

Abstract Submitted  
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**Vortex breakdown in a closed cylinder: Experiments and control** DAVID LO JACONO, KERRY HOURIGAN, Monash University, JENS SORENSEN, Technical University Denmark, MONASH-DTU COLLABORATION, MONASH-DTU COLLABORATION — The flow within a closed cylinder with a rotating lid is considered. The effect of a thin rotating rod positioned along the center axis has been studied by means of Stereo Particle Image Velocimetry (SPIV). A parametric study for the cavity with a rod has been carried out for several configurations, changing the Reynolds number of the rod and the lid independently. The SPIV technique allows us to compare the obtained vector field with previous numerical work. The co-rotation and counter-rotation of the rod relative to the lid is found to affect the size and existence of the various breakdown bubbles. The results are consistent with previous experimental visualization and numerical work.

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