

Abstract Submitted  
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**SPIV study of two interactive fire whirls** KATHERINE HARTL, Princeton University, ALEXANDER SMITS, Princeton University, Monash University — Fire whirls are buoyancy-driven standing vortex structures that often form in forest fires. Capable of lifting and ejecting flaming debris, fire whirls can hasten the spread of fire lines and start fires in new places. Here we study the interaction of two jets in an externally applied circulation as an introduction to the study of two interacting fire whirls. To study this interaction we use two burner flames supplied with DME and induce swirl by entraining air through a split cylinder that surrounds both burners. Three components of velocity are measured using Stereo Particle Image Velocimetry both inside and outside the fire whirl core, at the base, midsection, and above the top of the fire whirls. The effects on the height and circulation on the distance between the burners, the rate of fuel supplied to the burners, and the gap size, are examined.

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