

## **AGENDA**

**AFRC 2015 Industrial Combustion Symposium  
September 9–11, 2015**

**Historic Fort Douglas Officers Club  
University of Utah, Salt Lake City, Utah**



**University Guest House  
(Delegate Accommodation)**



**Pierre Lassonde House  
(Welcome Reception)**



**Fort Douglas Officers Club  
(Symposium Presentations)**

**Wednesday, September 9, 6:00-8:00 PM**

**Registration – University Guest House  
Welcome Reception – Pierre Lassonde House**

### **Thursday, September 10**

**7:00-8:00 Breakfast (University Guest House)**

**7:30-5:00 Registration (Fort Douglas Officers Club next door to the University Guest House)**

**8:30-9:00 Opening Remarks (Convene in the historic Fort Douglas Officers Club)**

**Philip Smith – AFRC Chairman**

**Session Chair: Keith Herbert, Technology Manager – Flares, Callidus Technologies**

**9:00-9:30 Adventures in Flaring: The Story EPA Didn't Tell You;  
Scot Evans, Clean Air Engineering, Inc.**

**9:30-10:00 A Discussion of Concerns if Refinery Flare Rules are applied to the Chemical Industry;  
Troy Boley, SAGE Environmental Consulting, L.P.**

**10:00-10:30 Coffee Break**

**10:30-11:00 How to Measure Flare Vent Gas Composition and Net Heating Value: A Review of Existing  
Instrumentation; Dan Pearson, Clean Air Engineering, Inc.**

**11:00-11:30 Application of CFD to model Air-Assisted Industrial Flares under low-Btu, low-Flow Rate  
Conditions; Anchal Jatale, Ansys, Inc.**

**11:30-12:00 Physical Testing of a Multi-point Ground Flare Burner Utilizing Low Btu Flare Gas;  
Matthew Martin, Callidus Technologies LLC**

**12:00-1:00 Lunch (Heritage Commons)**

**1:00-1:30 Emission Testing of Sonic Velocity Flares Validates High Destruction Efficiency;  
Scot Smith, Zeeco**

**1:30-2:00 Considerations When Specifying Multipoint Ground Flares; Ian Fischer, Fired Equipment,  
ExxonMobil Engineering, Baytown, TX**

**2:00-2:30 Radiation Effects on Surrounding Structures from Multi-Point Ground Flares;  
Joseph D. Smith, Systems Analyses and Solutions, Owasso, Oklahoma**

**Session Chair: Joe Colannino, Chief Technology Officer, ClearSign Combustion Corp.**

**2:30-3:00 4 Rules of Fired Heater Operation; Charles Baukal, John Zink Company, LLC**

**3:00-3:30 Coffee Break**

**3:30-4:00 Flameless Heater Performance: Two Years of Operation;  
Bill Gibson, Marianne Zimola, Great Southern Group**

**4:00-4:30 Duplex Technology: A Novel Approach to Combustion Performance Enhancement in  
Refinery Process Heaters; Roberto Ruiz & Joe Colannino, ClearSign Combustion Corp.**

**4:30-5:00 New Firing Pattern in Heaters provide Uniform Heat Transfer;  
Ashtosh Garg, Furnace Improvements**

**5:00-6:00 AFRC Business Meeting**

**7:00-9:00 Banquet (Natural History Museum)**

**Friday, September 11**

**7:00-8:00 Continental Breakfast (University Guest House)**

**Break-Out Session 1**

**Fort Douglas Officers Club**

**SOUTH CONFERENCE ROOM**

- Session Chair: Dave Schalles, Secretary, AFRC; VP-Technical Services, Bloom Engineering Company**
- 8:30-9:00 Performance of Low and Ultra-Low NO<sub>x</sub> Burners Firing Hydrogen-Enriched Syngas in a Refractory Lined Furnace; Chris Ballance, Georgia Institute of Technology**
- 9:30-10:00 Air staged double swirl low NO<sub>x</sub> LPG burner; A.M. Elbaz; King Abdullah University of Science & Technology**
- 10:00-10:30 Coffee Break**
- 10:30-11:00 Validation and Prediction of Ultra-Low NO<sub>x</sub> Burner Performance using Computational Fluid Dynamics; Sandeep Alivandi, Gas Technology Institute**
- 11:00-11:30 Ultra Low NO<sub>x</sub> Conventional and Regenerative Burner Retrofits; Mathew Valancius, Bloom Engineering Company, Inc.**
- 11:30-12:00 Mesh Resolution Issues for CFD Analysis of Gas-fired Process Furnaces; Paula Sun, Mike Henneke, John Zink Hamworthy Combustion**
- 12:00-1:00 Lunch (Heritage Commons)**

