

4G03: MICROGRAVITY EXPERIMENTS OF SINGLE DROPLET COMBUSTION IN OSCILLATORY FLOW AT ELEVATED PRESSURE.

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**Comment by Jiunn-Shyan Huang, Technology and Science Institute of Northern Taiwan, Taiwan**

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In your study, flame configuration of single droplet always behaves as an envelope flame which envelopes the whole droplet. As we know, a single droplet may also burn with a wake flame which locates behind the droplet at higher flow velocity. The numerical studies of Jiang et al. (Combustion and Flame, 1995), as well as Chiu and Huang (Atomization and Sprays, 1996 and 1997) also advocated a droplet in a convective flow field exhibits transition duality that a droplet may burn in two different flame structures at certain Reynolds numbers. Have the authors ever observed the similar results by Jiang et al., as well as Chiu and Huang when the amplitude of oscillatory flow is increased?

**Reply by Yasuhiro Ogami**

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In the experimental conditions tested in our study, only envelope flames were observed, and a wake flame was not seen. In our experiments, the Reynolds number is lower than those in studies by Jiang et al., Huang et al. and Chiu et al., and the authors expect that this is a reason why only an envelope flame was observed.