Steve Bortz, *John Zink Hamworthy Combustion*

**1:05 – 1:30 PM**

Feedback/Closing Remarks

# GENERAL INFORMATION

- Our AFRC 2020 Virtual Symposium will be using the GoToWebinar platform to conduct the event.
- Presentations will be offered over three days beginning at 10:00 AM Central each day.
- Each registrant will receive their own, unique login link the week before the event. That link should be used to log in each day. Your login link will give you access to all presentations throughout the three days.
- Company group registrants will each receive their own unique login link the week before the event.
- Instructions for participation will be included when you are sent your login link.

# REGISTRATION

**Register at [afrc.net/symposium](https://afrc.net/symposium)**

**Registration Fees:**

\$200 per person

\$600 per company group (*up to five registrants from the same company – must register at the same time*)

**Fee includes:**

- Unique login link to access all presentations throughout the week.
- Flash drive with presentations mailed the week after the Symposium.

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