COMBUSTION WEBINAR

Adaptation of Hydrogen and Ammonia to Industry

Speaker: Prof. Bassam Dally,

CCRC, King Abdullah University of Science and Technology, KAUST, Saudi Arabia

Time: *10:30 EDT,* April 13th 2023; *22:30 Beijing; 16:30 Paris*

Zoom Meeting ID: 9856 9761 182
Zoom link: https://gatech.zoom.us/j/98569761182
Check *https://sun.ae.gatech.edu/combustion-webinar*
for other details directly contact pzhao12@utk.edu.

COMBUSTION WEBINAR

Biography: Dr Bassam Dally is a Professor of Mechanical Engineering and a member of the Clean Combustion Research Center, CCRC, at KAUST, Saudi Arabia. Over the last 32 years, Prof Dally has contributed seminal work on a variety of research topics under the broad field of Thermo-Fluids. His major contributions are in turbulent reacting flows, MILD combustion, soot in flames, plasma propulsion, mineral processing, hybrid of concentrated solar thermal and combustion, and applied laser diagnostics. Lately, his work has focussed on utilization of hydrogen and ammonia fuels to decarbonize industrial processes. He has attracted millions of dollars for his research and has published more than 350 paper, 175 of those in leading scientific journals. He won many awards over the years, including 'Energy Professional of the Year in South Australia', and recently was awarded a Fellowship of the Combustion Institute. Prof Dally is the president of Saudi Arabian Section of the Combustion Institute and is the Program Co-Chair for the 40th International Symposium on Combustion in Milan, Italy, 2024.

Abstract: As the world moves to a Circular Carbon Economy mode, fuels such as hydrogen and ammonia have been suggested as alternatives to fossil-based fuels. Intense research efforts are underway to adopt those fuels to the many industrial systems that are currently operated on hydrocarbon fuels. The heavy industry is responsible for a third of CO2 emission and most of the emission comes from generating thermal energy rather than power. Also, most of this thermal energy is at high temperature or involve reduction processes, and is deemed hard to abate. This seminar will provide an overview of the emission from heavy industry and examines ways where either hydrogen or ammonia can be utilized as a replacement of current hydrocarbon fuels. Examples of current research efforts and findings will also be presented and discussed, and a roadmap of research, development and deployment needs will also be presented.

Combustion Webinar Organizing Committees

Advisory Committee

Yiguang Ju (Princeton University)
Fei Qi (Shanghai Jiao Tong University)
Philippe Dagaut (CNRS-INSIS)
Gautam Kalghatgi (Univ. of Oxford/Saudi Aramco)
Med Colket (RTRC, Retired)
Chung K. (Ed) Law (Princeton University)
Katharina Kohse-Höinghaus (University of Bielefeld)
Kaoru Maruta (Tohoku University)
Kelly Senecal (Convergent Science)
Toshiro Fujimori (IHI Inc.)

Technical Committee

Tiegang Fang (North Carolina State University) ***Co-Chair***
Wenting Sun (Georgia Tech)
Lorenz R Boeck (FM global)
Liming Cai (Tongji University)
Zheng Chen (Peking University)
Matthew Cleary (The University of Sydney)
Stephen Dooley (Trinity College Dublin)
Aamir Farooq (KAUST)
Michael Gollner (UC Berkeley)
Wang Han (Beihang University)
Jean-Pierre Hickey (Univ. Waterloo)
Xinyan Huang (Hong Kong Polytech Univ.)
Tai Jin (Zhejiang University)
Tina Kasper (University Duisburg-Essen)
Sili Deng (MIT)
Peng Zhao (University of Tennessee, Knoxville) ***Co-Chair***
Isaac Boxx (RWTH Aachen University) ***Co-Chair***
Deanna Lacoste (KAUST)
Davide Laera (CERFACS)
Joseph Lefkowitz (Technion)
Qili Liu (Chinese Academy of Sciences)
Yushuai Liu (IET, CAS)
Zhandong Wang (USTC)
Nicolas Noiray (ETH Zurich)
Guillermo Rein (Imperial College London)
Xingjian Wang (Tsinghua University)
Jun Xia (Brunel University London)
Huahua Xiao (USTC)
Dong Yang (SUSTech)
Suo Yang (University of Minnesota)

Disclaimer

- The presentation materials and comments made by the lecturer and participants are only for research and education purposes.
- All presentation materials are the sole properties of the lecturer and the Combustion Webinar organizer, and cannot be published and disseminated without written approvals from both parties.
- This lecture may be recorded and released to public.

- **Please use Chat or Raise Hand to ask your questions.**
- **Please turnoff microphone. Webinar will be locked after 30 minutes.**
- **Recorded lectures are on *Combustion Webinar YouTube Channel***

https://www.youtube.com/channel/UCSsO7e9VIn__RejSiAPF0JA