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Structure of Concentrated Suspensions of Square Crosses CARLOS HERNANDEZ, THOMAS MASON, UCLA — We make dispersions of micron-sized regular square crosses by patterning a thin polymer film on a flat substrate using photolithography and lifting off the crosses into solution. Micron-sized dispersions of monodisperse crosses can be used to model the phase behavior of molecular liquid crystals, since thermal energy is still important, yet optical microscopy can be used to examine positional and orientational structure at the particle scale. When the volume fraction of the crosses is raised, they interact through excluded volume, and there is a potential for jamming into disordered configurations or creating phases that have varying degrees of translational and orientational order. We measure the structure of concentrated suspensions of square crosses confined to a monolayer (i.e. two dimensions), and we also report the structure of bulk suspensions as a function of volume fraction.

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