

Abstract Submitted
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Experimental investigation of laboratory fire whirls KATHERINE HARTL, Princeton University, ALEXANDER SMITS, Princeton University, Monash University — A fire whirl is a swirling diffusion flame that may occur to great destructive effect in urban fires or wildfires. To study fire whirls in the laboratory, we use a burner flame, using DME as fuel, and induce the swirl by entraining air through a split cylinder surrounding the central flame. Stereo Particle Image Velocimetry (PIV) is used to obtain distributions of the three components of velocity outside the fire whirl core. The effects of fuel flow rate, gap width, and height along the flame are examined, and the scaling behavior is investigated.

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