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Hydraulic jumps in partially closed containers ANDREW BELMONTE, VISHAL VASAN, Pritchard Labs, Dept of Mathematics, Pennsylvania State University — We present results of experiments investigating the effect of far field boundary conditions on the hydraulic jump in water. The classic hydraulic jump is an axisymmetric flow characterized by a single radial transition of the fluid height, for which the far field depth of the water is a key parameter. With suitable choices of the flow parameters, the circular jump exhibits symmetry breaking, transitioning into polygonal jumps among other possibilities. Here we study the transition between the jumps by suitably controlling the far field condition. This permits the flow to sustain a quasi-steady transition state between circular and polygonal jumps. Further, we investigate the effect of non-axisymmetric boundary conditions on the jump and its stability.

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