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Creation of an isolated turbulent blob sustained by vortex ring injection[1] TAKUMI MATSUZAWA, NOAH MITCHELL, STPHANE PERRARD, WILLIAM IRVINE, University of Chicago — We experimentally study a steady, localized blob of turbulence generated and sustained by the collision of multiple vortex rings. Through PIV and 3D PTV we examine the mass flux, distributions of kinetic energy and enstrophy, and turbulence statistics. Our measurements reveal that the blob consists of a turbulent core surrounded by comparatively quiescent fluid. The intensity and geometry of the turbulent blob can be controlled by altering properties of the injected coherent vortex loops. This system provides an ideal playground to investigate the generation and the decay of turbulence with controlled inputs of energy, enstrophy, and helicity.

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