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**Contact Line Pinning by Microfabricated Patterns** YEVGENIY KALININ, VIATCHESLAV BEREJNOV, ROBERT THORNE, Cornell University — Interactions of the liquid-solid contact line with micrometer-sized features on solid surfaces can provide a method for controlling contact line stability and shape. We have investigated how the size, shape and chemical properties of regular features affect the contact angle and its hysteresis. Microfabrication techniques are used to create 4-50 micrometer-size patterns on otherwise homogeneous flat surfaces, and the relative importance of geometric and chemical factors are determined. We discuss applications to protein crystallization, and in particular show that the volumes, shape stability and shape reproducibility of 10-100 microliter aqueous drops containing proteins and surfactants can be greatly increased. Surface patterning provides greater reproducibility in crystallization outcomes and greater flexibility in the design of crystallization experiments.

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