We would be grateful if these talks could be scheduled together, with the experimental talk (this one) first, and the theory talk second. Thank you!

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Self-assembly of thin, triangular prisms into open networks at a flat air-water interface MICHAEL SOLOMON, JOSEPH FERRAR, DESHPREET BEDI, SHANGNAN ZHOU, XIAOMING MAO, Univ of Michigan - Ann Arbor — We observe capillary-driven binding between thin, equilateral triangle microprisms at a flat air-water interface. The triangles are fabricated from epoxy resin via SU-8 photolithography. For small thickness to length (T/L) ratios, two distinct pairwise particle-particle binding events occur with roughly equal frequency, and optical and environmental scanning electron microscopy (eSEM) demonstrate that these two distinct binding events are driven by the specific manner in which the interface is pinned to the particle surface. Additionally, particle bending is observed for the lowest T/L ratios, which leads to enhanced interface curvature and thus enhanced strength of capillary-driven attractions, and may also play a pivotal role in the dichotomy in particle-particle binding. Dichotomy in particle-particle binding is not observed at thicker T/L ratios, although capillary-driven binding still occurs. Ultimately, the particles self-assemble into space-spanning open networks, and the results suggest design parameters for the fabrication of building blocks of ordered open structures, such as the Kagome lattice.

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