

ATOMIZATION AND SPRAYS IN GAS TURBINE APPLICATIONS

Overview

In modern day liquid fueled combustors, increasing demands in stable operation (combustion stability) and strict emission norms mandates continuously evolving injector designs, to achieve superior atomization, mixing and patternation. The complicated multiphase phenomena at multiple spatio-temporal scales makes spray nozzle design a highly challenging task. This short course aims at providing a platform to learn various aspects of sprays, which includes fundamentals, atomizer design and their characterizations using optical diagnostic techniques.

Over the past two decades, owing to its multidisciplinary nature, the field of atomization and spray received significant attention among scientists and engineers, across multiple domains ranging from pharmaceuticals to gas turbines. It is essential for a spray injector designer to gain qualitative and quantitative insights into the main controlling parameters to improve/ optimize the performance. In this particular course, the focus is mainly targeted on addressing the various dynamics of sprays as encountered in combustion/power generation industry. This will facilitate better understanding among the research scholars in academia and industries like DRDO, NTPC, ISRO, GE, GTRE, Siemens to name a few. Sessions/Modules will be handled by eminent researchers. Modules will involve hands on laboratory demonstrations and tutorials.

Modules	A: Spray theory and fundamentals : Nov 12 - Nov 13, 2017 B: Optical diagnostics of sprays : Nov 14 - Nov 16, 2017 C: Applications : Nov 17, 2017 Number of participants for the course will be limited to sixty. <i>* Participants working in the field of atomization and sprays will be given preference.</i>
You Should Attend If...	<ul style="list-style-type: none"> • Students / research scholars working in the field of atomization and sprays in reputed institutions • Engineers, R & D professionals from government research organizations, public sectors and industries
Fees	The participation fees for taking the course is as follows: Participants from abroad: \$ 500 Govt. Research Organizations and public sectors: INR 10000 Private Industry: INR 20000 Faculty: INR 8000 Students: INR 5000 The above fee includes all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis.

The Faculty



Prof. Dr.-Ing. Cameron Tropea is currently a professor and head of *Institute for Fluid Dynamics and Aerodynamics* at TU-Darmstadt. He is one of stalwarts in experimental fluid mechanics. His research interest includes atomization and sprays, laser diagnostics and interfacial phenomena. He has expertise in phase Doppler measurement techniques, particle image velocimetry, and optical characterization of particles in multiphase flows. Prof. Tropea is the Editor-in-Chief of the journal *Experiments in Fluids*.



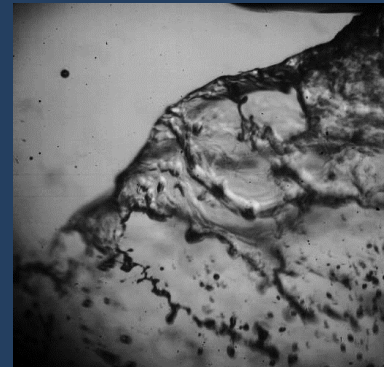
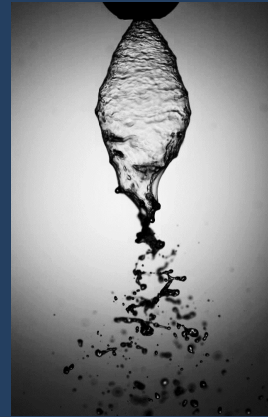
Prof. Saptarshi Basu is currently an Associate Professor in the Department of Mechanical Engineering at Indian Institute of Science. He is the receipt of the prestigious Swarnajayanti Fellowship from Department of science and technology and is a Fellow of the Indian National Academy of Engineering. Prof. Basu leads large scale initiatives in the areas of combustion, multi-phase flow and heat transfer with emphasis on droplet level transport processes.



Prof. D. Sivakumar is currently an Associate Professor in the Department of Aerospace Engineering at Indian Institute of Science. His research interests are in atomization of liquid jets and sheets, experimental characterization of engine sprays, biofuel sprays and interaction of liquid drops with solid surfaces.



Prof. R. V. Ravikrishna is currently a Professor in the Department of Mechanical Engineering at Indian Institute of Science His research involves combustion and flow diagnostics using laser-based techniques, atomization and sprays and computational fluid dynamics (CFD) with applications to IC Engines and Gas Turbines.



Course Co-ordinator

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http://www.mecheng.iisc.ernet.in/sites/default/files/attached-files/gian_brouchure.pdf