

5F04: STATISTICS OF RELATIVE AND ABSOLUTE VELOCITIES OF TURBULENT NON-PREMIXED EDGE FLAMES FOLLOWING SPARK IGNITION.

C. Kittler¹, B. Böhm¹, S.F. Ahmed², R. Gordon¹, I. Boxx³, W. Meier³,
A. Dreizler¹, E. Mastorakos²

¹TU Darmstadt, Germany ²University of Cambridge, UK

³German Aerospace Center, Germany

Comment by Sebastien Candel, Ecole Centrale Paris, EM2C lab, CNRS, France

candel@em2c.ecp.fr

In these nice experiments the position of the spark with respect to the gradient of equivalence ratio created by the counterflow of premixed fuel and air. One may expect that the instantaneous distribution of this quantity will govern the ignition dynamics. Were you able to measure this quantity and use it to sort out the failed and successful ignition events?

Reply by S.F. Ahmed

sfafs2@cam.ac.uk

It is indeed true that the instantaneous mixture fraction gradient can affect the stability of the edge flame and hence the success or not of the propagating edge flame following spark ignition. Unfortunately, we could not measure the mixture fraction. This must be done in future work for a better understanding of the differences between the successful and failed ignitions. Some related information from simulations can be found in [1,2].

References:

[1] E.S. Richardson, E. Mastorakos, *Combust. Sci. Technol.* 179 (2007) 21–37.

[2] N. Chakraborty, E. Mastorakos, R.S. Cant, *Combust. Sci. Technol.* 179 (2007) 293–317.