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Radial jetting during the impact of compound drops JIA MING ZHANG, ER QIANG LI, SIGURDUR THORODDSEN, King Abdullah University of Science and Technology — Here we report radial jetting behavior during the impact of compound droplet onto a dry solid surface. The size and number of the inner droplets was precisely controlled by a microfluidic device. With the help of high-speed video imaging from both side view and bottom view, intricate and regular horizontal jetting patterns were recorded. The radial jets are formed due to the interaction between the inner droplets and the outer liquid film, and the jet velocity is much higher than the drop impact velocity. The number of inner droplets and their position within the outer droplet were shown to be very important parameters which governed the generation and pattern of the jets. Other parameters such as droplet impact velocity, inner/outer liquid viscosity, density and interfacial tension have also been varied and used to analyze the jetting dynamics. Entrapment of minute air bubbles [1] was also clearly observed.

[1] S. T. Thoroddsen, K. Takehara and T. G. Etoh, "Bubble entrapment through topological change," Phys. Fluids, 22, 051701 (2010).

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