Stripe Systems with Competing Interactions on Quasi-One Dimensional Periodic Substrates DANIELLE MCDERMOTT, Wabash College, CYNTHIA J. OLSON REICHHARDT, CHARLES REICHHARDT, Theoretical Division, Los Alamos National Laboratory — We numerically examine the two-dimensional ordering of a stripe forming system of particles with competing long-range repulsion and short-range attraction in the presence of a quasi-one-dimensional corrugated substrate. As a function of increasing substrate strength or the ratio of the number of particles to the number of substrate minima we show that a remarkable variety of distinct orderings can be realized, including modulated stripes, prolate clump phases, two dimensional ordered kink structures, crystalline void phases, and smectic phases. Additionally in some cases the stripes align perpendicular to the substrate troughs. Our results suggest that a new route to self assembly for systems with competing interactions can be achieved through the addition of a simple periodic modulated substrate.

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