## Flame dynamics in micro/meso scale channels

Identification of small-scale combustion based devices as high energy density source and development of modern microfabrication techniques has led to many opportunities in the area of development of micro-power generation devices. These combustion based micro power devices are expected to feed the portable micromechanical, communication, sensing biomedical systems, UAVs, micro-thrusters and various micro-scale industrial applications.







Extensive review of various intricacies of micro-combustion, the attempted experimental investigations by research community have been comprehensively reviewed. It is evident in the reviews that the foreseen applications in this field are potential ones and there is immense need to understand the complexity in this bleeding edge technology. The identified complexities are manufacturing techniques and flame dynamics in such systems. Flame dynamics in small scale channels is the focus of the study and it is done for different governing parameters like air-fuel equivalence ratios and mixture inlet velocities. Currently the axial flow combustors which are backward stepped are being analysed for the different flame phenomena with the help of the high-speed chemiluminiscence facility.

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