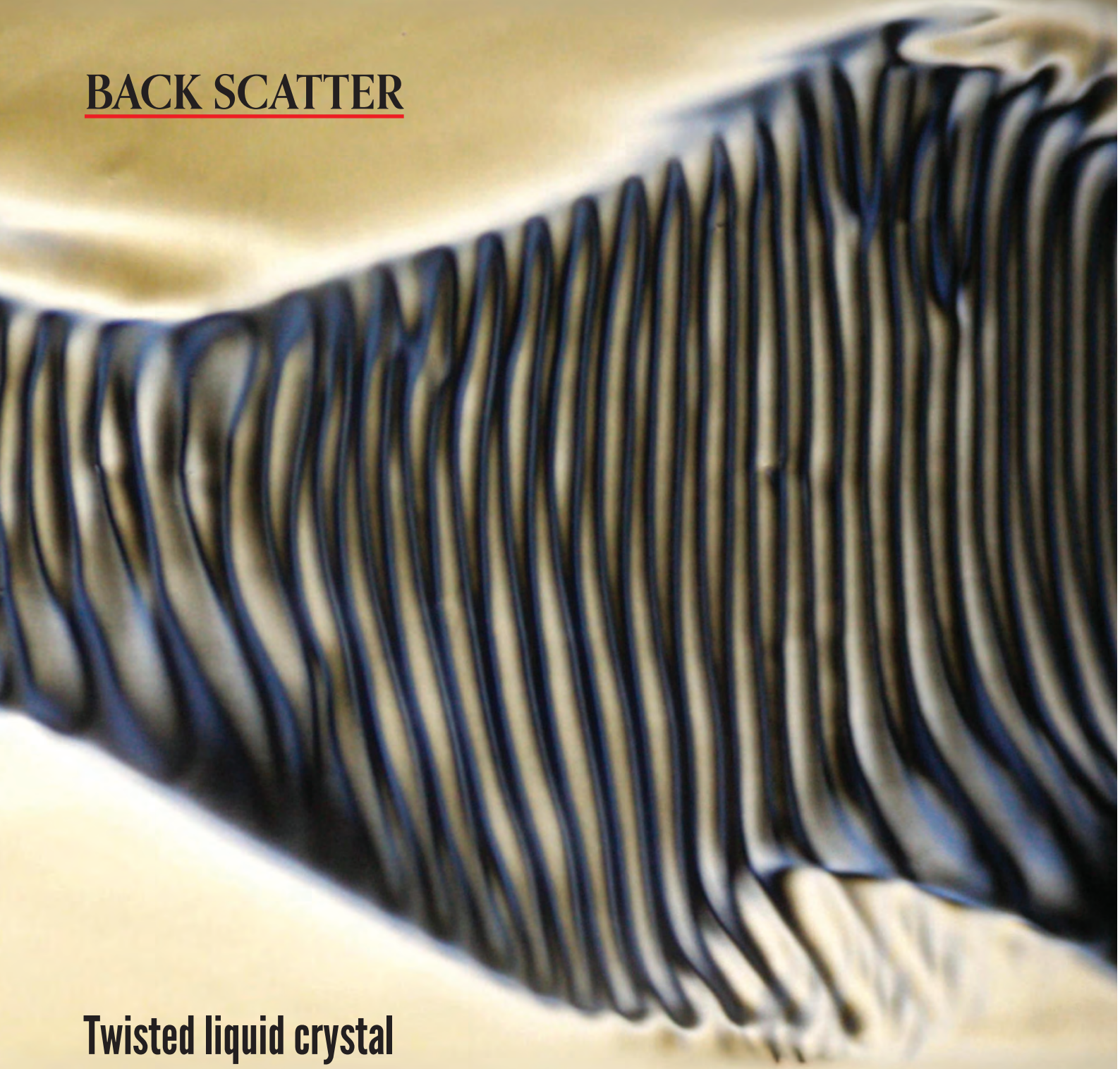

Twisted liquid crystal

Chiral structures—those that can't be superimposed on their mirror images—typically form from chiral molecules. Achiral building blocks can be assembled into a chiral whole, but it is challenging to engineer the requisite spontaneous symmetry breaking. Among the systems in which the phenomenon has been observed are rod-shaped liquid crystals: When confined in a small, curved space, some of the molecules, which usually orient themselves in parallel, will twist to minimize their free energy. To date, however, only liquid crystals in static environments have had their symmetry broken.

Qing Zhang, Weiqiang Wang, and their collaborators have now discovered a distinct, dynamic pathway to mirror-symmetry breaking. They drove a liquid crystal through a 40 mm microfluidic cell a few microns thick. At a low flow rate of 0.25 μL/min, the liquid crystal twisted itself into a chiral structure, which takes the form of the striped pattern shown here when viewed through crossed polarizers. The characteristic spacing between the stripes is determined by the two types of torque acting on the liquid crystal. The researchers found that by manipulating the flow velocity and cell thickness, they can tune the spacing, which could prove useful in creating macroscopic chiral structures. (Q. Zhang et al., *Nat. Commun.* **15**, 7, 2024; image submitted by Qing Zhang and Irmgard Bischofberger/MIT.) —AL