

The Softest Crystals

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Usually, crystals have three-dimensional periodicity. Smectic liquid crystals, however, have one-dimensional order, even in three-dimensional samples. These systems, as simple as they might seem, connect the physics of biomembranes, superconductivity, and even special relativity. I will provide an introduction for non-specialists and show how this diverse set of ideas comes together in these very, very soft systems.