

**Fig. 1** Evaporation coefficient of water

**References**

1 Ishiyama T, Yano T, Fujikawa S. *Phys. Fluids*, **16**: 4713–4726 (2004)

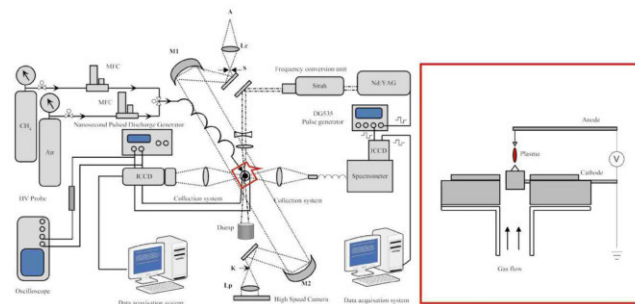
S4-06

**Plasma assisted stabilization of a premixed methane-air flame by nanosecond repetitively pulsed discharges**

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Nanosecond pulsed discharges were applied to an experimental study of the temporal response of a premixed methane-air Bunsen flame. A nanosecond-gated schlieren system was employed to explore the microstructure and the dynamic response of flame to the discharges. At the meantime, time-resolved optical emission spectroscopy (OES) measurements were conducted to determine the temperature and species in the recirculation zone created by the bluff-body, with and without plasma. After applying the nanosecond pulsed discharges, a significant difference in OES spectra was displayed by the time resolved spectra. The experimental results indicate that nanosecond pulsed discharges may be well suited for applications in combustion instability control.



**Fig. 1** Schematic diagram of experimental setup