COMBUSTION WEBINAR

Technical and kinetic challenges in using NH3 as a carbon-free energy carrier

Speaker: Prof. Peter Glarborg, Technical University of Denmark

Time: *10:00 ET,* Nov 29th 2023 *(7:00 PST; 16:00 Paris, 23:00 Beijing)*

Zoom meeting link: https://gatech.zoom.us/j/98145083515
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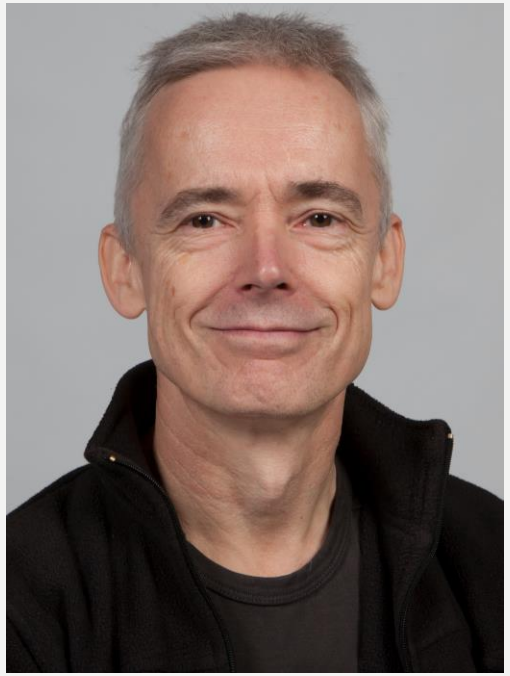

Biography: Prof. Peter Glarborg is Professor of Chemical Engineering at the Technical University of Denmark, where he has taught since 1996. Peter is an Associate Editor of Combustion and Flame and he was Program Co-Chair for the 36th International Combustion Symposium in Seoul in 2016. Peter has published about 300 research articles in archival journals. He is working broadly in the field of combustion and harmful emission control, with special emphasis on developing detailed reaction mechanisms for high-temperature gas-phase processes.

Abstract: The development of technologies able to burn ammonia has been the focus of research studies since the 60's. The challenges across combustion technologies are similar and include concerns of combustion properties and emissions. Focus has mostly been on the long ignition delay times and low laminar flame speed, but also reactions in the burnout region are crucial, as they may result in emission of NH3, NOx, and N2O. To improve design and operation of engines burning ammonia, it is important to develop reliable kinetic models.This is a very active field of research, and over the last few years results have been reported from premixed flames, shock tubes, rapid compression machines, jet-stirred reactors, and flow reactors. In addition, a large number of kinetic models for NH3 oxidation has been reported. In this presentation, an overview of the technical challenges in using NH3 as a carbon-free fuel are discussed, followed by a discussion of the development of reliable reaction mechanims for ignition, oxidation, and pollutant formation in combustion of ammonia, based on experiment, theory, and chemical kinetic modeling.

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