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Towards a 2D nonperiodic Solid XIAOCHAO XU, DAVID PINE, Department of Physics and Center for Soft Matter Research, New York University — We report on an experimental study of the two-dimensional phase behavior of colloidal dumbbells (dimers) trapped at a water-oil interface. The dimers are made out of 1.0 μm silica microspheres that are fused together at a point. The water-oil interface is very slightly concave so that the dimers are gently compressed by gravity towards the center of interface. The spheres form a stable dense state after a few days. The pair correlation function of single spheres exhibits order on a length scale of about 10 particle diameters. We report on the translational and orientational order of the dumbbells as a function of particle density.

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