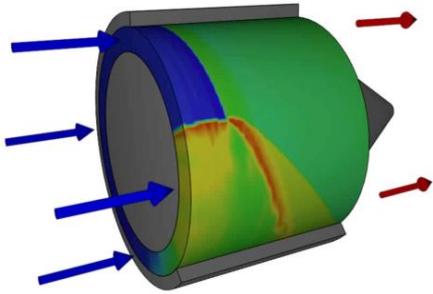
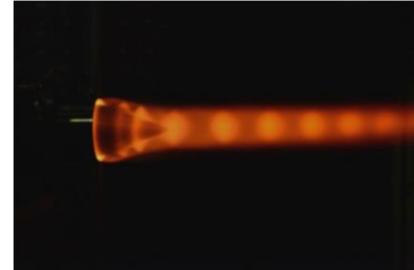




American Institute of
Aeronautics and Astronautics
Dayton-Cincinnati Section



Lunch 'n' Learn *The Rotary Detonation Engine* Guest Speaker: *Dr. Fred Schauer* Friday, 24 Apr 2015



Dr. Fred Schauer will be discussing the development of rotary detonation engines. This work flows from recent breakthroughs in pressure gain combustion that have enabled novel thermodynamic cycles. Many of these breakthroughs occurred during the development of the pulsed detonation engine (PDE) over the last 15 years. Despite thermodynamic gains, the intermittent/highly unsteady PDE combustor presents challenges to conventional nozzle and turbine designers. In recent years, pressure gain combustion research has shifted towards the continuous rotary detonation engine (RDE). In RDE combustion, a detonation is initiated and propagates circumferentially in an annulus. The detonation will propagate as long as fresh reactants lead the detonation front so that if properly refreshed, a RDE can propagate a detonation continuously, achieving cycle rates 10-100 times faster than a conventional PDE. The majority of PDE pressure gain can be realized while maintaining the power density of detonative combustion continuously. The quasi-steady RDE exhaust enables conventional nozzle/turbine integration. Rotary Detonation Engine challenges, results, and applications will be discussed.

Dr. Fred Schauer is the lead for the Advanced Concepts Group at AFRL/RQ. Fred Schauer received his Ph.D. in mechanical engineering from the University of Illinois at Urbana-Champaign developing laser diagnostics and CFD for turbulent flame interactions. Since 1997, he has served as a research engineer at what is now the Aerospace Systems Directorate, where his group operates the Detonation Engine Research Facility. Fred is a former AIAA Engineer of the Year.

Time

11:45 AM

Location

China Garden Buffet
112 Woodman Dr.
Dayton, OH 45431

Lunch

You will be able to
purchase the buffet

