



FIG. 1. False-color images (palette in top right corner) of shock-accelerated evolution of SF_6 columns. Initial center-to-center cylinder spacing S nondimensionalized by cylinder diameter D is labeled in the images.

Courtship and Mating Rituals of Vortices

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We study the interaction and evolution of shock-accelerated gas cylinders. A cylinder or cylinders of diameter D (initially separated spanwise) of SF_6 (sulphur hexafluoride, with a density 5 times that of air) are accelerated left-to-right by a Mach 1.2 normal shock. Cylinder “couples” are studied

for a variety of “relationship types” (that is, the degree of interaction of the unstable flow structures is varied by changing the initial cylinder separation S). Figure 1 presents sequences comprised of two-dimensional slices of the initial conditions (before shock passage) and exposures at 60, 200, 340, 480, 620, and 760 μs after shock impact. The false-color images show laser-sheet light scattered from fog droplets embedded in the SF_6 .

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