

Abstract Submitted  
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**Equilibrium phase behavior and self-assembly dynamics of an SALR model of microphase formation**<sup>1</sup> PATRICK CHARBONNEAU, YUAN ZHUANG, Duke University — Colloidal models with short-range attraction and long-range repulsion (SALR) assemble into a rich set of equilibrium periodic microphases, including cluster crystal, cylindrical, double gyroid and lamellar phases. We present the phase diagram of such an SALR system obtained using specialized Monte Carlo-based methods. Remarkably, we find that even in the disordered regime, the model exhibits rich structural crossovers, which gives rise to a complex sequence of dynamical regimes. The dynamics notably depends on the formation and percolation of mesoscale cavities. We also consider the ease with which periodic microphases self-assemble, which we use to provide guidance for the design of colloidal experiments to reliably obtain such structures.

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