

BACK SCATTER

Building with liquid blocks

Inkjet printers, microfluidic “labs on a chip,” and other liquid-based devices all need to move liquids to particular places. That requires confining the fluids in appropriate channels, typically defined by solid walls or textured surfaces that, once fabricated, can’t easily be modified to deliver liquids to new places. Xin Du, Zhongze Gu, and their colleagues at China’s Southeast University in Nanjing have now developed an alternative. The pillared substrate shown in the photo allows for the assembly of liquid channels out of individual droplets and quick reconfiguration of the paths into any desired arrangement.

The liquid building blocks were assembled in silicone oil. When a

10 μL water droplet was pipetted onto the nonreactive plastic substrate, the surrounding hydrophobic pillars, spaced 2 mm apart, trapped it. By adding more droplets where they wanted, the researchers made an aqueous fluid-transporting channel, demonstrated in the photo by the two dyed solutions, which mix in the middle channel. They easily reconfigured the path by removing droplets with a pipette and by cutting the channel with a fluorinated paper sheet. The researchers demonstrated other possibilities of their method too, including a multiphase liquid battery. (Y. Zeng et al., *Nat. Chem. Eng.* **1**, 149, 2024; photo courtesy of Xin Du.)

—AL

TO SUBMIT CANDIDATE IMAGES FOR **BACK SCATTER** VISIT <https://contact.physicstoday.org>.