Recent Progress in Pulse Detonation Technology Development at the University of Texas at Arlington

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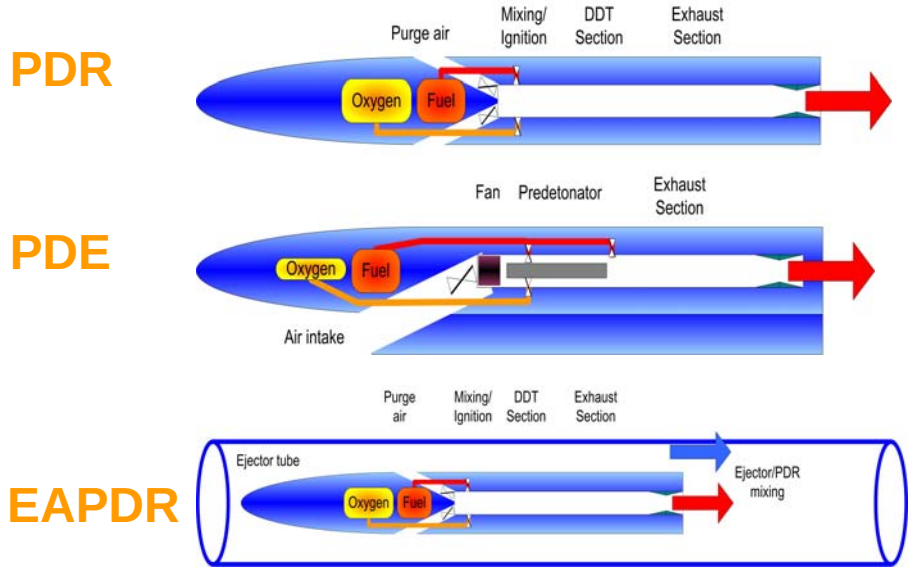
Pulse detonations for propulsion applications had their origins about half a century ago but have only seen very rapid, renewed interest within the past 15 years. UTA has been performing research in pulse detonations for about that long. This presentation reviews some of UTA's recent work in pulse detonations involving (i) pulse detonation for power production, (ii) development of a liquid-fueled pulse detonation engine and (iii) the conceptual design of a high-speed PDE-powered unmanned aerial vehicle. The emphasis of this presentation is on technology development.



Professor Frank Lu has been involved in high-speed aerodynamics and aeropropulsion for almost three decades. His experience spans from low speed to hypervelocity from his position as the Director of UTA's Aerodynamics Research Center. He has been involved in facility development, being one of the pioneers in introducing detonation drivers for hypervelocity testing. He and his colleagues have recently refurbished the UTA's supersonic wind tunnel and have implemented a computer-based tunnel controller. Amongst his recent research areas are detonations, both basic and applied, plasmas and electromagnetic flow control, industrial aerodynamics, acoustics, shape memory alloys, and explosives detection portals. Prof. Lu is an associate fellow of AIAA and a member of ASME. As part of his activities within AIAA, he is presently the editor-in-chief of its Progress in Astronautics and Aeronautics Series, a member of the Ad-Hoc Subcommittee on Publication Ethics and a member of the AIAA Ground Test Technical Committee. Prof. Lu was previously a member of the AIAA Aerodynamics Measurements Technical Committee. He has authored/co-authored over 100 journal and conference papers. Prof. Lu has also co-taught an AIAA course in hypersonic test facilities.