

COMBUSTION WEBINAR

Reacting Swirling Flow Physics

Speaker: Dr. Paul Palies, CFD Research

Time: *October 24, 2020*

10 am EST; 4 pm Paris; 10 pm Beijing.

Meeting: Zoom

Registration (required):

Check <https://sun.ae.gatech.edu/combustion-webinar>

for details or directly contact wenting.sun@aerospace.gatech.edu



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Biography

Dr. Paul Palies is a researcher in reacting fluid dynamics with specializations in aeronautical propulsion research and physics of premixed swirling flames. He developed an expertise in combustion dynamics applied to laboratory scale combustors and jet engines with a demonstrated experience in acoustics, combustion and fluid dynamics. His published work has focused on understanding key physics and passive control strategies in this context as demonstrated by a patent, a book and several widely cited articles. He graduated from Ecole Centrale Paris in aerospace and from University of Paris XI in mechanics-physics. He holds a doctorate in combustion from Ecole Centrale Paris, EM2C Laboratory. He was senior research scientist at the research center of United Technologies Corporation developing passive control strategy and modeling capabilities to support Pratt and Whitney's commercial combustors program. He is Senior Member of AIAA and Member of the Propellants and Combustion AIAA Technical Committee. He has been appointed USCN/TAM AIAA Professional Society representative in 2020. He is currently Principal Scientist at CFD Research.

Abstract

This webinar focuses on the physics of reacting swirling flows. These flows are at the heart of current and future jet engines (propulsion) and gas turbines systems (energy generation). The large scales flow patterns are reviewed and their local effects discussed particularly for premixed flames. The webinar is structured around five main aspects including: (i) the combustor, (ii) premixed combustion for combustor, (iii) premixed swirling flame stabilization, (iv) transient combustion, (v) swirling flame dynamics and combustion instabilities. Finally, key future research and development directions, and challenges are suggested.



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