**Break-Out Session 2**

**Fort Douglas Officers Club**

**SOUTH CONFERENCE ROOM**

- Session Chair: Chuck Benson, Treasurer, AFRC; Managing Partner, etaPartners LLC**
- 1:00-1:30 Heater Recirculation Pattern Analysis and Burner Spacing Optimization; Addison Cruz, Matthew Martin, Kurt Kraus; Callidus Technologies, LLC**
- 1:30-2:00 Autoignition Characteristics of Silane-Oxygen-Diluent Mixtures in a Practical Burner; Bradley Ochs, Georgia Institute of Technology**
- 2:00-2:30 Multipoint Water Quenched Probe for Spatially Averaged Hot Gas Sampling in Industrial Combustors; Bradley Ochs, Georgia Institute of Technology**
- 2:30-3:00 Opportunities for the next generation of optical boiler diagnostics; Charles E.A. Finney, Oak Ridge National Laboratory**
- 3:00-3:30 Coffee Break**
- 3:30 Adjourn**

**Friday, September 11**  
**7:00-8:00 Continental Breakfast (University Guest House)**  
**Break-Out Session 3**  
**Fort Douglas Officers Club**  
**NORTH CONFERENCE ROOM**

**Session Chair: Phil Smith, Chairman, AFRC; Professor, Dept. of Chemical Engineering, Univ. of Utah**

**8:30-9:00 A Study of Flameless Combustion Behavior of Pulverized Coal Preheated by Circulating Fluidized Bed; Ziqu Ouyang, Chinese Academy of Sciences**

**9:00-9:30 Pilot-Scale Investigation of Heat Flux and Radiation from and Oxy-coal Flame; Andrew Fry, University of Utah**

**9:30-10:00 A validation/uncertainty quantification (V/UQ) analysis for a 1.5 MW oxy-coal furnace; Oscar Diaz-Ibarra, University of Utah**

**10:00-10:30 Coffee Break**

**10:30-11:00 Effects of coal blends on formation mechanisms of ash aerosol and ash deposits during air and oxy-Combustion; Zhonghua Zhan, University of Utah**

**Session Chair: Jordan Loftus, Technical Secretary, AFRC; Chairman, AFRC (1981-1995); Texaco (Retired)**

**11:00-11:30 My History working with the IFRF; John Pohl, Energy International**

**11:30-12:00 Experimental study on preheating and combustion characteristics of semi-coke in 0.2MW pilot; Jianguo Zhu, Chinese Academy of Sciences**

**12:00-1:00 Lunch (Heritage Commons)**

**Friday, September 11**  
**Break-Out Session 4**  
**Fort Douglas Officers Club**  
**NORTH CONFERENCE ROOM**

**Session Chair: Jordan Loftus, Technical Secretary, AFRC; Chairman, AFRC (1981-1995); Texaco (Retired)**

**1:00-1:30 Development of a Sub-Surface Burner Technology for In-Situ Heating; Fatemeh Baabazadeh Shareh, University of Utah**

**1:30-2:00 Continuous Online Monitoring of Maximum Fireside Tube Skin Temperature in a Depropanizer Reboiler; Philip Smith, CRSim**

**2:00-2:30 Flame Safety and the Parameters that Affect Them; John Pohl, Energy International**

**2:30-3:00 Lower Dimensional Model for Modeling the Heat Transfer and Detailed Reactions Inside Long Channels; Anchal Jatale, Ansys, Inc.**

**3:00-3:30 Coffee Break**

**3:30 Adjourn**



# AFRC 2015 INDUSTRIAL COMBUSTION SYMPOSIUM UNIVERSITY OF UTAH, SEPTEMBER 9-11, 2015



University Guest House  
Delegate Housing



Fort Douglas Officers Club  
Paper Presentations



Pierre Lassonde House  
Welcome Reception

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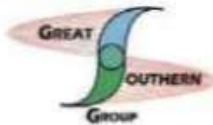
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