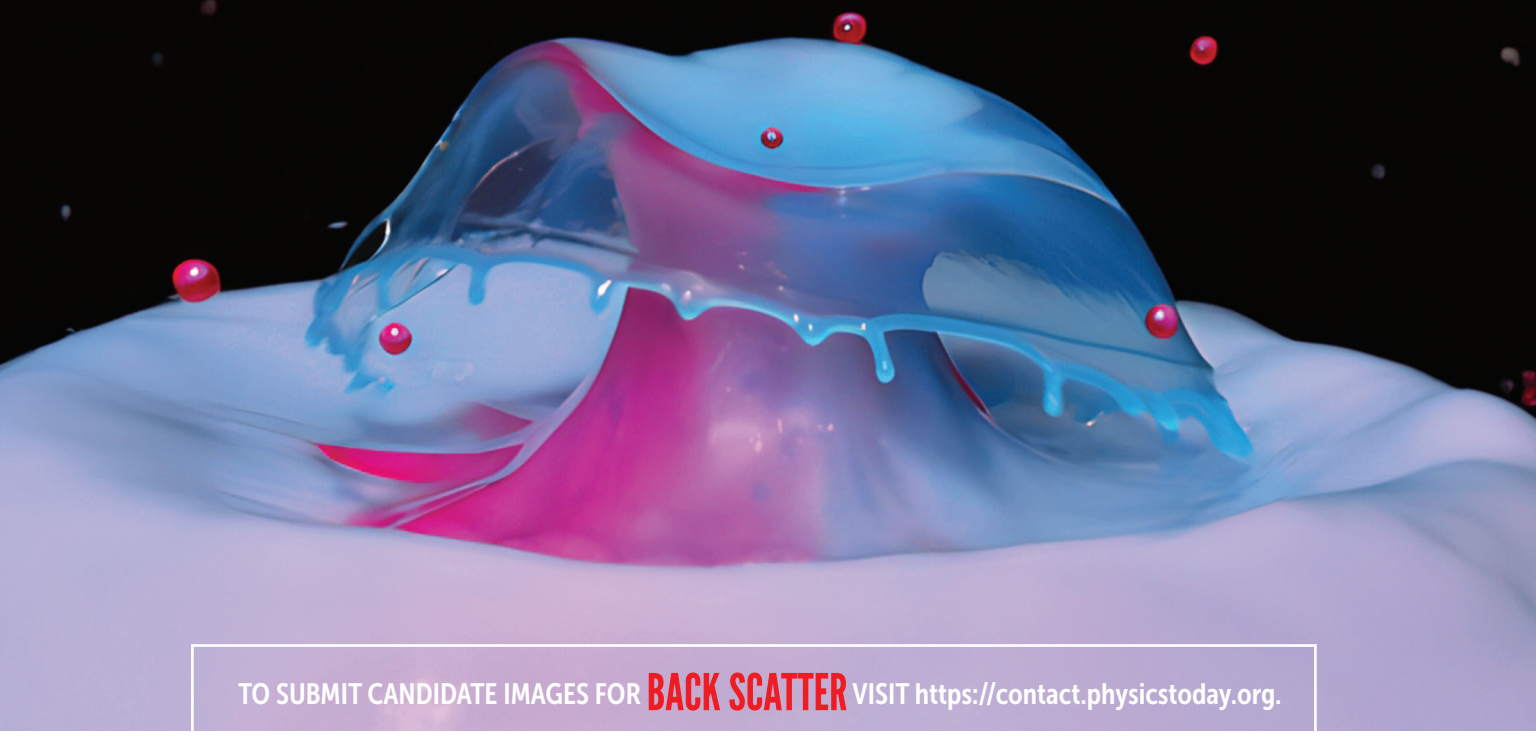
Making an educational splash

Roberto Zenit teaches a course that connects art and fluid mechanics. "The challenge is to convey fluid mechanical ideas without equations" to physics majors and nonmajors alike, says the Brown University engineering professor. As part of the course, Zenit asked students to photograph droplet splashes with an off-the-shelf digital camera. By using an external flash and a programmable microcontroller, the students can play with the camera's timer delay to capture the moment that the droplet splashes on the surface. Students also decide which fluids they photograph, the colors, and other details of the setup. This photo—of a pink-dyed ethanol droplet impacting a mixture of water, glycerin, milk, and food coloring—was taken by Lucian Sharpe, Sofia Gilroy, Kiara Vong, and Himanssh Pettie this semester. It was voted the best by the class because of its colorful artistry and the clarity of the splash.

In the class, Zenit focuses on teaching three concepts: viscosity, surface tension, and hydrodynamic instability. He also explains how the features of the splash form. The lab exercise gives students an opportunity to appreciate the beauty of fluid flow and to learn about fluids visually. Zenit's inspiration came from Harold Edgerton's famous 1936 photograph *Milk-Drop Coronet Splash*, for which he used a stroboscope with its many flashes of light per second to capture the splash of a falling milk droplet. Zenit says that "teaching this course has been inspiring, challenging, and fun." (Image submitted by Roberto Zenit.) —AL



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